



City of Tacoma, WA

**PUBLIC WORKS, FACILITIES MANAGEMENT  
REQUEST FOR PROPOSAL  
FACILITIES CONDITION ASSESSMENT  
SPECIFICATION NO. PW24-0192F**



**City of Tacoma  
Public Works/Facilities  
Management**

**REQUEST FOR PROPOSALS PW24-0192F  
Facilities Condition Assessment**

**Submittal Deadline: 11:00 a.m., Pacific Time, Tuesday, October 22, 2024**

Submittals must be received by the City’s Procurement and Payables Division by 11:00 a.m. Pacific Time.

For electronic submittals, the City of Tacoma will designate the time of receipt recorded by our email server, as the official time of receipt. This clock will be used as the official time of receipt of all parts of electronic bid submittals. Include the specification number in the subject line of your email. Your submittal must be sent as an attachment, links to your electronic submittal will not be accepted.

For in person submittals, the City of Tacoma will designate the time of receipt recorded by the timestamp located at the lobby security desk, as the official time of receipt. Include the specification number on the outside of the sealed envelope. Late submittals will be returned unopened and rejected as non-responsive.

**Submittal Delivery:** Sealed submittals will be received as follows:

<p><b>By Email:</b>  <a href="mailto:sendbid@cityoftacoma.org">sendbid@cityoftacoma.org</a>  Maximum email size including attachments: 35 MB.  Multiple emails may be sent for each submittal.</p> <p><b>Note:</b> Email may pass through multiple servers before arriving at its destination. Please allow sufficient time for email delivery of submittals. Timely electronic delivery is at the risk of the supplier.</p>	<p><b>In Person:</b>  Tacoma Public Utilities Administration Building  North, Main Floor, Lobby Security Desk  3628 South 35<sup>th</sup> Street  Tacoma, WA 98409  Monday – Friday 8:00 am to 4:30 pm</p>
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**Bid Opening:** Submittals must be received by the City’s Procurement and Payables Division prior to 11:00 a.m. Pacific Time. Sealed submittals in response to a RFB will be opened Tuesday’s at 11:15 a.m. by a purchasing representative and read aloud during a public bid opening held at the Tacoma Public Utilities Administrative Building North, 3628 S. 35<sup>th</sup> Street, Tacoma, WA 98409, conference room M-1, located on the main floor. They will also be held virtually Tuesday’s at 11:15 a.m. Attend a Zoom meeting [via this link](#) or call 1 (253) 215 8782, using meeting ID # 884 0268 0573, passcode # 070737.

Submittals in response to an RFP, RFQ or RFI will be recorded as received, but not read at bid opening. As soon as possible, after 1:00 PM, on the day of submittal deadline, preliminary results will be posted to [www.TacomaPurchasing.org](http://www.TacomaPurchasing.org).

[If you believe your submittal was sent timely and was not read at bid opening, please contact sendbid@cityoftacoma.org immediately.](#)

**Solicitation Documents:** An electronic copy of the complete solicitation documents may be viewed and obtained by accessing the City of Tacoma Purchasing website at [www.TacomaPurchasing.org](http://www.TacomaPurchasing.org).

- [Register for the Bid Holders List](#) to receive notices of addenda, questions and answers and related updates.
- Click here to see a [list of vendors registered for this solicitation](#).

**Pre-Proposal Meeting:** A pre-proposal meeting will not be held.

**Project Scope:** The City of Tacoma is soliciting Request for Proposals (RFP) from highly qualified firms interested in providing services to conduct a Facility Condition Assessment (FCA) of approximately 76 City-owned buildings. The assessment will be utilized to support the prioritization and budgeting efforts to address facility deferred repair and replacements.

**Estimate:** \$750,000.

**Paid Sick Leave:** The City of Tacoma requires all employers to provide paid sick leave in accordance with State of Washington law.

**Americans with Disabilities Act (ADA Information):** The City of Tacoma, in accordance with Section 504 of the Rehabilitation Act (Section 504) and the Americans with Disabilities Act (ADA), commits to nondiscrimination on the basis of disability, in all of its programs and activities. Specification materials can be made available in an alternate format by emailing the contact listed below in the *Additional Information* section.

**Title VI Information:**

“The City of Tacoma” in accordance with provisions of Title VI of the Civil Rights Act of 1964, (78 Stat. 252, 42 U.S.C. sections 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin in consideration of award.

**Additional Information:** Requests for information regarding the specifications may be obtained by contacting Carly Fowler by email to [cfowler@cityoftacoma.org](mailto:cfowler@cityoftacoma.org)

**Protest Policy:** City of Tacoma [protest policy](#), located at [www.tacomapurchasing.org](http://www.tacomapurchasing.org), specifies procedures for protests submitted prior to and after submittal deadline.

 Meeting sites are accessible to persons with disabilities. Reasonable accommodations for persons with disabilities can be arranged with 48 hours advance notice by calling 253-502-8468.

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APPENDIX A – SIGNATURE PAGE

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APPENDIX C – SAMPLE CONTRACT

APPENDIX D – FACILITY LIST


APPENDIX E - FACILITY CONDITION ASSESSMENTS



## SUBMITTAL CHECK LIST

This checklist identifies items to be included with your submittal. Any submittal received without these required items may be deemed non-responsive and not be considered for award.

Submittals must be received by the City of Tacoma Purchasing Division by the date and time specified in the Request for Proposal page.

<b>The following items make up your submittal package:</b>	
<b>Signature Page (Appendix A)</b> To be filled in and executed by a duly authorized officer or representative of the bidding entity. If the bidder is a subsidiary or doing business on behalf of another entity, so state, and provide the firm name under which business is hereby transacted.	
<b>Content to be Submitted (Section 10)</b>	
<b>After award, the following documents will be executed:</b>	
<b>Certificate of Insurance and related endorsements (Appendix B)</b> Shall be submitted with all required endorsements	
<b>City of Tacoma Contract (See sample in Appendix C)</b> Must be executed by the successful bidder.	

## 1. BACKGROUND

The Public Works Department, Facilities Management Division is soliciting Request for Proposals (RFP) from highly qualified firms to conduct a Facilities Condition Assessment (FCA) of City-owned buildings. The assessment will be utilized to support the prioritization and budgeting efforts to address facility deferred repair and replacements.

There are approximately 76 facilities located throughout the City that will be assessed. Facilities are an array of different functions, construction types, constructed in various years and are each in different stage of condition. Facility groups include, but are not limited to, Public Works Facilities Management (Tacoma Fire, Tacoma Police, Municipal Services, Public Works, Community Services, Metro Parks Maintained), Public Works Parking System, Tacoma Venues & Events and Tacoma Public Libraries. A list of the facilities located in Appendix D.

The City anticipates awarding one contract. The contract amount will be negotiated based upon the final scope of work but is anticipated to be in the order of \$750,000.

To learn more about the City of Tacoma, visit [www.cityoftacoma.org](http://www.cityoftacoma.org).

Submittals submitted and/or the selected Consultant(s) may be used for projects of similar type and scope at the sole discretion of the City for up to one year.

## 2. MINIMUM REQUIREMENTS

Proposers will have successfully completed a minimum of five (5) assessments of similar size and scope within the last 10 years.

## 3. SCOPE OF SERVICES AND DELIVERABLES

It is the City's intent to select a consultant based on qualifications, proposal and abilities of the firm and key project individuals.

The assessment services will document apparent (i.e., non-invasive, non-destructive) conditions at each facility. Assessment services are intended to be visual inspection from accessible areas, specialized equipment rental is not required. Building systems and elements to be assessed include, but not limited to:

- |                                                  |                                                       |
|--------------------------------------------------|-------------------------------------------------------|
| <input type="checkbox"/> Substructure            | <input type="checkbox"/> Plumbing                     |
| <input type="checkbox"/> Exterior Enclosure      | <input type="checkbox"/> HVAC                         |
| <input type="checkbox"/> Roofing                 | <input type="checkbox"/> Fire Protection              |
| <input type="checkbox"/> Interior Construction   | <input type="checkbox"/> Electrical                   |
| <input type="checkbox"/> Staircases              | <input type="checkbox"/> Site Improvements            |
| <input type="checkbox"/> Interior Finishes       | <input type="checkbox"/> Civil & Mechanical Utilities |
| <input type="checkbox"/> Vertical Transportation | <input type="checkbox"/> Parking Lots                 |

The assessment should include documentation apparent (visual) Site Improvements including, but not limited to: parking lots, pedestrian paving (including adjacent sidewalks), landscaping and enclosures. Geolocation is not required.

The assessment should include documentation apparent (visual) Civil and Mechanical Utilities including, but not limited to: water supply, sanitary sewer, storm sewer, gas service, electrical service, telecommunications, site lighting, HVAC equipment and generators. Thermographic or other equipment testing is not required.

### **3.1 Assessment Management:**

This task includes all work related to the management, administration and coordination of activities for this contract.

- A. Prepare a detailed schedule of Project activities, to be updated monthly.
- B. Perform contract administration duties including: weekly status reporting, monthly invoicing, and document filing.
- C. Coordination and management of assessment team and coordination of on-site activities with City representative.
- D. Facilitate meetings with the City to provide progress reports; The frequency of the progress report meetings will depend on the schedule and progression of the assessment. It is anticipated that progress meetings be held every two weeks and can be virtual.
- E. Support City with presenting assessment findings.

### **3.2 Assessment Preparation:**

This task relates to work necessary to prepare for the on-site surveys, including:

- A. Coordination with the City for the collection of pertinent existing facility information.
- B. Conduct meetings with maintenance staff to gather facility data and anecdotal information. Meetings are anticipated to be conducted with Public Works Facilities Management, Public Works Parking System, Tacoma Public Libraries and Tacoma Venues and Events.
- C. Review of budgeted improvement projects anticipated to be completed in the next two years.
- D. Review facility information and data provided by the City (e.g., prior assessments, drawings and reports). Original or renovation drawings for each facility will be supplied to the Consultant if they are available. If the drawings are not available, the condition assessment will be based solely on the field visit. No as-built drawings of the existing structures will be required to be created.

### **3.3 Facility Analysis:**

This task relates to all activities necessary to collecting facility condition information for the facilities, including:

- A. Conduct on-site field surveys of building systems and elements at each facility.
- B. Document apparent facility conditions including:
  - 1) Describe nature of the facilities and systems/elements to be assessed, utilizing UNIFORMAT II, Level 3 – Individual Elements for Building Elements and Building-Related Sitework
  - 2) Determining relative facility condition scores for systems /elements.

- 3) Identify priority observed deficiencies (i.e., greater than \$5,000, direct cost) that are that are likely to be required for immediate repair in a five (5) year period; and anticipated deficiencies that are likely to be required in five to ten (5-10) year period.
- 4) Document observed deficiencies with narrative and photographs.
- 5) Document potential opportunities for upgrades to existing systems/elements that could enhance facility performance.
- 6) Determine useful remaining life of systems/elements.
- 7) Provide budgetary level cost estimates to repair or replace deficiencies.
- 8) Calculate current replacement values and calculate a Facility Condition Index (FCI) for each facility.

### **3.4 Final Facility Condition Assessment Reports:**

This task includes activities necessary to produce final deliverables, including:

- A. Provide quality assurance / quality control review of all information documentation and estimates.
- B. Prepare and conduct a briefing to the City Advisory Team providing an overview of initial findings and recommendations.
- C. Reports will include a summary for each facility group and an overall summary of findings that includes all facilities.
- D. Provide draft assessment reports to the City for review. It is anticipated that the reports will be developed for each facility group as summarized below (see APPENDIX D for detailed facility list), including the following:
  - 1) Public Works, Facilities Management
  - 2) Public Works, Parking System
  - 3) Tacoma Venues & Events
  - 4) Tacoma Public Libraries
- E. Review comments as needed with City, update assessment reports and issue final Facility Condition Assessments.
- F. Provide Facility Condition Assessment information in a digital (nonproprietary) format that can be utilized by the City to track and document the status and costs of observed deficiencies. The intent is for the City to receive digital FCA information to be able to extract and track data, this could be through spreadsheet such as MS Excel.

## **4. CONTRACT TERM**

The City of Tacoma anticipates the contract duration to be approximately 8 months. The contract duration will be based on the successful respondents anticipated schedule to complete the final scope of work. The City reserves the right to cancel the contract for any reason, by written notice, as stipulated in the contract.

## 5. CALENDAR OF EVENTS

The anticipated schedule of events concerning this RFP is as follows. This is a tentative schedule only and may be altered at the sole discretion of the City.

Publish and issue RFP:	<b>09/24/2024</b>
Pre-Submittal Questions Due:	<b>10/08/2024</b>
Response to Questions:	<b>10/11/2024</b>
Submittal Due Date:	<b>10/22/2024</b>
Submittal Evaluated:	<b>11/05/2024</b>
Interviews/presentations, on or about:	<b>11/18/2024</b>
Award Recommendation:	<b>12/09/2024</b>
Executed Contract and Notice to Proceed:	<b>January 2025</b>

## 6. INQUIRIES

6.1 Questions should be submitted to Carly Fowler via email to [cfowler@cityoftacoma.org](mailto:cfowler@cityoftacoma.org). Subject line to read:

PW24-0192F – Facilities Condition Assessment – *VENDOR NAME*

6.1 Questions are due by 3 pm on the date included in the *Calendar of Events* section.

6.2 Questions marked confidential will not be answered or included.

6.3 The City reserves the discretion to group similar questions to provide a single answer or not to respond when the requested information is confidential.

6.4 The answers are not typically considered an addendum.

6.5 The City will not be responsible for unsuccessful submittal of questions.

6.6 Written answers to questions will be posted alongside the specifications at [www.tacomapurchasing.org](http://www.tacomapurchasing.org)

## 7. PRE-PROPOSAL MEETING

7.1 No pre-proposal meeting will be held; however, questions and request for clarifications of the specifications may be submitted as stated in Section 6.

## 8. DISCLAIMER

The City is not liable for any costs incurred by the Respondent for the preparation of materials or a submittal submitted in response to this RFP, for conducting any presentations to the City, or any other activities related to responding to this RFP, or to any subsequent requirements of the contract negotiation process.

Request for Proposal  
Template Revised: 4/13/2023

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## 9. EVALUATION CRITERIA

A Selection Advisory Committee (SAC) will review and evaluate submittals. The City Selection Advisory Committee will consist of project and operations managers from various City Departments. After the evaluation, the SAC may conduct interviews of the most qualified Respondents before final selection.

- 9.1 The SAC may select one or more respondent to provide the services required.
- 9.2 The SAC may use references to clarify information in the submittals and interviews, if conducted, which may affect the rating. The City reserves the right to contact references other than those included in the submittal.
- 9.3 A significant deficiency in any one criteria is grounds for rejection of the submittal as a whole.

## 10. CONTENT TO BE SUBMITTED – This section represents 100% of the possible scoring criteria.

Proposals should be formatted as 8 ½" x 11". A "page" is defined as one single-side of a document that has written text or graphics. The font should be Times New Roman or Arial with font size no smaller than 11 and the margins shall be 0.75" or greater. Submittals should be limited to a maximum of 10 pages, double-sided, or 20 pages total, excluding any required forms or resumes, cover pages & table of contents.

A full and complete response to each of the "CONTENT TO BE SUBMITTED" items is expected in a single location; do not cross reference to another section in your submittal.

Information that is confidential must be clearly marked and provide an index identifying the affected page number(s) and location(s) of such identified materials. See Section 1 of the Standard Terms and Conditions – Solicitation 1.06 for Public Disclosure : Proprietary or Confidential Information.

Respondents are to provide complete and detailed responses to all items below. Submittals that are incomplete or conditioned in any way that contain alternatives or items not called for in this RFP, or not in conformity with law, may be rejected as being non-responsive. The City will not accept any submittal containing a substantial deviation from the requirements outlined in this RFP.

Submittals should present information in a straightforward and concise manner, while ensuring complete and detailed descriptions of the respondent's/team's abilities to meet the requirement of this RFP. Emphasis will be on completeness of content. The written submittals should be prepared in the sequential order as outlined below.

The City reserves the right to request clarification of any aspect of a firm's submittal, or request additional information that might be required to properly evaluate the submittal. A firm's failure to

respond to such a request may result in rejection of the firm’s submittal. Firms are required to provide responses to any request clarification within two (2) business days.

Requests for clarification or additional information shall be made at the sole discretion of the City. The City’s retention of this right shall no way diminish a Proposer’s responsibility to submit a submittal that is current, clear, complete and accurate.

The relative weight of each scoring criteria is indicated in the table below.

<b>Criteria</b>	<b>Max Points</b>
Qualifications/Experience of Firm	<b>15</b>
Example of Prior Assessment	<b>10</b>
Proposed Process, Team Availability and Anticipated Schedule	<b>10</b>
Client References	<b>10</b>
Fees and Charges / Method of Billing / Hourly Rates	<b>25</b>
Qualifications / Experience of Key Personnel	<b>15</b>
Sustainability	<b>5</b>
Equity in Contracting	<b>10</b>
Contract Exceptions	<b>0</b>
<b>Total</b>	<b>100</b>

**10.1 Qualifications/Experience of Firm – 15 points**

Please provide information on the firm’s structure, qualifications and experience including:

- Names of lead persons with titles and general project responsibilities.
- Names of all sub-consultant personnel and general responsibilities.
- Corporate organizational structure showing the relationship to parent and/or subsidiary companies. If the Proposer is a subsidiary of a parent company, state when the subsidiary was formed and its place in the corporate structure of the parent company. Summary of the background and experience of the firm relative to the project under consideration.
  - Include lists of assessment of similar scope and size (minimum five, completed within the last 10 years), on which the firm has had a major role together with the location, cost, and basic description of the project, start and completion dates, the names of the client, description of the firm’s responsibility on the project, and the specific roles of the individuals proposed for this project.
  - Describe experience working with municipal or other public agencies.
  - Describe experience in working with occupied facilities.
  - Provide a description of any special projects, awards, or other items that make the firm especially qualified for this.

## **10.2 Example of Prior Assessment – 10 points**

- Provide relevant excerpts from a recent assessment that demonstrate the detail and complexity of the final product. Excerpts can be in a separate section and will be excluded from the recommended maximum number of pages for the submittal. Sensitive client information may be redacted from the sample.
- Describe the proposed format that will be utilized to provide the final Facility Condition Assessment information in a digital (nonproprietary) format that can be utilized by the City to track and document the status and costs of observed deficiencies.

## **10.3 Proposed Process, Team Availability and Anticipated Schedule – 10 points**

- Describe the firm's process and/or approach, which outline tasks required to accomplish the proposed scope of work.
- Provide a conceptual project schedule for completing the consultant services.
- Provide the level of effort and availability of the firm's project manager and lead project personnel for this project.
- Confirm the availability of the firm and sufficient resources to perform the consulting services given the firm's current and projected workload.
- Describe the firm's process for Quality Assurance/Quality Control (QA/QC).
- Describe the level of effort that is anticipated to be required by City staff.

## **10.4 Client References – 10 points**

References shall be used to verify the accuracy of the information provided by the Proposer, which may affect the rating of the Proposer. The City reserves the right to contact references other than those submitted by the Proposer. Please provide the following:

- Firm References:
  - Provide five (5) recent references who may be contacted concerning your firm's performance about the qualifications listed. In listing the references, include the name of the client, contact person, contact information and specific work your firm provided for the client.
- Project Manager References:
  - Provide three (3) recent references who may be contacted concerning the performance of your firm's proposed project manager. In listing the references, include the name of the client, contact person, contact information and specific work provided for the client.



### 10.5 Fees and Charges / Method of Billing / Hourly Rates – 25 points

Provide the method of billing and hourly rates.

- Provide a proposal to assess all facilities identified in Appendix D. Proposal shall provide a breakdown of the estimated fees and charges for services by the following categories:
  - Public Works, Facilities Management
  - Public Works, Parking Services
  - Tacoma Venues and Events
  - Tacoma Public Library
  - Total Estimated Fees and Charges
- Provide current hourly billing rates for team members that are anticipated to be utilized during the assessment services.
- Provide the mark-up to be utilized for any sub-consultant's or contractors.
- Provide the mark-up to be utilized for any reimbursable expenses.
- Provide the anticipated costs of other potential fees not identified above.

### 10.6 Qualifications / Experience of Key Personnel – 15 points

Please provide the following information on the proposed project personnel and experience, which qualify them to perform the work for the contract.

- Qualifications of Project Manager
  - Identify the project manager who will have overall responsibility for the contract.
  - Include professional biographical data and/or resume outlining specific project capabilities.
- Qualifications of the Firm's Personnel and Sub-Consultants
  - List the lead personnel, with titles, who will be primarily responsible for and involved with daily work activities.
  - Identify the responsibilities and activities of each lead person.
  - Include professional biographical data and/or resume outlining specific project capabilities.

### 10.7 Sustainability – 5 points

Provide information on your company's commitment to the environment. Include your sustainability statement and current practices. For more information, see our [Respondents Guide](#).

A. Does the Respondent have an organizational sustainability plan and/or policy?

Yes  No

Provide additional information if checked "Yes," including whether it is made publicly available (provide link) and how it is communicated to employees.

- B. Does the Respondent have:
- Greenhouse gas emission reduction targets? [ ] Yes [ ] No
  - Energy and water conservation targets? [ ] Yes [ ] No
  - Waste reduction targets? [ ] Yes [ ] No
  - Toxics use reduction targets? [ ] Yes [ ] No
  - Pollution reduction targets? [ ] Yes [ ] No
  - Measure progress regularly and publicly? [ ] Yes [ ] No

- C. How will the Respondent, through service delivery and/or their own operations during the contract period:
- Minimize greenhouse gas emissions?
  - Minimize polluted stormwater runoff in Tacoma?
  - Minimize waste generation?
  - Minimize toxic use and/or generation?
  - Minimize air pollution in Tacoma?
  - Minimize resource extraction?

D. Demonstrate industry leadership across these areas? Is the Respondent an EnviroStars recognized business? Provide any relevant certifications and/or verified results.

**10.8 Equity in Contracting – 10 points**

Is your firm, or the firm you are partnering with, certified with Washington State for any of the below categories. Confirmation of any of the below certifications will result in all points for this category.

- Combination Business Enterprise (CBE)
- Disadvantaged Business Enterprise (DBE)
- Minority Business Enterprise (MBE)
- Minority/Women Business Enterprise (MWBE)
- Small Business Enterprise (SBE)
- Socially and Economically Disadvantaged Business Enterprise (SEDBE)
- Women Business Enterprise (WBE)

**10.9 Contract Exceptions – 0 points**

Do you take exceptions to any of the City of Tacoma's Standard Terms and Conditions?

## **11. INTERVIEWS / ORAL PRESENTATIONS**

An invitation to interview may be extended to Respondents based on SAC review of the written submittals. The SAC reserves the right to adjust scoring based on additional information and/or clarifications provided during interviews. The SAC may determine additional scoring criteria for the interviews following evaluation of written submittals.

The City reserves all rights to begin contract negotiations without conducting interviews.

Respondents must be available to interview within three business days' notice.

If interviews are conducted, the SAC will schedule the interviews with the contact person provided in the SOQs. Additional interview information will be provided at the time of invitation. At this time, it is anticipated that the main objective of the interview will be for the SAC to meet the project manager and key personnel that will have direct involvement with the project and hear about their relevant experience and expertise. The City does not intend to meet with firm officials unless they are to be directly involved with the project.

Following interviews, submittals will be rescored using the same criteria as in Section 10.

## **12. RESPONSIVENESS**

Respondents agree their submittal is valid until a contract(s) has been executed.

All submittals will be reviewed by the City to determine compliance with the requirements and instructions specified in this RFP. The Respondent is specifically notified that failure to comply with any part of this RFP may result in rejection of the submittal as non-responsive. The City reserves the right, in its sole discretion, to waive irregularities deemed immaterial.

The final selection, if any, will be that submittal which, after review of submissions and potential interviews, in the sole judgement of the City, best meets the requirements set forth in this RFP.

## **13. ACCEPTANCE / REJECTION OF SUBMITTALS**

Respondents are advised that the City reserves the right to cancel award of this Contract at any time before execution of the Contract by both parties if cancellation is deemed to be in the City's best interest. In submitting a Submittal, Respondents agree that the City is not liable for any costs or damages for the cancellation of an award.

The City reserves the right and holds at its discretion the following rights and options:

- To waive any or all informalities
- To award one or more contracts
- To not award a contract
- To issue subsequent solicitation

#### **14. ACCEPTANCE OF SUBMITTAL CONTENTS**

The Submittal contents of the successful Respondent will become contractual obligations if a contract ensues.

#### **15. CONTRACT OBLIGATION**

The selected Respondent(s) will be expected to execute a contract with the City. As part of the negotiation process, Respondents may propose amendments to the contract, but the City, at its sole option, will decide whether to open discussion on each proposed amendment and determine the final contract to be used. At a minimum, any contract will incorporate the terms and conditions contained herein.

#### **16. STANDARD TERMS AND CONDITIONS**

City of Tacoma [Standard Terms and Conditions](#) apply.

#### **17. INSURANCE REQUIREMENTS**

Successful proposer will provide proof of and maintain the insurance coverage in the amounts and in the manner specified in the City of Tacoma Insurance Requirements contained in this solicitation. Please see Appendix B.

#### **18. PAID LEAVE**

Effective February 1, 2016, the City of Tacoma requires all employers to provide Paid Leave and Minimum Wage, as set forth in Title 18 of the Tacoma Municipal Code. For more information visit <http://www.cityoftacoma.org/employmentstandards>.

#### **19. PARTNERSHIPS**

The City will allow firms to partner in order to respond to this RFP. Respondents may team under a Prime Respondent's submittal in order to provide responses to all sections in a single submission; however, each Respondent's participation must be clearly delineated by section. The Prime Respondent will be considered the responding vendor and the responsible party at contract award. All contract negotiations will be conducted only with the Prime Respondent. All contract payments will be made only to the Prime Respondent. Any agreements between the Prime Respondent and other companies will not be a part of the agreement between the City and the Prime Respondent. The City reserves the right to select more than one Prime Respondent.

## **20. COMMITMENT OF FIRM KEY PERSONNEL**

The Respondent agrees that key personnel identified in its submittal or during contract negotiations as committed to this project will, in fact, be the key personnel to perform during the life of this contract. Should key personnel become unavailable for any reason, the selected Respondent shall provide suitable replacement personnel, subject to the approval of the City. Substantial organizational or personnel changes within the agency are expected to be communicated immediately. Failure to do so could result in cancellation of the Contract.

## **21. AWARD**

After the Respondent(s) is selected by the SAC and prior to award, all other Respondents will be notified via email by the Purchasing Division.

Once a finalist (or finalists) has been selected by the Selection Advisory Committee, contract negotiations with that finalist will begin, and if a contract is successfully negotiated, it will, if required, be submitted for final approval by the Public Utility Board and/or City Council.

## **22. ENVIRONMENTALLY PREFERABLE PROCUREMENT**

In accordance with the [City's Sustainable Procurement Policy](#) and [Climate Action Plan](#), it is the policy of the City of Tacoma to encourage the use of products or services that help to minimize the environmental and human health impacts of City Operations. Respondents are encouraged to incorporate environmentally preferable products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, products, manufacturing, packaging, distribution reuse, operation, maintenance or disposal of the product or service.

The City of Tacoma encourages the use of sustainability practices and desires any awarded contractor(s) to assist in efforts to address such factors when feasible for:

- Durability, reusability, or refillable;
- Pollutant releases, especially persistent bio accumulative toxins (PBTs), low volatile organic compounds (VOCs), and air quality and stormwater impacts;
- Toxicity of products used;
- Greenhouse gas emissions, including transportation of products and services, and embodied carbon
- Recycled content;
- Energy and water resource efficiency;

### **23. PROPRIETARY OR CONFIDENTIAL INFORMATION**

The Washington State Public Disclosure Act ([RCW 42.56 et seq.](#)) requires public agencies in Washington make public records available for inspection and copying unless they fall within the specified exemptions contained in the Act, or are otherwise privileged. Documents submitted under this RFP shall be considered public records and, with limited exceptions, will be made available for inspection and copying by the public.

Information that is confidential or proprietary must be clearly marked. Further, an index must be provided indicating the affected page number(s) and location(s) of all such identified material. Information not included in said index will not be reviewed for confidentiality or as proprietary before release.

### **24. ADDENDUMS**

In the event it becomes necessary to revise any part of this RFP, an addendum will be posted alongside specifications at [www.tacomapurchasing.org](http://www.tacomapurchasing.org). Failure to acknowledge addendum(s) on the required Signature Page may result in a submittal being deemed non-responsive by the City.

### **25. LEAP REQUIREMENTS**

This project has no LEAP requirements.

This project has no LEAP requirements, however, the City of Tacoma is committed to equality in employment for WA-State approved Apprentices, City of Tacoma residents, residents of local economically distressed areas, youth, veterans, minorities, and women. Please contact the [LEAP Office](#) for assistance in locating qualified employees. Visit the [LEAP website](#) for more information.

### **26. EQUITY IN CONTRACTING**

This project has no EIC requirements, however, the City of Tacoma is committed to encouraging firms certified through the [Washington State Office of Minority and Women's Business Enterprise](#) to participate in City contracting opportunities. See **TMC 1.07 Equity in Contracting Policy** at the City's [Equity in Contracting Program website](#).

**APPENDIX A**

Signature Page

**SIGNATURE PAGE**

**CITY OF TACOMA  
PUBLIC WORKS / FACILITIES MANAGEMENT**

All submittals must be in ink or typewritten, executed by a duly authorized officer or representative of the bidding/proposing entity, and received and time stamped as directed in the **Request for Proposals page near the beginning of the specification**. If the bidder/proposer is a subsidiary or doing business on behalf of another entity, so state, and provide the firm name under which business is hereby transacted.

**REQUEST FOR PROPOSALS SPECIFICATION NO. PW24-0192F  
Facilities Condition Assessment**

The undersigned bidder/proposer hereby agrees to execute the proposed contract and furnish all materials, labor, tools, equipment and all other facilities and services in accordance with these specifications.

The bidder/proposer agrees, by submitting a bid/proposal under these specifications, that in the event any litigation should arise concerning the submission of bids/proposals or the award of contract under this specification, Request for Bids, Request for Proposals or Request for Qualifications, the venue of such action or litigation shall be in the Superior Court of the State of Washington, in and for the County of Pierce.

**Non-Collusion Declaration**

*The undersigned bidder/proposer hereby certifies under penalty of perjury that this bid/proposal is genuine and not a sham or collusive bid/proposal, or made in the interests or on behalf of any person or entity not herein named; and that said bidder/proposer has not directly or indirectly induced or solicited any contractor or supplier on the above work to put in a sham bid/proposal or any person or entity to refrain from submitting a bid/proposal; and that said bidder/proposer has not, in any manner, sought by collusion to secure to itself an advantage over any other contractor(s) or person(s).*

\_\_\_\_\_  
Bidder/Proposer's Registered Name

\_\_\_\_\_  
Signature of Person Authorized to Enter      Date  
into Contracts for Bidder/Proposer

\_\_\_\_\_  
Address

\_\_\_\_\_  
Printed Name and Title

\_\_\_\_\_  
City, State, Zip

\_\_\_\_\_  
(Area Code) Telephone Number / Fax Number

\_\_\_\_\_  
Authorized Signatory E-Mail Address

\_\_\_\_\_  
State Business License Number  
in WA, also known as UBI (Unified Business Identifier) Number

\_\_\_\_\_  
E.I.No. / Federal Social Security Number Used on Quarterly  
Federal Tax Return, U.S. Treasury Dept. Form 941

\_\_\_\_\_  
State Contractor's License Number  
(See Ch. 18.27, R.C.W.)

\_\_\_\_\_  
E-Mail Address for Communications

Addendum acknowledgement #1 \_\_\_\_\_ #2 \_\_\_\_\_ #3 \_\_\_\_\_ #4 \_\_\_\_\_ #5 \_\_\_\_\_

***THIS PAGE MUST BE SIGNED AND RETURNED WITH SUBMITTAL.***



**APPENDIX B**

City of Tacoma Insurance Requirements



# CITY OF TACOMA INSURANCE REQUIREMENTS FOR CONTRACTS

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This Insurance Requirements shall serve as an attachment and/or exhibit form to the Contract. The Agency entering a Contract with City of Tacoma, whether designated as a Supplier, Contractor, Vendor, Proposer, Bidder, Respondent, Seller, Merchant, Service Provider, or otherwise referred to as "Contractor".

## 1. GENERAL REQUIREMENTS

The following General Requirements apply to Contractor and to Subcontractor(s) performing services and/or activities pursuant to the terms of this Contract. Contractor acknowledges and agrees to the following insurance requirements:

- 1.1. Contractor shall not begin work under the Contract until the required insurance has been obtained and approved by the City of Tacoma.
- 1.2. Contractor shall keep in force during the entire term of the Contract, at no expense to the City of Tacoma, the insurance coverage and limits of liability listed below and for Thirty (30) calendar days after completion of all work required by the Contract, unless otherwise provided herein.
- 1.3. Liability insurance policies, except for Professional Liability and Workers' Compensation, shall:
  - 1.3.1. Name the City of Tacoma and its officers, elected officials, employees, and agents as **additional insured**
  - 1.3.2. Be considered primary and non-contributory for all claims with any insurance or self-insurance or limits of liability maintained by the City of Tacoma
  - 1.3.3. Contain a "Waiver of Subrogation" clause in favor of City of Tacoma
  - 1.3.4. Include a "Separation of Insureds" clause that applies coverage separately to each insured and additional insured
  - 1.3.5. Name the "City of Tacoma" on certificates of insurance and endorsements and not a specific person or department
  - 1.3.6. Be for both ongoing and completed operations using Insurance Services Office (ISO) form CG 20 10 04 13 and CG 20 37 04 13 or the equivalent
  - 1.3.7. Be satisfied by a single primary limit or by a combination of a primary policy and a separate excess umbrella
- 1.4. A notation of coverage enhancements on the Certificate of Insurance shall not satisfy these requirements below. Verification of coverage shall include:
  - 1.4.1. An ACORD certificate or equivalent
  - 1.4.2. Copies of requested endorsements
- 1.5. Contractor shall provide to City of Tacoma Procurement & Payable Division, prior to the execution of the Contract, Certificate(s) of Insurance and endorsements from the insurer certifying the coverage of all insurance required herein. Contract or Permit number and the City of Tacoma Department must be shown on the Certificate of Insurance.
- 1.6. A renewal Certificate of Insurance shall be provided electronically prior to coverage expiration via email sent annually to [coi@cityoftacoma.org](mailto:coi@cityoftacoma.org).
- 1.7. Contractor shall send a notice of cancellation or non-renewal of this required insurance within Thirty (30) calendar days to [coi@cityoftacoma.org](mailto:coi@cityoftacoma.org).



# CITY OF TACOMA INSURANCE REQUIREMENTS FOR CONTRACTS

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expiration via email sent annually to [coi@cityoftacoma.org](mailto:coi@cityoftacoma.org).

- 1.8. "Claims-Made" coverages, except for pollution coverage, shall be maintained for a minimum of three years following the expiration or earlier termination of the Contract. Pollution coverage shall be maintained for six years following the expiration of the Contract. The retroactive date shall be prior to or coincident with the effective date of the Contract.
- 1.9. Each insurance policy must be written by companies licensed or authorized (or issued as surplus line by Washington surplus line broker) in the State of Washington pursuant to RCW 48 with an (A-VII) or higher in the A.M. Best key rating guide.
- 1.10. Contractor shall not allow any insurance to be cancelled, voided, suspended, or reduced in coverage/limits, or lapse during any term of this Contract. Otherwise, it shall constitute a material breach of the Contract.
- 1.11. Contractor shall be responsible for the payment of all premiums, deductibles and self-insured retentions, and shall indemnify and hold the City of Tacoma harmless to the extent such a deductible or self-insured retained limit may apply to the City of Tacoma as an additional insured. Any deductible or self-insured retained limits in excess of Twenty Five Thousand Dollars (\$25,000) must be disclosed and approved by City of Tacoma Risk Manager and shown on the Certificate of Insurance.
- 1.12. City of Tacoma reserves the right to review insurance requirements during any term of the Contract and to require that Contractor make reasonable adjustments when the scope of services changes.
- 1.13. All costs for insurance are included in the initial Contract and no additional payment will be made by City of Tacoma to Contractor.
- 1.14. Insurance coverages specified in this Contract are not intended and will not be interpreted to limit the responsibility or liability of Contractor or Subcontractor(s).
- 1.15. Failure by City of Tacoma to identify a deficiency in the insurance documentation or to verify coverage or compliance by Contractor with these insurance requirements shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- 1.16. If Contractor is a government agency or self-insured for any of the above insurance requirements, Contractor shall be liable for any self-insured retention or deductible portion of any claim for which insurance is required. A certification of self-insurance shall be attached and incorporated by reference and shall constitute compliance with this Section.

## 2. SUBCONTRACTORS

It is Contractor's responsibility to ensure that each subcontractor obtain and maintain adequate liability insurance coverage that applies to the service provided. Contractor shall provide evidence of such insurance upon City of Tacoma's request. Failure of any subcontractor to comply with insurance requirements does not limit Contractor's liability or responsibility.



# CITY OF TACOMA

## INSURANCE REQUIREMENTS FOR CONTRACTS

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### 3. REQUIRED INSURANCE AND LIMITS

The insurance policies shall provide the minimum coverages and limits set forth below. Providing coverage in these stated minimum limits shall not be construed to relieve Contractor from liability in excess of such limits.

#### 3.1 Commercial General Liability Insurance

Contractor shall maintain Commercial General Liability Insurance policy with limits not less than One Million Dollars (\$1,000,000) each occurrence and Two Million Dollars (\$2,000,000) annual aggregate. This policy shall be written on ISO form CG 00 01 04 13 or its equivalent and shall include product liability especially when a Contract is solely for purchasing supplies. It includes Products and Completed Operations for three years following the completion of work related to performing construction services. It shall be endorsed to include: A per project aggregate policy limit (using ISO form CG 25 03 05 09 or equivalent endorsement)

#### 3.2 Workers' Compensation

Contractor shall comply with Workers' Compensation coverage as required by the Industrial Insurance laws of the State of Washington, as well as any other similar coverage required for this work by applicable federal laws of other states. Contractor must comply with their domicile State Industrial Insurance laws if it is outside the State of Washington.

#### 3.3 Employers' Liability Insurance

Contractor shall maintain Employers' Liability coverage with limits not less than One Million Dollars (\$1,000,000) each employee, One Million Dollars (\$1,000,000) each accident, and One Million Dollars (\$1,000,000) policy limit.

#### 3.4 Professional Liability Insurance or Errors and Omissions

For contracts with professional licensing, design, or engineering services. Contractor and/or its subcontractor shall maintain Professional Liability or Errors and Omissions with limits of One Million Dollars (\$1,000,000) per claim and Two Million Dollars (\$2,000,000) in the aggregate covering acts, errors and omissions arising out of the professional services under this Contract. Contractor shall maintain this coverage for Two Million Dollars (\$2,000,000) if the policy limit includes the payment of claims or defense costs, from the policy limit. If the scope of such design-related professional services includes work related to pollution conditions, the Professional Liability policy shall include Pollution Liability coverage.

#### 3.5 Excess or Umbrella Liability Insurance

Contractor shall provide Excess or Umbrella Liability Insurance with limits not less than Three Million Dollars (\$3,000,000) per occurrence and in the aggregate. This coverage shall apply, at a minimum, in excess of primary underlying Commercial General Liability, Employer's Liability, Pollution Liability, Marine General Liability, Protection and Indemnity, and Automobile Liability if required herein.

#### 3.6 Other Insurance

Other insurance may be deemed appropriate to cover risks and exposures related to the scope of work or changes to the scope of work required by City of Tacoma. The costs of such necessary and appropriate Insurance coverage shall be borne by Contractor.

**APPENDIX C**

Sample Contract

## SERVICES CONTRACT

Click here for the [Contract Questionnaire Popup Quick Reference](#)

Start Questionnaire

Finalize Document

THIS CONTRACT, made and entered into effective as of the \_\_\_\_ day of \_\_\_\_\_, 20 (EFFECTIVE DATE) by and between the CITY OF TACOMA, a municipal corporation of the State of Washington (hereinafter referred to as the "CITY"), and **[INSERT legal name of Supplier exactly as it appears in Ariba]**, (hereinafter referred to as "CONTRACTOR");

In consideration of the mutual promises and obligations hereinafter set forth, the Parties hereto agree as follows:

### 1. Scope of Services/Work

The CONTRACTOR agrees to diligently and completely perform the services and/or deliverables consisting of [INSERT A BRIEF DESCRIPTION OF THE WORK TO BE PERFORMED] as is described in Exhibit XXXXX [A, B, ETC., if needed] attached hereto and incorporated herein.

### 2. Order of Precedence

To the extent there is any discrepancy or conflict between and/or amongst the terms of this Contract and Exhibit(s) \_\_\_\_\_, the controlling terms for this Contract will be interpreted in the following order of precedence, with the first listed being the most controlling, and the last listed being the least controlling: Contract, Exhibit \_\_\_\_\_, Exhibit \_\_\_\_\_. [INSERT EXHIBIT REFERENCES IN ORDER OF WHICH IS MOST CONTROLLING]

### 3. Changes to Scope of Work

The CITY shall have the right to make changes within the general scope of services and/or deliverables upon execution in writing of a change order or amendment hereto. If the changes will result in additional work effort by CONTRACTOR, the CITY will agree to reasonably compensate the CONTRACTOR for such additional effort up to the maximum amount specified herein or as otherwise provided by City Code.

### 4. On Call Contracts

If the services and deliverables performed under this Contract are on an on call or as assigned basis, service and deliverables may be assigned by Task Authorization or Statements of Work, are subject to Section 9, and cannot augment any other work that the CONTRACTOR is doing for the CITY on another Contract. Actual compensation will depend upon the actual purchases made by the City during the life of this Contract and will be paid at the rates set in Exhibit A

### 5. Term

All services shall be satisfactorily completed on or before [INSERT CONTRACT TERMINATION DATE] and this Contract shall expire on said date unless mutually extended by a written and executed Amendment to this Contract.

## **6. Renewals**

At CITY's sole option, the Term of this Contract may be renewed for additional [INSERT THE RENEWAL PERIOD - 1 YEAR, ETC] periods, not to exceed [INSERT THE MAXIMUM NUMBER OF RENEWAL PERIODS]. CITY will provide written notice of its intent to exercise any renewal options at least 30 days prior to the then existing Term and a written Amendment to this Contract will be mutually executed.

## **7. Delay**

Neither party shall be considered to be in default in the performance of this Contract to the extent such performance is prevented or delayed by any cause which is beyond the reasonable control of the affected party and, in such event, the time for performance shall be extended for a period equal to any time lost as a result thereof. In the event CONTRACTOR is unable to proceed due to a delay solely attributable to CITY, CONTRACTOR shall advise CITY of such delay in writing as soon as is practicable.

## **8. Compensation**

The CITY shall compensate the CONTRACTOR for the services and deliverables performed under this Contract [in accordance with OR on the basis of] [INSERT DESCRIPTION OF COMPENSATION ARRANGEMENTS – REFERENCE EXHIBIT, TIME AND MATERIALS, LUMP SUM ETC.]

## **9. Not to Exceed Amount**

The total price to be paid by CITY for CONTRACTOR'S full and complete performance of the Scope of Work hereunder shall not exceed \$ [INSERT TOTAL AMOUNT OF CONTRACT] plus applicable taxes without a written and executed Amendment to this Contract. Said price shall be the total compensation for CONTRACTOR'S performance hereunder including, but not limited to, all work, deliverables, materials, supplies, equipment, subcontractor's fees, and all reimbursable travel and miscellaneous or incidental expenses to be incurred by CONTRACTOR.

In the event the CONTRACTOR incurs cost in excess of the sum authorized for service under this Contract, the CONTRACTOR shall pay such excess from its own funds, and the CITY shall not be required to pay any part of such excess, and the CONTRACTOR shall have no claim against the CITY on account thereof.

## **10. Payment**

CONTRACTOR shall submit XXXXXXXX {monthly, weekly, annual, Contract milestone, etc.} invoices for services completed and/or deliverables furnished during the invoice period. Upon CITY'S request, CONTRACTOR shall submit necessary and appropriate documentation, as determined by the CITY, for all invoiced services and deliverables.

Payment shall be made through the CITY'S ordinary payment process, and shall be considered timely if made within 30 days of receipt of a properly completed invoice. All payments shall be subject to adjustment for any amounts, upon audit or otherwise, determined to have been improperly invoiced. The CITY may withhold payment to the CONTRACTOR for any services or deliverables not performed as required hereunder until such time as the CONTRACTOR modifies such services or deliverables to the satisfaction of the CITY.

### **11. Payment Method**

The City's preferred method of payment is by ePayables (Payment Plus), followed by credit card (aka procurement card), then Electronic Funds Transfer (EFT) by Automated Clearing House (ACH), then check or other cash equivalent. CONTRACTOR may be required to have the capability of accepting the City's ePayables or credit card methods of payment. The City of Tacoma will not accept price changes or pay additional fees when ePayables (Payment Plus) or credit card is used. The City, in its sole discretion, will determine the method of payment for this Contract.

### **12. Independent Contractor Status**

The services and deliverables shall be furnished by the CONTRACTOR as an independent Contractor, and nothing herein contained shall be construed to create an employer and employee relationship. The CONTRACTOR shall provide at its sole expense all materials, office space, and other necessities to perform its duties under this Contract, unless stated otherwise in this Contract. No payroll or employment taxes of any kind shall be withheld or paid by the CITY with respect to payments to CONTRACTOR. The payroll or employment taxes that are the subject of this paragraph include, but are not limited to, FICA, FUTA, federal income tax, state personal income tax, state disability insurance tax and state unemployment insurance tax. By reason of CONTRACTOR's status as an independent Contractor hereunder, no workers' compensation insurance has been or will be obtained by the CITY on account of CONTRACTOR. CONTRACTOR may be required to provide the CITY proof of payment of these said taxes and benefits. If the CITY is assessed or deemed liable in any manner for those charges or taxes, the CONTRACTOR agrees to hold the CITY harmless from those costs, including attorney's fees.

### **13. Services Warranty**

The CONTRACTOR warrants that all services performed pursuant to this Contract shall be generally suitable for the use to which CITY intends to use said services and deliverables as expressed in the Scope of Work. In the performance of services under this Contract, the CONTRACTOR and its employees further agree to exercise the degree of skill and care required by customarily accepted good practices and procedures followed by professionals or service providers rendering the same or similar type of service. All obligations and services of the CONTRACTOR hereunder shall be performed diligently and completely according to such professional standards.

Unless a higher standard or longer periods of warranty coverage for product deliverables provided under this Contract is provided herein, CONTRACTOR agrees to correct any defect or failure of deliverables supplied under this Contract which occurs



within one year from \_\_\_\_\_ [FILL IN APPROPRIATE TIME FRAME, E.G. GO LIVE, FIRST USE, ETC]. During said warranty period, all of the costs (including shipping, dismantling and reinstallation) of repairs or corrections is the responsibility of the CONTRACTOR. If CONTRACTOR is not the manufacturer of the item of equipment, CONTRACTOR agrees to be responsible for this warranty and shall not be relieved by a lesser manufacturer's guarantee. This Contract warranty period shall be suspended from the time a significant defect is first documented by the CITY until repair or replacement by CONTRACTOR and acceptance by the CITY. In the event less than ninety (90) days remain on the warranty period (after recalculating), the warranty period shall be extended to allow for at least ninety (90) days from the date of repair or replacement and acceptance by the CITY.

#### **14. Reliance on CITY Provided Data or Information**

If the CONTRACTOR intends to rely on information or data supplied by the CITY, other CITY contractors or other generally reputable sources without independent verification, such intent shall be brought to the attention of the CITY.

#### **15. Contract Administration**

[INSERT NAME TITLE AND DEPARTMENT OF CONTRACT ADMINISTRATOR] for the CITY shall have primary responsibility for contract administration and approval of services to be performed by the CONTRACTOR, and shall coordinate all communications between the CONTRACTOR and the CITY.

#### **16. Specific Personnel**

If before, during, or after the execution of this Contract, CONTRACTOR represents to the CITY that certain personnel would or will be responsible for performing services and deliverables under this Contract, then the CONTRACTOR is obligated to ensure that said personnel perform said Contract services to the maximum extent permitted by law. This Contract provision shall only be waived by written authorization by the CITY, and on a case-by-case basis.

#### **17. Right to Audit**

During the Term of this Contract, and for six (6) years thereafter, the CITY shall have the right to inspect and audit during normal business hours all pertinent books and records of the CONTRACTOR and/or any sub-contractor or agent of CONTRACTOR that performed services or furnished deliverables in connection with or related to the Scope of Work hereunder as reasonably needed by CITY to assess performance, compliance and quality assurance under this Contract or in satisfaction of City's public disclosure obligations, as applicable.

CONTRACTOR shall, upon three (3) business days of receipt of written request for such inspection and audit from CITY, provide the CITY with, or permit CITY to make, a copy of any work-related books, accounts, records and documents, in whole or in part, as specified in such request. Said inspection and audit shall occur in Pierce County, Washington or such other reasonable location as the CITY selects. The CITY shall bear the cost of any inspection audit requested hereunder, provided, that if an inspection

audit in accordance with the foregoing provisions discloses overpricing or overcharges (of any nature) by the CONTRACTOR to the CITY in excess of one percent (1%) of the total contract billings, in addition to making adjustments for the overcharges, the reasonable actual cost of the CITY's audit shall be reimbursed to CITY by CONTRACTOR. Any adjustments or payments that must be made as a result of any audit and inspection hereunder shall be made no later than 90 days from presentation of CITY's findings to CONTRACTOR.

CONTRACTOR shall ensure that the foregoing inspection, audit and copying rights of the CITY are a condition of any subcontract, agreement or other arrangement under which any other person or entity is permitted to perform the Scope of Work under this Contract.

**18. Records Retention**

The CONTRACTOR shall establish and maintain records in accordance with requirements prescribed by the CITY, with respect to all matters related to the performance of this Contract. Except as otherwise authorized by the CITY, the CONTRACTOR shall retain such records for a period of \_\_\_\_\_ [INSERT THE TIME THE RECORDS SHOULD BE KEPT. MOST COMMON IS 6 YEARS] years after receipt of the final payment under this Contract or termination of this Contract.

If CONTRACTOR retains any City records or data hosted in a Cloud Service. CITY shall have the ability to access its records hosted in a Cloud Service at any time during the Term of this Contract. CITY may export and retrieve its records during the Term of the Contract and, no later than 30 days from the termination of this Contract, CONTRACTOR shall export CITY records to City's custody and control.

**19. Notices**

Except for routine operational communications, which may be delivered personally or transmitted by electronic mail all notices required hereunder shall be in writing and shall be deemed to have been duly given if delivered personally or mailed first-class mail, postage prepaid, to the parties at the following addresses:

<p>CITY: Name: Title: Address: Telephone No.: E-mail:</p>	<p>CONTRACTOR: Name: Title: Address: Telephone No.: E-mail:</p>
-------------------------------------------------------------------------------	-------------------------------------------------------------------------------------

**20. Termination**

Except as otherwise provided herein, the CITY may terminate this Contract at any time, with or without cause, by giving ten (10) business days written notice to CONTRACTOR.

In the event of termination, all finished and unfinished work prepared by the CONTRACTOR pursuant to this Contract shall be provided to the CITY. In the event CITY terminates this Contract due to the CITY's own reasons and without cause due to the CONTRACTOR's actions or omissions, the CITY shall pay the CONTRACTOR the amount due for actual work and services necessarily performed under this Contract up to the effective date of termination, not to exceed the total compensation set forth herein. Termination of this Contract by CITY shall not constitute a waiver of any claims or remaining rights the CITY may have against CONTRACTOR relative to performance hereunder.

## **21. Suspension**

The CITY may suspend this Contract, at its sole discretion, upon seven (7) business days' written notice to the CONTRACTOR. Such notice shall indicate the anticipated period of suspension. Any reimbursement for expenses incurred due to the suspension shall be limited to the CONTRACTOR'S reasonable expenses and shall be subject to verification. The CONTRACTOR shall resume performance of services under this Contract without delay when the suspension period ends. Suspension of this Contract by CITY shall not constitute a waiver of any claims or remaining rights the CITY may have against CONTRACTOR relative to performance hereunder.

## **22. Taxes**

Unless stated otherwise in Exhibit A, CONTRACTOR is responsible for the payment of all charges and taxes applicable to the services performed under this Contract, and CONTRACTOR agrees to comply with all applicable laws regarding the reporting of income, maintenance of records, and all other requirements and obligations imposed pursuant to applicable law. If the CITY is assessed, made liable, or responsible in any manner for such charges or taxes, the CONTRACTOR holds CITY harmless from such costs, including attorney's fees.

If CONTRACTOR fails to pay any taxes, assessments, penalties, or fees imposed by any governmental body, including by Tacoma City ordinance, and including by a court of law, CITY will deduct and withhold or pay over to the appropriate governmental body those unpaid amounts upon demand by the governmental body. Any such payments shall be deducted from the CONTRACTOR's total compensation.

## **23. Licenses and Permits**

The CONTRACTOR, at its expense, shall obtain and keep in force any and all necessary licenses and permits. The CONTRACTOR shall obtain a business license as required by Tacoma Municipal Code Subtitle 6B.20 and shall pay business and occupation taxes as required by Tacoma Municipal Code Subtitle 6A.30. If applicable, CONTRACTOR must have a Washington state business license.

## **24. Indemnification**

CONTRACTOR shall indemnify, defend, and hold harmless the CITY, its officials, officers, agents, employees, and volunteers, from any and all claims, demands, damages, lawsuits, liabilities, losses, liens, expenses and costs arising out of the subject

matter of this Contract; provided that this provision shall not apply to the extent that damage or injury results from the sole negligence of the CITY, or its officers, agents, or employees. This indemnification shall extend to and include attorneys' fees and the cost of establishing the right of indemnification hereunder in favor of the CITY. This indemnification shall survive the termination of this Contract.

It is expressly agreed that with respect to design professional services performed by CONTRACTOR herein, CONTRACTOR's duty of indemnification, including the duty and cost to defend, against liability for damages arising out of such services or out of bodily injury to persons or damage to property shall, as provided in RCW 4.24.115 apply only to the extent of CONTRACTOR's negligence.

CONTRACTOR hereby warrants and represents CONTRACTOR is owner of any products, solutions or deliverables provided and licensed under this Contract or otherwise has the right to grant to CITY the licensed rights under this Contract, without violating the rights of any third party worldwide. CONTRACTOR shall, at its expense, defend, indemnify and hold harmless CITY and its employees, officers, directors, contractors, agents and volunteers from any claim or action against CITY which is based on a claim against CITY for infringement of a patent, copyright, trademark, or other propriety right or appropriation of a trade secret.

## **25. Title 51 Waiver**

CONTRACTOR specifically assumes potential liability for actions brought by the CONTRACTOR'S own employees against the CITY and, solely for the purpose of this indemnification and defense, the CONTRACTOR specifically waives any immunity under the state industrial insurance law, Title 51 RCW. THE CONTRACTOR RECOGNIZES THAT THIS WAIVER WAS THE SUBJECT OF MUTUAL NEGOTIATION.

## **26. Insurance**

During the course and performance of the services herein specified, CONTRACTOR will maintain the insurance coverage in the amounts and in the manner specified in the City of Tacoma Insurance Requirements as is applicable to the services and deliverables provided under this Contract. The City of Tacoma Insurance Requirements documents are fully incorporated herein by reference.

Failure by City to identify a deficiency in the insurance documentation provided by Contractor or failure of City to demand verification of coverage or compliance by Contractor with these insurance requirements shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

## **27. Nondiscrimination**

The CONTRACTOR agrees to take all steps necessary to comply with all federal, state, and City laws and policies regarding non-discrimination and equal employment opportunities. The CONTRACTOR shall not discriminate in any employment action because of race, religion, creed, color, national origin or ancestry, sex, gender identity, sexual orientation, age, marital status, familial status, veteran or military status, the

presence of any sensory, mental or physical disability or the use of a trained dog guide or service animal by a disabled person. In the event of non-compliance by the CONTRACTOR with any of the non-discrimination provisions of this Contract, the CITY shall be deemed to have cause to terminate this Contract, in whole or in part.

## **28. Conflict of Interest**

No officer, employee, or agent of the CITY, nor any member of the immediate family of any such officer, employee, or agent as defined by City ordinance, shall have any personal financial interest, direct or indirect, in this Contract, either in fact or in appearance. The CONTRACTOR shall comply with all federal, state, and City conflict of interest laws, statutes, and regulations. The CONTRACTOR represents that the CONTRACTOR presently has no interest and shall not acquire any interest, direct or indirect, in the program to which this Contract pertains which would conflict in any manner or degree with the performance of the CONTRACTOR'S services and obligations hereunder. The CONTRACTOR further covenants that, in performance of this Contract, no person having any such interest shall be employed. The CONTRACTOR also agrees that its violation of the CITY'S Code of Ethics contained in Chapter 1.46 of the Tacoma Municipal Code shall constitute a breach of this Contract subjecting the Contract to termination.

## **29. City ownership of Work/Rights in Data and Publications**

To the extent CONTRACTOR creates any Work subject to the protections of the Copyright Act (Title 17 U.S.C) in its performance of this Contract, CONTRACTOR agrees to the following: The Work has been specially ordered and commissioned by CITY. CONTRACTOR agrees that the Work is a "work made for hire" for copyright purposes, with all copyrights in the Work owned by CITY. To the extent that the Work does not qualify as a work made for hire under applicable law, and to the extent that the Work includes material subject to copyright, CONTRACTOR hereby assigns to CITY, its successors and assigns, all right, title and interest in and to the Work, including but not limited to, all patent, trade secret, and other proprietary rights and all rights, title and interest in and to any inventions and designs embodied in the Work or developed during the course of CONTRACTOR'S creation of the Work. CONTRACTOR shall execute and deliver such instruments and take such other action as may be required and requested by CITY to carry out the assignment made pursuant to this section. Any documents, magnetically or optically encoded media, or other materials created by CONTRACTOR pursuant to this Contract shall be owned by CITY and subject to the terms of this subsection. To the maximum extent permitted by law, CONTRACTOR waives all moral rights in the Work. The rights granted hereby to CITY shall survive the expiration or termination of this Contract. CONTRACTOR shall be solely responsible for obtaining releases for the performance, display, recreation, or use of copyrighted materials.

## **30. Public Disclosure**

This Contract and documents provided to the CITY by CONTRACTOR hereunder are deemed public records subject to disclosure under the Washington State Public Records Act, Chapter 42.56 RCW (Public Records Act). Thus, the CITY may be required, upon request, to disclose this Contract and documents related to it unless an exemption under the Public Records Act or other laws applies. In the event CITY receives a request for

such disclosure, determines in its legal judgment that no applicable exemption to disclosure applies, and CONTRACTOR has complied with the requirements herein to mark all content considered to be confidential or proprietary, CITY agrees to provide CONTRACTOR ten (10) days written notice of impending release. Should legal action thereafter be initiated by CONTRACTOR to enjoin or otherwise prevent such release, all expense of any such litigation shall be borne by CONTRACTOR, including any damages, attorneys fees or costs awarded by reason of having opposed disclosure. CITY shall not be liable for any release where notice was provided and CONTRACTOR took no action to oppose the release of information. Notice of any proposed release of information pursuant to Chapter 42.56 RCW, shall be provided to CONTRACTOR according to the "Notices" provision herein.

### **31. Confidential or Proprietary Records Must be Marked**

If CONTRACTOR provides the CITY with records that CONTRACTOR considers confidential or proprietary, CONTRACTOR must mark all applicable pages of said record(s) as "Confidential" or "Proprietary." If CONTRACTOR fails to so mark record(s), then (1) the CITY, upon request, may release said record(s) without the need to satisfy the notice requirements above; and (2) the CONTRACTOR expressly waives its right to allege any kind of civil action or claim against the CITY pertaining to the release of said record(s).

### **32. Duty of Confidentiality**

CONTRACTOR acknowledges that unauthorized disclosure of information or documentation concerning the Scope of Work hereunder may cause substantial economic loss or harm to the CITY.

Except for disclosure of information and documents to CONTRACTOR's employees, agents, or subcontractors who have a substantial need to know such information in connection with CONTRACTOR's performance of obligations under this Contract, the CONTRACTOR shall not without prior written authorization by the CITY allow the release, dissemination, distribution, sharing, or other publication or disclosure of information or documentation obtained, discovered, shared or produced pursuant to this Contract.

CONTRACTOR shall inform its employees, agents, and subcontractors of the confidentiality obligations under this Contract and instruct them so as to ensure such obligations are met. If so requested by the CITY, the CONTRACTOR further agrees to require all such individuals and entities performing services pursuant to this Contract to execute a Confidentiality and Non-Disclosure Agreement in a form acceptable to CITY.

This Section shall survive for six (6) years after the termination or expiration of this Contract.

CITY is required to provide notice of the Red Flags Rules published by the Federal Trade Commission in Title 16 Code of Federal Regulations, Part 681 ("Rules") to all entities that receive confidential or otherwise protected personal information of CITY's customers. Terms in quotations in this Section refer to defined terms contained in the "Rules." CONTRACTOR is, as to "Covered Accounts" of CITY for which CONTRACTOR

performs activities under the Contract, a "Service Provider." "Service Provider" will perform in accordance with its reasonable policies and procedures designed to detect, prevent, and mitigate the risk of identity theft and will promptly report to CITY any specific "Red Flag" incidents detected as to "Covered Accounts" of CITY and upon request by CITY will respond to or reasonably assist CITY in responding reported "Red Flags." This Section shall survive for six (6) years after the termination or expiration of this Contract.

### **33. Approval for Release of Information Related to Contract**

If requested by CITY, CONTRACTOR shall not release any information or documentation concerning the work under this Contract or any part thereof for marketing, advertising, or other commercial activities or publication including, but not limited to, news releases or professional articles without CITY's prior written approval. CONTRACTOR may submit at any time for review and approval a generic abstract describing the component parts of the completed Scope of Services ("Project Abstract"). After receiving written approval of the Project Abstract from the CITY, the CONTRACTOR may make minor insignificant changes to the Project Abstract and use all or parts of the Project Abstract in proposals.

This Section shall survive for six (6) years after the termination or expiration of this Contract.

### **34. Dispute Resolution**

In the event of a dispute pertaining to this Contract, the parties agree to attempt to negotiate in good faith an acceptable resolution. If a resolution cannot be negotiated, then the parties agree to submit the dispute to voluntary non-binding mediation before pursuing other remedies. This provision does not limit the CITY'S right to terminate authorized by this Contract.

### **35. Miscellaneous Provisions**

#### **Governing Law and Venue**

Washington law shall govern the interpretation of this Contract. Pierce County shall be the venue of any mediation, arbitration, or litigation arising out of this Contract.

#### **Assignment**

The CONTRACTOR shall not assign, subcontract, delegate, or transfer any obligation, interest or claim to or under this Contract or for any of the compensation due hereunder without the prior written consent of the CITY.

#### **No Third Party Beneficiaries**

This Contract shall be for the sole benefit of the parties hereto, and nothing contained herein shall create a contractual relationship with, or create a cause of action in favor of, a third party against either party hereto.

### **Waiver**

A waiver or failure by either party to enforce any provision of this Contract shall not be construed as a continuing waiver of such provisions, nor shall the same constitute a waiver of any other provision of this Contract.

### **Severability and Survival**

If any term, condition or provision of this Contract is declared void or unenforceable or limited in its application or effect, such event shall not affect any other provisions hereof and all other provisions shall remain fully enforceable. The provisions of this Contract, which by their sense and context are reasonably intended to survive the completion, expiration or cancellation of this Contract, shall survive termination of this Contract.

### **Entire Agreement**

This Contract and the attached Exhibits, as modified herein, contain the entire agreement between the parties as to the services to be rendered hereunder. All previous and contemporaneous agreements, representations or promises and conditions relating to the subject matter of this Contract are superseded hereby. The Parties hereto mutually acknowledge, understand and agree that the terms and conditions set forth herein shall control and prevail over any conflicting terms and conditions stated in any attachments hereto.

### **Modification**

No modification or amendment of this Agreement shall be effective unless set forth in a written and executed Amendment to this Contract.

### **Direct Solicitation and Negotiation**

For service contracts valued \$25,000 or less the City signature authorizes waiver of competitive solicitation by "Direct Solicitation and Negotiation" of professional and personal services in accordance with Tacoma Municipal Code 1.06.256 and the Purchasing Policy Manual.



IN WITNESS WHEREOF, the Parties hereto have accepted and executed this Contract, as of the Effective Date stated above, which shall be Effective Date for bonding purposes as applicable. The undersigned Contractor representative, by signature below, represents and warrants they are duly authorized to execute this legally binding Contract for and on behalf of Contractor.

CITY OF TACOMA:  
By: \_\_\_\_\_

CONTRACTOR:  
By: \_\_\_\_\_

**(City of Tacoma use only - blank lines are intentional)**

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Director of Finance: \_\_\_\_\_

City Attorney (approved as to form): \_\_\_\_\_

Approved By: \_\_\_\_\_

Approved By: \_\_\_\_\_

Approved By: \_\_\_\_\_

Approved By: \_\_\_\_\_

Approved By: \_\_\_\_\_

Approved By: \_\_\_\_\_

Approved By: \_\_\_\_\_

Approved By: \_\_\_\_\_

## **APPENDIX D**

### Facility List

**Facility Condition Assessment - Specification No. PW24-0192E**  
**APPENDIX D - List of Facilities**

June 8, 2023

The following is an initial list of anticipated facilities to be assessed, facilities may be added or modified.

Group & Site		Address	Approx. Building Sq. Ft.	Approx. Year Const.
<b>Public Works, Facilities Management</b>				
<b>Tacoma Fire Facilities</b>				
1	Fire Station #01 & Headquarters	901 South Fawcett Avenue	16,600	1967
2	Fire Station #02 (Historic)	2701 Tacoma Avenue South	16,380	1907
3	Fire Station #03	206 Browns Point Boulevard	2,820	1980
4	Fire Station #04 (Historic)	1453 Earnest S Brazill Street	6,120	1935
5	Fire Station #05	3520 East 11th Street	5,600	2021
6	Fire Station #06	1015 East "F" Street	4,200	1964
7	Fire Station #07	5448 South Warner Street	2,080	1959
8	Fire Station #08	4911 South Alaska Street	17,400	2003
9	Fire Station #09	3502 6th Avenue	5,430	1965
10	Fire Station #10 (Historic)	7247 South Park Avenue	1,960	1928
11	Fire Station #11 (Historic)	3802 McKinley Avenue	5,120	1909
12	Fire Station #12 (Fife)	2015 54th Avenue East	9,970	1975
13	Fire Station #13 (Historic)	3825 North 25th Street	9,900	1911
14	Fire Station #14 (Historic)	4701 North 41st Street	1,960	1928
15	Fire Station #15 (Temporary)	6415 East McKinley Ave	2,050	1928
16	Fire Station #16	7216 6th Avenue	11,000	1999
17	Fire Station #17 (Fircrest)	302 Regents Blvd	8,990	1979
18	Electrical Maintenance Building (Historic)	425 Tacoma Avenue South	4,700	1910
19	Fire Communications Center (Historic)	415 Tacoma Avenue South	3,530	1929
20	Former Emergency Operations Center	420 South Fawcett Avenue	6,700	1957
21	Fire Garage	3401-B South Orchard Street	4,800	1984
22	Fire Prevention Bureau	3471 South 35th Street	4,650	1954
23	Fire Training Center	2124 Marshall Avenue	9,450	1998
24	Marine Security Operations Center	3301 Ruston Way	2,990	1980
25	Former Fire Station #15 (Historic)	3510 East 11th Street	3,300	1929
26	Former Fire Station #18 (Historic) & Moorage	302 East 11th Street	1,750	1929
		<b>Total Tacoma Fire Facilities</b>	<b>169,450</b>	<b>1955</b>
<b>Tacoma Police Facilities</b>				
27	Harrison Range	101 McMurray Rd.	8,060	1960
28	Police Headquarters	3701 South Pine Street	73,000	2005
29	Fleet & Police Warehouse	3639 South Pine Street	129,000	1992
30	TPD Sector 1 (Central) Substation	1524 Martin Luther King Way	3,500	2006
31	TPD Sector 1 (Northeast) Substation	4731 Norpoint Way	3,500	2006
32	TPD Sector 2 (North) Substation	5136 North 26th Street	3,500	2006
33	TPD Sector 3 (Wapato) Substation	1501 South 72nd Street	3,500	2006
34	TPD Sector 4 (Stewart Heights) Substation	400 E. 56th St.	3,500	2009
		<b>Total Tacoma Fire Facilities</b>	<b>227,560</b>	<b>1999</b>

**Facility Condition Assessment - Specification No. PW24-0192E**  
**APPENDIX D - List of Facilities**

June 8, 2023

The following is an initial list of anticipated facilities to be assessed, facilities may be added or modified.

Group & Site		Address	Approx. Building Sq. Ft.	Approx. Year Const.
<b>Municipal Service Facilities</b>				
35	Municipal Services Center (TV Tacoma)	1224 Martin Luther King Jr Way	6,860	1960
36	Tacoma Municipal Building (Historic)	747 Market Street	180,740	1930
37	Tacoma Municipal Building North	733 Market Street	41,400	1954
<b>Total Municipal Service Facilities</b>			<b>229,000</b>	<b>1948</b>
<b>Public Works Facilities</b>				
38	Asphalt Plant (Admin Building)	3010 Center Street	1,800	1987
39	Cavanaugh Building	1423 Puyallup Ave	28,600	1930
40	Grounds Maintenance & Sign Shop	2308 S. Holgate St.	28,600	1900
41	Streets Operations Building (Historic)	2324 So. C St.	27,340	1909
42	Streets Operations Upper Yard	2335 Jefferson Ave.	-	1945
43	Traffic Signal Shop	3401-A South Orchard Street	12,000	1983
<b>Total Public Works Facilities</b>			<b>98,340</b>	<b>1942</b>
<b>Neighborhood &amp; Community Service Facilities</b>				
44	Beacon Center	415 South 13th Street	12,120	1941
45	Lighthouse Center	5016 'A' Street	8,780	1950
46	Point Defiance Senior Center	4716 North Baltimore	3,810	1965
47	T.A.C.I.D.	6315 South 19th Street	10,370	1983
48	Tacoma Learning Center	6316 South 12th Street	5,260	1987
<b>Total Community Service Facilities</b>			<b>40,340</b>	<b>1965</b>
<b>Metro Parks Maintained</b>				
49	Chinese Reconciliation Park	1741 N Schuster Parkway	-	2010
50	Old Town Dock & Restroom	2123 N Schuster Parkway	-	1873
51	People's Community Center & Pool	1602 Martin Luther King Jr Way	27,310	1978
52	Ruston Way Waterwalk	4891 Ruston Way	-	2014
<b>Total Metro Parks Maintained</b>			<b>27,310</b>	<b>1969</b>
<b>Total Public Works, Facilities Management</b>			<b>792,000</b>	<b>1964</b>

**Facility Condition Assessment - Specification No. PW24-0192E**  
**APPENDIX D - List of Facilities**

June 8, 2023

The following is an initial list of anticipated facilities to be assessed, facilities may be added or modified.

Group & Site		Address	Approx. Building Sq. Ft.	Approx. Year Const.	
<b>Public Works, Parking System</b>					
<b>Parking Structures</b>					
1	A Street Garage	520 Stalls	110 South 10th Street	266,280	1987
2	North Plaza Garage	492 Stalls	923 Commerce Street	160,000	1970
3	South Plaza Garage	471 Stalls	1125 Commerce Street	162,700	1970
4	Museum of Glass Garage	178 Stalls	1801 Dock Street	61,880	2000
5	Municipal Building Garage (Historic)	73 Stalls	747 Market Street	20,490	1930
6	Convention Center Garage	514 Stalls	1551 Broadway	117,900	2004
<b>Parking Surface Lots</b>					
7	14th Street Lot	35 Stalls	1401 Pacific Avenue	-	2010
8	Municipal Lot	69 Stalls	740 Market Street	-	1998
9	Foss Site 12 Lot	110 Stalls	535 Dock Street	-	1980
10	George's Park Lot	24 Stalls	2145 Dock Street	-	2009
<b>Total Public Works, Parking System</b>			<b>2486 Stalls</b>	<b>789,250</b>	<b>1986</b>
<b>Tacoma Venues &amp; Events</b>					
<b>Venues</b>					
1	Tacoma Dome & Exhibition Hall		2727 East D Street	280,000	1982
2	Greater Tacoma Convention Center		1500 Broadway	343,600	2004
3	Cheney Stadium		2502 South Tyler	96,000	1959
<b>Tacoma City Theaters</b>					
4	Pantages Theater & Jones Building (Historic)		901 Broadway Plaza	27,000	1919
5	Rialto Theater (Historic)		310 South 9th St	10,800	1919
6	Theater on the Square		915 Broadway Plaza	25,890	1992
<b>Total Tacoma Venues &amp; Events</b>				<b>783,290</b>	<b>1963</b>
<b>Tacoma Public Libraries</b>					
1	Main Library (& Historic Carnegie)		1102 Tacoma Ave South	95,730	1902
2	Fern Hill Branch Library		765 S 84th St.	8,000	1989
3	Kobetich Branch Library		212 Browns Point Blvd NE	5,000	1979
4	Moore Branch Library		215 South 56th Street	15,490	1989
5	Mottet Branch Library		3523 E G Street	5,030	1930
6	South Tacoma Branch Library		3411 South 56th Street	7,650	1955
7	Swasey Branch Library		7001 6th Ave	9,690	1960
8	Wheelock Branch Library		3722 N 26th St.	16,930	1927
<b>Total Tacoma Public Libraries</b>				<b>163,520</b>	<b>1954</b>
<b>Total All Facilities (76 Sites)</b>				<b>2,528,060</b>	<b>1964</b>

# **APPENDIX E**

2018 Facility Condition Assessments



Tacoma Police



Municipal Service



Tacoma Fire



Neighborhood & Community Service



Public Works



Metro Parks Maintained



Tacoma Public Libraries



# City of Tacoma 2018 Facility Condition Assessment Summary Report





CITY OF TACOMA  
2018 FACILITY CONDITION ASSESSMENT, SUMMARY REPORT

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*Tacoma Venue & Events facilities were not assessed as part of the 2018 Facility Condition Assessment, but will be included in future assessments.*



# City of Tacoma

## 2018 Facility Condition Assessment, Summary Report

### Background

The City's assets are the foundation of the valuable services the City provides to residents and they represent a significant investment. Effective asset management is required to maintain service levels and for long-term fiscal sustainability. Effective asset management is also a good investment in itself, as proper management and stewardship can slow the deterioration of assets, resulting in cost savings.

Effective Asset management generally includes a number of components.

- Assets need to be continually assessed so there is up to date information on their status.
- The information is used to determine needed maintenance and to mitigate issues.
- Each asset should have a plan that addresses its needs for its entire life, including its replacement, inspections, and maintenance.
- There should be a system in place to prioritize asset care and the allocation of limited resources.

To support the City of Tacoma in asset management, capital planning & budgeting efforts, MENG Analysis was contracted to complete a thorough Facility Condition Assessment (FCA) of City-owned General Government (non-enterprise/ non-utility) facilities and sites. The assessment focused on Tacoma Public Library facilities and General Government facilities including Fire, Police, Municipal Services, Neighborhood & Community Services, Public Works, and Metro Parks Maintained.

The MENG Analysis team reviewed existing operation and maintenance information, conducted field investigations to identify Observed Deficiencies (ODs), developed cost estimates for ODs, and used customized cost models to predict future capital costs over a 20-year horizon (Predicted Renewals or PRs). The team also made note of "Opportunities" to improve the user experience, save energy, and increase system and building longevity.

The projected costs identified in the FCA are budgetary in nature and portray a rough order of magnitude for the work based on information available. Information at this budgetary level is often not complete and would require design level investigation to fully realize accurate scope and cost. Identified costs are intended to provide a consistent overview of the needs of City-owned facilities to be compared across the subject portfolio.

# City of Tacoma

## 2018 Facility Condition Assessment, Summary Report

### Facility Survey Methodology

The methodology for the City of Tacoma FCA started with an initial review of previous records and drawings. An operations and maintenance questionnaire was completed by city staff. Additional information was gathered from City staff followed by an O&M workshop to gather additional information.

This preparation stage was followed by eight weeks of on-site field surveys conducted by technical experts who reviewed civil, structural, architectural, mechanical, electrical, plumbing, and site infrastructure systems to a Uniformat II, level 3 detail. The facility surveys were facilitated by an FCA Team Leader to maintain consistency in evaluation, survey forms, condition ratings and system categorization.

Each team member used survey forms to document the apparent facility conditions including:

- I. Describing the nature of facility systems per Uniformat II,
- II. Determining the overall condition score of building elements,
- III. Identifying major maintenance deficiencies greater than \$5,000 (direct cost) that are likely to be required for immediate major maintenance repairs (2018), plus the next 5-year period (2019-2023)
- IV. Documenting specific deficiencies of systems with narrative as well as budgetary level cost estimates to repair or replace deficiencies
- V. The survey team also documented specific opportunities for upgrades that will increase facility performance. These items are not required.

### Observed Deficiencies (ODs), 2018-2023

Observed Deficiencies are based on known conditions that are witnessed by or disclosed directly to the field surveyors and are generally the best short-term planning tool. The MENG Analysis team uses the Uniformat II system to organize cost estimates for system repairs or replacements. OD estimates include direct costs plus typical construction markups as well as project development markups (design, permitting, management, etc.). ODs are intended as “like” replacements and do not address level-of-service enhancements and/or programmatic building changes or code required upgrades.

#### Estimated Observed Deficiencies (2018-2023)

• General Government Facilities	50,740,000
• Tacoma Public Libraries	2,870,000
• <b>Total Observed Deficiencies</b>	<b>\$ 53,610,000</b>

# City of Tacoma

## 2018 Facility Condition Assessment, Summary Report

### Predicted Renewals (PRs), 2018-2037

In addition to estimated Observed Deficiencies, MENG Analysis has developed a cost model for Predicted Renewals (PRs). PRs predict future capital costs over a 20-year horizon (2018-2037). They are based on predictive models that use industry-standard expected life data, combined with original construction or remodel dates as well as system scores from surveyors to estimate when a system will require renewal. Unit costs in the models are updated on a yearly basis and adjusted to our specific northwest region. Similar projects that have been estimated and managed by the team were also referenced against the modeled costs for additional verification of recent costs if they were available.

#### Estimated Predicted Renewals (2018-2037)

• General Government Facilities	151,520,000
• <u>Tacoma Public Libraries</u>	<u>26,540,000</u>
• <b>Total Predicted Renewals</b>	<b>\$ 178,060,000</b>

### Facility Condition Index (FCI)

A Facility Condition Index (FCI) calculation is an industry standard used for benchmarking and evaluating the relative condition of a portfolio of facility assets over time. There are a number of different methods used by various organizations to calculate the condition index that best fits their particular portfolio. For this reason, using FCIs to compare the City's facilities to other organizations is not always appropriate, but is a good tool to compare the City's facilities to each other.

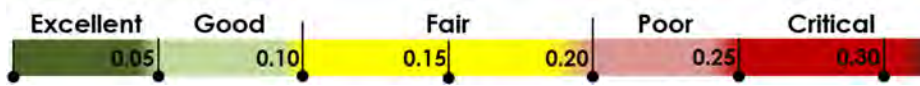
In general, the FCI is a ratio of current repair needs to the Current Replacement Value (CRV). For this report the FCI is based on both the BMAR/CRV and ODs/CRV, providing an average range of the buildings condition.

The Current Replacement Value (CRV) is a calculation for reconstructing an asset as it currently exists, without modifications or improvement. The CRV estimate is an approximation of the construction cost based on the cost per square foot of a similar constructed building. The CRV estimate should not be used for any other purpose than to calculate the FCI. Estimates for the actual replacement of individual facilities and projects must incorporate a higher level of detail and accuracy.

# City of Tacoma

## 2018 Facility Condition Assessment, Summary Report

Common industry practice is to create a scale for interpreting FCI as a way to prioritize facility needs. Most organizations adjust their classifications of FCI to relate to their own unique criteria. For the City of Tacoma, MENG Analysis recommended the following FCI breakdown to support decision making.



### Facility Condition Index, Summary

- General Government Facilities
  - Tacoma Fire Facilities..... Poor
  - Tacoma Police Facilities..... Fair
  - Municipal Service Facilities..... Fair
  - Public Works Facilities..... Poor
  - Neighborhood & Community..... Fair
  - Metro Parks Maintained..... Good
  
- Tacoma Public Libraries..... Fair

# Councilmanic Districts

## City of Tacoma



### COUNCILMANIC DISTRICTS OF TACOMA

The Tacoma City Council is comprised of the Mayor and eight Council Members. Five of the Council Members are elected from each of the city's five councilmanic districts. The Mayor and three additional Council Members are elected to city-wide, or at-large, positions. On Nov. 15, 2011, the Tacoma City Council adopted new boundaries for the districts, ensuring each district has nearly equal population without splitting neighborhoods or communities. Boundaries are effective 2012 through 2021.

### Map Location



City of Tacoma  
Community & Economic Development Department  
GIS Analysis & Data Services



3000 0 3000 6000 9000  
Foot

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. It is to be used for reference purposes only.







**City of Tacoma**  
**2018 Facility Condition Assessment, Summary Report**  
**Facility List, by Council District**

Facility	Address	Equity Index	Condition Index
<b>COUNCIL DISTRICT 1</b>			
MPT Ruston Way Waterwalk	4891 Ruston Way	Very High	Good
NCS Point Defiance Senior Center	4716 North Baltimore	Very High	Poor
NCS T.A.C.I.D.	6315 South 19th Street	High	Good
NCS Tacoma Learning Center	6316 South 12th Street	High	Good
TFD Fire Station #13 (Historic)	3825 North 25th Street	Very High	Critical
TFD Fire Station #14 (Historic)	4701 North 41st Street	Very High	Fair
TFD Fire Station #16	7217 6th Avenue	Low	Good
TFD Marine Security Operations Center	3301 Ruston Way	Very High	Excellent
TPD Sector 2 (North) Substation	5136 North 26th Street	High	Excellent
TPL Swasey Branch Library	7001 6th Ave	Moderate	Fair
TPL Wheelock Branch Library	3722 N 26th St	Very High	Good
<b>COUNCIL DISTRICT 2</b>			
MPT Chinese Reconciliation Park	1741 N Schuster Parkway	Very High	Good
MPT Old Town Dock & Restroom	2123 N Schuster Parkway	Very High	Good
MS Tacoma Municipal Building (Historic)	747 Market Street	Moderate	Fair
MS Tacoma Municipal Building North	733 Market Street	Moderate	Fair
NCS Beacon Center	415 South 13th Street	Moderate	Poor
PW Cavanaugh Building	1423 Puyallup Ave	High	Critical
PW Grounds Maintenance & Sign Shop	2308 S. Holgate St.	Moderate	Poor
PW Street Operations Building (Historic)	2324 So. C St.	Moderate	Fair
PW Street Operations Upper Yard	2335 Jefferson Ave.	Moderate	N/A
TFD Electrical Maintenance Building (Historic)	425 Tacoma Avenue South	Moderate	Critical
TFD Former Emergency Operations Center	420 Fawcett Avenue	Moderate	Fair
TFD Fire Communications Center (Historic)	415 Tacoma Avenue South	Moderate	Poor
TFD Fire Training Center	2124 Marshall Avenue	High	Poor
TFD Fire Station #1 & Headquarters	901 South Fawcett Avenue	Moderate	Fair
TFD Fire Station #2 (Historic)	2701 Tacoma Avenue South	Moderate	Fair
TFD Fire Station #3	206 Browns Point Boulevard	Very High	Fair
TFD New Fire Station #5	3520 East 11th Street	High	N/A
TFD Fire Station #6	1015 East "F" Street	High	Fair
TFD Former Fire Station #15 (Historic)	3510 East 11th Street	High	N/A
TFD Fire Station #18 & Moorage (Historic)	302 East 11th Street	High	Critical
TPD Harrison Range	101 McMurray Rd.	Very High	Critical
TPD Sector 1 (Northeast) Substation	4731 Norpoint Way	Very High	Good
TPL Kobetich Branch Library	212 Browns Point Blvd NE	Very High	Good
<b>COUNCIL DISTRICT 3</b>			
MPT Peoples Community Center	1602 Martin Luther King Jr Way	Low	Good
MS Municipal Services Center (TV Tacoma)	1224 Martin Luther King Jr Way	Very Low	Good
PW Asphalt Plant	3010 Center Street	Low	Fair
PW Traffic Signal Shop	3401-A So. Orchard St.	Moderate	Good
TFD Fire Garage	3401-B South Orchard Street	Moderate	Critical
TFD Fire Prevention Bureau	3471 South 35th Street	Moderate	Critical
TFD Fire Station #4 (Historic)	1453 Earnest S Brazill St	Moderate	Poor
TFD Fire Station #7	5448 South Warner Street	Low	Fair
TFD Fire Station #9	3502 6th Avenue	High	Good
TPD Fleet & Police Warehouse	3639 South Pine Street	Very Low	Fair
TPD Police Headquarters	3701 South Pine Street	Very Low	Excellent
TPD Sector 1 (Central) Substation	1524 Martin Luther King Jr Way	Low	Good
TPL Main Library (Historic)	1102 Tacoma Ave South	Low	Good
TPL South Tacoma Branch Library	3411 South 56th St	Low	Good

**City of Tacoma**  
**2018 Facility Condition Assessment, Summary Report**  
**Facility List, by Council District**

Facility	Address	Equity Index	Condition Index
<b>COUNCIL DISTRICT 4</b>			
NCS Lighthouse Center	5016 "A" Street	Very Low	Poor
TFD Fire Station #8	4911 South Alaska St.	High	Excellent
TFD Fire Station #11 (Historic)	3802 McKinley Avenue	Very Low	Critical
TFD Temporary Fire Station #15	6415 McKinley Ave E	Low	Poor
TPL Moore Branch Library	215 South 56th St	Low	Good
TPL Mottet Branch Library	3523 E G St	Low	Excellent
<b>COUNCIL DISTRICT 5</b>			
TFD Fire Station #10 (Historic)	7247 South Park Avenue	Moderate	Poor
TPD Sector 3 (Wapato) Substation	1501 South 72nd Street	Moderate	Good
TPD Sector 4 (Stewart Heights) Substation	400 E. 56th St.	Low	Excellent
TPL Fern Hill Branch Library	765 S 84th St	Moderate	Fair
<b>OUTSIDE TACOMA</b>			
TFD Fire Station #12 (Fife)	2015 54th Avenue East (Fife)	N/A	Fair
TFD Fire Station #17 (Fircrest)	302 Regents Blvd (Fircrest)	N/A	Fair



# City of Tacoma 2018 Facility Condition Assessment

## Example Building Summary Sheet

Location, Tacoma, WA 984--

- Year Built: YYY
- Last Renovation: YYY
- Facility Size: ## SF
- Number of Floors: XX
- Facility Use Type: ---
- Construction Type: ---
- Historic Register: Yes/No
- Council District: District 1 - 5

FACILITY PHOTO

### Observed Deficiencies:

- 2018-2023 \$ 0

### Predictive Renewals:

- 2018-2037 \$ 0

### Average Facility Condition Index



### Background:

- General background on the facility.

### Condition:

- Snapshot of the condition of the facility.

### Recent & Planned Projects:

- Recent or planned projects for the facility.

### Definitions:

- **Observed Deficiencies:** Conditions that are witnessed by or disclosed directly to the survey team as they tour each individual facility. They are typically the best short-term planning tool. Observed Deficiency estimates are a “like-for-like” replacement cost and do not address level-of-service enhancements, programmatic building changes, or code required upgrades.
- **Predicted Renewals:** Predict future capital costs over a 20-year horizon. They are based on predictive models that use industry-standard expected life data, combined with original construction or remodel dates as well as system scores from surveyors to estimate when a system will require renewal.
- **Average Facility Condition Index:** This calculation is an industry standard used for benchmarking and evaluation the relative condition of a portfolio of assets over time. In general, the Facility Condition Index is a ratio of the current repair needs of the facility to the Current Replacement Value of the facility. The higher the number the more repair needs the facility has compared to what it would cost to replace the facility.



CITY OF TACOMA  
2018 FACILITY CONDITION ASSESSMENT, SUMMARY REPORT

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# City of Tacoma 2018 Facility Condition Assessment

## Electrical Maintenance Building (Historic)

425 Tacoma Avenue South, Tacoma, WA 98402

- **Year Built:** 1910
- **Last Renovation:** N/A
- **Facility Size:** 4,700 SF
- **Number of Floors:** 3
- **Facility Use Type:** Maintenance
- **Construction Type:** Light
- **Historic Register:** Yes
- **Council District:** District 2
- **Equity Index:** Low



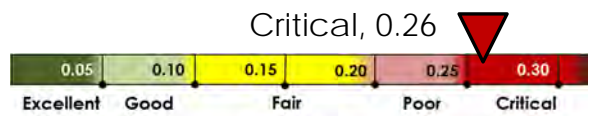
**Observed Deficiencies:**

- 2018-2023 \$ 1,830,000

**Predictive Renewals:**

- 2018-2037 \$ 680,000

**Average Facility Condition Index**



**Background:**

- Formerly known as the Fire Alarm Repair Shop, the Electrical Maintenance Building was originally constructed in 1910 as Fire station #1. The two story wood-framed structure has a full daylight basement and is listed on the Local and National Register of Historic Places.

**Condition:**

- The building is in critical condition as it has never had a major upgrade. The shingle roof, mortar and supports at the chimney are deteriorating and in need of repair, the galvanized piping and plumbing fixtures should be upgraded, the gas furnace is past its useful life and should be replaced, and the branch wiring, receptacles and light fixtures should be modernized.

**Recent & Planned Projects:**

- Design is underway to refurbish the exterior of the historic facility, improvements will include replacement of the roof, exterior repairs and exterior painting, the project is scheduled for completion in 2023.
- There are no additional capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.



# City of Tacoma 2018 Facility Condition Assessment

## Former Emergency Operations Center

420 Fawcett Avenue, Tacoma, WA 98402

- **Year Built:** 1957
- **Last Renovation:** N/A
- **Facility Size:** 6,700 SF
- **Number of Floors:** 2
- **Facility Use Type:** Operations
- **Construction Type:** Medium
- **Historic Register:** No
- **Council District:** District 2
- **Equity Index:** Low



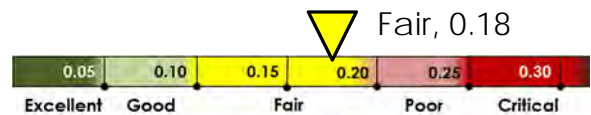
### Observed Deficiencies:

- 2018-2023 \$ 750,000

### Predictive Renewals:

- 2018-2037 \$ 1,620,000

### Average Facility Condition Index



### Background:

- Constructed in 1957, the Former Emergency Operations Center is a two story concrete framed building with a brick veneer. The second floor of the building is used for storage and server equipment while the first is utilized for meetings and office space. The facility no longer operates as an Emergency Operations Center.

### Condition:

- The building is in fair condition. The mechanical and plumbing systems are uncoordinated with a variety of code, obsolescence, and performance issues. The second floor is mostly demolished and in need of renovating or repurposing. The facility also needs a new roof and exterior refurbishment.

### Recent & Planned Projects:

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.





# City of Tacoma 2018 Facility Condition Assessment

## Fire Communications Center (Historic)

415 Tacoma Avenue South, Tacoma, WA 98402

- **Year Built:** 1929
- **Last Renovation:** 1957
- **Facility Size:** 3,530 SF
- **Number of Floors:** 2
- **Facility Use Type:** Office
- **Construction Type:** Medium
- **Historic Register:** Yes
- **Council District:** District 2
- **Equity Index:** Low



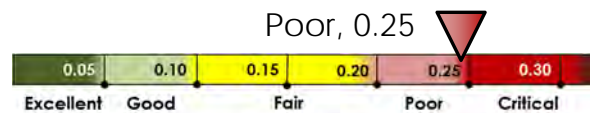
### Observed Deficiencies:

- 2018-2023 \$ 650,000

### Predictive Renewals:

- 2018-2037 \$ 920,000

### Average Facility Condition Index



### Background:

- Formerly known as the Fire Alarm station, the Fire Communications Center is a two story concrete structure with brick veneer. Built in 1929, the building is listed on the Local and National Register of Historic Places.

### Condition:

- The building is in poor condition. The building is in need of a new roof and exterior refurbishment. A large rooftop antenna tower base has rusted and corroded and the faded tower paint is peeling.
- On the interior, the galvanized domestic water pipe should be replaced, MEP utilities appear mostly from the adjacent EOC building, the plumbing systems are older but in fair condition, the HVAC is a mix of technologies and should be upgraded, the alarm communications and power wiring should be replaced.

### Recent & Planned Projects:

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.



# City of Tacoma 2018 Facility Condition Assessment

## Fire Garage 3401-B South Orchard Street, Tacoma, WA 98466

- **Year Built:** 1984
- **Last Renovation:** N/A
- **Facility Size:** 4,800 SF
- **Number of Floors:** 1
- **Facility Use Type:** Maint. Shop
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 3
- **Equity Index:** Very Low



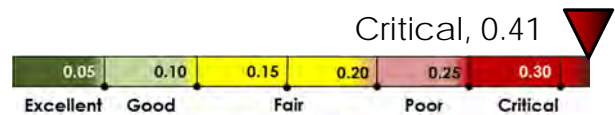
### Observed Deficiencies:

- 2018-2023 \$ 1,200,000

### Predictive Renewals:

- 2018-2037 \$ 860,000

### Average Facility Condition Index



### Background:

- Built in 1984, the Fire Garage is a pre-fabricated metal building housing three apparatus bays. The building includes a storage mezzanine loft, locker rooms, offices and a single bathroom.

### Condition:

- The building is in critical condition and is in need of new systems, roof and site improvements.

### Recent & Planned Projects:

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.



# City of Tacoma 2018 Facility Condition Assessment

## Fire Prevention Bureau

3471 South 35<sup>th</sup> Street, Tacoma, WA 98409

- **Year Built:** 1954
- **Last Renovation:** 1997
- **Facility Size:** 4,649 SF
- **Number of Floors:** 1
- **Facility Use Type:** Office
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 3
- **Equity Index:** Very Low



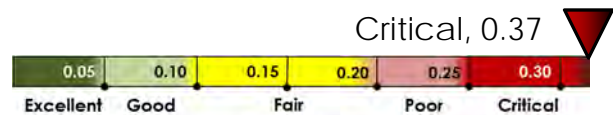
### Observed Deficiencies:

- 2018-2023 \$ 1,230,000

### Predictive Renewals:

- 2018-2037 \$ 1,090,000

### Average Facility Condition Index



### Background:

- The Fire Prevention Bureau building is a single story wood framed building constructed in 1954. The original building was Fire Station #17, but was converted to office space in 1997.

### Condition:

- The building is in critical condition and is in need of a new MEP system, a new roof, windows and the exterior cladding and wood columns are in need of immediate repair or replacement.
- The interior finishes are past their useful life and in need of replacement.

### Recent & Planned Projects:

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.



# City of Tacoma 2018 Facility Condition Assessment

## Fire Training Center

2124 Marshall Avenue, Tacoma, WA 98421

- **Year Built:** 1998
- **Last Renovation:** N/A
- **Facility Size:** 9,450 SF
- **Number of Floors:** 1
- **Facility Use Type:** Training
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 2
- **Equity Index:** Low



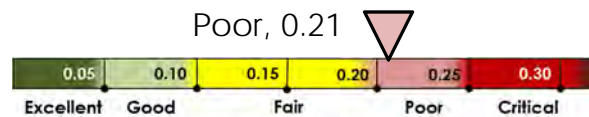
**Observed Deficiencies:**

- 2018-2023 \$ 1,210,000

**Predictive Renewals:**

- 2018-2037 \$ 970,000

**Average Facility Condition Index**



**Background:**

- Built in 1998, the Fire Training Center is a pitched roof, single story, steel and wood framed building with prefinished box metal rib siding and thermally glazed aluminum windows. It houses training classrooms and administrative offices.

**Condition:**

- The building is in poor condition and has mostly original MEP systems. Furnaces, condensing units, the hot water heater and the original fluorescent lighting all need replacing.
- The concrete training tower (built c. 1961) is in need of replacement or removal, and the asphalt throughout the site is beyond its useful life and in need of replacement.

**Recent & Planned Projects:**

- Projects planned for the 2023-2024 biennium include the replacement of the HVAC system.
- Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.





# City of Tacoma 2018 Facility Condition Assessment

## Marine Security Operations Center

3301 Ruston Way, Tacoma, WA 98402

- **Year Built:** 1980
- **Last Renovation:** 2014
- **Facility Size:** 2,985 SF
- **Number of Floors:** 1
- **Facility Use Type:** Operations
- **Construction Type:** Medium
- **Historic Register:** No
- **Council District:** District 1
- **Equity Index:** Very High



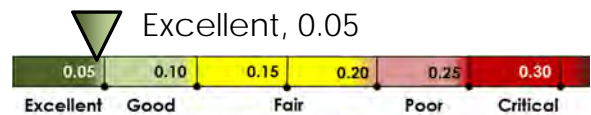
### Observed Deficiencies:

- 2018-2023 \$ 1,460,000

### Predictive Renewals:

- 2018-2037 \$ 340,000

### Average Facility Condition Index



### Background:

- The Marine Security Operations Center is a wood framed structure built in 1980 on wood piling over the water. In 2014 the facility was renovated, adding a structural steel support frame underneath and a new 635 sq. ft. freestanding wood framed single-bay apparatus building.

### Condition:

- The building is in excellent condition with no major deficiencies.

### Recent & Planned Projects:

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility and potential floating dock will be evaluated as part of the Fire Facility Masterplan currently underway.



# City of Tacoma 2018 Facility Condition Assessment

## Fire Station #1 & Headquarters

901 South Fawcett Avenue, Tacoma, WA 98402

- **Year Built:** 1967
- **Last Renovation:** N/A
- **Facility Size:** 16,600 SF
- **Number of Floors:** 2 + Basement
- **Facility Use Type:** Fire Station
- **Construction Type:** Medium
- **Historic Register:** No
- **Council District:** District 2
- **Equity Index:** Low



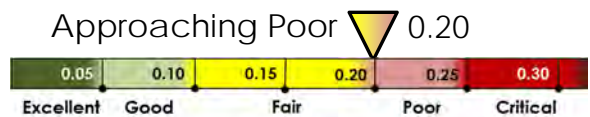
**Observed Deficiencies:**

- 2018-2023 \$ 1,560,000

**Predictive Renewals:**

- 2018-2037 \$ 3,340,000

**Average Facility Condition Index**



**Background:**

- Fire Station #1 and Headquarters was built in 1967 as an all concrete structure with two stories above grade, a mezzanine and basement level.

**Condition:**

- The building is approaching poor condition and is beginning to show its age. The roofing is in poor condition and should be replaced soon. The exterior precast cladding is in need of repair to fix spalling and sealant joints, old single glazed aluminum windows and storefront leak and are in need of replacement. Building systems are a mix of old and new ranging from good to poor condition.

**Recent & Planned Projects:**

- Projects planned for the 2023-2024 biennium include window replacement.
- Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.



# City of Tacoma 2018 Facility Condition Assessment

## Fire Station #2 (Historic)

2701 Tacoma Avenue South, Tacoma, WA 98402

- **Year Built:** 1907
- **Last Renovation:** 1934
- **Facility Size:** 16,380 SF
- **Number of Floors:** 1
- **Facility Use Type:** Fire Station
- **Construction Type:** Medium
- **Historic Register:** Yes
- **Council District:** District 2
- **Equity Index:** Very Low



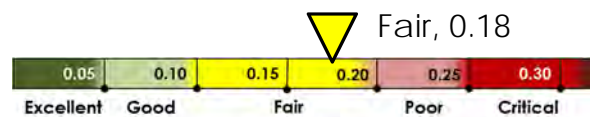
### Observed Deficiencies:

- 2018-2023 \$ 1,110,000

### Predictive Renewals:

- 2018-2037 \$ 3,280,000

### Average Facility Condition Index



### Background:

- Built in 1907 and listed on the Local and National Register of Historic Places, Fire Station #2 is constructed of wood, concrete, and masonry. The building was originally a two story building with a full basement; however in 1934, the building was remodeled and the second story was demolished.

### Condition:

- The building is in fair condition; however all of the systems and finishes, including the acoustical ceiling tile system, should be upgraded, the galvanized domestic water pipe should be replaced, the plumbing fixtures need updating and the lighting and branch panel board should be modernized.
- There is significant deterioration of the vaulted sidewalks, asphalt and concrete surfaces around the facility that should be addressed.

### Recent & Planned Projects:

- Design of the replacement of the vaulted sidewalk is underway, the project is scheduled for completion 2023.
- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.



# City of Tacoma 2018 Facility Condition Assessment

## Fire Station #3

206 Browns Point Blvd NE, WA 98422

- **Year Built:** 1980
- **Last Renovation:** N/A
- **Facility Size:** 2,816 SF
- **Number of Floors:** 1
- **Facility Use Type:** Fire Station
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 2
- **Equity Index:** High



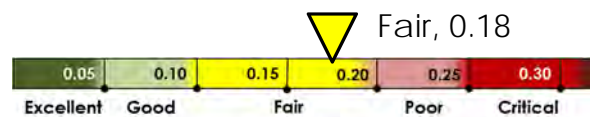
**Observed Deficiencies:**

- 2018-2023 \$ 260,000

**Predictive Renewals:**

- 2018-2037 \$ 440,000

**Average Facility Condition Index**



**Background:**

- Fire Station #3 was constructed in 1980 as a single story wood framed building with mostly brick veneer. The station is 2,816 sq. ft., with a single apparatus bay.

**Condition:**

- The station is in fair condition. Interior and exterior finishes are in need of replacement, cabinetry is showing wear, the parking lot and driveway is in need of replacement.

**Recent & Planned Projects:**

- In summer 2022 the HVAC system was upgraded and cooling was added to the building.
- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.





# City of Tacoma 2018 Facility Condition Assessment

## Fire Station #4 (Historic)

1453 Earnest S Brazill Street, Tacoma, WA 98405

- **Year Built:** 1935
- **Last Renovation:** N/A
- **Facility Size:** 6,115 SF
- **Number of Floors:** 1
- **Facility Use Type:** Fire Station
- **Construction Type:** Medium
- **Historic Register:** Yes
- **Council District:** District 3
- **Equity Index:** Low



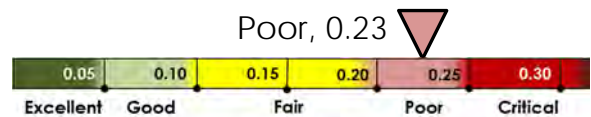
### Observed Deficiencies:

- 2018-2023 \$ 830,000

### Predictive Renewals:

- 2018-2037 \$ 1,110,000

### Average Facility Condition Index



### Background:

- Fire Station #4 (originally named Fire Station #5) is a single story building, with two apparatus bays, and 3/4 basement. Constructed in 1935 of wood and masonry construction with a simple art deco motif. The station is listed on the Local and National Register of Historic Places. The station originally had a practice tower where crews from all over the City would receive training.

### Condition:

- The station is in poor condition. The station is in need of basement waterproofing, hose tower restoration, window replacements, roof replacement, interior finish and fixture replacements, building system replacements, and replacement of the driveway and parking area surfaces.

### Recent & Planned Projects:

- In 2021, a roof reconditioning coating was applied and fall protection was added to this facility. In summer 2022 the HVAC system was upgraded and cooling was added to the building.
- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.



# City of Tacoma 2018 Facility Condition Assessment

## New Fire Station #5

3520 East 11<sup>th</sup> Street, Tacoma, WA 98421

- **Year Built:** 2021
- **Last Renovation:** N/A
- **Facility Size:** 5600 SF
- **Number of Floors:** 1
- **Facility Use Type:** Fire Station
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 2
- **Equity Index:** Low



**Observed Deficiencies:**

- 2018-2023 N/A

**Predictive Renewals:**

- 2018-2037 N/A

**Average Facility Condition Index**

Not Assessed



**Background:**

- Constructed in 2021, new Fire Station #5 is the City’s first purpose-built fire station since 2003. The station was constructed to support existing and future growth in the Tideflats and surrounding area. The facility is 5,600 square feet, single story with wood frame construction and metal siding and roof.

**Condition:**

- The facility is new and in excellent condition.

**Recent & Planned Projects:**

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.



# City of Tacoma 2018 Facility Condition Assessment

## Fire Station #6

1015 East "F" Street, Tacoma, WA 98421

- **Year Built:** 1964
- **Last Renovation:** N/A
- **Facility Size:** 4,200 SF
- **Number of Floors:** 1
- **Facility Use Type:** Fire Station
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 2
- **Equity Index:** Low



- Observed Deficiencies:**
- 2018-2023 \$ 300,000
- Predictive Renewals:**
- 2018-2037 \$ 720,000

**Average Facility Condition Index**

Approaching Poor 0.19



**Background:**

- Built in 1964, Fire Station #6 is a single story wood framed building with two apparatus bays.

**Condition:**

- The building is approaching poor condition and is in need of new carpet, a furnace, copper pipe to replace the existing galvanized domestic water piping system and new plumbing fixtures. There is a single toilet shower room and no dedicated area for exercise equipment, which is located in the garage.
- The exterior has been repainted and the low sloping roof is a combination of three-tab asphalt shingles and torch down asphalt.

**Recent & Planned Projects:**

- In summer 2022 the HVAC system was upgraded and cooling was added to the building.
- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.



# City of Tacoma 2018 Facility Condition Assessment

## Fire Station #7

5448 South Warner Street, Tacoma, WA 98409

- **Year Built:** 1959
- **Last Renovation:** 1988
- **Facility Size:** 2,081 SF
- **Number of Floors:** 1
- **Facility Use Type:** Fire Station
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 3
- **Equity Index:** Low



**Observed Deficiencies:**

- 2018-2023 \$ 180,000

**Predictive Renewals:**

- 2018-2037 \$ 350,000

**Average Facility Condition Index**

Approaching Poor 0.19



**Background:**

- Fire Station #7 was constructed in 1959 as single story, single apparatus bay fire station, collocated with the South Tacoma Library Branch. The station was last renovated in 1988.

**Condition:**

- The station is approaching poor condition. Repairs need to be made to the cracking apparatus bay floor and interior finishes are in need of replacement. Building systems are functional but aging and need replacement.

**Recent & Planned Projects:**

- In summer 2022 the HVAC system was upgraded and cooling was added to the building.
- The City is currently evaluating potential sites for property acquisition for the future relocation of the facility.
- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.





# City of Tacoma 2018 Facility Condition Assessment

## Fire Station #8

4911 South Alaska St., Tacoma, WA 98408

- **Year Built:** 2003
- **Last Renovation:** N/A
- **Facility Size:** 17,400 SF
- **Number of Floors:** 2
- **Facility Use Type:** Fire Station
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 4
- **Equity Index:** Very Low



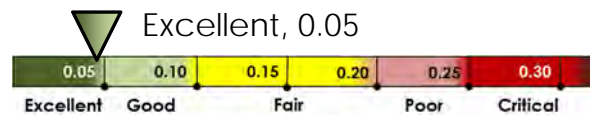
**Observed Deficiencies:**

- 2018-2023 \$ 210,000

**Predictive Renewals:**

- 2018-2037 \$ 1,950,000

**Average Facility Condition Index**



**Background:**

- Fire Station #8 is a large two story wood framed building constructed in 2003. The facility houses four apparatus bays dorm/living quarters, an office and a recreation area. There is also a large community room with separate toilet facilities that are accessible from the daylight basement.

**Condition:**

- The building is in excellent condition, although the mechanical systems and site improvements are nearing the end of their useful life.

**Recent & Planned Projects:**

- In 2021 the deck was replaced and snow guards were added to the roof.
- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.



# City of Tacoma 2018 Facility Condition Assessment

## Fire Station #9

3502 6<sup>th</sup> Avenue, Tacoma, WA 98406

- **Year Built:** 1965
- **Last Renovation:** N/A
- **Facility Size:** 5,430 SF
- **Number of Floors:** 1
- **Facility Use Type:** Fire Station
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 3
- **Equity Index:** Moderate



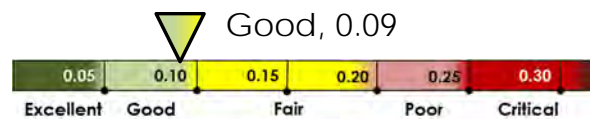
**Observed Deficiencies:**

- 2018-2023 \$ 180,000

**Predictive Renewals:**

- 2018-2037 \$ 820,000

**Average Facility Condition Index**



**Background:**

- Built in 1965, Fire Station #9 is a partial two story wood framed facility with three apparatus bays. An upper mezzanine houses an additional dorm, a bath/shower unit and work out rooms.

**Condition:**

- The building is in good condition but is in need of new interior finishes and some site work.

**Recent & Planned Projects:**

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.



# City of Tacoma 2018 Facility Condition Assessment

## Fire Station #10 (Historic)

7247 South Park Avenue, Tacoma, WA 98408

- **Year Built:** 1928
- **Last Renovation:** N/A
- **Facility Size:** 1,963 SF
- **Number of Floors:** 1
- **Facility Use Type:** Fire Station
- **Construction Type:** Light
- **Historic Register:** Yes
- **Council District:** District 5
- **Equity Index:** Moderate



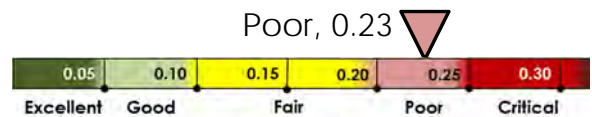
**Observed Deficiencies:**

- 2018-2023 \$ 300,000

**Predictive Renewals:**

- 2018-2037 \$ 370,000

**Average Facility Condition Index**



**Background:**

- Fire Station #10 is a bungalow type station constructed in 1928. The station is a single-story wood frame building with partial basement and attic, plus hose tower and separate parking garage. The station is listed on the Local and National Register of Historic Places. In 1980, the apparatus bay was extended to accommodate larger apparatus.

**Condition:**

- The station is in poor condition. The apparatus bay extension has some settlement and there is cracking through the foundation and slab on grade. Various systems are due for renewal, such as the original single-glazed windows, electrical and mechanical systems, and roofing.

**Recent & Planned Projects:**

- In summer 2022 the HVAC system was upgraded and cooling was added to the building.
- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.



# City of Tacoma 2018 Facility Condition Assessment

## Fire Station #11 (Historic)

3802 McKinley Avenue, Tacoma, WA 98404

- **Year Built:** 1909
- **Last Renovation:** 1980
- **Facility Size:** 5,121 SF
- **Number of Floors:** 2
- **Facility Use Type:** Fire Station
- **Construction Type:** Medium
- **Historic Register:** Yes
- **Council District:** District 4
- **Equity Index:** Very Low



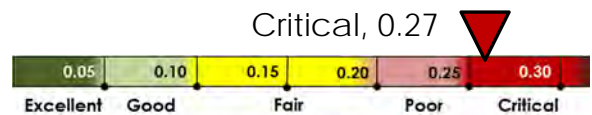
**Observed Deficiencies:**

- 2018-2023 \$ 840,000

**Predictive Renewals:**

- 2018-2037 \$ 1,030,000

**Average Facility Condition Index**



**Background:**

- Constructed in 1909, Fire Station #11 is a two story wood and unreinforced masonry structure listed on the Local and National Register of Historic Places.
- The facility has a partial basement which houses the boiler and provides limited storage. The ground floor includes two apparatus bays, one drive through and the other single sided with a workbench and exercise area. The upper floor is the station house with a mix of office, living and exercise areas. The hose tower has been converted to storage and provides access to the attic and roof.

**Condition:**

- The building is in critical condition with most fixtures and finishes at or past the end of life. Building systems are in need of modernization and the exterior needs to be refurbished.

**Recent & Planned Projects:**

- Design and permitting for replacement of the HVAC system is underway, the project is scheduled for completion 2023.
- Projects planned for the 2023-2024 biennium include the replacement of the roof.
- Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.





# City of Tacoma 2018 Facility Condition Assessment

## Fire Station #12

2015 54<sup>th</sup> Avenue East, Fife, WA 98424

- **Year Built:** 1975
- **Last Renovation:** 1995
- **Facility Size:** 9,970 SF
- **Number of Floors:** 2
- **Facility Use Type:** Fire Station
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** N/A
- **Equity Index:** N/A



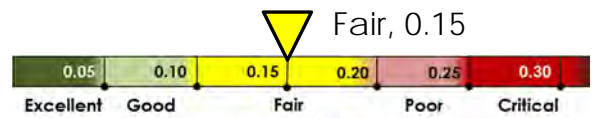
**Observed Deficiencies:**

- 2018-2023 \$ 560,000

**Predictive Renewals:**

- 2018-2037 \$ 1,600,000

**Average Facility Condition Index**



**Background:**

- Fire Station #12 is a two story wood framed fires station with a three vehicle bay garage. Originally constructed in 1975, there have been several remodels and additions to the building, the most recent renovation in 1995.
- The exterior consists of torch-down roofing on a wood deck, wood framed walls clad with brick veneer and wood lap siding, aluminum punched insulated windows, and hollow metal doors.
- The building is physically located in Fife and is operated and maintained by the City of Tacoma under an agreement with Pierce County Fire Protection District No. 10. Any improvements or modifications would have to be in accordance with that agreement.

**Condition:**

- The building is in fair condition. Building systems are a mix of some original but most 1995 equipment and materials are showing signs of age and obsolescence.

**Recent & Planned Projects:**

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.



# City of Tacoma 2018 Facility Condition Assessment

## Fire Station #13 (Historic)

3825 North 25<sup>th</sup> Street, Tacoma, WA 98406

- **Year Built:** 1911
- **Last Renovation:** N/A
- **Facility Size:** 9,900 SF
- **Number of Floors:** 3
- **Facility Use Type:** Fire Station
- **Construction Type:** Light
- **Historic Register:** Yes
- **Council District:** District 1
- **Equity Index:** Very High



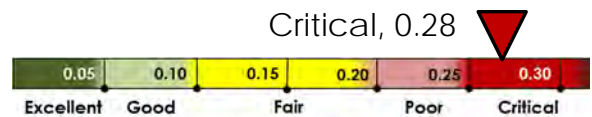
**Observed Deficiencies:**

- 2018-2023 \$ 1,300,000

**Predictive Renewals:**

- 2018-2037 \$ 1,710,000

**Average Facility Condition Index**



**Background:**

- Built in 1911, Fire Station #13 is a two story wood and unreinforced masonry structure listed on the Local and National Register of Historic Places.
- The facility has a full basement which houses the boiler and provides limited storage. The ground floor includes two apparatus bays and workbench. The upper floor is the station house with a mix of office and living areas. The hose tower has been converted to storage and provides access to the attic and roof.

**Condition:**

- The building is in critical condition with most fixtures and finishes at or past the end of life. Building systems are in need of modernization and the exterior needs to be refurbished.

**Recent & Planned Projects:**

- Design and permitting for replacement of the HVAC system is underway, the project is scheduled for completion 2023.
- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.



# City of Tacoma 2018 Facility Condition Assessment

## Fire Station #14 (Historic)

4701 North 41<sup>st</sup> Street, Tacoma, WA 98407

- **Year Built:** 1928
- **Last Renovation:** N/A
- **Facility Size:** 1,963 SF
- **Number of Floors:** 1
- **Facility Use Type:** Fire Station
- **Construction Type:** Light
- **Historic Register:** Yes
- **Council District:** District 1
- **Equity Index:** Very High



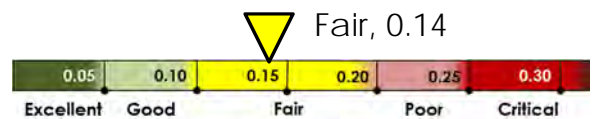
**Observed Deficiencies:**

- 2018-2023 \$ 130,000

**Predictive Renewals:**

- 2018-2037 \$ 350,000

**Average Facility Condition Index**



**Background:**

- Fire station #14 is a 1928 single story wood framed bungalow style building with a partial basement, attic, hose tower and separate parking garage. The station is listed on the Local and National Register of Historic Places. In 1980, the apparatus bay was extended to accommodate larger apparatus.

**Condition:**

- The building is in fair condition. The apparatus bay extension has some settlement and there is cracking through the foundation and slab on grade. Various systems are due for renewal, such as the original single-glazed windows, electrical and mechanical systems.

**Recent & Planned Projects:**

- In summer 2022 the HVAC system was upgraded and cooling was added to the building.
- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.



# City of Tacoma 2018 Facility Condition Assessment

## Temporary Fire Station #15

6415 East McKinley Avenue, Tacoma, WA 98404

- **Year Built:** 1928
- **Last Renovation:** 2006
- **Facility Size:** 2,054 SF
- **Number of Floors:** 1
- **Facility Use Type:** Fire Station
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 4
- **Equity Index:** Low



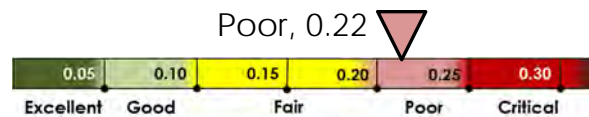
**Observed Deficiencies:**

- 2018-2023 \$ 380,000

**Predictive Renewals:**

- 2018-2037 \$ 610,000

**Average Facility Condition Index**



**Background:**

- Fire Station #15 is a temporary station containing two primary structures: a former single-story 1929 single family home, converted in 2006 to a Fire-fighting residence, and a separate garage in the alley housing two emergency vehicles and a workout room.

**Condition:**

- The temporary station is in poor condition. Roof structure is at the end of its useful life and needs to be replaced, interior finishes and fixtures need to be replaced, and concrete driveway needs replacement.

**Recent & Planned Projects:**

- In summer 2022 the HVAC system was upgraded and cooling was added to the building.
- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.





# City of Tacoma 2018 Facility Condition Assessment

## Former Fire Station #15 (Historic)

3510 East 11<sup>th</sup> Street, Tacoma, WA 98421

- **Year Built:** 1929
- **Last Renovation:** N/A
- **Facility Size:** 3,300 SF
- **Number of Floors:** 1
- **Facility Use Type:** Storage
- **Construction Type:** Masonry
- **Historic Register:** Yes
- **Council District:** District 2
- **Equity Index:** Low



### Observed Deficiencies:

- 2018-2023 N/A

### Predictive Renewals:

- 2018-2037 N/A

### Average Facility Condition Index

Not Assessed



### Background:

- Former Fire Station #15 was constructed in 1929. It is a one-story building built of unreinforced hollow clay tile. The facility was listed on the National Register of Historic Places in 1986. The facility is utilized for storage and has not been utilized as an active station since 2006 when operations were relocated to South 64<sup>th</sup> & McKinley (Temporary Fire Station #15).

### Condition:

- The building is in fair condition for ongoing use as storage, but due to extensive structural improvement that would be required the building will not be re-occupied for future operations.

### Recent & Planned Projects:

- In 2021 the facility was re-roofed, minor structural repairs were completed, and the facility was painted.
- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.



# City of Tacoma 2018 Facility Condition Assessment

## Fire Station #16

7217 6<sup>th</sup> Avenue, Tacoma, WA 98406

- **Year Built:** 1999
- **Last Renovation:** N/A
- **Facility Size:** 11,000 SF
- **Number of Floors:** 1
- **Facility Use Type:** Fire Station
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 1
- **Equity Index:** Moderate



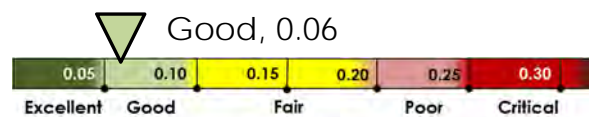
**Observed Deficiencies:**

- 2018-2023 \$ 190,000

**Predictive Renewals:**

- 2018-2037 \$ 1,340,000

**Average Facility Condition Index**



**Background:**

- Fire Station #16, constructed in 1999, is a single story wood framed building with three apparatus bays and an attached community meeting room.

**Condition:**

- The facility is in good condition although the interior finishes are showing signs of wear and the building systems are reaching the end of their useful life and will need to be replaced soon.

**Recent & Planned Projects:**

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.



# City of Tacoma 2018 Facility Condition Assessment

## Fire Station #17

302 Regents Blvd, Fircrest, WA 98466

- **Year Built:** 1979
- **Last Renovation:** N/A
- **Facility Size:** 8,994 SF
- **Number of Floors:** 2
- **Facility Use Type:** Fire Station
- **Construction Type:** Medium
- **Historic Register:** No
- **Council District:** N/A
- **Equity Index:** N/A



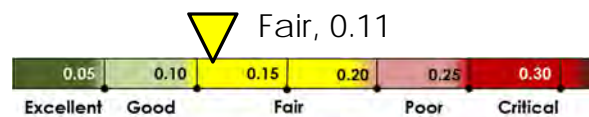
**Observed Deficiencies:**

- 2018-2023 \$ 290,000

**Predictive Renewals:**

- 2018-2037 \$ 1,620,000

**Average Facility Condition Index**



**Background:**

- Built in 1979, Fire Station #17 is a two story wood framed building with three apparatus bays.
- The building is physically located in Fircrest and owned by the City of Fircrest; however Tacoma Fire operates out of a portion of the building under an agreement with the City of Fircrest.

**Condition:**

- The building is in fair condition but the galvanized domestic water pipe should be replaced. The electrical distribution system is 30 years old and nearing the end of its useful life.

**Recent & Planned Projects:**

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.



# City of Tacoma 2018 Facility Condition Assessment

## Fire Station #18 & Moorage (Historic)

302 East 11<sup>th</sup> Street, Tacoma, WA 98421

- **Year Built:** 1929
- **Last Renovation:** N/A
- **Facility Size:** 1,752 SF
- **Number of Floors:** 1
- **Facility Use Type:** Fire Station
- **Construction Type:** Light
- **Historic Register:** Yes
- **Council District:** District 2
- **Equity Index:** Low



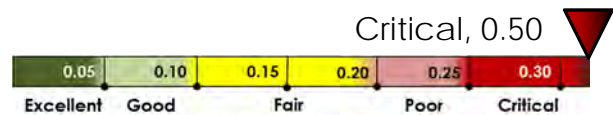
### Observed Deficiencies:

- 2018-2023 \$ 1,380,000

### Predictive Renewals:

- 2018-2037 \$ 220,000

### Average Facility Condition Index



### Background:

- Fire Station #18 is a single story wood framed building built in 1929. The site contains the historic station, a boat shed and floating dock. It is listed on the Local and National Register of Historic Places.

### Condition:

- The facility is in critical condition. The facility needs a new roof, updated plumbing, a new furnace, and seismic upgrades. The MEP system is a mixture of old and new equipment with a variety of obsolescence, damage and code issues.
- The floating dock was rehabilitated in 2014.

### Recent & Planned Projects:

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility. Future needs for the facility will be evaluated as part of the Fire Facility Masterplan currently underway.



CITY OF TACOMA  
2018 FACILITY CONDITION ASSESSMENT, SUMMARY REPORT

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# City of Tacoma 2018 Facility Condition Assessment

## Harrison Range

101 McMurray Road NE, Tacoma, WA 98422

- **Year Built:** 1960
- **Last Renovation:** N/A
- **Facility Size:** 8,062 SF
- **Number of Floors:** 1
- **Facility Use Type:** Ops. Support
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 2
- **Equity Index:** High



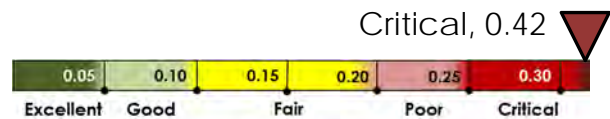
**Observed Deficiencies:**

- 2018-2023 \$ 1,480,000

**Predictive Renewals:**

- 2018-2037 \$ 920,000

**Average Facility Condition Index**



**Background:**

- The Harrison Range includes the main range building and ancillary garage located in the lower property area and simulation lab in the upper lot.
- The main range building is roughly 4,150 sq. ft., constructed around 1960. It is one-story and wood framed. It houses offices, a classroom, and training area. An adjacent ancillary 1,550 sq. ft. garage building is single story and wood framed. It houses range and maintenance equipment.
- The simulation lab is a 2,362 sq. ft. single-story, metal-clad, timber "pole barn" structure on a slab on grade. It was constructed in 2005 and consists of a small classroom, instructor monitoring area, and a demountable partition training simulator.

**Condition:**

- The simulator lab is generally in good condition. The main range building and garage are beginning to show their age and are in need of roofing replacement, interior and exterior finish replacements, building systems including electrical, plumbing and HVAC are past their useful life, and range equipment is failing and in need of replacement.

**Recent & Planned Projects:**

- Projects planned for the 2023-2024 biennium include the replacement of the main range roof.



# City of Tacoma 2018 Facility Condition Assessment

## Police Headquarters

3701 South Pine Street, Tacoma, WA 98409

- Year Built: 2005
- Last Renovation: N/A
- Facility Size: 73,000 SF
- Number of Floors: 3
- Facility Use Type: Police Station
- Construction Type: Medium
- Historic Register: No
- Council District: District 3
- Equity Index: Very Low



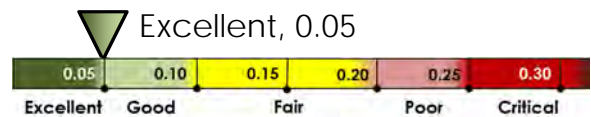
### Observed Deficiencies:

- 2018-2023 \$ 880,000

### Predictive Renewals:

- 2018-2037 \$ 11,380,000

### Average Facility Condition Index



### Background:

- Constructed in 2005, the three-story Police Headquarters building is a steel framed structure, with CMU veneer and curtain wall glazing system.

### Condition:

- The building is in excellent condition. Many of the building systems are beginning to show signs of wear, refurbishment and retro-commissioning of building systems are recommended.

### Recent & Planned Projects:

- Projects planned for the 2023-2024 biennium include the replacement of site operable gate systems and security equipment upgrades.



# City of Tacoma 2018 Facility Condition Assessment

## Fleet & Police Warehouse

3639 South Pine Street, Tacoma, WA 98409

- **Year Built:** 1992
- **Last Renovation:** 2005
- **Facility Size:** 129,000 SF
- **Number of Floors:** 2
- **Facility Use Type:** Maint. Shop
- **Construction Type:** Medium
- **Historic Register:** No
- **Council District:** District 3
- **Equity Index:** Very Low



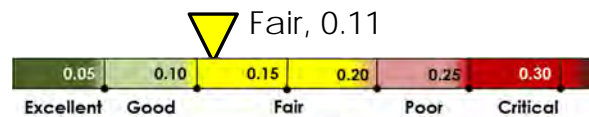
**Observed Deficiencies:**

- 2018-2023 \$ 5,750,000

**Predictive Renewals:**

- 2018-2037 \$ 16,650,000

**Average Facility Condition Index**



**Background:**

- The Fleet & Police Warehouse was originally constructed as a 'Costco' in 1992 and modernized and expanded for its current use in 2005. Approximately 82,000 sq. ft. is utilized for Fleet Administration and Maintenance, and approximately 47,000 utilized as Police Storage and quartermaster space. The facility is steel framed with concrete masonry units.

**Condition:**

- The building is in fair condition. The rooftop air handling units are at the end of their life and in need of replacement, the skylights and roofing system are beginning to fail and are in need of repair/replacement, interior finishes are worn and need replacement, control systems are nearing the end of their life and should be upgraded.

**Recent & Planned Projects:**

- Design is underway for the replacement of the rooftop air handling units as part of the city's carbon reduction efforts and 2030 initiative, the project is scheduled for completion in 2023.
- There are no additional capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility.



# City of Tacoma 2018 Facility Condition Assessment

## TPD Sector 1 (Central) Substation

1524 Martin Luther King Jr Way, Tacoma, WA 98405

- **Year Built:** 2006
- **Last Renovation:** N/A
- **Facility Size:** 3,500 SF
- **Number of Floors:** 1
- **Facility Use Type:** Police Station
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 3
- **Equity Index:** Very Low



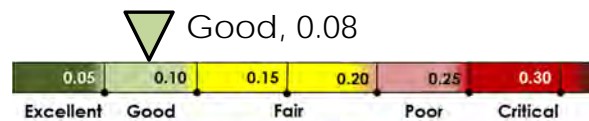
**Observed Deficiencies:**

- 2018-2023 \$ 140,000

**Predictive Renewals:**

- 2018-2037 \$ 480,000

**Average Facility Condition Index**



**Background:**

- Sector 1 (also referred to as "Central" Substation) is a one-story, 3,500 sq. ft. police sub-station built in 2006, with a 49 person community meeting room. It is a wood frame structure, slab on grade with a standing seam butterfly roof, concrete masonry unit, and cement panel cladding.

**Condition:**

- The building is in good condition, but is in need of minor parking lot repairs, repairs to interior finishes and a rebalancing of the HVAC system is recommended.

**Recent & Planned Projects:**

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility.





City of Tacoma  
**2018 Facility Condition Assessment**

**TPD Sector 1 (Northeast) Substation**

4731 Norpoint Way, Tacoma, WA 98422

- **Year Built:** 2006
- **Last Renovation:** N/A
- **Facility Size:** 3,500 SF
- **Number of Floors:** 1
- **Facility Use Type:** Police Station
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 2
- **Equity Index:** High



**Observed Deficiencies:**

- 2018-2023 \$ 90,000

**Predictive Renewals:**

- 2018-2037 \$ 500,000

**Average Facility Condition Index**



**Background:**

- The Northeast Substation is a one-story, 3,500 sq. ft. police sub-station built in 2009, with a 49 person community meeting room. It is a wood frame structure, slab on grade with a standing seam butterfly roof, concrete masonry unit, and cement panel cladding.

**Condition:**

- The building is in excellent condition, but is need of minor parking lot repairs, repairs to interior finishes and a rebalancing of the HVAC system is recommended.

**Recent & Planned Projects:**

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility.



# City of Tacoma 2018 Facility Condition Assessment

## TPD Sector 2 (North) Substation

5136 North 26<sup>th</sup> Street, Tacoma, WA 98406

- **Year Built:** 2006
- **Last Renovation:** N/A
- **Facility Size:** 3,500 SF
- **Number of Floors:** 1
- **Facility Use Type:** Police Station
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 1
- **Equity Index:** High



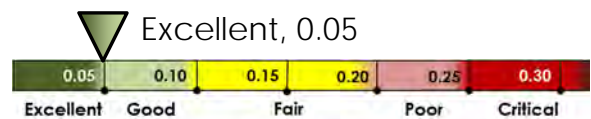
### Observed Deficiencies:

- 2018-2023 \$ 60,000

### Predictive Renewals:

- 2018-2037 \$ 500,000

### Average Facility Condition Index



### Background:

- Sector 2 (also referred to as "North" Substation) is a one-story, 3,500 sq. ft. police sub-station built in 2006, with a 49 person community meeting room. It is a wood frame structure, slab on grade with a standing seam butterfly roof, concrete masonry unit, and cement panel cladding.

### Condition:

- The building is in excellent condition, but is need of minor parking lot repairs, repairs to interior finishes and a rebalancing of the HVAC system is recommended.

### Recent & Planned Projects:

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility.





# City of Tacoma 2018 Facility Condition Assessment

## TPD Sector 3 (Wapato) Substation 1501 South 72<sup>nd</sup> Street, Tacoma, WA 98408

- **Year Built:** 2006
- **Last Renovation:** N/A
- **Facility Size:** 3,500 SF
- **Number of Floors:** 1
- **Facility Use Type:** Police Station
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 5
- **Equity Index:** High



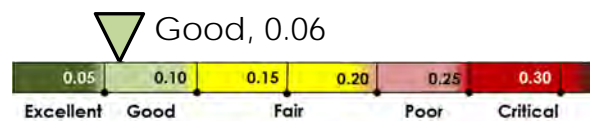
### Observed Deficiencies:

- 2018-2023 \$ 80,000

### Predictive Renewals:

- 2018-2037 \$ 480,000

### Average Facility Condition Index



### Background:

- Sector 3 (also referred to as “Wapato” Substation) is a one-story, 3,500 sq. ft. police sub-station built in 2009, with a 49 person community meeting room. It is a wood frame structure, slab on grade with a standing seam butterfly roof, concrete masonry unit, and cement panel cladding.

### Condition:

- The building is in good condition. There are minor repairs needed to the exterior and interior finishes, rebalancing of the HVAC system is recommended.

### Recent & Planned Projects:

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility.



City of Tacoma  
**2018 Facility Condition Assessment**

**TPD Sector 4 (Stewart Heights) Substation**  
 400 East 56<sup>th</sup> Street, Tacoma, WA 98404

- **Year Built:** 2009
- **Last Renovation:** N/A
- **Facility Size:** 3,500 SF
- **Number of Floors:** 1
- **Facility Use Type:** Police Station
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 5
- **Equity Index:** Low



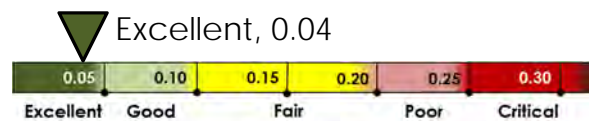
**Observed Deficiencies:**

- 2018-2023 \$ 30,000

**Predictive Renewals:**

- 2018-2037 \$ 480,000

**Average Facility Condition Index**



**Background:**

- Sector 4 (also referred to as "Stewart Heights" Sub-station) is a one-story, 3,500 sq. ft. police sub-station built in 2009, with a 49 person community meeting room. It is a wood frame structure, slab on grade with a standing seam butterfly roof, concrete masonry unit, and cement panel cladding.

**Condition:**

- The building is in excellent condition. Exterior lighting needs repairs or replacement and a rebalancing of the HVAC system is recommended.

**Recent & Planned Projects:**

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility.

CITY OF TACOMA  
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# City of Tacoma 2018 Facility Condition Assessment

## Municipal Services Center (TV Tacoma)

1224 Martin Luther King Jr Way, Tacoma, WA 98405

- **Year Built:** 1960
- **Last Renovation:** N/A
- **Facility Size:** 6,857 SF
- **Number of Floors:** 2 + Basement
- **Facility Use Type:** Office
- **Construction Type:** Medium
- **Historic Register:** No
- **Council District:** District 3
- **Equity Index:** Very Low



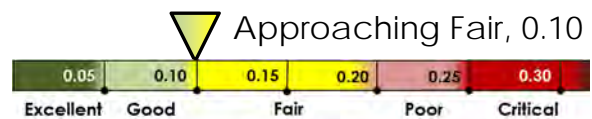
### Observed Deficiencies:

- 2018-2023 \$ 140,000

### Predictive Renewals:

- 2018-2037 \$ 1,720,000

### Average Facility Condition Index



### Background:

- The Municipal Services Center, also known as TV Tacoma, is a partial 2-story building with full basement constructed in the 1960's. The building is constructed of masonry and wood with concrete basement walls below grade.
- Prior to being the Municipal Services Center the building was a police substation.

### Condition:

- The building is in good condition, but in need of roofing and mechanical equipment replacements.

### Recent & Planned Projects:

- Projects planned for the 2023-2024 biennium include the replacement of the roof and rooftop mechanical equipment.



# City of Tacoma 2018 Facility Condition Assessment

## Tacoma Municipal Building (Historic)

747 Market Street, Tacoma, WA 98402

- **Year Built:** 1930
- **Last Renovation:** 1980
- **Facility Size:** 207,020 SF
- **Number of Floors:** 15 + Basement
- **Facility Use Type:** Office
- **Construction Type:** Heavy
- **Historic Register:** Yes
- **Council District:** District 2
- **Equity Index:** Low



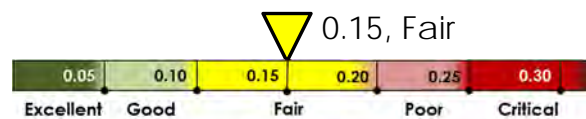
### Observed Deficiencies:

- 2018-2023 \$ 11,210,000

### Predictive Renewals:

- 2018-2037 \$ 55,200,000

### Average Facility Condition Index



### Background:

- Constructed in 1930 as the Rhodes Medical Arts Building. The Tacoma Municipal Building (TMB) was listed on the National Register of Historic Places in 1978. The City purchased and remodeled the building, holding its first Council Meeting in the building on December 18, 1979. The TMB is a 15-story art-deco style building, constructed of reinforced concrete with an exterior cast stone cladding system.

### Condition:

- The building is generally in fair condition, with deteriorating exterior materials in need of refurbishment, aging coverings & finishes, and aging building systems.

### Recent & Planned Projects:

- Since 2018 numerous interior remodels have been completed, including the remodel of the TMB 10<sup>th</sup> Floor. In 2020, modernization of the elevators was completed. In 2021, a condition assessment and stabilization of the TMB exterior was completed identifying extensive rehabilitation needs for the exterior facades. In 2022, upgrades and replacements of TMB building systems were completed, including the domestic water system, emergency power automatic transfer switch (ATS), fire pump and fire alarm system.
- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility, although The City will continue to seek future funding opportunities and will continue to monitor and assess the exterior condition.





# City of Tacoma 2018 Facility Condition Assessment

## Tacoma Municipal Building North

733 Market Street, Tacoma, WA 98402

- **Year Built:** 1954
- **Last Renovation:** 1995
- **Facility Size:** 41,400 SF
- **Number of Floors:** 5 + Basement
- **Facility Use Type:** Office
- **Construction Type:** Heavy
- **Historic Register:** No
- **Council District:** District 2
- **Equity Index:** Low



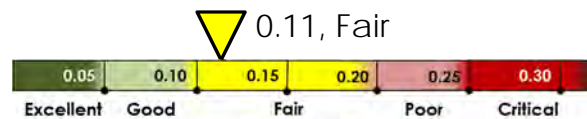
### Observed Deficiencies:

- 2018-2023 \$ 2,140,000

### Predictive Renewals:

- 2018-2037 \$ 9,760,000

### Average Facility Condition Index



### Background:

- The Tacoma Municipal Building North (TMBN), formerly known as the Center Plaza Building, was constructed in 1954 as a five-story concrete and masonry building with full basement, partial subbasement, and small elevator core penthouse. In 1995, it was modernized as City office space and was laterally tied into the Tacoma Municipal Building parking structure to the south.

### Condition:

- The building is in fair condition, with deteriorating exterior materials in need of refurbishment. The roofing system is nearing the end of its useful life. Aging interior flooring & finishes need replacement. Mechanical and plumbing systems are in need of refurbishment or replacement.

### Recent & Planned Projects:

- Since 2018 numerous interior remodels have been completed, including the remodel of the TMBN 2<sup>nd</sup> Floor. In 2021, a condition assessment and stabilization of the TMBN exterior was completed identifying extensive rehabilitation needs for the exterior facades.
- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility, although The City will continue to seek future funding opportunities and will continue to monitor and assess the exterior condition.





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2018 FACILITY CONDITION ASSESSMENT, SUMMARY REPORT

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*Fleet Warehouse is included in the Tacoma Police Facilities section.*





# City of Tacoma 2018 Facility Condition Assessment

## Asphalt Plant

3010 Center Street, Tacoma, WA 98409

- **Year Built:** 1987
- **Last Renovation:** N/A
- **Facility Size:** 1,800 SF
- **Number of Floors:** 1
- **Facility Use Type:** Maint.
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 3
- **Equity Index:** Very Low



**Observed Deficiencies:**

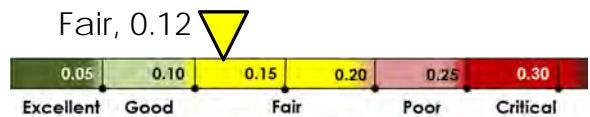
- 2018-2023 \$ 250,000

**Predictive Renewals:**

- 2018-2037 \$ 520,000

**Average Facility Condition Index**

Fair, 0.12



**Background:**

- The Asphalt Plant administration building is a small wood framed structure that houses 2 management offices, staff break room, toilet/shower facilities and locker room.
- Other structures on the site include: 1) Asphalt batch plant building, 2) Five prefabricated steel materials shelters, 3) Multiple tool sheds, 4) Truck weigh station and small scale-house, and 5) Open-air gravel materials storage yards.

**Condition:**

- The building is in fair condition. Exterior repairs are needed to the siding and roofing. The heating/cooling system is failing and needs replacement. The paved surfaces on the site need to be patched and repaired.

**Recent & Planned Projects:**

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility.



# City of Tacoma 2018 Facility Condition Assessment

## Cavanaugh Building

1423 Puyallup Ave., Tacoma, WA 98421

- **Year Built:** c. 1930
- **Last Renovation:** 1963
- **Facility Size:** 28,600 SF
- **Number of Floors:** 1
- **Facility Use Type:** Warehouse
- **Construction Type:** Medium
- **Historic Register:** No
- **Council District:** District 2
- **Equity Index:** Low



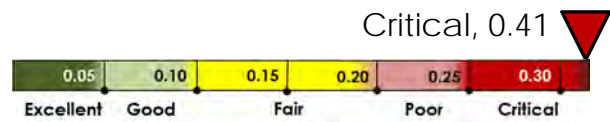
**Observed Deficiencies:**

- 2018-2023 \$ 680,000

**Predictive Renewals:**

- 2018-2037 \$ 3,740,000

**Average Facility Condition Index**



**Background:**

- The Cavanaugh Building is a one story warehouse type structure with an exterior canopy along one side. The original date of construction is unknown, but records indicate it was constructed circa 1930 as the Cavanaugh Lumber Company, with the canopy constructed in 1963.
- The City acquired the site in 1973 and utilized the building for Public Works maintenance until 2013 when those functions were consolidated into the Grounds Maintenance facility. The building was then briefly utilized by Environmental Services TAGRO for storage.
- Since June 2017 the site has been utilized for homeless stability, but the building remains unoccupied.

**Condition:**

- The building is in critical condition, has extensive deficiencies and is beyond its useful life. Observed deficiencies identified are limited to demolition of the structure.

**Recent & Planned Projects:**

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility.



# City of Tacoma 2018 Facility Condition Assessment

## Grounds Maintenance & Sign Shop

2308 South Holgate Street, Tacoma, WA 98402

- **Year Built:** c. 1900
- **Last Renovation:** 1949
- **Facility Size:** 28,600 SF
- **Number of Floors:** 2
- **Facility Use Type:** Maint. Shop
- **Construction Type:** Medium
- **Historic Register:** No
- **Council District:** District 2
- **Equity Index:** Low



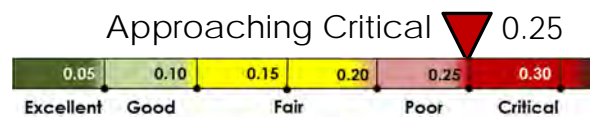
### Observed Deficiencies:

- 2018-2023 \$ 4,500,000

### Predictive Renewals:

- 2018-2037 \$ 5,480,000

### Average Facility Condition Index



### Background:

- The Grounds Maintenance building is part of the Street Operations Campus located in the Brewery District. Originally constructed circa 1900 as a 2-story steel and wood frame building. In 1949 the building was remodeled and a CMU and wood framed addition was constructed, serving as the Tacoma Municipal Plant and Shop (fleet).

### Condition:

- The building is approaching critical condition. Many of the building components are past their useful life. The exteriors need to be refurbished and the concrete ramp to the upper level is failing and needs replacement. Building systems are aging, obsolete, or failed, with a variety of abandoned systems that should be removed. Roof systems should be replaced with additional overflow scuppers added.

### Recent & Planned Projects:

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility, although long-term planning for potential future relocation of the Street Operations Campus will be reviewed.



# City of Tacoma 2018 Facility Condition Assessment

## Street Operations Building (Historic)

2324 South 'C' Street, Tacoma, WA 98402

- **Year Built:** 1909
- **Last Renovation:** N/A
- **Facility Size:** 27,340 SF
- **Number of Floors:** 2
- **Facility Use Type:** Maint. Shop
- **Construction Type:** Medium
- **Historic Register:** Yes
- **Council District:** District 2
- **Equity Index:** Very Low



### Observed Deficiencies:

- 2018-2023 \$ 1,070,000

### Predictive Renewals:

- 2018-2037 \$ 5,070,000

### Average Facility Condition Index

Approaching Poor  0.19



### Background:

- The Streets Operations Building is part of the Street Operations Campus located in the Brewery District. The building is a 2-story concrete and wood structure built in 1909. The barn was purpose built to support the City's streets group who at the time had horse drawn streets equipment. The building is listed on the Washington State Heritage Barn Register and the Tacoma Register of Historic Places.

### Condition:

- The building is approaching poor condition. A wide variety of conditions and systems exist throughout the building. The interior finishes and fixtures are due for replacement. Building systems including mechanical, electrical and plumbing should be updated.

### Recent & Planned Projects:

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility, although long-term planning for potential future relocation of the Street Operations Campus will be reviewed.





# City of Tacoma 2018 Facility Condition Assessment

## Street Operations Upper Yard

2335 Jefferson Ave, Tacoma, WA 98402

- **Year Built:** c. 1945
- **Last Renovation:** N/A
- **Facility Size:** N/A
- **Number of Floors:** N/A
- **Facility Use Type:** Maint. Yard
- **Construction Type:** N/A
- **Historic Register:** No
- **Council District:** District 2
- **Equity Index:** Very Low



**Observed Deficiencies:**

- 2018-2023 N/A

**Predictive Renewals:**

- 2018-2037 N/A

**Average Facility Condition Index**

Not Assessed



**Background:**

- The Streets Operations Upper Yard is part of the Street Operations Campus located in the Brewery District. The site was acquired c. 1945 and is approximately 1.56 acres. The site is utilized for storage of materials and equipment for Public Works street maintenance and operations.

**Condition:**

- The site was not assessed as part of the 2018 Facility Condition Assessment.

**Recent & Planned Projects:**

- In 2020 the covered vehicle storage was rebuilt after a fire.
- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility, although long-term planning for potential future relocation of the Street Operations Campus will be reviewed.





# City of Tacoma 2018 Facility Condition Assessment

## Traffic Signal Shop

3401-A So. Orchard St., Tacoma, WA 98466

- **Year Built:** 1983
- **Last Renovation:** N/A
- **Facility Size:** 12,000 SF
- **Number of Floors:** 1
- **Facility Use Type:** Maint. Shop
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 3
- **Equity Index:** Very Low



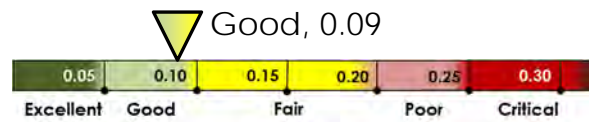
**Observed Deficiencies:**

- 2018-2023 \$ 100,000

**Predictive Renewals:**

- 2018-2037 \$ 1,940,000

**Average Facility Condition Index**



**Background:**

- The Traffic Signal Shop was originally constructed in 1983. It is a pre-engineered metal shop building (insulated), with internal offices, and a parts storage mezzanine above. The roof extends to provide covered parking for department bucket trucks.

**Condition:**

- The building is in good condition. The roof needs repairs and interior finishes need replacement.

**Recent & Planned Projects:**

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility.

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# City of Tacoma 2018 Facility Condition Assessment

## Beacon Center

415 South 13<sup>th</sup> Street, Tacoma, WA 98402

- **Year Built:** 1941
- **Last Renovation:** 2022
- **Facility Size:** 12,122 SF
- **Number of Floors:** 1
- **Facility Use Type:** Comm. Cntr.
- **Construction Type:** Medium
- **Historic Register:** No
- **Council District:** District 2
- **Equity Index:** Low



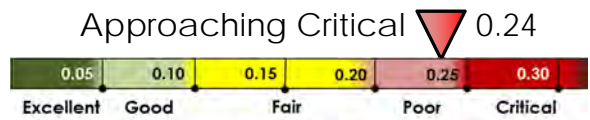
**Observed Deficiencies:**

- 2018-2023 \$ 1,730,000

**Predictive Renewals:**

- 2018-2037 \$ 2,220,000

**Average Facility Condition Index**



**Background:**

- The Beacon Center was originally constructed in 1941 as a USO Hall. In the late 1970's the building was renamed to the Beacon Senior Center. The building was remodeled in the late 1980's and exterior improvements were completed (roofing, siding) in the mid-1990's.

**Condition:**

- The building is approaching critical condition. The roofing is at the end of its life, building interior and exterior materials and finishes are in need of replacement, and important building systems are obsolete and/or nearing end of life and in need of replacement.

**Recent & Planned Projects:**

- Improvement to the Center are underway. In spring 2022 Phase 1 improvements were completed, providing gender-neutral and ADA compliant showers and restrooms, laundry facilities and other enhancements. Phase 2 is scheduled for completion in 2023, providing a new energy efficient HVAC system and exterior improvements that include window replacement, new siding and roof replacement.
- There are no additional capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility.



# City of Tacoma 2018 Facility Condition Assessment

## Lighthouse Center

5016 'A' Street, Tacoma, WA 98408

- **Year Built:** 1950
- **Last Renovation:** 1981
- **Facility Size:** 8,777 SF
- **Number of Floors:** 2
- **Facility Use Type:** Comm. Cntr.
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 4
- **Equity Index:** Low



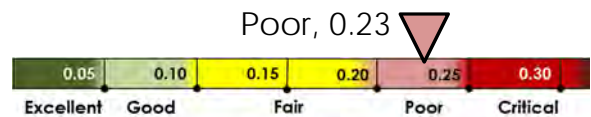
### Observed Deficiencies:

- 2018-2023 \$ 890,000

### Predictive Renewals:

- 2018-2037 \$ 1,410,000

### Average Facility Condition Index



### Background:

- The Lighthouse Senior Center is a 2-story building, with the lower floor constructed as a daylight basement. Originally constructed in 1950 as a church the City purchased and remodeled the building in 1981. The building consists of wood roof trusses and floor joists spanning to unreinforced masonry exterior walls, which are supported by reinforced concrete stem walls on standard concrete foundations.

### Condition:

- The building is in poor condition. The exterior stone veneer needs repairs, windows are past their useful life and need replacement, interior finishes including floor and cabinetry need replacement, elevator is in need of modernization, plumbing system is past its useful life, and the boiler steam heating system should be replaced.

### Recent & Planned Projects:

- In 2019 windows were replaced throughout the facility.
- Design of the elevator modernization is underway, the project is scheduled for completion in 2023.
- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility.



# City of Tacoma 2018 Facility Condition Assessment

## Point Defiance Senior Center 4716 North Baltimore, Tacoma, WA 98407

- **Year Built:** 1965
- **Last Renovation:** 1990
- **Facility Size:** 3,806 SF
- **Number of Floors:** 1
- **Facility Use Type:** Comm. Cntr.
- **Construction Type:** Medium
- **Historic Register:** No
- **Council District:** District 1
- **Equity Index:** Very High



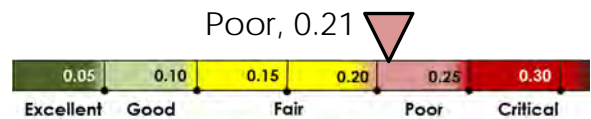
### Observed Deficiencies:

- 2018-2023 \$ 410,000

### Predictive Renewals:

- 2018-2037 \$ 720,000

### Average Facility Condition Index



### Background:

- The Point Defiance Senior Center is owned and maintained by the City, but operated by a third party. The original CMU-walled building with wood roof was constructed in 1965 and remodeled with a small wood-framed addition in 1990. The site includes a fenced garden and two sheds located in the back of the building.

### Condition:

- The building is in poor condition. Many systems are approaching end of life, such as the kitchen and mechanical equipment. Interior flooring and cabinetry are in need of repairs/replacement. Roofing is past its useful life and scheduled for replacement. Site parking and sidewalks are in need of repairs.

### Recent & Planned Projects:

- In 2018 the facility was re-roofed and painted.
- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility.





# City of Tacoma 2018 Facility Condition Assessment

## T.A.C.I.D.

6315 South 19<sup>th</sup> Street, Tacoma, WA 98466

- **Year Built:** 1983
- **Last Renovation:** N/A
- **Facility Size:** 10,367 SF
- **Number of Floors:** 1
- **Facility Use Type:** Comm. Cntr.
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 1
- **Equity Index:** High



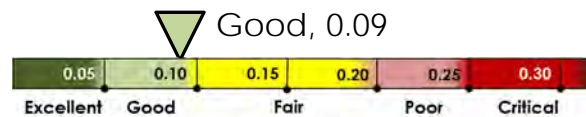
### Observed Deficiencies:

- 2018-2023 \$ 180,000

### Predictive Renewals:

- 2018-2037 \$ 1,370,000

### Average Facility Condition Index



### Background:

- The Tacoma Area Coalition for Individuals with Disabilities (T.A.C.I.D.) building is owned by the City, located on leased land from Tacoma Community College and operated by a third party. Originally constructed in 1983, the building is a one-story wood framed building with a mechanical mezzanine and mechanical roof well. The site includes a perimeter roadway with parking, landscaping, and shed structure at NE corner of the main building.

### Condition:

- The building is in good condition, but is in need of minor repairs to the parking areas, building exterior, and interior finishes.

### Recent & Planned Projects:

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility.





# City of Tacoma 2018 Facility Condition Assessment

## Tacoma Learning Center

6316 South 12<sup>th</sup> Street, Tacoma, WA 98465

- **Year Built:** 1987
- **Last Renovation:** N/A
- **Facility Size:** 5,256 SF
- **Number of Floors:** 1
- **Facility Use Type:** Comm. Cntr.
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 1
- **Equity Index:** High



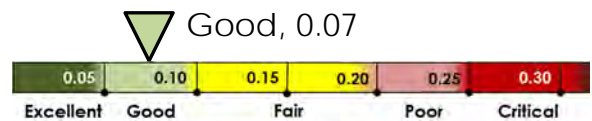
**Observed Deficiencies:**

- 2018-2023 \$ 90,000

**Predictive Renewals:**

- 2018-2037 \$ 720,000

**Average Facility Condition Index**



**Background:**

- The Tacoma Learning Center (TLC) building is owned by the City, located on leased land from Tacoma Community College and operated by two separate third parties: HopeSparks and Partnerships for Action, Voices for Empowerment (PAVE). Originally constructed in 1987, the building is a one-story wood framed building.

**Condition:**

- The building is in good condition, but is in need of minor repairs to the interior finishes and replacement of the packaged terminal air conditioners.

**Recent & Planned Projects:**

- In summer 2022 the interior finishes were replaced, due to a sewer backup into the facility.
- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility.



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# City of Tacoma 2018 Facility Condition Assessment

## Chinese Reconciliation Park

1741 N Schuster Parkway, Tacoma, WA 98402

- **Year Built:** 2010
- **Last Renovation:** N/A
- **Facility Size:** N/A
- **Number of Floors:** 1
- **Facility Use Type:** N/A
- **Construction Type:** N/A
- **Historic Register:** No
- **Council District:** District 2
- **Equity Index:** High



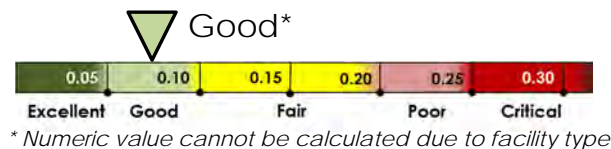
### Observed Deficiencies:

- 2018-2023 \$ 50,000

### Predictive Renewals:

- 2018-2037 N/A

### Average Facility Condition Index



### Background:

- The Tacoma Chinese Reconciliation Park is a special project undertaken by the City of Tacoma, in close collaboration with the Chinese Reconciliation Project Foundation. The 4-acre park is located along Commencement Bay with waterfront trails, interpretive features, grotto, and Fuzhou Ting (Pavilion). The Fuzhou Ting was donated by Fuzhou, China, one of Tacoma's Sister Cities, in support of our Chinese reconciliation efforts.
- Construction initially broke ground in August 2005 and has been carried out in phases, in accordance with the Master Site Plan. Phase I was completed in 2010, Phase II in 2012, and Phase III in 2016.

### Condition:

- The park is in generally good condition, with minor repairs recommended at the grotto bridge and interpretive displays.

### Recent & Planned Projects:

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the site.



# City of Tacoma 2018 Facility Condition Assessment

## Old Town Dock & Restroom

2123 N Schuster Parkway, Tacoma, WA 98402

- Year Built: 1873
- Last Renovation: 2013
- Facility Size: N/A
- Number of Floors: 1
- Facility Use Type: N/A
- Construction Type: Medium
- Historic Register: No
- Council District: District 2
- Equity Index: High



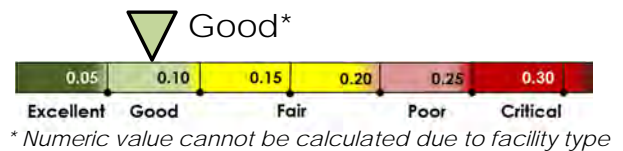
### Observed Deficiencies:

- 2018-2023 \$ 110,000

### Predictive Renewals:

- 2018-2037 N/A

### Average Facility Condition Index



### Background:

- Old Town Dock was originally constructed in 1873 and has been repaired/restored several times over the years, most recently in 2013. A new public restroom area was constructed in 2014.

### Condition:

- The dock and restroom are generally in good condition. Removal of unused piles is recommended. Repairs to the dock accent finishes are needed, and repairs to some of the plumbing and lighting systems are needed.

### Recent & Planned Projects:

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the site.



# City of Tacoma 2018 Facility Condition Assessment

## People's Community Center & Pool

1602 Martin Luther King Jr Way, Tacoma, WA 98405

- **Year Built:** 1978
- **Last Renovation:** 2016
- **Facility Size:** 27,307 SF
- **Number of Floors:** 1
- **Facility Use Type:** Comm. Cntr.
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 3
- **Equity Index:** Very Low



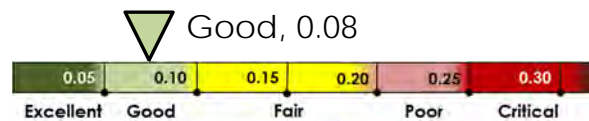
**Observed Deficiencies:**

- 2018-2023 \$ 280,000

**Predictive Renewals:**

- 2018-2037 \$ 2,910,000

**Average Facility Condition Index**



**Background:**

- The Peoples Community Center was initially constructed in 1978 as the Malcolm X Center. This facility includes multiple additions and modifications since original construction, most recently improved in 2016. The building is a single-story masonry and wood frame building housing: offices, classrooms and related resource rooms, a gymnasium, locker rooms, and attached new pool building (natatorium).

**Condition:**

- The building is generally in good condition. Many of the interior areas are in need of finish and fixture upgrades including the kitchen area, HVAC units in the center portion of the facility are past their useful life and need replacement.

**Recent & Planned Projects:**

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the facility.





# City of Tacoma 2018 Facility Condition Assessment

## Ruston Way Waterwalk

4891 Ruston Way, Tacoma, WA 98407

- **Year Built:** 2014
- **Last Renovation:** N/A
- **Facility Size:** N/A
- **Number of Floors:** 1
- **Facility Use Type:** N/A
- **Construction Type:** N/A
- **Historic Register:** No
- **Council District:** District 1
- **Equity Index:** Very High



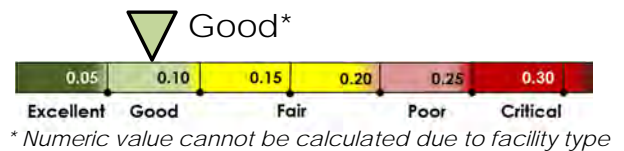
**Observed Deficiencies:**

- 2018-2023 \$ 60,000

**Predictive Renewals:**

- 2018-2037 N/A

**Average Facility Condition Index**



**Background:**

- The Waterwalk is a linear 6.6 acre waterfront park, including a nearly mile-long paved pedestrian trail system along Commencement Bay’s shoreline adjacent to the Point Ruston development. The park includes artwork, benches, lighting and a scuba diving access cove.

**Condition:**

- The park is in generally good condition, with minor repairs recommended at the mosaic tiles and plaza keystone wall.

**Recent & Planned Projects:**

- There are no capital projects anticipated to be funded as part of the 2023-2024 biennium for the site.

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# City of Tacoma, General Government Facility Condition Assessment (2018)

## Fern Hill Branch Library

765 S 84<sup>th</sup> St, Tacoma, WA 98444

- **Year Built:** 1989
- **Last Renovation:** N/A
- **Facility Size:** 7,996 SF
- **Number of Floors:** 1
- **Facility Use Type:** Library
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 5
- **Equity Index:** Moderate



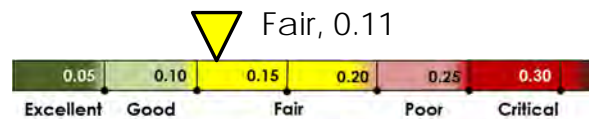
**Observed Deficiencies:**

- 2018-2023 \$ 290,000

**Predictive Renewals:**

- 2018-2037 \$ 1,330,000

**Average Facility Condition Index**



**Background:**

- The Fern Hill Branch Library was constructed in 1989. The library is 7,996 sq. ft., constructed of slab on grade with wood framing and stucco facade.

**Condition:**

- The building is in fair condition. The roof is recommended for replacement, minor repairs are needed to the electrical and plumbing systems, and the heat pumps are nearing the end of life.

**Recent & Planned Projects:**

- Roof replaced in the summer of 2019.
- CCTV and card access systems installed in 2019.
- Exterior stucco repair / refinishing and HVAC systems to be replaced in 2023 (funding secured for this budget cycle).
- Reconfigure public computer space with new PCs, desks and chairs by end of 2022



# City of Tacoma, General Government Facility Condition Assessment (2018)

## Kobetich Branch Library 212 Browns Point Blvd NE, Tacoma, WA 98422

- **Year Built:** 1979
- **Last Renovation:** 2010
- **Facility Size:** 5,000 SF
- **Number of Floors:** 1
- **Facility Use Type:** Library
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 2
- **Equity Index:** High



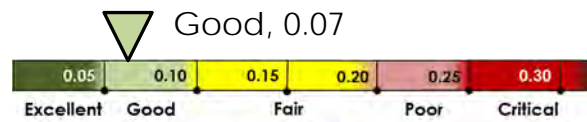
### Observed Deficiencies:

- 2018-2023 \$ 100,000

### Predictive Renewals:

- 2018-2037 \$ 730,000

### Average Facility Condition Index



### Background:

- The Kobetich Branch Library was constructed in 1979 and is the smallest branch library in the Tacoma Library system at 5,000 sq. ft. The library is slab on grade, with brick and stucco construction.

### Condition:

- Overall the library is in good condition with some systems aging but functional. HVAC last updated about 10 years ago.

### Recent & Planned Projects:

- New roof installed 2018.
- Recent ADA upgrades to make bathroom, drinking fountain, and outside ramp more accessible.
- External book drop with RFID technology installed in 2018.
- CCTV and card access systems installed in 2019
- Reconfigured public computer space with new desks and seating completed (summer 2019).



# City of Tacoma, General Government Facility Condition Assessment (2018)

## Main Library 1102 Tacoma Ave South, Tacoma, WA 98402

- **Year Built:** 1902
- **Last Renovation:** 1996
- **Facility Size:** 95,727 SF
- **Number of Floors:** 1
- **Facility Use Type:** Library
- **Construction Type:** Heavy
- **Historic Register:** No
- **Council District:** District 3
- **Equity Index:** Very Low



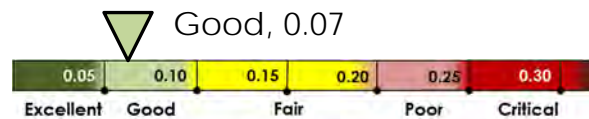
### Observed Deficiencies:

- 2018-2023 \$ 1,500,000

### Predictive Renewals:

- 2018-2037 \$ 16,870,000

### Average Facility Condition Index



### Background:

- The Main Library is comprised of two buildings. The 1902 Carnegie library is on the Tacoma Register of Historic Places and is two-story round-shape with beautiful open rotunda with grand marble stair from lower main entry to upper level, including special collections room. The north 1956 Main addition is three-story with full basement. The two buildings were joined in the 1988 full modernization. Construction is historic masonry at Carnegie and cast-in-place concrete at Main.

### Condition:

- Overall the library is in good condition. Some repairs are needed to the site infrastructure and building enclosure. Modernization of the elevator system, and building mechanical/electrical systems replacements are recommended.

### Recent & Planned Projects:

- CCTV and card access systems installed in 2019
- Exterior cleaning of the Carnegie library performed (summer 2019)
- Elevator Modernization is in process and will be completed fall, 2022





# City of Tacoma, General Government Facility Condition Assessment (2018)

## Moore Branch Library

215 South 56<sup>th</sup> Street, Tacoma, WA 98408

- **Year Built:** 1989
- **Last Renovation:** 2013
- **Facility Size:** 15,487 SF
- **Number of Floors:** 1
- **Facility Use Type:** Library
- **Construction Type:** Medium
- **Historic Register:** No
- **Council District:** District 4
- **Equity Index:** Low



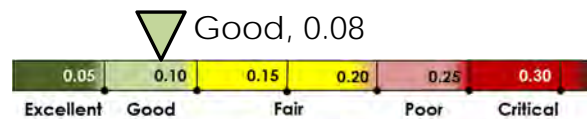
**Observed Deficiencies:**

- 2018-2023 \$ 180,000

**Predictive Renewals:**

- 2018-2037 \$ 1,990,000

**Average Facility Condition Index**



**Background:**

- The Moore Branch Library was constructed in 1989. The library is 15,487 sq. ft. and is heavily used. The library is slab on grade with a partial basement, with steel framing and brick facade.

**Condition:**

- The building is in good condition. Repairs are needed at some of the windows and gutters to prevent water intrusion, portions of the parking area curbs and sidewalks should be replaced.

**Recent & Planned Projects:**

- 2014 updates included selected landscape, interior finishes & furniture, revised floor plan, new HVAC systems, and other minor improvements.
- Exterior fencing installed in 2016.
- External automated material handler (AMH) for item return installed in 2018.
- CCTV and card access systems installed in 2019
- Planned project:
  - Replacement of clerestory windows (funding secured for this budget cycle).





# City of Tacoma, General Government Facility Condition Assessment (2018)

## Mottet Branch Library

3523 E G St, Tacoma, WA 98404

- **Year Built:** 1930
- **Last Renovation:** 2011
- **Facility Size:** 5,025 SF
- **Number of Floors:** 1
- **Facility Use Type:** Library
- **Construction Type:** Medium
- **Historic Register:** No
- **Council District:** District 4
- **Equity Index:** Very Low



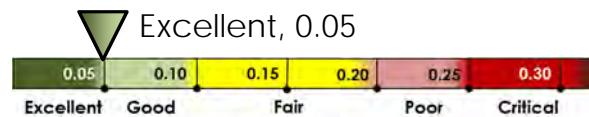
**Observed Deficiencies:**

- 2018-2023 \$ 20,000

**Predictive Renewals:**

- 2018-2037 \$ 620,000

**Average Facility Condition Index**



**Background:**

- The Mottet Branch Library is a small one-story neighborhood library with partial basement. The branch was originally constructed in 1930 and was renovated with an addition in 1988, the branch was most recently renovated in 2011.

**Condition:**

- The building is in excellent condition with minor modifications recommended to the storm drainage system.

**Recent & Planned Projects:**

- CCTV and card access systems installed in 2019
- Landscaping improvements completed in summer 2022



# City of Tacoma, General Government Facility Condition Assessment (2018)

## South Tacoma Branch Library

3411 South 56<sup>th</sup> Street, Tacoma, WA 98408

- **Year Built:** 1955
- **Last Renovation:** 2018
- **Facility Size:** 7,645 SF
- **Number of Floors:** 1
- **Facility Use Type:** Library
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 3
- **Equity Index:** Low



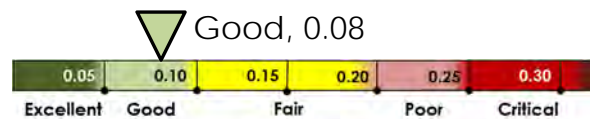
### Observed Deficiencies:

- 2018-2023 \$ 80,000

### Predictive Renewals:

- 2018-2037 \$ 930,000

### Average Facility Condition Index



### Background:

- The South Tacoma Branch Library was originally constructed in 1955 and renovated in 2018. The library is 7,645 sq. ft. and is well used. The library has a partial basement, wood framed floors and walls, with brick exterior facade.

### Condition:

- The building is in good condition.

### Recent & Planned Projects:

- New membrane roof covering and exterior wall siding was installed in 2017.
- The 2018 refresh included adding an additional 170 square feet to the facility. Improvements included lobby and meeting room modifications, expanding the children’s area, new flooring and paint, revised floorplan, new furniture and a book drop with RFID technology installed.
- CCTV and card access systems installed in 2019
- Planned projects:
  - UV Film for south side



# City of Tacoma, General Government Facility Condition Assessment (2018)

## Swasey Branch Library

7001 6<sup>th</sup> Ave, Tacoma, WA 98406

- **Year Built:** 1960
- **Last Renovation:** 1989
- **Facility Size:** 9,686 SF
- **Number of Floors:** 1
- **Facility Use Type:** Library
- **Construction Type:** Light
- **Historic Register:** No
- **Council District:** District 1
- **Equity Index:** Moderate



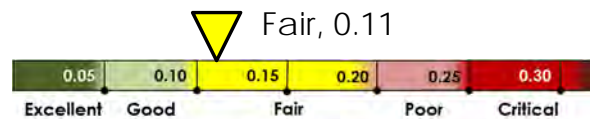
**Observed Deficiencies:**

- 2018-2023 \$ 420,000

**Predictive Renewals:**

- 2018-2037 \$ 1,640,000

**Average Facility Condition Index**



**Background:**

- The Swasey Branch Library was originally constructed in 1960 and is a one-story steel framed building with wood in-fill.

**Condition:**

- The building is in fair condition. Portions of wall and windows facing east and south need permanent repair and the roof is in need of replacement. MEP systems are aged, with all four heat pumps needing complete replacement in the near future..

**Recent & Planned Projects:**

- Roof replaced in the summer of 2019.
- CCTV and card access systems installed in 2019
- Windows to be repaired/replaced and HVAC systems to be replaced in 2023 ((funding secured for this budget cycle).
- New Public computer space installed with new PCs, desks and chairs completed in summer 2022



# City of Tacoma, General Government Facility Condition Assessment (2018)

## Wheelock Branch Library 3722 N 26<sup>th</sup> St, Tacoma, WA 98407

- **Year Built:** 1927
- **Last Renovation:** 1996
- **Facility Size:** 16,932 SF
- **Number of Floors:** 1
- **Facility Use Type:** Library
- **Construction Type:** Medium
- **Historic Register:** No
- **Council District:** District 1
- **Equity Index:** Very High



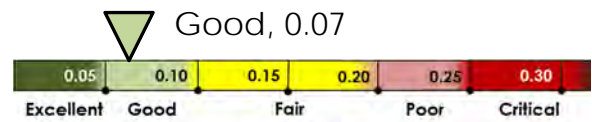
### Observed Deficiencies:

- 2018-2023 \$ 270,000

### Predictive Renewals:

- 2018-2037 \$ 2,420,000

### Average Facility Condition Index



### Background:

- The Wheelock Library is comprised of two buildings. The smaller original McCormick Library was constructed in 1927 and was fully modernized in 1996. The larger Wheelock addition was constructed in 1988 and was last renovated in 1996.

### Condition:

- The branch is generally in good condition, but some finishes are wearing, and HVAC water-source heat pumps need replacement soon.

### Recent & Planned Projects:

- CCTV and card access systems installed in 2019
- HVAC systems to be replaced in 2023 ((funding secured for this budget cycle).
- New Public computer space installed with new PCs, desks and chairs completed in summer 2022







City of Tacoma  
2018 Facility Condition Assessment  
*Tacoma Fire Facilities Report*

Prepared By:



September 28, 2018







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## Overview of Condition Assessment

### Background

The City's assets are the foundation of the valuable services the City provides to residents and they represent a significant investment. Effective asset management is required to maintain service levels and for long-term fiscal sustainability. Effective asset management is also a good investment in itself, as proper management and stewardship can slow the deterioration of assets, resulting in cost savings.

Effective Asset management generally includes a number of components.

- Assets need to be continually assessed so there is up to date information on their status.
- The information is used to determine needed maintenance and to mitigate issues.
- Each asset should have a plan that addresses its needs for its entire life, including its replacement, inspections, and maintenance.
- There should be a system in place to prioritize asset care and the allocation of limited resources.

To support the City of Tacoma in asset management, capital planning & budgeting efforts, MENG Analysis was contracted to complete a thorough Facility Condition Assessment (FCA) of City-owned General Government (non-enterprise/ non-utility) facilities and sites. The MENG Analysis team reviewed existing operation and maintenance information, conducted field investigations to identify Observed Deficiencies (ODs), developed cost estimates for ODs, and used customized cost models to predict future capital costs over a 20-year horizon (Predicted Renewals or PRs). The team also made note of "Opportunities" to improve the user experience, save energy, and increase system and building longevity.

The following lists the Tacoma Fire Department facilities surveyed during this project:

Site	Address	Square Feet	Year Constructed / Last Renovation
Electrical Maintenance Building (HR)	425 Tacoma Avenue South	4,700	1910
Emergency Operations Center	420 South Fawcett Avenue	6,700	1957
Fire Communications Center (HR)	415 Tacoma Avenue South	3,530	1929/1957
Fire Garage	3401-B South Orchard Street	4,800	1984
Fire Prevention Bureau	3471 South 35th Street	4,649	1954/1997
Fire Station #01 & Headquarters	901 South Fawcett Avenue	16,600	1967
Fire Station #02 (HR)	2701 Tacoma Avenue South	16,380	1907/1934

Site	Address	Square Feet	Year Constructed / Last Renovation
Fire Station #03	206 Browns Point Boulevard	2,816	1980
Fire Station #04 (HR)	1453 South 12th Street	6,115	1935
Fire Station #06	1015 East "F" Street	4,200	1964
Fire Station #07	5448 South Warner Street	2,081	1959
Fire Station #08	4911 South Alaska St.	17,400	2003
Fire Station #09	3502 Sixth Avenue	5,430	1965
Fire Station #10 (HR)	7247 South Park Avenue	1,963	1928
Fire Station #11 (HR)	3802 McKinley Avenue	5,121	1909/1980
Fire Station #12	2015 54th Avenue East	9,970	1975/1995
Fire Station #13 (HR)	3825 North 25th Street	9,900	1911
Fire Station #14 (HR)	4701 North 41st Street	1,963	1928
Fire Station #15 (Temp)	6415 McKinley Ave E	2,054	1928/2006
Old Fire Station #15 (HR) Not Assessed	3510 East 11 <sup>th</sup> Street	3,300	1929
Fire Station #16	7217 Sixth Avenue	11,000	1999
Fire Station #17	403 Electron Way	8,994	1979
Fire Station #18 (HR) & Moorage	302 East 11 <sup>th</sup> Street	1,752	1929
Fire Training Center	2124 Marshall Avenue	9,450	1998
Marine Security Operations Center (MSOC)	3301 Ruston Way	2,985	1980/2014

The projected costs identified in this report are budgetary in nature and portray a rough order of magnitude for the work based on information available. Information at this budgetary level is often not complete and would require design level investigation to fully realize accurate scope and cost. Identified costs are intended to provide a consistent overview of the needs of City-owned facilities to be compared across the subject portfolio.

### **Facility Survey Methodology**

The methodology for the City of Tacoma FCA started with an initial review of previous records and drawings. An operations and maintenance questionnaire was completed by city staff. Additional information was gathered from City staff followed by an O&M workshop to gather additional information.

This preparation stage was followed by eight weeks of on-site field surveys conducted by technical experts who reviewed civil, structural, architectural, mechanical, electrical, plumbing, and site infrastructure systems to a Unifomat II, level 3 detail. The facility surveys were facilitated by an FCA Team Leader to maintain consistency in evaluation, survey forms, condition ratings and system categorization.

Each team member used survey forms to document the apparent facility conditions including:

- I. Describing the nature of facility systems per Uniformat II,
- II. Determining the overall condition score of building elements,
- III. Identifying major maintenance deficiencies greater than \$5,000 (direct cost) that are likely to be required for immediate major maintenance repairs (2018), plus the next 5-year period (2019-2023)
- IV. Documenting specific deficiencies of systems with narrative as well as budgetary level cost estimates to repair or replace deficiencies
- V. The survey team also documented specific opportunities for upgrades that will increase facility performance. These items are not required.

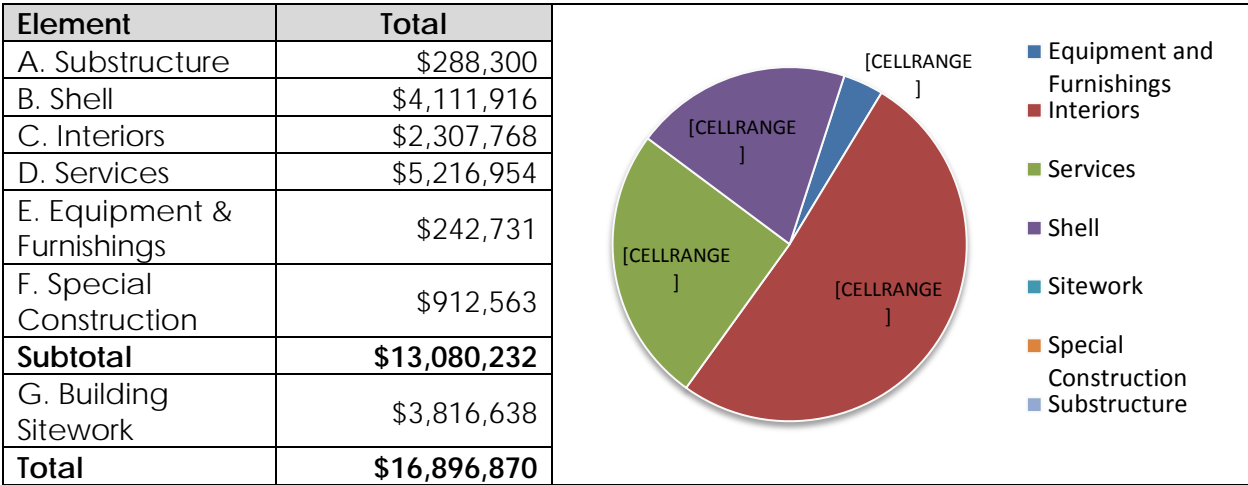
**Observed Deficiencies (ODs), 2018-2023**

Observed Deficiencies are based on known conditions that are witnessed by or disclosed directly to the field surveyors and are generally the best short-term planning tool. The MENG Analysis team uses the Uniformat II system to organize cost estimates for system repairs or replacements. OD estimates include direct costs plus typical construction markups as well as project development markups (design, permitting, management, etc.). ODs are intended as “like” replacements and do not address level-of-service enhancements and/or programmatic building changes or code required upgrades. The following table summarizes the estimated cost for (2018-2023) Observed Deficiencies at each Fire Department facility:

Site	Building Systems	Building Sitework	Total
Electrical Maintenance Building (HR)	\$1,830,252	\$0	<b>\$1,830,252</b>
Emergency Operations Center	\$754,580	\$0	<b>\$754,580</b>
Fire Communications Center (HR)	\$625,020	\$23,250	<b>\$648,270</b>
Fire Garage	\$1,083,334	\$112,995	<b>\$1,196,329</b>
Fire Prevention Bureau	\$1,146,946	\$86,606	<b>\$1,233,552</b>
Fire Station #01 & Headquarters	\$1,416,041	\$148,354	<b>\$1,564,395</b>
Fire Station #02 (HR)	\$803,388	\$310,505	<b>\$1,113,893</b>
Fire Station #03	\$177,510	\$86,188	<b>\$263,698</b>
Fire Station #04 (HR)	\$333,411	\$494,528	<b>\$827,939</b>
Fire Station #06	\$210,273	\$89,513	<b>\$299,786</b>
Fire Station #07	\$172,018	\$11,625	<b>\$183,643</b>
Fire Station #08	\$134,618	\$79,515	<b>\$214,133</b>
Fire Station #09	\$132,200	\$44,175	<b>\$176,375</b>

Site	Building Systems	Building Sitework	Total
Fire Station #10 (HR)	\$299,323	\$0	\$299,323
Fire Station #11 (HR)	\$714,000	\$127,875	\$841,875
Fire Station #12	\$515,820	\$48,825	\$564,645
Fire Station #13 (HR)	\$1,197,493	\$103,893	\$1,301,386
Fire Station #14 (HR)	\$131,858	\$0	\$131,858
Fire Station #15 (Temp)	\$342,356	\$41,850	\$384,206
Old Fire Station #15 (HR)			Not Assessed
Fire Station #16	\$161,588	\$27,900	\$189,488
Fire Station #17	\$228,979	\$57,428	\$286,407
Fire Station #18 (HR) & Moorage	\$280,746	\$1,096,238	\$1,376,984
Fire Training Center	\$388,478	\$825,375	\$1,213,853
Marine Security Operations Center (MSOC)			\$0
<b>Total</b>	<b>\$13,080,232</b>	<b>\$3,816,638</b>	<b>\$16,896,870</b>

The following table and chart summarize the Observed Deficiencies for all Fire Department Buildings by major building element:



- (i) Shell includes floor/roof construction, exterior walls, windows/doors, and roofing.
- (ii) Services includes elevators, plumbing, HVAC, fire protection & electrical.

The following summarizes the general findings of the Fire Department based on the Observed Deficiencies:

- **Historic Registry:** The Electrical Maintenance Building, Fire Communications Center, and Stations #02, #04, #10, #11, #13, #14, & Old #15 are on Local and National Historic Registers and will require projects consider restoration and preservation during renovation projects.

- **Substructures:** Foundations are in relatively good shape. Seismic standards were not evaluated as part of the survey. Fire station 1 has notable cracking in the concrete floor and evidence of water intrusion in foundation. Structural evaluation should be performed to evaluate extent and cause of failure. Fire station 2 has notable cracking in the foundation walls as well as deteriorated beams under the sidewalk. The area under the sidewalk should be infilled and sidewalk replaced. Fire station 4 has significant water intrusion issues and often floods. Mitigation measures have been attempted, but have not solved the problem.
- **Shell:** The exteriors of all buildings within the Fire Department portfolio have common needs with few exceptions. Exterior cladding is a mix of brick, wood and EIFS and need repair, replacement or cosmetic updates. Most buildings have inefficient, single pane windows with failing frames and trim. Exterior man and overhead doors are old and thermally inefficient. Most roofs and associated flashings are at or nearing end of life and have telegraphed leaks into the finished spaces. There are many unreinforced chimneys that need to be braced or removed. A few buildings have overgrown vegetation that should be pruned or removed.
- **Interiors:** The median interior finishes are generally worn but in fair condition. Electrical Maintenance and Fire Prevention Bureau are in critical need of interior upgrades. In general, the interiors of most departments need new wall paint, flooring in high traffic areas and replacement of ceiling tile & paint where carbon deposit or water staining is present.
- **Services:**
  - **Heating Ventilation & Air Conditioning (HVAC):** The HVAC systems throughout the department vary greatly. Some systems have been renewed or were part of newer facilities. Many systems are incomplete and do not accommodate the entire building. Fire stations 2, 11 and 13 have boilers that need to be replaced. Electrical Maintenance building, Station 6 and the Training Center need new furnaces. The Emergency operations center, Station 2, 8, 15, 16 and the Training Center need new condensing units. Multiple facilities lack fresh air ventilation systems, proper duct work and building controls.
  - **Plumbing:** The plumbing systems are functional but there is evidence of corrosion in the piping and fixtures are outdated and inefficient. Lack of rain water mitigation is evident in most buildings. Suggested to add additional roof drains and service gutters, downspouts and storm drain routing. Air compressors have been noted as aged equipment and piping. Eyewash and safety showers have been recommended throughout.
  - **Electrical:** Electrical service to all older buildings is aged and recommended for replacement. Branch wiring and sub panels is mostly older style circuits or has been abandon in place during upgrades. Multiple facilities have original receptacles with limited pull out resistance strength. Lighting systems in most facilities are a mix of T5, T8 and T12 with



some conversions to LED started. The Emergency Operations Center, Fire Communications Center, Fire Garage and Stations 08, 16, 17 have generators and most other facilities have manual transfer switches for portable units. The CCTV systems are minimal at most stations. The Emergency Operations Center and Fire Communications center have antenna towers that are in critical need of anchorage assessment.

- **Fire protection:** The fire protection coverage is good condition. Most buildings have active sprinkler systems with the exception of the Electrical Maintenance building, Fire Garage and Stations 06, 15 & 18. The fire alarm systems are mixed in age, service and coverage areas. The Electrical Maintenance and Stations 09, 10, 11, 14 have aged systems with minimal coverage and some battery operated devices. Stations 15 and 18 have no active fire alarm systems. All buildings are well equipped with hook style fire extinguishers. AED devices have been noted at the Fire Garage, Station 01, 07, 16 and the Fire Training Center.
- **Equipment and Furnishings:** The common thread throughout the department is “aging but functional.” Equipment and furnishings are dated but have been maintained for function. Kitchenette casework and laundry appliances are in the most needs of replacements or refurbishment to extend service.
- **Sitework:** Site infrastructure throughout is in poor condition. Nearly every facility has parking lot and pedestrian walk cracking, spawling and ponding. A major asphalt repair project should be pursued through the department. Many retaining walls are cracked and failing. Site and building lighting is insufficient in most areas. Fences and gates have site specific issues with operation and upkeep. Fire Station 2 has a life safety issue with the under sidewalk vault failing. Landscaping varies in condition at sites from good to under maintained.

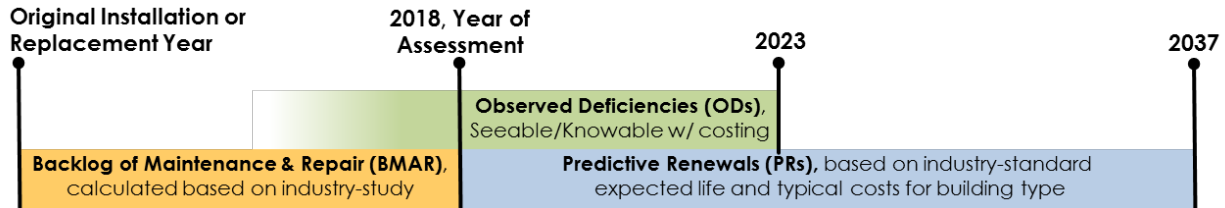
### Supplemental Cost Models

In addition to estimated Observed Deficiencies, MENG Analysis has developed two supplemental models summarized below. It is important to clarify that these calculations are independent of the estimated cost calculated for short-term Observed Deficiencies.

- **Backlog of Maintenance and Repair (BMAR):** The BMAR is an estimate from original construction to present day, of what should have been spent to bring the facility up to good condition based on current observed condition by the surveyors. This is a parametric calculation derived from a statistical industry study. The BMAR is generally defined as the amount of work required to adequately maintain facilities and related infrastructure for the current use that should have been accomplished, but for a variety of reasons has not.
- **Predicted Renewals (PRs):** PRs predict future capital costs over a 20-year horizon (2018-2037). They are based on predictive models that use industry-standard expected life data, combined with original construction or remodel dates as well as system scores from surveyors to estimate when a system will require renewal.

Unit costs in the models are updated on a yearly basis and adjusted to our specific northwest region. Similar projects that have been estimated and managed by the team were also referenced against the modeled costs for additional verification of recent costs if they were available.

The following graphic and table summarize the supplement cost model information:



Site	Backlog of Maintenance & Repair (BMAR)	Predicted Renewal (PRs)	Total
Electrical Maintenance Building (HR)		\$750,000	\$750,000
Emergency Operations Center	\$509,000	\$1,617,000	\$2,126,000
Fire Communications Center (HR)	\$306,000	\$916,000	\$1,222,000
Fire Garage	\$250,000	\$859,000	\$1,109,000
Fire Prevention Bureau	\$440,000	\$1,090,000	\$1,530,000
Fire Station #01 & Headquarters	\$1,266,000	\$3,342,000	\$4,608,000
Fire Station #02 (HR)	\$1,463,000	\$3,284,000	\$4,747,000
Fire Station #03	\$133,000	\$439,000	\$572,000
Fire Station #04 (HR)	\$406,000	\$1,110,000	\$1,516,000
Fire Station #06	\$320,000	\$716,000	\$1,036,000
Fire Station #07	\$126,000	\$353,000	\$479,000
Fire Station #08	\$503,000	\$1,952,000	\$2,455,000
Fire Station #09	\$229,000	\$822,000	\$1,051,000
Fire Station #10 (HR)	\$111,000	\$356,000	\$467,000
Fire Station #11 (HR)	\$357,000	\$1,025,000	\$1,382,000
Fire Station #12	\$590,000	\$1,604,000	\$2,194,000
Fire Station #13 (HR)	\$850,000	\$1,709,000	\$2,559,000
Fire Station #14 (HR)	\$122,000	\$355,000	\$477,000
Fire Station #15 (Temp)	\$209,000	\$531,000	\$740,000
Old Fire Station #15 (HR)			Not Assessed
Fire Station #16	\$359,000	\$1,341,000	\$1,700,000
Fire Station #17	\$572,000	\$1,617,000	\$2,189,000
Fire Station #18 (HR) & Moorage	\$103,000	\$220,000	\$323,000
Fire Training Center	\$311,000	\$973,000	\$1,284,000
Marine Security Operations Center (MSOC)	\$66,000	\$341,000	\$407,000

<b>Total</b>	<b>\$9,601,000</b>	<b>\$26,499,000</b>	<b>\$36,100,000</b>
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### Facility Condition Index (FCI)

A Facility Condition Index (FCI) calculation is an industry standard used for benchmarking and evaluating the relative condition of a portfolio of facility assets over time. There are a number of different methods used by various organizations to calculate the condition index that best fits their particular portfolio. For this reason, using FCIs to compare the City’s facilities to other organizations is not always appropriate, but is a good tool to compare the City’s facilities to each other.

In general, the FCI is a ratio of current repair needs to the Current Replacement Value (CRV). For this report the FCI is based on both the BMAR/CRV and ODs/CRV, providing an average range of the buildings condition.

The Current Replacement Value (CRV) is a calculation for reconstructing an asset as it currently exists, without modifications or improvement. The CRV estimate is an approximation of the construction cost based on the cost per square foot of a similar constructed building. The CRV estimate should not be used for any other purpose than to calculate the FCI. Estimates for the actual replacement of individual facilities and projects must incorporate a higher level of detail and accuracy.

Common industry practice is to create a scale for interpreting FCI as a way to prioritize facility needs. Most organizations adjust their classifications of FCI to relate to their own unique criteria. For the City of Tacoma, MENG Analysis recommends the following FCI breakdown to support decision making.

- Excellent = 0 - 0.05 (5%)
- Good = 0.06 - 0.10 (6%-10%)
- Fair = 0.11 - 0.20 (11%-20%)
- Poor = 0.21 – 0.25 (21% - 25%)
- Critical = 0.26 (26%) or greater

The following table is a summary of the average FCI and relative scaling for each facility:

Site					
	Excellent	Good	Fair	Poor	Critical
Electrical Maintenance Building (HR)	Poor ◆ .26				
Emergency Operations Center	Approaching Poor ◆ .18				
Fire Communications Center (HR)	Poor ◆ .25				
Fire Garage	Critical .41 ◆				

Site					
	Excellent	Good	Fair	Poor	Critical
Fire Prevention Bureau	Critical .37 ◆				
Fire Station #01 & Headquarters	Approaching Poor ◆ .20				
Fire Station #02 (HR)	Approaching Poor ◆ .18				
Fire Station #03	Approaching Poor ◆ .18				
Fire Station #04 (HR)	Poor ◆ .23				
Fire Station #06	Approaching Poor ◆ .19				
Fire Station #07	Approaching Poor ◆ .19				
Fire Station #08	◆ .05 Excellent				
Fire Station #09	◆ .09 Good				
Fire Station #10 (HR)	Poor ◆ .23				
Fire Station #11 (HR)	Approaching Critical ◆ .27				
Fire Station #12	Fair ◆ .015				
Fire Station #13 (HR)	Approaching Critical ◆ .28				
Fire Station #14 (HR)	Fair ◆ .16				
Fire Station #15 (Temp)	Approaching Poor ◆ .22				
Old Fire Station #15 (HR)	Not Assessed				
Fire Station #16	◆ .06 Approaching Excellent				
Fire Station #17	◆ .11 Approaching Good				
Fire Station #18 (HR) & Moorage	Critical ◆ .50				
Fire Training Center	Approaching Poor ◆ .21				
Marine Security Operations Center (MSOC)	◆ .05 Excellent				

**Observed Deficiency Over Time (5 years)**

<b>Site</b>	<b>2018-2020</b>	<b>2021- 2022</b>	<b>2023</b>	<b>Total</b>
Electrical Maintenance Building (HR)	\$664,487	\$743,777	\$421,988	<b>\$1,830,252</b>
Emergency Operations Center	\$410,479	\$56,847	\$287,254	<b>\$754,580</b>
Fire Communications Center (HR)	\$328,988	\$127,469	\$191,813	<b>\$648,270</b>
Fire Garage	\$58,125	\$938,021	\$182,745	<b>\$1,178,891</b>
Fire Prevention Bureau	\$730,607	\$453,710	\$49,235	<b>\$1,233,552</b>
Fire Station #01 & Headquarters	\$762,270	\$122,295	\$679,830	<b>\$1,564,395</b>
Fire Station #02 (HR)	\$664,307	\$351,936	\$97,650	<b>\$1,113,893</b>
Fire Station #03	\$44,175	\$95,256	\$124,267	<b>\$263,698</b>
Fire Station #04 (HR)	\$125,951	\$608,988	\$93,000	<b>\$827,939</b>
Fire Station #06	\$152,381	\$11,625	\$135,780	<b>\$299,786</b>
Fire Station #07	\$34,875	\$81,940	\$37,765	<b>\$154,580</b>
Fire Station #08	\$111,600	\$21,390	\$81,143	<b>\$214,133</b>
Fire Station #09	\$27,900	\$55,800	\$92,675	<b>\$176,375</b>
Fire Station #10 (HR)	\$34,531	\$72,075	\$176,442	<b>\$283,048</b>
Fire Station #11 (HR)	\$283,198	\$534,864	\$23,813	<b>\$841,875</b>
Fire Station #12	\$135,960	\$104,487	\$324,198	<b>\$564,645</b>
Fire Station #13 (HR)	\$264,877	\$764,228	\$272,281	<b>\$1,301,386</b>
Fire Station #14 (HR)	\$46,500	\$72,980	\$12,378	<b>\$131,858</b>
Fire Station #15 (Temp)	\$202,856	\$181,350	\$0	<b>\$384,206</b>
Old Fire Station #15 (HR)				Not Assessed
Fire Station #16	\$34,875	\$52,313	\$102,300	<b>\$189,488</b>
Fire Station #17	\$52,278	\$110,438	\$57,428	<b>\$220,144</b>
Fire Station #18 (HR) & Moorage	\$1,020,156	\$355,726	\$27,900	<b>\$1,403,782</b>
Fire Training Center	\$272,228	\$34,875	\$892,800	<b>\$1,199,903</b>
Marine Security Operations Center (MSOC)	\$1,464,750	\$0	\$0	<b>\$1,464,750</b>
<b>Totals</b>	<b>\$7,928,354</b>	<b>\$5,952,390</b>	<b>\$4,364,685</b>	<b>\$18,245,429</b>

**Predicted Renewals Over Time (20 years)**

<b>Site</b>	<b>2018-2023</b>	<b>2024-2037</b>	<b>Total</b>
Electrical Maintenance Building (HR)	\$98,975	\$578,194	\$677,169
Emergency Operations Center Building	\$364,764	\$1,251,854	\$1,616,618
Fire Communications Center (HR)	\$151,620	\$764,085	\$915,705
Fire Garage	\$118,092	\$740,942	\$859,034
Fire Prevention Bureau	\$547,383	\$542,908	\$1,090,291
Fire Station #01 & Headquarters	\$940,338	\$2,401,889	\$3,342,227
Fire Station #02 (HR)	\$1,236,104	\$2,047,996	\$3,284,100
Fire Station #03	\$109,779	\$329,667	\$439,446
Fire Station #04 (HR)	\$283,584	\$826,831	\$1,110,415
Fire Station #06	\$317,801	\$398,347	\$716,148
Fire Station #07	\$101,551	\$251,317	\$352,868
Fire Station #08	\$160,056	\$1,791,812	\$1,951,868
Fire Station #09	\$48,489	\$773,253	\$821,742
Fire Station #10 (HR)	\$53,939	\$311,277	\$365,216
Fire Station #11 (HR)	\$305,201	\$719,850	\$1,025,051
Fire Station #12	\$388,672	\$1,215,236	\$1,603,908
Fire Station #13 (HR)	\$1,000,295	\$708,599	\$1,708,894
Fire Station #14 (HR)	\$72,086	\$282,513	\$354,599
Fire Station #15 (Temp)	\$102,701	\$508,953	\$611,654
Old Fire Station #15 (HR)			Not Assessed
Fire Station #16	\$69,028	\$1,271,883	\$1,340,911
Fire Station #17	\$180,638	\$1,435,867	\$1,616,505
Fire Station #18 (HR) & Moorage	\$52,434	\$167,724	\$220,158
Fire Training Center	\$87,732	\$885,495	\$973,227
Marine Security Operations Center (MSOC)			\$341,183
<b>Totals</b>	<b>\$6,791,262</b>	<b>\$20,206,492</b>	<b>\$26,997,754</b>

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## Terminology and Abbreviations

**Facility Condition Assessment (FCA):** A structured process to document the conditions of site infrastructure and building systems. FCAs are typically performed by a multi-disciplinary team of architects, engineers, construction, and cost specialists. Facility information and condition data should be maintained in a database for ease of updating and reporting. The data should be renewed over time.

**Facility Condition Index (FCI):** A benchmark used to compare relative condition of facilities within a portfolio of assets; derived by the following formula:

$$\text{FCI} = \frac{\text{Backlog of Maintenance and Repair (BMAR)}}{\text{Current Replacement Value (CRV)}}$$

There are a number of different methods used by various organizations to calculate that backlog. For this reason, using FCIs to compare the City's facilities to other organizations is not always appropriate.

This study uses a parametric method that calculates BMAR based on the assessed condition scores. The statistical basis is a study conducted by NASA on over 10,000 surveyed facilities that evaluated the backlog of repair items relative to qualitative condition scores 1 through 5. The parametric backlog for each system is calculated based on a statistical theoretical percentage of that system that would need repair or replacement for each of the qualitative condition scores. The costs of those systems are the facility use cost models customized for the City of Tacoma.

**Life Cycle Renewal Model:** A theoretical forecast of when building systems will exceed their typical lifespan and funding will be required for renewals.

**Parametric Costs:** Parametric cost estimating is a technique that uses statistical relationships between historical cost data and other program variables such as system condition or age. Historical cost data is typically used at a high level (e.g., cost per square foot) and often represent conceptual, order-of-magnitude costs for initial planning or discussion purposes.

**Remaining Useful Life:** An estimate of the years that a facility system may remain serviceable or in operation before failure; which would then require system renewal or replacement.

**Subsystem:** The term subsystem in this report refers to a Uniformat Level 3 building systems category (e.g., B3010 - Roof Coverings; or B3020 – Roof Opening; or B3030 – Projections).

**System:** The term system in this report refers to a Uniformat Level 2 building system category (e.g., B3000 – Roofing)

The following terms are used in the MENG Analysis FCA Database:  
(See also the database user's manual for more specific definitions.)

**Last Major System Renewal:** The year in which a system was last renewed (substantially repaired or replaced).

**Original System Date:** The year a system was originally constructed/installed.

**Subsystem Assessed Condition Score:** The field surveyors' assessment of condition assigned to each facility subsystem. The rating uses a scale of 1 through 5, where 1=excellent, 2=good, 3=fair, 4=poor, 5=unacceptable. Different subsystem % of CRV's are included in the database for each of the different facility use types (e.g. maintenance shops vs. police station vs. office building, etc.)

**BMAR (backlog of maintenance and repair):** This is an estimated amount that would need to be spent to bring the facility up to good condition. Does not guarantee code compliance.

BMAR is generally defined as the amount of work required to safely maintain facilities and related infrastructure for the current use that should have been accomplished, but for a variety of reasons has not. It includes minor seismic, ADA, and fire protection items necessary to maintain current operations, but it does not include major work in those areas that would normally be accomplished in major building renovation for full code compliance.

The MENG Analysis methodology for calculating BMAR is based on the condition scores (1-5, excellent to unsatisfactory) for each system, with each condition bracket having a BMAR defined as the percentage of that system's replacement value needing repair. Those percentages were derived from a statistical industry study that compared specific system maintenance and repair costs for tens of thousands of buildings relative to the condition scores. Within our FCA process, we calculate condition scores for each subsystem, which are then rolled up to the systems level, and a bracketed lookup table used associate those scores with a percentage of replacement value. Those are totaled for the entire facility, and then divided by the replacement value of the entire facility to get the actual FCI index.

**Subsystem Normal Life:** Industry standard expected subsystem life between renewals or replacement cycles.

**System Coverage:** The amount of area in a facility containing a specific system, expressed as percent of building or site area.

Certain FCA terms are also expressed as formulas in the MENG Analysis FCA Database, as follows:

## List of Commonly Used Abbreviations

AC = Asphalt concrete	HVAC = Heating, ventilating, and air conditioning
ACT = Acoustic ceiling tile	IT = Information technology
A/V = Audio/video	LF = Linear feet (measurable unit)
AHU = Air handling unit	LED = Light emitting diode
ASHRAE = American Society of Heating, Refrigeration, & Air Conditioning Engineers	LS = Lump sum (measurable unit)
BUR = Built-up roofing	MDF = Main distribution frame
CCTV = Closed circuit television	OWS = Oil/water separator
CFH = Cubic feet per hour (of natural gas)	PA = Public address
CFL = Compact fluorescent	P-lam = Plastic laminate
CI = Cast iron	PRV = Pressure regulating valve
CMU = Concrete masonry unit	PTAC = Packaged Terminal Air Conditioning
CO2 = Carbon dioxide	Spig = Pounds per square inch (pressure)
CU = Condensing unit	SS Shelving = Stainless Steel Shelving
C = Commissioning	PVC = Polyvinyl chloride
DDC = Direct digital control	RTU = Roof top unit
DHW = Domestic hot water	RPBP = Reduced pressure backflow preventer
Ds = Direct expansion	SF = Square feet (measurable unit)
EA = Each (measurable unit)	UPS = Uninterruptible power supply
EF = Exhaust fan	VAV = Variable air volume
EFIS = Exterior insulation finishing system	VCT = Vinyl composite tile
FRP = Fiber reinforced plastic	VWC = Vinyl wall covering
GI = Grease interceptor	VOIP = Voice over internet protocol
GSHP = Ground-source heat pump	WAP = Wireless access point
HID = High intensity discharge (lamps)	WD = Wood
HM = Hollow metal	

## Condition Survey Form

### Condition Survey Form Development

Survey forms were developed for the facility condition assessments based on the Uniformat Level 3. All Level 3 subsystems are described with evaluation criteria. The evaluation criteria descriptions clearly explain what elements were included and excluded from each Level 3 subsystem.

Each survey form is accompanied by a deficiency report form that is completed when Observed Deficiencies (ODs) are noted. This Observed Deficiency form notes the problem and the recommended action to correct the deficiency. Raw construction costs (i.e., labor and materials) for facility component replacements or repairs are estimated.

### Sample Condition Scoring Criteria

The following section provides six examples of the condition scoring definitions that were used during the condition surveys.

<p><b>Roof Construction</b></p> <p><b>B1020</b></p>	<p>Roof structural frame, structural interior walls supporting roof, roof decks, slabs and sheathing, canopies. Excludes insulation and roofing.</p> <p><b>1 - Excellent:</b> New; Structure is sound and stable; no evidence of cracking, deflection or separation of framing members. Preventative inspection.</p> <p><b>2 - Good:</b> Structure is sound and stable; no evidence of cracking, deflection or separation of framing members. Minor preventative maintenance: rust proofing and / or sealants and tightening of connections.</p> <p><b>3 - Fair:</b> Minor surface cracking or separation of framing members. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Structural damage evident; Twisting, cracking, or separation of structural members affecting surrounding finishes or moisture intrusion. Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> Structurally deficient or damaged beyond repair; major damage to surrounding finishes; jeopardizing occupancy. Replacement.</p>
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<p><b>Exterior Windows</b></p> <p><b>B2020</b></p>	<p>Screens, storm windows, exterior louvers, frame, trim, sills, caulking, flashing. Excludes window shades and treatments.</p> <p><b>1 -Excellent:</b> New; doors operating smoothly; no finish degradation. Preventative inspection.</p> <p><b>2 - Good:</b> Functioning smoothly; no finish degradation. Secure hardware and emergency exiting. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Worn but functional; requires paint or resealing; glass or hardware damage only in isolated doors. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Damaged or deficient hardware, glass, trim or seals; water intrusion. Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> Extensive damage, deficient beyond repair; Hardware not operating, moisture intrusion. Replacement.</p>
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<p><b>Exterior Wall Finishes</b></p> <p><b>B2040</b></p>	<p>Exterior wall - exterior applied finishes</p> <p><b>1 - Excellent:</b> New; no finish degradation. Preventative inspection.</p> <p><b>2 - Good:</b> no cracking or moisture intrusion. Minor finish degradation. Minor preventative maintenance. Cleaning.</p> <p><b>3 - Fair:</b> Minor undamaged but requires sealing. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> Damaged beyond repair, Replacement.</p>
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<p><b>Plumbing Fixtures</b></p> <p><b>D2010</b></p>	<p>Water closets, urinals, lavatories, sink, showers, bathtubs, drinking fountains. Excludes hot water heaters.</p> <p><b>1 - Excellent:</b> New; All fixtures operating well. Preventative inspection.</p> <p><b>2 - Good:</b> system components operational, free of defect, and of adequate utility service and capacity for intended use. Includes water saving features. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Some components worn, fixtures stained. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Many components damaged; limited parts; leaking valves, rust and corrosion. Operating parts &gt; 30 years old. Restoration repairs.</p> <p><b>5 - Unsatisfactory:</b> Many fixtures not operational. Rust, corrosion, and mineral deposits. Leaks causing damage to other finishes and components. Replacement.</p>
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<p><b>Heat Generating Systems</b></p> <p><b>D3020</b></p>	<p>Boilers, piping and fittings adjacent to boilers, primary pumps, auxiliary equipment, equipment and piping insulation.</p> <p><b>1 - Excellent:</b> New. Preventative inspection.</p> <p><b>2 - Good:</b> System is fully operational, suitable capacity, efficient utility utilization, integrated energy management controls. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Equipment worn but reliable, older energy controls; Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Equipment marginal/hard to obtain parts, insulated ext. ductwork, no energy controls. &gt; 40 years old. Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> System non-functional or seriously deficient, not delivering supply to required spaces. Replacement.</p>
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<p><b>Distribution Systems</b></p> <p><b>D3040</b></p>	<p>Supply &amp; return air systems, ventilation &amp; exhaust systems, steam, hot water &amp; chilled water distribution, terminal devices, heat recovery equipment, auxiliary equipment such as secondary pumps, and heat exchangers, piping, duct &amp; equipment insulation.</p> <p><b>1 - Excellent:</b> New. Preventative inspection.</p> <p><b>2 - Good:</b> System is fully operational, suitable capacity, efficient utility utilization, integrated energy management controls. Good insulation. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Equipment worn but reliable, older energy controls; Insulation. Some joints/ sealants loose. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Equipment marginal/hard to obtain parts, no energy controls; Many grilles missing or loose. Air leaks and unbalance. Restorative repair</p> <p><b>5 - Unsatisfactory:</b> Non-functional or seriously deficient. Grilles corroded, missing. Replacement.</p>
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## Facility Summary

City of Tacoma  
 Electrical Maintenance Building  
 Electrical Maintenance Building

425 Tacoma Ave S  
 Tacoma, WA

Facility Size - Gross S.F. 4,700  
 Year Of Original Construction 1910  
 Facility Use Type Maintenance Shop  
 Construction Type Light  
 # of Floors 3  
 Energy Source Gas  
 Year Of Last Renovation 1910  
 Historic Register Yes



FCI (BMAR/CRV)	0.27	Predicted Renewal Budget (20 yrs)	\$750,480
FCI (Bldg OD/CRV)	1.08	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$1,701,000	Building	\$1,830,252
BMAR (Backlog of Maintenance and Repair)	\$468,000	Infrastructure	
Beginning Budget Year	2018	Total	
		Opportunity Total Project Cost	\$655,534

## Facility Condition Summary

The Electrical Maintenance Building (fronting on Tacoma Ave S) is a multistory wood frame structure built in 1910, with a daylight basement (accessing Fawcett Ave). The building formerly known as the Fire Alarm Repair Shop was originally constructed in 1910 as Fire Station #1 and was is listed on the Local and National Register of Historic Places. It is a 2-story wood frame building with a full basement and has never had a major up-grade. The 3-tab shingle roof is losing tiles and is in need of replacement and the exterior needs to be painted. The mortar and supports at the chimney serving the gas furnace are deteriorating and should be repaired. The old galvanized domestic water piping should be replaced with a new copper pipe system and include replacement of all plumbing fixtures. The existing gas furnace heating system is past its useful life span and should be replaced with a new furnace and distribution duct system. The branch wiring, receptacles and light fixtures are past their useful life span and should be replaced.



# Facility Summary

City of Tacoma  
 Electrical Maintenance Building  
 Electrical Maintenance Building

425 Tacoma Ave S  
 Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1910	1910	3	TRB 02/05/18	Standard concrete footings.
<b>A1030 Slab On Grade</b>	1910	1910	3	TRB 02/05/18	Slab in basement, minor historical cracking.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1910	1910	3	TRB 02/05/18	Cast in place concrete, no issues observed, but assumed to be unreinforced?
<b>B Shell</b>			<b>3.6</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1910	1910	3	TRB 02/05/18	Wood on wood joists.
<b>B1020 Roof Construction</b>	1910	1910	3	TRB 02/05/18	Wood on wood frame.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1910	1910	4	TRB 02/05/18	Paint peeling and some exposed lap siding exposed and weathering.
<b>B2020 Exterior Windows</b>	1910	1910	5	TRB 02/05/18	Original wood hung single pane windows, most operable units non-functional.
<b>B2030 Exterior Doors</b>	1910	1910	4	TRB 02/05/18	Wood panel overhead doors (4) nearing end of life. Paint doors to extend functional life.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1910	1980	4	TRB 02/05/18	Composition shingle roofing nearing end of life.

# Facility Summary

City of Tacoma  
 Electrical Maintenance Building  
 Electrical Maintenance Building

425 Tacoma Ave S  
 Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.6</b>		
<b>Roofing</b>					
<b>B3030 Projections</b>	1910	1910	4	TRB 02/05/18	Unreinforced masonry chimney.
<b>C Interiors</b>			<b>3.9</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1910	1910	3	TRB 02/05/18	Wood stud walls.
<b>C1020 Interior Doors</b>	1910	1910	4	TRB 02/05/18	Original wood doors, frames, and hardware.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>	1910	1910	3	TRB 02/05/18	Wood framed stairs.
<b>C2020 Stair Finishes</b>	1910	1950	3	TRB 02/05/18	Rubber non-slip treads nailed to tread, worn but functional.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1910	1910	4	TRB 02/05/18	Lath and plaster walls, with peeling (assumed lead based paint). Dirty bead board wainscott.
<b>C3020 Floor Finishes</b>	1910	1910	4	TRB 02/05/18	Patchwork of metal plates at vehicle deck, 9x9 (asbestos?) tile, sheet goods, and tired and stained wood flooring.
<b>C3030 Ceiling Finishes</b>	1910	1910	5	TRB 02/05/18	Lath and plaster with peeling paint (assumed to be lead based).
<b>D Services</b>			<b>3.8</b>		
<b>Vertical Transportation</b>					

# Facility Summary

City of Tacoma  
 Electrical Maintenance Building  
 Electrical Maintenance Building

425 Tacoma Ave S  
 Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.8</b>		
<b>Vertical Transportation</b>					
<b>D1010 Elevators and Lifts</b>	1910	1910	4	DCS 02/05/18	Two abandoned fire pole-ways - poles removed but hatches remain from station house to apparatus bay. Opportunity for elevator at abandoned hose tower to east.
<b>D1090 Other Conveying Systems</b>	1910	1910	4	DCS 02/05/18	Exterior hoist at east entry rusted & corroded.
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1910	1910	4	DCS 02/05/18	Mostly original fixtures with a few somewhat newer; ranging from some failed, mostly poor and a few in fair condition.
<b>D2020 Domestic Water Distribution</b>	1910	1910	4	DCS 02/05/18	Mostly old galvanized pipe with weak flow and discoloration; with new (2017) Rheem 50-gal electric DHW heater, missing expansion tanks, seismic straps, and recirc pump.
<b>D2030 Sanitary Waste</b>	1910	1910	3	DCS 02/05/18	Original cast iron DW&V piping - tested fixtures flush & drain from slow to fair, with no reported blockages, but renewal suggested due to age.
<b>D2040 Rain Water Drainage</b>	1910	1980	4	DCS 02/05/18	Metal gutter & downspout to grade to south and to storm to north; backing-up and overflowing from portions of gutter; downspouts disconnected in several places.
<b>D2090 Other Plumbing Systems</b>	1910	1960	4	DCS 02/05/18	Two air compressors, several horsepower each with tanks and distribution piping; all at end of life.
<b>HVAC</b>					
<b>D3010 Energy Supply</b>	1910	1970	3	DCS 02/05/18	Natural gas piping to basement furnaces; aging but functional.

# Facility Summary

City of Tacoma  
 Electrical Maintenance Building  
 Electrical Maintenance Building

425 Tacoma Ave S  
 Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.8</b>		
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>	1910	1910	4	DCS 02/05/18	Mostly original HVAC ductwork, grilles, registers, and diffusers in poor condition. Somewhat newer (1989) twinned Payne gas furnaces, approximately 120 mbh capacity each (240 mbh total), standard efficiency (80%). Flue is to roof via original brick chimney.
<b>D3060 Controls and Instrumentation</b>	1910	1970	4	DCS 02/05/18	Aging manual T-stat.
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>	1910	1970	3	DCS 02/05/18	Fire extinguishers on hooks.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1910	2004	3	DCS 02/05/18	Somewhat newer Square D 120/240V main panel with 200A capacity inside original 1910 panel with mix of mostly older and some newer wiring.
<b>D5020 Lighting and Branch Wiring</b>	1910	1980	4	DCS 02/05/18	Mix of mostly older and some newer wiring & devices; with mostly somewhat newer T8 fluorescent lighting with manual control.
<b>D5032 Low Voltage Communication</b>	1910	1980	4	DCS 02/05/18	Old door bell. Limited CATV. Somewhat newer telephone.
<b>D5037 Low Voltage Fire Alarm</b>	1910	2000	4	DCS 02/05/18	Some newer fire alarm sensors, but no apparent FACP and/or notifications; may be wired to adjacent building.
<b>D5038 Low Voltage Security</b>	1910	1970	4	DCS 02/05/18	Door open bell, two CCTV cameras outside. Less than City standard.

# Facility Summary

City of Tacoma  
 Electrical Maintenance Building  
 Electrical Maintenance Building

425 Tacoma Ave S  
 Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.8</b>		
<b>Electrical</b>					
<b>D5039 Low Voltage Data</b>	1910	1910	4	DCS 02/05/18	Little or no data.
<b>D5090 Other Electrical Systems</b>	1910	1910	5	DCS 02/05/18	No emergency lighting.
<b>E Equipment and Furnishings</b>			<b>4.4</b>		
<b>Equipment</b>					
<b>E1020 Institutional Equipment</b>	1910	1960	4	DCS 02/05/18	Shop equipment including sand blaster, paint booth and others - all in poor condition.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	1910	1910	5	TRB 02/05/18	Old casework, tired and at end of life.

# Facility Summary

City of Tacoma  
 Electrical Maintenance Building  
 Infrastructure

425 Tacoma Ave S  
 Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1910	1910	3	TRB 02/05/18	Asphalt driveway (small portion accessing the garage doors from the street).
<b>G2030 Pedestrian Paving</b>	1910	1950	2	TRB 02/05/18	Minimal concrete path from city sidewalks
<b>G2050 Landscaping</b>	1910	1910	3	TRB 02/05/18	Minor, single rhododendron.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1910	1960	3	DCS 02/05/18	City water with no issues reported; estimated 3/4-inch meter at sidewalk to east. No fire service.
<b>G3020 Sanitary Sewer</b>	1910	1910	3	DCS 02/05/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1910	1910	3	DCS 02/05/18	City storm with no issues reported; minimal. Consider connecting downspouts at south side to storm.
<b>G3060 Fuel Distribution</b>	1910	1970	3	DCS 02/05/18	PSE gas meter #971840 with estimated 250 cfh capacity and no issues reported. Possible old underground fuel oil storage tank under entrance apron to basement level east - further investigation needed.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1910	2004	3	DCS 02/05/18	Tacoma Power meter #21345564 overhead from pole at street to south to newer (2004) Siemens 200A 120/240V disconnect at NE corner of Bldg, then to main distribution panel inside. Opportunity to underground power in future.
<b>G4020 Site Lighting</b>	1910	1980	3	DCS 02/05/18	Two newer and two older fixtures.

# Facility Summary

City of Tacoma  
 Electrical Maintenance Building  
 Infrastructure

425 Tacoma Ave S  
 Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

G4020 Site Lighting

G4030 Site Communications and Security

1910 2000 3

DCS 02/05/18 Telecom overhead from purveyors with no issues reported; some services to/from adjacent EOC Bldg; minimal site security (two CCTV cameras - one each NW & SW corners).



## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Electrical Maintenance Building

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Electrical Maintenance Building	Exterior Closure	\$110,000	\$27,500	\$27,500	\$90,750	\$255,750
	Roofing	\$45,904	\$11,476	\$11,476	\$37,871	\$106,727
	Interior Construction	\$6,000	\$1,500	\$1,500	\$4,950	\$13,950
	Interior Finishes	\$397,500	\$99,375	\$99,375	\$327,938	\$924,188
	Plumbing	\$61,000	\$15,250	\$15,250	\$50,325	\$141,825
	HVAC	\$90,500	\$22,625	\$22,625	\$74,663	\$210,413
	Electrical	\$47,300	\$11,825	\$11,825	\$39,023	\$109,973
	Equipment	\$15,000	\$3,750	\$3,750	\$12,375	\$34,875
	Furnishings	\$14,000	\$3,500	\$3,500	\$11,550	\$32,550
	<b>Facility Total</b>	<b>\$787,204</b>	<b>\$196,801</b>	<b>\$196,801</b>	<b>\$649,443</b>	<b>\$1,830,249</b>
	<b>Site Total</b>	<b>\$787,204</b>	<b>\$196,801</b>	<b>\$196,801</b>	<b>\$649,443</b>	<b>\$1,830,249</b>



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Electrical Maintenance Building

Total Observed Deficiency Repair Direct Cost : \$787,204

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Electrical Maintenance Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$110,000
System: Exterior Closure					Total System Deficiency Repair Cost (Marked Up):				\$255,750
<b>Exterior Walls</b>									
Exterior Siding	4	4	2018		10,000	\$7.00	SF	\$70,000	\$162,750
Peeling paint (assumed lead based), and weathered boards.				Remove existing paint, repair any rotten siding, and re-paint exterior.					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Electrical Maintenance Building

Total Observed Deficiency Repair Direct Cost : \$787,204

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				<b>Action</b>						
<b>Facility:</b> Electrical Maintenance Building									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b> \$110,000	
<b>System:</b> Exterior Closure									<b>Total System Deficiency Repair Cost (Marked Up):</b> \$255,750	
<b>Exterior Windows</b>										
Exterior Windows	5	4	2018		30	\$1,000.00	EA	\$30,000	\$69,750	

Original wood hung single pane windows, most operable units non-functional.

Replace windows with historically appropriate thermally glazed units.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Electrical Maintenance Building

Total Observed Deficiency Repair Direct Cost : \$787,204

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Electrical Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$110,000</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$255,750</b>
<b>Exterior Doors</b>									
Sectional Overhead Doors	4	5	2018		4	\$2,500.00	EA	\$10,000	\$23,250

Doors nearing end of life.

Replace doors, and provide modern safety stop operators.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Electrical Maintenance Building

Total Observed Deficiency Repair Direct Cost : \$787,204

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Electrical Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$45,904</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$106,727</b>
<b>Roof Coverings</b>									
Composition Shingle	4	3	2018		3,242	\$12.00	SF	\$38,904	\$90,452

Composition shingle roofing nearing end of life, some shingles missing.

Replace roofing.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Electrical Maintenance Building

Total Observed Deficiency Repair Direct Cost : \$787,204

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility:</b> Electrical Maintenance Building									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b> \$45,904	
<b>System:</b> Roofing									<b>Total System Deficiency Repair Cost (Marked Up):</b> \$106,727	
<b>Projections</b>										
Other	5	1	2018		1	\$7,000.00	EA	\$7,000	\$16,275	

Unreinforced masonry chimney (only a single strap observed).

Provide seismic reinforcing for chimney.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Electrical Maintenance Building

Total Observed Deficiency Repair Direct Cost : \$787,204

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Electrical Maintenance Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$6,000
System: Interior Construction					Total System Deficiency Repair Cost (Marked Up):				\$13,950
<b>Interior Doors</b>									
Wood Doors and Frames	4	4	2018		15	\$400.00	EA	\$6,000	\$13,950

Door paint worn (assumed to be lead based paint), many doors stick in frames, original knob hardware.

Trim doors to operate freely, clean and paint.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Electrical Maintenance Building

Total Observed Deficiency Repair Direct Cost : \$787,204

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Electrical Maintenance Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$397,500
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$924,188
<b>Wall Finishes</b>									
Painted Walls	4	4	2018		1	\$150,000.00	LS	\$150,000	\$348,750
<b>Lath and plaster walls, with peeling (assumed lead based paint).</b>				<b>Remediate lead paint, patch and repair lath and plaster, repaint interiors.</b>					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Electrical Maintenance Building

Total Observed Deficiency Repair Direct Cost : \$787,204

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Electrical Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$397,500</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$924,188</b>
<b>Floor Finishes</b>									
Flooring	4	5	2018		4,500	\$35.00	SF	\$157,500	\$366,188

Patchwork of metal plates at vehicle deck, 9x9 (asbestos?) tile, sheet goods, and tired and stained wood flooring.

Repair flooring systems: install vehicle traffic system floor finish, remediation, or encapsulate asbestos tile, replace sheet goods, clean and refinish wood flooring.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Electrical Maintenance Building

Total Observed Deficiency Repair Direct Cost : \$787,204

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Electrical Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$397,500</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$924,188</b>
<b>Ceiling Finishes</b>									
Plaster Ceiling	5	1	2018		4,500	\$20.00	SF	\$90,000	\$209,250

Lath and plaster with peeling paint (assumed to be lead based).

Remediation of lead based paint, patch and repair lath and plaster, re-paint.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Electrical Maintenance Building

Total Observed Deficiency Repair Direct Cost : \$787,204

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: Electrical Maintenance Building									Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$61,000	
System: Plumbing									Total System Deficiency Repair Cost (Marked Up): \$141,826	
<b>Plumbing Fixtures</b>										
Fixtures & trim	4	2	2018		10	\$3,000.00	EA	\$30,000	\$69,750	
Mostly original fixtures, others aging, some failed.				Replace with new.						



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Electrical Maintenance Building

Total Observed Deficiency Repair Direct Cost : \$787,204

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Electrical Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$61,000</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$141,826</b>
<b>Domestic Water Distribution</b>									
Galvanized pipe	4	2	2018		4,700	\$2.00	SF	\$9,400	\$21,855

Galvanized pipe.

Replace with copper and/or PEX.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Electrical Maintenance Building

Total Observed Deficiency Repair Direct Cost : \$787,204

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Electrical Maintenance Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$61,000
System: Plumbing					Total System Deficiency Repair Cost (Marked Up):				\$141,826
<b>Sanitary Waste</b>									
DW&V piping	4	2	2018		4,700	\$3.00	SF	\$14,100	\$32,783

Original cast iron DW&V piping.

Clean, inspect and replace or renew as needed before increased usage.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Electrical Maintenance Building

Total Observed Deficiency Repair Direct Cost : \$787,204

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				<b>Action</b>					
<b>Facility: Electrical Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$61,000</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$141,826</b>
<b>Other Plumbing Systems</b>									
Compressed Air System	4	2	2018		1	\$7,500.00	LS	\$7,500	\$17,438

Two old air compressors and piping.

Replace with one new air compressor and renew piping.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Electrical Maintenance Building

Total Observed Deficiency Repair Direct Cost : \$787,204

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Electrical Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$90,500</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$210,413</b>
<b>HVAC Distribution Systems</b>									
Ductwork	4	2	2018		4,700	\$15.00	SF	\$70,500	\$163,913

Obsolete ductwork.

Renew ductwork per code including mechanical ventilation for human occupancy in station house and shop areas.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Electrical Maintenance Building

Total Observed Deficiency Repair Direct Cost : \$787,204

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				<b>Deficiency</b>			<b>Action</b>			
<b>Facility:</b> Electrical Maintenance Building									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b> \$90,500	
<b>System:</b> HVAC									<b>Total System Deficiency Repair Cost (Marked Up):</b> \$210,413	
<b>HVAC Distribution Systems</b>										
Furnaces	4	3	2018		2	\$10,000.00	EA	\$20,000	\$46,500	

Aging gas furnaces approaching end of life.

Replace with new high-efficiency type.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Electrical Maintenance Building

Total Observed Deficiency Repair Direct Cost : \$787,204

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: Electrical Maintenance Building									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: Electrical									\$47,300	
<b>Electrical Service and Distribution</b>										
Distribution	4	3	2018		1	\$5,000.00	EA	\$5,000	\$11,625	

Newer panel inside original (1910) panel.

Update per code.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Electrical Maintenance Building

Total Observed Deficiency Repair Direct Cost : \$787,204

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Electrical Maintenance Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$47,300
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$109,973
<b>Lighting and Branch Wiring</b>									
Branch wiring and devices	4	2	2018		4,700	\$5.00	SF	\$23,500	\$54,638

Mix of mostly older, including some original, and some newer wiring & devices.

Replace original and older with new.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Electrical Maintenance Building

Total Observed Deficiency Repair Direct Cost : \$787,204

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Electrical Maintenance Building									
System: Electrical									
<b>Low Voltage Fire Alarm</b>									
Fire alarm	4	2	2018		4,700	\$2.50	SF	\$11,750	\$27,319
Unclear fire alarm.				Renew fire alarm.					

Total System Deficiency Repair Cost (Undiscounted/Unescalated):	\$47,300
Total System Deficiency Repair Cost (Marked Up):	\$109,973



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Electrical Maintenance Building

Total Observed Deficiency Repair Direct Cost : \$787,204

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Electrical Maintenance Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$47,300
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$109,973
<b>Other Electrical Systems</b>									
Emergency lighting	5	0	2018		4,700	\$1.50	SF	\$7,050	\$16,391

No emergency lighting system.

Install per code.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Electrical Maintenance Building

Total Observed Deficiency Repair Direct Cost : \$787,204

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				<b>Action</b>						
<b>Facility:</b> Electrical Maintenance Building									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
<b>System:</b> Equipment									<b>\$15,000</b>	
<b>Institutional Equipment</b>										
Shop equipment	4	1	2018		2	\$7,500.00	EA	\$15,000	\$34,875	

Old shop equipment in poor condition.

Replace with modern code compliant equipment.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Electrical Maintenance Building

Total Observed Deficiency Repair Direct Cost : \$787,204

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Electrical Maintenance Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$14,000</b>	
<b>System: Furnishings</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$32,550</b>	
<b>Fixed Furnishings</b>										
Kitchen Cabinets	4	5	2018		2	\$7,000.00	EA	\$14,000	\$32,550	
Old casework, tired and at end of life.				Replace casework with new.						





## Opportunity Summary By Subsystem

City of Tacoma

Site: Electrical Maintenance Building

Total Site Opportunity Cost: \$289,450

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Electrical Maintenance Building</b> <b>System: Vertical Transportation</b> <span style="float: right;"><b>Total Cost: \$150,000</b></span>						
D1010	Elevators and Lifts	Abandoned hose tower in three-story building.	1.00	\$150,000.00	LS	\$150,000
<b>Facility: Electrical Maintenance Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$52,050</b></span>						
D3050	Terminal and Package Units	Little or no heat for apparatus bay and shop areas.	5.00	\$5,000.00	EA	\$25,000
D3060	Controls and Instrumentation	No DDC.	4,700.00	\$1.50	SF	\$7,050
D3090	Other HVAC Systems and Equipment	No apparatus bay engine exhaust.	2.00	\$10,000.00	EA	\$20,000
<b>Facility: Electrical Maintenance Building</b> <b>System: Fire Protection</b> <span style="float: right;"><b>Total Cost: \$56,400</b></span>						
D4010	Fire Protection Sprinkler Systems	No fire sprinkler.	4,700.00	\$12.00	SF	\$56,400
<b>Facility: Electrical Maintenance Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$23,500</b></span>						
D5020	Lighting and Branch Wiring	Fluorescent lighting with manual control.	4,700.00	\$5.00	SF	\$23,500
<b>Facility: Infrastructure</b> <b>System: Site Electrical utilities</b> <span style="float: right;"><b>Total Cost: \$7,500</b></span>						
G4010	Electrical Distribution	Obsolete residential low capacity service.	1.00	\$7,500.00	LS	\$7,500

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 Emergency Operations Center  
 Emergency Operations Center Building

420 South Fawcett Avenue  
 Tacoma, WA 98407

Facility Size - Gross S.F. 6,700  
 Year Of Original Construction 1957  
 Facility Use Type Office  
 Construction Type Medium  
 # of Floors 2  
 Energy Source Electric  
 Year Of Last Renovation 1957  
 Historic Register No



FCI (BMAR/CRV)	0.14	Predicted Renewal Budget (20 yrs)	\$1,616,618
FCI (Bldg OD/CRV)	0.21	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$3,586,000	Building	\$754,580
BMAR (Backlog of Maintenance and Repair)	\$509,000	Infrastructure	
Beginning Budget Year	2018	Total	
		Opportunity Total Project Cost	\$1,089,031

## Facility Condition Summary

The Emergency Operations Center was constructed in 1957 as a 2-story concrete frame building with brick veneer. It was constructed as an addition to the historic Fire Communication Center (to the north). The upper floor of the building is currently used for storage and server equipment only, the lower level is used as the Emergency Operations Center. Shell & core HVAC is a mix of older and newer, but with minimal original equipment and ductwork. Shell & core plumbing is mostly original 1957 as are most remaining fixtures. Shell & core electrical was mostly replaced in 2002 including large redundant generator plant plus UPS; this relatively new electrical system appears to serve both the EOC and directly adjacent Fire Communications Center. TI (build-out) work ranges mostly from 1996 to 2003 on lower level. TI work on the upper level is mostly demolished and would need to be renovated for occupancy. Overall the MEP systems are uncoordinated with variety of code, obsolescence, and performance issues, except for the 2002 shell & core electrical work, which was well done and should serve the facility well for many years to come, assuming routine maintenance on this relatively complex system. The building is in need of an exterior refurbishment and new roofing.

# Facility Summary

City of Tacoma  
 Emergency Operations Center  
 Emergency Operations Center Building

420 South Fawcett Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1957	1957	3	TRB 02/05/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	1957	1957	3	TRB 02/05/18	Concrete slab on grade. Raw and exposed areas from past interior wall removals, portion slopes down at historical "Radio Repair" vehicle bay.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1957	1957	3	TRB 02/05/18	Concrete basement walls.
<b>B Shell</b>			<b>3.1</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1957	1957	3	TRB 02/05/18	Concrete slabs spanning between concrete beams supported by interior concrete columns and exterior concrete walls.
<b>B1020 Roof Construction</b>	1957	1957	3	TRB 02/05/18	Concrete slabs spanning between concrete beams supported by interior and exterior concrete walls. Generator room is metal deck with concrete topping spanning between exterior walls and interior steel beams.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1957	1957	3	TRB 02/05/18	Cast in place concrete walls at 1st and 2nd levels with brick veneer at 2nd level. Generator room is concrete masonry units with stucco exterior finish.
<b>B2020 Exterior Windows</b>	1957	1957	3	TRB 02/05/18	Single pane glazing in steel sash in some locations and interior mounted insulated glazing in metal sash behind glass block units.

# Facility Summary

City of Tacoma  
 Emergency Operations Center  
 Emergency Operations Center Building

420 South Fawcett Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.1</b>		
<b>Exterior Closure</b>					
<b>B2030 Exterior Doors</b>	1957	1957	3	TRB 02/05/18	Hollow metal doors and frames.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1957	1980	4	TRB 02/05/18	Roofing appears to be a fiberglass impregnated system turned up parapet walls, Approaching end of life.
<b>B3020 Roof Openings</b>	1957	1957	3	TRB 02/05/18	Small roof access hatch.
<b>C Interiors</b>			<b>3.0</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1957	1957	3	TRB 02/05/18	Interior walls are concrete and concrete masonry units and some wood stud with gypsum.
<b>C1020 Interior Doors</b>	1957	1957	3	TRB 02/05/18	Hollow metal doors and frames and solid core wood doors in metal frames. Door at bottom of stair sticks in frame.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>	1957	1957	3	TRB 02/05/18	Concrete formed stair treads and risers.
<b>C2020 Stair Finishes</b>	1957	1957	3	TRB 02/05/18	Concrete finish.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1957	2003	3	TRB 02/05/18	Painted concrete and concrete masonry units, painted gypsum board.
<b>C3020 Floor Finishes</b>					

# Facility Summary

City of Tacoma  
 Emergency Operations Center  
 Emergency Operations Center Building

420 South Fawcett Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>3.0</b>		
<b>Interior Finishes</b>					
<b>C3020 Floor Finishes</b>	1957	1980	3	TRB 02/05/18	The floor finishes include carpet, vinyl and composition tile.
<b>C3030 Ceiling Finishes</b>	1957	2003	3	TRB 02/05/18	Painted gypsum board, painted concrete, and suspended acoustic ceilings are present. Spot areas with water damaged ceiling tiles (exposed concrete in upper floor).
<b>D Services</b>			<b>2.8</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1957	1957	3	DCS 02/05/18	Plumbing fixtures are of various materials (porcelain and stainless steel); while remaining original fixtures are aged, their light usage has extended their life. Fixtures are missing from upper floor, pending TI (build-out) work following recent demolition of this still partly occupied space.
<b>D2020 Domestic Water Distribution</b>	1957	1957	3	DCS 02/05/18	Mix of original galvanized and some newer copper piping.
<b>D2030 Sanitary Waste</b>	1957	1957	3	DCS 02/05/18	Cast iron and galvanized steel DW&V piping with no issues reported; tested fixtures flush & drain OK, but clean & inspect is suggested.
<b>D2040 Rain Water Drainage</b>	1957	1957	3	DCS 02/05/18	Two roof drains to storm and one overflow scupper to downspout to grade; ponding in multiple locations due to minimal roof slope - see roof structure or covering.
<b>HVAC</b>					
<b>D3030 Cooling Generating Systems</b>	1957	2000	3	DCS 02/05/18	Radio room is a secure space, but assume the four aging rooftop condensing units are serving



# Facility Summary

City of Tacoma  
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 Emergency Operations Center Building

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 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			2.8		
<b>HVAC</b>					
<b>D3030 Cooling Generating Systems</b>					ductless split units inside the radio room - these are EMI with 2.5-ton capacity each (10-tons total capacity).
<b>D3040 HVAC Distribution Systems</b>	1957	1989	3	DCS 02/05/18	Ductwork is galvanized steel. One abandoned Lennox R-22 aged (1989) rooftop packaged heat pump unit previously served upper floor. One Carrier 1996 split-Dx system serves the lower level EOC area with unclear economizer and ventilation air and apparent insufficient capacity for load as evidenced by portable fans. One newer (2016) Trane split-Dx system with no ductwork serve the main electrical room. Ventilation cooling for newer (2002) generator room at SE corner of building.
<b>D3050 Terminal and Package Units</b>	1957	1997	3	DCS 02/05/18	Lower level EOC served by aging (1996) Carrier split-Dx heat pump system with newer (2007) outside condensing unit. See cooling for radio room system. See Distribution for upper floor system. Electric wall heater in generator room.
<b>D3060 Controls and Instrumentation</b>	1957	1997	3	DCS 02/05/18	Air conditioning units are controlled by programmable thermostats. Update to newer T-stats - opportunity to further upgrade to DDC.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>	1957	2002	2	DCS 02/05/18	Wet pipe fire sprinkler system with 4-inch riser at 70 psig and FDC. Will need modification to accommodate upper floor build-out (TI).
<b>D4030 Fire Protection Specialties</b>	1957	1980	3	DCS 02/05/18	Fire extinguishers on hooks; coverage may be weak on upper floor (small cost to add more).
<b>D4090 Other Fire Protection Systems</b>	1957	1996	3	DCS 02/06/18	Assume gaseous fire suppression in radio room.

# Facility Summary

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 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.8</b>		
<b>Electrical</b>					
<b>D5010</b>	<b>Electrical Service and Distribution</b>		1957 2002 2	DCS 02/05/18	All new 120/208V service in 2002 with Siemens gear including 800A Disconnect, 800A MDP, 800A SDP, and new distribution panels in electrical room at upper level, but obsolete Trumbell panels serving EOC areas on lower floor. No issues reported. Electrical room has dedicated cooling. The EOC electrical service appears to serve the adjacent Fire Comm Bldg.
<b>D5020</b>	<b>Lighting and Branch Wiring</b>		1957 1996 3	DCS 02/05/18	EOC lighting is T8 mix of 1x4 surface mounted and 2x4 lay-in. Wiring is a mix of older and newer with all manual lighting controls. Temporary string lighting for upper level. Excessive extension cords and un-managed
<b>D5032</b>	<b>Low Voltage Communication</b>		1957 1996 3	DCS 02/05/18	Extensive telecom and radio communications - aging but reportedly functional and adequate for need. Significant abandoned and obsolete telecom for prior uses, some may still be live.
<b>D5037</b>	<b>Low Voltage Fire Alarm</b>		1957 2010 3	DCS 02/05/18	Newer (2010) Silent Knight FACP with new (2017) AES antenna. Upper floor work is temporary pending TI (build-out).
<b>D5038</b>	<b>Low Voltage Security</b>		1957 1996 3	DCS 02/05/18	Card key access system and CCTV aging but functional; CCTV camera to west bracket is heavily corroded and may fall down. Opportunity to selectively upgrade to current City standard.
<b>D5039</b>	<b>Low Voltage Data</b>		1957 1997 3	DCS 02/05/18	Aging but functional; no distribution on upper floor.
<b>D5090</b>	<b>Other Electrical Systems</b>		1957 2002 2	DCS 02/05/18	Two (2) 300 kW Cummins diesel generators with on-board 340-gal belly tanks, remote rooftop radiators, and ATS for the redundant generators, leading to separate ATS for utility versus generator power; additionally 225 kW Liebert

# Facility Summary

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.8</b>		
<b>Electrical</b>					
<b>D5090 Other Electrical Systems</b>					
					UPS system. Remote underground fuel oil storage tank to extend run time. Somewhat newer rooftop lightning arrestance system to assumed grounding rod at SW corner of building - test integrity of system, especially terminal ground, noting natural gas piping present east of ground rod serving adjacent Fire Electrical Shop Building.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>					
	1957	1996	3	DCS 02/05/18	Kitchen and laundry appliances aging but functional.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>					
	1957	1980	3	TRB 02/05/18	Cabinetry aged but functional.
<b>F Special Construction</b>					
<b>Special Construction</b>					
<b>F1010 Special Structures</b>					
	1957	1957	4	DCS 02/06/18	Radio antenna tower on top of roof; aging, questionably anchored with no guy-wires, reportedly has abandoned antenna elements and cabling; paint is chipping, peeling and/or fading.
<b>F1050 Special Controls and Instrumentation</b>					
	1957	1996	3	DCS 02/05/18	Extensive special radio, communication, and data equipment to support EOC and other functions. Many apparently abandoned cables, antennas and other devices on roof and passing from room to radio room, comm room and/or EOC below.

# Facility Summary

City of Tacoma  
 Emergency Operations Center  
 Infrastructure

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 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2030 Pedestrian Paving</b>	1957	1957	3	TRB 02/05/18	City concrete sidewalks.
<b>G2050 Landscaping</b>	1957	1957	3	TRB 02/05/18	Minimal landscape, grass, and street trees.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1957	1957	3	DCS 02/05/18	City water via 1.5-inch meter with no issues reported; pressure at sprinkler riser is 70 psig in generator room. Four-inch fire service with twin-head outside wall connection to east.
<b>G3020 Sanitary Sewer</b>	1957	1957	3	DCS 02/05/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1957	1957	3	DCS 02/05/18	City storm with no issues reported; most or all drainage is from roof; limited site drainage to east appears to sheet flow to street.
<b>G3060 Fuel Distribution</b>	1957	2002	3	DCS 02/05/18	Underground fuel oil storage tank at adjacent Fire Comm Bldg supplies both generator belly-tanks with diesel fuel; no issues reported. Opportunity to install natural gas service if heat is needed when the upper floor TI work is performed.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1957	2002	2	DCS 02/05/18	Tacoma Power with meter #304664 underground from pole to east; no issues reported; appears to serve both EOC and Fire Comm Bldgs.
<b>G4020 Site Lighting</b>	1957	1980	3	DCS 02/05/18	Small wall-pack fixtures - one older and one newer - minor maintenance to upgrade to both to LED.

# Facility Summary

City of Tacoma  
 Emergency Operations Center  
 Infrastructure

420 South Fawcett Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

##### G4030 Site Communications and Security

1957 2003 3

DCS 02/04/18

Telecom from purveyors with no issues reported. Special communications for EOC function. Minimal site security with several aged CCTV cameras.

#### Other Site Construction

##### G9010 Service and Pedestrian Tunnels

1957 1957 3

DCS 02/05/18

Fire & comm tunnel in sidewalk to east - no issues reported.



## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Emergency Operations Center

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Emergency Operations Center Building	Exterior Closure	\$20,000	\$5,000	\$5,000	\$16,500	\$46,500
	Roofing	\$81,050	\$20,263	\$20,263	\$66,866	\$188,441
	Interior Finishes	\$10,750	\$2,688	\$2,688	\$8,869	\$24,994
	Plumbing	\$16,700	\$4,175	\$4,175	\$13,778	\$38,828
	HVAC	\$86,000	\$21,500	\$21,500	\$70,950	\$199,950
	Fire Protection	\$6,400	\$1,600	\$1,600	\$5,280	\$14,880
	Electrical	\$78,650	\$19,663	\$19,663	\$64,886	\$182,861
	Special Construction	\$25,000	\$6,250	\$6,250	\$20,625	\$58,125
	<b>Facility Total</b>	<b>\$324,550</b>	<b>\$81,138</b>	<b>\$81,138</b>	<b>\$267,754</b>	<b>\$754,579</b>
	<b>Site Total</b>	<b>\$324,550</b>	<b>\$81,138</b>	<b>\$81,138</b>	<b>\$267,754</b>	<b>\$754,579</b>





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Emergency Operations Center

Total Observed Deficiency Repair Direct Cost : \$324,550

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility:</b> Emergency Operations Center Building					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$20,000</b>
<b>System:</b> Exterior Closure					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$46,501</b>
<b>Exterior Walls</b>									
Cast-in-Place (CIP) Concrete	4	5	2018		500	\$15.00	SF	\$7,500	\$17,438

Peeling paint, roots from past ivy visible, moss growth on cast concrete elements.

Clean, remove chipped paint, repair concrete where needed, and repaint.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Emergency Operations Center

Total Observed Deficiency Repair Direct Cost : \$324,550

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				<b>Action</b>					
<b>Facility:</b> Emergency Operations Center Building					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$20,000</b>
<b>System:</b> Exterior Closure					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$46,501</b>
<b>Exterior Windows</b>									
Glass Block	4	4	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Some broken glass block units.

Selective removal and replace individual broken glass block units.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Emergency Operations Center

Total Observed Deficiency Repair Direct Cost : \$324,550

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility:</b> Emergency Operations Center Building					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$20,000</b>
<b>System:</b> Exterior Closure					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$46,501</b>
<b>Exterior Windows</b>									
Single-Pane Windows	5	1	2018		5	\$1,500.00	EA	\$7,500	\$17,438

Non-thermally broken frames, and non-insulated glazing at lower level windows.

Replace with thermal performance units.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Emergency Operations Center

Total Observed Deficiency Repair Direct Cost : \$324,550

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Emergency Operations Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$81,050</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$188,441</b>
<b>Roof Coverings</b>									
Roof Covering	4	5	2018		3,242	\$25.00	SF	\$81,050	\$188,441

Roofing nearing end of life.

Continue cleaning (kill and remove blackberrys) untill roof replaced. Remove existing roofing and obsolete antenna, install rigid insulation, and new roofing.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Emergency Operations Center

Total Observed Deficiency Repair Direct Cost : \$324,550

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				<b>Deficiency</b>					
				<b>Action</b>					
<b>Facility:</b> Emergency Operations Center Building					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$10,750</b>
<b>System:</b> Interior Finishes					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$24,994</b>
<b>Floor Finishes</b>									
Carpet	4	4	2018		900	\$7.50	SF	\$6,750	\$15,694

Hallway carpet worn and at end of life.

Replace with new high traffic carpet squares.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Emergency Operations Center

Total Observed Deficiency Repair Direct Cost : \$324,550

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility:</b> Emergency Operations Center Building					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$10,750</b>
<b>System:</b> Interior Finishes					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$24,994</b>
<b>Floor Finishes</b>									
Sheet Vinyl	4	5	2018		400	\$10.00	SF	\$4,000	\$9,300

Kitchen and toilet rooms: sheetgood floors showing age, wear and tear and chemical bleaching from former tile adhesive from below migrating and telegraphing through. Adhesive seam failures in bathrooms (curling up).

Remove sheet goods, seal former adhesive, install new seam-sealed sheet good flooring



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Emergency Operations Center

Total Observed Deficiency Repair Direct Cost : \$324,550

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Emergency Operations Center Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$16,700
System: Plumbing					Total System Deficiency Repair Cost (Marked Up):				\$38,828
<b>Plumbing Fixtures</b>									
Fixtures & trim	5	0	2018		4	\$2,500.00	EA	\$10,000	\$23,250

No fixtures at upper floor.

Install fixtures per code; estimated cost includes associated piping.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

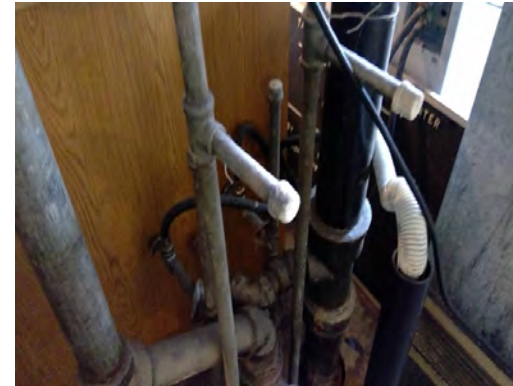
City of Tacoma  
 Site: Emergency Operations Center

Total Observed Deficiency Repair Direct Cost : \$324,550

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Emergency Operations Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$16,700</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$38,828</b>
<b>Domestic Water Distribution</b>									
Galvanized pipe	4	3	2018		6,700	\$1.00	SF	\$6,700	\$15,578

Galvanized pipe.

Replace with copper and/or PEX.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Emergency Operations Center

Total Observed Deficiency Repair Direct Cost : \$324,550

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Emergency Operations Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$86,000</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$199,950</b>
<b>Cooling Generating Systems</b>									
Communications Cooling	4	5	2018		4	\$6,500.00	LS	\$26,000	\$60,450

24x7 radio room cooling reportedly runs year-round.

Budget for replacement prior to failure.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Emergency Operations Center

Total Observed Deficiency Repair Direct Cost : \$324,550

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Emergency Operations Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$86,000</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$199,950</b>
<b>HVAC Distribution Systems</b>									
HVAC	5	0	2018		3,000	\$20.00	SF	\$60,000	\$139,500

No HVAC for upper floor; one old RTU is abandoned in place on roof.

New HVAC for upper floor.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Emergency Operations Center

Total Observed Deficiency Repair Direct Cost : \$324,550

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Emergency Operations Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$6,400</b>
<b>System: Fire Protection</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$14,880</b>
<b>Fire Protection Sprinkler Systems</b>									
Fire Sprinkler	4	2	2018		3,200	\$2.00	SF	\$6,400	\$14,880

Upper floor shell & core fire sprinkler will need minor modification to support build-out work.

Modify existing shell & core fire sprinkler on upper floor to accommodate build-out (TI) work.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Emergency Operations Center

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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Emergency Operations Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$78,650</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$182,861</b>
<b>Electrical Service and Distribution</b>									
Branch panelboards	4	5	2018		2	\$2,500.00	EA	\$5,000	\$11,625

Aging Trumbell distribution panels in lower level corridor serving EOC spaces.

Replace with modern distribution panels.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Emergency Operations Center

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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Emergency Operations Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$78,650</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$182,861</b>
<b>Lighting and Branch Wiring</b>									
Branch wiring	4	2	2018		2,000	\$5.00	SF	\$10,000	\$23,250

Excessive extension cords, power strips and un-managed wiring at EOC situation rooms.

Install wire management system.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

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<b>Deficiency</b>				<b>Action</b>						
Facility: Emergency Operations Center Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$78,650	
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$182,861	
<b>Lighting and Branch Wiring</b>										
Lighting	5	0	2018		3,200	\$13.00	SF	\$41,600	\$96,720	

No permanent lighting for upper level.

Install permanent lighting system per code.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Emergency Operations Center

Total Observed Deficiency Repair Direct Cost : \$324,550

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Emergency Operations Center Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$78,650	
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$182,861	
<b>Low Voltage Communication</b>										
Other	4	2	2018		6,700	\$1.50	SF	\$10,050	\$23,366	

Old telecom wiring and devices abandoned in place; some appears live but with unclear use.

Survey and demolish abandoned telecom wiring and devices; replace any continued use obsolete telecom with new, including support for upper floor build-out (TI) work in near future.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Emergency Operations Center

Total Observed Deficiency Repair Direct Cost : \$324,550

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Emergency Operations Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$78,650</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$182,861</b>
<b>Low Voltage Fire Alarm</b>									
Fire alarm	3	3	2018		3,000	\$2.00	SF	\$6,000	\$13,950
<b>Temporary fire alarm on upper floor pending TI (build-out).</b>				<b>Install permanent fire detection and notification wiring and devices per code during TI (build-out) work.</b>					





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Emergency Operations Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$78,650</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$182,861</b>
<b>Low Voltage Data</b>									
Data System	5	0	2018		3,000	\$2.00	SF	\$6,000	\$13,950

No data distribution at upper floor.

Install during TI work per City standard including WAP(s).



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Emergency Operations Center

Total Observed Deficiency Repair Direct Cost : \$324,550

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Emergency Operations Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$25,000</b>
<b>System: Special Construction</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$58,125</b>
<b>Special Structures</b>									
Radio antenna tower	4	2	2018		1	\$15,000.00	LS	\$15,000	\$34,875

Original (1957) antenna tower with questionable anchorage, fading & peeling paint, reportedly abandoned cabling and antennas.

Fully inspect tower for anchorage, paint tower, remove abandoned cabling and antennas.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Emergency Operations Center

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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Emergency Operations Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$25,000</b>
<b>System: Special Construction</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$58,125</b>
<b>Special Controls and Instrumentation</b>									
Other	4	2	2018		1	\$10,000.00	LS	\$10,000	\$23,250

Abandoned and/or obsolete communication technology and roof top cabling and antennas, including antenna supports and brackets.

Survey in detail and replace or remove abandoned or obsolete cabling, antennas and other devices.





## Opportunity Summary By Subsystem

City of Tacoma

Site: Emergency Operations Center

Total Site Opportunity Cost: \$468,400

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Emergency Operations Center Building</b>						
<b>System: Exterior Closure Total Cost: \$10,000</b>						
B2020	Exterior Windows					
	Single pane windows in metal sash - Increase energy efficiency by increasing glazing thermal loss factor.	Replace non-insulated windows with insulated glazing in metal frames.	125.00	\$80.00	SF	\$10,000
<b>Facility: Emergency Operations Center Building</b>						
<b>System: Roofing Total Cost: \$12,000</b>						
B3010	Roof Coverings					
	Add Rigid insulation to entire roof with re-roof project.	Add Rigid insulation and protection board to entire roof with re-roof project.	3,000.00	\$4.00	SF	\$12,000
<b>Facility: Emergency Operations Center Building</b>						
<b>System: Vertical Transportation Total Cost: \$150,000</b>						
D1010	Elevators and Lifts					
	No elevator.	Add two-stop elevator.	1.00	\$150,000.00	LS	\$150,000
<b>Facility: Emergency Operations Center Building</b>						
<b>System: HVAC Total Cost: \$277,900</b>						
D3010	Energy Supply					
	Excess heat from radio room.	Use to heat other spaces or adjacent buildings.	1.00	\$10,000.00	LS	\$10,000
	Gas in vicinity.	Install gas service for more cost effective HVAC and DHW.	1.00	\$5,000.00	LS	\$5,000
D3030	Cooling Generating Systems					
	Radio room cooling reportedly runs 24x7x365 with no economizer or heat recovery to other spaces.	Upgrade to current code required economizer (free) cooling and/or heat recovery to adjacent heated spaces.	1.00	\$15,000.00	LS	\$15,000
D3040	HVAC Distribution Systems					
	Hodge-podge of mis-matched equipment and ductwork with unclear code compliance and apparent variety of comfort and equipment cooling issues.	Replace all with a modern, coordinated HVAC system such as VRF with DOAS.	6,700.00	\$35.00	SF	\$234,500
D3060	Controls and Instrumentation					

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Emergency Operations Center

Total Site Opportunity Cost: **\$468,400**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
	Stand alone controls.	Upgrade to City standard DDC.	6,700.00	\$2.00	SF	\$13,400
<b>Facility:</b>	<b>Emergency Operations Center Building</b>					
<b>System:</b>	<b>Electrical</b>					
	<b>Total Cost: \$18,500</b>					
D5020	Lighting and Branch Wiring					
	Fluorescent lighting with manual control at lower (EOC) level.	Upgrade to LED with automatic control.	3,700.00	\$5.00	SF	\$18,500

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 Fire Communications Center  
 Fire Communications Center Building

415 Tacoma Avenue South  
 Tacoma, WA 98407

Facility Size - Gross S.F. 3,530  
 Year Of Original Construction 1929  
 Facility Use Type Office  
 Construction Type Medium  
 # of Floors 2  
 Energy Source Electric  
 Year Of Last Renovation 1957  
 Historic Register Yes



FCI (BMAR/CRV)	0.16	Predicted Renewal Budget (20 yrs)	\$915,705
FCI (Bldg OD/CRV)	0.33	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$1,889,000	Building	\$625,020
BMAR (Backlog of Maintenance and Repair)	\$306,000	Infrastructure	\$23,250
Beginning Budget Year	2018	Total	\$648,270
		Opportunity Total Project Cost	\$699,011

## Facility Condition Summary

The Fire Communications Center (formerly known as the Fire Alarm Station) is a 2-story concrete structure with brick veneer constructed in 1929. The building is listed on the Local and National Register of Historic Places. The building is generally in good condition, but is due for an exterior refurbishment. The galvanized domestic water pipe should be replaced with a new copper pipe system including new fixtures. MEP utilities appear mostly from adjacent EOC Bldg, especially dry utilities (power & comm) which were mostly new in 2002. Most plumbing systems are older, but in fair condition. HVAC is a mix of new from main Fire Communications operations room, with a confusing mix of technologies for basement data center, and little to no permanent HVAC in basement office and living areas. Fire sprinkler is present, but appears deliberately absent from Fire Communications operations room; data & comm rooms each have dedicated gaseous fire suppression. Excessive abandoned in place and/or obsolete alarm, communications and power wiring & devices that should be removed or fully replaced. The large rooftop antenna tower base is rusting & corroding with tower paint peeling & fading, plus reportedly obsolete or abandoned radio cabling, supports and antennas. If the tower is not needed it should be removed during re-roofing work.

# Facility Summary

City of Tacoma  
 Fire Communications Center  
 Fire Communications Center Building

415 Tacoma Avenue South  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1929	1929	3	TRB 02/05/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	1929	1929	3	TRB 02/05/18	Concrete slab on grade.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1929	1929	3	TRB 02/05/18	Concrete basement walls.
<b>B Shell</b>			<b>3.0</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1929	1929	3	TRB 02/05/18	Concrete slabs spanning between interior and exterior walls below. Portions of the floor have a raised floor consisting of metal deck and concrete topping.
<b>B1020 Roof Construction</b>	1929	1929	3	TRB 02/05/18	Concrete slab supported by interior and exterior concrete walls. Clerestory roof is concrete slab spanning between exterior unreinforced masonry walls and interior concrete beams.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1929	1929	3	TRB 02/05/18	Concrete walls with brick veneer at 2nd story. Clerestory walls are unreinforced masonry.
<b>B2020 Exterior Windows</b>	1929	1929	3	TRB 02/05/18	Single pane wire glass in steel sash.
<b>B2030 Exterior Doors</b>	1929	1929	3	TRB 02/05/18	Metal door in metal frame with wire glass. (Note: Although code compliant at the time, wire glass is no longer allowed by code for life-safety impact issues), consider replacing with modern safety glazing meeting current life-safety and



# Facility Summary

City of Tacoma  
 Fire Communications Center  
 Fire Communications Center Building

415 Tacoma Avenue South  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.0</b>		
<b>Exterior Closure</b>					
<b>B2030 Exterior Doors</b>					energy codes.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1929	1985	3	TRB 02/05/18	Asphalt sheet roofing with fiberglass sheet flashing at parapet.
<b>B3030 Projections</b>	1929	1929	3	TRB 02/05/18	Rooftop antennas, masonry chimney.
<b>C Interiors</b>			<b>3.1</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1929	1929	3	TRB 02/05/18	Concrete walls with plaster veneer.
<b>C1020 Interior Doors</b>	1929	1929	3	TRB 02/05/18	Hollow metal doors and metal frames and wood doors with wood frames.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>	1929	1929	3	TRB 02/05/18	Narrow and steep concrete stairs, with new handrail.
<b>C2020 Stair Finishes</b>	1929	1929	3	TRB 02/05/18	Concrete with nonslip.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1929	2003	3	TRB 02/05/18	Painted plaster and gypsum wall board.
<b>C3020 Floor Finishes</b>	1929	2003	4	TRB 02/05/18	Carpet, vinyl tile.

# Facility Summary

City of Tacoma  
 Fire Communications Center  
 Fire Communications Center Building

415 Tacoma Avenue South  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>3.1</b>		
<b>Interior Finishes</b>					
<b>C3030 Ceiling Finishes</b>	1929	2003	3	TRB 02/05/18	Suspended acoustic ceiling and painted plaster.
<b>D Services</b>			<b>3.0</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1929	1978	3	DCS 02/05/18	Various porcelain and stainless steel fixtures at bathrooms and kitchen mostly new in 1970s, a few many be somewhat newer - mostly dated but functional with no issues reported.
<b>D2020 Domestic Water Distribution</b>	1929	1957	4	DCS 02/05/18	Mix of older galvanized steel and newer copper piping to newer fixtures. Water heater is newer (2011) GE electric tank type missing expansion tank and seismic straps (not up to code).
<b>D2030 Sanitary Waste</b>	1929	1957	3	DCS 02/05/18	Cast iron DW&V piping with no issues reported. Tested fixtures flush & drain OK; regardless, clean & inspect is suggested due to age.
<b>D2040 Rain Water Drainage</b>	1929	1957	4	DCS 02/05/18	Only two roof drains with no apparent overflow; roof drain screens are missing. Roof drains piped through attic to scupper, then to downspout to storm. Frequent back-ups leading to roof leaks.
<b>D2090 Other Plumbing Systems</b>	1929	1957	4	DCS 02/07/18	Basement sump with sump pump and monitoring system in poor condition.
<b>HVAC</b>					
<b>D3030 Cooling Generating Systems</b>	1929	2002	3	DCS 02/07/18	Half-dozen cooling systems for basement data center: 1) Two ductless splits, 2) One through-wall PTAC, 3) One portable A/C unit, 4) Liebert raised floor CRAC system, 5) Portable fans and last resort 6) Operable windows. Most in fair to good condition individually, but collectively poor

# Facility Summary

City of Tacoma  
 Fire Communications Center  
 Fire Communications Center Building

415 Tacoma Avenue South  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>HVAC</b>					
<b>D3030 Cooling Generating Systems</b>					
					to fair, with opportunity to improve to more integrated system. Adjacent Phone Room has one ductless-split Mitsubishi cooling system with no apparent issues. One back-up through-window PTAC for main Fire Comm operations room.
<b>D3040 HVAC Distribution Systems</b>					
	1929	2002	3	DCS 02/05/18	Recently replaced HVAC system with new rooftop heat pump packaged unit cooling the main Fire Comm operations room. Several through-wall exhaust fans for bathrooms and kitchen. Minimal HVAC for basement area - mostly portable heaters, box fans and operable windows.
<b>D3050 Terminal and Package Units</b>					
	1929	1987	4	DCS 02/05/18	Portable heaters for smaller unconditioned spaces such as toilet & showers rooms at entry lobby. Opportunity to install permanent electric wall heaters for these spaces. Similarly, if basement level is not upgraded to full HVAC system, permanent electric wall heaters may be installed there as well.
<b>D3060 Controls and Instrumentation</b>					
	1929	2017	2	DCS 02/05/18	New (2017) programmable T-stat for Fire Comm operations room HVAC system. Limited Alerton DDC system reportedly primarily for monitoring of mission critical space temperatures - opportunity to upgrade to more comprehensive DDC control & monitoring.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>					
	1929	2002	2	DCS 02/05/18	Some areas are provided with sprinkler system fed from adjacent EOC Bldg; no fire sprinkler at main Fire Comm operations room - appears to be intentional due to high density mission critical comm & data equipment - consider upgrade to new fog technology to provide some degree of protection for this important space.

# Facility Summary

City of Tacoma  
 Fire Communications Center  
 Fire Communications Center Building

415 Tacoma Avenue South  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>	1929	2002	3	DCS 02/05/18	Fire extinguishers on hooks, with minimal observed in mission critical Fire Comm operations space - confirm intentional - if not provide additional extinguishers.
<b>D4090 Other Fire Protection Systems</b>	1929	2002	3	DCS 02/07/18	Separate gaseous fire suppression systems for basement data center and adjacent phone room, all in good condition, but with unclear coordination with general construction and HVAC for air-tight space, especially the through-window PTAC and portable A/C for the data center).
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1929	2002	3	DCS 02/05/18	Power from adjacent EOC Bldg to several newer distribution panels, with some circuits apparently using portions of original 1929 and/or 1957 panels and wiring.
<b>D5020 Lighting and Branch Wiring</b>	1929	2002	3	DCS 02/05/18	Lighting is mostly T8 fluorescent with lay-in, surface-mount and industrial (in basement) with various lenses. Various task lighting. All manual control. Receptacles aging but functional, but with many extension cords and power strips in use. Quasi-Walker-duct in use in main Fire Comm floor with no issues reported.
<b>D5032 Low Voltage Communication</b>	1929	2002	3	DCS 02/05/18	Modern comm aging but functional with no issues reported; many special systems for Fire Comm function. Extensive obsolete panels, wiring and devices appear abandoned in place.
<b>D5037 Low Voltage Fire Alarm</b>	1929	2015	2	DCS 02/05/18	Newer FACP with new (2017) AES antenna with no issues reported; panel located at adjacent EOC upper floor electrical room.
<b>D5038 Low Voltage Security</b>	1929	2002	3	DCS 02/05/18	Minimal security with no issues reported;

# Facility Summary

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 Fire Communications Center Building

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>Electrical</b>					
<b>D5038 Low Voltage Security</b>					includes exterior CCTV and outside door card-key access control.
<b>D5039 Low Voltage Data</b>	1929	2002	3	DCS 02/05/18	Modern but aging data with no issues reported; extensive special support for Fire Alarm function.
<b>D5090 Other Electrical Systems</b>	1929	2002	2	DCS 02/05/18	Served by generators, ATS and UPS equipment in adjacent EOC with no issues reported. Remote annunciator panels for generators and UPS is located on wall of Fire Comm operations room. Roof-top lighting arrestance system with unclear grounding path - test and verify.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1929	2002	3	DCS 02/05/18	Kitchen appliances and central vacuum system with no issues reported.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	1929	1929	3	TRB 02/05/18	Aging but functional
<b>F Special Construction</b>					
<b>Special Construction</b>					
<b>F1050 Special Controls and Instrumentation</b>	1929	2002	3	DCS 02/05/18	Special Fire Comm equipment with no issues reported; however the original antenna tower needs renewal and removal of abandoned rooftop and/or tower-mounted cabling, supports and antennas.

# Facility Summary

City of Tacoma  
 Fire Communications Center  
 Infrastructure

415 Tacoma Avenue South  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2030 Pedestrian Paving</b>	1929	1929	4	TRB 02/05/18	Concrete sidewalks and concrete steps/entry with tile pavers at entry. Wood railing around tiled entry.
<b>G2050 Landscaping</b>	1929	1929	2	TRB 02/05/18	Grass and shrubs.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1929	1957	3	DCS 02/05/18	City water with no issues reported.
<b>G3020 Sanitary Sewer</b>	1929	1957	3	DCS 02/05/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1929	1957	3	DCS 02/05/18	City storm with no issues reported; roof rain leader hard-piped to city storm; hard & soft-scape sheet-flow to street downhill.
<b>G3060 Fuel Distribution</b>	1929	2002	3	DCS 02/07/18	Underground fuel oil storage tank under NE apron for diesel generators at adjacent EOC Bldg; no issues reported. Opportunity to upgrade to natural gas heat in future if facility is re-purposed.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1929	2002	2	DCS 02/05/18	Power from adjacent EOC Bldg.
<b>G4020 Site Lighting</b>	1929	1980	3	DCS 02/05/18	Lensed wall-pack fixtures; aged with yellowing lenses.
<b>G4030 Site Communications and Security</b>	1929	1987	3	DCS 02/05/18	Telecom from purveyors with no issues reported; extensive specialized telecom & radio for Fire Comm function with no issues reported.

# Facility Summary

City of Tacoma  
 Fire Communications Center  
 Infrastructure

415 Tacoma Avenue South  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Other Site Construction

**G9010 Service and Pedestrian Tunnels**

1929	1929	3	DCS	02/07/18	Reported power and/or comm tunnel under sidewalk to east - no issues reported.
------	------	---	-----	----------	--------------------------------------------------------------------------------





# Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Fire Communications Center

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Fire Communications Center Building	Exterior Closure	\$78,500	\$19,625	\$19,625	\$64,763	\$182,513
	Roofing	\$72,000	\$18,000	\$18,000	\$59,400	\$167,400
	Interior Finishes	\$7,500	\$1,875	\$1,875	\$6,188	\$17,438
	Plumbing	\$20,825	\$5,206	\$5,206	\$17,181	\$48,418
	HVAC	\$37,500	\$9,375	\$9,375	\$30,938	\$87,188
	Electrical	\$27,500	\$6,875	\$6,875	\$22,688	\$63,938
	Special Construction	\$25,000	\$6,250	\$6,250	\$20,625	\$58,125
	<b>Facility Total</b>	<b>\$268,825</b>	<b>\$67,206</b>	<b>\$67,206</b>	<b>\$221,781</b>	<b>\$625,018</b>
Infrastructure	Site Improvements	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	<b>Facility Total</b>	<b>\$10,000</b>	<b>\$2,500</b>	<b>\$2,500</b>	<b>\$8,250</b>	<b>\$23,250</b>
	<b>Site Total</b>	<b>\$278,825</b>	<b>\$69,706</b>	<b>\$69,706</b>	<b>\$230,031</b>	<b>\$648,268</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Fire Communications Center

Total Observed Deficiency Repair Direct Cost : \$278,825

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Fire Communications Center Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$78,500
System: Exterior Closure					Total System Deficiency Repair Cost (Marked Up):				\$182,513
<b>Exterior Walls</b>									
Brick chimney	4	5	2018		1	\$15,000.00	LS	\$15,000	\$34,875

Mortar in chimney is soft and deteriorating.

Recommend evaluating for seismic bracing; if not removing the chimney (since this is a historic facility), the mortar should be repointed.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Communications Center

Total Observed Deficiency Repair Direct Cost : \$278,825

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					

Facility: Fire Communications Center Building	Total System Deficiency Repair Cost (Undiscounted/Unescalated):	\$78,500
System: Exterior Closure	Total System Deficiency Repair Cost (Marked Up):	\$182,513

Exterior Walls				Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
Brick parapets and clerestory walls	4	5	2018	1	\$50,000.00	LS	\$50,000	\$116,250

Mortar in brick parapets and clerestory walls are soft and deteriorating. Re-point mortar joints.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Fire Communications Center

Total Observed Deficiency Repair Direct Cost : \$278,825

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Communications Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$78,500</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$182,513</b>
<b>Exterior Walls</b>									
Cast-in-Place (CIP) Concrete	4	5	2018		500	\$15.00	SF	\$7,500	\$17,438

Paint chipped on exterior, and shows prior removal of vine growth.

Clean concrete repair spalled areas at sills, remove loose paint, and refinish.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Communications Center

Total Observed Deficiency Repair Direct Cost : \$278,825

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility:</b> Fire Communications Center Building					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$78,500</b>
<b>System:</b> Exterior Closure					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$182,513</b>
<b>Exterior Windows</b>									
Single-Pane Windows	5	4	2018		3	\$2,000.00	EA	\$6,000	\$13,950

Single pane wire glass in non-thermal steel sash.

Replace with thermally broken frames and insulated glazing units.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Communications Center

Total Observed Deficiency Repair Direct Cost : \$278,825

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Communications Center Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$72,000	
System: Roofing				Total System Deficiency Repair Cost (Marked Up):					\$167,400	
<b>Roof Coverings</b>										
Roofing	4	1	2018		1	\$65,000.00	LS	\$65,000	\$151,125	

Roofing and flashings at wall at end of life.

Replace roofing and flashings at brick walls, remove obsolete antenna tower, provide new access hatch [see past Priority Facility Estimate].



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Fire Communications Center

Total Observed Deficiency Repair Direct Cost : \$278,825

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Communications Center Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$72,000
System: Roofing					Total System Deficiency Repair Cost (Marked Up):				\$167,400
<b>Projections</b>									
Other	4	1	2018		1	\$7,000.00	LS	\$7,000	\$16,275

Unreinforced masonry chimney, mortar joints eroding.

Conduct seismic evaluation, bolster remove chimney, re-point masonry if saving.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

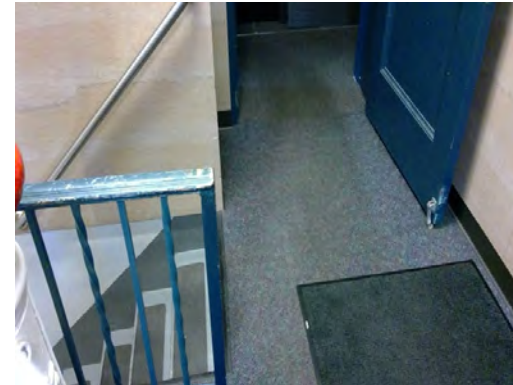
City of Tacoma  
Site: Fire Communications Center

Total Observed Deficiency Repair Direct Cost : \$278,825

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Communications Center Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$7,500
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$17,438
<b>Floor Finishes</b>									
Carpeting	4	3	2018		1,000	\$7.50	SF	\$7,500	\$17,438

Carpet at end of life at traffic areas.

Replace carpeting.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Communications Center

Total Observed Deficiency Repair Direct Cost : \$278,825

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				<b>Action</b>						
<b>Facility: Fire Communications Center Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$20,825</b>	
<b>System: Plumbing</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$48,418</b>	
<b>Domestic Water Distribution</b>										
Galvanized steel piping	4	3	2018		3,530	\$2.50	EA	\$8,825	\$20,518	

Old galvanized piping.

Replace galvanized with copper and/or PEX.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Fire Communications Center

Total Observed Deficiency Repair Direct Cost : \$278,825

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Communications Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$20,825</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$48,418</b>
<b>Rain Water Drainage</b>									
Roof drain system	4	1	2018		4	\$3,000.00	EA	\$12,000	\$27,900

Minimal roof drains missing screens with no apparent overflow. Poorly draining around clear-story structure and rooftop equipment. Multiple roof leaks into mission critical Fire Comm space directly below.

Install additional roof drains, including overflow roof drains for each roof quadrant coordinated with re-roofing plan and roof top equipment.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Communications Center

Total Observed Deficiency Repair Direct Cost : \$278,825

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Communications Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$37,500</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$87,188</b>
<b>HVAC Distribution Systems</b>									
HVAC system	4	2	2018		1,500	\$25.00	SF	\$37,500	\$87,188

Little or no HVAC for basement living and office areas - mostly portable space heaters, portable box fans and operable windows.

Install engineered HVAC system in occupied basement areas per code.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Communications Center

Total Observed Deficiency Repair Direct Cost : \$278,825

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Communications Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$27,500</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$63,938</b>
<b>Electrical Service and Distribution</b>									
Electrical distribution	4	2	2018		1	\$20,000.00	LS	\$20,000	\$46,500

Some apparent original 1929 and/or 1957 wiring and panels still in use; mostly at old basement corridor panels, but may be in several other locations.

Replace and original 1929 and/or 1957 wiring and panels with modern code-compliant materials.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Communications Center

Total Observed Deficiency Repair Direct Cost : \$278,825

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Communications Center Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$27,500	
System: Electrical				Total System Deficiency Repair Cost (Marked Up):					\$63,938	
<b>Low Voltage Communication</b>										
Other	4	3	2018		1	\$7,500.00	LS	\$7,500	\$17,438	

Abandoned obsolete comm and alarm panels, wiring, and devices.

Demolish and restore finishes.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Fire Communications Center

Total Observed Deficiency Repair Direct Cost : \$278,825

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Communications Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$25,000</b>
<b>System: Special Construction</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$58,125</b>
<b>Special Controls and Instrumentation</b>									
Other	4	3	2018		1	\$25,000.00	LS	\$25,000	\$58,125

Antenna tower paint is peeling and fading with portions of structure corroding. Apparent abandoned cabling, antennas supports and/or antennas.

Clean and preserve antenna structure, including base-rail; inspect anchorages and other points of attachment - tighten, replace or supplement per structural tower engineer recommendations; test grounding and isolation integrity. Demolish abandoned cabling, supports and antennas.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Communications Center

Total Observed Deficiency Repair Direct Cost : \$278,825

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				<b>Action</b>					
<b>Deficiency</b>									
<b>Facility: Infrastructure</b>									
<b>System: Site Improvements</b>									
<b>Pedestrian Paving</b>									
Concrete	3	5	2018		500	\$20.00	SF	\$10,000	\$23,250
				Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$10,000					
				Total System Deficiency Repair Cost (Marked Up): \$23,250					

Trip hazard: Concrete at entry is badly cracked and narrow concrete walk adjacent to entry is cracked and uneven. Drive apron on back side of building, between curb and sidewalk, is badly displaced and creates tripping hazard.

Remove and replace concrete walkways and drive apron.





## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Communications Center

Total Site Opportunity Cost: **\$300,650**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Communications Center Building</b> <b>System: Exterior Closure</b> <span style="float: right;"><b>Total Cost: \$8,000</b></span>						
B2020	Exterior Windows	Single pane safety glass in steel sash; increase the overall energy efficiency of the shell by replacing existing single pane glazing.	100.00	\$80.00	SF	\$8,000
<b>Facility: Fire Communications Center Building</b> <b>System: Interior Construction</b> <span style="float: right;"><b>Total Cost: \$75,000</b></span>						
C1010	Partitions	Second floor interior remodel has not occurred (space was demolished in preparation but new TI improvements have not occurred)	1,000.00	\$75.00	SF	\$75,000
<b>Facility: Fire Communications Center Building</b> <b>System: Vertical Transportation</b> <span style="float: right;"><b>Total Cost: \$150,000</b></span>						
D1010	Elevators and Lifts	No elevator.	1.00	\$150,000.00	LS	\$150,000
<b>Facility: Fire Communications Center Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$50,000</b></span>						
D3030	Cooling Generating Systems	Mix of half-dozen types of cooling systems for basement data center.	2.00	\$25,000.00	EA	\$50,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Communications Center

Total Site Opportunity Cost: \$300,650

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
Facility: Fire Communications Center Building						
System: Electrical	Total Cost: \$17,650					
D5020	Lighting and Branch Wiring	All fluorescent with manual control. Original clerestory above Fire Comm operations area is completely closed-off.	3,530.00	\$5.00	SF	\$17,650
		Upgrade to LED lighting with automatic controls, noting special requirements for Fire Comm operations area. Consider controlled free-lighting from clerestory.				

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 Fire Garage  
 Fire Garage Building

3401-B South Orchard Street  
 Tacoma, WA 98407

Facility Size - Gross S.F. 4,800  
 Year Of Original Construction 1984  
 Facility Use Type Maintenance Shop  
 Construction Type Light  
 # of Floors 1  
 Energy Source Gas  
 Year Of Last Renovation 1984  
 Historic Register No



FCI (BMAR/CRV)	0.14	Predicted Renewal Budget (20 yrs)	\$859,034
FCI (Bldg OD/CRV)	0.62	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$1,738,000	<b>Building</b>	\$1,065,896
BMAR (Backlog of Maintenance and Repair)	\$250,000	<b>Infrastructure</b>	\$112,995
Beginning Budget Year	2018	<b>Total</b>	\$1,178,891
		<b>Opportunity Total Project Cost</b>	\$473,371

## Facility Condition Summary

The fire vehicle repair garage is a pre-fabricated metal building constructed in 1984 housing three apparatus bays. The building includes a storage mezzanine loft, locker rooms, offices, and a single bathroom. Fixed equipment includes associated floor mounted lifts, and garage related maintenance equipment and parts storage associated with a mechanic shop. The building is in need of new systems and site improvements.

# Facility Summary

City of Tacoma  
 Fire Garage  
 Fire Garage Building

3401-B South Orchard Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1984	1984	3	TRB 01/23/18	Standard concrete foundation.
<b>A1030 Slab On Grade</b>	1984	1984	3	TRB 01/23/18	Concrete slab on grade. Some cracking observed as expected.
<b>B Shell</b>			<b>3.0</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1984	1984	3	TRB 01/23/18	Mezzanine is constructed of wood joists and plywood sheathing.
<b>B1020 Roof Construction</b>	1984	1984	3	TRB 01/23/18	Metal roofing supported on light gage metal "Z" purlins and steel moment frame bents at interior bays and steel post and beam at exterior bays.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1984	1984	3	TRB 01/23/18	Metal siding spanning between horizontal wind girts supported by exterior steel columns. Some areas of impact damaged siding, other areas of rust (near new heater exhaust). Recommend spot treat and paint.
<b>B2020 Exterior Windows</b>	1984	1984	3	TRB 01/23/18	Single vinyl window at mezzanine office.
<b>B2030 Exterior Doors</b>	1984	1984	3	TRB 01/23/18	Metal doors and frames, overhead garage doors (minor maintenance issues with roller wheels at one door). Metal man doors showing years of use, recommend paint).
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1984	1984	3	TRB 01/23/18	Seamed metal roofing panels. Several areas

# Facility Summary

City of Tacoma

Fire Garage

Fire Garage Building

3401-B South Orchard Street  
Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.0</b>		
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					reported where roof leaking in apparatus bays.
<b>C Interiors</b>			<b>3.0</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1984	1984	3	TRB 01/23/18	Tempered hardboard on wood frame walls.
<b>C1020 Interior Doors</b>	1984	1984	3	TRB 01/23/18	Hollow metal doors and metal frames.
<b>C1030 Fittings</b>	1984	1984	3	TRB 01/23/18	Metal guardrail at storage mezzanine, and plastic draft curtain.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>	1984	1984	3	TRB 01/23/18	Wood framed treads and risers.
<b>C2020 Stair Finishes</b>	1984	1984	3	TRB 01/23/18	Adhesive applied non-slip tread strips.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1984	1984	3	TRB 01/23/18	Painted tempered hardboard and gypsum wall board. Interior face of insulation dirty with years of soot/exhaust, and tears in vapor membrane needing sealing. One area of failure noted.
<b>C3020 Floor Finishes</b>	1984	1984	3	TRB 01/23/18	Sealed concrete and sheet vinyl in toilet room.
<b>C3030 Ceiling Finishes</b>	1984	1984	3	TRB 01/23/18	Painted gypsum board.
<b>D Services</b>			<b>3.0</b>		

# Facility Summary

City of Tacoma  
 Fire Garage  
 Fire Garage Building

3401-B South Orchard Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>Vertical Transportation</b>					
<b>D1010 Elevators and Lifts</b>	1984	1984	3	DCS 01/23/18	Two-ton jib crane. Hydraulic vehicle lift(s). Aged and wearing but functional with no issues reported.
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1984	1984	3	DCS 01/23/18	Deep sink in locker room; one toilet room with one water closet and lavatory; one drinking fountain; but multiple hose bibs. Minimal service for staff and fire crews. Porta-poties used by staff during busy periods. No kitchenette. Safety shower & eyewash stations - some blocked by storage materials (minor maintenance to clear path).
<b>D2020 Domestic Water Distribution</b>	1984	1984	3	DCS 01/23/18	Estimated 1.5-inch service with RPBP to copper distribution - bottled water in use. Somewhat newer (about 2009) Whirlpool electric DHW heater with unrestrained, uninsulated piping. Opportunity to install filter.
<b>D2030 Sanitary Waste</b>	1984	1984	3	DCS 01/23/18	DW&V piping is cast iron; tested fixtures flush & drain well, with no issues reported. No floor or trench drains observed in service bays.
<b>D2040 Rain Water Drainage</b>	1984	1984	3	DCS 01/23/18	Gutter & downspout to grade resulting in localized standing water near foundation.
<b>D2090 Other Plumbing Systems</b>	1984	1984	3	DCS 01/23/18	Shop fluids system with overhead reels; no issues reported, but fluids room is over-crowded; plus excessive storage in shop bays and temporary structures outside shop.
<b>HVAC</b>					
<b>D3010 Energy Supply</b>	1984	1984	3	DCS 01/23/18	Black iron pipe to unit heaters; no issues reported.
<b>D3030 Cooling Generating Systems</b>					

# Facility Summary

City of Tacoma  
 Fire Garage  
 Fire Garage Building

3401-B South Orchard Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>HVAC</b>					
	1984	1984	4	DCS 01/23/18	Portable A/C unit for crew room.
<b>D3040 HVAC Distribution Systems</b>	1984	1984	3	DCS 01/23/18	Wall propeller fan exhausts shop. Exhaust fans for fluids and battery rooms, other miscellaneous. No issues reported, but systems are aging.
<b>D3050 Terminal and Package Units</b>	1984	1984	3	DCS 01/23/18	Reznor gas-fired space heaters - one original and one newer serving shop bays. Radiant ceiling panels serving office area.
<b>D3060 Controls and Instrumentation</b>	1984	1984	3	DCS 01/23/18	
<b>D3090 Other HVAC Systems and Equipment</b>	1984	1984	3	DCS 01/23/18	
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>	1984	1984	3	DCS 01/23/18	Fire extinguishers on hooks; AED in shop.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1984	1984	3	DCS 01/23/18	Underground service to a 400 AMP 120/208V MDP, supplying several sub-panels with no issues reported; however access to electrical equipment is largely blocked by storage (minor maintenance to correct).
<b>D5020 Lighting and Branch Wiring</b>	1984	1984	3	DCS 01/23/18	Industrial type fluorescent T8 lights, pendant and surface mount. All wiring in conduit.
<b>D5032 Low Voltage Communication</b>	1984	1984	3	DCS 01/23/18	Phone system; no issues reported.
<b>D5037 Low Voltage Fire Alarm</b>					

## Facility Summary

City of Tacoma  
 Fire Garage  
 Fire Garage Building

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 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>Electrical</b>					
<b>D5037 Low Voltage Fire Alarm</b>	1984	1984	3	DCS 01/23/18	Aging fire alarm but with new antenna.
<b>D5039 Low Voltage Data</b>	1984	1984	3	DCS 01/23/18	Limited data but reportedly adequate for need.
<b>D5090 Other Electrical Systems</b>	1984	1984	3	DCS 01/23/18	Onan 35 kW standby generator with ATS. Minimal egress lighting and few or no illuminated exit signs - not up to code.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1984	1984	3	DCS 01/23/18	Minimal appliances - mostly microwave ovens and refrigerator in crew room.
<b>E1020 Institutional Equipment</b>	1984	1984	3	DCS 01/23/18	Extensive shop equipment, aging and worn, but reportedly adequate for need.
<b>E1030 Vehicular Equipment</b>	1984	1984	3	DCS 01/23/18	Small outside vehicle ramp at small engine wash rack. Mobile steam cleaning equipment; original fixed system has been demolished, but rough-in remains should permanent become preferred in the future.
<b>E1090 Other Equipment</b>	1984	1984	3	DCS 01/23/18	Shop fluids system.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	1984	1984	3	TRB 01/23/18	Stainless counter and wood casework in break room.
<b>F Special Construction</b>			<b>4.0</b>		



# Facility Summary

City of Tacoma

Fire Garage

Fire Garage Building

3401-B South Orchard Street  
Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
F Special Construction			4.0		

### Special Construction

#### F1030 Special Construction Systems

1984	1984	4	TRB	01/23/18	Temporary exterior tent structures for storage of flammable materials and combustible dry goods storage.
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# Facility Summary

City of Tacoma  
 Fire Garage  
 Infrastructure

3401-B South Orchard Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1984	1984	2	TRB 01/23/18	Asphalt access drive.
<b>G2020 Parking Lots</b>	1984	1984	3	TRB 01/23/18	Asphalt parking at rear of facility is excellent. Asphalt at front of building is significantly cracked and alligatored. Concrete apron at entrance to building is sound.
<b>G2040 Site Development</b>	1984	1984	2	TRB 01/23/18	Chain link fencing.
<b>G2050 Landscaping</b>	1984	1984	3	TRB 01/23/18	Mostly gravel, a few trees at fence line (one may need pruning soon away from security fence).
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1984	1984	3	DCS 01/23/18	City water from vault to west with no issues reported.
<b>G3020 Sanitary Sewer</b>	1984	1984	3	DCS 01/23/18	City sewer to west with no issues reported.
<b>G3030 Storm Sewer</b>	1984	1984	3	DCS 01/23/18	Site storm drain with few catch basins resulting in small streams flowing across site. Concrete wash pad to east with trench drain oil/water separator on west side of building - no issues reported, but OWS appears to need service.
<b>G3060 Fuel Distribution</b>	1984	1984	3	DCS 01/23/18	Natural gas service from PSE meter #1169975 with 425 cfm capacity; no seismic shut-off valve. Mobile diesel fuel storage tank, approximately 300-gal under temporary shelter.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1984	1984	3	DCS 01/23/18	Tacoma Power underground to transformer,

# Facility Summary

City of Tacoma  
 Fire Garage  
 Infrastructure

3401-B South Orchard Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

##### G4010 Electrical Distribution

underground to service with TP meter #81387411 (also 4509). Extensive extension cords run to vehicles, containers and temporary structures - cord and connectors are laying in standing water during wet weather.

##### G4020 Site Lighting

1984 2010 3

DCS 01/23/18 Two building mounted LED wall-packs; no general site lighting.

##### G4030 Site Communications and Security

1984 1984 3

DCS 01/23/18 Telecom overhead from purveyors; no issues reported.

#### Other Site Construction

##### G9090 Other Site Systems

1984 1984 4

DCS 01/23/18 Variety of special storage and service equipment scattered across large hard-scape lot.



## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Fire Garage

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost	
Fire Garage Building	Roofing	\$14,400	\$3,600	\$3,600	\$11,880	\$33,480	
	Interior Finishes	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625	
	Plumbing	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625	
	HVAC	\$50,000	\$12,500	\$12,500	\$41,250	\$116,250	
	Electrical	\$84,050	\$21,013	\$21,013	\$69,341	\$195,416	
	Special Construction	\$300,000	\$75,000	\$75,000	\$247,500	\$697,500	
	<b>Facility Total</b>		<b>\$458,450</b>	<b>\$114,613</b>	<b>\$114,613</b>	<b>\$378,221</b>	<b>\$1,065,896</b>
Infrastructure	Site Improvements	\$33,600	\$8,400	\$8,400	\$27,720	\$78,120	
	Site Civil / Mechanical Utilities	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625	
	Site Electrical utilities	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250	
	<b>Facility Total</b>		<b>\$48,600</b>	<b>\$12,150</b>	<b>\$12,150</b>	<b>\$40,095</b>	<b>\$112,995</b>
	<b>Site Total</b>		<b>\$507,050</b>	<b>\$126,763</b>	<b>\$126,763</b>	<b>\$418,316</b>	<b>\$1,178,891</b>



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Garage

Total Observed Deficiency Repair Direct Cost : \$507,050

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Garage Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$14,400</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$33,480</b>
<b>Roof Coverings</b>									
Metal Roof	4	4	2018		4,800	\$3.00	SF	\$14,400	\$33,480

A number of repeated roof leaks reported.

Coat metal roof deck with metal deck elastomeric top coating to seal leaks and extend roof life.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Garage

Total Observed Deficiency Repair Direct Cost : \$507,050

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Garage Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$5,000</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$11,625</b>
<b>Wall Finishes</b>									
Wall Covering	4	4	2018		1	\$5,000.00	EA	\$5,000	\$11,625

Interior face of insulation dirty with years of soot/exhaust and tears in vapor membrane needs sealing. One area of failure noted with system and insulation pulling away from exterior wall.

Tape seal tears and penetrations in vapor barrier, repair areas pulled away from wall, clean as possible.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Garage

Total Observed Deficiency Repair Direct Cost : \$507,050

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Garage Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$5,000</b>	
<b>System: Plumbing</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$11,625</b>	
<b>Rain Water Drainage</b>										
Gutter & downspout	4	2	2018		4	\$1,250.00		\$5,000	\$11,625	

Downspouts no connected to storm resulting in standing water near foundation.

Connect to storm.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Garage

Total Observed Deficiency Repair Direct Cost : \$507,050

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Garage Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$50,000	
System: HVAC				Total System Deficiency Repair Cost (Marked Up):					\$116,250	
<b>Cooling Generating Systems</b>										
Cooling Systems	4	3	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Portable cooling for crew room.

Install permanent ductless split cooling.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Garage

Total Observed Deficiency Repair Direct Cost : \$507,050

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Garage Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$50,000
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$116,250
<b>HVAC Distribution Systems</b>									
HVAC	4	5	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Exhaust systems aging.

Fully service and renew as needed.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Garage

Total Observed Deficiency Repair Direct Cost : \$507,050

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Garage Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$50,000</b>	
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$116,250</b>	
<b>HVAC Distribution Systems</b>										
HVAC	4	5	2018		1,000	\$25.00	SF	\$25,000	\$58,125	

Mezzanine has been closed in with plastic sheeting in attempt to fully heat this space.

Create separate space with insulated envelope per energy code for storage and/or office areas to be fully heated.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Garage

Total Observed Deficiency Repair Direct Cost : \$507,050

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Fire Garage Building									
System: HVAC									
								Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$50,000	
								Total System Deficiency Repair Cost (Marked Up): \$116,250	
<b>HVAC Distribution Systems</b>									
HVAC	4	5	2018		1	\$10,000.00	LS	\$10,000	\$23,250
No apparent ventilation for offices and break room.				Provide ventilation per code.					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Garage

Total Observed Deficiency Repair Direct Cost : \$507,050

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Garage Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$50,000	
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$116,250	
<b>Controls and Instrumentation</b>										
Controls	4	5	2018		1	\$5,000.00	LS	\$5,000	\$11,625	
<b>No DDC control.</b>				<b>Upgrade to DDC.</b>						



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Garage

Total Observed Deficiency Repair Direct Cost : \$507,050

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Garage Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$84,050	
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$195,416	
<b>Low Voltage Fire Alarm</b>										
Fire alarm	4	3	2018		52,700	\$1.50	SF	\$79,050	\$183,791	
<b>Obsolete fire alarm system.</b>				<b>Upgrade to City standard.</b>						



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Garage

Total Observed Deficiency Repair Direct Cost : \$507,050

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Garage Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$84,050</b>	
<b>System: Electrical</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$195,416</b>	
<b>Other Electrical Systems</b>										
Generator	4	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Generator housing is rusty and corroding.

Clean & preserve and fully service generator, fuel tank and ATS.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Garage

Total Observed Deficiency Repair Direct Cost : \$507,050

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Garage Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$300,000</b>
<b>System: Special Construction</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$697,500</b>
<b>Special Construction Systems</b>									
Other	4	3	2018		3,000	\$100.00	SF	\$300,000	\$697,500

Temporary tent structures, some leaking, canvas torn off frames in others, also not appropriate for storage of sensitive flammable materials (oil, fuel, other fluids, etc.), flammable and moisture sensitive dry goods, and secured only by site perimeter fencing. (Note also wood pallets stored adjacent).

Replace tent structures with appropriate permanent constructions. Note: extend required vent to tank per code.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Garage

Total Observed Deficiency Repair Direct Cost : \$507,050

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				<b>Action</b>						
<b>Deficiency</b>										
Facility: Infrastructure									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: Site Improvements									\$33,600	
									Total System Deficiency Repair Cost (Marked Up):	
									\$78,120	
<b>Parking Lots</b>										
Asphalt	3	5	2018		4,800	\$7.00	SF	\$33,600	\$78,120	

Asphalt at front of building is severely cracked and alligatored.

Remove and replace asphalt at front of building.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Garage

Total Observed Deficiency Repair Direct Cost : \$507,050

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$5,000</b>	
<b>System: Site Civil / Mechanical Utilities</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$11,625</b>	
<b>Storm Sewer</b>										
Storm	4	2	2018		2	\$2,500.00	EA	\$5,000	\$11,625	

Excessive water flowing across site during heavy rain.

Install additional catch basin to reduce size of streams.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Garage

Total Observed Deficiency Repair Direct Cost : \$507,050

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Infrastructure</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>					<b>\$10,000</b>	
<b>System: Site Electrical utilities</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>					<b>\$23,250</b>	
<b>Electrical Distribution</b>										
Shore power service	4	1	2018		10	\$1,000.00	EA	\$10,000	\$23,250	

Extension cords on ground serving vehicles, containers and temporary structures.

Install permanent shore power where needed.



## Opportunity Summary By Subsystem

City of Tacoma  
Site: Fire Garage

Total Site Opportunity Cost: \$251,100

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Garage Building</b> <b>System: Plumbing</b> <span style="float: right;"><b>Total Cost: \$85,000</b></span>						
D2010	Plumbing Fixtures	One toilet room; staff using porta-potie when during busy days.No shower.	Add toilet room with shower.	1.00	\$20,000.00	LS \$20,000
		No proper kitchenette.	Install kitchenette.	1.00	\$15,000.00	LS \$15,000
D2090	Other Plumbing Systems	Excessive containers in shop fluids room, in service bays and under temporary structures.	Expand shop fluids room and system to provide fluids needed for cost-effective and safe vehicle service.	1.00	\$50,000.00	LS \$50,000
<b>Facility: Fire Garage Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$58,600</b></span>						
D3030	Cooling Generating Systems	No cooling.	Add evaporative cooling and/or air circulation for shop areas and ductless split cooling for staff areas.	4,800.00	\$7.00	SF \$33,600
D3040	HVAC Distribution Systems	Obsolete shop ventilation system - no high/low exhaust, no CO/NOx control, and no discrete make-up air.	Upgrade to current code compliant ventilation for shop area.	1.00	\$25,000.00	LS \$25,000
<b>Facility: Fire Garage Building</b> <b>System: Fire Protection</b> <span style="float: right;"><b>Total Cost: \$20,000</b></span>						
D4010	Fire Protection Sprinkler Systems	No fire sprinkler. Variety of life/safety and code issues regarding combustible, flammable, and hazardous materials, such as exceeding exempt amounts, insufficient secondary containment, insufficient ventilation, unvented tankage and storage cabinets, spill control and others.	Install fire sprinkler.	5,000.00	\$4.00	SF \$20,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma  
Site: Fire Garage

Total Site Opportunity Cost: **\$251,100**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Garage Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$32,500</b></span>						
D5020	Lighting and Branch Wiring	Fluorescent with manual control.	Upgrade to LED with automatic control.	5,000.00	\$5.00	SF \$25,000
D5038	Low Voltage Security	No electronic security.	Install electronic security.	5,000.00	\$1.50	SF \$7,500
<b>Facility: Fire Garage Building</b> <b>System: Special Construction</b> <span style="float: right;"><b>Total Cost: \$7,500</b></span>						
F1050	Special Controls and Instrumentation	No tone alarm system.	Install City standard tone alarm system to alert station crews awaiting apparatus service.	1.00	\$7,500.00	LS \$7,500
<b>Facility: Infrastructure</b> <b>System: Site Civil / Mechanical Utilities</b> <span style="float: right;"><b>Total Cost: \$15,000</b></span>						
G3060	Fuel Distribution	Currently using portable non-protected diesel fuel oil storage tank.	Install double-contained, fire-protected full-size (1,000-gal) diesel fuel tank with dispenser and meter.	1.00	\$15,000.00	LS \$15,000
<b>Facility: Infrastructure</b> <b>System: Site Electrical utilities</b> <span style="float: right;"><b>Total Cost: \$7,500</b></span>						
G4020	Site Lighting	No general site lighting.	Add several LED lamps on poles in service and storage yards.	3.00	\$2,500.00	EA \$7,500
<b>Facility: Infrastructure</b> <b>System: Other Site Construction</b> <span style="float: right;"><b>Total Cost: \$25,000</b></span>						
G9090	Other Site Systems	Variety of temporary storage and maintenance equipment scattered across yard.	Replace with permanent systems.	1.00	\$25,000.00	LS \$25,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 Fire Prevention  
 Fire Prevention Building

3471 South 35th Street  
 Tacoma, WA 98407

Facility Size - Gross S.F. 4,649  
 Year Of Original Construction 1954  
 Facility Use Type Office  
 Construction Type Light  
 # of Floors 1  
 Energy Source Gas  
 Year Of Last Renovation 1997  
 Historic Register No



FCI (BMAR/CRV)	0.20	Predicted Renewal Budget (20 yrs)	\$1,090,291
FCI (Bldg OD/CRV)	0.51	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$2,239,000	<b>Building</b>	\$1,146,946
BMAR (Backlog of Maintenance and Repair)	\$440,000	<b>Infrastructure</b>	\$86,606
Beginning Budget Year	2018	<b>Total</b>	\$1,233,552
		<b>Opportunity Total Project Cost</b>	\$852,174

## Facility Condition Summary

The Fire Prevention Bureau building was constructed in 1954 as a single story wood frame building, the Fire Prevention facility was originally Fire Station #17 and was later converted to office space in 1996. The facility is generally in poor condition and appears to be at the end of its useful life. It is in desperate need of a new roof. The exposed roof-top HVAC system is nearing the end of its expected life span and should be replaced, as are the entire plumbing system, carpets, suspended ceilings, the electric service panel and the entire lighting system. There are signs of decay at the bottom of the exterior cladding, especially wood columns which need immediate repair or replacement.

# Facility Summary

City of Tacoma  
 Fire Prevention  
 Fire Prevention Building

3471 South 35th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1954	1954	3	TRB 01/23/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	1954	1954	3	TRB 01/23/18	Concrete slab on grade.
<b>B Shell</b>			<b>3.5</b>		
<b>Superstructure</b>					
<b>B1020 Roof Construction</b>	1954	1954	3	TRB 01/23/18	Glu-lam beams supporting wood framing and plywood sheathing. Considering condition of roof, and numerous leaks, areas of dry rot in roof system is highly likely.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1954	1954	3	TRB 01/23/18	Wood stud walls with plywood sheathing and/or cementitious/stucco finish. Wood columns at exterior walls are exposed with stud walls infilled between columns.
<b>B2020 Exterior Windows</b>	1954	1954	4	TRB 01/23/18	Clear anodized aluminum frame with single pane glazing (only some replaced with vinyl).
<b>B2030 Exterior Doors</b>	1954	1996	3	TRB 01/23/18	Hollow metal doors and frames. Minor touch up paint recommended.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1954	1997	5	TRB 01/23/18	Torch down asphalt roofing is at end of life, numerous ongoing leak issues actively occurring, sagging, and ponding. Flashings failing.
<b>B3020 Roof Openings</b>	1954	1997	4	TRB 01/23/18	Uninsulated acrylic skylights in aluminum frame.



# Facility Summary

City of Tacoma  
 Fire Prevention  
 Fire Prevention Building

3471 South 35th Street  
 Tacoma, WA 98407

## Facility Components

Systems		Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>				<b>3.5</b>		
<b>Roofing</b>						
	<b>B3030 Projections</b>					
		1954	1954	3	TRB 01/23/18	Small entry canopies at front and rear entry doors.
<b>C Interiors</b>				<b>3.0</b>		
<b>Interior Construction</b>						
	<b>C1010 Partitions</b>					
		1954	1954	3	TRB 01/23/18	Wood frame walls with gypsum board drywall. Some water damage evident at Hall (where low roof meets high roof).
	<b>C1020 Interior Doors</b>					
		1954	1997	3	TRB 01/23/18	Solid core wood door and wood frame.
	<b>C1030 Fittings</b>					
		1954	1997	3	TRB 01/23/18	Miscellaneous storage shelving in workout room.
<b>Interior Finishes</b>						
	<b>C3010 Wall Finishes</b>					
		1954	1996	3	TRB 01/23/18	Painted gypsum board drywall.
	<b>C3020 Floor Finishes</b>					
		1954	1996	3	TRB 01/23/18	Carpet, carpet tile, vinyl composition tile, ceramic tile.
	<b>C3030 Ceiling Finishes</b>					
		1954	1996	3	TRB 01/23/18	Suspended acoustic ceiling with significant areas of water damage.
<b>D Services</b>				<b>3.5</b>		
<b>Plumbing</b>						
	<b>D2010 Plumbing Fixtures</b>					
		1954	1997	3	DCS 01/23/18	Various porcelain and stainless steel fixtures of varying vintages. Some fixtures stained with age. Shower enclosure glass side panel & door missing, replace with new.

# Facility Summary

City of Tacoma  
 Fire Prevention  
 Fire Prevention Building

3471 South 35th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.5</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					
<b>D2020 Domestic Water Distribution</b>	1954	1954	4	DCS 01/23/18	Domestic water system is primarily galvanized steel piping with some copper piping at water heater and newer fixtures. Somewhat newer (2000) electric A.O. Smith 50-gal DHW heater with expansion tank but no recirc pump; point-of-use DHW heater at kitchen sink is failed (minor maintenance issue).
<b>D2030 Sanitary Waste</b>	1954	1954	3	DCS 01/23/18	Waste and vent piping is cast iron with a few repairs using ABS, with reported past issues, but all fixtures tested flushed and drained well.
<b>D2040 Rain Water Drainage</b>	1954	1997	4	DCS 01/22/18	Metal gutter & downspout to grade, with poor performance - water is ponding in many areas, dripping down between roof edge and gutter and leaking through roof into occupied space (see B3010).
<b>HVAC</b>					
<b>D3010 Energy Supply</b>	1954	1997	4	DCS 01/23/18	Natural gas piping on roof serves packaged rooftop HVAC units; piping is rusting and corroding.
<b>D3040 HVAC Distribution Systems</b>	1954	1997	4	DCS 01/23/18	Rooftop galvanized steel ductwork exposed to weather and deteriorating.
<b>D3050 Terminal and Package Units</b>	1954	1997	4	DCS 01/23/18	Two Trane 5-ton rooftop gas-pack units with economizer approaching end of life.
<b>D3060 Controls and Instrumentation</b>	1954	1997	3	DCS 01/23/18	Rooftop units controlled by aged standalone programmable T-stats - minor maintenance to replace with newer when rooftop units are replaced. Opportunity to upgrade to limited DDC,

# Facility Summary

City of Tacoma  
 Fire Prevention  
 Fire Prevention Building

3471 South 35th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.5</b>		
<b>HVAC</b>					
<b>D3060 Controls and Instrumentation</b>					mostly for remote monitoring.
<b>D3090 Other HVAC Systems and Equipment</b>	1954	1954	3	DCS 01/23/18	Abandoned in place portions of original apparatus bay ventilation system. No kitchen exhaust - not up to code.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>	1954	1997	3	DCS 01/23/18	Wet pipe fire sprinkler system with 4-inch service to 2-inch riser with FDC to west; 100 psig city water pressure to riser; no issues reported.
<b>D4030 Fire Protection Specialties</b>	1954	1997	3	DCS 01/23/18	Fire extinguishers on hooks; AED on wall.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1954	1954	4	DCS 01/23/18	Original Trumbell 120/240V, single phase, 200A panel past useful life; one newer sub-panel.
<b>D5020 Lighting and Branch Wiring</b>	1954	1997	3	DCS 01/23/18	Fluorescent lighting with T8 lamps in mix of lay-in, surface-mount and shop fixtures; all with manual switching. Receptacles in fair condition. No issues reported.
<b>D5032 Low Voltage Communication</b>	1954	1997	3	DCS 01/23/18	Avaya phone system; front door bell; front door intercom; A/V at classroom; no issues reported.
<b>D5037 Low Voltage Fire Alarm</b>	1954	1997	4	DCS 01/23/18	Aging non-addressable fire alarm system but with new (2017) antenna for alarm transmission; no issues reported.
<b>D5038 Low Voltage Security</b>	1954	1997	3	DCS 01/23/18	Card-key access aging but no issues reported. Minimal electronic security - opportunity to

# Facility Summary

City of Tacoma  
 Fire Prevention  
 Fire Prevention Building

3471 South 35th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.5</b>		
<b>Electrical</b>					
<b>D5038 Low Voltage Security</b>					upgrade.
<b>D5039 Low Voltage Data</b>	1954	2010	2	DCS 01/23/18	Newer fiber-optic high-speed service with newer server to somewhat older drops to wall jacks; no issues reported.
<b>D5090 Other Electrical Systems</b>	1954	1997	3	DCS 01/23/18	Gentrans manual transfer switch and battery bug-eye combination egress light and exist sign fixtures.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1954	1997	3	DCS 01/23/18	Residential appliances in kitchen. Opportunity to install laundry in old mechanical room.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	1954	1996	3	TRB 01/23/18	Plastic laminate faced cabinets and countertops.
<b>F Special Construction</b>					
<b>Special Construction</b>					
<b>F1050 Special Controls and Instrumentation</b>	1954	1997	3	DCS 01/23/18	Ageing tone alarm system.

# Facility Summary

City of Tacoma  
 Fire Prevention  
 Infrastructure

3471 South 35th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1954	1954	3	TRB 01/23/18	Concrete apron drive.
<b>G2020 Parking Lots</b>	1954	1996	4	TRB 01/23/18	Asphalt parking around back and side of building. Cracking and ponding.
<b>G2030 Pedestrian Paving</b>	1954	1996	3	TRB 01/23/18	Minimal concrete at entrances to building.
<b>G2040 Site Development</b>	1954	1996	3	TRB 01/23/18	Wood screen fencing around a small patio area.
<b>G2050 Landscaping</b>	1954	1954	3	TRB 01/23/18	Minimal planting within patio area.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1954	1996	3	DCS 01/23/18	City water with no issues reported.
<b>G3020 Sanitary Sewer</b>	1954	1996	3	DCS 01/23/18	City water with no issues reported.
<b>G3030 Storm Sewer</b>	1954	1996	3	DCS 05/18/09	3 Catch basins exist.
<b>G3060 Fuel Distribution</b>	1954	1997	3	DCS 01/23/18	Natural gas from PSE meter #565852 with approximately 125 cfh capacity; no seismic shut-off valve.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1954	1997	4	DCS 01/23/18	Tacoma Power overhead with meter #005679 with overhead lines from pole at street hanging low over roof.
<b>G4020 Site Lighting</b>					

# Facility Summary

City of Tacoma  
 Fire Prevention  
 Infrastructure

3471 South 35th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

##### G4020 Site Lighting

1954 1997 3

DCS 01/23/18

Lensed wall-pack type fixtures with minimal coverage, but no issues reported.

##### G4030 Site Communications and Security

1954 1997 3

DCS 01/23/18

Telecom services from local purveyors with no issues reported; no apparent site electronic security.

## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Fire Prevention

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Fire Prevention Building	Superstructure	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	Exterior Closure	\$167,000	\$41,750	\$41,750	\$137,775	\$388,275
	Roofing	\$143,670	\$35,918	\$35,918	\$118,528	\$334,033
	Interior Finishes	\$78,365	\$19,591	\$19,591	\$64,651	\$182,199
	Plumbing	\$30,570	\$7,642	\$7,642	\$25,220	\$71,074
	HVAC	\$52,894	\$13,224	\$13,224	\$43,638	\$122,979
	Electrical	\$10,811	\$2,703	\$2,703	\$8,919	\$25,136
	<b>Facility Total</b>	<b>\$493,310</b>	<b>\$123,327</b>	<b>\$123,327</b>	<b>\$406,981</b>	<b>\$1,146,945</b>
Infrastructure	Site Improvements	\$32,250	\$8,063	\$8,063	\$26,606	\$74,981
	Site Electrical utilities	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	<b>Facility Total</b>	<b>\$37,250</b>	<b>\$9,313</b>	<b>\$9,313</b>	<b>\$30,731</b>	<b>\$86,606</b>
	<b>Site Total</b>	<b>\$530,560</b>	<b>\$132,640</b>	<b>\$132,640</b>	<b>\$437,712</b>	<b>\$1,233,551</b>





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Prevention

Total Observed Deficiency Repair Direct Cost : \$530,560

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Prevention Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$10,000</b>
<b>System: Superstructure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$23,250</b>
<b>Roof Construction</b>									
Roof Decking	4	2	2018		1	\$10,000.00	EA	\$10,000	\$23,250

Considering condition of roof and numerous leaks, areas of dry rot in roof system is highly likely.

Remove roofing and inspect existing decking and structure. Assume allowance of \$10,000 for inspection, and replacement of water damaged structure.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Prevention

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<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Prevention Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$167,000
System: Exterior Closure					Total System Deficiency Repair Cost (Marked Up):				\$388,275
<b>Exterior Walls</b>									
Paint	3	4	2018		7,000	\$10.00	SF	\$70,000	\$162,750

Paint on the exterior walls is starting to wear, and siding is nearing end of life.

Demolish siding and re-clad exterior.



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				Action						
<b>Facility:</b> Fire Prevention Building									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
<b>System:</b> Exterior Closure									<b>\$167,000</b>	
									<b>Total System Deficiency Repair Cost (Marked Up):</b>	
									<b>\$388,275</b>	
<b>Exterior Walls</b>										
Wood columns	5	0	2018		23	\$3,000.00	EA	\$69,000	\$160,425	

Bottom of wood columns in exterior walls are severely decayed.

Replace column full height. May be possible to repair bottom of column and provide supplementary framing each side and remove and replace decayed portions of column. Shoring required with both options.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Prevention

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<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Fire Prevention Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$167,000</b>	
<b>System: Exterior Closure</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$388,275</b>	
<b>Exterior Windows</b>										
Single-Pane Windows	5	1	2018		28	\$1,000.00	EA	\$28,000	\$65,100	

Old, inefficient single pane windows. Some show evidence of leaks.

Replace windows with modern thermally insulated windows.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Prevention Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$143,670</b>	
<b>System: Roofing</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$334,033</b>	
<b>Roof Coverings</b>										
Bituminous roof membrane	5	0	2018		4,649	\$30.00	SF	\$139,470	\$324,268	

Torch down asphalt roofing is at end of life, numerous ongoing leak issues occurring, sagging, and ponding. Flashings failing.

Demo and replace the existing roof with new membrane roofing system; repair underlying damage.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Fire Prevention Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$143,670</b>	
<b>System: Roofing</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$334,033</b>	
<b>Roof Openings</b>										
Skylights	4	2	2018		3	\$1,400.00	EA	\$4,200	\$9,765	

Skylights are leaking causing damage to surrounding ceiling and trim.

Replace existing skylights and curb with insulated curb, and add new flashing. Refinish interiors.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Prevention Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$78,365</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$182,199</b>
<b>Wall Finishes</b>									
Paint	3	2	2018		11,000	\$3.00	SF	\$33,000	\$76,725

Paint on the walls showing significant wear, and some water stains.

Clean and paint the walls.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

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<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Prevention Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$78,365</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$182,199</b>
<b>Floor Finishes</b>									
Carpeting	3	3	2018		3,500	\$10.00	SF	\$35,000	\$81,375

Carpet is near the end of its useful life.

Replace carpeting with hygienic solid surfacing. (Note: industry recommendations to avoid carpet not easily sanitized and can trap pollutants and bio-hazards tracked back from response/investigation sites).





## Detailed Assessment - Observed Deficiencies 2018 - 2023

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<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Prevention Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$78,365</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$182,199</b>
<b>Ceiling Finishes</b>									
Suspended acoustic ceiling.	4	5	2018		4,146	\$2.50	SF	\$10,365	\$24,099

Suspended acoustic ceiling is stained and cupping from moisture intrusion and is nearing the end of its useful life. Numerous new leak areas, and growing areas.

After roof replacement, replace acoustic ceiling tiles in existing metal grid system.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Prevention Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$30,570	
System: Plumbing				Total System Deficiency Repair Cost (Marked Up):					\$71,074	
<b>Plumbing Fixtures</b>										
Fixtures & trim	4	5	2018		2	\$2,500.00	EA	\$5,000	\$11,625	
Original fixtures stained with marginal trim.				Replace original fixtures with new.						



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Prevention Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$30,570</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$71,074</b>
<b>Domestic Water Distribution</b>									
Galvanized steel pipe	4	2	2018		4,649	\$1.50	SF	\$6,974	\$16,213

Domestic water piping is galvanized steel which is corroded and staining fixtures.

Replace piping with new copper and/or PEX piping.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Prevention

Total Observed Deficiency Repair Direct Cost : \$530,560

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Rain Water Drainage</b>									
Gutter & downspouts	4	1	2018		4,649	\$4.00	SF	\$18,596	\$43,236
<b>Facility: Fire Prevention Building</b> <b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$30,570</b> <b>Total System Deficiency Repair Cost (Marked Up): \$71,074</b>				

Rainwater ponding and leaking down between and/or into wall and through roof into occupied space. Downspouts discharging to grade are flooding the building perimeter.

Replace with proper flat roof drainage system and pipe to storm.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Total Observed Deficiency Repair Direct Cost : \$530,560

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Prevention Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$52,894	
System: HVAC				Total System Deficiency Repair Cost (Marked Up):					\$122,979	
<b>Energy Supply</b>										
Gas piping	4	3	2018		1	\$5,000.00	LS	\$5,000	\$11,625	
Gas piping on roof is rusting & corroding.				Replace with new and corrosion protect.						



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<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Fire Prevention Building</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>					<b>\$52,894</b>	
<b>System: HVAC</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>					<b>\$122,979</b>	
<b>HVAC Distribution Systems</b>										
Galvanized steel ductwork	4	3	2018		4,649	\$6.00	SF	\$27,894	\$64,854	

Rooftop galvanized steel ductwork is exposed to weather and deteriorating.

Reseal or replace ductwork.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Prevention

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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Prevention Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$52,894	
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$122,979	
<b>Terminal and Package Units</b>										
Rooftop Units	4	3	2018		2	\$10,000.00	EA	\$20,000	\$46,500	

Aging rooftop gas-pack units approaching end of life.

Budget for replacement prior to failure.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Prevention

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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Fire Prevention Building</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>					<b>\$10,811</b>	
<b>System: Electrical</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>					<b>\$25,136</b>	
<b>Electrical Service and Distribution</b>										
Electrical service panel	4	3	2018		1	\$5,000.00	EA	\$5,000	\$11,625	

Service panel is an old Trumbell 200A, 120/240V. Single phase panel in poor condition.

Replace service panel.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

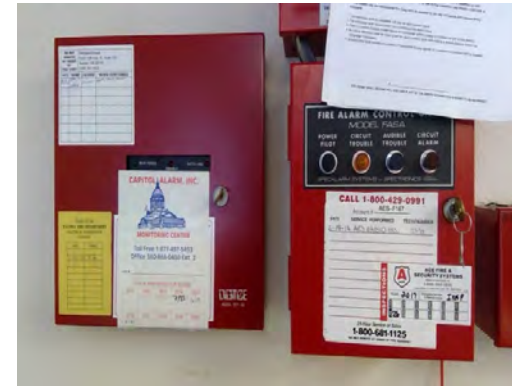
City of Tacoma  
Site: Fire Prevention

Total Observed Deficiency Repair Direct Cost : \$530,560

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Prevention Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$10,811</b>	
<b>System: Electrical</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$25,136</b>	
<b>Low Voltage Fire Alarm</b>										
Fire alarm	4	5	2018		4,649	\$1.25	SF	\$5,811	\$13,511	

Obsolete zoned fire alarm system.

Replace with new City standard addressable.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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<b>Deficiency</b>				<b>Action</b>					
Facility: Infrastructure					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$32,250
System: Site Improvements					Total System Deficiency Repair Cost (Marked Up):				\$74,981
<b>Parking Lots</b>									
Asphalt	4	3	2018		4,300	\$7.50	SF	\$32,250	\$74,981

Asphalt is badly cracked and worn. Settlement has occurred, areas of ponding.

Remove and replace asphalt around building, re-stripe.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Infrastructure</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>					<b>\$5,000</b>	
<b>System: Site Electrical utilities</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>					<b>\$11,625</b>	
<b>Electrical Distribution</b>										
Overhead power	4	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Overhead power lines hang low over roof, hampering maintenance and creating undue risk for O&M staff.

Re-power from underground.





## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Prevention

Total Site Opportunity Cost: **\$366,526**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Prevention Building</b> <b>System: Foundations</b> <span style="float: right;"><b>Total Cost: \$46,490</b></span>						
A1010	Standard Foundations	Consider demolishing building if ratio of repairs, upgrades, and maintenance burden exceed value of building.	Demolish building (replacement not included in this estimate).	4,649.00	\$10.00 SF	\$46,490
<b>Facility: Fire Prevention Building</b> <b>System: Superstructure</b> <span style="float: right;"><b>Total Cost: \$255,695</b></span>						
B1020	Roof Construction	Existing flat roofing system is causing ongoing leak problems.	Replace roof structure with new framed pitched roofing, include siding upgrades (see bids from December 2016).	4,649.00	\$55.00	\$255,695
<b>Facility: Fire Prevention Building</b> <b>System: Exterior Closure</b> <span style="float: right;"><b>Total Cost: \$15,000</b></span>						
B2020	Exterior Windows	Single glazed windows are not energy efficient.	Install modern dual glazed window units.	300.00	\$50.00 SF	\$15,000
<b>Facility: Fire Prevention Building</b> <b>System: Roofing</b> <span style="float: right;"><b>Total Cost: \$18,596</b></span>						
B3010	Roof Coverings	No or limited roof insulation	Roof replacement will require code upgrade including installation if insulation. Install rigid insulation on roof deck with protection board (and new membrane roofing above)	4,649.00	\$4.00 SF	\$18,596
<b>Facility: Fire Prevention Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$23,245</b></span>						
D5020	Lighting and Branch Wiring	Fluorescent lighting with manual control.	Upgrade to LED lighting with automatic control.	4,649.00	\$5.00 SF	\$23,245

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Prevention

Total Site Opportunity Cost: **\$366,526**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
Facility: Fire Prevention Building						
System: Special Construction	Total Cost: \$7,500					
F1050	Special Controls and Instrumentation					
	Aging tone alarm system.	Upgrade to new City standard.	1.00	\$7,500.00	LS	\$7,500

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 Fire Station #01 & Headquarters  
 Fire Station #1 Building

901 South Fawcett Avenue  
 Tacoma, WA 98407

Facility Size - Gross S.F. 16,600  
 Year Of Original Construction 1967  
 Facility Use Type Fire Station  
 Construction Type Medium  
 # of Floors 2  
 Energy Source Electric  
 Year Of Last Renovation 1967  
 Historic Register No



FCI (BMAR/CRV)	0.18	Predicted Renewal Budget (20 yrs)	\$3,342,227
FCI (Bldg OD/CRV)	0.20	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$7,189,000	Building	\$1,416,041
BMAR (Backlog of Maintenance and Repair)	\$1,266,000	Infrastructure	\$148,354
Beginning Budget Year	2018	Total	\$1,564,395
		Opportunity Total Project Cost	\$897,915

## Facility Condition Summary

Fire Station #1 was built in 1967 as an all concrete structure with two stories above grade, a mezzanine and one basement level. The building is generally in fair condition, but is showing its age. The roofing is in poor condition at end of life and should be replaced soon. The exterior precast cladding is in need of repair to spalling and sealant joints, old single glazed aluminum windows and storefront leak and are energy inefficient and are in need of replacement. MEP systems are a mix of mostly older, but some newer ranging from poor to good condition. The roof-top HVAC units were replaced in 2012. HVAC includes a mix of original electric resistance heat with little or no ventilation for unoccupied areas, and newer VRF system with unclear ventilation for Station House and HQ Office areas. Power service & distribution from original equipment at end of life; lighting is mostly aging fluorescent; and low voltage is a mix of some older but mostly newer systems. Plumbing is mostly older nearing end of life. The galvanized domestic water piping should be replaced with new copper pipe as well as all of the plumbing fixtures. Fire sprinkler appears to have been retrofit throughout and is in fair to good condition. Fire alarm is limited. Opportunities to upgrade controls to DDC, install LED lighting with automatic controls, upgrade from electric to gas-heat for non-occupied spaces such as apparatus bays, and more. Fire Station 1 can be maintained with existing systems for another 5 to 10 years, then a major renovation will be needed, including bringing the thermal envelope up to code - specifically upgrading to modern double-glazed windows, new membrane roof covering, new finishes & fixtures and new MEP systems throughout.

# Facility Summary

City of Tacoma  
 Fire Station #01  
 Fire Station #1 Building

901 South Fawcett Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1967	1967	3	TRB 05/21/09	Standard concrete foundations. Not observable.
<b>A1030 Slab On Grade</b>	1967	1967	3	TRB 01/09/18	Concrete slab on grade. Some cracks, but appear old, recommend patch/seal.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1967	1967	3	TRB 01/09/18	Concrete basement walls, some thicken at base of wall. Damaged drywall and past water damage on plaster.
<b>B Shell</b>			<b>3.3</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1967	1967	3	TRB 01/09/18	Precast concrete double tees, with cast in place concrete topping.
<b>B1020 Roof Construction</b>	1967	1967	3	TRB 01/09/18	Precast concrete double tees with cast in place concrete topping.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1967	1967	4	TRB 01/09/18	Precast concrete wall panels with exposed aggregate. Pilasters in spot areas around the building have spalling with exposed rusting reinforcing steel.
<b>B2020 Exterior Windows</b>	1967	1967	3	TRB 01/09/18	Single pane glazing in aluminum frame. Windows and frames should be replaced to improve energy efficiency but this task would be prohibitively expensive due to the custom shape of the frames. The cost of this up-grade will not pay back in a reasonable length of time with the reduced energy cost.



# Facility Summary

City of Tacoma  
 Fire Station #01  
 Fire Station #1 Building

901 South Fawcett Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.3</b>		
<b>Exterior Closure</b>					
<b>B2030 Exterior Doors</b>	1967	1967	3	TRB 01/09/18	Hollow metal doors and frames. Non ADA compliant hardware.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1967	1980	4	TRB 01/09/18	Asphalt sheet roofing over tapered rigid insulation. Roofing blistering, standing water, grass growing in water on roof. Roof approaching end of life.
<b>B3020 Roof Openings</b>	1967	1980	3	TRB 01/09/18	Stair to ample sized roof hatch.
<b>C Interiors</b>			<b>3.0</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1967	1967	3	TRB 01/09/18	Wood framing with gypsum board drywall.
<b>C1020 Interior Doors</b>	1967	1967	3	TRB 01/09/18	Wood doors and transoms in metal frames. Knob hardware (only some replaced with lever hardware).
<b>C1030 Fittings</b>	1967	1989	3	TRB 01/09/18	Plastic laminate faced cabinets and lockers. some de-laminating in spots.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>	1967	1967	3	TRB 01/09/18	Concrete stairs with metal nosing.
<b>C2020 Stair Finishes</b>	1967	1967	3	TRB 01/09/18	Metal handrails. exposed concrete treads.
<b>Interior Finishes</b>					

# Facility Summary

City of Tacoma  
 Fire Station #01  
 Fire Station #1 Building

901 South Fawcett Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>3.0</b>		
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1967	1989	3	TRB 01/09/18	Painted concrete and concrete masonry units, plastic laminate wainscot at wet locations in hallways, painted gypsum wallboards, acoustic panels in conference room.
<b>C3020 Floor Finishes</b>	1967	1989	3	TRB 01/09/18	Carpet, vinyl composition tile and sheet vinyl. carpeting is in need of replacement. VCT in hall worn from traffic or etched with chemicals. Shower/bath tile needs to be cleaned and sealed.
<b>C3030 Ceiling Finishes</b>	1967	2010	3	TRB 01/09/18	Suspended acoustic ceiling (new tiles in old t-grid), painted gypsum wall board, areas of exposed concrete structure.
<b>D Services</b>			<b>3.2</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1967	1989	3	DCS 01/09/18	Mix of original and somewhat newer (1989) fixtures including showers; older fixtures approaching end of life.
<b>D2020 Domestic Water Distribution</b>	1967	1967	4	DCS 01/09/18	Piping is original construction galvanized steel throughout - bottled water in use throughout. Electric tank type water heater was installed in 1999; recirc pump recently replaced, but still long wait at remote fixtures for hot water (minor issue). Large quantity of emergency drinking water stored in 55-gal drums in basement; consider a cistern to serve this function in conjunction with future modernization.
<b>D2030 Sanitary Waste</b>	1967	1967	3	DCS 01/09/18	Mix of cast iron and galvanized DW&V piping. Waste line backs up periodically tested fixtures drain & flush well. No floor or trench drains at apparatus bays.

# Facility Summary

City of Tacoma  
 Fire Station #01  
 Fire Station #1 Building

901 South Fawcett Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.2</b>		
<b>Plumbing</b>					
<b>D2040 Rain Water Drainage</b>	1967	1967	3	DCS 01/09/18	Two roof drains with standing water due to poor roof slope, not drains; overflow via two tubes penetrating parapet. Consider collection of roof water for cistern in lieu of 55-gal drums in basement during future modernization.
<b>D2090 Other Plumbing Systems</b>	1967	2000	3	DCS 01/09/18	Portable air compressor. Portable plastic eyewash in Ap Bay - opportunity to upgrade to permanent safety shower & eyewash and/or decon station.
<b>HVAC</b>					
<b>D3030 Cooling Generating Systems</b>	1967	2010	3	DCS 01/09/18	Newer (2010) Mitsubishi VRF CUs on roof with 7 to 12 years remaining life; one 8-ton and two 6-ton; with deteriorating refrigerant piping insulation (minor maintenance issue). One Trane split-Dx heat pump condensing unit at NW corner of building serving mezzanine office inside furnace unit.
<b>D3040 HVAC Distribution Systems</b>	1967	1980	3	DCS 01/09/18	Galvanized steel ductwork serves headquarters level and mezzanine level and is in fair condition. Exhaust fans for bathrooms. Unclear outside air flow and balance to Station House on main floor and HQ Office on upper floor.
<b>D3050 Terminal and Package Units</b>	1967	2010	3	DCS 01/09/18	Station level served by original wall-mounted cabinet unit heaters and by newer (2010) ceiling-mounted VRF-system ceiling cassettes. Apparatus bay is served by two original electric unit heaters past end of life. Headquarters level is served by newer (2010) Mitsubishi VRF system. Mezzanine level spaces are served by old electric unit heater for exercise room, apparently abandoned unit ventilator for racket-ball court, and newer (2013) split system heat pump for mezzanine level office. Various other electric heaters. All original electric wall, unit, and cabinet heaters are past useful life.

# Facility Summary

City of Tacoma  
 Fire Station #01  
 Fire Station #1 Building

901 South Fawcett Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.2</b>		
<b>HVAC</b>					
<b>D3060 Controls and Instrumentation</b>	1967	2000	3	DCS 01/09/18	Mix of older non-programmable in poor condition and newer programmable in fair to good condition.
<b>D3090 Other HVAC Systems and Equipment</b>	1967	2011	2	DCS 01/09/18	New (2011) Nederman vehicle engine exhaust system for apparatus bay.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>	1975	1990	2	DCS 01/09/18	Building is served by wet pipe sprinkler system with 3-inch riser at 100 psig.
<b>D4020 Stand-Pipe and Hose Systems</b>	1967	1967	3	DCS 01/09/18	Older hose cabinets with hoses; but appear serviceable.
<b>D4030 Fire Protection Specialties</b>	1967	1967	3	DCS 01/09/18	Fire extinguishers on hooks; AED loose on file cabinet (minor maintenance item to install cabinet).
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1967	1967	4	DCS 01/09/18	Service is original (1967) GE 208/120V with 1200A capacity; panels are also original GE.
<b>D5020 Lighting and Branch Wiring</b>	1967	1990	3	DCS 01/09/18	Mix of some original incandescent, somewhat newer T8 and others such as older 2x2 u-tube fluorescent in HQ office hallways. Mix of older and newer receptacles; with some office areas with insufficient receptacles.
<b>D5032 Low Voltage Communication</b>	1967	1990	3	DCS 01/09/18	Modern voice/data equipment, including Avaya phone system; modest A/V in HQ conference room; old door bell; newer digital clock system for portions of HQ, older battery-powered analog elsewhere; all with no issues reported.

# Facility Summary

City of Tacoma  
 Fire Station #01  
 Fire Station #1 Building

901 South Fawcett Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.2</b>		
<b>Electrical</b>					
<b>D5032 Low Voltage Communication</b>					
<b>D5037 Low Voltage Fire Alarm</b>	1967	1990	3	DCS 01/09/18	Silent Knight fire alarm system with new (2017) wireless alarm antenna.
<b>D5038 Low Voltage Security</b>	1967	1990	3	DCS 01/09/18	Limited card-key access to certain doors, old cipher-locks on others with no issues reported. CCTV in HQ office areas.
<b>D5039 Low Voltage Data</b>	1967	1990	3	DCS 01/09/18	Semi-MDF at HQ copy room with VRF cooling; no issues reported - assume adequate for service.
<b>D5090 Other Electrical Systems</b>	1967	1967	4	DCS 01/09/18	Little or no emergency lighting and no standby generator for whole building - portable for limited systems.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1967	1967	3	DCS 01/09/18	Aging but functional; minor work needed.
<b>F Special Construction</b>			<b>2.5</b>		
<b>Special Construction</b>					
<b>F1010 Special Structures</b>	1967	1967	3	DCS 01/09/18	Raquet ball court at basement level with spectator overlook.
<b>F1050 Special Controls and Instrumentation</b>	1967	2017	2	DCS 01/09/18	Recently renewed tone alarm system with radio communication in good condition, excepting some older speakers.

# Facility Summary

City of Tacoma  
 Fire Station #01  
 Infrastructure

901 South Fawcett Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1967	1967	4	TRB 01/09/18	Concrete apron at front of building, and concrete driveway at entrance to parking lot.
<b>G2020 Parking Lots</b>	1967	2014	2	TRB 01/09/18	Asphalt parking along alley with wood wheel stops. Asphalt parking lot off Fawcett with concrete curbs and wood wheel stops.
<b>G2030 Pedestrian Paving</b>	1967	1967	4	TRB 01/09/18	Concrete walks and steps with metal rails. Areas of heaved pedestrian plaza, trip hazard.
<b>G2040 Site Development</b>	1967	1967	2	TRB 01/09/18	Concrete retaining walls, and planter walls with wood benches. Retaining walls showing cracking and ground water penetration. Cast entry stair has spots of spalling and rust blooms.
<b>G2050 Landscaping</b>	1967	1967	2	TRB 01/09/18	Shrubs and trees. bark restrainer strip falling out. Limb branches away from flag pole, especially for flags at half mast.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1967	1967	3	DCS 01/09/18	City water with no issues reported. Irrigation system.
<b>G3020 Sanitary Sewer</b>	1967	1967	3	DCS 01/09/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1967	1967	3	DCS 01/09/18	Parking lot and parking in alley have catch basins to city; service needed; retaining wall to SE weep holes need service (minor maintenance issues).
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>					

# Facility Summary

City of Tacoma  
 Fire Station #01  
 Infrastructure

901 South Fawcett Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

##### G4010 Electrical Distribution

1967	1967	3	DCS	01/09/18	Tacoma Power U/G to T U/G to Bldg; older 120?208V T with no issues reported.
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##### G4020 Site Lighting

1967	2015	2	DCS	01/09/18	New (2015) LED except old pole lamp with failed lamps at entry stair and aging small landscape lighting system at entry.
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##### G4030 Site Communications and Security

1967	2010	2	DCS	01/09/18	Comm & data from purveyors; perimeter CCTV. Air sampler at upper parking area property of Puget Sound Clean Air Agency, but appears powered from FS-1.
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## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Fire Station #01

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Fire Station #1 Building	Basements	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Superstructure	\$20,000	\$5,000	\$5,000	\$16,500	\$46,500
	Exterior Closure	\$106,000	\$26,500	\$26,500	\$87,450	\$246,450
	Roofing	\$34,200	\$8,550	\$8,550	\$28,215	\$79,515
	Interior Construction	\$11,600	\$2,900	\$2,900	\$9,570	\$26,970
	Interior Finishes	\$165,000	\$41,250	\$41,250	\$136,125	\$383,625
	Plumbing	\$61,800	\$15,450	\$15,450	\$50,985	\$143,685
	HVAC	\$27,450	\$6,863	\$6,863	\$22,646	\$63,821
	Electrical	\$168,000	\$42,000	\$42,000	\$138,600	\$390,600
	Equipment	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	<b>Facility Total</b>	<b>\$609,050</b>	<b>\$152,263</b>	<b>\$152,263</b>	<b>\$502,466</b>	<b>\$1,416,041</b>
Infrastructure	Site Improvements	\$58,808	\$14,702	\$14,702	\$48,517	\$136,729
	Site Electrical utilities	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	<b>Facility Total</b>	<b>\$63,808</b>	<b>\$15,952</b>	<b>\$15,952</b>	<b>\$52,642</b>	<b>\$148,354</b>
	<b>Site Total</b>	<b>\$672,858</b>	<b>\$168,215</b>	<b>\$168,215</b>	<b>\$555,108</b>	<b>\$1,564,395</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Station #1 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$5,000</b>
<b>System: Basements</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$11,625</b>
<b>Basement Walls</b>									
Basement Wall	4	5	2018		1	\$5,000.00	EA	\$5,000	\$11,625

Spot areas of moisture problems.

Remove water damaged drywall, find and address source, repair.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #1 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$20,000</b>
<b>System: Superstructure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$46,500</b>
<b>Floor Construction</b>									
Floor Settlement	4	1	2018		1	\$20,000.00	EA	\$20,000	\$46,500

Significant cracking of concrete floor and structure in lower Mezzanine floor (exercise) and adjacent storage. (cracking in structure also visible from below).

Recommend professional structural investigation and evaluation of cause, and assessment of how critical of an issue this is. Repair concrete structure and topping.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #1 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$106,000</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$246,450</b>
<b>Exterior Walls</b>									
Cast-in-Place (CIP) Walls	4	5	2018		12,000	\$3.00	SF	\$36,000	\$83,700

Precast double T-s flanges have spot areas of spalling with exposed rusting reinforcing. Caulked panel joints at end of life.

Repair rust at exposed reinforcing, patch spalls, power wash, and seal all.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility:</b> Fire Station #1 Building									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$106,000</b>	
<b>System:</b> Exterior Closure									<b>Total System Deficiency Repair Cost (Marked Up): \$246,450</b>	
<b>Exterior Windows</b>										
Aluminum frame with glazing	5	1	2018		58	\$1,000.00	EA	\$58,000	\$134,850	

Single glazed, non-thermally broken frames, leaking.

Replace with new thermally glazed thermally broken units.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

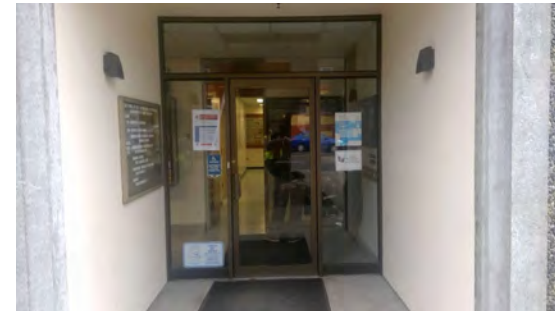
City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Station #1 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$106,000</b>	
<b>System: Exterior Closure</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$246,450</b>	
<b>Exterior Doors</b>										
Aluminum Storefront	4	1	2018		2	\$6,000.00	EA	\$12,000	\$27,900	

Single glazed, non-thermally broken storefront entry systems.

Replace with modern energy-efficient double glazed, thermally broken storefront system and new hardware.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #1 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$34,200</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$79,515</b>
<b>Roof Coverings</b>									
Asphalt sheet roofing	4	2	2018		5,700	\$6.00	SF	\$34,200	\$79,515

Asphalt sheet roofing is showing blistering and is approaching the end of its useful life.

Remove existing roofing and replace with new insulation and asphalt sheet roofing.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #1 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$11,600
System: Interior Construction					Total System Deficiency Repair Cost (Marked Up):				\$26,970
<b>Fittings</b>									
Counters	4	3	2018		4	\$2,000.00	EA	\$8,000	\$18,600

Countertops, and some casework worn, some areas of chipped casework.

Replace kitchen countertops with heat resistant solid surfacing. Repair other casework damage



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #1 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$11,600
System: Interior Construction					Total System Deficiency Repair Cost (Marked Up):				\$26,970
<b>Fittings</b>									
Fittings	4	3	2018		12	\$300.00	EA	\$3,600	\$8,370
Window blinds in poor repair on floor 1.				Replace window blinds.					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Station #1 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$165,000	
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$383,625	
<b>Wall Finishes</b>										
Paint	4	5	2018		30,000	\$3.00	SF	\$90,000	\$209,250	

Paint on the interior walls is starting to wear.

Clean and paint the walls.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

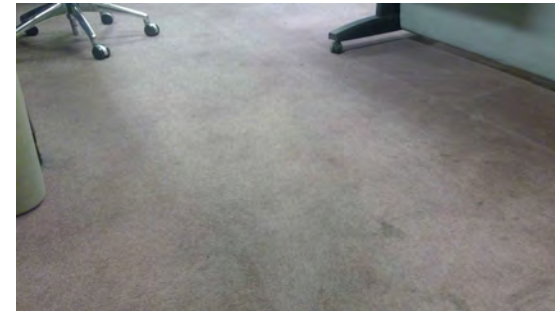
City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Station #1 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$165,000</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$383,625</b>
<b>Floor Finishes</b>									
Carpet	4	2	2018		7,000	\$10.00	SF	\$70,000	\$162,750

Carpet is worn and stained.

Replace carpeting with hygienic solid surfacing. (Note: industry recommendations to avoid carpet not easily sanitized and can trap pollutants and bio-hazards from call sites).



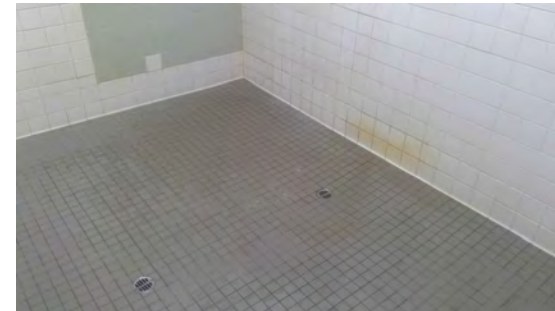
# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #1 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$165,000</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$383,625</b>
<b>Floor Finishes</b>									
Ceramic Tile Grout	4	2	2018		1	\$5,000.00	EA	\$5,000	\$11,625

Stained toilet/shower tile grout. Clean and seal grout.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #1 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$61,800
System: Plumbing					Total System Deficiency Repair Cost (Marked Up):				\$143,685
<b>Plumbing Fixtures</b>									
Fixtures & trim	4	3	2018		12	\$1,000.00	EA	\$12,000	\$27,900
Original and other older fixtures approaching end of life.				Replace with new.					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #1 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$61,800</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$143,685</b>
<b>Domestic Water Distribution</b>									
Galvanized piping	5	2	2018		16,600	\$3.00	EA	\$49,800	\$115,785

Domestic water piping system is galvanized steel, original construction. Piping is beginning to corrode and fixtures being stained.

Replace piping system with copper and/or PEX.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #1 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$27,450
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$63,821
<b>HVAC Distribution Systems</b>									
Ductwork	4	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Ductboard full of holes in mezzanine storage room.

Repair or replace with galvanized sheet metal duct.





# Detailed Assessment - Observed Deficiencies 2018 - 2023

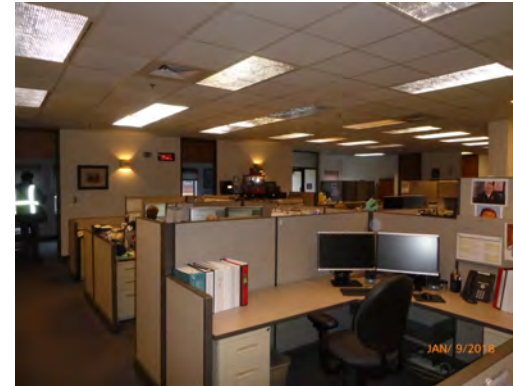
City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Fire Station #1 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$27,450
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$63,821
<b>HVAC Distribution Systems</b>									
Ductwork	4	2	2018		16,600	\$0.75	SF	\$12,450	\$28,946

Unclear outside air and air balance at Station House and HQ floors.

Conduct TAB and/or R-Cx to check air flows per design and code; correct as needed.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Station #1 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$27,450</b>	
<b>System: HVAC</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$63,821</b>	
<b>Terminal and Package Units</b>										
Electric heaters	4	3	2018		10	\$1,000.00		\$10,000	\$23,250	

Original electric heaters are past their useful life with varying damage.

Replace.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				<b>Action</b>						
<b>Deficiency</b>										
<b>Facility: Fire Station #1 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$168,000</b>	
<b>System: Electrical</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$390,600</b>	
<b>Electrical Service and Distribution</b>										
Electrical service switchboard and branch panels	4	5	2018		16,600	\$4.00		\$66,400	\$154,380	

Switchboard and branch panels are over 40 years old and past useful life.

Replace switchboard, feeders and branch panels.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Station #1 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$168,000	
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$390,600	
<b>Lighting and Branch Wiring</b>										
Devices and branch wiring	4	5	2018		5,000	\$5.00	SF	\$25,000	\$58,125	

Approximately 30% of the receptacles are original, and the jaws are worn out. Withdrawal strength is less than 4 oz.

Replace 30% of receptacles and associated branch wiring.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Station #1 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$168,000	
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$390,600	
<b>Lighting and Branch Wiring</b>										
Lighting system	4	5	2018		12,000	\$5.00	SF	\$60,000	\$139,500	

The lighting system is roughly 70% original.

Replace 70% of existing lighting.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Station #1 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$168,000</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$390,600</b>
<b>Other Electrical Systems</b>									
Emergency lighting	4	2	2018		16,600	\$1.00	SF	\$16,600	\$38,595
Minimal emergency lighting (egress & exit).				Increase coverage per code.					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #1 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$10,000
System: Equipment					Total System Deficiency Repair Cost (Marked Up):				\$23,250
<b>Commercial Equipment</b>									
Other	4	3	2018		1	\$10,000.00	LS	\$10,000	\$23,250

Wear and tear.

Dress-up to extend life prior to modernization.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Infrastructure				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$58,808
System: Site Improvements				Total System Deficiency Repair Cost (Marked Up):					\$136,729
<b>Roadways</b>									
Concrete	4	2	2018		900	\$12.00	SF	\$10,800	\$25,110

Concrete drive to parking lot is severely cracked and broken. Including street asphalt exposing original brick pavers.

Repair apron and street frontage pavement at drive entrances.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Infrastructure</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$58,808</b>
<b>System: Site Improvements</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$136,729</b>
<b>Parking Lots</b>									
Asphalt	4	3	2018		3,000	\$3.00	EA	\$9,000	\$20,925

Alley parking asphalt aging, paint stripes sub-standard and faded.

Top seal coat to extend life, and re-stripe.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: Infrastructure									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: Site Improvements									\$58,808	
<b>Parking Lots</b>									Total System Deficiency Repair Cost (Marked Up):	
Wheel stops	4	2	2018		16	\$313.00	EA	\$5,008	\$11,644	

Wood wheel stops are damaged, deteriorating, and some are missing.

Remove and replace wheel stops with anchored modern cast or synthetic curb stops



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
<b>Facility: Infrastructure</b>									
<b>System: Site Improvements</b>									
<b>Pedestrian Paving</b>									
Pedestrian Paving	4	1	2018		900	\$10.00	SF	\$9,000	\$20,925

Total System Deficiency Repair Cost (Undiscounted/Unescalated):	\$58,808
Total System Deficiency Repair Cost (Marked Up):	\$136,729

Pedestrian plaza paving and fire chief's parking paving broken and settling. Trip hazzards.

Remove and replace pedestrian paving.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				<b>Action</b>						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
<b>System: Site Improvements</b>									<b>\$58,808</b>	
<b>Site Development</b>									<b>Total System Deficiency Repair Cost (Marked Up):</b>	
<b>Cast Concrete Entry Stairs</b>									<b>\$136,729</b>	
Cast Concrete Entry Stairs	4	1	2018		1	\$10,000.00	EA	\$10,000	\$23,250	

Spalling and rust through cast cantilevered concrete slab and cast stairs.

Treat and coat rusting elements, remove and patch concrete, coat system to extend life. Consider modifying guard and handrails to code compliant.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$58,808</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$136,729</b>	
<b>Site Development</b>										
Other	5	0	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Concrete cap at retaining wall failed, heaving, and breaking up.

Demolish existing failed concrete cap, address moisture issues, and repour concrete cap.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

Total Observed Deficiency Repair Direct Cost : \$672,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$58,808</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$136,729</b>	
<b>Site Development</b>										
Retaining Walls	4	5	2018		1	\$10,000.00	LS	\$10,000	\$23,250	

Cracking retaining walls, moisture and drainage issues.

Investigate causes and repair ground water, possibly boltster wall at cracks with galvanized steel bracing?



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #01

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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility:</b> Infrastructure									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
<b>System:</b> Site Electrical utilities									<b>\$5,000</b>	
<b>Site Lighting</b>									<b>Total System Deficiency Repair Cost (Marked Up):</b>	
									<b>\$11,625</b>	
Lighting	5	0	2018		1	\$5,000.00	LS	\$5,000	\$11,625	
Failed main entry light pole luminaires and aging landscape lighting.				Replace entry pole luminaires and landscape lighting.						







## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #01

Total Site Opportunity Cost: **\$391,200**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Station #1 Building</b>						
<b>System: Vertical Transportation Total Cost: \$150,000</b>						
D1010	Elevators and Lifts	No elevator.	Add 3-stop elevator; possibly at original hose tower location.	1.00	\$150,000.00	\$150,000
<b>Facility: Fire Station #1 Building</b>						
<b>System: Plumbing Total Cost: \$20,000</b>						
D2030	Sanitary Waste	No Ap Bay drains.	Provide Ap Bay drains.	1.00	\$15,000.00	LS \$15,000
D2090	Other Plumbing Systems	Portable compressed air system.	Install permanent compressed air system, similar to newer stations.	1.00	\$5,000.00	LS \$5,000
<b>Facility: Fire Station #1 Building</b>						
<b>System: HVAC Total Cost: \$58,200</b>						
D3050	Terminal and Package Units	Electric heat for apparatus bay, storage and utility areas.	Replace with gas-fired appliances to reduce energy cost and increase comfort.	5.00	\$5,000.00	EA \$25,000
D3060	Controls and Instrumentation	No DDC.	Install DDC.	16,600.00	\$2.00	SF \$33,200
<b>Facility: Fire Station #1 Building</b>						
<b>System: Electrical Total Cost: \$158,000</b>						
D5020	Lighting and Branch Wiring	Older incandescent and fluorescent lighting with manual control.	Upgrade to all LED lighting with automatic control.	16,600.00	\$5.00	SF \$83,000
D5090	Other Electrical Systems	Small portable gas-powered standby generator.	Permanent full-size (100 kW) standby generator.	1.00	\$75,000.00	LS \$75,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #01

Total Site Opportunity Cost: \$391,200

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
Facility: Infrastructure						
System: Site Civil / Mechanical Utilities	Total Cost: \$5,000					
G3060 Fuel Distribution	No gas.	Install gas.	1.00	\$5,000.00	LS	\$5,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 Fire Station #02  
 Fire Station #2 Building

2701 Tacoma Avenue South  
 Tacoma, WA 98407

Facility Size - Gross S.F. 16,380  
 Year Of Original Construction 1907  
 Facility Use Type Fire Station  
 Construction Type Medium  
 # of Floors 1  
 Energy Source Gas  
 Year Of Last Renovation 1934  
 Historic Register Yes



FCI (BMAR/CRV)	0.21	Predicted Renewal Budget (20 yrs)	\$3,284,100
FCI (Bldg OD/CRV)	0.11	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$7,094,000	Building	\$803,388
BMAR (Backlog of Maintenance and Repair)	\$1,463,000	Infrastructure	\$310,505
Beginning Budget Year	2018	<b>Total</b>	<b>\$1,113,893</b>
		Opportunity Total Project Cost	\$1,237,841

## Facility Condition Summary

Fire Station #02 was originally constructed in 1907 as a two-story building with full basement and was remodeled in 1934 removing the second story. The station is listed on the Local and National Register of Historic Places. The station is built of wood, concrete and masonry. All of the systems and finishes in the building are way beyond their expected life span and should be up-graded. There are steel beams in the basement that support the concrete sidewalk above that are deteriorated and need to be replaced or the sidewalk needs to be filled in. The acoustic ceiling tile system is in poor condition and should be replaced. The galvanized domestic water pipe should be replaced with a new copper piping system including replacement of the plumbing fixtures. The lighting and branch panel boards are in poor condition and should be replaced. There is a significant amount of deterioration to asphalt and concrete surfaces around the building that warrant some attention.

# Facility Summary

City of Tacoma  
 Fire Station #02  
 Fire Station #2 Building

2701 Tacoma Avenue South  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.1</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1889	1889	3	TRB 01/10/18	Concrete foundations.
<b>A1030 Slab On Grade</b>	1889	1935	3	TRB 01/10/18	Concrete slab on grade, minor cracking, some past patches need re-filling in upper apparatus bay.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1889	1889	4	TRB 01/10/18	Concrete basement walls between foundation and first floor level. Numerous leaks and cracks. Old concrete masonry, no reinforcing evidence where CMU broken or removed.
<b>B Shell</b>			<b>3.3</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1889	1935	3	TRB 01/10/18	Concrete slab with concrete beams and concrete columns at west side and wood joists with wood decking supported by wood beams and wood columns at east side.
<b>B1020 Roof Construction</b>	1889	1889	3	TRB 01/10/18	Heavy timber wood trusses, wood rafters and wood decking at apparatus bay and wood beams with wood joists and wood decking at flat roof areas.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1889	1935	3	TRB 01/10/18	Unreinforced masonry walls with exterior stucco finish and plaster interior finish.
<b>B2020 Exterior Windows</b>	1889	1935	5	TRB 01/10/18	Single pane wood windows.
<b>B2030 Exterior Doors</b>					

# Facility Summary

City of Tacoma  
 Fire Station #02  
 Fire Station #2 Building

2701 Tacoma Avenue South  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.3</b>		
<b>Exterior Closure</b>					
<b>B2030 Exterior Doors</b>					
	1889	1935	3	TRB 01/10/18	Solid core wood doors and wood frames. Two OH garage doors in apparatus bay in need of exterior paint. Lower level garage doors are historic original manual double gate style with original barn style hardware, locking pins, and locking cross board.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					
	1889	1935	3	TRB 01/10/18	Single-ply membrane and asphalt shingle at skylight in apparatus bay. Treat asphalt shingles for moss growth that is starting. Only 2 small scuppers draining entire membrane roof, debris indicates system blockage and ponding is common. Some leaks reported at vehicle exhaust vent penetration, past at skylight, and hose tower.
<b>B3020 Roof Openings</b>					
	1889	1935	5	TRB 01/10/18	Wire glass skylight in metal frame. Cracked un-insulated glass. Past leaks and water damage below. Roof monitor over bathrooms appears in good condition with new windows.
<b>B3030 Projections</b>					
	1889	1935	3	UCKL 01/10/18	Hose tower, cracks in exterior walls above roof on several sides. Tower is the source of numerous leaks.
<b>C Interiors</b>			<b>3.1</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>					
	1889	1935	3	TRB 01/10/18	Wood frame walls with plaster finish.
<b>C1020 Interior Doors</b>					
	1889	1935	3	TRB 01/10/18	Wood frame panel doors. Old knob hardware, some not functioning properly.
<b>C1030 Fittings</b>					

# Facility Summary

City of Tacoma  
 Fire Station #02  
 Fire Station #2 Building

2701 Tacoma Avenue South  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>3.1</b>		
<b>Interior Construction</b>					
<b>C1030 Fittings</b>					
	1889	1935	3	TRB 01/10/18	Wood lockers, wood kitchen cabinets with plastic laminate faced doors.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>					
	1889	1935	3	TRB 01/10/18	Wood frame stair to basement. The existing handrail does not extend the entire length of the stair.
<b>C2020 Stair Finishes</b>					
	1889	1935	3	TRB 01/10/18	Adhesive applied non-slip tread.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>					
	1889	1935	3	TRB 01/10/18	Painted wood lath and plaster, ceramic tile wainscot in shower room.
<b>C3020 Floor Finishes</b>					
	1889	1935	3	TRB 01/10/18	Sheet vinyl wood strip flooring. Carpet, exposed concrete, and painted concrete.
<b>C3030 Ceiling Finishes</b>					
	1889	1935	4	TRB 01/10/18	Painted plaster and suspended acoustic ceiling.
<b>D Services</b>			<b>3.4</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					
	1889	1935	3	DCS 01/10/18	Enameled cast iron, porcelain, stainless steel and built-up (shower) fixtures are of varying vintages. Much fixture trim needs service (minor maintenance issue). Just one shared bathroom on the main floor.
<b>D2020 Domestic Water Distribution</b>					
	1889	1935	4	DCS 01/10/18	Mix of galvanized and copper piping. Somewhat newer (2003) A.O. Smith 81-gal, 190 mbh gas-fired water heater may have 5 to 10 years

# Facility Summary

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 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.4</b>		
<b>Plumbing</b>					
<b>D2020 Domestic Water Distribution</b>					remaining life; no recirc pump observed (minor work to add).
<b>D2030 Sanitary Waste</b>	1889	1935	3	DCS 01/10/18	Waste piping is mix of older cast iron, aging galvanized steel and somewhat newer non-metallic ABS; most tested fixtures flush & drain well, but a few are slow - minor maintenance to restore full flow. Opportunity to add floor and/or trench drains to apparatus bay.
<b>D2040 Rain Water Drainage</b>	1889	1935	3	DCS 01/10/18	Entire roof drains to two small scuppers and downspouts to grade.
<b>D2090 Other Plumbing Systems</b>	1889	2000	3	DCS 01/10/18	Portable air compressor. Temporary plastic eyewash station.
<b>HVAC</b>					
<b>D3010 Energy Supply</b>	1889	1980	3	DCS 01/10/18	Unit heater and gas heater are served by black-iron natural gas piping system.
<b>D3020 Heat Generating Systems</b>	1989	1935	5	DCS 01/10/18	Boiler abandoned in place along with piping and radiators.
<b>D3040 HVAC Distribution Systems</b>	1889	1935	4	DCS 01/10/18	Modernization (1935) hydronic distribution system abandoned in place. Mix of older and somewhat newer exhaust fans in fair condition.
<b>D3050 Terminal and Package Units</b>	1889	1998	4	DCS 01/10/18	Building is currently served by ductless split-Dx heat pumps in station house (living and office) with gas-fired unit heaters in apparatus bay and portions of basement.
<b>D3060 Controls and Instrumentation</b>					

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.4</b>		
<b>HVAC</b>					
<b>D3060 Controls and Instrumentation</b>	1889	1998	3	DCS 01/10/18	Heat pumps are controlled by programmable T-stats. Unit heaters by manual T-stats. No DDC.
<b>D3090 Other HVAC Systems and Equipment</b>	1889	1934	3	DCS 01/10/18	Apparatus bay is ventilated by rooftop exhaust fan (or neiderman system); currently leaking rain water but this is a minor maintenance issue.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>	1889	1935	2	DCS 01/10/18	Building is protected by wet pipe type sprinkler system with antifreeze.
<b>D4030 Fire Protection Specialties</b>	1889	1980	3	DCS 01/10/18	Extinguishers on hooks.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1889	1934	4	DCS 01/10/18	A 400A service is split between (2) 200A disconnects on the east side of the building. These disconnects feed old branch panels inside the building.
<b>D5020 Lighting and Branch Wiring</b>	1889	1980	3	DCS 01/10/18	Mostly aging T8 with manual control lighting. Aging conduit, wiring & devices.
<b>D5032 Low Voltage Communication</b>	1889	2000	3	DCS 01/10/18	Mix of abandoned in place, older, somewhat newer and newer low voltage systems, including modern Avaya phone system; no issues reported. Excessive obsolete and/or abandoned comm wiring should be removed.
<b>D5037 Low Voltage Fire Alarm</b>	1889	2000	3	DCS 02/23/18	Aging, but functional zoned fire alarm system with indirect monitoring via sprinkler system. Several battery-powered CO sensors in living area.



## Facility Summary

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### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.4</b>		
<b>Electrical</b>					
<b>D5038 Low Voltage Security</b>	1889	2000	3	DCS 01/10/18	Minimal electronic security at this site.
<b>D5039 Low Voltage Data</b>	1889	2000	3	DCS 02/23/18	Modern high-speed data service with Cisco router.
<b>D5090 Other Electrical Systems</b>	1889	2000	3	DCS 01/10/18	Gen Trans manual transfer switch for portable generator. Some egress lighting; some exit placards - required to update to code.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1889	1934	3	DCS 01/10/18	Casework and counters with wear & tear.
<b>F Special Construction</b>			<b>2.5</b>		
<b>Special Construction</b>					
<b>F1010 Special Structures</b>	1889	1935	3	DCS 01/10/18	Racquet ball court in basement in well-used condition.
<b>F1050 Special Controls and Instrumentation</b>	1889	2015	2	DCS 01/10/18	Newer (2015) tone alarm system with radio antenna.

# Facility Summary

City of Tacoma  
 Fire Station #02  
 Infrastructure

2701 Tacoma Avenue South  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1889	1935	5	TRB 01/10/18	Asphalt drive entrance to building.
<b>G2020 Parking Lots</b>	1889	1935	5	TRB 01/10/18	Asphalt parking at back of building. Asphalt/concrete parking at front of building with wood wheel stops.
<b>G2030 Pedestrian Paving</b>	1889	1934	4	TRB 01/10/18	Concrete perimeter sidewalks with asphalt infill areas.
<b>G2040 Site Development</b>	1889	1935	4	TRB 01/10/18	Chain link fencing and concrete retaining walls.
<b>G2050 Landscaping</b>	1889	1935	4	TRB 01/10/18	Shrubs, and trees.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1889	1935	3	DCS 01/20/18	City water.
<b>G3020 Sanitary Sewer</b>	1889	1935	3	DCS 01/10/18	City sewer.
<b>G3030 Storm Sewer</b>	1889	1935	3	DCS 01/10/18	
<b>G3060 Fuel Distribution</b>	1889	1980	3	DCS 01/10/18	PSE natural gas meter #952108 with 1,000 cfm capacity.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1889	1980	3	DCS 01/10/18	Overhead power from pole to building with Tacoma Power meter #96837040, then from two disconnects to two older inside panels.

# Facility Summary

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

##### G4020 Site Lighting

1889 2015 3

DCS 01/10/09 HID wallpacks at truck doors and entry, (1) mercury vapor area light at east entry.

##### G4030 Site Communications and Security

1898 2000 3

DCS 01/10/18 Telecom services from overhead; opportunity to run underground in conjunction with other site work.



## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Fire Station #02

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Fire Station #2 Building	Basements	\$75,000	\$18,750	\$18,750	\$61,875	\$174,375
	Superstructure	\$12,000	\$3,000	\$3,000	\$9,900	\$27,900
	Exterior Closure	\$35,000	\$8,750	\$8,750	\$28,875	\$81,375
	Roofing	\$15,000	\$3,750	\$3,750	\$12,375	\$34,875
	Interior Finishes	\$27,683	\$6,921	\$6,921	\$22,838	\$64,362
	Plumbing	\$30,880	\$7,720	\$7,720	\$25,476	\$71,796
	HVAC	\$97,760	\$24,440	\$24,440	\$80,652	\$227,292
	Fire Protection	\$3,500	\$875	\$875	\$2,888	\$8,138
	Electrical	\$38,720	\$9,680	\$9,680	\$31,944	\$90,024
	Equipment	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	<b>Facility Total</b>	<b>\$345,543</b>	<b>\$86,386</b>	<b>\$86,386</b>	<b>\$285,073</b>	<b>\$803,386</b>
Infrastructure	Site Improvements	\$133,550	\$33,388	\$33,388	\$110,179	\$310,504
	<b>Facility Total</b>	<b>\$133,550</b>	<b>\$33,388</b>	<b>\$33,388</b>	<b>\$110,179</b>	<b>\$310,504</b>
	<b>Site Total</b>	<b>\$479,093</b>	<b>\$119,773</b>	<b>\$119,773</b>	<b>\$395,251</b>	<b>\$1,113,890</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #02

Total Observed Deficiency Repair Direct Cost : \$479,093

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Station #2 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$75,000</b>
<b>System: Basements</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$174,375</b>
<b>Basement Walls</b>									
Basement Wall	5	1	2018		1	\$75,000.00	LS	\$75,000	\$174,375

Cracks, leaks, un-reinforced masonry.

Recommend seismic condition evaluation and any associated seismic and structural life-safety upgrades, in addition to addressing cracks, leaks, and concrete restoration.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #02

Total Observed Deficiency Repair Direct Cost : \$479,093

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #2 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$12,000</b>
<b>System: Superstructure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$27,900</b>
<b>Floor Construction</b>									
Steel beams	4	0	2018		2	\$6,000.00	LS	\$12,000	\$27,900

Steel beams supporting concrete sidewalk on north side of building are deteriorated.

Temporary: Replace deteriorated steel beams. Long term: Demo sidewalk and sidewalk light well, infill arches, provide sub-grade drainage system, and backfill along entire south wall - see site infrastructure for entire sidewalk replacement.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

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				Action					
<b>Facility: Fire Station #2 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$35,000</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$81,375</b>
<b>Exterior Walls</b>									
Cement Plaster	3	5	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Southwest corner veneer plaster cracked and buckling.

Determine cause (and if structural), repair and replace plaster finish, and re-paint.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Fire Station #2 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$35,000
System: Exterior Closure					Total System Deficiency Repair Cost (Marked Up):				\$81,375
<b>Exterior Windows</b>									
Exterior Windows	4	2	2018		30	\$1,000.00	EA	\$30,000	\$69,750

Original single pane wood windows.

Retrofit/replace existing windows with historically appropriate thermally glazed window system.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Station #2 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$15,000</b>	
<b>System: Roofing</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$34,875</b>	
<b>Roof Openings</b>										
Skylight	5	1	2018		1	\$10,000.00	LS	\$10,000	\$23,250	

Old cracked wire glass and leaking pyramid skylight, single pane.

Remove and replace curb, flashing, and skylight with new.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #2 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$15,000</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$34,875</b>
<b>Projections</b>									
Other	4	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Cracks in exterior walls. Tower is the source of numerous leaks in the building.

Investigate seismic condition of tower. Repair and seal cracks in exterior walls, re-coat. Recommend elastomeric paint system to provide greater resiliency. Review all flashing conditions, especially roof to wall flashing conditions as highest likely location for moisture penetration. Note roof of tower not observed in this field observation.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #02

Total Observed Deficiency Repair Direct Cost : \$479,093

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #2 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$27,683
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$64,362
<b>Wall Finishes</b>									
Paint	3	2	2018		3,000	\$3.00	SF	\$9,000	\$20,925

Past water damage around skylight, years of grime in apparatus bay.

Clean, repair, and paint.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Station #2 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$27,683</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$64,362</b>
<b>Floor Finishes</b>									
Carpet	4	3	2018		900	\$7.50	SF	\$6,750	\$15,694

Carpet worn, torn, and end of life.

Remove carpet and adhesive, clean, buff, and seal exposed concrete as finished floor. Recommend either carpet replacement or carpet removal.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #02

Total Observed Deficiency Repair Direct Cost : \$479,093

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #2 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$27,683</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$64,362</b>
<b>Floor Finishes</b>									
Floor Finishes	4	2	2018		400	\$10.00	SF	\$4,000	\$9,300

Kitchen floor paint is worn.

Provide seam sealed marmoleum sheet good flooring in kitchen (recommend cove base for sanitation).



## Detailed Assessment - Observed Deficiencies 2018 - 2023

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				Action					
<b>Facility: Fire Station #2 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$27,683</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$64,362</b>
<b>Floor Finishes</b>									
Other	4	4	2018		900	\$6.00	SF	\$5,400	\$12,555

Original wood floors have traffic wear.

Have wood floor stripped and sanded and refinished (recommend swedish finish for durability).





## Detailed Assessment - Observed Deficiencies 2018 - 2023

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<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #2 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$27,683</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$64,362</b>
<b>Ceiling Finishes</b>									
Suspended acoustic ceiling	4	2	2018		1,013	\$2.50	SF	\$2,533	\$5,888

Acoustic ceiling is degraded and is nearing the end of useful life.

Replace with new seismic upgraded suspended acoustic ceiling system.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

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<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #2 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$30,880
System: Plumbing					Total System Deficiency Repair Cost (Marked Up):				\$71,797
<b>Plumbing Fixtures</b>									
Fixtures & trim	4	5	2018		7	\$1,000.00	EA	\$7,000	\$16,275
Original and old fixtures obsolete and undersized.				Replace with modern fixtures.					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

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<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #2 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$30,880</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$71,797</b>
<b>Domestic Water Distribution</b>									
Galvanized steel piping	4	2	2018		16,380	\$1.00	SF	\$16,380	\$38,084

Galvanized piping is past its useful life span and beginning to corrode.

Replace piping with copper and/or PEX.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Total Observed Deficiency Repair Direct Cost : \$479,093

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Station #2 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$30,880</b>	
<b>System: Plumbing</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$71,797</b>	
<b>Rain Water Drainage</b>										
Roof Drain	4	2	2018		1	\$7,500.00	LS	\$7,500	\$17,438	

Insufficient roof drainage - only two scuppers & DS's for entire roof with no overflow.

Roof drainage per code in conjunction with resloping roof.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Total Observed Deficiency Repair Direct Cost : \$479,093

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #2 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$97,760
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$227,292
<b>Heat Generating Systems</b>									
Boiler	5	0	2018		1	\$35,000.00	LS	\$35,000	\$81,375

Boiler failed and abandoned in place.

Replace with new high-efficiency boiler.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #02

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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #2 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$97,760</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$227,292</b>
<b>HVAC Distribution Systems</b>									
Hydronic Heating	5	0	2018		16,380	\$2.00	SF	\$32,760	\$76,167

Modernization (1934) hydronic heating system abandoned in place.

Renew hydronic system and restore to operation.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Fire Station #2 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$97,760</b>	
<b>System: HVAC</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$227,292</b>	
<b>Terminal and Package Units</b>										
Condensing units	4	5	2018		6	\$5,000.00	EA	\$30,000	\$69,750	

Aging rooftop condensing units will soon approach end of life.

Budget for replacement prior to failure.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

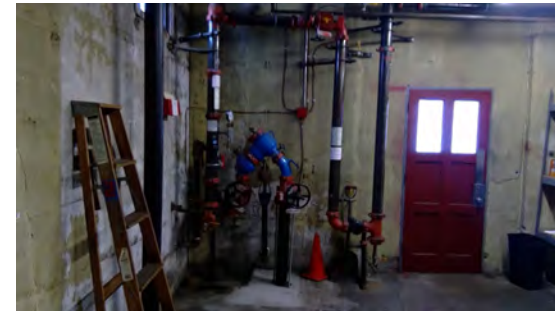
City of Tacoma  
Site: Fire Station #02

Total Observed Deficiency Repair Direct Cost : \$479,093

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #2 Building</b> <b>System: Fire Protection</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$3,500</b> <b>Total System Deficiency Repair Cost (Marked Up): \$8,138</b>				
<b>Fire Protection Sprinkler Systems</b>									
Sprinkler system	5	0	2018		1	\$3,500.00	EA	\$3,500	\$8,138

Sprinkler system containing antifreeze is required to have an expansion tank installed. It is missing on this building riser.

Provide expansion tank rated for fire protection system use on sprinkler riser.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #02

Total Observed Deficiency Repair Direct Cost : \$479,093

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: Fire Station #2 Building									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: Electrical									\$38,720	
<b>Electrical Service and Distribution</b>										
Electrical branch panels	4	4	2018		2	\$3,000.00	EA	\$6,000	\$13,950	

Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$38,720  
Total System Deficiency Repair Cost (Marked Up): \$90,024

Zinsco panels are aged and obsolete.

Replace panels.

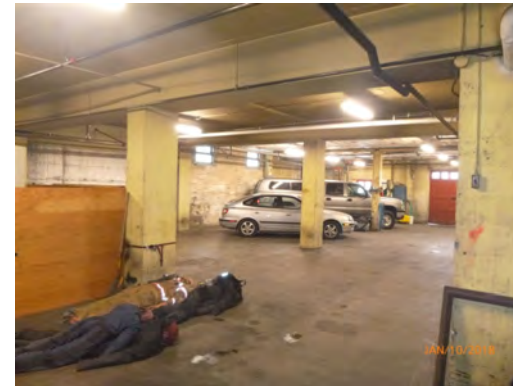


## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #02

Total Observed Deficiency Repair Direct Cost : \$479,093

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #2 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$38,720
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$90,024
<b>Lighting and Branch Wiring</b>									
Branch wiring and devices	4	3	2018		16,360	\$2.00	SF	\$32,720	\$76,074
Older conduit, wiring & devices past useful life.				Replace older.					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #02

Total Observed Deficiency Repair Direct Cost : \$479,093

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				<b>Deficiency</b>					
				<b>Action</b>					
Facility: Fire Station #2 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$10,000
System: Equipment					Total System Deficiency Repair Cost (Marked Up):				\$23,250
<b>Commercial Equipment</b>									
Other	4	3	2018		1	\$10,000.00	LS	\$10,000	\$23,250

Wear & tear with damaged surfaces.

Refurbish worn surfaces to extend life before modernization.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #02

Total Observed Deficiency Repair Direct Cost : \$479,093

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Infrastructure				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$133,550	
System: Site Improvements				Total System Deficiency Repair Cost (Marked Up):					\$310,505	
<b>Roadways</b>										
Asphalt	5	2	2018		2,375	\$10.00	SF	\$23,750	\$55,219	

Asphalt is severely cracked, broken and contains potholes. Systems have reached useful life.

Remove asphalt drive to building and replace with concrete to accommodate heavy loading.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #02

Total Observed Deficiency Repair Direct Cost : \$479,093

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Infrastructure					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$133,550
System: Site Improvements					Total System Deficiency Repair Cost (Marked Up):				\$310,505
<b>Parking Lots</b>									
Asphalt	5	2	2018		1,900	\$7.00	SF	\$13,300	\$30,923

Asphalt/concrete parking at front of building is cracked, broken, and badly deteriorated.

Remove and replace asphalt parking at front building.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #02

Total Observed Deficiency Repair Direct Cost : \$479,093

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Infrastructure				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$133,550	
System: Site Improvements				Total System Deficiency Repair Cost (Marked Up):					\$310,505	
<b>Parking Lots</b>										
Other	5	0	2018		20	\$300.00	EA	\$6,000	\$13,950	

Wood wheel stops are broken and displaced.

Replace wood wheel stops with modern anchored precast or composite wheel stops.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #02

Total Observed Deficiency Repair Direct Cost : \$479,093

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Infrastructure</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$133,550</b>
<b>System: Site Improvements</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$310,505</b>
<b>Pedestrian Paving</b>									
Concrete	4	3	2018		6,000	\$12.00	SF	\$72,000	\$167,400

All perimeter sidewalks are cracked, broken and have been patched with asphalt. Asphalt infill areas are badly deteriorated. North side sidewalk failing, lightwell leaking into interior of building (system rusting and dangerous - serious lifesafety risk of collapse).

Remove North sidewalk and lightwell systems. Remove and replace perimeter sidewalks. Replace asphalt infill areas with concrete.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #02

Total Observed Deficiency Repair Direct Cost : \$479,093

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$133,550</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$310,505</b>	
<b>Site Development</b>										
Concrete wall	4	3	2018		450	\$30.00	SF	\$13,500	\$31,388	

Concrete retaining wall on east lot supporting lower lot and garages at end of life, canting outward with large cracks, broken into panels tipping into sidewalk, and exposed the reinforcing.

Demo and replace retaining wall.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #02

Total Observed Deficiency Repair Direct Cost : \$479,093

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Infrastructure</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>						<b>\$133,550</b>
<b>System: Site Improvements</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>						<b>\$310,505</b>
<b>Landscaping</b>										
Landscaping	4	3	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Shrubs and trees are overgrown. Grass areas have turned to weeds. Landscape retaining logs rotten.

Restore landscape areas to good condition - eliminate weeds. Replace landscape retaining. Limb trees away from building.





## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #02

Total Site Opportunity Cost: \$572,405

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Station #2 Building</b> <b>System: Exterior Closure</b> <span style="float: right;"><b>Total Cost: \$20,320</b></span>						
B2020	Exterior Windows	Wood windows - Windows have single pane, uninsulated glazing	254.00	\$80.00	SF	\$20,320
		Replace windows and frames with insulated glazing in clad wood frames.				
<b>Facility: Fire Station #2 Building</b> <b>System: Roofing</b> <span style="float: right;"><b>Total Cost: \$8,000</b></span>						
B3010	Roof Coverings	No fall restraint.	2.00	\$4,000.00	EA	\$8,000
		Add fall restraint at non parapet roof areas.				
<b>Facility: Fire Station #2 Building</b> <b>System: Vertical Transportation</b> <span style="float: right;"><b>Total Cost: \$150,000</b></span>						
D1010	Elevators and Lifts	No elevator from daylight basement to main floor; abandoned hose tower.	1.00	\$150,000.00	LS	\$150,000
		Install new two-stop elevator at hose tower.				
<b>Facility: Fire Station #2 Building</b> <b>System: Plumbing</b> <span style="float: right;"><b>Total Cost: \$25,000</b></span>						
D2010	Plumbing Fixtures	Only one bathroom on main floor and no bathrooms at basement level, except for make-shift urinal and lav on wall of exercise room.	2.00	\$10,000.00	LS	\$20,000
		Construct additional bathroom including shower on main floor. Construct proper toilet room at basement level.				
D2030	Sanitary Waste	No floor or trench drains at apparatus bays.	1.00	\$5,000.00	LS	\$5,000
		Add floor and/or trench drains at apparatus bays.				
<b>Facility: Fire Station #2 Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$102,710</b></span>						
D3020	Heat Generating Systems	Minimal heat in basement.	8,000.00	\$3.00	SF	\$24,000
		Add partial heat to all basement areas.				
D3030	Cooling Generating Systems					

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #02

Total Site Opportunity Cost: **\$572,405**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
	Large skylight well in Ap Bay.	Install operable skylight for natural ventilation cooling of Ap Bay during warm weather.	1.00	\$5,000.00	LS	\$5,000
D3040	HVAC Distribution Systems					
	NV via operable windows.	Mechanical ventilation via HRV system.	16,380.00	\$1.50	SF	\$24,570
D3050	Terminal and Package Units					
	Natural ventilation system via operable windows.	Install heat recovery ventilation system.	16,380.00	\$1.50		\$24,570
D3060	Controls and Instrumentation					
	No DDC.	DDC per City standard.	16,380.00	\$1.50	SF	\$24,570
<b>Facility: Fire Station #2 Building</b>						
<b>System: Fire Protection Total Cost: \$12,000</b>						
D4010	Fire Protection Sprinkler Systems					
	Glycol-filled sprinkler system for un-heated space.	Upgrade to modern dry-pipe system.	8,000.00	\$1.50	SF	\$12,000
<b>Facility: Fire Station #2 Building</b>						
<b>System: Electrical Total Cost: \$214,375</b>						
D5020	Lighting and Branch Wiring					
	Fluorescent lighting with manual control.	LED with automatic control.	16,360.00	\$5.00	SF	\$81,800
D5032	Low Voltage Communication					
	Mix of older and somewhat newer low voltage systems.	Upgrade all to City standard.	16,380.00	\$1.50	SF	\$24,570
D5037	Low Voltage Fire Alarm					
	Indirect monitoring via fire sprinkler system.	Install modern addressable system with full detection.	16,380.00	\$2.00	SF	\$32,760
D5038	Low Voltage Security					
	Mix of older and somewhat newer low voltage systems.	Upgrade all to City standard.	16,830.00	\$1.50	SF	\$25,245
D5090	Other Electrical Systems					
	Small portable standby generator.	Install full-size (30 kW) diesel generator.	1.00	\$50,000.00		\$50,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #02

Total Site Opportunity Cost: \$572,405

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
Facility: Infrastructure						
System: Site Improvements	Total Cost: \$5,000					
G2050	Landscaping					
	Lower gravel triangular lot collects abandoned cars every other week	Install security fencing at lower gravel lot	100.00	\$50.00	LF	\$5,000
Facility: Infrastructure						
System: Site Civil / Mechanical Utilities	Total Cost: \$25,000					
G3060	Fuel Distribution					
	No vehicle fueling system.	Add vehicle fueling similar to other fire stations.	1.00	\$25,000.00	LS	\$25,000
Facility: Infrastructure						
System: Site Electrical utilities	Total Cost: \$10,000					
G4010	Electrical Distribution					
	Overhead power service.	Underground power service.	1.00	\$10,000.00	LS	\$10,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Facility Summary

City of Tacoma  
 Fire Station #03  
 Fire Station #3 Building

206 Browns Point Boulevard  
 Tacoma, WA 98407

Facility Size - Gross S.F. 2,816  
 Year Of Original Construction 1980  
 Facility Use Type Fire Station  
 Construction Type Light  
 # of Floors 1  
 Energy Source Electric  
 Year Of Last Renovation 1980  
 Historic Register No



FCI (BMAR/CRV)	0.12	Predicted Renewal Budget (20 yrs)	\$439,446
FCI (Bldg OD/CRV)	0.16	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$1,108,000	<b>Building</b>	\$177,510
BMAR (Backlog of Maintenance and Repair)	\$133,000	<b>Infrastructure</b>	\$86,188
Beginning Budget Year	2018	<b>Total</b>	\$263,698
		<b>Opportunity Total Project Cost</b>	\$390,237

## Facility Condition Summary

Fire Station #3 was constructed in 1980 as a single story wood frame building with mostly brick veneer. 2,816 sq. ft., single-bay Fire Station. Asphalt roof on wood structure, stucco, and lap siding. Aluminum punched windows. The building is in good condition, but could use an electrical service and distribution up grade, as well as miscellaneous repairs to the exterior asphalt and concrete surfaces.

# Facility Summary

City of Tacoma  
 Fire Station #03  
 Fire Station #3 Building

206 Browns Point Boulevard  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1980	1980	2	TRB 01/04/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	1980	1980	2	TRB 01/04/18	Concrete slab on grade. Minor cracking and stains in apparatus bay.
<b>B Shell</b>			<b>2.7</b>		
<b>Superstructure</b>					
<b>B1020 Roof Construction</b>	1980	1980	2	TRB 01/04/18	Pre-engineered wood trusses with plywood sheathing supported by wood stud walls.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1980	2012	3	TRB 01/04/18	Wood stud walls with plywood sheathing. Exterior finishes consist of brick veneer, stucco and beveled wood siding.
<b>B2020 Exterior Windows</b>	1980	1980	3	TRB 01/04/18	Anodized aluminum frames with insulated glass.
<b>B2030 Exterior Doors</b>	1980	1980	3	TRB 01/04/18	Metal doors and metal frames. Single Truck OH Sectional door delaminating and nearing end of life. Replace OH Door.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1980	1980	3	TRB 01/04/18	Asphalt shingle and built up roofing. Aging, with some moss growth. Recommend moss treat and removal to extend life. No fall protection.
<b>C Interiors</b>			<b>2.7</b>		
<b>Interior Construction</b>					



# Facility Summary

City of Tacoma  
 Fire Station #03  
 Fire Station #3 Building

206 Browns Point Boulevard  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.7</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1980	1980	2	TRB 01/04/18	Wood frame walls with gypsum wallboard finish. Painted MDO wainscot in apparatus bay.
<b>C1020 Interior Doors</b>	1980	1980	2	TRB 01/04/18	Wood doors in wood frames, metal doors in metal frames. No exit signs. No ADA hardware (knobs) at entry and office door. Paint worn on door to bay.
<b>C1030 Fittings</b>	1980	1980	3	TRB 01/04/18	Built-in wall mounted wood gear racks for responder gear (helmets, outerwear, boots). Metal industrial shelving. Residential appliances in kitchen (range/oven, countertop microwave, newer refrigerator).
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1980	1980	3	TRB 01/04/18	Painted gypsum wallboard.
<b>C3020 Floor Finishes</b>	1980	2008	3	TRB 01/04/18	Carpet has areas needing robber edge reducer replaced. Sheet goods elsewhere in good condition but dated,
<b>C3030 Ceiling Finishes</b>	1980	1980	4	TRB 01/04/18	Adhesive applied acoustic tile and painted gypsum board. Some tiles stained and damaged and discolored. Recommend replacement or spot repairs and painting to refresh and extend the useful life.
<b>D Services</b>			<b>3.0</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1980	1980	3	DCS 01/04/18	Tank-type floor-mounted toilets slow to flush, wall-mounted urinal too high, lavatories with failing faucets, and fiberglass showers aging and too small. Opportunity to upgrade toilets to

# Facility Summary

City of Tacoma  
 Fire Station #03  
 Fire Station #3 Building

206 Browns Point Boulevard  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					pressure-assist type to speed flushing.
<b>D2020 Domestic Water Distribution</b>	1980	1980	3	DCS 05/28/09	City water at 50 psig to aging but functional copper water distribution piping; newer RPBP. Newer (2015) Rudd 80 gal electric tank-type DHW heater with no circ pump.
<b>D2030 Sanitary Waste</b>	1980	2010	2	DCS 01/04/18	Cast iron DW&V piping with main drain replaced in 2010 due to sagging pipe under the concrete SOG - no issues since; tested fixtures flush and drain well, excepting slow water closets due to tank-type, not DW&V piping.
<b>D2040 Rain Water Drainage</b>	1980	1980	3	DCS 01/04/18	French (hidden) gutters at lower medium sloped roof to storm system, overflow during heavy rain and problematic due to heavily treed site. Unclear high-roof drains but no issues reported.
<b>D2090 Other Plumbing Systems</b>	1980	1980	3	DCS 01/04/18	Apparatus bay trench drain reportedly to sewer, but no OWS. No compressed air system.
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>	1980	1980	3	DCS 01/04/18	Ductwork appears to be galvanized steel with single zone for entire station house (office and living) area. Exhaust fans for bathrooms are failing.
<b>D3050 Terminal and Package Units</b>	1980	2008	2	DCS 01/04/18	Apparatus bay is served by two electric unit heaters. Station house served by newer (2008) Carrier electric resistance heat forced air furnace in closet with fixed outside air to return air plenum. Two through window PTACs, one Frigidaire and one Sharp serving the dormatory and dayroom spaces separately - opportunity to upgrade to split system A/C throughout.

## Facility Summary

City of Tacoma  
 Fire Station #03  
 Fire Station #3 Building

206 Browns Point Boulevard  
 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>HVAC</b>					
<b>D3060 Controls and Instrumentation</b>	1980	1980	3	DCS 01/04/18	Stand alone controls, aging but functional; consider upgrade to City standard.
<b>D3090 Other HVAC Systems and Equipment</b>	1980	2011	2	DCS 01/04/18	Original apparatus bay exhaust system abandoned in place and replaced with new Nederman vehicle engine exhaust system in good condition.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>	1980	1980	2	DCS 01/04/18	Building is protected by wet-pipe sprinkler system filled with 50/50 water/propylene glycol for freeze protection; expansion tank may not be rated for sprinkler system use and is not securely mounted. Service is 4-inch, riser is 2.5-inch to smaller distribution piping.
<b>D4030 Fire Protection Specialties</b>	1980	1980	3	DCS 01/04/18	Fire extinguishers on hooks; small first aid kit; no apparent AED.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1980	1980	4	DCS 01/04/18	Main distribution panel is aged GE 400A supplying two 200A branch panels; main panel is obsolete, but branch panels may have 5 to 10 years remaining life.
<b>D5020 Lighting and Branch Wiring</b>	1980	2005	3	DCS 01/04/18	Older industrial fixtures in apparatus bay with somewhat newer T8 ballasts & lamps; similar for surface-mounted fixtures in office and living area. Opportunity to upgrade to LED and add automatic controls.
<b>D5032 Low Voltage Communication</b>	1980	2000	3	DCS 01/04/18	Avaya phone system in fair condition. Door bell at front door.
<b>D5037 Low Voltage Fire Alarm</b>					

## Facility Summary

City of Tacoma  
 Fire Station #03  
 Fire Station #3 Building

206 Browns Point Boulevard  
 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>Electrical</b>					
	1980	2000	3	DCS 01/04/18	Aging tone alarm system through Bogan PA, but reportedly acceptable to Station staff. Older Silent Knight fire alarm system with newer (2017) wireless alarm transmitter.
<b>D5038 Low Voltage Security</b>	1988	2000	3	DCS 01/04/18	Little or no electronic security.
<b>D5039 Low Voltage Data</b>	1980	1980	3	DCS 02/23/18	Opportunity to create proper comm room or closet. No issues reported by station or maintenance staff. Newer Cisco WAP in good condition.
<b>D5090 Other Electrical Systems</b>	1980	2000	3	DCS 01/04/18	Small portable gas-powered generator with 30A capacity, extension cord, and standby power breaker box - all manual. Opportunity for permanent generator. Several battery-backed egress lights, but few or no exit signs; not up to code.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1980	1980	3	DCS 01/04/18	Aging cabinetry showing signs of wear and age; recondition to extend life prior to full modernization. Make-shift laundry with washing machine hooked-up to mop sink in apparatus bay.
<b>F Special Construction</b>			<b>3.0</b>		
<b>Special Construction</b>					
<b>F1050 Special Controls and Instrumentation</b>	1980	2000	3	DCS 01/04/18	Tone alarm system with weak notification, but reportedly acceptable to station staff.

# Facility Summary

City of Tacoma  
 Fire Station #03  
 Infrastructure

206 Browns Point Boulevard  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1980	1980	4	TRB 01/04/18	Concrete and asphalt drive to building. Asphalt between street and concrete panels has some minor cracking. Seal coating is warranted.
<b>G2020 Parking Lots</b>	1980	1980	4	TRB 01/04/18	Asphalt parking area adjacent to building, and along frontage.
<b>G2030 Pedestrian Paving</b>	1980	1980	4	TRB 01/04/18	Asphalt pathways around building.
<b>G2040 Site Development</b>	1980	1980	3	TRB 01/04/18	Wood fencing - post and rails sound, 1x4 boards are beginning to deteriorate.
<b>G2050 Landscaping</b>	1980	1980	2	TRB 01/04/18	Grass, mature shrubs and trees in good health. Tree limbs into walkways need to be pruned.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1980	1980	3	DCS 01/04/18	City water supplying domestic and fire services with no issues reported.
<b>G3020 Sanitary Sewer</b>	1980	1980	3	DCS 01/04/18	City side sewer with no issues reported since repair of "belly sag" sewer main leaving building in 2010.
<b>G3030 Storm Sewer</b>	1980	1980	3	DCS 01/04/18	Roof and paved area drainage to catch basin, then off-site to adjacent park, library or street system; no issues reported or observed.
<b>G3060 Fuel Distribution</b>	1980	1980	4	DCS 01/04/18	ConVault diesel fuel oil storage tank for vehicle fueling including dispenser and metering device; aging with unclear operability of metering device.

# Facility Summary

City of Tacoma  
 Fire Station #03  
 Infrastructure

206 Browns Point Boulevard  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1980	2010	2	DCS 01/04/18	Utility power underground from street to relatively new utility-owned pad-mounted transformer, then underground to utility room with Tacoma Power meter #55442153; no issues reported.
<b>G4020 Site Lighting</b>	1980	2015	3	DCS 01/04/18	Newer LED upright at flag pole. Newer LED head on pole at parking area. Original HID recessed can-lights at eaves in poor condition.
<b>G4030 Site Communications and Security</b>	1980	1980	3	DCS 01/04/18	Mix of mostly older and some newer communications with no issues reported. Galaxy reader board at street is aging, but operable with no issues reported.

## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Fire Station #03

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Fire Station #3 Building	Exterior Closure	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	Interior Finishes	\$35,000	\$8,750	\$8,750	\$28,875	\$81,375
	Plumbing	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Electrical	\$8,448	\$2,112	\$2,112	\$6,970	\$19,642
	Equipment	\$17,900	\$4,475	\$4,475	\$14,768	\$41,618
	<b>Facility Total</b>	<b>\$76,348</b>	<b>\$19,087</b>	<b>\$19,087</b>	<b>\$62,987</b>	<b>\$177,509</b>
Infrastructure	Site Improvements	\$32,070	\$8,018	\$8,018	\$26,458	\$74,563
	Site Civil / Mechanical Utilities	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	<b>Facility Total</b>	<b>\$37,070</b>	<b>\$9,268</b>	<b>\$9,268</b>	<b>\$30,583</b>	<b>\$86,188</b>
	<b>Site Total</b>	<b>\$113,418</b>	<b>\$28,355</b>	<b>\$28,355</b>	<b>\$93,570</b>	<b>\$263,697</b>





# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #03

Total Observed Deficiency Repair Direct Cost : \$113,418

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility:</b> Fire Station #3 Building									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
<b>System:</b> Exterior Closure									<b>\$10,000</b>	
									<b>Total System Deficiency Repair Cost (Marked Up):</b>	
									<b>\$23,250</b>	
<b>Exterior Walls</b>										
Brick	3	5	2018		4,000	\$2.50		\$10,000	\$23,250	

Deficiency: Sealer on brick is worn. Moss growth occurring. Some efflorescence noted.

Action: Clean and seal brick.



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<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #3 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$35,000
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$81,375
<b>Wall Finishes</b>									
Paint	3	5	2018		10,000	\$3.00	SF	\$30,000	\$69,750

Paint on the walls is showing wear.

Patch, clean and paint walls.



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<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #3 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$35,000</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$81,375</b>
<b>Ceiling Finishes</b>									
Acoustical Ceiling Tile	4	5	2018		2,000	\$2.50	EA	\$5,000	\$11,625

Ceiling tiles show areas of damage, and are generally dirty from years of service, most obvious near changed light fixtures.

Spot replace damaged tiles and paint ceiling tile to extend life and improve general interior aesthetics.



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				Action						
<b>Deficiency</b>										
Facility: Fire Station #3 Building									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: Plumbing									\$5,000	
<b>Plumbing Fixtures</b>									Total System Deficiency Repair Cost (Marked Up):	
Fixtures									\$11,625	
	4	3	2018		5	\$1,000.00	EA	\$5,000	\$11,625	

Urinal mounted too high; lavatory trim at end of life; showers near end of life and too small.

Lower urinal, replace lavatory trim and replace shower stalls.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #3 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$8,448
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$19,642
<b>Electrical Service and Distribution</b>									
Electrical distribution system	4	5	2018		2,816	\$3.00	SF	\$8,448	\$19,642

Obsolete main distribution panel.

Replace main panel, including addition of TVSS.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

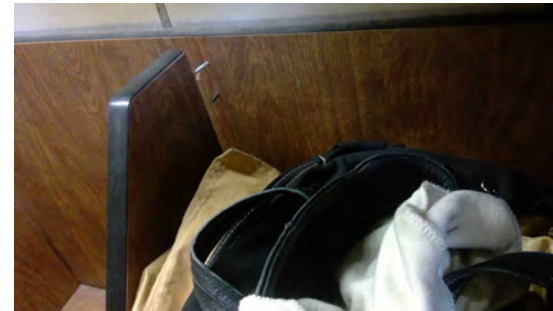
City of Tacoma  
Site: Fire Station #03

Total Observed Deficiency Repair Direct Cost : \$113,418

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #3 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$17,900
System: Equipment					Total System Deficiency Repair Cost (Marked Up):				\$41,618
<b>Commercial Equipment</b>									
Laundry equipment	4	3	2018		12	\$450.00	EA	\$5,400	\$12,555

Turnout pans (firefighter boot storage) are falling apart.

Replace turnout built in system with durable system.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Station #3 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$17,900</b>	
<b>System: Equipment</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$41,618</b>	
<b>Commercial Equipment</b>										
Laundry equipment	4	3	2018		5	\$1,000.00	EA	\$5,000	\$11,625	
Aging cabinetry showing wear.				Recondition to extend life.						



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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Station #3 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$17,900</b>	
<b>System: Equipment</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$41,618</b>	
<b>Commercial Equipment</b>										
Washers/ Dryers	4	3	2018		1	\$7,500.00	LS	\$7,500	\$17,438	

Washer and dryer appliances are aging and worn; washer is connected to mop sink in apparatus bay.

Create proper laundry room area and replace appliances.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

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				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$32,070</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$74,563</b>	
<b>Roadways</b>										
Asphalt Access Road	5	1	2018		2,000	\$7.00	SF	\$14,000	\$32,550	

Road/drive edge eroding creating hazard.

Repair frontage edge.



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				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
<b>System: Site Improvements</b>									<b>\$32,070</b>	
									<b>Total System Deficiency Repair Cost (Marked Up):</b>	
									<b>\$74,563</b>	
<b>Roadways</b>										
Concrete	4	3	2018		360	\$12.00	SF	\$4,320	\$10,044	

Concrete panels are badly cracked and broken.

Remove and replace concrete panels.



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				Action					
<b>Deficiency</b>									
Facility: Infrastructure				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$32,070
System: Site Improvements				Total System Deficiency Repair Cost (Marked Up):					\$74,563
<b>Parking Lots</b>									
Asphalt	4	3	2018		500	\$7.50	EA	\$3,750	\$8,719

Areas of asphalt, especially where water line was installed, is severely cracked and alligatored.

Remove and replace asphalt, add seal coat to extend lot life, Paint stripe parking.



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				Action						
<b>Deficiency</b>										
Facility: Infrastructure									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: Site Improvements									\$32,070	
<b>Pedestrian Paving</b>									Total System Deficiency Repair Cost (Marked Up):	
Asphalt									\$74,563	
	4	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Asphalt pathways degraded has root buckling and severe cracks, and asphalt walk along frontage has severe root intrusion.

Remove and replace damaged asphalt areas.



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				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
<b>System: Site Improvements</b>									<b>\$32,070</b>	
<b>Site Development</b>									<b>Total System Deficiency Repair Cost (Marked Up):</b>	
Wood fence	3	4	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Boards on fence are beginning to deteriorate. Supports and rails are OK.

Replace fence boards.



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<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$5,000</b>	
<b>System: Site Civil / Mechanical Utilities</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$11,625</b>	
<b>Fuel Distribution</b>										
Fuel oil storage tank	4	3	2018		1	\$5,000.00	LF	\$5,000	\$11,625	
Fuel oil storage tank is cracking with moss growing and unclear metering device operability.				Refurbish.						



## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #03

Total Site Opportunity Cost: \$167,844

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Station #3 Building</b>						
<b>System: Roofing Total Cost: \$15,000</b>						
B3010	Roof Coverings	No fall protection on roof				
		when roof replaced, add fall protection system	1.00	\$15,000.00	EA	\$15,000
<b>Facility: Fire Station #3 Building</b>						
<b>System: HVAC Total Cost: \$32,500</b>						
D3010	Energy Supply	No natural gas to building.				
		Consider upgrade to natural gas if available in street.	1.00	\$5,000.00	LS	\$5,000
D3040	HVAC Distribution Systems	One zone shared between office and living areas.				
		Upon facility modernization split into at least three zones: 1) Office & Dayroom and 2) Dormatory (sleeping).	1,500.00	\$10.00	SF	\$15,000
D3050	Terminal and Package Units	PTACs for dormatory and dayrooms are noisy and reduce window function.				
		Upgrade forced air furnace to split-Dx heat pump type to provide A/C throughout and reduce energy use.	1.00	\$12,500.00	LS	\$12,500
<b>Facility: Fire Station #3 Building</b>						
<b>System: Fire Protection Total Cost: \$5,632</b>						
D4010	Fire Protection Sprinkler Systems	Awkward whole building glycol freeze-protected sprinkler system.				
		Upgrade to modern dry pipe system.	2,816.00	\$2.00	SF	\$5,632
<b>Facility: Fire Station #3 Building</b>						
<b>System: Electrical Total Cost: \$54,712</b>						
D5020	Lighting and Branch Wiring	T8 lighting with mostly manual control.				
		Upgrade to LED lighting with more automatic control.	2,816.00	\$7.00	SF	\$19,712
D5090	Other Electrical Systems	Small portable standby generator with manual connection and circuit transfer.				
		Full-size (50 kW) permanent standby generator with ATS.	1.00	\$35,000.00	LS	\$35,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #03

Total Site Opportunity Cost: \$167,844

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
Facility: Fire Station #3 Building						
System: Special Construction	Total Cost: \$60,000					
F1010 Special Structures	No exercise room (there is some exercise equipment placed inside the Fire truck bay.)	Construct a separate recreation / exercise room for physical fitness of the response personal.	400.00	\$150.00	SF	\$60,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Facility Summary

City of Tacoma  
 Fire Station #04  
 Fire Station #4 Building

1453 South 12th Street  
 Tacoma, WA 98407

Facility Size - Gross S.F. 6,115  
 Year Of Original Construction 1935  
 Facility Use Type Fire Station  
 Construction Type Medium  
 # of Floors 1  
 Energy Source Gas  
 Year Of Last Renovation n/a  
 Historic Register Yes



FCI (BMAR/CRV)	0.15	Predicted Renewal Budget (20 yrs)	\$1,110,415
FCI (Bldg OD/CRV)	0.12	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$2,673,000	Building	\$333,411
BMAR (Backlog of Maintenance and Repair)	\$406,000	Infrastructure	\$494,528
Beginning Budget Year	2018	Total	\$827,939
		Opportunity Total Project Cost	\$136,321

## Facility Condition Summary

Fire Station #4 (formerly known as Fire Station #5) is a single story building 2-apparatus bay fire station with station house dorm/living quarters and office, and with 3/4 basement used for recreation equipment, (1/4 crawl) constructed in 1935 of wood and masonry construction. The station is listed on the Local and National Register of Historic Places. Given the buildings age, it is still in fairly good condition. Some windows have been recently upgraded, but could use upgrading of the remaining single glazed exterior windows, replacement of the galvanized water piping system with new copper pipe and new plumbing fixtures and addition of permanent air conditioning. Also remediate basement leaks and flooding. MEP systems are a mix of original, older, aging and newer including newer (1999) gas-fired forced air furnace for station house, gas-fired unit heater for apparatus bays and HRV with no permanent heat for basement; mix of mostly older and some newer plumbing; wet-pipe fire sprinkler with limited fire alarm; newer residential-type electrical service; aging fluorescent lighting with manual control and insufficient receptacles; mix of older and somewhat newer low voltage systems, with good new tone alarm system.

# Facility Summary

City of Tacoma  
 Fire Station #04  
 Fire Station #4 Building

1453 South 12th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.1</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1935	1935	3	TRB 01/09/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	1935	1935	3	TRB 01/09/18	Concrete slab on grade. Some cracking. One minor spots in apparatus bay with spalled concrete and exposed reinforcing
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1935	1935	4	TRB 01/09/18	Concrete basement walls on standard concrete foundations.
<b>B Shell</b>			<b>3.1</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1935	1935	3	TRB 01/09/18	Wood joists with wood shiplap sheathing, with areas of concrete slab and beams spanning between concrete basement walls.
<b>B1020 Roof Construction</b>	1935	1935	3	TRB 01/09/18	Wood joists and/or beams with wood 2x or T&G.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1935	1935	3	TRB 01/09/18	Unreinforced masonry walls, painted at exterior face.
<b>B2020 Exterior Windows</b>	1935	1935	3	TRB 01/09/18	New 2017 aluminum insulated glazing in common room only. Single pane wood frame windows elsewhere. Plywood infill for air conditioning units.
<b>B2030 Exterior Doors</b>	1935	1935	3	TRB 01/09/18	Wood framed paneled doors in wood frames. Two OH panel apparatus garage doors in good condition.

# Facility Summary

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 Fire Station #04  
 Fire Station #4 Building

1453 South 12th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.1</b>		
<b>Exterior Closure</b>					
<b>B2030 Exterior Doors</b>					
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					
	1935	1980	4	TRB 01/09/18	Asphalt sheet roofing with sheet metal flashing. Moss growth, nearing end of life. Numerous leaks reported (including active buckets catching leaks observed at time of survey).
<b>B3020 Roof Openings</b>					
	1935	1950	3	TRB 01/09/18	Old bathroom skylight capped over and provided with exhaust fan.
<b>B3030 Projections</b>					
	1935	1935	3	TRB 01/09/18	Original fire hose tower remains (old oak ladder access to roof up tower). See exterior wall sub system for related observed deficiency.
<b>C Interiors</b>			<b>2.8</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>					
	1935	1935	3	TRB 01/09/18	Wood framed walls with plaster and drywall finish.
<b>C1020 Interior Doors</b>					
	1935	1935	3	TRB 01/09/18	Wood framed panel doors, with knob hardware (some not functioning).
<b>C1030 Fittings</b>					
	1935	1980	3	TRB 01/09/18	Original wood lockers, newer plastic laminate faced kitchen cabinets and counter.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>					
	1935	1935	3	TRB 01/09/18	Concrete stairs to basement.
<b>C2020 Stair Finishes</b>					
	1935	1980	3	TRB 01/09/18	Applied rubber stair treads to basement.

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.8</b>		
<b>Staircases</b>					
C2020 Stair Finishes					
<b>Interior Finishes</b>					
C3010 Wall Finishes					
	1935	1935	3	TRB 01/09/18	Painted plaster and painted wood wainscot. Painted concrete masonry units in the apparatus bay.
C3020 Floor Finishes					
	1935	2012	2	TRB 01/09/18	Carpet, sheet vinyl, vinyl composition tile, in good repair.
C3030 Ceiling Finishes					
	1935	1980	3	TRB 01/09/18	Adhesive applied acoustic tile.
<b>D Services</b>			<b>3.0</b>		
<b>Plumbing</b>					
D2010 Plumbing Fixtures					
	1935	1999	3	DCS 01/09/18	Various porcelain, cast iron, stainless steel fixtures are of varying vintages.
D2020 Domestic Water Distribution					
	1935	1999	4	DCS 01/09/18	Mix of mostly older galvanized and some newer copper piping. Newer (2016) Rheem gas-fired 73-gal DHW tank-type heater with no recirc pump.
D2030 Sanitary Waste					
	1935	1999	3	DCS 01/09/18	DW&V piping a mix of older cast iron & galvanized and newer ABS. A few fixtures drain and flush slow, but most tested are good (minor maintenance to restore slow fixtures to full flow). DW replaced from building to alley using pipe burst method in 2012.
D2040 Rain Water Drainage					
	1935	1935	4	DCS 01/09/18	Just one scupper-box roof drain for each of the three roofs: 1) Hose Tower, 2) Apparatus Bay, and 3) Station House, with hose tower draining to station house. Capacity is insufficient and should be reconfigured during next re-roofing.

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 Fire Station #04  
 Fire Station #4 Building

1453 South 12th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>Plumbing</b>					
<b>D2040 Rain Water Drainage</b>					
<b>D2090 Other Plumbing Systems</b>	1935	1999	3	DCS 01/09/18	Portable air compressor. Plastic emergency eye wash. Opportunities to add permanent air compressor with hose reel & drops, and permanent safety shower & eyewash.
<b>HVAC</b>					
<b>D3010 Energy Supply</b>	1935	1999	2	DCS 01/09/18	Somewhat newer (1999) natural gas black-iron piping to Station House forced-air furnace, App Bay unit heater, DHW water heater and outdoor BBQ with no issues reported.
<b>D3040 HVAC Distribution Systems</b>	1935	1999	4	DCS 01/09/18	Mix of older and somewhat newer ductwork in poor to fair condition. with no heat service to basement (HRV only). Aging (1999) Payne gas-fired forced-air furnace serving Station House.
<b>D3050 Terminal and Package Units</b>	1935	1999	3	DCS 01/09/18	Aging gas-fired unit heater for App Bay in fair condition with 5 to 10 years remaining life. Multiple through window PTAC units, mostly newer in fair to good condition with 3 to 5 years remaining life. Opportunity to upgrade to central air conditioning.
<b>D3060 Controls and Instrumentation</b>	1935	1999	3	DCS 01/09/18	Mix of older and somewhat newer controls in fair condition; opportunity to install limited DDC per City standard for remote monitoring.
<b>D3090 Other HVAC Systems and Equipment</b>	1935	2011	2	DCS 01/09/18	Newer (2011) Nederman vehicle engine exhaust system with two rails - one for each of the two Apparatus Bays.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>	1970	1999	3	DCS 01/09/18	Wet pipe fire sprinkler system with somewhat

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<b>D Services</b>			<b>3.0</b>		
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>					
					newer riser, but apparently older distribution in Station House; closer evaluation and possible modification for better coverage and/or new heads suggested.
<b>D4030 Fire Protection Specialties</b>					
	1935	1999	3	DCS 01/09/18	Fire extinguishers on hooks.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	1935	1999	2	DCS 01/09/18	Newer (1999) Square D 120/240V panel with just 200A capacity, but no issues reported.
<b>D5020 Lighting and Branch Wiring</b>					
	1935	1999	3	DCS 01/09/18	Most lighting upgraded to T8 or CFL with manual control. Limited receptacles in some areas.
<b>D5032 Low Voltage Communication</b>					
	1935	1999	3	DCS 01/09/18	City standard data & voice with Avaya phone system; no issues reported.
<b>D5037 Low Voltage Fire Alarm</b>					
	1935	1999	3	DCS 01/09/18	Silent Knight fire alarm system with limited coverage but with recently (2017) added wireless reporting.
<b>D5038 Low Voltage Security</b>					
	1935	1999	3	DCS 01/09/18	Cypher door locks (no card-key). No CCTV.
<b>D5039 Low Voltage Data</b>					
	1935	1999	3	DCS 01/09/18	City standard data; no issues reported.
<b>D5090 Other Electrical Systems</b>					
	1935	1999	3	DCS 01/09/18	Battery lights for egress. Gentrans transfer switch for portable generator.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		

## Facility Summary

City of Tacoma  
 Fire Station #04  
 Fire Station #4 Building

1453 South 12th Street  
 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>					
	1935	1999	3	DCS 01/09/18	Fixed cabinetry in fair condition showing wear & tear in places.
<b>F Special Construction</b>			<b>2.0</b>		
<b>Special Construction</b>					
<b>F1050 Special Controls and Instrumentation</b>					
	1935	2016	2	DCS 01/09/18	Newer tone alarm system in good condition, except missing or damaged speakers (minor maintenance to repair or replace).

# Facility Summary

City of Tacoma  
 Fire Station #04  
 Infrastructure

1453 South 12th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1935	1970	4	TRB 01/09/18	Concrete drives.
<b>G2020 Parking Lots</b>	1935	1970	4	TRB 01/09/18	Concrete parking behind building and on east side of building, adjacent to alley.
<b>G2030 Pedestrian Paving</b>	1935	1970	2	TRB 01/09/18	Concrete walkways.
<b>G2040 Site Development</b>	1935	1970	3	TRB 01/09/18	Chain link fencing with razor wire, Some fence pipe connectors have come apart. Wood fence with 3 broken boards.
<b>G2050 Landscaping</b>	1935	1935	2	TRB 01/09/18	Grass, shrubs and trees. Recommend cutting trees back from exterior wall
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1935	1935	3	DCS 01/09/18	City water supplying domestic, irrigation and fire service; water pressure low at 55 psig at service entry, but no issues reported.
<b>G3020 Sanitary Sewer</b>	1935	2012	3	DCS 01/09/18	Reportedly new side sewer in 2012, but some fixtures continue to drain or flush slowly, but may be due to building, rather than site piping; assuming Fair condition until confirmed.
<b>G3030 Storm Sewer</b>	1935	1935	4	DCS 01/09/18	Site is at nearly 50% imperious but has only one or two catch-basin with pockets of standing water; the two roof drains discharge to grade near the building foundation; the apparatus bay roof drain original drain tile appears to have been decommissioning in years past but is now exposed. With peculiar basement flooding the entire site storm drainage system should be fully evaluated and effort made to direct storm water clearly away from the building and eliminate



# Facility Summary

City of Tacoma  
 Fire Station #04  
 Infrastructure

1453 South 12th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Civil / Mechanical Utilities</b>					
<b>G3030 Storm Sewer</b>					standing water from paved and concrete surfaces.
<b>G3060 Fuel Distribution</b>	1935	1999	2	DCS 01/09/18	PSE gas meter #1016559 with 250 cfh capacity.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1935	1999	2	DCS 01/09/18	Tacoma Power underground 120/240V service from pole at alley to east U/G to meter #618853 at NE corner of apparatus bay with no issues reported. Overhead power at front of App Bay, sub-station at parcel to north and high-voltage transmission lines to east.
<b>G4020 Site Lighting</b>	1935	2015	3	DCS 01/09/18	Most outside lighting recently (2015) upgraded to LED lamps, some in older fixtures and some all-new wall-sconce type fixtures. Some older fixtures need replacing.
<b>G4030 Site Communications and Security</b>	1935	2000	3	DCS 01/09/18	Telecom services from purveyors; little or no site electronic security.



# Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Fire Station #04

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Fire Station #4 Building	Basements	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	Exterior Closure	\$39,000	\$9,750	\$9,750	\$32,175	\$90,675
	Roofing	\$42,000	\$10,500	\$10,500	\$34,650	\$97,650
	Interior Finishes	\$15,000	\$3,750	\$3,750	\$12,375	\$34,875
	Plumbing	\$20,173	\$5,043	\$5,043	\$16,642	\$46,901
	HVAC	\$12,230	\$3,058	\$3,058	\$10,090	\$28,435
	Equipment	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	<b>Facility Total</b>	<b>\$143,403</b>	<b>\$35,851</b>	<b>\$35,851</b>	<b>\$118,307</b>	<b>\$333,411</b>
Infrastructure	Site Improvements	\$197,700	\$49,425	\$49,425	\$163,103	\$459,653
	Site Civil / Mechanical Utilities	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	Site Electrical utilities	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	<b>Facility Total</b>	<b>\$212,700</b>	<b>\$53,175</b>	<b>\$53,175</b>	<b>\$175,478</b>	<b>\$494,528</b>
	<b>Site Total</b>	<b>\$356,103</b>	<b>\$89,026</b>	<b>\$89,026</b>	<b>\$293,785</b>	<b>\$827,938</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #04

Total Observed Deficiency Repair Direct Cost : \$356,103

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #4 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$10,000</b>
<b>System: Basements</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$23,250</b>
<b>Basement Walls</b>									
Concrete walls	4	2	2018		1	\$10,000.00	LS	\$10,000	\$23,250

Cracks are present in concrete basement walls, with active water intrusion, especially after rain events, basement areas flood often. Perimeter 2" trench drain was infilled in North room, leading to springs now running over floor. Former light wells were capped with concrete, but after heavy rains the wells fill up with water and sheet flow flood into the basement former windows after heavy rain events). 2015 work to sandblast walls and recoat interior face is already failing (bubbling and blistering and paint peeling off).

Recommend hiring basement waterproofing specialist to investigate sources, and recommend remediation plan. Make revisions accordingly. Also recommend further sealing former light well caps with elastomeric coating and even metal cap flashing. Cap exposed former storm drain pipe adjacent to existing downspout. Solution may also require excavation on exterior to apply damproofing, and drain system to eliminate ground water and hydrostatic pressure.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #04

Total Observed Deficiency Repair Direct Cost : \$356,103

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Station #4 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$39,000</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$90,675</b>
<b>Exterior Walls</b>									
Masonry hose tower walls	4	5	2018		1	\$25,000.00	LS	\$25,000	\$58,125

Old hose drying tower: Mortar joints at interior face of masonry hose tower walls are soft. Eflourescence and water staining on interior. Unreinforced masonry tower.

Recomend seismic evaluation, and possible interior steel frame reinforcing.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #04

Total Observed Deficiency Repair Direct Cost : \$356,103

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				<b>Action</b>						
<b>Facility: Fire Station #4 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$39,000</b>	
<b>System: Exterior Closure</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$90,675</b>	
<b>Exterior Windows</b>										
Wood Stopped Glass	5	1	2018		14	\$1,000.00	EA	\$14,000	\$32,550	

Original wood single glazed units, and plywood infill at air conditioner units.

Replace existing wood windows and ac unit penetrations in conditioned areas with insulated systems.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #04

Total Observed Deficiency Repair Direct Cost : \$356,103

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #4 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$42,000
System: Roofing					Total System Deficiency Repair Cost (Marked Up):				\$97,650
<b>Roof Coverings</b>									
Built-Up Roof	4	3	2018		3,500	\$12.00	SF	\$42,000	\$97,650

Roofing nearing end of life.

Replace roofing.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #04

Total Observed Deficiency Repair Direct Cost : \$356,103

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Station #4 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$15,000	
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$34,875	
<b>Wall Finishes</b>										
Paint	3	5	2018		5,000	\$3.00	SF	\$15,000	\$34,875	

Paint on the walls is starting to wear.

Clean and paint walls.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #04

Total Observed Deficiency Repair Direct Cost : \$356,103

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: Fire Station #4 Building									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: Plumbing									Total System Deficiency Repair Cost (Marked Up):	
<b>Plumbing Fixtures</b>										
Fixtures & trim	4	3	2018		5	\$1,000.00	EA	\$5,000	\$11,625	
Some aging fixtures and trim.				Repair or replace as needed.						



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #04

Total Observed Deficiency Repair Direct Cost : \$356,103

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Station #4 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$20,173</b>	
<b>System: Plumbing</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$46,901</b>	
<b>Domestic Water Distribution</b>										
Galvanized steel piping	4	2	2018		6,115	\$1.50	EA	\$9,173	\$21,326	

Galvanized steel piping past useful life.

Replace with newer copper and/or PEX.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #04

Total Observed Deficiency Repair Direct Cost : \$356,103

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Station #4 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$20,173</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$46,901</b>
<b>Rain Water Drainage</b>									
Scupper & downspouts	4	1	2018		4	\$1,500.00	EA	\$6,000	\$13,950

Insufficient roof drainage with just one scupper & downspout from each of the three roof areas, especially Ap Bay and Station House roofs. Roof is beginning to leak.

Provide at least two roof drains for each roof area sized per code requirements, and including overflow feature.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #04

Total Observed Deficiency Repair Direct Cost : \$356,103

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #4 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$12,230</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$28,435</b>
<b>HVAC Distribution Systems</b>									
Ductwork	4	3	2018		6,115	\$2.00	SF	\$12,230	\$28,435

Marginal ductwork with somewhat unclear function and balance.

Clean, test and repair ductwork to properly serve occupied areas.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #04

Total Observed Deficiency Repair Direct Cost : \$356,103

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Station #4 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$5,000</b>	
<b>System: Equipment</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$11,625</b>	
<b>Commercial Equipment</b>										
Other	4	3	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Cabinetry and some appliances showing signs of wear & tear and age.

Renew as needed to extend life before full modernization.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #04

Total Observed Deficiency Repair Direct Cost : \$356,103

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$197,700</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$459,653</b>	
<b>Roadways</b>										
Concrete	4	3	2018		2,475	\$12.00	SF	\$29,700	\$69,053	

Concrete drive on west side of building is badly cracked and broken.

Remove and replace concrete driveway.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

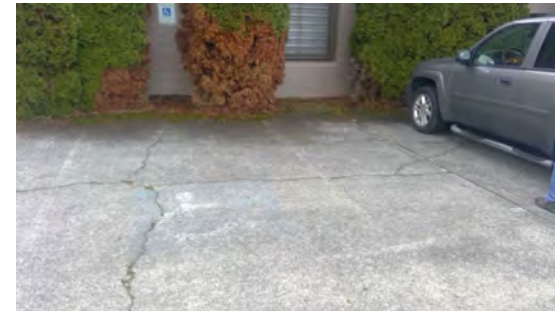
City of Tacoma  
Site: Fire Station #04

Total Observed Deficiency Repair Direct Cost : \$356,103

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Infrastructure</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$197,700</b>
<b>System: Site Improvements</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$459,653</b>
<b>Parking Lots</b>									
Concrete	4	3	2018		14,000	\$12.00	SF	\$168,000	\$390,600

Concrete parking areas are badly cracked and broken with significant weed growth in some areas. Severe settlement exist in back corner behind the building.

Remove and replace concrete parking areas. Paint ADA and provide curb stops.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #04

Total Observed Deficiency Repair Direct Cost : \$356,103

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$10,000</b>	
<b>System: Site Civil / Mechanical Utilities</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$23,250</b>	
<b>Storm Sewer</b>										
Storm Drain	4	1	2018		1	\$10,000.00	LS	\$10,000	\$23,250	

Minimal storm drainage with roof drains not connected to storm, and with App Bay roof drain potentially discharging to abandoned original storm drain. Some standing water at edges of parking areas and roadways.

Fully evaluate storm drainage and provide additional catch basis and piping as needed, specifically provide conveyance of roof drainage away from building perimeter.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #04

Total Observed Deficiency Repair Direct Cost : \$356,103

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Infrastructure</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>					<b>\$5,000</b>	
<b>System: Site Electrical utilities</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>					<b>\$11,625</b>	
<b>Site Communications and Security</b>										
Security CCTV	4	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Little or no site electronic security, despite barbed-wire security fence for parking at back of station.

Install City standard CCTV system.



## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #04

Total Site Opportunity Cost: \$123,633

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Station #4 Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$14,173</b></span>						
D3040	HVAC Distribution Systems					
	Not heat for basement.	Install basement heating system.	1.00	\$5,000.00	LS	\$5,000
D3050	Terminal and Package Units					
	PTAC A/C for Station House.	Install ductless split Dx system to create hybrid heat pump/gas-furnace system for Station House to provide central A/C.	6,115.00	\$1.50	SF	\$9,173
<b>Facility: Fire Station #4 Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$44,460</b></span>						
D5020	Lighting and Branch Wiring					
	Existing fluorescent lighting with manual controls.	Upgrade to LED lighting with automatic controls.	6,115.00	\$4.00	SF	\$24,460
D5090	Other Electrical Systems					
	Small portable generator.	Install full-size (30 kW) diesel standby generator.	1.00	\$20,000.00	LS	\$20,000
<b>Facility: Infrastructure</b> <b>System: Site Civil / Mechanical Utilities</b> <span style="float: right;"><b>Total Cost: \$15,000</b></span>						
G3060	Fuel Distribution					
	No vehicle fueling system and vacant tank pad at NE corner of Ap Bay.	Install vehicle fueling system similar to other fire stations.	1.00	\$15,000.00	LS	\$15,000
<b>Facility: Infrastructure</b> <b>System: Site Electrical utilities</b> <span style="float: right;"><b>Total Cost: \$50,000</b></span>						
G4010	Electrical Distribution					
	Overhead lines in front of Ap Bay.	Coordinate with utilities to underground overhead utilities above apparatus apron and street access.	1.00	\$50,000.00	LS	\$50,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 Fire Station #06  
 Fire Station #6 Building

670 East 11th Street  
 Tacoma, WA 98407

Facility Size - Gross S.F. 4,200  
 Year Of Original Construction 1964  
 Facility Use Type Fire Station  
 Construction Type Light  
 # of Floors 1  
 Energy Source Gas  
 Year Of Last Renovation 1964  
 Historic Register No



FCI (BMAR/CRV)	0.19	Predicted Renewal Budget (20 yrs)	\$716,148
FCI (Bldg OD/CRV)	0.13	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$1,652,000	Building	\$210,273
BMAR (Backlog of Maintenance and Repair)	\$320,000	Infrastructure	\$89,513
Beginning Budget Year	2018	Total	\$299,786
		Opportunity Total Project Cost	\$146,941

## Facility Condition Summary

Fire Station #6 was constructed as a single story wood frame building in 1964. This facility houses a two bay apparatus station. The Station is still in basically fair condition, but could use new carpets, a new furnace and replacement of the old galvanized domestic water piping system with new copper pipe and new fixtures. The exterior has recently been repainted and looks in good condition. Roofing is a combination of three-tab asphalt shingle, and torch down asphalt on low slope roofing. This facility had been vacant, and recently returned to active duty within the past year. There is only a single toilet shower room, there is no exercise room area (so some equipment is located in the garage between response vehicle bays).

# Facility Summary

City of Tacoma  
 Fire Station #06  
 Fire Station #6 Building

670 East 11th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1964	1964	3	TRB 01/11/18	Standard concrete foundation.
<b>A1030 Slab On Grade</b>	1964	1964	3	TRB 01/11/18	Concrete slab on grade.
<b>B Shell</b>			<b>3.0</b>		
<b>Superstructure</b>					
<b>B1020 Roof Construction</b>	1964	1964	3	TRB 01/11/18	Wood 2x joists with plywood sheathing and glulam beams with 3x tongue and groove at the apparatus bay.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1964	1964	3	TRB 01/11/18	Wood stud walls with plywood sheathing and vertical wood siding. Painted in 2012 paint is holding up well.
<b>B2020 Exterior Windows</b>	1964	2008	3	TRB 01/11/18	Insulated vinyl frame windows. The exterior frames need to be maintained and recaulked.
<b>B2030 Exterior Doors</b>	1964	1964	3	TRB 01/11/18	Solid core wood doors and wood frames. One OH apparatus garage door has been replaced with metal, and the other wood garage doors are aging, but functional. Clean and repaint recommended
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1964	2007	3	TRB 01/11/18	Asphalt composition shingle and asphalt sheet membrane roofings. Roofing is in fair condition but needs maintenance: treat moss on gable, lower roof needs moss removal below eaves, also recommend adding splashblocks to downspouts where upper roof drains onto lower. No fall protection exists.

# Facility Summary

City of Tacoma  
 Fire Station #06  
 Fire Station #6 Building

670 East 11th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.0</b>		
<b>Roofing</b>					
<b>B3010</b>	<b>Roof Coverings</b>				
<b>C Interiors</b>			<b>3.4</b>		
<b>Interior Construction</b>					
<b>C1010</b>	<b>Partitions</b>				
	1964	1964	3	TRB 01/11/18	Wood frame walls with gypsum wallboard wainscot in apparatus bay. Replace cracked plastic panel at front entry door hall screen partition.
<b>C1020</b>	<b>Interior Doors</b>				
	1964	1964	3	TRB 01/11/18	Solid core wood doors in wood frames. Knob hardware.
<b>C1030</b>	<b>Fittings</b>				
	1964	2000	3	TRB 01/11/18	Original wood lockers, plastic laminate faced cabinets in kitchen and toilet room. New Plam-countertops in kitchen, dining table, and bathroom.
<b>Interior Finishes</b>					
<b>C3010</b>	<b>Wall Finishes</b>				
	1964	1964	4	TRB 01/11/18	Painted gypsum, wallboard, ceramic tile in toilet room.
<b>C3020</b>	<b>Floor Finishes</b>				
	1964	1964	4	TRB 01/11/18	Carpet, vinyl composition tile, ceramic tile in toilet room. Carpet in common areas is close to the end of its useful life.
<b>C3030</b>	<b>Ceiling Finishes</b>				
	1964	1964	3	TRB 01/11/18	Adhesive applied acoustic tile and suspended acoustic ceiling. Suspended ACT in bathrooms are dirty and should be replaced.
<b>D Services</b>			<b>3.5</b>		
<b>Plumbing</b>					

# Facility Summary

City of Tacoma  
 Fire Station #06  
 Fire Station #6 Building

670 East 11th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.5</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1964	1964	4	DCS 01/11/18	Various porcelain, cast iron, stainless steel fixtures, about half original and past useful life.
<b>D2020 Domestic Water Distribution</b>	1964	1964	4	DCS 01/11/18	Approximately 2-inch water service from assumed smaller meter to mostly galvanized piping with somewhat low pressure. Newer A.O. Smith 60-gal, 40 mbh gas-fired DHW heater with no recirc pump.
<b>D2030 Sanitary Waste</b>	1964	1964	3	DCS 01/11/18	Assume CI DW&V throughout - no issues reported; most tested fixtures flush & drain well, just a few slower assumed due to old fixtures, not piping.
<b>D2040 Rain Water Drainage</b>	1964	2007	3	DCS 01/11/18	Newer G&DS when reroofed (estimated 2007) in fair to good condition but with some leakage and damage (minor maintenance issue).
<b>HVAC</b>					
<b>D3010 Energy Supply</b>	1964	1964	3	DCS 01/11/18	Natural gas piping to furnace, unit heaters and DHW heater; aging but functional with no issues reported.
<b>D3040 HVAC Distribution Systems</b>	1964	1964	3	DCS 01/11/18	Galvanized sheet metal supply air duct to Station House with under-slab return air ductwork; duct needs cleaning and serving.
<b>D3050 Terminal and Package Units</b>	1964	1994	4	DCS 01/11/18	Station House (office & living areas) served by Johnstone standard-efficiency gas-fired furnace with 120 mbh capacity nearing approaching end of life. Apparatus bays served by two overhead gas-fired unit heaters.
<b>D3060 Controls and Instrumentation</b>	1964	1994	3	DCS 01/11/18	Control of gas furnace is by aging electric



# Facility Summary

City of Tacoma  
 Fire Station #06  
 Fire Station #6 Building

670 East 11th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.5</b>		
<b>HVAC</b>					
<b>D3060</b>	<b>Controls and Instrumentation</b>				thermostat (minor maintenance to replace with new).
<b>D3090</b>	<b>Other HVAC Systems and Equipment</b>				
	1964	2011	2	DCS 01/11/18	New (2011) Nederman vehicle engine exhaust system. Original general exhaust abandoned in place with opportunity to return to service for apparatus bays ventilation cooling during warm weather.
<b>Fire Protection</b>					
<b>D4030</b>	<b>Fire Protection Specialties</b>				
	1964	1980	3	DCS 01/11/18	Fire extinguishers on hooks.
<b>Electrical</b>					
<b>D5010</b>	<b>Electrical Service and Distribution</b>				
	1964	1964	4	DCS 01/11/18	Original Square D 120/240V panel with 225A capacity.
<b>D5020</b>	<b>Lighting and Branch Wiring</b>				
	1964	1980	4	DCS 01/11/18	Old T12 fixtures with aging wiring and devices.
<b>D5032</b>	<b>Low Voltage Communication</b>				
	1964	2000	3	DCS 01/11/18	Modern comm with no issues reported.
<b>D5037</b>	<b>Low Voltage Fire Alarm</b>				
	1964	2000	3	DCS 01/11/18	Spectronics fire alarm with no issues reported.
<b>D5038</b>	<b>Low Voltage Security</b>				
	1964	1964	4	DCS 01/11/18	No electronic security.
<b>D5039</b>	<b>Low Voltage Data</b>				
	1964	2000	3	DCS 02/23/18	Modern data with no issues reported.
<b>D5090</b>	<b>Other Electrical Systems</b>				
	1964	1964	3	DCS 01/11/18	Some battery egress lighting, gentrans transfer switch, portable generator. Opportunity to bring up to code.

# Facility Summary

City of Tacoma  
 Fire Station #06  
 Fire Station #6 Building

670 East 11th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.5</b>		
<b>Electrical</b>					
D5090 Other Electrical Systems					
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
E1010 Commercial Equipment					
	1964	1980	3	DCS 01/11/18	Somewhat newer, with some wear.
<b>F Special Construction</b>			<b>2.0</b>		
<b>Special Construction</b>					
F1050 Special Controls and Instrumentation					
	1964	2015	2	DCS 01/11/18	Newer (2015) tone alarm system. Somewhat newer weather station.

# Facility Summary

City of Tacoma  
 Fire Station #06  
 Infrastructure

670 East 11th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1964	1964	4	TRB 01/11/18	Concrete drive to station and concrete apron at street. Cracked up and broken.
<b>G2020 Parking Lots</b>	1964	1964	4	TRB 01/11/18	Asphalt parking/access on site and back of building. Significant standing water, cracking, parking stripe and ADA parking paint faded.
<b>G2030 Pedestrian Paving</b>	1964	1964	3	TRB 01/11/18	Limited concrete walks and slab.
<b>G2050 Landscaping</b>	1964	1964	3	TRB 01/11/18	Grass, shrubs and trees. Growth at building perimeter shows signs of past human habitation.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1964	1964	3	DCS 01/11/18	City water with no issues reported.
<b>G3020 Sanitary Sewer</b>	1964	1964	3	DCS 01/11/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1964	1964	3	DCS 01/11/18	Roof drains piped to storm at hardscape and to dry wells at landscape. Site paving sloped to street at front and to one catch basin at back with standing water and ponding at several locations.
<b>G3060 Fuel Distribution</b>	1964	1964	3	DCS 01/11/18	PSE natural gas meter #222030 with estimated 125 cfh capacity and no seismic shut-off valve. Opportunity for vehicle fueling system.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1964	1964	3	DCS 01/11/18	Tacoma Power with meter #X and no issues reported.

# Facility Summary

City of Tacoma  
 Fire Station #06  
 Infrastructure

670 East 11th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

##### G4020 Site Lighting

1964 1980 3

DCS 01/11/18 Aging wall-packs above Ap Bay doors; opportunity to upgrade to LED. Otherwise minimal site lighting.

##### G4030 Site Communications and Security

1964 2000 3

DCS 01/11/18 Telecom from purveyors with no issues reported. No security.

## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Fire Station #06

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Fire Station #6 Building	Interior Finishes	\$42,640	\$10,660	\$10,660	\$35,178	\$99,138
	Plumbing	\$13,400	\$3,350	\$3,350	\$11,055	\$31,155
	HVAC	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Electrical	\$29,400	\$7,350	\$7,350	\$24,255	\$68,355
	<b>Facility Total</b>	<b>\$90,440</b>	<b>\$22,610</b>	<b>\$22,610</b>	<b>\$74,613</b>	<b>\$210,273</b>
Infrastructure	Site Improvements	\$31,000	\$7,750	\$7,750	\$25,575	\$72,075
	Site Civil / Mechanical Utilities	\$7,500	\$1,875	\$1,875	\$6,188	\$17,438
	<b>Facility Total</b>	<b>\$38,500</b>	<b>\$9,625</b>	<b>\$9,625</b>	<b>\$31,763</b>	<b>\$89,513</b>
	<b>Site Total</b>	<b>\$128,940</b>	<b>\$32,235</b>	<b>\$32,235</b>	<b>\$106,376</b>	<b>\$299,786</b>



## Detailed Assessment - Observed Deficiencies 2018 - 2023

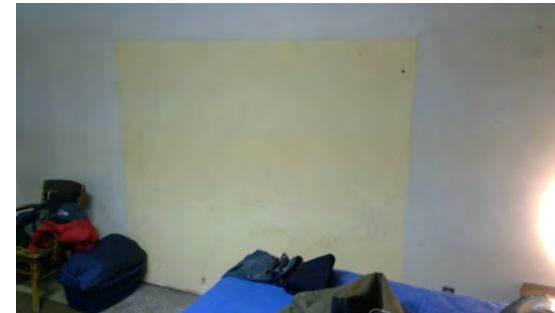
City of Tacoma  
Site: Fire Station #06

Total Observed Deficiency Repair Direct Cost : \$128,940

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #6 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$42,640
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$99,138
<b>Wall Finishes</b>									
Paint	3	5	2018		8,000	\$3.00	SF	\$24,000	\$55,800

The paint on the walls is starting to show wear.

Clean and paint the walls.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #06

Total Observed Deficiency Repair Direct Cost : \$128,940

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #6 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$42,640</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$99,138</b>
<b>Floor Finishes</b>									
Carpeting	4	2	2018		1,864	\$10.00	SF	\$18,640	\$43,338

Carpeting is worn and tired.

Remove and replace existing carpet.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #06

Total Observed Deficiency Repair Direct Cost : \$128,940

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #6 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$13,400
System: Plumbing					Total System Deficiency Repair Cost (Marked Up):				\$31,155
<b>Plumbing Fixtures</b>									
Fixtures	4	5	2018		5	\$1,000.00	EA	\$5,000	\$11,625
Original (1964) fixtures past useful life.				Replace with modern fixtures.					

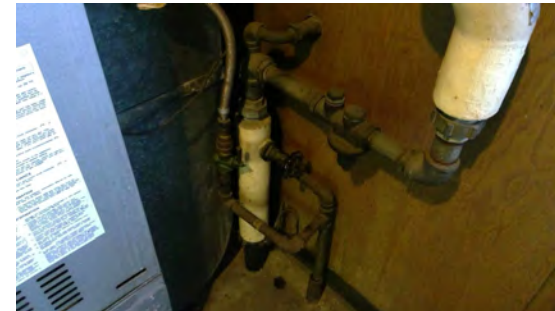


## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #06

Total Observed Deficiency Repair Direct Cost : \$128,940

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #6 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$13,400
System: Plumbing					Total System Deficiency Repair Cost (Marked Up):				\$31,155
<b>Domestic Water Distribution</b>									
Galvanized steel piping	4	2	2018		4,200	\$2.00	EA	\$8,400	\$19,530
Original galvanized piping with low pressure.				Replace with copper and/or PEX.					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #06

Total Observed Deficiency Repair Direct Cost : \$128,940

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Station #6 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$5,000</b>	
<b>System: HVAC</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$11,625</b>	
<b>Terminal and Package Units</b>										
Gas furnace	4	2	2018		1	\$5,000.00	EA	\$5,000	\$11,625	

Gas furnace serving living quarters is past its useful life span.

Replace furnace with high-efficiency (condensing) unit.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #06

Total Observed Deficiency Repair Direct Cost : \$128,940

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #6 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$29,400</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$68,355</b>
<b>Electrical Service and Distribution</b>									
Electrical distribution	4	5	2018		4,200	\$2.00	SF	\$8,400	\$19,530
<b>Original electrical service and distribution near end of life.</b>				<b>Replace before failure.</b>					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #06

Total Observed Deficiency Repair Direct Cost : \$128,940

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #6 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$29,400
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$68,355
<b>Lighting and Branch Wiring</b>									
Lighting & distribution	4	5	2018		4,200	\$5.00	SF	\$21,000	\$48,825
Aged and original lighting, wiring and devices.				Renew.					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #06

Total Observed Deficiency Repair Direct Cost : \$128,940

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
<b>System: Site Improvements</b>									<b>\$31,000</b>	
									<b>Total System Deficiency Repair Cost (Marked Up):</b>	
									<b>\$72,075</b>	
<b>Roadways</b>										
Concrete	5	1	2018		1,000	\$12.00	SF	\$12,000	\$27,900	

Concrete driveway apron at street is badly cracked and broken.

Remove and replace concrete driveway apron at street.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #06

Total Observed Deficiency Repair Direct Cost : \$128,940

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Infrastructure</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$31,000</b>
<b>System: Site Improvements</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$72,075</b>
<b>Parking Lots</b>									
Asphalt	4	2	2018		2,000	\$7.00	SF	\$14,000	\$32,550

Asphalt area (previously patched) Sinkhole has settled and indicates subgrade failure. Other areas of significant standing water. Cracks in asphalt. Paint striping, including ADA faded.

Remove patched area, repair subgrade, address other drain grade issues, patch and replace asphalt. Seal cracks, also recomend topcoat to extend life. Re-paintstripe.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #06

Total Observed Deficiency Repair Direct Cost : \$128,940

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
<b>Facility: Infrastructure</b>									
<b>System: Site Improvements</b>									
								<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
								<b>\$31,000</b>	
								<b>Total System Deficiency Repair Cost (Marked Up):</b>	
								<b>\$72,075</b>	
<b>Landscaping</b>									
Landscaping	5	4	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Junipers overgrown near side of building, providing hiding spots, evidence of human habitation. Shrubs in front against side of building. Crime Prevention Through Environmental Design (CPTED) recommends clear line of sight with out hiding places.

Remove (or significantly cut back) existing shrubs away from building for maintenance, site visibility, and security to CPTED recommendations. If removed, consider alternative.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #06

Total Observed Deficiency Repair Direct Cost : \$128,940

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$7,500</b>	
<b>System: Site Civil / Mechanical Utilities</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$17,438</b>	
<b>Storm Sewer</b>										
Storm Drain	4	2	2018		1	\$7,500.00	LS	\$7,500	\$17,438	

Standing water and ponding with one catch basin at SE corner of back parking lot.

Install new catch-basin in back parking lot; coordinate with City to improve street drainage. Re-develop dry-wells to south or pipe low roof drains to storm.





## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #06

Total Site Opportunity Cost: **\$98,200**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Station #6 Building</b> <b>System: Roofing</b> <span style="float: right;"><b>Total Cost: \$8,000</b></span>						
B3010	Roof Coverings	No roof fall protection	2.00	\$4,000.00	EA	\$8,000
<b>Facility: Fire Station #6 Building</b> <b>System: Plumbing</b> <span style="float: right;"><b>Total Cost: \$5,000</b></span>						
D2090	Other Plumbing Systems	No air compressor.	1.00	\$5,000.00	LS	\$5,000
<b>Facility: Fire Station #6 Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$13,800</b></span>						
D3030	Cooling Generating Systems	Forced air heating system with ventilation cooling but no A/C.	1.00	\$7,500.00	LS	\$7,500
D3060	Controls and Instrumentation	No DDC.	4,200.00	\$1.50	SF	\$6,300
<b>Facility: Fire Station #6 Building</b> <b>System: Fire Protection</b> <span style="float: right;"><b>Total Cost: \$16,400</b></span>						
D4010	Fire Protection Sprinkler Systems	No fire sprinkler.	4,100.00	\$4.00	SF	\$16,400
<b>Facility: Fire Station #6 Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$20,000</b></span>						
D5090	Other Electrical Systems	Portable generator panel.	1.00	\$20,000.00	SF	\$20,000
<b>Facility: Infrastructure</b> <b>System: Site Civil / Mechanical Utilities</b> <span style="float: right;"><b>Total Cost: \$20,000</b></span>						
G3060	Fuel Distribution	No vehicle fueling.	1.00	\$20,000.00	LS	\$20,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #06

Total Site Opportunity Cost: **\$98,200**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
Facility: Infrastructure						
System: Site Electrical utilities	Total Cost: \$15,000					
G4010	Electrical Distribution					
	Overhead power service.	Underground power service.	1.00	\$5,000.00	LS	\$5,000
G4020	Site Lighting					
	MH or HPS fixtures with minimal coverage.	Upgrade to LED and increase coverage.	5.00	\$1,000.00	EA	\$5,000
G4030	Site Communications and Security					
	No site electronic security.	Add CCTV	1.00	\$5,000.00	LS	\$5,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 Fire Station #07  
 Fire Station #7 Building

5448 South Warner Street  
 Tacoma, WA 98407

Facility Size - Gross S.F. 2,081  
 Year Of Original Construction 1959  
 Facility Use Type Fire Station  
 Construction Type Light  
 # of Floors 1  
 Energy Source Electric  
 Year Of Last Renovation 1959  
 Historic Register No



FCI (BMAR/CRV)	0.15	Predicted Renewal Budget (20 yrs)	\$352,868
FCI (Bldg OD/CRV)	0.21	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$819,000	Building	\$172,018
BMAR (Backlog of Maintenance and Repair)	\$126,000	Infrastructure	\$11,625
Beginning Budget Year	2018	<b>Total</b>	<b>\$183,643</b>
		Opportunity Total Project Cost	\$297,955

## Facility Condition Summary

Fire Station #7 was constructed in 1959 as single story, single apparatus bay fire station, collocated with a Tacoma Public Library branch. The station was renovated in 1988, and again in 1995 with a kitchen remodel, and conversion of a porch into an office and workout room. The roofing was replaced in 2012 and is in fair to good condition, and even though the exterior walls were also painted recently, the t-111 wood sheathing siding is nearing the end of life with signs of water/weather damage. MEP systems are mostly aged but maintaining minimal function.

# Facility Summary

City of Tacoma  
 Fire Station #07  
 Fire Station #7 Building

5448 South Warner Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1959	1959	3	TRB 01/23/18	Standard concrete foundations. Minor settlement cracking evident.
<b>A1030 Slab On Grade</b>	1959	1959	3	TRB 01/23/18	Concrete slab on grade.
<b>B Shell</b>			<b>2.9</b>		
<b>Superstructure</b>					
<b>B1020 Roof Construction</b>	1959	1959	3	TRB 01/23/18	Wood joists with plywood sheathing spanning between interior and exterior wood stud bearing walls.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1959	1988	3	TRB 06/02/09	Wood frame walls with plywood sheathing, brick veneer and TI-11 wood siding. TI-11 siding is deteriorating in places. Repainted in 2012.
<b>B2020 Exterior Windows</b>	1959	1995	3	TRB 01/23/18	Anodized aluminum with insulated glazing. Address with maintenance some areas of glazing sagging beginning.
<b>B2030 Exterior Doors</b>	1959	1959	3	TRB 01/23/18	Solid core wood doors and wood frames. Touch up paint, especially at garage door jamb.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1959	2012	2	TRB 01/23/18	New (2012) asphalt sheet roofing and coping.
<b>C Interiors</b>			<b>3.2</b>		
<b>Interior Construction</b>					

# Facility Summary

City of Tacoma  
 Fire Station #07  
 Fire Station #7 Building

5448 South Warner Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>3.2</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1959	1959	3	TRB 01/23/18	Wood frame walls and gypsum drywall.
<b>C1020 Interior Doors</b>	1959	1988	3	TRB 01/23/18	Solid core wood doors in wood frames.
<b>C1030 Fittings</b>	1959	1988	3	TRB 01/23/18	Misc. coat hooks, and storage/utility shelving.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1959	1959	3	TRB 01/23/18	Painted gypsum drywall and ceramic tile in shower.
<b>C3020 Floor Finishes</b>	1959	1995	4	TRB 01/23/18	Carpet worn. Sheet vinyl in kitchen (some seams need to be re-sealed at transitions), and ceramic tile in toilet/shower area.
<b>C3030 Ceiling Finishes</b>	1959	1995	3	TRB 01/23/18	Painted gypsum.
<b>D Services</b>			<b>3.2</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1959	1988	3	DCS 01/23/18	One shared bathroom with tiled shower, two tank-type water closets, two lavatories with fixtures aging in need of new trim and clean-up. Kitchenette, deep sink and hose bibs, aging but functional.
<b>D2020 Domestic Water Distribution</b>	1959	1988	4	DCS 01/23/18	Mix of original galvanized and newer copper piping. Two newer (2009 & 2010) GE electric tank-type DHW heaters without recirc pumps. Pressure is good at fixtures.
<b>D2030 Sanitary Waste</b>					

## Facility Summary

City of Tacoma  
 Fire Station #07  
 Fire Station #7 Building

5448 South Warner Street  
 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.2</b>		
<b>Plumbing</b>					
<b>D2030 Sanitary Waste</b>	1959	1988	3	DCS 01/23/18	Mix of original cast iron DW&V and newer PVC with no issues reported; tested fixtures flush & drain well.
<b>D2040 Rain Water Drainage</b>	1959	1988	3	DCS 01/23/18	Metal gutter & downspout to grade; see G3030 for drainage issue.
<b>HVAC</b>					
<b>D3030 Cooling Generating Systems</b>	1959	1988	4	DCS 01/23/18	Portable cooling for station house. Limited ventilation cooling for apparatus bay.
<b>D3040 HVAC Distribution Systems</b>	1959	1988	3	DCS 01/23/18	Natural ventilation via operable windows for station house; mechanical ventilation for apparatus bay including small exhaust fan and over-sized make-up air louver.
<b>D3050 Terminal and Package Units</b>	1959	1988	4	DCS 01/23/18	Living quarters are heated with individual King electric wall heaters. Apparatus bay is heated with two King Pic-a-Wall overhead electric unit heaters. All soon approaching end of life.
<b>D3060 Controls and Instrumentation</b>	1959	1988	4	DCS 01/23/18	Individual thermostats control each electric heater.
<b>D3090 Other HVAC Systems and Equipment</b>	1959	2011	2	DCS 01/23/18	New (2011) Nederman vehicle exhaust system.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>	1959	1999	2	DCS 01/23/18	Building is protected by wet type sprinkler system.
<b>D4030 Fire Protection Specialties</b>	1959	1988	3	DCS 01/23/18	Fire extinguishers on hooks; AED on wall; and



# Facility Summary

City of Tacoma  
 Fire Station #07  
 Fire Station #7 Building

5448 South Warner Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.2</b>		
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>					first aid kit in apparatus bay.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1959	1959	4	DCS 01/23/18	Original GE 120/240V, single-phase, 225A main distribution panel and several sub-panels; original panels are past useful life.
<b>D5020 Lighting and Branch Wiring</b>	1959	1988	3	DCS 01/23/18	Mostly T8 fluorescent with manual control and modern grounded receptacles with no issues reported.
<b>D5032 Low Voltage Communication</b>	1959	1988	3	DCS 01/23/18	Avaya phone system in good condition, plus portions of older systems in poor or abandoned condition.
<b>D5037 Low Voltage Fire Alarm</b>	1959	1999	3	DCS 01/23/18	Aging Silent Knight panel with new (2017) AES antenna; no issues reported.
<b>D5039 Low Voltage Data</b>	1959	1988	3	DCS 01/23/18	Unclear data, but appears lesser than other fire stations; but does include recently installed WAP; no issues reported, so no deficiency, but might be opportunity to upgrade to City standard.
<b>D5090 Other Electrical Systems</b>	1959	1988	3	DCS 01/23/18	Limited battery bug-eye egress fixtures with little or no exit fixtures - just older signs - opportunity to upgrade to current code requirements. GenTrans manual transfer switch for portable generator.

## E Equipment and Furnishings

3.0

### Equipment

**E1010 Commercial Equipment**

# Facility Summary

City of Tacoma  
 Fire Station #07  
 Fire Station #7 Building

5448 South Warner Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>					
	1959	1988	3	DCS 01/23/18	Kitchen and laundry room appliances - residential grade.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>					
		1995	3	TRB 01/23/18	1995 Wood Casework and laminate countertop in kitchen in good condition. Original (c1959) lockers in crew quarters in reasonably fair condition given age).
<b>F Special Construction</b>			<b>2.0</b>		
<b>Special Construction</b>					
<b>F1050 Special Controls and Instrumentation</b>					
	1959	2015	2	DCS 01/23/18	Newer tone alarm system with rooftop antenna, Astron radio, Zetron alarm and Bogan PA amp with distributed speakers; worked well during survey.

# Facility Summary

City of Tacoma  
 Fire Station #07  
 Infrastructure

5448 South Warner Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1959	1995	3	TRB 01/23/18	Concrete drive to front of building.
<b>G2020 Parking Lots</b>	1959	1995	2	TRB 01/23/18	Asphalt parking stalls in adjacent lot. Paint striping looks fairly new.
<b>G2030 Pedestrian Paving</b>	1959	1995	2	TRB 01/23/18	Concrete walks and concrete ramp with pipe handrails.
<b>G2040 Site Development</b>	1959	1988	3	TRB 01/23/18	Exterior patio with brick partition wall enclosure and wood fence partition wall.
<b>G2050 Landscaping</b>	1959	1959	2	TRB 01/23/18	Grass. Single bush adjacent to building near library - recommend trimming back away from wall for improved maintenance and CPTED (safety/security).
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1959	1959	3	DCS 01/23/18	City water with no issues reported.
<b>G3020 Sanitary Sewer</b>	1959	1959	3	DCS 01/23/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1959	1959	3	DCS 01/23/18	Storm water flows to street. Roof water discharges to grade damaging hard & soft-scape. Make-shift oil/water separator at apparatus bay apron prior to discharge to storm.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1959	1959	3	DCS 01/23/18	Underground to electrical room; Tacoma Power meter #009472 with no issues reported.

# Facility Summary

City of Tacoma  
 Fire Station #07  
 Infrastructure

5448 South Warner Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Electrical utilities</b>					
<b>G4020 Site Lighting</b>	1959	1988	3	DCS 01/23/18	Several HID & LED wall-packs and wall sconces at door(s); no issues reported.
<b>G4030 Site Communications and Security</b>	1959	2010	3	DCS 01/23/18	Telecom from purveyors via overhead lines from pole at street; no issues reported.

# Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Fire Station #07

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Fire Station #7 Building	Foundations	\$7,000	\$1,750	\$1,750	\$5,775	\$16,275
	Interior Finishes	\$17,000	\$4,250	\$4,250	\$14,025	\$39,525
	Plumbing	\$6,243	\$1,561	\$1,561	\$5,150	\$14,515
	HVAC	\$21,243	\$5,311	\$5,311	\$17,525	\$49,390
	Electrical	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Equipment	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	<b>Facility Total</b>		<b>\$61,486</b>	<b>\$15,372</b>	<b>\$15,372</b>	<b>\$50,726</b>
Infrastructure	Site Civil / Mechanical Utilities	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	<b>Facility Total</b>	<b>\$5,000</b>	<b>\$1,250</b>	<b>\$1,250</b>	<b>\$4,125</b>	<b>\$11,625</b>
	<b>Site Total</b>	<b>\$66,486</b>	<b>\$16,622</b>	<b>\$16,622</b>	<b>\$54,851</b>	<b>\$154,580</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #07

Total Observed Deficiency Repair Direct Cost : \$66,486

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Station #7 Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$7,000	
System: Foundations				Total System Deficiency Repair Cost (Marked Up):					\$16,275	
<b>Slab On Grade</b>										
Concrete	4	4	2018		1	\$7,000.00	LS	\$7,000	\$16,275	
Cracked and broken slab just inside apparatus bay entry.				Sawcut, selective demo, and and re-pour portion of slab.						



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #07

Total Observed Deficiency Repair Direct Cost : \$66,486

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #7 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$17,000</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$39,525</b>
<b>Floor Finishes</b>									
Carpet	4	3	2018		1,700	\$10.00	SF	\$17,000	\$39,525

Carpet worn and stained from years of traffic.

Replace carpeting.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #07

Total Observed Deficiency Repair Direct Cost : \$66,486

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Station #7 Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$6,243	
System: Plumbing				Total System Deficiency Repair Cost (Marked Up):					\$14,515	
<b>Domestic Water Distribution</b>										
Galvanized steel piping	4	3	2018		2,081	\$3.00	SF	\$6,243	\$14,515	

Galvanized steel piping.

Replace with copper and/or PEX.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #07

Total Observed Deficiency Repair Direct Cost : \$66,486

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: Fire Station #7 Building									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: HVAC									\$21,243	
<b>Cooling Generating Systems</b>										
Cooling	4	2	2018		2	\$5,000.00	EA	\$10,000	\$23,250	

Portable LG coolers for station house.

Install permanent ductless split-Dx cooling



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #07

Total Observed Deficiency Repair Direct Cost : \$66,486

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Station #7 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$21,243</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$49,390</b>
<b>Terminal and Package Units</b>									
Electric heaters	4	5	2018		10	\$500.00	EA	\$5,000	\$11,625

Aging electric heater approaching end of life.

Replace with new.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #07

Total Observed Deficiency Repair Direct Cost : \$66,486

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #7 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$21,243
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$49,390
<b>Controls and Instrumentation</b>									
Controls	4	5	2018		2,081	\$3.00	SF	\$6,243	\$14,515

Aging controls.

Replace with new programmable.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #07

Total Observed Deficiency Repair Direct Cost : \$66,486

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				<b>Action</b>						
<b>Facility: Fire Station #7 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$5,000</b>	
<b>System: Electrical</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$11,625</b>	
<b>Electrical Service and Distribution</b>										
Electrical service	4	4	2018		1	\$5,000.00	EA	\$5,000	\$11,625	

Original panel is past useful life.

Replace service panel and reconnect branch circuits.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #07

Total Observed Deficiency Repair Direct Cost : \$66,486

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Station #7 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$5,000</b>	
<b>System: Equipment</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$11,625</b>	
<b>Commercial Equipment</b>										
Appliances	3	5	2018		5	\$1,000.00	EA	\$5,000	\$11,625	

Some appliances soon approaching end of life.

Budget for replacement prior to failure.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #07

Total Observed Deficiency Repair Direct Cost : \$66,486

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$5,000</b>	
<b>System: Site Civil / Mechanical Utilities</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$11,625</b>	
<b>Storm Sewer</b>										
Storm	4	2	2018		5	\$1,000.00	EA	\$5,000	\$11,625	

Roof drain down spouts discharge to grade damaging hard & soft scape.

Connect to storm.







## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #07

Total Site Opportunity Cost: \$128,153

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Station #7 Building</b>						
<b>System: Plumbing Total Cost: \$5,000</b>						
D2090	Other Plumbing Systems	No air compressor.				
		Install air compressor to fill apparatus and other vehicle tires and perform other minor maintenance.	1.00	\$5,000.00	LS	\$5,000
<b>Facility: Fire Station #7 Building</b>						
<b>System: HVAC Total Cost: \$57,025</b>						
D3010	Energy Supply	All electric heat with natural gas in vicinity.				
		Upgrade to more cost-effective natural gas heat.	1.00	\$5,000.00	LS	\$5,000
D3040	HVAC Distribution Systems	No HVAC system for station house.				
		Install HVAC system.	2,081.00	\$25.00	SF	\$52,025
<b>Facility: Fire Station #7 Building</b>						
<b>System: Electrical Total Cost: \$66,128</b>						
D5020	Lighting and Branch Wiring	Fluorescent light fixtures with manual control.				
		Upgrade to LED lighting with automatic control.	2,081.00	\$5.00	SF	\$10,405
D5038	Low Voltage Security	No electronic security.				
		Add electronic security per City standard.	2,081.00	\$2.75	SF	\$5,723
D5090	Other Electrical Systems	Portable gas-fired generator.				
		Upgrade to permanent diesel generator, say 35 kW.	1.00	\$50,000.00	LS	\$50,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

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City of Tacoma  
 Fire Station #08  
 Fire Station #8 Building

4911 South Alaska Street  
 Tacoma, WA 98407

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Facility Size - Gross S.F. 17,400  
 Year Of Original Construction 2003  
 Facility Use Type Fire Station  
 Construction Type Light  
 # of Floors 2  
 Energy Source Gas  
 Year Of Last Renovation 2003  
 Historic Register No



FCI (BMAR/CRV)	0.07	Predicted Renewal Budget (20 yrs)	\$1,951,868
FCI (Bldg OD/CRV)	0.02	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$6,782,000	<b>Building</b>	\$134,618
BMAR (Backlog of Maintenance and Repair)	\$503,000	<b>Infrastructure</b>	\$79,515
Beginning Budget Year	2018	<b>Total</b>	\$214,133
		<b>Opportunity Total Project Cost</b>	\$929,419

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## Facility Condition Summary

Fire Station #8 is a large 2-story wood frame building was constructed in 2003. Housing four apparatus bays, this is also a station house with dorm/living quarters, office, and recreation area. There is also a large community room with separate toilet facilities that is accessible from the ground floor (daylight basement). This facility is generally in very good to excellent condition, with new interior finishes like carpeting, and recent painting.

# Facility Summary

City of Tacoma  
 Fire Station #08  
 Fire Station #8 Building

4911 South Alaska Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	2003	2003	2	TRB 01/10/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	2003	2003	2	TRB 01/10/18	Concrete slab on grade. Minor cracking is present in lower level slabs. Fill and seal recommended.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	2003	2003	2	TRB 01/10/18	Concrete basement walls between foundation and first floor.
<b>B Shell</b>			<b>2.3</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	2003	2003	2	TRB 01/10/18	Wood joists with plywood sheathing. Portions of the floor comprising the east part of the apparatus bay is precast hollow core plank with concrete topping. Mezzanine is wood joist framing with plywood sheathing.
<b>B1020 Roof Construction</b>	2003	2003	2	TRB 01/10/18	Wood joists and pre-engineered wood trusses with plywood sheathing spanning to interior and exterior wood stud walls.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	2003	2003	3	TRB 01/10/18	Wood stud walls with plywood sheathing. Exterior finish is CMU veneer with fiber cement lap siding. Recommend treating masonry caps with algae treatment and power washing, and sealing masonry to improve appearance and extend life.
<b>B2020 Exterior Windows</b>	2003	2003	2	TRB 01/10/18	Anodized aluminum frames and insulated glazing.

## Facility Summary

City of Tacoma  
 Fire Station #08  
 Fire Station #8 Building

4911 South Alaska Street  
 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>2.3</b>		
<b>Exterior Closure</b>					
<b>B2030 Exterior Doors</b>	2003	2003	2	TRB 01/10/18	Anodized aluminum storefront and hollow metal doors and metal frames. The apparatus bays have individual overhead automatic garage doors in good condition (touch up paint needed at protective door bollards).
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	2003	2003	2	TRB 01/10/18	Galvanized metal roofing with standing seam.
<b>B3030 Projections</b>	2003	2003	3	TRB 01/10/18	Entry canopies are wood and metal framing with metal pan roofing. Deck off of kitchen (surrounded by a lap siding clad guard wall) is concrete topping slab on a membrane on structure. The deck is leaking to inside the building into the chief's office.
<b>C Interiors</b>			<b>2.0</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	2003	2003	2	TRB 01/10/18	Wood frame walls with painted gypsum drywall.
<b>C1020 Interior Doors</b>	2003	2003	2	TRB 01/10/18	Solid core wood doors in metal frames.
<b>C1030 Fittings</b>	2003	2003	2	TRB 01/10/18	Plastic laminate faced cabinets, vanities, and lockers.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>	2003	2003	2	TRB 01/10/18	Wood frame stair.
<b>C2020 Stair Finishes</b>	2003	2003	2	TRB 01/10/18	Raised pattern vinyl treads and risers.

# Facility Summary

City of Tacoma  
 Fire Station #08  
 Fire Station #8 Building

4911 South Alaska Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.0</b>		
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	2003	2016	2	TRB 01/10/18	Painted gypsum drywall.
<b>C3020 Floor Finishes</b>	2003	2017	2	TRB 01/10/18	Carpet, vinyl composition tile, sheet vinyl. Carpeting was replaced in 2017.
<b>C3030 Ceiling Finishes</b>	2003	2003	2	TRB 01/10/18	Suspended acoustic ceiling and painted gypsum drywall.
<b>D Services</b>			<b>2.5</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	2003	2003	2	DCS 01/10/18	Various porcelain, stainless steel, and composite fixtures with no issues reported; some trim needs minor adjustment.
<b>D2020 Domestic Water Distribution</b>	2003	2003	2	DCS 01/10/18	Domestic to Station House and non-potable via RPBP to Ap Bays, all copper. Two A.O. Smith high-efficiency 100-gal, 199 mbh tank-type DHW heaters, one with recirc pump, aging but with 5 to 10 years remaining life. Hose reels outside each apparatus bay. No issues reported.
<b>D2030 Sanitary Waste</b>	2003	2003	3	DCS 01/10/18	DW&V piping is ABS with leaks beginning to develop and at least one damaged VTR which may be source of active leak at kitchen.
<b>D2040 Rain Water Drainage</b>	2003	2003	3	DCS 01/10/18	Metal gutter and painted PVC to storm; minor damage to gutter at east utility bay canopy and some downspout joints beginning to separate.
<b>D2090 Other Plumbing Systems</b>	2003	2009	2	DCS 01/10/18	Portable air compressor; opportunity for permanent. Plastic temporary eyewash at apparatus bay; opportunity for permanent.

# Facility Summary

City of Tacoma  
 Fire Station #08  
 Fire Station #8 Building

4911 South Alaska Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			2.5		
<b>Plumbing</b>					
<b>D2090 Other Plumbing Systems</b>					
					Complete oxygen tank fill system including Atlas Copco 10-hp air compressor, one 100-gal air receiver, one OGST oxygen generator, one 100-gal O2 receiver, one 1.5 hp high-pressure O2 compressor, and large O2 bottle rack.
<b>HVAC</b>					
<b>D3010 Energy Supply</b>					
	2003	2003	2	DCS 01/10/18	Black iron natural gas piping to Station House furnaces and unit heater, apparatus bay radiant heaters, station DHW heaters, kitchen ranges and deck BBQ. No seismic shut-off valve.
<b>D3020 Heat Generating Systems</b>					
	2003	2003	3	DCS 01/10/18	Original (2003) gas-fired heating appliances are aging but operable; furnaces with 5 to 10 years remaining life and unit and radiant heaters with 10 to 15 years.
<b>D3030 Cooling Generating Systems</b>					
	2003	2003	4	DCS 01/10/18	Five Lennox condensing units associated with mezzanine furnace systems for Station House; these units are soon approaching end of life. Opportunity to upgrade to hybrid (heat pump & furnace) at renewal.
<b>D3040 HVAC Distribution Systems</b>					
	2003	2003	2	DCS 01/10/18	Ductwork is galvanized steel where observed; insulated flex duct may be present in ceiling space. Station House includes HRV supplying OA to furnace systems.
<b>D3050 Terminal and Package Units</b>					
	2003	2003	3	DCS 01/10/18	Station House upper floor and public meeting room is served by five high-efficiency gas furnaces with split-Dx cooling; furnaces have 5 to 10 years life remaining and require increasing service to keep operating until replacement. Apparatus bays are heated by overhead low-intensity gas-fired infrared heaters with flue vents up through roof also with 5 to 10 years remaining life. Miscellaneous spaces are served by electric wall heaters, gas and electric unit heaters.

# Facility Summary

City of Tacoma  
 Fire Station #08  
 Fire Station #8 Building

4911 South Alaska Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			2.5		
<b>HVAC</b>					
<b>D3050 Terminal and Package Units</b>					
					Multiple daylight basement level offices and quarters are served by Amana through-wall PTAC heat pumps, also with 5 to 10 years remaining life, noting some lives are being shortened by dripping water from leaking gutter above (minor issue if addressed soon).
<b>D3060 Controls and Instrumentation</b>					
	2003	2003	3	DCS 01/10/18	Many larger pieces of equipment and HVAC zones are controlled by City standard Alerton DDC, but small equipment and systems are local control only, such as PTACs and wall heaters.
<b>D3090 Other HVAC Systems and Equipment</b>					
	2003	2011	2	DCS 01/10/18	Newer (2011) Nederman vehicle engine exhaust system; original general exhaust system reportedly abandoned in place.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>					
	2003	2003	2	DCS 01/10/18	Four-inch service from City via PIV, plus FDC to four-inch risers, one dry to unheated space, one wet to heated space - no issues reported, noting riser pressure is just 50 psig.
<b>D4030 Fire Protection Specialties</b>					
	2003	2018	2	DCS 01/10/18	Fire extinguishers on hooks.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	2003	2003	2	DCS 01/10/18	Service is to Siemens 800A main distribution panel feeding for 200A panels, almost completely full, but no issues reported.
<b>D5020 Lighting and Branch Wiring</b>					
	2003	2003	3	DCS 01/10/18	Mix of T8 lay-in at office and surface-mount or pendent in apparatus bay and related areas; plus further mix of CFL and others.
<b>D5032 Low Voltage Communication</b>					



# Facility Summary

City of Tacoma  
 Fire Station #08  
 Fire Station #8 Building

4911 South Alaska Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.5</b>		
<b>Electrical</b>					
<b>D5032 Low Voltage Communication</b>	2003	2003	3	DCS 01/10/18	Modern phone, doorbell and other communications aging but with no issues reported.
<b>D5037 Low Voltage Fire Alarm</b>	2003	2003	3	DCS 01/10/18	GE EST fire alarm aging but with new (2017) AES antenna.
<b>D5038 Low Voltage Security</b>	2003	2003	3	DCS 01/10/18	Minimal electronic security with no issues reported.
<b>D5039 Low Voltage Data</b>	2003	2003	3	DCS 01/10/18	Modern data with no issues reported.
<b>D5090 Other Electrical Systems</b>	2003	2003	2	DCS 01/10/18	Cummins 175 kW diesel generator with small 100-gal belly tank, plus associated full-building capacity Cummins 800A ATS. Little or no battery egress or exiting signage due to assumed emergency (<10 second response) certification.
<b>E Equipment and Furnishings</b>			<b>2.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	2003	2003	2	DCS 01/10/18	Plastic laminate faced particle board cabinets, vanities, and gear lockers - mostly in good condition.
<b>F Special Construction</b>			<b>2.0</b>		
<b>Special Construction</b>					
<b>F1050 Special Controls and Instrumentation</b>	2003	2017	2	DCS 01/10/18	Newer (2017) tone alarm system.

# Facility Summary

City of Tacoma  
 Fire Station #08  
 Infrastructure

4911 South Alaska Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	2003	2003	2	TRB 01/10/18	Concrete at main entry to building. Asphalt to parking lot at back of building, lower driveway apron cracking.
<b>G2020 Parking Lots</b>	2003	2003	3	TRB 01/10/18	Asphalt with extruded concrete curbs.
<b>G2030 Pedestrian Paving</b>	2003	2003	2	TRB 01/10/18	Concrete walks and plaza areas.
<b>G2040 Site Development</b>	2003	2003	2	TRB 01/10/18	Chain link fencing. CMU and rock walls. Gate at storm pond needs adjusting to secure pond. Treat moss growth starting on top of building monument sign wing wall.
<b>G2050 Landscaping</b>	2003	2003	3	TRB 06/02/09	Grass, shrubs and trees - well maintained. Some erosion on back slope starting to expose top 6" of foundation wall drainage board.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	2003	2003	2	DCS 01/10/18	City water with no issues reported; separate 2-inch domestic, 1.5-inch irrigation and 4-inch fire services; fire includes PIV & FDC.
<b>G3020 Sanitary Sewer</b>	2003	2003	2	DCS 01/10/18	City sewer with no issues reported. Apparatus bay front apron doubles as vehicle wash including trench drain to sewer via OWS when washing, otherwise diverted to storm.
<b>G3030 Storm Sewer</b>	2003	2003	2	DCS 01/10/18	Network of catch basins and conveyance piping from roof drains, several landscape low-points and parking lot directed to on-site storm water management detention, treatment and infiltration ponds, ponds enclosed by chain-link fence. Poor drainage control on steep landscaped area on SE side of Bldg.

# Facility Summary

City of Tacoma  
 Fire Station #08  
 Infrastructure

4911 South Alaska Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Civil / Mechanical Utilities</b>					
G3030 Storm Sewer					
G3060 Fuel Distribution	2003	2003	2	DCS 01/10/18	PSE gas meter #629916 with 1,000 cfm capacity. ConVault 1,000-gal vehicle diesel fuel storage tank, dispenser and meter in fair to good condition, except meter panel broken.
<b>Site Electrical utilities</b>					
G4010 Electrical Distribution	2003	2003	2	DCS 01/10/18	Tacoma Power underground from pole to south to 300 kVA transformer, then underground to building; no issues reported.
G4020 Site Lighting	2003	2003	2	DCS 01/10/18	Five light poles in parking lot with MH heads; plus several perimeter building wall-packs including above apparatus bay doors.
G4030 Site Communications and Security	2003	2003	2	DCS 01/10/18	Modern telecom services U/G to Bldg from purveyors; no site electronic security.



# Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Fire Station #08

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Fire Station #8 Building	Roofing	\$8,000	\$2,000	\$2,000	\$6,600	\$18,600
	Plumbing	\$15,000	\$3,750	\$3,750	\$12,375	\$34,875
	HVAC	\$34,900	\$8,725	\$8,725	\$28,793	\$81,143
	<b>Facility Total</b>	<b>\$57,900</b>	<b>\$14,475</b>	<b>\$14,475</b>	<b>\$47,768</b>	<b>\$134,618</b>
Infrastructure	Site Improvements	\$34,200	\$8,550	\$8,550	\$28,215	\$79,515
	<b>Facility Total</b>	<b>\$34,200</b>	<b>\$8,550</b>	<b>\$8,550</b>	<b>\$28,215</b>	<b>\$79,515</b>
	<b>Site Total</b>	<b>\$92,100</b>	<b>\$23,025</b>	<b>\$23,025</b>	<b>\$75,983</b>	<b>\$214,133</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #08

Total Observed Deficiency Repair Direct Cost : \$92,100

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Station #8 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$8,000</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$18,600</b>
<b>Projections</b>									
Concrete Deck	5	1	2018		1	\$8,000.00	LS	\$8,000	\$18,600

Concrete deck leaking into chief's office below.

Investigate starting with selective removal of interior face siding, add side wall flashing up wall (to flash deck up walls like "bathtub",) fill cracks, and coat concrete deck with a fluid-applied reinforced non-slip waterproof deck coating system (consider something like BASF Masterseal traffic 1500). Extend new waterproof coating up walls prior to reinstalling or replacing cladding. May also need to expand scuppers (with new waterproof flashings integrated with new waterproof deck system). Verify there is adequate drip and counter flashing at scuppers to prevent capillary action driving moisture back into the wall. Also consider further extending protective roof canopy to further reduce exposure of the deck area to rain. Note also investigate deck rail cap flash conditions....drips from seams seem to run or drip down exterior face of wall, onto window units below and are staining the masonry at the sill on the ground level.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #08

Total Observed Deficiency Repair Direct Cost : \$92,100

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					

Facility: Fire Station #8 Building	Total System Deficiency Repair Cost (Undiscounted/Unescalated):	\$8,000
System: Roofing	Total System Deficiency Repair Cost (Marked Up):	\$18,600

### Projections

Facility: Fire Station #8 Building	Total System Deficiency Repair Cost (Undiscounted/Unescalated):	\$15,000
System: Plumbing	Total System Deficiency Repair Cost (Marked Up):	\$34,875

### Sanitary Waste

DW&V piping	4	3	2018		5	\$1,000.00	EA	\$5,000	\$11,625
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ABS DW&V piping beginning to leak.

Budget for annual repairs including collateral damage.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #08

Total Observed Deficiency Repair Direct Cost : \$92,100

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #8 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$15,000</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$34,875</b>
<b>Other Plumbing Systems</b>									
Oxygen system	4	1	2018		1	\$10,000.00	LS	\$10,000	\$23,250

Oxygen room and adjacent storage area may exceed exempt amounts. Oxygen room is overheating when system is operated.

Determine exempt amounts and reduce HPM and/or provide engineered safety features. Provide adequate cooling to maintain oxygen room at required temperature.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #08

Total Observed Deficiency Repair Direct Cost : \$92,100

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #8 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$34,900
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$81,143
<b>Cooling Generating Systems</b>									
Condensing units	4	5	2018		5	\$3,500.00	EA	\$17,500	\$40,688

CUs approaching EOL.

Budget for replacement.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #08

Total Observed Deficiency Repair Direct Cost : \$92,100

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Station #8 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$34,900</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$81,143</b>
<b>Controls and Instrumentation</b>									
Controls	4	5	2018		17,400	\$1.00	SF	\$17,400	\$40,455

DDC control systems soon approaching end of life - renewal will be needed.

Upgrade to current City standard at end of life.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #08

Total Observed Deficiency Repair Direct Cost : \$92,100

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Infrastructure				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$34,200
System: Site Improvements				Total System Deficiency Repair Cost (Marked Up):					\$79,515
<b>Roadways</b>									
Concrete Curb	4	3	2018		350	\$12.00	EA	\$4,200	\$9,765
Lower lot concrete apron/curb-cut cracking and breaking apart.				Demo and replace concrete.					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #08

Total Observed Deficiency Repair Direct Cost : \$92,100

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Infrastructure</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$34,200</b>
<b>System: Site Improvements</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$79,515</b>
<b>Parking Lots</b>									
Asphalt Parking Lots	4	2	2018		4,000	\$7.50	SF	\$30,000	\$69,750

Cracks in pavement, paint not discernible.

Seal Asphalt cracks, consider slurry top coat, to extend life. Re-paint striping.





## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #08

Total Site Opportunity Cost: \$409,750

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Station #8 Building</b> <b>System: Interior Finishes</b> <span style="float: right;"><b>Total Cost: \$5,250</b></span>						
C3010	Wall Finishes	No corner guards, drywall wear occurring at corners in traffic areas.	Install Stainless Corner guards at traffic area drywall corners.	15.00	\$350.00	EA \$5,250
<b>Facility: Fire Station #8 Building</b> <b>System: Vertical Transportation</b> <span style="float: right;"><b>Total Cost: \$150,000</b></span>						
D1010	Elevators and Lifts	No elevator.	Install two-stop elevator.	1.00	\$150,000.00	LS \$150,000
<b>Facility: Fire Station #8 Building</b> <b>System: Plumbing</b> <span style="float: right;"><b>Total Cost: \$7,500</b></span>						
D2090	Other Plumbing Systems	Portable air compressor.	Permanent air compressor with copper distribution piping to each Ap Bay and shop areas with hose reels at Ap Bays and drops elsewhere.	1.00	\$7,500.00	LS \$7,500
<b>Facility: Fire Station #8 Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$150,000</b></span>						
D3030	Cooling Generating Systems	Anticipated failure of split-Dx cooling CUs.	Upgrade to hybrid system with split-Dx heat pumps plus furnaces.	5.00	\$5,000.00	EA \$25,000
D3050	Terminal and Package Units	Standalone HVAC systems with limited zoning.	Upon replacement of existing equipment upgrade to VRF technology.	12,000.00	\$10.00	\$120,000
D3090	Other HVAC Systems and Equipment	Original general exhaust system reportedly abandoned in place.	Reconfigure Ap Bay general exhaust system for warm weather ventilation cooling.	1.00	\$5,000.00	LS \$5,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #08

Total Site Opportunity Cost: \$409,750

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Station #8 Building</b> <b>System: Electrical</b>						
<b>Total Cost: \$87,000</b>						
D5020	Lighting and Branch Wiring	Existing fluorescent lighting with manual controls.				
		LED lighting with automatic controls.	17,400.00	\$5.00	SF	\$87,000
<b>Facility: Infrastructure</b> <b>System: Site Electrical utilities</b>						
<b>Total Cost: \$10,000</b>						
G4020	Site Lighting	Aging metal halide lamps at outside light fixtures.				
		Upgrade heads or lamps to LED.	10.00	\$500.00	EA	\$5,000
G4030	Site Communications and Security	No site electronic security.				
		Install CCTV per City standard.	5.00	\$1,000.00	EA	\$5,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 Fire Station #09  
 Fire Station #9 Building

3502 6th Avenue  
 Tacoma, WA 98407

Facility Size - Gross S.F. 5,430  
 Year Of Original Construction 1965  
 Facility Use Type Fire Station  
 Construction Type Light  
 # of Floors 1  
 Energy Source Gas  
 Year Of Last Renovation 1965  
 Historic Register No



FCI (BMAR/CRV)	0.11	Predicted Renewal Budget (20 yrs)	\$821,742
FCI (Bldg OD/CRV)	0.10	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$2,136,000	<b>Building</b>	\$132,200
BMAR (Backlog of Maintenance and Repair)	\$229,000	<b>Infrastructure</b>	\$44,175
Beginning Budget Year	2018	<b>Total</b>	\$176,375
		<b>Opportunity Total Project Cost</b>	\$626,635

## Facility Condition Summary

Fire Station #9 is a three apparatus bay fire station built in 1965 as a partial 2-story wood framed building (there is an upper mezzanine housing additional dorm, bath/shower and work out room functions). In 2009, it received new windows, siding, roofing and HVAC units. In 2012 the exterior was re-painted. The building is in generally fair condition, but is in need of interior finish replacements and some site work.

# Facility Summary

City of Tacoma  
 Fire Station #09  
 Fire Station #9 Building

3502 6th Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1965	1965	3	TRB 01/24/18	Standard concrete foundation. Minor cracks observed.
<b>A1030 Slab On Grade</b>	1965	1965	3	TRB 01/24/18	Concrete slab on grade. Minor cracking observed in apparatus bay.
<b>B Shell</b>			<b>2.8</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1965	1965	3	TRB 01/24/18	Main floor is concrete slab on grade. Mezzanine is wood floor framing with plywood sheathing.
<b>B1020 Roof Construction</b>	1965	1965	3	TRB 01/24/18	High bay is glu-lam beams with tongue and groove decking. Low roof are wood framing and wood sheathing.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1965	2009	3	TRB 01/24/18	Wood stud walls with plywood sheathing, lap siding, brick and stucco. Cracks in cement stucco.
<b>B2020 Exterior Windows</b>	1965	2009	2	TRB 01/24/18	Insulated vinyl frame windows.
<b>B2030 Exterior Doors</b>	1965	2009	3	TRB 01/24/18	Solid core wood in wood frame. Wood and glass overhead garage doors.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1965	2009	2	TRB 01/24/18	Roofing membrane and asphalt shingles. 2" rigid insulation above flat roof portion of building.
<b>B3030 Projections</b>					

# Facility Summary

City of Tacoma  
 Fire Station #09  
 Fire Station #9 Building

3502 6th Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>2.8</b>		
<b>Roofing</b>					
	1965	1965	3	TRB 01/24/18	Composition shingle clad window awning canopies, limited soffit venting.
<b>C Interiors</b>			<b>2.3</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>					
	1965	1965	2	TRB 01/24/18	Wood framed walls with gypsum board. Panel in lower floor shower has come loose at base (again) traps occupant inside, also causing moisture issues to walls and flooring. Replace or install splash guards.
<b>C1020 Interior Doors</b>					
	1965	1965	2	TRB 01/24/18	Solid core wood doors. Old knob hardware.
<b>C1030 Fittings</b>					
	1965	2009	2	TRB 01/24/18	Miscellaneous coat and equipment wall mount racks.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>					
	1965	2009	3	TRB 01/24/18	Wood stairs to upper level quarters and exercise area. No handrails on either stairs.
<b>C2020 Stair Finishes</b>					
	1965	2009	3	TRB 01/24/18	Vinyl treads on wood treads.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>					
	1965	2009	2	TRB 01/24/18	Paint on gypsum board.
<b>C3020 Floor Finishes</b>					
	1965	2009	3	TRB 01/24/18	Sheet vinyl, carpet, sealed concrete.
<b>C3030 Ceiling Finishes</b>					
	1965	2009	2	TRB 01/24/18	Painted gypsum board, wood decking in vehicle bay.

# Facility Summary

City of Tacoma  
 Fire Station #09  
 Fire Station #9 Building

3502 6th Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.3</b>		
<b>Interior Finishes</b>					
C3030 Ceiling Finishes					
<b>D Services</b>			<b>2.7</b>		
<b>Plumbing</b>					
D2010 Plumbing Fixtures					
	1965	1990	3	DCS 01/24/18	Porcelain and stainless steel fixtures at kitchen and bathrooms. Permanent eyewash at apparatus bay; minor maintenance needed to adjust trim, fix shower, and improve flush at one water closet.
D2020 Domestic Water Distribution					
	1965	1999	2	DCS 01/24/18	Copper domestic water system serves all plumbing fixtures including residential and commercial laundry. Two A.O. Smith electric DHW heaters - one 119 gal serving laundry and one 65 gal serving bathroom with no recirc pumps.
D2030 Sanitary Waste					
	1965	1965	3	DCS 01/24/18	Mostly cast iron DW&V piping with small amount of ABS; most tested fixtures flush & drain well, but several are slow - minor maintenance needed. Standing water on laundry room floor from leakage or spillage - fix leaks and/or add floor drain. Trench drain at west apparatus bay, assumed leading to OWS at apron.
D2040 Rain Water Drainage					
	1965	2009	4	DCS 01/24/18	Scupper & downspout to storm with scuppers draining poorly, resulting in excessive standing water on roof and other damage to roofing and potentially walls.
D2090 Other Plumbing Systems					
	1965	2009	3	DCS 01/24/18	Make-shift PVC decontamination wash at west apparatus bay door but works. Trench drain inside at west-most apparatus bay. No observed compressed air system.

## HVAC

## Facility Summary

City of Tacoma  
 Fire Station #09  
 Fire Station #9 Building

3502 6th Avenue  
 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			2.7		
<b>HVAC</b>					
<b>D3010 Energy Supply</b>	1965	2009	2	DCS 01/24/18	Natural gas piping serves two unit heater in apparatus bay, plus BBQ at patio. Opportunity to upgrade DHW heater to gas upon replacement in future.
<b>D3030 Cooling Generating Systems</b>	1965	2009	3	DCS 01/23/18	Eight Fujitsu 0.75-ton each economy ductless-split Dx heat pumps with condensate pumps - aging but functional, except some may have failing condensate pumps (minor maintenance to repair or replace).
<b>D3040 HVAC Distribution Systems</b>	1965	2009	3	DCS 01/24/18	Natural ventilation for most occupied spaces. Bathrooms served by individual ceiling exhaust fans. Apparatus bay exhaust fan with reverse acting T-stat; back-draft damper is sticking (minor maintenance item).
<b>D3050 Terminal and Package Units</b>	1965	2009	3	DCS 01/24/18	Apparatus bay is served by two newer (2011) ADP gas-fired unit heaters. Other areas are served by mixture of aging (1980's) wall electric heaters and newer (2009) wall-mounted ductless split-Dx heat pumps; wall heaters should have 5 to 10 years remaining life, but need cleaning and repair of manual T-stat on many units.
<b>D3060 Controls and Instrumentation</b>	1965	2009	2	DCS 01/24/18	All stand-alone programmable controls for most newer equipment (ductless splits); manual T-stats for wall heaters; opportunity to upgrade stand-alone programmable controls; further opportunity to upgrade to City standard DDC.
<b>D3090 Other HVAC Systems and Equipment</b>	1965	2011	2	DCS 01/24/18	New (2011) Nederman vehicle engine exhaust system. One apparatus bay exhaust fan with reverse acting T-stat and sticking back-draft damper (minor maintenance to lubricate).

### Fire Protection

# Facility Summary

City of Tacoma  
 Fire Station #09  
 Fire Station #9 Building

3502 6th Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			2.7		
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>					
	2005	2005	2	DCS 01/24/18	Wet type fire sprinkler system serves entire building with 4-inch service to 4-inch main; riser pressure at 60 psig.
<b>D4030 Fire Protection Specialties</b>					
	1965	2009	2	DCS 01/24/18	Fire extinguishers on hooks.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	1965	2009	3	DCS 01/24/18	Original (1965) Square D 120/240V, single-phase service from overhead lines to two 225A panels, all full with 5 to 10 years remaining life. Newer Square D (2009) 208V, three-phase service from underground to 200A panel installed to service new (2009) ductless split-Dx heat pumps; additional sub-panel at mezzanine dorm hallway.
<b>D5020 Lighting and Branch Wiring</b>					
	1965	1990	3	DCS 01/24/18	Fluorescent T8 fixtures - surface mount wrap-around in living & office areas; pendant industrial at apparatus bays all with manual controls.
<b>D5032 Low Voltage Communication</b>					
	1965	2009	2	DCS 01/23/18	Avaya phone system; door bell; CATV; other miscellaneous - all with no reported issues.
<b>D5037 Low Voltage Fire Alarm</b>					
	1965	1999	3	DCS 01/23/18	Aging zoned Silent Knight FACP with new (2017) AES antenna. No coverage at mezzanine dorm rooms, except battery operated smoke and CO alarms in mezzanine hallway.
<b>D5038 Low Voltage Security</b>					
	1965	2009	3	DCS 01/23/18	Limited CCTV at parking behind station; little or no other electronic security, but no issues reported. Manual cipher-locks on outside door(s).
<b>D5039 Low Voltage Data</b>					
	1965	2009	2	DCS 01/23/18	High-speed data with Cisco switch and recently added wireless with no issues reported.

# Facility Summary

City of Tacoma  
 Fire Station #09  
 Fire Station #9 Building

3502 6th Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.7</b>		
<b>Electrical</b>					
D5039 Low Voltage Data					
D5090 Other Electrical Systems					
	1965	1980	3	DCS 01/24/18	GenTrans manual transfer switch for small portable gas-fired generator(s); minimal emergency lighting and signage.
<b>E Equipment and Furnishings</b>			<b>2.7</b>		
<b>Equipment</b>					
E1010 Commercial Equipment					
	1965	1999	3	DCS 01/24/18	Residential appliances for kitchen and laundry with no issues reported. Residential appliances at kitchen also with no reported issues.
<b>Furnishings</b>					
E2010 Fixed Furnishings					
	1965	2009	2	TB 01/24/18	Built-in laminate faced lockers and toilet room counters, wood kitchen cabinets. P-lam casework in workout area adjoining apparatus bay is delaminating and worn.
<b>F Special Construction</b>			<b>2.0</b>		
<b>Special Construction</b>					
F1050 Special Controls and Instrumentation					
	1965	2015	2	DCS 01/24/18	Two newer (2015) tone alarm systems - one for each of the two companies at this station; both with antenna, Astron radio, Zetron alarm, and Bogan amp with speakers.

# Facility Summary

City of Tacoma  
 Fire Station #09  
 Infrastructure

3502 6th Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1965	1965	2	TRB 01/24/18	Concrete apron at building entrance.
<b>G2020 Parking Lots</b>	1965	1965	4	TRB 01/24/18	Asphalt parking adjacent to alley in back of building.
<b>G2030 Pedestrian Paving</b>	1965	1965	3	TRB 01/24/18	Concrete sidewalks and steps. Perimeter sidewalks on east side have displaced panels that could cause tripping.
<b>G2040 Site Development</b>	1965	1965	3	TRB 01/24/18	Rockery and modular block retaining structure. Cedar wood fencing and gates; fence approaching end of life, maintenance needed, repair or replace gates needed at courtyard and mechanical enclosure.
<b>G2050 Landscaping</b>	1965	1965	3	TRB 01/24/18	Grass, shrubs and trees. Trees and shrubs along building are overgrown.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1965	1965	3	DCS 01/24/18	City water service from meter to north with no issues reported. Fire service also from vault to north with double FDC at outside wall. Appears to be two irrigation systems, one permanent, one temporary.
<b>G3020 Sanitary Sewer</b>	1965	1965	3	DCS 01/24/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1965	1965	3	DCS 01/24/18	Storm to City with no issues reported. Downspouts are piped to storm. Reportedly apron catch-basin includes oil/water separation pipe-tee, draining to sewer - opportunity for diverter valve similar to newer stations (8 & 16).



# Facility Summary

City of Tacoma  
 Fire Station #09  
 Infrastructure

3502 6th Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Civil / Mechanical Utilities

##### G3060 Fuel Distribution

1965	1965	3	DCS	01/24/18	PSE natural gas meter #775554 with 250 cfm capacity; no seismic shut-off valve.
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#### Site Electrical utilities

##### G4010 Electrical Distribution

1965	1965	3	DCS	01/24/18	Two power services from Tacoma Power with 208V, 3-phase meter #X and 120/240, single-phase meter #Y. Underground service meter #002839 with 200A outside disconnect. Overhead service meter #X.
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##### G4020 Site Lighting

1965	2015	2	DCS	01/24/18	Newer (2015) LED wall-packs.
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##### G4030 Site Communications and Security

1965	2000	3	DCS	01/23/18	Telecom services overhead from purveyors with no issues reported. Older CCTV at back (south) side of station.
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# Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Fire Station #09

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Fire Station #9 Building	Exterior Closure	\$12,000	\$3,000	\$3,000	\$9,900	\$27,900
	Roofing	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Interior Finishes	\$12,000	\$3,000	\$3,000	\$9,900	\$27,900
	Plumbing	\$12,000	\$3,000	\$3,000	\$9,900	\$27,900
	Electrical	\$10,860	\$2,715	\$2,715	\$8,960	\$25,250
	Furnishings	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	<b>Facility Total</b>		<b>\$56,860</b>	<b>\$14,215</b>	<b>\$14,215</b>	<b>\$46,910</b>
Infrastructure	Site Improvements	\$19,000	\$4,750	\$4,750	\$15,675	\$44,175
	<b>Facility Total</b>	<b>\$19,000</b>	<b>\$4,750</b>	<b>\$4,750</b>	<b>\$15,675</b>	<b>\$44,175</b>
	<b>Site Total</b>	<b>\$75,860</b>	<b>\$18,965</b>	<b>\$18,965</b>	<b>\$62,585</b>	<b>\$176,375</b>



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #09

Total Observed Deficiency Repair Direct Cost : \$75,860

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Fire Station #9 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$12,000
System: Exterior Closure					Total System Deficiency Repair Cost (Marked Up):				\$27,900
<b>Exterior Walls</b>									
Cement Plaster	4	4	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Cracking in cement stucco panels in areas exposed to weathering.

Seal cracks, evaluate and seal conditions of head flashings (some areas failure suspected). Re-coat panels.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

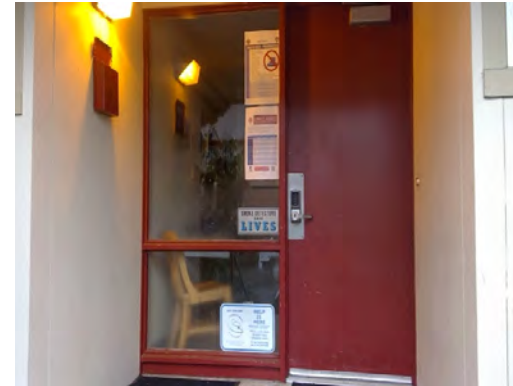
City of Tacoma  
Site: Fire Station #09

Total Observed Deficiency Repair Direct Cost : \$75,860

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Station #9 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$12,000</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$27,900</b>
<b>Exterior Doors</b>									
Exterior Storefront	4	5	2018		1	\$7,000.00	LS	\$7,000	\$16,275

Single glazed non-thermally broken entry system. Non ADA compliant hardware (but not accessible with stairs, see site opportunity for ADA accessible entry).

Replace with new thermal entry system. Recommend ADA compliant even if no ramp added.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #09

Total Observed Deficiency Repair Direct Cost : \$75,860

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #9 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$5,000</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$11,625</b>
<b>Roof Coverings</b>									
Membrane Roof	3	5	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Roofing adhesion appears to be failing, large areas of bubbles and seams where membrane pulling away from substrate. Small roof scupper openings, clogging and not draining fully ponding water. Roof very dangerous and slippery with accumulated algae and dirt - clean roofing. East wall scupper dumps directly on lower awing roof (moss and growth staining roofing).

Have Sarnafil roofing representative investigate, have fixed under warranty if warranty still in force. Clean roofing. Establish regular cleaning schedule if one does not exist.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

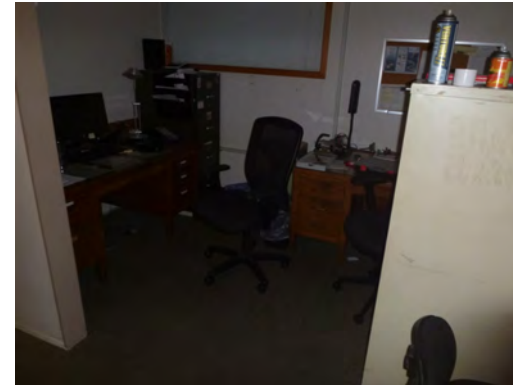
City of Tacoma  
Site: Fire Station #09

Total Observed Deficiency Repair Direct Cost : \$75,860

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #9 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$12,000</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$27,900</b>
<b>Floor Finishes</b>									
Carpet	4	5	2018		1,200	\$10.00	SF	\$12,000	\$27,900

Carpet worn from years of use. Sheet good flooring issues in lower shower area.

Replace carpeting. Replace or repair flooring in lower shower.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #09

Total Observed Deficiency Repair Direct Cost : \$75,860

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				<b>Action</b>						
<b>Facility: Fire Station #9 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$12,000</b>	
<b>System: Plumbing</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$27,900</b>	
<b>Rain Water Drainage</b>										
Scupper & downspouts	4	2	2018		12	\$1,000.00	EA	\$12,000	\$27,900	

Scuppers not properly draining roof leading to excessive ponding, premature roof failure, and maintenance hazard.

Reconfigure scupper and add downspouts where needed to properly drain roof.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #09

Total Observed Deficiency Repair Direct Cost : \$75,860

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Station #9 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$10,860	
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$25,250	
<b>Low Voltage Fire Alarm</b>										
Fire alarm	4	5	2018		5,430	\$2.00	SF	\$10,860	\$25,250	

Obsolete zoned FACP and system; no coverage for added mezzanine dorm rooms.

Upgrade to modern addressable system and add coverage for mezzanine dorm rooms.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #09

Total Observed Deficiency Repair Direct Cost : \$75,860

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Station #9 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$5,000</b>
<b>System: Furnishings</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$11,625</b>
<b>Fixed Furnishings</b>									
Casework	4	5	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Delaminating supply casework.

Re-face existing drawers, refinish and seal existing wood work top.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #09

Total Observed Deficiency Repair Direct Cost : \$75,860

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Infrastructure</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>					<b>\$19,000</b>	
<b>System: Site Improvements</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>					<b>\$44,175</b>	
<b>Parking Lots</b>										
Asphalt paving	4	3	2018		1,800	\$5.00	SF	\$9,000	\$20,925	

Lower asphalt is cracked with several settled areas indicating subgrade failure.

Remove asphalt at settled areas, re-compact subgrade, and overlay entire parking area.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #09

Total Observed Deficiency Repair Direct Cost : \$75,860

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$19,000</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$44,175</b>	
<b>Pedestrian Paving</b>										
Concrete Sidewalk	4	3	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Sidewalk settlement and trip hazards (east side).

Demo sections of settled sidewalk panels, re-compact and re-pour sidewalk.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #09

Total Observed Deficiency Repair Direct Cost : \$75,860

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				<b>Action</b>						
<b>Deficiency</b>										
Facility: Infrastructure									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: Site Improvements									\$19,000	
<b>Landscaping</b>									Total System Deficiency Repair Cost (Marked Up):	
Landscape									\$44,175	
	3	3	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Trees and shrubs overgrown against building.

Limb back trees away from the building and overhanging of the roof, prune shrubs to CPTED standards to eliminate hiding areas, and improve building and pedestrian safety and security.



## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #09

Total Site Opportunity Cost: **\$398,520**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Station #9 Building</b>						
<b>System: Roofing Total Cost: \$7,500</b>						
B3010	Roof Coverings					
	No fall restraint	install fall protection	2.00	\$3,000.00	EA	\$6,000
B3030	Projections					
	Single soffit vents in each.	Add additional soffit venting at each to improve air circulation and drying and extend canopy life. As it is a closed system, vents are recommended at front and back.	300.00	\$5.00	LF	\$1,500
<b>Facility: Fire Station #9 Building</b>						
<b>System: Staircases Total Cost: \$1,000</b>						
C2020	Stair Finishes					
	Handrails - at existing stairs increase life safety.	Add handrails at two existing stairs.	2.00	\$500.00	EA	\$1,000
<b>Facility: Fire Station #9 Building</b>						
<b>System: Plumbing Total Cost: \$5,000</b>						
D2090	Other Plumbing Systems					
	No compressed air system.	Install compressed air system.	1.00	\$5,000.00	LS	\$5,000
<b>Facility: Fire Station #9 Building</b>						
<b>System: HVAC Total Cost: \$123,870</b>						
D3010	Energy Supply					
	Electric DHW heaters.	Upgrade to gas upon replacement.	2.00	\$7,500.00	EA	\$15,000
D3030	Cooling Generating Systems					
	Individual ductless-split Dx heat pumps, soon beginning to approach end of life.	Upgrade to refrigeration-networked VRF technology to improve performance and lengthen system life.	8.00	\$7,500.00	EA	\$60,000
D3040	HVAC Distribution Systems					
	No mechanical ventilation for most occupied spaces; odors present in some areas; security concerns when leaving windows open in this urban neighborhood.	Upgrade to mechanical heat recovery ventilation.	5,430.00	\$5.00	SF	\$27,150

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #09

Total Site Opportunity Cost: **\$398,520**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
D3060	Controls and Instrumentation					
	No DDC.	Upgrade to DDC per City standard.	5,430.00	\$4.00	SF	\$21,720
<b>Facility: Fire Station #9 Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$132,150</b></span>						
D5010	Electrical Service and Distribution					
	Two separate electrical services.	Consolidate into one service.	1.00	\$30,000.00	LS	\$30,000
D5020	Lighting and Branch Wiring					
	Fluorescent lighting with manual control.	Upgrade to LED with automatic control.	5,430.00	\$5.00	SF	\$27,150
D5090	Other Electrical Systems					
	Small portable gas-fired generator with manual breaker panel.	Install permanent 50 kW diesel generator with ATS.	1.00	\$75,000.00	LS	\$75,000
<b>Facility: Infrastructure</b> <b>System: Site Improvements</b> <span style="float: right;"><b>Total Cost: \$84,000</b></span>						
G2010	Roadways					
	The street and curb varies along this street for parallel parking. Directly in front of the station the street widens again (as if for parallel parking, but is not allowed in front of the fire station. This wider road results in a shorter drive for the fire station. This change in the street width does not allow enough length for a fire truck in front of the garage without blocking pedestrian access, and thus does not allow for washing of the fire trucks.	Revise (straighten) the street curb and sidewalk in front of the station to allow enough room for a fire truck, and safe passage of pedestrians, and provide storm/sanitary diversion system allow washing of vehicles in driveway.	150.00	\$500.00	LF	\$75,000
G2030	Pedestrian Paving					
	No ADA accessible entry, there are stairs to the main entry, and no other accessible man-door. There is unmarked doorbell near the garage.	Improve signage for public assistance (and ADA access assistance at garage). Provide ADA accessible entry signage at main door directing visitors to the "doorbell" near garage for assistance. Provide ADA signage at the doorbell Preferably provide ramp to main entry.	1.00	\$9,000.00	LS	\$9,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #09

Total Site Opportunity Cost: **\$398,520**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Infrastructure</b> <b>System: Site Civil / Mechanical Utilities</b>						
<b>Total Cost: \$35,000</b>						
G3030	Storm Sewer	No apparatus wash diverter valve.	1.00	\$10,000.00	LS	\$10,000
		Install diverter valve and related piping.				
G3060	Fuel Distribution	No vehicle fueling.	1.00	\$25,000.00	LS	\$25,000
		Install vehicle fueling similar to other larger stations.				
<b>Facility: Infrastructure</b> <b>System: Site Electrical utilities</b>						
<b>Total Cost: \$10,000</b>						
G4010	Electrical Distribution	Two overhead services.	1.00	\$10,000.00	LS	\$10,000
		Modernize electrical system and consolidate into one underground service.				

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 Fire Station #10  
 Fire Station #10 Building

7247 South Park Avenue  
 Tacoma, WA 98407

Facility Size - Gross S.F. 1,963  
 Year Of Original Construction 1928  
 Facility Use Type Fire Station  
 Construction Type Light  
 # of Floors 1  
 Energy Source Gas  
 Year Of Last Renovation 1928  
 Historic Register Yes



FCI (BMAR/CRV)	0.14	Predicted Renewal Budget (20 yrs)	\$365,216
FCI (Bldg OD/CRV)	0.39	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$772,000	Building	\$283,048
BMAR (Backlog of Maintenance and Repair)	\$111,000	Infrastructure	
Beginning Budget Year	2018	Total	
		Opportunity Total Project Cost	\$246,016

## Facility Condition Summary

Fire Station #10 is a bungalow type station constructed in 1928, as a single-story wood frame building with partial basement and attic, plus hose tower and separate parking garage. The station is listed on the Local and National Register of Historic Places. At some unknown date the apparatus bay was extended to accommodate larger apparatus including replacement of about half the original concrete SOG. The station is in fair condition, with concern regarding structural settlement at the apparatus bay extension, with cracking through the foundation, SOG, and walls. The hose tower has been abandoned in place except at the main floor level, which has been converted to a small bathroom off the apparatus bay. Various systems are due for renewal, such as the original single-glazed windows, electrical system, and parking building roofing.

# Facility Summary

City of Tacoma  
 Fire Station #10  
 Fire Station #10 Building

7247 South Park Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1928	1928	3	LS 01/31/18	Standard concrete foundations. Crack at location where addition meets 1928 original construction.
<b>A1030 Slab On Grade</b>	1928	1950	3	LS 01/31/18	Concrete slab on grade.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1928	1928	3	LS 01/31/18	Concrete basement walls between foundations and first floor. Concrete is spalling below basement windows. One has been filled with grout. Another needs of be filled. See photos.
<b>B Shell</b>			<b>3.0</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1928	1928	3	LS 01/31/18	Wood floor joists with wood decking. Seismic hold downs have been added (c.2000) to the floor joists to tie them to the basement walls.
<b>B1020 Roof Construction</b>	1928	1928	3	LS 01/31/18	Wood roof framing with wood shiplap decking. Attic has blown in insulation but vapor retarder is bunched up in center. Some housekeeping to clean it up. Remove stored items. Shed in back: wood roof framing with wood T&G decking, some sagging.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1928	1928	3	LS 01/31/18	Wood stud walls with shiplap or plywood sheathing. Exterior finish is brick veneer. Masonry mortar is deteriorating at window sills on south side of the building. Painting was done in 2012. Shed in back: wood stops with 1x lap sheathing and wood siding, some mildew growth on north side. Power wash. Appears chimney work has not yet been done.

# Facility Summary

City of Tacoma  
 Fire Station #10  
 Fire Station #10 Building

7247 South Park Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.0</b>		
<b>Exterior Closure</b>					
<b>B2020 Exterior Windows</b>	1928	1928	3	LS 01/31/18	Single pane wood frame windows. Windows on south side show more deterioration.
<b>B2030 Exterior Doors</b>	1928	1960	3	LS 01/31/18	Wood frame panel doors in wood frame at apparatus bay. Metal clad ext. door dented.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1928	2008	3	LS 01/31/18	Asphalt shingle roofing at main building.
<b>B3020 Roof Openings</b>	1928	1928	4	LS 01/31/18	Flashing around both chimney and hose tower openings has extensive moss and mildew growth. Power wash and replace as necessary.
<b>B3030 Projections</b>	1928	1928	3	LS 01/31/18	Canopy at front door.
<b>C Interiors</b>			<b>2.5</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1928	1928	3	LS 01/31/18	Wood frame walls with wood lath and plaster.
<b>C1020 Interior Doors</b>	1928	1928	3	LS 01/31/18	Wood panel doors and wood frames.
<b>C1030 Fittings</b>	1928	2014	3	LS 01/31/18	Wooden kitchen cabinets with stainless steel and laminate counter-tops and laminate backsplash. Wood lockers and wood cabinets with plastic laminate counter-top. Aging but functional.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>	1928	1928	2	LS 01/31/18	Concrete stair to basement and from apparatus

# Facility Summary

City of Tacoma  
 Fire Station #10  
 Fire Station #10 Building

7247 South Park Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.5</b>		
<b>Staircases</b>					
<b>C2010 Stair Construction</b>					bay to main floor.
<b>C2020 Stair Finishes</b>	1928	1928	3	LS 01/31/18	Adhesive applied non-slip strips on treads.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1928	2010	2	LS 01/31/18	Painted plaster. Painted wood chair rail. Paint in good shape.
<b>C3020 Floor Finishes</b>	1928	2015	2	LS 01/31/18	Carpet tiles, sheet vinyl, and ceramic tile. Minor carpet stains.
<b>C3030 Ceiling Finishes</b>	1928	2010	2	LS 01/31/18	Painted plaster some cracking. Paint is in good shape.
<b>D Services</b>			<b>3.1</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1928	1980	3	DCS 01/31/18	Porcelain, stainless steel, and cast iron fixtures are of varying vintages; some slow to flush or drain, some trim worn, and other minor work needed.
<b>D2020 Domestic Water Distribution</b>	1928	1980	3	DCS 01/31/18	Piping system is mostly copper in good condition, but some original galvanized. Somewhat newer (2008) GE electric tank type water heater, missing expansion tank, pipe insulation, floor insulation, and other code items.
<b>D2030 Sanitary Waste</b>	1928	1980	3	DCS 01/31/18	DW&V piping mix of original cast iron and newer ABS; some fixtures slow to flush or drain. Basement simplex sump pump in working order - appears recently replaced.

# Facility Summary

City of Tacoma  
 Fire Station #10  
 Fire Station #10 Building

7247 South Park Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			3.1		
<b>Plumbing</b>					
<b>D2030 Sanitary Waste</b>					
<b>D2040 Rain Water Drainage</b>					
	1928	2008	3	DCS 01/31/18	Metal gutter & downspout to storm at main building, appears to have been new with re-roof about 2008; to grade at parking garage resulting in localized standing water.
<b>D2090 Other Plumbing Systems</b>					
	1928	1980	3	DCS 01/31/18	
<b>HVAC</b>					
<b>D3010 Energy Supply</b>					
	1928	1980	3	DCS 01/31/18	Black iron natural gas to furnace, kitchen range and patio BBQ. No seismic shut-off valve as service entry.
<b>D3030 Cooling Generating Systems</b>					
	1928	1980	4	DCS 01/31/18	Two PTACs through windows - one for day room, one for dorm room - one older Kenmore, one newer Frigidaire. Opportunity to upgrade to central forced-air heat-pump based cooling.
<b>D3040 HVAC Distribution Systems</b>					
	1928	1980	3	DCS 01/31/18	Ductwork is galvanized steel and in fair condition. Station house served by one newer (2010) Payne standard-efficiency (80%) gas-fired furnace with 66 mbh capacity and no outside air (no whole house ventilation). Ductwork needs cleaning and minor repair. Several exhaust fans in fair condition.
<b>D3050 Terminal and Package Units</b>					
	1928	2010	3	DCS 01/31/18	Apparatus bay is heated by one somewhat newer (2010) gas unit heater; the heater needs service (cleaning).
<b>D3060 Controls and Instrumentation</b>					
	1928	2010	3	DCS 01/31/18	Gas furnace is controlled by programmable thermostat; cover is damaged - minor maintenance to replace T-stat.

# Facility Summary

City of Tacoma  
 Fire Station #10  
 Fire Station #10 Building

7247 South Park Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.1</b>		
<b>HVAC</b>					
<b>D3090 Other HVAC Systems and Equipment</b>					
	1928	2011	3	DCS 01/31/18	New (2011) Nederman vehicle engine exhaust system. The previously used apparatus bay general exhaust system is abandoned in place with opportunity for summer ventilation cooling.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>					
	1928	1981	3	DCS 01/31/18	Four-inch service to two-inch glycol freeze-protected riser including RPBP; riser pressure is 85 psig. Opportunity to upgrade to dry pipe.
<b>D4030 Fire Protection Specialties</b>					
	1928	1981	3	DCS 01/31/18	Fire extinguishers on hooks.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	1928	1980	3	DCS 01/31/18	Original 1928 cabinet houses newer (1979) Square D 120/240V, single-phase, 200A capacity main distribution panel, which sub-feeds an older basement panel. Variety of exposed wires at perimeter of 1928 enclosure.
<b>D5020 Lighting and Branch Wiring</b>					
	1928	1981	4	DCS 01/31/18	Fluorescent T8 lighting with industrial fixtures in apparatus bay and surface-mount wrap-arounds in station house, plus variety of older incandescent and other fixtures, some abandoned or for task lighting.; all manual controls. Mix of newer wiring and devices with surface-mounted conduit and device boxes; and older obsolete wiring and devices in walls. Old electrical wiring and lighting at separate garage building.
<b>D5032 Low Voltage Communication</b>					
	1928	1981	3	DCS 01/30/18	Mix of older and newer communications including phone and doorbell with no issues
<b>D5037 Low Voltage Fire Alarm</b>					
	1928	1981	3	DCS 01/30/18	Silent Knight zoned (non-addressable) fire alarm system and newer (2017) AES antenna. Battery



## Facility Summary

City of Tacoma  
 Fire Station #10  
 Fire Station #10 Building

7247 South Park Avenue  
 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.1</b>		
<b>Electrical</b>					
<b>D5037 Low Voltage Fire Alarm</b>					smoke and CO detectors.
<b>D5038 Low Voltage Security</b>	1928	1981	3	DCS 01/31/18	Minimal electronic security; opportunity to upgrade including card-key access and CCTV.
<b>D5039 Low Voltage Data</b>	1928	2010	3	DCS 01/31/18	Somewhat newer data service, including WAP (WiFi) with no issues reported.
<b>D5090 Other Electrical Systems</b>	1928	1981	2	DCS 01/31/18	GenTrans manual transfer switch for portable generator. Battery egress light fixtures, and no lighted exit signs (opportunity to upgrade emergency lighting to code).
<b>E Equipment and Furnishings</b>			<b>2.3</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1928	2014	2	DCS 01/31/18	Newer appliance in kitchen, and aging residential laundry equipment in basement.
<b>E1090 Other Equipment</b>	1928	1980	4	DCS 01/31/18	Aged radio equipment in attic with metal pole free-standing radio tower; most appears abandoned, but some still powered.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	1928	1981	3	DCS 01/30/18	Aging cabinetry needs minor repair.
<b>F Special Construction</b>			<b>2.0</b>		
<b>Special Construction</b>					
<b>F1050 Special Controls and Instrumentation</b>	1928	2015	2	DCS 01/31/18	New (2015) tone alarm system with antenna,

# Facility Summary

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City of Tacoma  
 Fire Station #10  
 Fire Station #10 Building

7247 South Park Avenue  
 Tacoma, WA 98407

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
F Special Construction			2.0		

### Special Construction

F1050 Special Controls and Instrumentation

Astron radio, Zetron alarm, and Bogen amp & speakers.

# Facility Summary

City of Tacoma  
 Fire Station #10  
 Infrastructure

7247 South Park Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1928	1990	2	LS 01/31/18	Concrete drive to building.
<b>G2020 Parking Lots</b>	1928	2000	2	LS 01/31/18	Asphalt parking area with concrete wheel stops. Wheel stops are breaking.
<b>G2030 Pedestrian Paving</b>	1928	2000	3	LS 01/31/18	Concrete steps are new with metal railing. Concrete perimeter sidewalks. Concrete patio. Some minor cracking at patios around perimeter.
<b>G2040 Site Development</b>	1928	1928	2	LS 01/31/18	Chain link fencing, concrete patio. Wood fencing at side yard; needs paint.
<b>G2050 Landscaping</b>	1928	2015	2	LS 01/31/18	Wood edging deteriorating.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1928	1980	3	DCS 01/31/18	City water with no issues reported. Meter at sidewalk with estimated 3/4-inch service. Site irrigation appears operable outside with Rain Dial controller inside. Fire service from vault at sidewalk, 4-inch; vault is flooded.
<b>G3020 Sanitary Sewer</b>	1928	1928	3	DCS 01/31/18	City sewer with no issues reported; but some fixtures draining slow - appears to be due to building piping and/or fixtures, not side-sewer.
<b>G3030 Storm Sewer</b>	1928	1928	3	DCS 01/31/18	Single catch basin in parking area with simple in-basin oil/water separation feature, then appears flowing to City storm, but maybe sewer. Opportunity to upgrade to diverter system, similar to newer stations.
<b>G3060 Fuel Distribution</b>	1928	1980	3	DCS 01/31/18	PSE natural gas meter #483816 with capacity

# Facility Summary

City of Tacoma  
 Fire Station #10  
 Infrastructure

7247 South Park Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Civil / Mechanical Utilities</b>					
<b>G3060 Fuel Distribution</b>					
					275 cfh; no issues reported. One ConVault 500-gal diesel fuel storage tank with dispenser and meter in fair condition, but some minor work needed, such as repair level indicator, maybe meter.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>					
	1928	1928	3	DCS 01/30/18	Tacoma Power meter #198463 fed from overhead with no issues reported; main building sub-feeds garage building.
<b>G4020 Site Lighting</b>					
	1928	2015	2	DCS 01/31/18	Newer LED wall sconces; otherwise minimal site lighting with no issues reported.
<b>G4030 Site Communications and Security</b>					
	1928	1980	3	DCS 01/31/18	Telecom services from purveyors via overhead lines with no issues reported. Little or no site electronic security. Opportunity to underground services and add site CCTV.

**Deficiency Repair Cost Markups By System**

**2018 - 2023**

**City of Tacoma**

**Site: Fire Station #10**

<b>Facility</b>	<b>System</b>	<b>Direct Construction Cost</b>	<b>Contingency 25%</b>	<b>Contractor's OH &amp; P 20%</b>	<b>Project Soft Cost 55%</b>	<b>Total Project Cost</b>
Fire Station #10 Building	Superstructure	\$12,000	\$3,000	\$3,000	\$9,900	\$27,900
	Exterior Closure	\$38,000	\$9,500	\$9,500	\$31,350	\$88,350
	Roofing	\$48,000	\$12,000	\$12,000	\$39,600	\$111,600
	HVAC	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Electrical	\$13,741	\$3,435	\$3,435	\$11,336	\$31,948
	Equipment	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	<b>Facility Total</b>	<b>\$121,741</b>	<b>\$30,435</b>	<b>\$30,435</b>	<b>\$100,436</b>	<b>\$283,048</b>
	<b>Site Total</b>	<b>\$121,741</b>	<b>\$30,435</b>	<b>\$30,435</b>	<b>\$100,436</b>	<b>\$283,048</b>



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #10

Total Observed Deficiency Repair Direct Cost : \$121,741

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #10 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$12,000
System: Superstructure					Total System Deficiency Repair Cost (Marked Up):				\$27,900
<b>Roof Construction</b>									
Wood	4	5	2018		8,000	\$1.50	SF	\$12,000	\$27,900
Sagging and rotting deck boards (shed).				Replace with roofing replacements.					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #10

Total Observed Deficiency Repair Direct Cost : \$121,741

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Station #10 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$38,000</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$88,350</b>
<b>Exterior Walls</b>									
Brick chimney	4	2	2018		1	\$7,000.00	LS	\$7,000	\$16,275

Brick chimney is not mechanically anchored to the roof structures.

Anchor chimney to the roof structures.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #10

Total Observed Deficiency Repair Direct Cost : \$121,741

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #10 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$38,000
System: Exterior Closure					Total System Deficiency Repair Cost (Marked Up):				\$88,350
<b>Exterior Walls</b>									
Brick Veneer	3	5	2018		4,000	\$2.50	SF	\$10,000	\$23,250

Sealer on brick has deteriorated.

Clean and seal the brick veneer.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #10

Total Observed Deficiency Repair Direct Cost : \$121,741

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Station #10 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$38,000	
System: Exterior Closure					Total System Deficiency Repair Cost (Marked Up):				\$88,350	
<b>Exterior Windows</b>										
Wood Windows	4	3	2018		14	\$1,500.00	EA	\$21,000	\$48,825	

Single pane wood frame windows. Windows on south side show more deterioration.

Consider replacing glazing with thermal insulated units, repair or replace wood frames.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #10

Total Observed Deficiency Repair Direct Cost : \$121,741

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #10 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$48,000</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$111,600</b>
<b>Roof Coverings</b>									
Asphalt Shingles	4	5	2018		8,000	\$6.00	SF	\$48,000	\$111,600

Shed roof shingles are reaching the end of useful life. Roof has extensive moss growth and sagging in some areas.

Replace shingles.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #10

Total Observed Deficiency Repair Direct Cost : \$121,741

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Fire Station #10 Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$5,000
System: HVAC				Total System Deficiency Repair Cost (Marked Up):					\$11,625
<b>Cooling Generating Systems</b>									
Air conditioning	4	3	2018		2	\$2,500.00	EA	\$5,000	\$11,625
Aging PTACs installed through window openings.				Replace PTACs upon failure.					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #10

Total Observed Deficiency Repair Direct Cost : \$121,741

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #10 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$13,741</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$31,948</b>
<b>Electrical Service and Distribution</b>									
Electrical distribution	4	5	2018		1,963	\$3.00	SF	\$5,889	\$13,692

1928 enclosure housing 1980 MDP behind station calander.

Install proper MDP per code and replace obsolete or aged wiring with modern as needed.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #10

Total Observed Deficiency Repair Direct Cost : \$121,741

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Fire Station #10 Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$13,741
System: Electrical				Total System Deficiency Repair Cost (Marked Up):					\$31,948
<b>Lighting and Branch Wiring</b>									
Branch wiring devices	4	2	2018		1,963	\$4.00	SF	\$7,852	\$18,256

Obsolete older wiring and devices in walls.

Replace older wiring and devices.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #10

Total Observed Deficiency Repair Direct Cost : \$121,741

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				<b>Action</b>					
<b>Deficiency</b>									
Facility: Fire Station #10 Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$5,000
System: Equipment				Total System Deficiency Repair Cost (Marked Up):					\$11,625
<b>Other Equipment</b>									
Other	4	3	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Aged radio equipment in attic appears abandoned; some is still powered, but most appears not. Outside free-standing metal pole with antenna elements at top appears deteriorating.

Demolish abandoned equipment and refurbish any still in use, including servicing, cleaning and coating the antenna pole.







## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #10

Total Site Opportunity Cost: \$125,813

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Station #10 Building</b> <b>System: Exterior Closure</b> <span style="float: right;"><b>Total Cost: \$16,720</b></span>						
B2020	Exterior Windows	Exterior windows - Increase the thermal efficiency of the building envelope.	Add insulated glazing in clad wood frames.	209.00	\$80.00	SF \$16,720
<b>Facility: Fire Station #10 Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$15,889</b></span>						
D3030	Cooling Generating Systems	Through-window PTACs.	Upgrade existing forced air heating system to hybrid heat pump with split-Dx technology.	1.00	\$10,000.00	LS \$10,000
D3060	Controls and Instrumentation	Stand-alone controls.	Upgrade to City standard DDC.	1,963.00	\$3.00	LS \$5,889
<b>Facility: Fire Station #10 Building</b> <b>System: Fire Protection</b> <span style="float: right;"><b>Total Cost: \$7,500</b></span>						
D4010	Fire Protection Sprinkler Systems	Glycol freeze-protected wet pipe system.	Upgrade to modern dry-pipe system.	1.00	\$7,500.00	LS \$7,500
<b>Facility: Fire Station #10 Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$65,704</b></span>						
D5020	Lighting and Branch Wiring	Fluorescent lighting with manual control.	Upgrade to LED lighting with automatic control.	1,963.00	\$5.00	SF \$9,815
D5037	Low Voltage Fire Alarm	No detection in dorm rooms; battery-powered smoke and CO detectors.	Upgrade to modern addressable system integrating smoke and CO detection.	1,963.00	\$3.00	SF \$5,889
D5090	Other Electrical Systems	Small portable gas-fired generator and manual transfer breakers.	Full-size (30 kW) permanent diesel standby generator with automatic transfer switch.	1.00	\$50,000.00	LS \$50,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #10

Total Site Opportunity Cost: \$125,813

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
Facility: Infrastructure						
System: Site Civil / Mechanical Utilities	Total Cost: \$10,000					
G3030 Storm Sewer	No diverter.	Add diverter.	1.00	\$10,000.00	LS	\$10,000
Facility: Infrastructure						
System: Site Electrical utilities	Total Cost: \$10,000					
G4010 Electrical Distribution	Overhead power.	Underground power.	1.00	\$10,000.00	LS	\$10,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 Fire Station #11  
 Fire Station #11 Building

3802 McKinley Avenue  
 Tacoma, WA 98407

Facility Size - Gross S.F. 5,121  
 Year Of Original Construction 1909  
 Facility Use Type Fire Station  
 Construction Type Medium  
 # of Floors 2  
 Energy Source Heating Oil  
 Year Of Last Renovation 1980  
 Historic Register Yes



FCI (BMAR/CRV)	0.16	Predicted Renewal Budget (20 yrs)	\$1,025,051
FCI (Bldg OD/CRV)	0.33	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$2,238,000	<b>Building</b>	\$714,000
BMAR (Backlog of Maintenance and Repair)	\$357,000	<b>Infrastructure</b>	\$127,875
Beginning Budget Year	2018	<b>Total</b>	\$841,875
		<b>Opportunity Total Project Cost</b>	\$789,568

## Facility Condition Summary

Fire Station #11 was constructed in 1909 as a two-story wood and masonry structure with a partial basement, and is a City of Tacoma and National designated historic building. The basement houses the boiler and provides limited storage. The ground floor includes two apparatus bays - one drive through, one single-sided, plus shop and exercise area. The hose tower has been converted to storage and provides for attic and roof access. The upper floor is the station house with mixed living and office areas. Most fixtures appear replaced about 1980, along with roofing which is now at end of life. Apparatus bay finishes are mostly older and past end of life; station house finishes are mostly aged but functional. MEP shell & core systems are mostly in need of modernization but remain mostly functional.

# Facility Summary

City of Tacoma  
 Fire Station #11  
 Fire Station #11 Building

3802 McKinley Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.9</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1909	1980	3	LS 01/31/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	1909	1980	3	LS 01/31/18	Concrete slab on grade.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1909	1909	2	LS 01/31/18	Concrete basement walls between foundations and first floor. Some spalling.
<b>B Shell</b>			<b>3.2</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1909	1909	3	LS 01/31/18	Wood frame upper floor with decking. Structured first floor is wood frame with wood decking and portions are concrete slab with steel beams at the truck drive thru area. Pull through section is a concrete bridge for the basement area.
<b>B1020 Roof Construction</b>	1909	1980	3	LS 01/31/18	Wood trusses with wood decking. Some structural upgrades.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1909	1909	3	LS 01/31/18	Unreinforced brick masonry walls with interior plaster finish. Brick has been tuck pointed up to about 6'. Inside face of exterior walls are plaster.
<b>B2020 Exterior Windows</b>	1909	1909	4	LS 01/31/18	Non insulated wood frame windows. Historic windows are well maintained. Some of the wood trim pieces at the app bay need paint and sealer.
<b>B2030 Exterior Doors</b>	1909	1909	3	LS 01/31/18	Wood frame door and frames are deteriorated. If it is historic may need to be repaired in place.

# Facility Summary

City of Tacoma  
 Fire Station #11  
 Fire Station #11 Building

3802 McKinley Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.2</b>		
<b>Exterior Closure</b>					
<b>B2030 Exterior Doors</b>					
					Man door is also wood, looks original but is in bad state of deterioration.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					
	1909	2000	4	LS 01/31/18	Asphalt composition shingle. Gutters full of dirt with plants growing out of them.
<b>B3030 Projections</b>					
	1909	1909	3	LS 01/31/18	Original hose drying tower coupala
<b>C Interiors</b>			<b>2.2</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>					
	1909	1909	2	LS 01/31/18	Wood frame walls with wood lath and plaster.
<b>C1020 Interior Doors</b>					
	1909	1909	3	LS 01/31/18	Wood framed panel doors. Historic 5-panel interior doors are well maintained, replace and repair hardware as occurs.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>					
	1909	1909	3	LS 01/31/18	Wood frame stair from main floor to upper floor. Wood stair to basement.
<b>C2020 Stair Finishes</b>					
	1909	1909	3	LS 01/31/18	Applied vinyl non-slip tread. Painted wood.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>					
	1909	1909	2	LS 01/31/18	Painted plaster with painted wood in selected areas.
<b>C3020 Floor Finishes</b>					

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.2</b>		
<b>Interior Finishes</b>					
<b>C3020 Floor Finishes</b>	1909	1909	2	LS 01/31/18	Carpet tile in dorm and living room, sheet vinyl in kitchen.
<b>C3030 Ceiling Finishes</b>	1909	1990	2	LS 01/31/18	Suspended acoustic ceiling in living room, painted plaster, spray-on acoustic ceiling in dormitory area. Tin ceiling in apparatus bay.
<b>D Services</b>			<b>3.2</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1909	1980	3	DCS 01/31/18	Fixtures are porcelain, stainless steel, and cast iron of varying vintages. Some working poorly, especially trim.
<b>D2020 Domestic Water Distribution</b>	1909	1980	3	DCS 01/31/18	Piping system is a mix of original galvanized and somewhat newer copper piping. Somewhat newer (2005) A.O. Smith 80-gal electric water hot water heater with expansion tank.
<b>D2030 Sanitary Waste</b>	1909	1980	4	DCS 01/31/18	Mix of original cast iron and somewhat newer (1980) DW&V piping, with some fixtures flushing or draining slow.
<b>D2040 Rain Water Drainage</b>	1909	1980	4	DCS 01/31/18	Metal gutter & downspout to street to north and to gravel parking lot to south; portions of gutter blocked and one downspout disconnected, with signs of water intrusion in basement, specifically at south tunnel.
<b>D2090 Other Plumbing Systems</b>	1909	1980	3	DCS 01/30/18	Portable compressed air system.
<b>HVAC</b>					
<b>D3010 Energy Supply</b>					

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 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.2</b>		
<b>HVAC</b>					
<b>D3010 Energy Supply</b>	1909	1980	3	DCS 01/31/18	Boiler is oil fired. Fuel oil piping system is somewhat newer in fair condition.
<b>D3020 Heat Generating Systems</b>	1909	1909	4	DCS 01/31/18	Original Birchfield coal-fired steam boiler retrofitted with 4 gph (approximately 0.5 mmbtuh) fuel oil burner, with original steam & condensate piping converted to hydronic hot water heating system.
<b>D3030 Cooling Generating Systems</b>	1909	1980	4	DCS 01/31/18	PTACs at windows; plus several portable units.
<b>D3040 HVAC Distribution Systems</b>	1909	1980	4	DCS 01/31/18	Operable windows for most areas with exhaust fans for kitchen and bathrooms; portable fans for areas away from windows.
<b>D3050 Terminal and Package Units</b>	1909	1909	4	DCS 01/31/18	Apparatus bay and upper living quarters are heated by cast iron hot water radiators; some working, some not working; most with flaking finish or paint.
<b>D3060 Controls and Instrumentation</b>	1909	1955	4	DCS 01/31/18	Single obsolete manual thermostat controls heating for entire building. Opportunity to upgrade to DDC.
<b>D3090 Other HVAC Systems and Equipment</b>	1909	2011	2	DCS 01/31/18	Nederman vehicle engine exhaust new in 2011. Previous apparatus bay general exhaust abandoned in place or partially demolished.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>	1909	1980	3	DCS 01/31/18	Four-inch service with RPBP to two 3-inch risers - wet pipe to conditioned space and glycol-protected to non-conditioned space; with double-head FDC just outside riser at SW corner of Bldg, but blocked by stored materials (minor

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.2</b>		
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>					
					maintenance to provide access).
<b>D4030 Fire Protection Specialties</b>					
	1909	1980	3	DCS 01/31/18	Fire extinguishers on hooks.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	1909	1980	3	DCS 01/31/18	Square D 120/240V, single-phase, 200A capacity panel with little or no spare capacity.
<b>D5020 Lighting and Branch Wiring</b>					
	1909	1980	3	DCS 01/31/18	Mostly T8 fluorescent lighting with manual controls; lay-in in office, surface-mount in dorm, and pendant in apparatus bays. Mostly surface-mounted conduit and receptacles, with minimal coverage, with mostly modern (1980) but some older devices.
<b>D5032 Low Voltage Communication</b>					
	1909	1980	3	DCS 01/31/18	Mix of older and newer including partial Avaya phone, older door bell, older CATV and others with no issues reported.
<b>D5037 Low Voltage Fire Alarm</b>					
	1909	1980	3	DCS 01/31/18	Aging Silent Knight non-addressible fire alarm with minimal detection, but with new (2017) AES antenna. Battery-operated smoke and CO alarms in dorm rooms.
<b>D5038 Low Voltage Security</b>					
	1909	1980	3	DCS 01/30/18	Limited to door cipher locks.
<b>D5039 Low Voltage Data</b>					
	1909	2010	3	DCS 01/31/18	Newer fiberoptic service to Cisco switch and WAP with no issues reported.
<b>D5090 Other Electrical Systems</b>					
	1909	1985	4	DCS 01/31/18	GenTrans 30-amp manual transfer switch and small portable gas-fired generator. At least one battery egress lighting fixture - appears failed.



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<b>D Services</b>			<b>3.2</b>		
<b>Electrical</b>					
D5090 Other Electrical Systems					
					Stenciled exit signs.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
E1010 Commercial Equipment					
	1909	2000	3	DCS 01/31/18	Appliances in fair condition at kitchen and laundry.
<b>Furnishings</b>					
E2010 Fixed Furnishings					
	1909	1985	3	DCS 01/31/18	Wood and plastic laminate faced cabinets and lockers. Kitchen cabinets may have been re done in the 80's. Replace laminate counter-tops for 5 to 10 years additional service.
<b>F Special Construction</b>			<b>3.0</b>		
<b>Special Construction</b>					
F1010 Special Structures					
	1909	1909	4	DCS 01/30/18	Original (1909) hose tower mostly abandoned in place and marginally maintained.
F1050 Special Controls and Instrumentation					
	1909	2015	2	DCS 01/31/18	Newer (2015) tone alarm system with roof antenna, Astron radio, Zetron alarm and Bogan amp & speakers.

## Facility Summary

City of Tacoma  
 Fire Station #11  
 Infrastructure

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 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1909		4	LS 01/31/18	Concrete at front of building - asphalt at back and approaching building. New asphalt apron in back.
<b>G2020 Parking Lots</b>	1909	2000	3	LS 01/31/18	Gravel parking at side of building. Bare spots have heavy moss growth.
<b>G2030 Pedestrian Paving</b>	1909	2015	3	LS 01/31/18	Concrete perimeter sidewalks. New ADA accessible curb ramp.
<b>G2040 Site Development</b>	1909	2016	1	LS 01/31/18	New wrought iron fence.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1909	1980	3	DCS 01/31/18	City water with no issues reported; no observed irrigation system; newer (~1980) fire service with vault at sidewalk; no issues reported.
<b>G3020 Sanitary Sewer</b>	1909	1980	3	DCS 01/31/18	City sewer with active back-ups, but assume due to old building, not side-sewer piping - however side-sewer should be inspected and cleaned as needed.
<b>G3030 Storm Sewer</b>	1909	1980	3	DCS 01/31/18	Roof drains to street via sidewalk; apron drainage to City street; gravel parking self-infiltrating with any excess sheet-flowing to sidewalk & street. No apparent vehicle wash area.
<b>G3060 Fuel Distribution</b>	1909	1980	3	DCS 01/31/18	Fuel oil storage tank approximately 250-gal in basement well for space heating boiler.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>					

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Electrical utilities</b>					
	1909	1980	3	DCS 01/31/18	Tacoma Power meter #590202342 overhead with no issues reported.
<b>G4020 Site Lighting</b>	1909	2015	2	DCS 01/31/18	New (2015) LED wall scones at outside walls.
<b>G4030 Site Communications and Security</b>	1909	1980	4	DCS 01/31/18	Telecom services from purveyors with no issues reported, but obsolete overhead line. Little or no site electronic security.



# Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Fire Station #11

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Fire Station #11 Building	Foundations	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	Exterior Closure	\$92,700	\$23,175	\$23,175	\$76,478	\$215,528
	Roofing	\$12,500	\$3,125	\$3,125	\$10,313	\$29,063
	Staircases	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Plumbing	\$36,855	\$9,214	\$9,214	\$30,405	\$85,688
	HVAC	\$119,315	\$29,829	\$29,829	\$98,435	\$277,407
	Electrical	\$30,726	\$7,682	\$7,682	\$25,349	\$71,438
	<b>Facility Total</b>	<b>\$307,096</b>	<b>\$76,774</b>	<b>\$76,774</b>	<b>\$253,354</b>	<b>\$713,998</b>
Infrastructure	Site Improvements	\$55,000	\$13,750	\$13,750	\$45,375	\$127,875
	<b>Facility Total</b>	<b>\$55,000</b>	<b>\$13,750</b>	<b>\$13,750</b>	<b>\$45,375</b>	<b>\$127,875</b>
	<b>Site Total</b>	<b>\$362,096</b>	<b>\$90,524</b>	<b>\$90,524</b>	<b>\$298,729</b>	<b>\$841,873</b>



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #11

Total Observed Deficiency Repair Direct Cost : \$362,096

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Station #11 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$10,000</b>
<b>System: Foundations</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$23,250</b>
<b>Standard Foundations</b>									
Steel	5	1	2018		1	\$10,000.00	LS	\$10,000	\$23,250

Steel columns appear to be set on concrete slab with no updated foundation.

Evaluate structure at concrete slab over basement.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

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<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #11 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$92,700</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$215,528</b>
<b>Exterior Walls</b>									
Paint and plaster	5	2	2018		6,000	\$10.00	SF	\$60,000	\$139,500

Paint and plaster are in apparatus bay in bad disrepair.  
Possibly lead paint?

Abatement should be considered soon. Repair plaster and reprint.





# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #11

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<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #11 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$92,700
System: Exterior Closure					Total System Deficiency Repair Cost (Marked Up):				\$215,528
<b>Exterior Windows</b>									
Wood Stopped Glass	4	3	2018		20	\$1,500.00	EA	\$30,000	\$69,750

Single pane wood windows.

Consider upgrading windows with thermally insulated units.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #11

Total Observed Deficiency Repair Direct Cost : \$362,096

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Fire Station #11 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$92,700
System: Exterior Closure					Total System Deficiency Repair Cost (Marked Up):				\$215,528
<b>Exterior Doors</b>									
Wood Doors	5	1	2018		3	\$900.00	EA	\$2,700	\$6,278

Apparatus bay overhead door. Wood is deteriorating and rotted. Paint peeling off.

Replace doors.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #11

Total Observed Deficiency Repair Direct Cost : \$362,096

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Roof Coverings</b>									
Asphalt Shingles	4	2	2018		2,500	\$5.00	SF	\$12,500	\$29,063

**Deficiency**

**Action**

Facility: Fire Station #11 Building  
System: Roofing

Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$12,500  
Total System Deficiency Repair Cost (Marked Up): \$29,063

Heavy moss, grass, and mildew growth.

Clean and preserve roofing and make repairs to eaves.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #11

Total Observed Deficiency Repair Direct Cost : \$362,096

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Station #11 Building</b>									Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$5,000	
<b>System: Staircases</b>									Total System Deficiency Repair Cost (Marked Up): \$11,625	
<b>Stair Construction</b>										
Wood staircase and railing	4	2	2018		1	\$5,000.00	EA	\$5,000	\$11,625	

Existing handrail is loose.

Replace existing handrail.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Total Observed Deficiency Repair Direct Cost : \$362,096

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #11 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$36,855
System: Plumbing					Total System Deficiency Repair Cost (Marked Up):				\$85,688
<b>Plumbing Fixtures</b>									
Fixtures & trim	4	3	2018		3	\$1,750.00	EA	\$5,250	\$12,206
Several older fixtures and trim in poor condition.				Replace obsolete or damaged fixtures with new; renew aging trim (faucets and flush valves).					



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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				<b>Action</b>					
<b>Facility: Fire Station #11 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$36,855</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$85,688</b>
<b>Domestic Water Distribution</b>									
Galvanized piping	4	2	2018		5,121	\$2.00	SF	\$10,242	\$23,813

Piping system is galvanized steel past useful life with weak flow to some fixtures.

Replace original galvanized piping with copper and/or PEX.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Total Observed Deficiency Repair Direct Cost : \$362,096

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Sanitary Waste</b>									
DW&V piping	4	2	2018		5,121	\$3.00	SF	\$15,363	\$35,719
Facility: Fire Station #11 Building System: Plumbing					Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$36,855 Total System Deficiency Repair Cost (Marked Up): \$85,688				

Some fixtures slow to flush or drain; entire system out of at time of site visit due to failure - temporary repairs underway.

Clean, test and inspect and repair or replace as needed.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Total Observed Deficiency Repair Direct Cost : \$362,096

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Station #11 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$36,855</b>	
<b>System: Plumbing</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$85,688</b>	
<b>Rain Water Drainage</b>										
Gutter & DS	4	2	2018		4	\$1,500.00	EA	\$6,000	\$13,950	

G&DS blocked and failing; water on sidewalk and in basement tunnel.

Replace in conjunction with re-roof.





# Detailed Assessment - Observed Deficiencies 2018 - 2023

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<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #11 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$119,315</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$277,408</b>
<b>Heat Generating Systems</b>									
Boiler heating system	4	3	2018		5,121	\$15.00	SF	\$76,815	\$178,595

Original coal-fired boiler, obsolete and inefficient, with apparently insufficient heat for this minimally insulated building with single-glazed windows.

Replace with new high-efficiency boiler sized for load; test and replace and fully insulate older piping as needed.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Total Observed Deficiency Repair Direct Cost : \$362,096

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #11 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$119,315
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$277,408
<b>Cooling Generating Systems</b>									
Air conditioning	4	3	2018		5	\$4,000.00	EA	\$20,000	\$46,500

Portable A/C units with short life, inefficient and hazardous to install on upper floors.

Replace with ductless split-Dx.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Total Observed Deficiency Repair Direct Cost : \$362,096

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Station #11 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$119,315</b>	
<b>System: HVAC</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$277,408</b>	
<b>Terminal and Package Units</b>										
Terminal units	4	3	2018		15	\$1,500.00	EA	\$22,500	\$52,313	

Original cast-iron radiators deteriorating; some not functioning, or poorly functioning.

Refurbish radiators if boiler will remain in use.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #11

Total Observed Deficiency Repair Direct Cost : \$362,096

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #11 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$30,726
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$71,438
<b>Lighting and Branch Wiring</b>									
Lighting fixtures	4	3	2018		5,121	\$3.00	SF	\$15,363	\$35,719

Obsolete wiring and devices in some locations. Some assumed abandoned knob and tube wiring in attic.

Upgrade original knob & tube and any wiring and devices to modern per code.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #11

Total Observed Deficiency Repair Direct Cost : \$362,096

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #11 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$30,726</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$71,438</b>
<b>Low Voltage Communication</b>									
Other	4	3	2018		5,121	\$1.00	SF	\$5,121	\$11,906
<b>Mix of abandoned and newer comm wiring, some exposed.</b>				<b>Demolish abandoned wiring; modernize obsolete comm.</b>					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #11

Total Observed Deficiency Repair Direct Cost : \$362,096

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #11 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$30,726
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$71,438
<b>Low Voltage Fire Alarm</b>									
Fire alarm system	4	5	2018		5,121	\$2.00		\$10,242	\$23,813
Aging non-addressable fire alarm with minimal protection for dorm areas.				Replace with modern addressable system, including protection for dorm rooms.					



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #11

Total Observed Deficiency Repair Direct Cost : \$362,096

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$55,000</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$127,875</b>	
<b>Parking Lots</b>										
Gravel	3	4	2018		5,500	\$10.00	SF	\$55,000	\$127,875	

Gravel surface is bare in some areas. Should consider resurfacing with 2" crushed rock within 4 years.

Resurface gravel parking areas.







## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #11

Total Site Opportunity Cost: **\$394,599**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Station #11 Building</b> <b>System: Exterior Closure</b> <span style="float: right;"><b>Total Cost: \$46,080</b></span>						
B2020	Exterior Windows	Exterior wood windows - Increase thermal performance of the building envelope.	Replace windows with insulated glazing and clad wood frames.	576.00	\$80.00	SF \$46,080
<b>Facility: Fire Station #11 Building</b> <b>System: Staircases</b> <span style="float: right;"><b>Total Cost: \$20,000</b></span>						
C2010	Stair Construction	Upgrade stair to modern standard.	Recommend also upgrade to modify stair to allow for a landing at the upper floor.	1.00	\$20,000.00	EA \$20,000
<b>Facility: Fire Station #11 Building</b> <b>System: Vertical Transportation</b> <span style="float: right;"><b>Total Cost: \$150,000</b></span>						
D1010	Elevators and Lifts	Abandoned hose tower and no elevator.	Install 3-stop elevator at hose tower (basement, ground floor, upper floor).	1.00	\$150,000.00	EA \$150,000
<b>Facility: Fire Station #11 Building</b> <b>System: Plumbing</b> <span style="float: right;"><b>Total Cost: \$5,000</b></span>						
D2090	Other Plumbing Systems	Portable compressed air.	Permanent compressed air.	1.00	\$5,000.00	LS \$5,000
<b>Facility: Fire Station #11 Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$17,742</b></span>						
D3060	Controls and Instrumentation	One manual T-stat.	Upgrade to DDC controls in conjunction with new HVAC system.	5,121.00	\$2.00	SF \$10,242
D3090	Other HVAC Systems and Equipment	Apparatus bay general exhaust system abandoned or partially demolished.	Return to service for summer ventilation cooling of apparatus bays.	1.00	\$7,500.00	LS \$7,500

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #11

Total Site Opportunity Cost: **\$394,599**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Station #11 Building</b> <b>System: Fire Protection</b> <span style="float: right;"><b>Total Cost: \$15,000</b></span>						
D4010	Fire Protection Sprinkler Systems					
	Glycol-filled wet pipe to non-conditioned spaces.	Upgrade to dry-pipe system to simplify maintenance and improve reliability.	1.00	\$15,000.00	LS	\$15,000
<b>Facility: Fire Station #11 Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$85,777</b></span>						
D5020	Lighting and Branch Wiring					
	Fluorescent lighting with manual control.	LED lighting with automatic control.	5,121.00	\$5.00	SF	\$25,605
D5038	Low Voltage Security					
	No electronic security.	Upgrade to City standard with card-key access, CCTV and other.	5,121.00	\$1.75	SF	\$8,962
D5090	Other Electrical Systems					
	Small portable gas-fired generator with manual transfer.	Large fixed diesel-fired generator with automatic transfer.	5,121.00	\$10.00	SF	\$51,210
<b>Facility: Infrastructure</b> <b>System: Site Civil / Mechanical Utilities</b> <span style="float: right;"><b>Total Cost: \$45,000</b></span>						
G3030	Storm Sewer					
	No apparatus wash area.	Provide wash area with diverter system.	1.00	\$15,000.00	LS	\$15,000
G3060	Fuel Distribution					
	Fuel oil heating system.	Upgrade to natural gas service.	1.00	\$10,000.00	LS	\$10,000
	No vehicle fueling.	Add vehicle fueling similar to other stations.	1.00	\$20,000.00	LS	\$20,000
<b>Facility: Infrastructure</b> <b>System: Site Electrical utilities</b> <span style="float: right;"><b>Total Cost: \$10,000</b></span>						
G4010	Electrical Distribution					
	Overhead 120/240V, 1-phase service.	Upgrade to underground 120/208V, 3-phase service.	1.00	\$10,000.00	LS	\$10,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Facility Summary

City of Tacoma  
 Fire Station #12  
 Fire Station #12 Building

2015 54th Avenue East  
 Tacoma, WA 98407

Facility Size - Gross S.F. 9,970  
 Year Of Original Construction 1975  
 Facility Use Type Fire Station  
 Construction Type Light  
 # of Floors 2  
 Energy Source Electric  
 Year Of Last Renovation 1995  
 Historic Register No



FCI (BMAR/CRV)	0.15	Predicted Renewal Budget (20 yrs)	\$1,603,908
FCI (Bldg OD/CRV)	0.13	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$3,922,000	Building	\$515,820
BMAR (Backlog of Maintenance and Repair)	\$590,000	Infrastructure	\$48,825
Beginning Budget Year	2018	Total	\$564,645
		Opportunity Total Project Cost	\$1,101,457

## Facility Condition Summary

Fire Station #12 is a 2-story wood framed fire station with a three vehicle bay garage. Originally constructed in 1975, there have been several remodels and additions to this building, most recently renovated in 1995. Roofing consists of torch-down roofing on wood deck. Wood framed walls are clad with brick veneer, wood lap siding, aluminum punched insulated windows, and hollow metal doors. MEP systems are a mix of some original 1975 and mostly somewhat newer 1995 equipment and materials; beginning to show many signs of age such as HVAC equipment failures and general HVAC system obsolescence. Building is physically located in Fife and is operated and maintained by the City of Tacoma under agreement with Pierce County Fire Protection District No. 10. Any improvements or modifications would have to be in accordance with that agreement.

# Facility Summary

City of Tacoma  
 Fire Station #12  
 Fire Station #12 Building

2015 54th Avenue East  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1975	1975	3	TRB 01/04/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	1975	1975	3	TRB 01/04/18	Concrete slab on grade. Some minor cracking, and tire wear patterns in vehicle bays.
<b>B Shell</b>			<b>3.1</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1975	1975	3	TRB 01/04/18	Wood joists with plywood sheathing supported by wood stud walls and CMU walls.
<b>B1020 Roof Construction</b>	1975	1975	3	TRB 01/04/18	Wood joists with plywood sheathing supported by wood stud walls. Glu-lam beam overhangs do not have flashing at top side or cap flashing at exposed ends.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1975	1975	3	TRB 01/04/18	Concrete masonry unit walls, wood stud walls with plywood sheathing. Exterior finish includes brick veneer, lap siding, aluminum siding and painted CMU masonry. CMU veneer ledgers, rusting vent grill. Some brick efflorescence occurring.
<b>B2020 Exterior Windows</b>	1975	1995	3	TRB 01/04/18	Anodized aluminum frame with insulated glazing. Windows in apparatus bay and lounge area are single pane. Seals on a couple window systems have failed.
<b>B2030 Exterior Doors</b>	1975	1995	3	TRB 01/04/18	Metal door and frames, Five overhead emergency vehicle bay doors. Generator room doors need to be replaced. Rear door code hardware functioning only intermittently.

# Facility Summary

City of Tacoma  
 Fire Station #12  
 Fire Station #12 Building

2015 54th Avenue East  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.1</b>		
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1975	1995	4	TRB 01/04/18	Torch down asphalt. The roofing is showing blistering in several locations.
<b>B3020 Roof Openings</b>	1975	1995	4	TRB 01/04/18	Plastic skylight in anodized aluminum frame.
<b>B3030 Projections</b>	1975	1995	3	TRB 01/04/18	Front entry canopy.
<b>C Interiors</b>			<b>2.8</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1975	1995	3	TRB 01/04/18	Interior walls are wood frame with gypsum, drywall.
<b>C1020 Interior Doors</b>	1975	1995	3	TRB 01/04/18	Solid core wood doors in metal frames and wood doors in wood frames.
<b>C1030 Fittings</b>	1975	1995	3	TRB 01/04/18	Plastic laminate faced particle board casework. Kitchen counter-tops are tile with thick porous grout joints, and staff report having a hard time keeping the communal kitchen counter-tops sanitary and clean.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>	1975	1995	2	TRB 01/04/18	Wood frame stair.
<b>C2020 Stair Finishes</b>	1975	1995	2	TRB 01/04/18	Carpet treads and risers.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1975	2011	2	TRB 01/04/18	Painted gypsum drywall, painted CMU, ceramic

# Facility Summary

City of Tacoma  
 Fire Station #12  
 Fire Station #12 Building

2015 54th Avenue East  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.8</b>		
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>					tile in toilet rooms.
<b>C3020 Floor Finishes</b>	1975	1995	3	TRB 01/04/18	Vinyl composition tile and carpet. VCT showing significant wear from traffic, chairs, and general use.
<b>C3030 Ceiling Finishes</b>	1975	1995	3	TRB 01/04/18	Painted gypsum drywall and suspended acoustic ceiling.
<b>D Services</b>			<b>3.0</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1975	1995	3	DCS 01/04/18	Variety of bathroom, kitchen, custodial and special fixtures ranging from some poor, to mostly fair and a few in good condition. Most tank-type water closets are slow to flush, but are readily upgraded to pressure-assist type as had been done for at least one fixture at FS-12.
<b>D2020 Domestic Water Distribution</b>	1975	1995	2	DCS 01/04/18	City water to mostly copper distribution piping - opportunity to upgrade to hydration station. DHW is from A.O. Smith (2007) 80-gal electric tank-type heater with recirc pump.
<b>D2030 Sanitary Waste</b>	1975	1995	2	DCS 01/04/18	Observed DW&V piping is cast iron; while many tested fixtures flush or drain slow, this appears mostly due to the fixtures, especially the inherently slow tank-type water closets, assume not the DW&V system itself; staff report no DW&V system issues. Opportunity to add trench or floor drains to apparatus bays.
<b>D2040 Rain Water Drainage</b>	1975	1995	4	DCS 01/04/18	Minimal roof drains with standing water and mold growing in multiple locations.

# Facility Summary

City of Tacoma  
 Fire Station #12  
 Fire Station #12 Building

2015 54th Avenue East  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>Plumbing</b>					
<b>D2090 Other Plumbing Systems</b>	1975	1995	4	DCS 01/04/18	Temporary/portable plastic eyewash with no observed safety shower - install permanent per code. No compressed air system - opportunity to install to inflate tires and support other minor maintenance.
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>	1975	1995	4	DCS 01/04/18	Galvanized sheet metal ductwork in fair to good physical condition, but with poor performance - some spaces have minimal air flow - TAB and/or R-Cx needed; more likely a modern system. Opportunity to replace station house HVAC with modern fully zoned system.
<b>D3050 Terminal and Package Units</b>	1975	1995	4	DCS 01/04/18	Rooftop units include two high-roof units with 3-ton & 3.5-ton capacity, dated 2003 & 2002, to SW & NW respectively both with on-board Dx cooling (A/C) and electric resistance heat and at end of life with exposed and oil-canning ductwork. One heat pump RTU on low-roof, along with one heat pump CU on roof; these units are dated 1996 & 1995 respectively and are past end of life and reportedly failing or failed.
<b>D3060 Controls and Instrumentation</b>	1975	1995	3	DCS 01/04/18	Mix of older obsolete T-stats and some newer programmable T-stats. Opportunity to install DDC system per City standard.
<b>D3090 Other HVAC Systems and Equipment</b>	1975	1995	2	DCS 01/04/18	Newer (2011) Nederman vehicle engine exhaust system. Original general exhaust is abandoned in place with opportunity to refurbish and use for summer ventilation (free) cooling of apparatus bay.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>	1975	1995	2	DCS 01/04/18	Building is served by wet pipe type sprinkler system; no issues reported, noting riser water

# Facility Summary

City of Tacoma  
 Fire Station #12  
 Fire Station #12 Building

2015 54th Avenue East  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>					
					pressure is high at 120 psig. Service is 6-inch with 4-inch FDC and 6-inch riser to building from riser room.
<b>D4030 Fire Protection Specialties</b>					
	1975	1995	3	DCS 01/04/18	Fire extinguishers on hooks.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	1975	1995	3	DCS 01/04/18	Underground from utility pad-mounted transformer to 208/120V main distribution panel in apparatus bay with 600A capacity and feeding multiple branch panels throughout the building; no issue reported, with opportunity to install TVSS.
<b>D5020 Lighting and Branch Wiring</b>					
	1975	1995	3	DCS 01/04/18	Apparatus industrial fixtures and station house commercial fixtures are mostly T8 fluorescent with manual control - opportunity to upgrade to LED with automatic control.
<b>D5032 Low Voltage Communication</b>					
	1975	1995	3	DCS 01/04/18	Phone and other comm systems with no issues reported.
<b>D5037 Low Voltage Fire Alarm</b>					
	1975	1995	4	DCS 01/04/18	Obsolete zoned fire alarm system with Notifier 4800 FACP but with newer (2017) AES alarm transmitter with antenna.
<b>D5038 Low Voltage Security</b>					
	1975	1995	3	DCS 01/04/18	Minimal security with no issues reported.
<b>D5039 Low Voltage Data</b>					
	1975	1995	3	DCS 01/04/18	Modern data with no issues reported.
<b>D5090 Other Electrical Systems</b>					
	1975	1995	3	DCS 01/04/18	100 kW Katolight generator with transfer switch, aging but operable, except generator room



# Facility Summary

City of Tacoma  
 Fire Station #12  
 Fire Station #12 Building

2015 54th Avenue East  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>Electrical</b>					
D5090 Other Electrical Systems					
					outside access door rusted closed. Marginal emergency lighting egress and exit signs.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
E1010 Commercial Equipment					
	1975	1995	3	DCS 01/04/18	Wear & tear with some work needed.
<b>F Special Construction</b>			<b>3.0</b>		
<b>Special Construction</b>					
F1010 Special Structures					
	1975	1995	3	TRB 01/04/18	Covered wood framed exterior pole building style covered vehicle wash bay, Composition shingle roofing. Sloped slab drains to an oil-water separator. Locked storage room attached to south side of pole building for unclear purpose.

# Facility Summary

City of Tacoma  
 Fire Station #12  
 Infrastructure

2015 54th Avenue East  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1975	1995	3	TRB 01/04/18	Concrete entry drive apron, minor cracking.
<b>G2020 Parking Lots</b>	1975	1995	3	TRB 01/04/18	Asphalt and concrete with extruded concrete curbs.
<b>G2030 Pedestrian Paving</b>	1975	1975	3	TRB 01/04/18	Miscellaneous concrete sidewalks.
<b>G2040 Site Development</b>	1995	1995	2	TRB 01/04/18	Cast-in-place concrete retaining wall with rustification profile.
<b>G2050 Landscaping</b>	1975	1995	2	TRB 01/04/18	Mature shrubs, perimeter trees, ground cover.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1975	1995	3	DCS 01/04/18	City water supplying domestic with 1.5-inch service and 6-inch fire service with PIV at front to west and FDC at side to south; unclear irrigation if any; no issues reported.
<b>G3020 Sanitary Sewer</b>	1975	1995	2	DCS 01/04/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1975	1995	2	DCS 01/04/18	Storm water system reportedly discharging to City storm utility at street; no issues reported or observed - no standing water.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1975	1995	2	DCS 01/04/18	Tacoma Power meter #305589 to main building and apparent separate meter #0N7197 to pole-barn building and attached storage room; no issues reported, but opportunity to combined meters if possible.

# Facility Summary

City of Tacoma  
 Fire Station #12  
 Infrastructure

2015 54th Avenue East  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Electrical utilities</b>					
<b>G4020 Site Lighting</b>	1975	1995	4	DCS 01/04/18	Old mercury vapor area lights attached to side of building to north; while there are several newer LED sconces, most lights are old; site coverage is marginal with no pole lighting, assumed to modest lighting from nearby street lights.
<b>G4030 Site Communications and Security</b>	1975	1995	3	DCS 01/04/18	Mix of older and newer communications from local purveyors; no issues reported. Minimal site security - opportunity to install perimeter CCTV system.



## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Fire Station #12

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Fire Station #12 Building	Roofing	\$124,640	\$31,160	\$31,160	\$102,828	\$289,788
	Interior Finishes	\$6,300	\$1,575	\$1,575	\$5,198	\$14,648
	Plumbing	\$11,000	\$2,750	\$2,750	\$9,075	\$25,575
	HVAC	\$52,478	\$13,119	\$13,119	\$43,294	\$122,010
	Electrical	\$19,940	\$4,985	\$4,985	\$16,451	\$46,361
	Equipment	\$7,500	\$1,875	\$1,875	\$6,188	\$17,438
	<b>Facility Total</b>		<b>\$221,858</b>	<b>\$55,464</b>	<b>\$55,464</b>	<b>\$183,032</b>
Infrastructure	Site Improvements	\$15,000	\$3,750	\$3,750	\$12,375	\$34,875
	Site Electrical utilities	\$6,000	\$1,500	\$1,500	\$4,950	\$13,950
	<b>Facility Total</b>	<b>\$21,000</b>	<b>\$5,250</b>	<b>\$5,250</b>	<b>\$17,325</b>	<b>\$48,825</b>
	<b>Site Total</b>	<b>\$242,858</b>	<b>\$60,714</b>	<b>\$60,714</b>	<b>\$200,357</b>	<b>\$564,644</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #12

Total Observed Deficiency Repair Direct Cost : \$242,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #12 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$124,640</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$289,788</b>
<b>Roof Coverings</b>									
Built-Up Roof	4	5	2018		9,970	\$12.00	SF	\$119,640	\$278,163

Roofing is nearing end of life, numerous expanding blisters.

Re-roof.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #12

Total Observed Deficiency Repair Direct Cost : \$242,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #12 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$124,640</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$289,788</b>
<b>Roof Openings</b>									
Skylight	4	4	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Old dome skylight nearing end of life.

Replace with new insulated curb, new flashings, and new skylight.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #12

Total Observed Deficiency Repair Direct Cost : \$242,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #12 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$6,300
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$14,648
<b>Wall Finishes</b>									
Paint	3	3	2018		500	\$3.00	SF	\$1,500	\$3,488

Paint is starting to wear mostly in meeting room and high traffic areas.

Spot clean and paint selected walls.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #12

Total Observed Deficiency Repair Direct Cost : \$242,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #12 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$6,300</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$14,648</b>
<b>Floor Finishes</b>									
Vinyl Composite Tile (VCT)	4	5	2018		1,200	\$4.00	SF	\$4,800	\$11,160

VCT flooring system showing significant wear and tear.

Provide new flooring (perhaps carpet tile over existing VCT).



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #12

Total Observed Deficiency Repair Direct Cost : \$242,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Station #12 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$11,000</b>	
<b>System: Plumbing</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$25,575</b>	
<b>Plumbing Fixtures</b>										
Fixtures	4	3	2018		10	\$500.00	EA	\$5,000	\$11,625	

Some fixtures worn, especially trim. Some water closets slow to flush.

Inspect, clean, repair, adjust and replace as needed; upgrade slow-flushing water closets with pressure-assist type.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #12

Total Observed Deficiency Repair Direct Cost : \$242,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Station #12 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$11,000</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$25,575</b>
<b>Rain Water Drainage</b>									
Roof drains	4	2	2018		12	\$500.00	EA	\$6,000	\$13,950

Minimal roof drains resulting in standing water and moss growing on roof.

Install full set of roof drains in conjunction with related roof repairs or replacement.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #12

Total Observed Deficiency Repair Direct Cost : \$242,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #12 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$52,478</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$122,010</b>
<b>HVAC Distribution Systems</b>									
Ductwork	4	2	2018		9,970	\$0.75	SF	\$7,478	\$17,385

Poor air distribution to many spaces resulting in marginal indoor air quality and/or occupant thermal

Conduct TAB and/or R-Cx and improve as recommended and in conjunction with RTU replacements.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #12

Total Observed Deficiency Repair Direct Cost : \$242,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: Fire Station #12 Building									Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$52,478	
System: HVAC									Total System Deficiency Repair Cost (Marked Up): \$122,010	
<b>Terminal and Package Units</b>										
Heat pumps	4	1	2018		2	\$10,000.00	EA	\$20,000	\$46,500	
Failed or failing 1995 heat pump equipment.				Replace.						



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #12

Total Observed Deficiency Repair Direct Cost : \$242,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #12 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$52,478
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$122,010
<b>Terminal and Package Units</b>									
Heat pumps	4	1	2018		2	\$12,500.00	EA	\$25,000	\$58,125
2002 & 2003 RTUs at end of life.				Schedule replacement before failure; repair associated exposed rooftop ductwork.					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #12

Total Observed Deficiency Repair Direct Cost : \$242,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #12 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$19,940
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$46,361
<b>Low Voltage Fire Alarm</b>									
Fire alarm	4	3	2018		9,970	\$2.00	SF	\$19,940	\$46,361
<b>Obsolete FACP and devices.</b>				<b>Replace with new addressable.</b>					





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #12

Total Observed Deficiency Repair Direct Cost : \$242,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #12 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$7,500
System: Equipment					Total System Deficiency Repair Cost (Marked Up):				\$17,438
<b>Commercial Equipment</b>									
Other	4	3	2018		1	\$7,500.00	LF	\$7,500	\$17,438

Worn built-in cabentry at some bathrooms, front desk, and especially kitchen area. Renew.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #12

Total Observed Deficiency Repair Direct Cost : \$242,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Infrastructure</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$15,000</b>
<b>System: Site Improvements</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$34,875</b>
<b>Parking Lots</b>									
Seal coat	3	5	2018		2,000	\$7.50	SF	\$15,000	\$34,875

Asphalt at front of building is showing signs of wear, and alligating, and has numerous patches, and some minor cracks. Striping is faded.

Remove and re-compact settlement area in front, and apply new asphalt. Seal coat asphalt and re-stripe.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #12

Total Observed Deficiency Repair Direct Cost : \$242,858

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$6,000</b>	
<b>System: Site Electrical utilities</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$13,950</b>	
<b>Site Lighting</b>										
Light fixtures	4	3	2018		12	\$500.00	EA	\$6,000	\$13,950	

Old mercury vapor lamps with marginal coverage of some areas.

Upgrade to all LED and add lighting to improve security and function.





## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #12

Total Site Opportunity Cost: \$513,745

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Station #12 Building</b> <b>System: Interior Construction</b> <span style="float: right;"><b>Total Cost: \$8,000</b></span>						
C1030	Fittings					
	Kitchen countertops are tile with thick porous grout joints, and staff report having a hard time keeping the communal kitchen countertops sanitary and clean.	Replace Kitchen countertops with solid surface (and heat resistant) material.	1.00	\$8,000.00	EA	\$8,000
<b>Facility: Fire Station #12 Building</b> <b>System: Vertical Transportation</b> <span style="float: right;"><b>Total Cost: \$150,000</b></span>						
D1010	Elevators and Lifts					
	No elevator to second floor.	Install elevator to second floor.	1.00	\$150,000.00	LS	\$150,000
<b>Facility: Fire Station #12 Building</b> <b>System: Plumbing</b> <span style="float: right;"><b>Total Cost: \$16,000</b></span>						
D2030	Sanitary Waste					
	No floor or trench drains at apparatus bays.	Install trench drains.	4.00	\$4,000.00	EA	\$16,000
<b>Facility: Fire Station #12 Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$179,955</b></span>						
D3040	HVAC Distribution Systems					
	Poor zoning and energy efficiency.	Install modern HVAC system such as VRF with HRV DOAS.	6,000.00	\$25.00	SF	\$150,000
D3050	Terminal and Package Units					
	Apparatus bay heating is by older electric unit heaters.	Install new radiant heaters	3,000.00	\$5.00	SF	\$15,000
D3060	Controls and Instrumentation					
	No DDC system.	Install DDC system per City standard.	9,970.00	\$1.50	SF	\$14,955
<b>Facility: Fire Station #12 Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$69,790</b></span>						
D5020	Lighting and Branch Wiring					
	Mostly T8 fluorescent with manual control.	Upgrade to LED with modest automatic lighting controls.	9,970.00	\$7.00	SF	\$69,790

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #12

Total Site Opportunity Cost: \$513,745

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Station #12 Building</b> <b>System: Special Construction</b>						
<b>Total Cost: \$50,000</b>						
F1010	Special Structures					
	No clean "Grey Room" for scuba and other special equipment maintenance and cleaning of equipment.	Construct a clean "Grey Room" with appropriate ventilation and class 10,000 ventilation filtration, and clean room type finishes for cleaning of response equipment.	100.00	\$500.00	SF	\$50,000
<b>Facility: Infrastructure</b> <b>System: Site Civil / Mechanical Utilities</b>						
<b>Total Cost: \$30,000</b>						
G3060	Fuel Distribution					
	No vehicle fueling system.	Install vehicle fueling system, similar to other stations.	1.00	\$25,000.00	LS	\$25,000
	No natural gas service.	Install natural gas service to increase occupant comfort and reduce energy cost.	1.00	\$5,000.00	LS	\$5,000
<b>Facility: Infrastructure</b> <b>System: Site Electrical utilities</b>						
<b>Total Cost: \$10,000</b>						
G4030	Site Communications and Security					
	Little or no CCTV.	Install full perimeter CCTV.	1.00	\$10,000.00	LS	\$10,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Facility Summary

City of Tacoma  
 Fire Station #13  
 Fire Station #13 Building

3825 North 25th Street  
 Tacoma, WA 98407

Facility Size - Gross S.F. 9,900  
 Year Of Original Construction 1911  
 Facility Use Type Fire Station  
 Construction Type Light  
 # of Floors 3  
 Energy Source Heating Oil  
 Year Of Last Renovation 1911  
 Historic Register Yes



FCI (BMAR/CRV)	0.22	Predicted Renewal Budget (20 yrs)	\$1,708,894
FCI (Bldg OD/CRV)	0.31	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$3,894,000	Building	\$1,197,493
BMAR (Backlog of Maintenance and Repair)	\$850,000	Infrastructure	\$103,893
Beginning Budget Year	2018	Total	\$1,301,386
		Opportunity Total Project Cost	\$1,621,224

## Facility Condition Summary

Fire Station #13 was constructed in 1911 as a wood and unreinforced masonry building. It has a full basement with two floors above containing apparatus bays, bunk room, day room, kitchen and offices and it is generally in fair condition. The station is listed on the Local and National Register of Historic Places. The mortar at the interior face of the masonry walls is getting soft and needs to be re-pointed. The existing wood framed exterior windows are in poor condition and should be replaced with modern dual glazed units. The overhead garage doors are in poor condition and should be replaced. The old galvanized water piping should be replaced with new copper pipe including new fixtures. The existing steam heating system is antiquated and should be replaced with a modern HVAC system. The electrical service and distribution, branch wiring and devices and all of the lighting are old and past their useful life and should be replaced. Most MEP systems are obsolete, inefficient, and at or near end of life. The facility is in need of modernization.

# Facility Summary

City of Tacoma  
 Fire Station #13  
 Fire Station #13 Building

3825 North 25th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1911	1911	3	TRB 01/05/18	Original concrete foundation.
<b>A1030 Slab On Grade</b>	1911	1911	3	TRB 01/05/18	Concrete slab on grade in basement.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1911	1911	3	TRB 01/05/18	Concrete basement walls, outwardly appearing in good condition considering age, but reinforcing steel unlikely.
<b>B Shell</b>			<b>3.1</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1911	2016	3	TRB 01/05/18	Wood floor heavy timber framing with wood decking and concrete slab on wood framing under trucks. Recently steel reinforced and added wood bearing stud walls sub-structure below trucks.
<b>B1020 Roof Construction</b>	1911	1911	3	TRB 01/05/18	Wood sheathing on wood framing and wood stick frame timber trusses.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1911	1911	3	TRB 01/05/18	Unreinforced brick masonry walls with plaster on interior face.
<b>B2020 Exterior Windows</b>	1911	1911	4	TRB 01/05/18	Exterior wood frame windows with single pane non-insulated glazing. Window and door opening are caulked to existing masonry.
<b>B2030 Exterior Doors</b>	1911	1911	4	TRB 01/05/18	Exterior overhead wood framed garage doors with non-insulated, four panel wood framed man



# Facility Summary

City of Tacoma  
 Fire Station #13  
 Fire Station #13 Building

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.1</b>		
<b>Exterior Closure</b>					
<b>B2030 Exterior Doors</b>					
					doors.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					
	1911	2012	3	TRB 01/05/18	2012 Composition shingles, daylight opening in NE corner existing rock wool insulation. Eave soffits repainted recently and appear in fine condition.
<b>B3020 Roof Openings</b>					
	1911	1911	3	TRB 01/05/18	Single roof access hatch.
<b>B3030 Projections</b>					
	1911	1911	3	TRB 01/05/18	Second story balcony is aging, bolstered by galvanized steel the decking appears to be nearing end of life.
<b>C Interiors</b>			<b>3.1</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>					
	1911	1911	3	TRB 01/05/18	Interior walls are wood framed with painted plaster.
<b>C1020 Interior Doors</b>					
	1911	1911	3	TRB 01/05/18	Interior doors are 4 panel stained wood doors in wood frames.
<b>C1030 Fittings</b>					
	1911	1911	3	TRB 01/05/18	Wood framed lockers, wood framed cabinets in kitchen and laundry.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>					
	1911	1911	3	TRB 01/05/18	Wood stair main floor to second floor; wood stair main floor to basement.
<b>C2020 Stair Finishes</b>					

# Facility Summary

City of Tacoma  
 Fire Station #13  
 Fire Station #13 Building

3825 North 25th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>3.1</b>		
<b>Staircases</b>					
	1911	1911	3	TRB 01/05/18	Wood treads and risers, with applied rubber tread.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>					
	1911	1911	4	TRB 01/05/18	Lead based paint over existing plaster and wood framing. Varnish over bead board in several location.
<b>C3020 Floor Finishes</b>					
	1911	1911	3	TRB 01/05/18	Painted concrete and wood on main floor. Carpet and sheet vinyl on second floor. Unfinished concrete in basement.
<b>C3030 Ceiling Finishes</b>					
	1911	1911	3	TRB 01/05/18	Paint over plaster and original historic hammered tin on main floor. Paint over plaster on second floor.
<b>D Services</b>			<b>3.6</b>		
<b>Vertical Transportation</b>					
<b>D1090 Other Conveying Systems</b>					
	1911	1911	4	DCS 01/05/18	Original twin-pole system, currently abandoned in place with opportunity to recommission.
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					
	1911	1970	4	DCS 01/05/18	Mix of some obsolete (1911) original and some aging (1970) fixtures & trim.
<b>D2020 Domestic Water Distribution</b>					
	1911	1911	4	DCS 01/05/18	Original construction, galvanized piping throughout building; bottled water in use. Newer (2012) GE 65-gal electric DHW heater in basement.
<b>D2030 Sanitary Waste</b>					
	1911	1960	3	DCS 01/11/18	Waste piping of various materials (cast iron,

# Facility Summary

City of Tacoma  
 Fire Station #13  
 Fire Station #13 Building

3825 North 25th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.6</b>		
<b>Plumbing</b>					
<b>D2030 Sanitary Waste</b>					galvanized steel and plastic) and vintage; most tested fixtures flush & drain OK, but some are slow - assume due more to fixtures than DW&V piping, but all should be more closely inspected & tested if Station 13 is to remain in service. Newer (2016) Ap Bay floor drains backed-up and failing.
<b>D2040 Rain Water Drainage</b>	1911	2012	2	DCS 01/05/18	Newer (2012) metal G&DS to storm; no issues reported.
<b>D2090 Other Plumbing Systems</b>	1911	1980	3	DCS 01/22/18	Portable compressed air system; opportunity for permanent.
<b>HVAC</b>					
<b>D3010 Energy Supply</b>	1911	2010	2	DCS 01/05/18	Newer tubing from newer (2010) outside fuel oil storage tank to boiler in basement; no issues reported. Opportunity to upgrade to natural gas in conjunction with new heating system.
<b>D3020 Heat Generating Systems</b>	1911	1921	4	DCS 01/15/18	Old (1921) Birchfield fire-tube steam boiler with aging steam and condensate piping to cast iron radiators throughout building.
<b>D3040 HVAC Distribution Systems</b>	1911	1970	4	DCS 01/05/18	Minimal ventilation throughout, limited mostly to operable windows for natural ventilation and several exhaust fans.
<b>D3060 Controls and Instrumentation</b>	1911	1911	4	DCS 01/05/18	Little or no controls - reportedly mostly manual with boiler turned on in Fall and off in Spring - when too warm inside occupants open windows to relieve heat.
<b>D3090 Other HVAC Systems and Equipment</b>	1911	2011	2	DCS 01/05/18	New (2011) Nederman vehicle engine exhaust

# Facility Summary

City of Tacoma  
 Fire Station #13  
 Fire Station #13 Building

3825 North 25th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.6</b>		
<b>HVAC</b>					
<b>D3090 Other HVAC Systems and Equipment</b>					
					system with no issues reported.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>					
	1911	2000	2	DCS 01/05/18	Newer wet pipe sprinkler system throughout building.
<b>D4030 Fire Protection Specialties</b>					
	1911	1990	3	DCS 01/05/18	Fire extinguishers on hooks.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	1911	1950	4	DCS 01/05/18	Overhead service to weather-head, then to a small Square D panel-board backed by a Gen-Trans transfer switch for a portable generator.
<b>D5020 Lighting and Branch Wiring</b>					
	1911	1970	4	DCS 01/05/18	Old T12 fluorescent fixtures with manual controls.
<b>D5032 Low Voltage Communication</b>					
	1911	1970	4	DCS 01/05/18	Obsolete residential-type telephone system.
<b>D5037 Low Voltage Fire Alarm</b>					
	1911	2000	3	DCS 01/05/18	Silent Knight FACP aging but functional.
<b>D5038 Low Voltage Security</b>					
	1911	1970	3	DCS 01/05/18	Little or no electronic security.
<b>D5039 Low Voltage Data</b>					
	1911	2000	3	DCS 01/05/18	Typical fire station data with no issues reported.
<b>D5090 Other Electrical Systems</b>					
	1911	1970	3	DCS 01/05/18	Gen Trans manual transfer switch for portable generator. One battery egress light at second floor stairs.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		

# Facility Summary

City of Tacoma  
 Fire Station #13  
 Fire Station #13 Building

3825 North 25th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>					
	1911	1970	3	DCS 01/05/18	Kitchen and laundry appliances.
<b>F Special Construction</b>					
<b>3.0</b>					
<b>Special Construction</b>					
<b>F1010 Special Structures</b>					
	1911	1911	3	TRB 01/05/18	Double existing brass fire poles (egress from second floor), one blocked off, one still functional (and occasionally still used according to one firefighter in the event of a fire call) but access is partially blocked by exercise equipment.

# Facility Summary

City of Tacoma  
 Fire Station #13  
 Infrastructure

3825 North 25th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1911	1980	3	TRB 01/05/18	Asphalt entrance to station with concrete curbs on south side of building. Some cracking at curb cut at street.
<b>G2020 Parking Lots</b>	1911	1980	4	TRB 01/05/18	Asphalt parking area on north side with parking for 8 vehicles.
<b>G2030 Pedestrian Paving</b>	1911	1980	3	TRB 01/05/18	Concrete walkways on west side and leading to building. Concrete exterior steps on west and north side, and concrete ramp on north side with no rails. Steep steps on north have no handrails.
<b>G2040 Site Development</b>	1911	1980	5	TRB 01/05/18	Wood Fence on Side yard rotting.
<b>G2050 Landscaping</b>	1911	1980	3	TRB 01/05/18	Grass areas with shrubs around building. Arborviate on side of building are growing large and should be trimmed away from walls and eave to prevent damage.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1911	1911	3	DCS 01/05/18	City water from estimated 3/4-inch meter; no issues reported. Irrigation supplied from building water system; opportunity for separate irrigation system.
<b>G3020 Sanitary Sewer</b>	1911	1911	3	DCS 01/05/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1911	1911	3	DCS 01/05/18	City storm with no issues reported.
<b>Site Electrical utilities</b>					
<b>G4020 Site Lighting</b>	1911	2015	2	DCS 05/13/09	Newer (2015) LED wall sconces.

# Facility Summary

City of Tacoma  
 Fire Station #13  
 Infrastructure

3825 North 25th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

G4020 Site Lighting

G4030 Site Communications and Security

1911 2010 3

DCS 01/11/18 Newer comm with high-speed data and no issues reported. Datatronics Galaxy reader board aging (2003) but functional.





## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Fire Station #13

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Fire Station #13 Building	Superstructure	\$50,000	\$12,500	\$12,500	\$41,250	\$116,250
	Exterior Closure	\$93,000	\$23,250	\$23,250	\$76,725	\$216,225
	Interior Construction	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Interior Finishes	\$60,000	\$15,000	\$15,000	\$49,500	\$139,500
	Plumbing	\$32,300	\$8,075	\$8,075	\$26,648	\$75,098
	HVAC	\$198,000	\$49,500	\$49,500	\$163,350	\$460,350
	Electrical	\$76,750	\$19,188	\$19,188	\$63,319	\$178,444
	<b>Facility Total</b>	<b>\$515,050</b>	<b>\$128,763</b>	<b>\$128,763</b>	<b>\$424,916</b>	<b>\$1,197,491</b>
Infrastructure	Site Improvements	\$34,685	\$8,671	\$8,671	\$28,615	\$80,643
	Site Civil / Mechanical Utilities	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Site Electrical utilities	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	<b>Facility Total</b>	<b>\$44,685</b>	<b>\$11,171</b>	<b>\$11,171</b>	<b>\$36,865</b>	<b>\$103,893</b>
	<b>Site Total</b>	<b>\$559,735</b>	<b>\$139,934</b>	<b>\$139,934</b>	<b>\$461,781</b>	<b>\$1,301,384</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

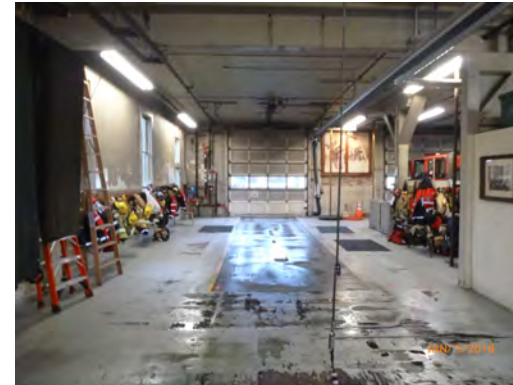
City of Tacoma  
Site: Fire Station #13

Total Observed Deficiency Repair Direct Cost : \$559,735

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #13 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$50,000</b>
<b>System: Superstructure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$116,250</b>
<b>Floor Construction</b>									
Wood floor framing	4	3	2018		2,000	\$25.00	SF	\$50,000	\$116,250

Apparatus bay floor rotting from tracked moisture from trucks.

Remove and replace existing wood deck adjacent to vehicles, coat entire floor with elastomeric waterproof traffic topping.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #13

Total Observed Deficiency Repair Direct Cost : \$559,735

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				<b>Action</b>						
<b>Facility:</b> Fire Station #13 Building									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b> \$93,000	
<b>System:</b> Exterior Closure									<b>Total System Deficiency Repair Cost (Marked Up):</b> \$216,226	
<b>Exterior Walls</b>										
Brick	4	3	2018		11,000	\$2.50	SF	\$27,500	\$63,938	

The sealer at the brick walls has deteriorated.

Clean and seal the brick.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

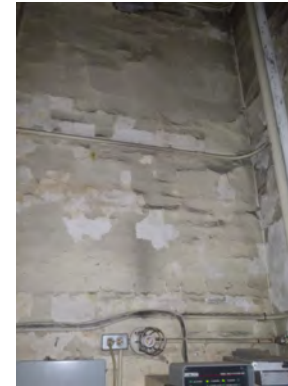
City of Tacoma  
Site: Fire Station #13

Total Observed Deficiency Repair Direct Cost : \$559,735

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #13 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$93,000</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$216,226</b>
<b>Exterior Walls</b>									
Unreinforced masonry walls	4	5	2018		3,100	\$5.00	SF	\$15,500	\$36,038

Mortar at interior face is very soft and powdery.

Repoint interior face of masonry and replace interior with furring and GWB.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #13

Total Observed Deficiency Repair Direct Cost : \$559,735

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #13 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$93,000</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$216,226</b>
<b>Exterior Windows</b>									
Wood frame windows	4	5	2018		40	\$1,100.00	EA	\$44,000	\$102,300

Existing single pane wood framed windows are nearing the end of useful life. Caulking has failed in many locations.

Replace existing windows to match historic style with new insulated glazing. Replace interior and exterior trim to match existing and caulk.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #13

Total Observed Deficiency Repair Direct Cost : \$559,735

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Station #13 Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$93,000	
System: Exterior Closure				Total System Deficiency Repair Cost (Marked Up):					\$216,226	
<b>Exterior Doors</b>										
Overhead garage door	4	5	2018		2	\$3,000.00	EA	\$6,000	\$13,950	

Doors nearing end of life from weathering and repeated use.

Replace OH apparatus garage doors.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

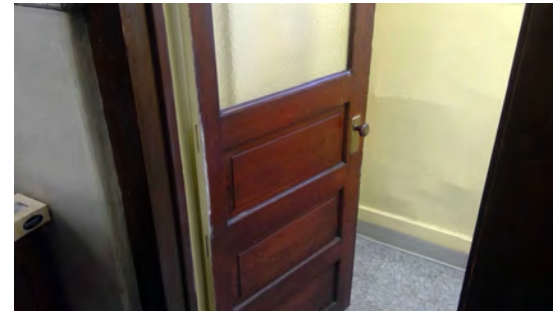
City of Tacoma  
Site: Fire Station #13

Total Observed Deficiency Repair Direct Cost : \$559,735

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Station #13 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$5,000</b>	
<b>System: Interior Construction</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$11,625</b>	
<b>Interior Doors</b>										
Doors	4	5	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Old doors with old knob hardware.

New hardware, and safety glazing at doors with vision panels.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #13

Total Observed Deficiency Repair Direct Cost : \$559,735

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #13 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$60,000</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$139,500</b>
<b>Wall Finishes</b>									
Paint over existing plaster	4	3	2018		6,000	\$10.00	SF	\$60,000	\$139,500

Lead paint over existing plaster is peeling and spalling in many locations on main and upper floors.

Remediation of lead based paint, Replace peeling and spalling paint. Prime over repaired plaster and repaint.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #13

Total Observed Deficiency Repair Direct Cost : \$559,735

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: Fire Station #13 Building									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: Plumbing									\$32,300	
<b>Plumbing Fixtures</b>										
Fixtures & trim	4	2	2018		10	\$1,250.00	EA	\$12,500	\$29,063	

Original and aging fixtures increasingly obsolete, worn and inefficient.

Replace with new.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #13

Total Observed Deficiency Repair Direct Cost : \$559,735

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: Fire Station #13 Building									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: Plumbing									\$32,300	
<b>Domestic Water Distribution</b>										
Galvanized piping	4	5	2018		9,900	\$2.00	SF	\$19,800	\$46,035	

Most piping appears to be original galvanized; past useful life with periodic leaks.

Replace original galvanized piping with modern copper and/or PEX.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #13

Total Observed Deficiency Repair Direct Cost : \$559,735

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				<b>Action</b>						
<b>Deficiency</b>										
Facility: Fire Station #13 Building									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: HVAC									\$198,000	
<b>Heat Generating Systems</b>										
Original construction steam heating system	4	3	2018		9,900	\$13.00	SF	\$128,700	\$299,228	

Original steam heating system past useful life. Equipment and distribution piping deteriorating.

Replace existing system with new high-efficiency boiler and piping.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #13

Total Observed Deficiency Repair Direct Cost : \$559,735

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Station #13 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$198,000</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$460,351</b>
<b>HVAC Distribution Systems</b>									
Ductwork	4	2	2018		9,900	\$7.00	SF	\$69,300	\$161,123

Little or no mechanical ventilation for many areas.

Install mechanical ventilation per code.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #13

Total Observed Deficiency Repair Direct Cost : \$559,735

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #13 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$76,750</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$178,443</b>
<b>Electrical Service and Distribution</b>									
Electrical service	4	3	2018		9,900	\$1.50	SF	\$14,850	\$34,526

The service is an old, overhead residential style 120/240V, 3W service. The panelboard, service disconnect and meter base are old and past useful life.

Replace service panel, disconnect, meter base and weather-head.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #13

Total Observed Deficiency Repair Direct Cost : \$559,735

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #13 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$76,750</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$178,443</b>
<b>Lighting and Branch Wiring</b>									
Electrical branch wiring and devices	4	3	2018		9,900	\$3.50	SF	\$34,650	\$80,561

Branch wiring is old and in poor condition, devices are worn out and past their useful life.

Replace branch wiring and devices.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

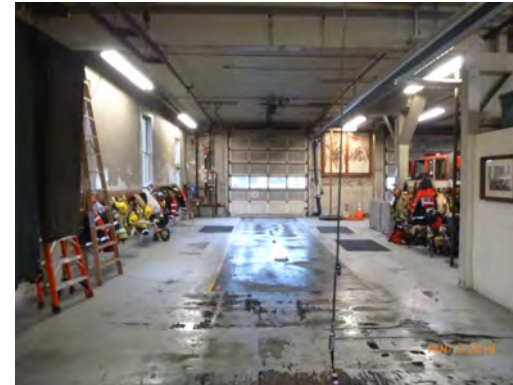
City of Tacoma  
Site: Fire Station #13

Total Observed Deficiency Repair Direct Cost : \$559,735

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #13 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$76,750</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$178,443</b>
<b>Lighting and Branch Wiring</b>									
Fluorescent lighting	4	5	2018		45	\$250.00	EA	\$11,250	\$26,156

Lighting is typically T-12 lamps, probably with magnetic ballasts. Fixtures are old and broken and need to be replaced.

Replace old T12 with modern LED.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #13

Total Observed Deficiency Repair Direct Cost : \$559,735

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #13 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$76,750
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$178,443
<b>Low Voltage Communication</b>									
Other	4	3	2018		8,000	\$1.00	SF	\$8,000	\$18,600
<b>Obsolete residential telephone.</b>				Replace with City standard VOIP system.					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #13

Total Observed Deficiency Repair Direct Cost : \$559,735

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #13 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$76,750
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$178,443
<b>Low Voltage Security</b>									
Security	4	2	2018		8,000	\$1.00	SF	\$8,000	\$18,600
<b>Little or no security.</b>				<b>Provide electronic security per City standard.</b>					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #13

Total Observed Deficiency Repair Direct Cost : \$559,735

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up):</b>	
<b>Parking Lots</b>										
Asphalt	4	2	2018		2,550	\$7.50	SF	\$19,125	\$44,466	

Asphalt on north side is cracked and shows sign of subgrade failure, with some potholding.

Remove and replace asphalt on north side, including subgrade repair and striping.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #13

Total Observed Deficiency Repair Direct Cost : \$559,735

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				<b>Action</b>					
<b>Deficiency</b>									
<b>Facility: Infrastructure</b>									
<b>System: Site Improvements</b>									
				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$34,685</b>					
				<b>Total System Deficiency Repair Cost (Marked Up): \$80,643</b>					
<b>Pedestrian Paving</b>									
Concrete	3	5	2018		880	\$12.00	SF	\$10,560	\$24,552

Exterior sidewalks are cracked with some areas of panel displacement. No sidewalk exists to doorway at south east corner of building.

Remove and replace damaged portions of sidewalks, and construct sidewalk from south apron to southeast doorway.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #13

Total Observed Deficiency Repair Direct Cost : \$559,735

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				<b>Action</b>						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
<b>System: Site Improvements</b>									<b>\$34,685</b>	
<b>Pedestrian Paving</b>									<b>Total System Deficiency Repair Cost (Marked Up):</b>	
<b>Handrails</b>									<b>\$80,643</b>	
	5	0	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Steep steps and ramp on north side of building have no handrails.

Install handrails on steep steps and ramp on north side of building.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #13

Total Observed Deficiency Repair Direct Cost : \$559,735

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$5,000</b>	
<b>System: Site Civil / Mechanical Utilities</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$11,625</b>	
<b>Fuel Distribution</b>										
Fuel oil storage tank	4	3	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Vehicle diesel fuel tank, dispenser and meter aging with water in fill top, mold growing on tank, and failing meter.

Renew vehicle fuel system to extend system life 10 to 15 years.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #13

Total Observed Deficiency Repair Direct Cost : \$559,735

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$5,000</b>	
<b>System: Site Electrical utilities</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$11,625</b>	
<b>Electrical Distribution</b>										
Overhead power	4	5	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Aging, obsolete overhead power from pole at alley to west side of building.

Replace with underground power.







## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #13

Total Site Opportunity Cost: **\$697,300**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Station #13 Building</b> <b>System: Vertical Transportation</b> <span style="float: right;"><b>Total Cost: \$150,000</b></span>						
D1010	Elevators and Lifts	Abandoned hose tower and no elevator.	Add 3-stop elevator at hose tower location.	1.00	\$150,000.00	LS \$150,000
<b>Facility: Fire Station #13 Building</b> <b>System: Plumbing</b> <span style="float: right;"><b>Total Cost: \$7,500</b></span>						
D2090	Other Plumbing Systems	Portable compressed air.	Install permanent compressed air system.	1.00	\$7,500.00	LS \$7,500
<b>Facility: Fire Station #13 Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$539,800</b></span>						
D3010	Energy Supply	Obsolete fuel oil heating system with natural gas available in vicinity.	Install natural gas piping from new service to new basement boiler.	1.00	\$5,000.00	LS \$5,000
D3020	Heat Generating Systems	Obsolete steam heating system.	Upgrade to hydronic heat in conjunction with building thermal envelope upgrades (more insulation and better windows).	9,900.00	\$15.00	SF \$148,500
D3030	Cooling Generating Systems	Through-window A/C.	Upgrade to ductless-split A/C.	3.00	\$5,000.00	SF \$15,000
D3040	HVAC Distribution Systems	Antiquated HVAC system.	Upgrade to modern HVAC meeting current energy and mechanical codes, adding air condition for station house (upper floor) area.	9,900.00	\$35.00	SF \$346,500
D3060	Controls and Instrumentation	Little or no automatic controls for space heat - reportedly staff simply open windows when spaces get too hot.	In DDC-based control system.	9,900.00	\$2.00	SF \$19,800
D3090	Other HVAC Systems and Equipment					

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #13

Total Site Opportunity Cost: \$697,300

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
	Abandoned engine exhaust system.	Convert for ventilation cooling (<\$5K).	1.00	\$5,000.00	LS	\$5,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 Fire Station #14  
 Fire Station #14 Building

4701 North 41st Street  
 Tacoma, WA 98407

Facility Size - Gross S.F. 1,963  
 Year Of Original Construction 1928  
 Facility Use Type Fire Station  
 Construction Type Light  
 # of Floors 1  
 Energy Source Gas  
 Year Of Last Renovation n/a  
 Historic Register Yes



FCI (BMAR/CRV)	0.16	Predicted Renewal Budget (20 yrs)	\$354,599
FCI (Bldg OD/CRV)	0.17	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$772,000	Building	\$131,858
BMAR (Backlog of Maintenance and Repair)	\$122,000	Infrastructure	
Beginning Budget Year	2018	Total	
		Opportunity Total Project Cost	\$286,089

## Facility Condition Summary

Fire Station #14 is a bungalow type station constructed in 1928, as a single-story wood frame building with partial basement and attic, plus hose tower and separate parking garage. The station is listed on the Local and National Register of Historic Places. At some unknown date the apparatus bay was extended to accommodate larger apparatus including replacement of about half the original concrete SOG. It has been well maintained and is generally in good condition, but has some structural settlement at the apparatus bay extension, with cracking through the foundation, SOG, and walls. The electrical service panel is aged and obsolete and should be replaced. Some of the plumbing fixtures have deteriorated and need to be replaced, including the rusting shower unit. A few additional maintenance issues will eventually need to be addressed. They include minor brick repair, foundation cracks, exterior windows (single glazed) for energy conservation.

# Facility Summary

City of Tacoma  
 Fire Station #14  
 Fire Station #14 Building

4701 North 41st Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1928	1928	3	TRB 01/05/18	Standard concrete foundation. Cracks in west foundation wall, traveling up into brick above. Recommend patch and monitoring to verify new settlement is not creating an issue.
<b>A1030 Slab On Grade</b>	1928	1928	3	TRB 01/05/18	Concrete slab on grade, significant cracking in apparatus bay (perhaps weight from newer heavier trucks exceed original slab bearing capacity); recommend patch and seal, and monitor for any further settlement or cracking.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1928	1928	3	TRB 01/05/18	Concrete slab on grade with concrete basement walls.
<b>B Shell</b>			<b>3.0</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1928	1928	3	TRB 01/05/18	Rough sawn wood floor framing with floor boards and diaphragm sheathing.
<b>B1020 Roof Construction</b>	1928	1928	3	TRB 01/05/18	Wood roof rafters and ceiling joists.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1928	1928	3	TRB 01/05/18	Wood stud walls with wood sheathing and brick veneer. Minor areas needing brick re-pointing on East side of North wall. Cracking in West wall veneer associated with foundation cracks, re-point and seal.
<b>B2020 Exterior Windows</b>	1928	1928	4	TRB 01/05/18	Original wood single pane wood windows.

# Facility Summary

City of Tacoma  
 Fire Station #14  
 Fire Station #14 Building

4701 North 41st Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.0</b>		
<b>Exterior Closure</b>					
<b>B2030 Exterior Doors</b>	1928	1928	3	TRB 01/05/18	Paneled wood doors, in fair condition. Newer OH Garage apparatus bay and man-door.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1928	2012	2	TRB 01/05/18	Recently re-roofed with composition roofing.
<b>B3030 Projections</b>	1928	1928	3	TRB 01/05/18	The historic hose drying tower remains, but appears to be non-functional, with access removed in a past remodel.
<b>C Interiors</b>			<b>2.9</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1928	1928	3	TRB 01/05/18	Wood framed walls with plaster finish.
<b>C1020 Interior Doors</b>	1928	1928	3	TRB 01/05/18	Flush and paneled varnished wood doors.
<b>C1030 Fittings</b>	1928	1928	2	TRB 01/05/18	Built in historic 1928 firefighter wood lockers. 2017 refurbished kitchen casework and counter-tops.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>	1928	1928	3	TRB 01/05/18	Concrete stairs to basement. Low headroom clearance (tight turn, does not meet current code).
<b>C2020 Stair Finishes</b>	1928	1928	3	TRB 01/05/18	Sealed concrete with abrasive nosing.
<b>Interior Finishes</b>					

## Facility Summary

City of Tacoma  
 Fire Station #14  
 Fire Station #14 Building

4701 North 41st Street  
 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.9</b>		
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1928	2017	3	TRB 01/05/18	Recently painted plaster walls and ceilings. Wood trim.
<b>C3020 Floor Finishes</b>	1928	1980	3	TRB 01/05/18	Vinyl asbestos tile, ceramic tile, and carpet, exposed slab on grade in apparatus bay and recreation area in basement.
<b>C3030 Ceiling Finishes</b>	1928	1928	3	TRB 01/05/18	Painted plaster.
<b>D Services</b>			<b>3.1</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1928	1980	3	DCS 01/05/18	Mix of original, older and some newer fixtures of various materials and trims.
<b>D2020 Domestic Water Distribution</b>	1928	1980	3	DCS 01/05/18	Mix of some original galvanized and mostly newer copper piping - bottle water in use. Newer (2015) GE 65-gal electric DHW heater.
<b>D2030 Sanitary Waste</b>	1928	1928	3	DCS 01/05/18	Waste and vent piping is combination of cast iron serving older and ABS serving newer fixtures. Tested fixtures flush & drain well, except for newer toilet room fixtures in hose tower.
<b>D2040 Rain Water Drainage</b>	1928	2012	2	DCS 01/05/18	Metal G&DS to storm at house and to grade at staff garage with no issues reported or observed, except some downspout leakage at house and need for new splash block at garage (both minor maintenance to correct).
<b>D2090 Other Plumbing Systems</b>	1928	2012	3	DCS 01/23/18	Portable air compressor; opportunity to upgrade to permanent, with option to run line to staff garage. Temporary plastic eyewash station with

# Facility Summary

City of Tacoma  
 Fire Station #14  
 Fire Station #14 Building

4701 North 41st Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			3.1		
<b>Plumbing</b>					
<b>D2090 Other Plumbing Systems</b>					
					opportunity to install permanent.
<b>HVAC</b>					
<b>D3010 Energy Supply</b>					
	1928	2000	2	DCS 01/05/18	Black steel gas piping serves gas furnace in basement and unit heater at apparatus bay.
<b>D3030 Cooling Generating Systems</b>					
	1928	2010	4	DCS 01/23/18	Temporary through-window PTAC A/C units.
<b>D3040 HVAC Distribution Systems</b>					
	1928	2000	3	DCS 01/23/18	Galvanized sheet metal ductwork mostly distributed through basement; return air is partially blocked by furniture and other objects on main floor (minor maintenance and occupant training to correct). Relatively modern Payne standard-efficiency gas-fired forced air furnace in basement with opportunity to upgrade to high-efficiency upon failure. Verify code-required combustion air to basement furnace. Noisy apparatus bay toilet room exhaust fan (minor maintenance issue). Kitchen range hood vents to outside per code (good).
<b>D3050 Terminal and Package Units</b>					
	1928	2000	3	DCS 01/05/18	One Cyenne gas-fired unit heater serving apparatus bay with no issues reported. Several electric wall heaters - one in basement make-shift sleeping area may be a safety hazard.
<b>D3060 Controls and Instrumentation</b>					
	1928	2000	3	DCS 01/23/18	Programmable thermostat controls furnace. Unit heater is controlled by older mercury type thermostat. No issues reported, but opportunity to upgrade to limited DDC control. Single-glazed windows may be opportunity to improve energy efficiency.
<b>D3090 Other HVAC Systems and Equipment</b>					
	1928	2011	2	DCS 01/23/18	New (2011) Nederman vehicle engine exhaust system. Original basement boiler brick chimney used for newer gas furnace flue.

# Facility Summary

City of Tacoma  
 Fire Station #14  
 Fire Station #14 Building

4701 North 41st Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.1</b>		
<b>HVAC</b>					
<b>D3090 Other HVAC Systems and Equipment</b>					
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>					
	1928	1990	3	DCS 01/23/18	Four-inch service at 65 psig to two-inch riser with glycol freeze protection.
<b>D4030 Fire Protection Specialties</b>					
	1928	1990	3	DCS 01/23/18	Fire extinguishers on hooks. First aid kit.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	1928	1960	4	DCS 01/05/18	Aging 120/240V 200A panel set in even older panel in day-room.
<b>D5020 Lighting and Branch Wiring</b>					
	1928	1990	3	DCS 01/05/18	Mostly surface mount fluorescent fixtures with T8 lamps and manual controls. Mix of older and newer wiring and devices.
<b>D5032 Low Voltage Communication</b>					
	1928	2000	3	DCS 01/23/18	Door bell at front door. Phone system.
<b>D5037 Low Voltage Fire Alarm</b>					
	1928	2000	3	DCS 01/23/18	Older Silent Knight non-addressable FACP with minimal detection, but new (2017) AES antenna. Battery-operated CO detectors in living area. Appears to be some battery-operated smoke detectors.
<b>D5038 Low Voltage Security</b>					
	1928	1990	3	DCS 01/05/18	Minimal electronic security.
<b>D5039 Low Voltage Data</b>					
	1928	2000	3	DCS 01/05/18	Make-shift MDF in basement, but no reported issues.
<b>D5090 Other Electrical Systems</b>					
	1928	1980	3	DCS 01/05/18	GenTrans transfer switch for portable generator,



# Facility Summary

City of Tacoma  
 Fire Station #14  
 Fire Station #14 Building

4701 North 41st Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.1</b>		
<b>Electrical</b>					
<b>D5090 Other Electrical Systems</b>					
					battery egress lighting, no exit fixtures (just stenciled signs).
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>					
	1928	2000	3	DCS 01/05/18	Residential grade kitchen and laundry appliances - aging but functional - some newer at kitchen.
<b>F Special Construction</b>			<b>2.5</b>		
<b>Special Construction</b>					
<b>F1010 Special Structures</b>					
	1928	1928	3	TRB 01/05/18	Stand alone 4-car open garage with gable roof, and three walls matching the main building architectural detailing. Obsolete un-grounded receptacles need replacement. Somewhat newer sealed fluorescent lighting could be placed on automatic control to turn off during daylight hours.
<b>F1050 Special Controls and Instrumentation</b>					
	1928	2015	2	DCS 01/23/18	Newer (2015) tone alarm system with City standard rooftop antenna, Astron radio, Zetron alarm, and Bogen amp with distributed speakers.

# Facility Summary

City of Tacoma  
 Fire Station #14  
 Infrastructure

4701 North 41st Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1928	1970	3	TRB 01/05/18	Concrete drive apron to building. Minor cracking.
<b>G2020 Parking Lots</b>	1928	1928	3	TRB 01/05/18	Concrete parking in covered area at back of building.
<b>G2030 Pedestrian Paving</b>	1928	1970	3	TRB 01/05/18	Concrete sidewalks and steps with wood handrails.
<b>G2050 Landscaping</b>	1928	1928	2	TRB 01/05/18	Grass, shrubs, and trees: well maintained.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1928	1928	3	DCS 01/23/18	City water with no issues reported. Appears to be two separate meters for domestic and irrigation, plus vault for fire sprinkler service.
<b>G3020 Sanitary Sewer</b>	1928	1928	3	DCS 01/23/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1928	1928	3	DCS 01/23/18	Storm sheet flows to street; no issues reported, however some roof drain downspouts are leaking (minor maintenance to correct).
<b>G3060 Fuel Distribution</b>	1928	2012	2	DCS 01/23/18	Newer PSE natural gas meter #1094083 with 250 cfh capacity to older piping missing seismic shut-off valve.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1928	2012	3	DCS 01/23/18	Overhead power to weather-head with Tacoma Power meter #157606; no issues reported. Opportunity to underground power in future.

# Facility Summary

City of Tacoma  
 Fire Station #14  
 Infrastructure

4701 North 41st Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

##### G4020 Site Lighting

1928 2012 2

DCS 01/23/18 Newer LED lighting as several locations; no issues reported.

##### G4030 Site Communications and Security

1928 2012 3

DCS 01/23/18 Telecom services from purveyors with no issues reported. Little or no site security - opportunity to increase security.



# Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Fire Station #14

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Fire Station #14 Building	Exterior Closure	\$18,000	\$4,500	\$4,500	\$14,850	\$41,850
	Interior Finishes	\$8,000	\$2,000	\$2,000	\$6,600	\$18,600
	Plumbing	\$11,889	\$2,972	\$2,972	\$9,808	\$27,642
	HVAC	\$6,000	\$1,500	\$1,500	\$4,950	\$13,950
	Electrical	\$12,824	\$3,206	\$3,206	\$10,580	\$29,816
	<b>Facility Total</b>	<b>\$56,713</b>	<b>\$14,178</b>	<b>\$14,178</b>	<b>\$46,788</b>	<b>\$131,858</b>
	<b>Site Total</b>	<b>\$56,713</b>	<b>\$14,178</b>	<b>\$14,178</b>	<b>\$46,788</b>	<b>\$131,858</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #14

Total Observed Deficiency Repair Direct Cost : \$56,713

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #14 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$18,000
System: Exterior Closure					Total System Deficiency Repair Cost (Marked Up):				\$41,850
<b>Exterior Windows</b>									
Single-Pane Windows	4	4	2018		18	\$1,000.00	EA	\$18,000	\$41,850

Original single pane glazing.

Replace windows with historic insulated glazed units.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #14

Total Observed Deficiency Repair Direct Cost : \$56,713

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				<b>Action</b>						
<b>Facility:</b> Fire Station #14 Building									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
<b>System:</b> Interior Finishes									<b>\$8,000</b>	
<b>Floor Finishes</b>									<b>Total System Deficiency Repair Cost (Marked Up):</b>	
									<b>\$18,600</b>	
Carpet	5	2	2018		800	\$10.00	SF	\$8,000	\$18,600	

Carpet is at end of life, bathroom tile needs heavy cleaning.

Replace carpeting with hygienic solid surfacing. (Note: industry recommendations to avoid carpet not easily sanitized and can trap pollutants and bio-hazards from call sites). Protect historic wood base if occurs in areas. Steam clean hex tile grout in bathroom and seal.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #14

Total Observed Deficiency Repair Direct Cost : \$56,713

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: Fire Station #14 Building									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: Plumbing									\$11,889	
<b>Plumbing Fixtures</b>										
Fixtures and trim	4	2	2018		3	\$2,000.00	EA	\$6,000	\$13,950	

Some fixtures or trim are failing, such as shower and some faucets.

Replace obsolete, damaged or failing fixture and trim as needed.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #14

Total Observed Deficiency Repair Direct Cost : \$56,713

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Station #14 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$11,889</b>	
<b>System: Plumbing</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$27,642</b>	
<b>Domestic Water Distribution</b>										
Domestic water piping	4	3	2018		1,963	\$3.00	SF	\$5,889	\$13,692	

Original galvanized domestic water piping - bottled water in use.

Replace galvanized piping with copper and/or PEX.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #14

Total Observed Deficiency Repair Direct Cost : \$56,713

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Station #14 Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$6,000	
System: HVAC				Total System Deficiency Repair Cost (Marked Up):					\$13,950	
<b>Cooling Generating Systems</b>										
Air conditioning	4	2	2018		2	\$3,000.00	EA	\$6,000	\$13,950	
Aged through-window PTAC A/C units.				Replace with permanent ductless split-Dx A/C.						



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #14

Total Observed Deficiency Repair Direct Cost : \$56,713

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Station #14 Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$12,824	
System: Electrical				Total System Deficiency Repair Cost (Marked Up):					\$29,816	
<b>Electrical Service and Distribution</b>										
Service panelboard	4	3	2018		1	\$7,500.00	LS	\$7,500	\$17,438	

Panelboard is old, unknown manufacturer and is past its useful life. Meter base is old and is interior to the building.

Replace panel-board and meter base and relocate outside day-room.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #14

Total Observed Deficiency Repair Direct Cost : \$56,713

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #14 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$12,824
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$29,816
<b>Lighting and Branch Wiring</b>									
Branch wiring and devices	4	5	2018		1,936	\$2.75		\$5,324	\$12,378
Some older wiring and devices.				Replace non-compliant and/or past-useful life wiring and devices as needed.					





## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #14

Total Site Opportunity Cost: **\$128,049**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Station #14 Building</b> <b>System: Exterior Closure</b> <span style="float: right;"><b>Total Cost: \$14,400</b></span>						
B2020	Exterior Windows	Wood frame windows - Energy savings by utilizing insulated glazing.	Replace existing wood windows with insulated glazing window units.	180.00	\$80.00	SF \$14,400
<b>Facility: Fire Station #14 Building</b> <b>System: Vertical Transportation</b> <span style="float: right;"><b>Total Cost: \$20,000</b></span>						
D1010	Elevators and Lifts	Abandoned hose tower and no lift to basement.	Install ADA lift between basement and main level.	1.00	\$20,000.00	LS \$20,000
<b>Facility: Fire Station #14 Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$12,500</b></span>						
D3030	Cooling Generating Systems	Abandoned apparatus bay general exhaust system.	Re-purpose for summer apparatus bay cooling.	1.00	\$5,000.00	LS \$5,000
D3040	HVAC Distribution Systems	Standard-efficiency (80%) gas furnace.	Upgrade to high-efficiency (90%) condensing furnace upon failure of existing.	1.00	\$7,500.00	EA \$7,500
<b>Facility: Fire Station #14 Building</b> <b>System: Fire Protection</b> <span style="float: right;"><b>Total Cost: \$7,500</b></span>						
D4010	Fire Protection Sprinkler Systems	Glycol freeze protection.	Upgrade to modern dry pipe system.	1.00	\$7,500.00	LS \$7,500
<b>Facility: Fire Station #14 Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$68,649</b></span>						
D5020	Lighting and Branch Wiring	Fluorescent lighting with manual control.	Upgrade to LED with automatic control.	1,963.00	\$4.00	SF \$7,852
D5037	Low Voltage Fire Alarm	Little or no detection.	Upgrade to full detection.	1,963.00	\$2.75	\$5,398
D5038	Low Voltage Security					

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #14

Total Site Opportunity Cost: **\$128,049**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost												
D5090 Other Electrical Systems	Little or no electronic security.	Install City standard security.	1,963.00	\$2.75	SF	\$5,398												
	Portable generator.	Upgrade to permanent, say 35 kW diesel generator.	1.00	\$50,000.00	LS	\$50,000												
<table border="1" style="width: 100%;"> <tr> <td>Facility: Infrastructure</td> <td colspan="5"></td> </tr> <tr> <td>System: Site Electrical utilities</td> <td colspan="5" style="text-align: right;"><b>Total Cost: \$5,000</b></td> </tr> </table>							Facility: Infrastructure						System: Site Electrical utilities	<b>Total Cost: \$5,000</b>				
Facility: Infrastructure																		
System: Site Electrical utilities	<b>Total Cost: \$5,000</b>																	
G4010 Electrical Distribution	Overhead power to building.	Underground power to building.	1.00	\$5,000.00	LS	\$5,000												

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 Fire Station #15  
 Fire Station #15 Building

6415 East Mckinley Ave  
 Tacoma, WA 98407

Facility Size - Gross S.F. 3,360  
 Year Of Original Construction 1928  
 Facility Use Type Fire Station  
 Construction Type Light  
 # of Floors 1  
 Energy Source Electric  
 Year Of Last Renovation 2006  
 Historic Register Yes



Facility Condition Index (FCI)	0.16	Predicted Renewal Budget (20 yrs)	\$530,620
FCI Deficiency	0.26	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$1,322,000	Building	\$342,356
BMAR (Backlog of Maintenance and Repair)	\$209,000	Infrastructure	\$41,850
Beginning Budget Year	2018	<b>Total</b>	<b>\$384,206</b>
		Opportunity Total Project Cost	\$248,776

## Facility Condition Summary

Fire Station #15 is a temporary station containing two primary structures: a former small single-story 1929 single family home converted to Fire-fighting residence and office, and a newer (2006) adjacent Garage housing 2 emergency vehicles and a workout room. Many of the finishes for the house were also updated in 2006. Wood framed with asphalt shingles, both buildings have metal siding. City utilities including water, sewer and power, with separate electrical meters for the older house and newer apparatus building. Some MEP systems were renewed during the 2006 house conversion and in good condition, such as the furnace, but others are original in poor to fair condition, such the plumbing fixtures. MEP systems for the apparatus building are marginally code compliant, awkward and could be upgraded for improved function. The top MEP need is for a second bathroom.

# Facility Summary

City of Tacoma  
 Fire Station #15  
 Fire Station #15 Building

6415 East Mckinley Ave  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.7</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1929	2006	3	TRB 01/04/18	Standard concrete foundations. Original house 1928, garage building 2006.
<b>A1030 Slab On Grade</b>	2006	2006	2	TRB 01/04/18	Concrete slab on grade in garage and workout building. Minor cracking observed.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1929	1929	3	TRB 01/04/18	Concrete crawlspace stemwalls with old screen vents. Minor cracks and past patches evident.
<b>B Shell</b>			<b>3.0</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1929	1929	3	TRB 01/04/18	Original wood floor system on joists over crawlspace.
<b>B1020 Roof Construction</b>	1929	2006	3	TRB 01/04/18	Original Wood framed (house) roof framing sagging. New 2006 wood trusses over apparatus bay.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1929	2006	3	TRB 01/04/18	Wood framed walls, metal cladding. 1929 building has original framing, and 2006 bullet proofing added. Assumed un-insulated new aluminum lab siding, New garage has 2006 wood framing and metal siding.
<b>B2020 Exterior Windows</b>	1929	2006	3	TRB 01/04/18	Wood framed windows, upgraded with insulated vinyl.
<b>B2030 Exterior Doors</b>	1929	2006	3	TRB 01/04/18	Wood doors and frames upgraded on "House" in

# Facility Summary

City of Tacoma  
 Fire Station #15  
 Fire Station #15 Building

6415 East Mckinley Ave  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.0</b>		
<b>Exterior Closure</b>					
<b>B2030 Exterior Doors</b>					
					2006. 2006 garage Hollow Metal "Man" doors and frames (rusting and paint worn). 2006 metal insulated OH apparatus doors in fair condition.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					
	1929	2006	3	TRB 01/04/18	Asphalt composition shingle roofing.
<b>B3030 Projections</b>					
	1929	1929	3	TRB 01/04/18	Wood framed gable entry canopy projection over the front door.
<b>C Interiors</b>			<b>2.9</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>					
	1929	1929	3	TRB 01/04/18	Interior walls are wood lath and plaster over wood studs, and appear to be in fair condition.
<b>C1020 Interior Doors</b>					
	1929	2006	3	TRB 01/04/18	1929 wood framed doors and wood frames in fair condition. 2006 garage metal doors in fair to good condition (surfaces worn from equipment).
<b>C1030 Fittings</b>					
	2006	2006	2	TRB 01/04/18	P-lam personal staff equipment panel lockers.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>					
	1929	2006	3	TRB 01/04/18	Painted plaster is typical throughout the facility. The toilet rooms have ceramic tile wainscot walls. House walls have minor paint needed, workout room needs re-painting.
<b>C3020 Floor Finishes</b>					
	1929	2006	3	TRB 01/04/18	Newer carpeting, original sheet vinyl sheet and ceramic tile. Slab with rubber exercise floor mats at exposed slab in apparatus bay.

# Facility Summary

City of Tacoma  
 Fire Station #15  
 Fire Station #15 Building

6415 East Mckinley Ave  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.9</b>		
<b>Interior Finishes</b>					
<b>C3020 Floor Finishes</b>					
<b>C3030 Ceiling Finishes</b>					
	1928	2006	3	TRB 01/04/18	Painted plaster and Gypsum.
<b>D Services</b>			<b>3.1</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					
	1929	1980	4	DCS 01/04/18	Residential grade bathroom and kitchen fixtures are deteriorating and not appropriate for fire station duty. Opportunity to add a second bathroom to the house building and toilet room and/or kitchenette to the apparatus building.
<b>D2020 Domestic Water Distribution</b>					
	1929	2006	3	DCS 01/04/18	Mix of copper and PEX tubing at house; copper at apparatus building. A.O. Smith 50-gal electric tank-type DHW heater at house; Rheem electric tank-type DHW heater at apparatus building; both in fair to good condition, noting no recirc pumps (but not needed in separate relatively small buildings). Bottled water in use - opportunity for whole house filter.
<b>D2030 Sanitary Waste</b>					
	1928	2006	3	DCS 01/04/18	Apparent mix of cast iron and galvanized steel DW&V piping with no issues reported; tested fixtures flush & drain fairly well, except for bathroom lavatory and water closet (assume both fixture issues, not piping). Reportedly code issue extending black-water waste service to apparatus building - further investigation suggested.
<b>D2040 Rain Water Drainage</b>					
	1928	2006	3	DCS 01/04/18	Gutter & downspout to grade with splash blocks - some need adjusting to direct water away from foundation, fence posts and other items (minor maintenance issue).
<b>D2090 Other Plumbing Systems</b>					

# Facility Summary

City of Tacoma  
 Fire Station #15  
 Fire Station #15 Building

6415 East Mckinley Ave  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			3.1		
<b>Plumbing</b>					
<b>D2090 Other Plumbing Systems</b>					
	1928	2006	3	DCS 01/04/18	No compressed air system; opportunity install small system to inflate vehicle tires and other minor maintenance tasks. No apparatus bay drainage - opportunity to install. Make-shift wheel wash at entry to engine bay with unclear winterization function. Temporary self-contained plastic eyewash station on wall in apparatus building utility room - consider permanent fixtures.
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>					
	1928	2006	3	DCS 01/04/18	Mix of galvanized and insulated flex duct at house; assume mostly galvanized at apparatus building; all ductwork appears routed through attic space at both buildings. Exhaust fan performance is marginal at house (minor maintenance issue to improve). Rheem 2006 electric resistance heat forced air furnace at house in fair to good condition but inefficient with no cooling - opportunity to upgrade to heat pump technology. Kitchen range hood is recirculating - opportunity to upgrade to positive exhaust type.
<b>D3050 Terminal and Package Units</b>					
	1929	2006	2	DCS 01/04/18	Two through-window PTACs at house sleeping and office rooms. Several electric unit heaters at apparatus building; could be upgraded to natural gas if new gas service was installed (see other sub-systems).
<b>D3060 Controls and Instrumentation</b>					
	1928	2006	3	DCS 01/04/18	Programmable T-stat for house. Freeze protection heating T-stat for apparatus building. Both aging but functional with opportunity for remote monitoring.
<b>D3090 Other HVAC Systems and Equipment</b>					
	1929	2006	3	DCS 01/04/18	Fireplace with brick chimney and wood-stove insert at hearth abandoned in place and not used. Apparatus bay appears ventilated by one exhaust fan with make-up air via louvers on garage doors; opportunity for Nederman systems, similar to other fire stations.

# Facility Summary

City of Tacoma  
 Fire Station #15  
 Fire Station #15 Building

6415 East Mckinley Ave  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.1</b>		
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>	1928	2006	2	DCS 01/04/18	Fire extinguishers on hooks.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1928	2006	2	DCS 01/04/18	Service to house is overhead to an old (1963) outside panel supplying several unknown circuits, along with newer Square D 120/240V, 200A sub-panel inside house; overall in fair to good condition with no issues reported, but outside panel should be secured from tampering (low cost maintenance item). Service to apparatus building is separate overhead to newer (2006) Cutler-Hammer 120/240V, 200A distribution panel; also with no issues reported. Opportunity to combine meters to reduce metering charges.
<b>D5020 Lighting and Branch Wiring</b>	1928	2006	4	DCS 01/04/18	Aging linear fluorescent with T12 lamps in apparatus building; mix of incandescent and CFL in residential fixtures in station house all with manual controls. Limited receptacles in station house. Opportunity to upgrade to LED with automatic controls.
<b>D5032 Low Voltage Communication</b>	1928	2006	3	DCS 02/23/18	Avaya telephone, PA speakers, and CATV with no issues reported.
<b>D5037 Low Voltage Fire Alarm</b>	1998	1998	4	DCS 01/11/18	No fire alarm system; just several battery-operated devices.
<b>D5038 Low Voltage Security</b>	1928	2006	4	DCS 02/23/18	Older electronic security monitoring system, reportedly abandoned in place.
<b>D5039 Low Voltage Data</b>	1928	2006	3	DCS 01/04/18	Data with WAP; appears adequate for need.
<b>D5090 Other Electrical Systems</b>					

## Facility Summary

City of Tacoma  
 Fire Station #15  
 Fire Station #15 Building

6415 East Mckinley Ave  
 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.1</b>		
<b>Electrical</b>					
<b>D5090 Other Electrical Systems</b>					
	1929	2006	3	DCS 01/04/18	Small (~2 kW) gas-powered portable standby generator with GenTran manual standby power breaker panels at house and apparatus buildings - opportunity to install permanent diesel generator. Little or no egress lighting and/or exit signage.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>					
	1929	1929	3	TRB 01/04/18	P-lam counter-tops with original wood casework in the kitchen. They appear to function adequately, but are visibly aged.
<b>F Special Construction</b>			<b>3.0</b>		
<b>Special Construction</b>					
<b>F1010 Special Structures</b>					
	1929	2006	4	DCS 01/04/18	Poorly enclosed back porch made into a make-shift laundry room - opportunity to create a proper laundry room in the apparatus building utility area.
<b>F1050 Special Controls and Instrumentation</b>					
	1929	2006	2	DCS 01/04/18	Zetron tone alarm system with PA speakers with no reported issues.

# Facility Summary

City of Tacoma  
 Fire Station #15  
 Infrastructure

6415 East Mckinley Ave  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1970	1970	4	TRB 01/04/18	Concrete drive to building.
<b>G2020 Parking Lots</b>	1928	2006	3	TRB 01/04/18	Asphalt (shared with K&J Food Mart), no apparent designated parking striping. Alagatored lot. Internal wood fenced in site gravel parking area for staff.
<b>G2030 Pedestrian Paving</b>	1928	2006	3	TRB 01/04/18	Concrete, wood ADA ramp to old house.
<b>G2040 Site Development</b>	2006	2006	3	TRB 01/04/18	Wood perimeter fence and gate. Double leaf auto security gate appears to have been repaired and bolstered, but is still sagging, and gets daily use. Recommend replacement with robust system.
<b>G2050 Landscaping</b>	1928	2006	2	TRB 01/04/18	Trees, shrubs, and weeds.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1929	2006	3	DCS 01/04/18	City water from 3/4-inch water meter to domestic and irrigation systems; older city water service; newer irrigation system, but little or no use of the irrigation system. Unclear if apparatus building is sub-fed from house or from separate meter, but regardless no issues are reported.
<b>G3020 Sanitary Sewer</b>	1929	2006	3	DCS 01/04/18	City sewer service to both original 1929 house and newer 2006 apparatus building; the service to the apparatus building is undersized preventing bathroom installation - opportunity to upgrade to full-sized service to apparatus building.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>					



# Facility Summary

City of Tacoma  
 Fire Station #15  
 Infrastructure

6415 East Mckinley Ave  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1929	2006	2	DCS 01/04/18	Older overhead power service to house building with Tacoma Power meter #96149, and separate overhead service to apparatus building with Tacoma Power meter #20920196.
<b>G4020 Site Lighting</b>	1929	2006	3	DCS 01/04/18	Mix of older incandescent, CFL & HID and newer LED, collectively with limited coverage - opportunity to upgrade all to LED and install additional fixtures for better coverage.
<b>G4030 Site Communications and Security</b>	1929	2006	3	DCS 01/04/18	Communications and data service from local purveyors with no issues reported. Limited site security - opportunity to improve.



# Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Fire Station #15

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Fire Station #15 Building	Superstructure	\$60,000	\$15,000	\$15,000	\$49,500	\$139,500
	Exterior Closure	\$60,000	\$15,000	\$15,000	\$49,500	\$139,500
	Interior Finishes	\$2,250	\$563	\$563	\$1,856	\$5,231
	Plumbing	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	Electrical	\$15,000	\$3,750	\$3,750	\$12,375	\$34,875
	<b>Facility Total</b>		<b>\$147,250</b>	<b>\$36,813</b>	<b>\$36,813</b>	<b>\$121,481</b>
Infrastructure	Site Improvements	\$18,000	\$4,500	\$4,500	\$14,850	\$41,850
	<b>Facility Total</b>	<b>\$18,000</b>	<b>\$4,500</b>	<b>\$4,500</b>	<b>\$14,850</b>	<b>\$41,850</b>
	<b>Site Total</b>	<b>\$165,250</b>	<b>\$41,313</b>	<b>\$41,313</b>	<b>\$136,331</b>	<b>\$384,206</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Fire Station #15

Total Observed Deficiency Repair Direct Cost : \$165,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Station #15 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$60,000	
System: Superstructure					Total System Deficiency Repair Cost (Marked Up):				\$139,500	
<b>Roof Construction</b>										
Roof Framing	4	4	2018		1	\$60,000.00	LS	\$60,000	\$139,500	
1928 roof structure at end of life, sagging.				Replace 1928 structure.						



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #15

Total Observed Deficiency Repair Direct Cost : \$165,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #15 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$60,000</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$139,500</b>
<b>Exterior Walls</b>									
Exterior Walls	5	2	2018		1	\$60,000.00	LS	\$60,000	\$139,500

Existing 1929 structure is assumed to be uninsulated (staff does not know about any upgrades), at end of life, and assumed to not meet current seismic standards for life safety, especially for first-responders.

Replace structure with current code compliant exterior walls.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #15

Total Observed Deficiency Repair Direct Cost : \$165,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Station #15 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$2,250</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$5,231</b>
<b>Floor Finishes</b>									
Carpet	5	1	2018		300	\$7.50	SF	\$2,250	\$5,231

Sheet goods at the end of its useful life. Seams curling up. Replace with new.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #15

Total Observed Deficiency Repair Direct Cost : \$165,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Station #15 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$10,000</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$23,250</b>
<b>Plumbing Fixtures</b>									
Plumbing fixtures	4	2	2018		1,000	\$10.00	SF	\$10,000	\$23,250

Older residential grade plumbing fixtures are not appropriate for a fire station.

Replace with commercial grade fixtures.





# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #15

Total Observed Deficiency Repair Direct Cost : \$165,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Station #15 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$15,000</b>	
<b>System: Electrical</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$34,875</b>	
<b>Low Voltage Fire Alarm</b>										
Fire alarm	4	2	2018		3,000	\$2.00	SF	\$6,000	\$13,950	

No permanent fire alarm system.

Install fire alarm per code.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #15

Total Observed Deficiency Repair Direct Cost : \$165,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #15 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$15,000
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$34,875
<b>Low Voltage Security</b>									
Security	4	2	2018		3,000	\$3.00	SF	\$9,000	\$20,925
Existing older security system reportedly not used.				Upgrade to City standard.					



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #15

Total Observed Deficiency Repair Direct Cost : \$165,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$18,000</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$41,850</b>	
<b>Roadways</b>										
Concrete	4	3	2018		1,500	\$12.00	SF	\$18,000	\$41,850	

Concrete is badly cracked.

Remove and replace concrete drive.





## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #15

Total Site Opportunity Cost: \$169,500

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Station #15 Building</b>						
<b>System: Plumbing Total Cost: \$32,500</b>						
D2010	Plumbing Fixtures					
	Only one bathroom at house building.	Install second bathroom.	1.00	\$10,000.00	LS	\$10,000
	No toilet room at apparatus building.	Install toilet room.	1.00	\$7,500.00	LS	\$7,500
D2090	Other Plumbing Systems					
	No apparatus bay drainage.	Install drainage and OWS.	1.00	\$15,000.00	LS	\$15,000
<b>Facility: Fire Station #15 Building</b>						
<b>System: HVAC Total Cost: \$22,500</b>						
D3010	Energy Supply					
	No natural gas service.	Install natural gas assuming in the street for more economical heating of both buildings.	1.00	\$5,000.00	LS	\$5,000
D3040	HVAC Distribution Systems					
	Forced air system with heating only; and two PTACs in sleeping room and office for cooling.	Upgrade to add split Dx heat pump to existing furnace system to improve heating efficiency and add A/C throughout, at the same time eliminating the two PTACs.	1.00	\$10,000.00	LS	\$10,000
D3090	Other HVAC Systems and Equipment					
	No engine exhaust system.	Install Nederman-type vehicle engine exhaust system, similar to other fire stations.	1.00	\$7,500.00	LS	\$7,500
<b>Facility: Fire Station #15 Building</b>						
<b>System: Fire Protection Total Cost: \$12,000</b>						
D4010	Fire Protection Sprinkler Systems					
	No fire sprinkler.	Install fire sprinkler.	3,000.00	\$4.00	SF	\$12,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #15

Total Site Opportunity Cost: \$169,500

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Station #15 Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$35,000</b></span>						
D5010	Electrical Service and Distribution	Separate electrical meters for house and apparatus buildings.	1.00	\$5,000.00	LS	\$5,000
		Combine into one meter for FS-15 site to reduce monthly metering change; consider in conjunction with modernizing service to the house building.				
D5020	Lighting and Branch Wiring	Original inefficient T12 fluorescent light fixtures with manual control in apparatus building; and incandescent & CFL in station house.	2,000.00	\$5.00	SF	\$10,000
		Upgrade to LED with automatic control.				
D5090	Other Electrical Systems	Small portable gasoline standby generator and manual breaker panel.	1.00	\$20,000.00	LS	\$20,000
		Full-size (25 kW) permanent diesel standby generator and ATS.				
<b>Facility: Fire Station #15 Building</b> <b>System: Special Construction</b> <span style="float: right;"><b>Total Cost: \$5,000</b></span>						
F1010	Special Structures	Make-shift laundry room with small-capacity stacked washer & dryer.	1.00	\$5,000.00	LS	\$5,000
		Rough-in proper laundry service in apparatus utility area and install separate commercial-duty washer & dryer appliances.				
<b>Facility: Infrastructure</b> <b>System: Site Civil / Mechanical Utilities</b> <span style="float: right;"><b>Total Cost: \$40,000</b></span>						
G3020	Sanitary Sewer	Under-sized (3-inch) sewer service to apparatus building.	100.00	\$75.00	LF	\$7,500
		Upgrade to full-size (4-inch) sewer service to apparatus building.				
G3030	Storm Sewer	No on-site storm system.	15,000.00	\$0.50	SF	\$7,500
		Opportunity to install storm drain system to better move water away from buildings.				
G3060	Fuel Distribution	No vehicle fueling system.	1.00	\$25,000.00	LS	\$25,000
		Install vehicle fueling system similar to other engine company stations.				

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #15

Total Site Opportunity Cost: \$169,500

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
Facility: Infrastructure						
System: Site Electrical utilities	Total Cost: \$22,500					
G4010	Electrical Distribution					
	Overhead power to house and apparatus buildings.	Underground power to both buildings.	2.00	\$5,000.00	EA	\$10,000
G4020	Site Lighting					
	Some older inefficient outside lighting with minimal coverage in some areas.	Upgrade to all LED and add additional site lighting for security and improved function during darkness.	1.00	\$5,000.00	LS	\$5,000
G4030	Site Communications and Security					
	Little to no site electronic security.	Add electronic security including CCTV per City standard.	1.00	\$7,500.00	LS	\$7,500

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Facility Summary

City of Tacoma  
 Fire Station #16  
 Fire Station #16 Building

7217 6th Avenue  
 Tacoma, WA 98407

Facility Size - Gross S.F. 11,000  
 Year Of Original Construction 1999  
 Facility Use Type Fire Station  
 Construction Type Light  
 # of Floors 1  
 Energy Source Gas  
 Year Of Last Renovation 1999  
 Historic Register No



FCI (BMAR/CRV)	0.08	Predicted Renewal Budget (20 yrs)	\$1,340,911
FCI (Bldg OD/CRV)	0.04	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$4,287,000	<b>Building</b>	\$161,588
BMAR (Backlog of Maintenance and Repair)	\$359,000	<b>Infrastructure</b>	\$27,900
Beginning Budget Year	2018	<b>Total</b>	\$189,488
		<b>Opportunity Total Project Cost</b>	\$391,764

## Facility Condition Summary

Fire Station #16 is a three apparatus bay fire station constructed in 1999. It is a single story wood frame building in mostly good condition. There is also an attached community meeting room, public ADA toilet rooms, and an entry lobby that also displays historical firefighting artifacts. Interior finishes are showing signs of wear and should be replaced soon. MEP systems are in fair to good condition, with a few systems needing maintenance or partial renewal to ensure their full life is obtained. There are specific issues to address and opportunities to consider at this relatively modern fire station - for example the state-of-the-art apparatus wash apron diverter valve is failed, low apparatus bay ventilation disabled, back-up hot water heater failed, and heat recovery ventilation and/or economizer (free cooling) upgrades to consider.

# Facility Summary

City of Tacoma  
 Fire Station #16  
 Fire Station #16 Building

7217 6th Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.4</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1999	1999	2	TRB 01/24/18	Standard concrete foundation.
<b>A1030 Slab On Grade</b>	1999	1999	3	TRB 01/24/18	Concrete slab on grade. Cracking in apparatus bay (more significant under wheels of left most bay, recommend cleaning and epoxy filling and observing).
<b>B Shell</b>			<b>2.4</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1999	1999	2	TRB 01/24/18	Mezzanine floor is wood frame construction with plywood sheathing.
<b>B1020 Roof Construction</b>	1999	1999	3	TRB 01/24/18	Wood prefabricated trusses and 2x framing with OSB wood sheathing.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1999	2012	2	TRB 01/24/18	Wood stud walls with plywood sheathing with cedar lap siding. Recently repainted appears in good condition.
<b>B2020 Exterior Windows</b>	1999	1999	3	TRB 01/24/18	Insulated vinyl frame windows.
<b>B2030 Exterior Doors</b>	1999	1999	3	TRB 01/24/18	Solid core wood doors in metal frames. Three wood OH garage doors with single pane glass, showing age with use. Adjust hardware and closers at front door (not always latching), and closers to apparatus bay.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1999	1999	3	TRB 01/24/18	Composition shingle (appear better than

# Facility Summary

City of Tacoma  
 Fire Station #16  
 Fire Station #16 Building

7217 6th Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>2.4</b>		
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					anticipated based on system age).
<b>C Interiors</b>			<b>2.1</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1999	1999	2	TRB 01/24/18	Wood frame walls with gypsum board drywall finish.
<b>C1020 Interior Doors</b>	1999	1999	2	TRB 01/24/18	Solid core wood doors and wood frames. "Roof hatch" access to mechanical/electrical platform (seals breaking away).
<b>C1030 Fittings</b>	1999	1999	2	TRB 01/24/18	Misc gear hanging racks, janitorial racks, etc.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>	1999	1999	2	TRB 01/24/18	Fixed aluminum ladder to mechanical space, with safety hand rail extension.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1999	1999	2	TRB 01/24/18	Painted gypsum board, plastic laminate wainscot in toilet rooms, laminate wainscot in vehicle bay, fiber reinforced plastic.
<b>C3020 Floor Finishes</b>	1999	1999	2	TRB 01/24/18	Carpet, vinyl composition tile, sealed concrete in vehicle bay.
<b>C3030 Ceiling Finishes</b>	1999	1999	3	TRB 01/24/18	Painted gypsum board, suspended acoustic tile. Ceiling tiles in crew quarters water stained and should be replaced (crew reports no new leaks known so original source assumed was fixed by maintenance?).

# Facility Summary

City of Tacoma  
 Fire Station #16  
 Fire Station #16 Building

7217 6th Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			2.1		
<b>Interior Finishes</b>					
C3030 Ceiling Finishes					
<b>D Services</b>			2.5		
<b>Plumbing</b>					
D2010 Plumbing Fixtures					
	1999	1999	3	DCS 01/24/18	Most plumbing fixtures in good condition, but some are wearing, such as kitchen sink; however most trim (faucets, flush valves and shower controls) needs adjustment or service. Permanent safety shower & eyewash station at apparatus bay decon station; SS decon sink also at this location.
D2020 Domestic Water Distribution					
	1999	1999	3	DCS 01/24/18	Domestic water system is copper. Hot water is provided by two gas fired water heaters - one is currently failed. There are no recirc pumps and complaints of long wait times at some fixtures for hot water. Water system piping may be undersized evidenced by noticeably reduce lavatory faucet and shower head flow when the flushometer type flushing fixtures as flushed. Unacceptably low hot water to decon sink at apparatus bay - assume fixture or rough-in issue. Consider filter at kitchen sink and/or upgrade to hydration station fixture(s) similar to several other newer Fire facilities.
D2030 Sanitary Waste					
	1999	1999	2	DCS 01/24/18	Observed DW&V piping is cast iron; tested fixtures mostly flush & drain well - a few slightly slow appear due to minor fixture or trim, not piping issues. No floor drains at bathrooms with signs of water damage to some floor and low wall finishes. Trench drains at apparatus bays assumed draining to sewer via oil-water separator - no issues reported.
D2040 Rain Water Drainage					
	1999	1999	2	DCS 01/24/18	Metal gutter & downspout to storm with no issues reported or observed - signs of some past leakage into some spaces with stained ceiling tiles, but no observed active leaks with heavy

# Facility Summary

City of Tacoma  
 Fire Station #16  
 Fire Station #16 Building

7217 6th Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			2.5		
<b>Plumbing</b>					
<b>D2040 Rain Water Drainage</b>					rain at time of survey.
<b>D2090 Other Plumbing Systems</b>	1999	2006	2	DCS 01/23/18	Oxygen production and bottle fill plant appears updated in 2006 with service extended to apparatus bay hose reel with addition bottle storage. Plant includes: 1) Atlas Copco compressor with on-board storage tank, 2) OGSi O2 generator, 3) OGSi O2 storage tank, 4) RIX high-pressure O2 compressor, 5) Five high-pressure O2 storage tanks in O2 plant room, with 6) Service line to apparatus bay O2 hose reel and additional large storage bottles; all with no issues reported. No permanent shop compressed air for apparatus bay.
<b>HVAC</b>					
<b>D3010 Energy Supply</b>	1999	1999	2	DCS 01/24/18	Water heaters, furnaces, kitchen range and patio BBQ all supplied by natural gas piping system. The range shut-off valve solenoid is buzzing and reportedly does no fully shut-off gas during alarms.
<b>D3020 Heat Generating Systems</b>	1999	1999	3	DCS 01/25/18	Three Carrier Weathermaker 9200 high-efficiency (condensing) gas-fired furnaces serving station house areas with 5 to 10 years remaining life if well maintained. See D3030 for opportunity to upgrade to hybrid technology with heat pumps.
<b>D3030 Cooling Generating Systems</b>	1999	1999	3	DCS 01/24/18	Station house split-Dx condensing units approaching end of life.
<b>D3040 HVAC Distribution Systems</b>	1999	1999	2	DCS 01/24/18	Mix of sheet metal and factory insulated flex duct with grills, registers & diffuses to & from occupied spaces, with three zones; 1) Public/Office, 2) Dorm, and 3) Day/Office. No apparent economizer other than minimum outside air and no heat recovery. Exhaust fans

# Facility Summary

City of Tacoma  
 Fire Station #16  
 Fire Station #16 Building

7217 6th Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			2.5		
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>					
					for apparatus bays, bathrooms, kitchen range and others. Insufficient exhaust for laundry room dryer. Range hood exhaust fan is noisy. One apparatus bay air intake louver damper is failed or stuck.
<b>D3050 Terminal and Package Units</b>	1999	1999	3	DCS 01/24/18	Apparatus bay is heated by over-head gas-fired, flue-to-roof-vented low intensity radiant infrared heaters - aging but functional with no issues reported, with 5 to 10 year remaining life.
<b>D3060 Controls and Instrumentation</b>	1999	1999	3	DCS 01/24/18	HVAC system control is provided by programmable thermostats - aging but functional. Opportunity to upgrade to DDC.
<b>D3090 Other HVAC Systems and Equipment</b>	1999	2011	2	DCS 01/24/18	Newer (2011) Nederman vehicle engine exhaust system. The original (1999) high/low exhaust with louvered make-up appears to be partially disabled, reportedly when Nederman system was installed; the original systems appears to have included a CO/CO2 monitoring and/or control panel, also apparently abandoned in O2 plant room.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>					
	1999	1999	2	DCS 01/24/18	Building is served by wet type fire sprinkler system with 6-inch service to 4-inch riser to 3-inch distribution main; pressure at only 60 psig; water-powered alarm bell and main drain to grade outside dedicated riser room; no issues reported. Dry-wall heads under eaves and canopies.
<b>D4030 Fire Protection Specialties</b>	1999		2	DCS 01/24/18	Fire extinguishers on hooks; AED; first aid kit.
<b>Electrical</b>					

# Facility Summary

City of Tacoma  
 Fire Station #16  
 Fire Station #16 Building

7217 6th Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.5</b>		
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	1999	1999	2	DCS 01/24/18	Cutler Hammer (CH) 120/240V, single-phase 600A main distribution panel supplying secondary panel and the three HVAC system condensing units for cooling; the secondary panel in turn serving sub-panels supplying receptacle, lighting and all other loads. The standby generator ATS serves the secondary panel, so the entire station is standby generator powered, except for cooling. Main, secondary and sub-panels, plus ATS are all located on the mechanical mezzanine.
<b>D5020 Lighting and Branch Wiring</b>					
	1999	1999	3	DCS 01/24/18	Fluorescent T8 lighting in most areas, but some recessed can fixtures with CFL and a few other specialty fixtures; all lighting is manually controlled. Receptacles are present with GFI protection at wet locations. All with no issues reported.
<b>D5032 Low Voltage Communication</b>					
	1999	1999	3	DCS 01/23/18	Avaya phone system; front door bell; emergency call box at front door; CATV; portable radio charging station; A/V at public meeting room.
<b>D5037 Low Voltage Fire Alarm</b>					
	1999	1999	3	DCS 01/24/18	Aging and all but obsolete zoned Simplex FACP and devices. Battery-powered CO alarms at dorm area hallway.
<b>D5038 Low Voltage Security</b>					
	1999	1999	3	DCS 01/24/18	Minimal electronic security with original cipher locks at selected outside doors.
<b>D5039 Low Voltage Data</b>					
	1999	2010	2	DCS 01/24/18	Newer Cisco switch in hall closet; newer WAP for WiFi access; no issues reported.
<b>D5090 Other Electrical Systems</b>					
	1999	1999	2	DCS 01/24/18	Cummins diesel generator approximately 100 kW with roughly 100-gal belly tank; in service yard with 120/240V single-phase, 400A CH disconnect; ATS at mechanical mezzanine.

# Facility Summary

City of Tacoma  
 Fire Station #16  
 Fire Station #16 Building

7217 6th Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.5</b>		
<b>Electrical</b>					
<b>D5090 Other Electrical Systems</b>					
					Lighted exit signs, but no apparent egress lighting (install bug-eyes in egress corridors as a minimum).
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>					
	1999	1999	3	DCS 01/24/18	Residential appliances at kitchen and laundry - aging but functional.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>					
	1999	1999	3	TRB 01/23/18	Plastic laminate faced cabinets, lockers, counters, and vanities. Most in good condition with the exception of island partition wall cap which needs to be replaced.
<b>F Special Construction</b>			<b>2.0</b>		
<b>Special Construction</b>					
<b>F1050 Special Controls and Instrumentation</b>					
	1999	2015	2	DCS 01/24/18	Newer (2015) tone alarm system with antenna, Astron radio, Zetron alarm and Bogan amp & speakers.



# Facility Summary

City of Tacoma  
 Fire Station #16  
 Infrastructure

7217 6th Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1999	1999	3	TRB 01/24/18	Concrete aprons with cone curbs and wheel stops. Aprons have trench drains.
<b>G2020 Parking Lots</b>	1999	1999	3	TRB 01/24/18	Asphalt parking with concrete curbs and wheel stops. Trench drain exists. ADA parking signs bent, and curbstop showing reinforcing steel, ADA paint faded.
<b>G2030 Pedestrian Paving</b>	1999	1999	3	TRB 01/24/18	Concrete sidewalks and concrete steps with pipe handrails on back of building.
<b>G2040 Site Development</b>	1999	1999	3	TRB 01/24/18	CMU screen walls and planter walls, and concrete retaining walls. wood screen fencing aging. CMU showing efflorescence, recommend power wash and seal with water repellent.
<b>G2050 Landscaping</b>	1999	1999	2	TRB 05/18/09	Grass, shrubs, groundcover and trees - well maintained. Trim one shrub back away from side of building.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1999	1999	2	DCS 01/23/18	City water with no issues reported; domestic water meter to building with approximately 1.5-inch meter to 2-inch service line; 4-inch fire service with 4-inch wye-FDC at entry to parking lot; assume separate irrigation meter with Rain Bird control. Site water pressure is lower than at most other Tacoma Fire Stations, with only 60 psig observed at the riser room; most other Stations have over 100 psig - this is not a deficiency, just a comment.
<b>G3020 Sanitary Sewer</b>	1999	1999	2	DCS 01/23/18	City sewer with no issues reported. Sewer receives apron drainage via oil/water separator (OWS) when in diversion mode - see Storm for details on failed diverter valve. The OWS

# Facility Summary

City of Tacoma  
 Fire Station #16  
 Infrastructure

7217 6th Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Civil / Mechanical Utilities</b>					
<b>G3020 Sanitary Sewer</b>					appears to need cleaning and service.
<b>G3030 Storm Sewer</b>	1999	1999	2	DCS 01/23/18	Storm to City with no issues reported, except need for apron wash water diverter & OWS - diverter valve currently failed. The storm system appears to include a water quality treatment vault near parking lot entrance - may need service to change media.
<b>G3060 Fuel Distribution</b>	1999	1999	2	DCS 01/24/18	Natural gas from PSE meter #1170668 with 1,000 cfh capacity. Gas serves space heat, domestic hot water, kitchen range and patio BBQ. Opportunity for vehicle fueling system.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1999	1999	2	DCS 01/23/18	Tacoma Power underground with meter #014281 delivered at 120/240V, single phase with no issues reported, noting single-phase power is less common for this type of facility.
<b>G4020 Site Lighting</b>	1999	1999	2	DCS 01/24/18	Soffit mounted HID lighting, wallpacks at service doors and one pole fixture at parking lot.
<b>G4030 Site Communications and Security</b>	1999	1999	2	DCS 01/23/18	Telecom services underground from purveyors with no issues reported. Daytronics Galaxy electronic reader board facing street - one side is failed.

# Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Fire Station #16

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Fire Station #16 Building	Interior Finishes	\$15,000	\$3,750	\$3,750	\$12,375	\$34,875
	Plumbing	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	HVAC	\$22,500	\$5,625	\$5,625	\$18,563	\$52,313
	Electrical	\$22,000	\$5,500	\$5,500	\$18,150	\$51,150
	<b>Facility Total</b>	<b>\$69,500</b>	<b>\$17,375</b>	<b>\$17,375</b>	<b>\$57,338</b>	<b>\$161,588</b>
Infrastructure	Site Improvements	\$7,000	\$1,750	\$1,750	\$5,775	\$16,275
	Site Civil / Mechanical Utilities	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	<b>Facility Total</b>	<b>\$12,000</b>	<b>\$3,000</b>	<b>\$3,000</b>	<b>\$9,900</b>	<b>\$27,900</b>
	<b>Site Total</b>	<b>\$81,500</b>	<b>\$20,375</b>	<b>\$20,375</b>	<b>\$67,238</b>	<b>\$189,488</b>



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #16

Total Observed Deficiency Repair Direct Cost : \$81,500

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Station #16 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$15,000</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$34,875</b>
<b>Floor Finishes</b>									
Carpet	4	5	2018		2,000	\$7.50	SF	\$15,000	\$34,875

Carpet worn and end of life.

Replace carpeting with hygienic solid surfacing. (Note: industry recommendations to avoid carpet not easily sanitized and can trap pollutants and bio-hazards from call sites).



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #16

Total Observed Deficiency Repair Direct Cost : \$81,500

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Fire Station #16 Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$10,000
System: Plumbing				Total System Deficiency Repair Cost (Marked Up):					\$23,250
<b>Domestic Water Distribution</b>									
DHW heaters	5	0	2018		1	\$5,000.00	EA	\$5,000	\$11,625
Failed DHW heater.				Replace.					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #16

Total Observed Deficiency Repair Direct Cost : \$81,500

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Station #16 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$10,000</b>	
<b>System: Plumbing</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$23,250</b>	
<b>Domestic Water Distribution</b>										
Plumbing piping	4	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Undersized piping - pressure drops upon flushing.

Augment piping and/or install end of run hydro-pneumatic tank(s).



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #16

Total Observed Deficiency Repair Direct Cost : \$81,500

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #16 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$22,500</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$52,313</b>
<b>Cooling Generating Systems</b>									
Condensing units	4	3	2018		3	\$7,500.00	EA	\$22,500	\$52,313

Portions of original condensing units are significantly rusted perhaps in part due to marine air from nearby Puget Sound. Regardless of rust, units are approaching end of life. Outside refrigerant pipe insulation also deteriorating due to unprotected exposure.

Budget for replacement prior to failure. Replacing rusted parts may extend life a few years before full replacement. Corrosion resistant replacements are suggested. Re-insulate refrigerant piping and provide protection from exposure with weather resistant jacketing.





# Detailed Assessment - Observed Deficiencies 2018 - 2023

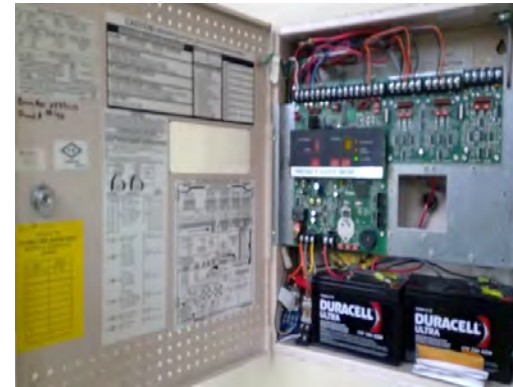
City of Tacoma  
Site: Fire Station #16

Total Observed Deficiency Repair Direct Cost : \$81,500

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #16 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$22,000
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$51,150
<b>Low Voltage Fire Alarm</b>									
Fire alarm control panel and devices	4	5	2018		11,000	\$2.00	SF	\$22,000	\$51,150

Zoned fire alarm.

Replace with addressable.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #16

Total Observed Deficiency Repair Direct Cost : \$81,500

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$7,000</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$16,275</b>	
<b>Roadways</b>										
Concrete Pavement	3	5	2018		1	\$7,000.00	LS	\$7,000	\$16,275	

Cracked and broken concrete near drains caused perhaps by a combination of settlement and loads.

Sawcut and selective demo and replacement of concrete apron.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #16

Total Observed Deficiency Repair Direct Cost : \$81,500

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$5,000</b>	
<b>System: Site Civil / Mechanical Utilities</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$11,625</b>	
<b>Storm Sewer</b>										
Storm	5	0	2018		1	\$5,000.00	EA	\$5,000	\$11,625	

Wash apron diverter valve failed.

Repair valve or control.





## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #16

Total Site Opportunity Cost: \$193,500

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Station #16 Building</b> <b>System: Vertical Transportation</b> <span style="float: right;"><b>Total Cost: \$5,000</b></span>						
D1090	Other Conveying Systems					
	Double-doors from apparatus bay to mechanical mezzanine, but no apparent permanent hoisting system.	Install permanent lifting system to facilitate mezzanine equipment replacements.	1.00	\$5,000.00	LS	\$5,000
<b>Facility: Fire Station #16 Building</b> <b>System: Plumbing</b> <span style="float: right;"><b>Total Cost: \$20,000</b></span>						
D2020	Domestic Water Distribution					
	No domestic hot water recirc pump(s) or piping with complaints of long wait times at remote fixtures. Bottled water in use.	Install recirc pump and piping.	1.00	\$5,000.00	LS	\$5,000
		Install hydration station and/or kitchen sink filter.	1.00	\$5,000.00	LS	\$5,000
D2030	Sanitary Waste					
	No floor drains <sup>25</sup> at bathrooms	Add floor drains.	2.00	\$2,500.00	EA	\$5,000
D2090	Other Plumbing Systems					
	No permanent compressed air at apparatus bay.	Install permanent compressed air system at apparatus bay for minor maintenance, such as fire inflation.	1.00	\$5,000.00	LS	\$5,000
<b>Facility: Fire Station #16 Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$83,000</b></span>						
D3030	Cooling Generating Systems					
	Current Dx equipment is for cooling (A/C) only.	Upon replacement upgrade to heat pumps to form high-efficiency hybrid HVAC system.	3.00	\$9,500.00	EA	\$28,500
D3040	HVAC Distribution Systems					
	Marginal zoning, especially for dormitory sleeping areas - station staff are stuffing rubber glove and tissue paper in supply air grills to block airflow from dumping on bunks.	Improve zoning and modify or replace GRDs to obtain better dorm room thermal comfort.	1.00	\$5,000.00	LS	\$5,000
	No heat recovery ventilation.	Install heat recovery ventilation.	1.00	\$12,500.00	LS	\$12,500
	No apparent economizer for zoned HVAC systems.	Install economizer dampers and controls.	3.00	\$5,000.00	EA	\$15,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #16

Total Site Opportunity Cost: **\$193,500**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
D3060 Controls and Instrumentation	No DDC.	Upgrade to City standard DDC.	11,000.00	\$2.00	SF	\$22,000
<b>Facility: Fire Station #16 Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$60,500</b></span>						
D5020 Lighting and Branch Wiring	Fluorescent lighting with manual control.	LED lighting with automatic control.	11,000.00	\$4.00	SF	\$44,000
D5038 Low Voltage Security	Little or no electronic security.	Install electronic security per City standards.	11,000.00	\$1.50	SF	\$16,500
<b>Facility: Infrastructure</b> <b>System: Site Civil / Mechanical Utilities</b> <span style="float: right;"><b>Total Cost: \$20,000</b></span>						
G3060 Fuel Distribution	No vehicle fueling.	Install 1,000 gal diesel fuel storage tank with dispenser and meter similar to other larger fire stations.	1.00	\$20,000.00	LS	\$20,000
<b>Facility: Infrastructure</b> <b>System: Site Electrical utilities</b> <span style="float: right;"><b>Total Cost: \$5,000</b></span>						
G4020 Site Lighting	HID site lighting.	Upgrade to LED as HID approaches end of life.	10.00	\$500.00	EA	\$5,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Facility Summary

City of Tacoma  
 Fire Station #17  
 Fire Station #17 Building

403 Electron Way  
 Tacoma, WA 98407

Facility Size - Gross S.F. 8,994  
 Year Of Original Construction 1979  
 Facility Use Type Fire Station  
 Construction Type Medium  
 # of Floors 2  
 Energy Source Electric  
 Year Of Last Renovation 1979  
 Historic Register No



Facility Condition Index (FCI)	0.15	Predicted Renewal Budget (20 yrs)	\$1,616,505
FCI Deficiency	0.07	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$3,931,000	Building	\$228,979
BMAR (Backlog of Maintenance and Repair)	\$572,000	Infrastructure	\$57,428
Beginning Budget Year	2018	Total	\$286,407
		Opportunity Total Project Cost	\$891,066

## Facility Condition Summary

Fire Station #17 is a three apparatus bay fire station, built in 1979 as a 2-story wood frame building. The building is physically located in Fircrest and owned by the City of Fircrest, Tacoma Fire operates out of a portion of the building under an agreement with the City of Fircrest. The building is generally in good condition, but the galvanized domestic water piping should be replaced with new copper pipe including fixtures. HVAC was replaced in 2013, and 2 of 3 heat pumps were replaced in 2017 (the remaining is nearing the end of its useful life). The electrical distribution system is 30 years old and nearing the end of its useful life and will need to be up-graded.

# Facility Summary

City of Tacoma  
 Fire Station #17  
 Fire Station #17 Building

403 Electron Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1979	1979	3	TRB 01/25/18	Standard concrete foundation.
<b>A1030 Slab On Grade</b>	1979	1979	3	TRB 01/25/18	Concrete slab on grade. Some minor cracking, other areas of more serious damage and spalling of concrete.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1979	1979	3	TRB 01/25/18	Painted concrete, no evidence of any issues visible.
<b>B Shell</b>			<b>3.1</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1979	1979	3	TRB 01/25/18	Standard wood frame floor with plywood sheathing for the majority of elevated floor with the portion of elevated floor under the original apparatus room constructed of pre-cast concrete hollow core (or post-tensioned) plank.
<b>B1020 Roof Construction</b>	1979	1979	3	TRB 01/25/18	Pre-fabricated wood trusses with plywood sheathing.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1979	1979	3	TRB 01/25/18	Wood frame stud walls with plywood sheathing and brick veneer. Some pipe penetrations needed at compressor unit hydronic line penetration. Remove failed sealant and re-seal joint between wall and sidewalks.
<b>B2020 Exterior Windows</b>	1979	1979	5	TRB 05/18/09	Single pane glazing in anodized aluminum frames. Some insulated units at crew dorm, but still complaints of drafts.



# Facility Summary

City of Tacoma  
 Fire Station #17  
 Fire Station #17 Building

403 Electron Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.1</b>		
<b>Exterior Closure</b>					
<b>B2030 Exterior Doors</b>	1979	1979	3	TRB 01/25/18	Solid core wood doors in metal frame. Metal insulated overhead garage doors.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1979	1999	2	TRB 01/25/18	Composition shingle roofing.
<b>B3030 Projections</b>	1979	1979	3	TRB 01/25/18	Hose drying tower coupala with side vents.
<b>C Interiors</b>			<b>2.6</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1979	1979	3	TRB 01/25/18	Wood frame walls with gypsum board drywall.
<b>C1020 Interior Doors</b>	1979	1979	2	TRB 01/25/18	Solid core wood doors in metal frame. Door hardware was replaced with modern lever hardware.
<b>C1030 Fittings</b>	1979	1979	2	TRB 01/25/18	Miscellaneous fire gear racks.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>	1979	1979	3	TRB 01/25/18	Wood frame stair to basement. Pull down aluminum "attic stair" access to mechanical platform, no fall protection, no handrail at top.
<b>C2020 Stair Finishes</b>	1979	1999	2	TRB 01/25/18	Vinyl treads and risers, carpet landings.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1979	1979	3	TRB 01/25/18	Painted gypsum board drywall. Minor touch up

# Facility Summary

City of Tacoma  
 Fire Station #17  
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403 Electron Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.6</b>		
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>					needed at dining (perhaps add chair rail).
<b>C3020 Floor Finishes</b>	1979	2017	2	TRB 01/25/18	Vinyl composition tile, ceramic tile, New 2017 carpet squares in living and hallways, vinyl plank in kitchen and dining. sealed concrete in apparatus bay. Need transition strip between carpet and walk off carpet between apparatus bay and hall.
<b>C3030 Ceiling Finishes</b>	1979	1979	3	TRB 01/25/18	Suspended acoustic ceiling, adhesive applied acoustic tile, painted gypsum board.
<b>D Services</b>			<b>3.0</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1979	1979	3	JH 01/25/18	Various porcelain and stainless steel fixtures of different ages. About 50% of fixtures are old, as are faucets; replacement is needed for these.
<b>D2020 Domestic Water Distribution</b>	1979	1979	3	JH 01/25/18	Copper distribution piping on main headers; branch piping may be galvanized, as observed in some locations. All galvanized should be replaced. Domestic hot water heat replaced in 2015 including expansion tank and recirc pump.
<b>D2030 Sanitary Waste</b>	1979	1979	3	JH 01/25/18	Drain waste & vent piping is cast iron throughout with no issues reported.
<b>D2040 Rain Water Drainage</b>	1979	1979	3	JH 01/25/18	Downspouts from gutters piped to storm drain system; some connections to storm have minor damage.
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>					

# Facility Summary

City of Tacoma  
 Fire Station #17  
 Fire Station #17 Building

403 Electron Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>HVAC</b>					
	1979	1979	3	JH 01/25/18	Constant volume ducted system for interior office spaces. Restroom exhaust is served by central fan ducted to each restroom.
<b>D3050 Terminal and Package Units</b>	1979	2017	2	JH 01/25/18	Building is all-electric served by three Trane split-Dx heat pumps and various electric baseboard, wall and unit heaters. The two larger heat pumps are new (2017); the small split system heat pump is at end of life.
<b>D3060 Controls and Instrumentation</b>	1979	1979	3	JH 01/25/18	HVAC system is controlled by various programmable thermostats and integral thermostats at unit heaters. All fire department dorm rooms are on single zone, limiting the control.
<b>D3090 Other HVAC Systems and Equipment</b>	1979	2011	2	JH 01/25/18	Apparatus bay is served by 3 exhaust fans located in building attic and appear to be in functional condition, but little or not used due to new (2011) Nederman vehicle engine exhaust system in good condition.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>	1979	1979	3	JH 01/25/18	Building is served by dry pipe sprinkler system with backflow preventer, air compressor and FDC in corner of apparatus bay; no issues reported.
<b>D4030 Fire Protection Specialties</b>	1979	1979	3	JH 01/25/18	Fire extinguishers on hooks.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1979	1979	4	JH 01/25/18	Original Square D main distribution panel 120/208V with 400A capacity and nearing end of life; several Square D 225A distribution panels.
<b>D5020 Lighting and Branch Wiring</b>					

## Facility Summary

City of Tacoma  
 Fire Station #17  
 Fire Station #17 Building

403 Electron Way  
 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>Electrical</b>					
	1979	2000	3	JH 01/25/18	Lighting is 2-lamp T-12 fluorescent strips in the truck bay. Assume T8 in acrylic lensed troffers in first floor, and in paracube troffers in basement area. Aged devices, especially receptacles.
<b>D5032 Low Voltage Communication</b>	1979	1979	3	JH 01/25/18	Telephone system with no issues reported.
<b>D5037 Low Voltage Fire Alarm</b>	1979	2017	3	JH 01/25/18	Aging Silent Knight fire alarm system and devices, but with new (2017) antenna alarm transmitter.
<b>D5038 Low Voltage Security</b>	1979	2000	3	JH 01/25/18	Old keypad access control at outside doors. Some newer CCTV both inside and outside. Door bell at front door.
<b>D5039 Low Voltage Data</b>	1979	1979	3	JH 01/25/18	Separate fiber entrances for Fire and Police departments. Police department cabling is a mixture of Cat 3, 5 & 5e. The Fire department wiring is Cat 5e. Cat 3 cable may need to be upgraded depending application.
<b>D5090 Other Electrical Systems</b>	1979	2009	2	JH 01/25/18	Cummins 100 kW diesel generator outside with belly tank; inside Cummins ATS. Emergency lighting appears to include original exit signs, but no dedicated egress lighting (acceptable with emergency generator).
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1979	1979	3	JH 01/25/18	Aging residential appliances in station house.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>					

# Facility Summary

City of Tacoma  
 Fire Station #17  
 Fire Station #17 Building

403 Electron Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>					
	1979	1979	3	TRB 01/25/18	Plastic Laminate covered casework and counter tops, dorm lockers. Dated but in fair condition.
<b>F Special Construction</b>			<b>2.0</b>		
<b>Special Construction</b>					
<b>F1050 Special Controls and Instrumentation</b>					
	1979	2015	2	JH 01/25/18	New (2015) tone alarm system, except older speakers.

# Facility Summary

City of Tacoma  
 Fire Station #17  
 Infrastructure

403 Electron Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1979	1979	2	TRB 01/25/18	Concrete apron.
<b>G2020 Parking Lots</b>	1979	1979	3	TRB 01/25/18	Asphalt paving with concrete wheel stops (may be combined with police facility).
<b>G2030 Pedestrian Paving</b>	1979	1979	3	TRB 01/25/18	Concrete sidewalks and concrete steps with metal railings.
<b>G2040 Site Development</b>	1979	1979	3	TRB 01/25/18	Rockery and concrete retaining walls. Wood site identification signage.
<b>G2050 Landscaping</b>	1979	1979	2	TRB 01/25/18	Grass, shrubs and tress - well maintained.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1979	1979	3	JH 01/25/18	City water with no issues reported; supplies domestic, fire and irrigation.
<b>G3020 Sanitary Sewer</b>	1979	1979	3	JH 01/25/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1979	1979	3	JH 01/25/18	Assume City storm service; no issues reported.
<b>G3060 Fuel Distribution</b>	1979	1979	4	JH 01/25/18	Reportedly abandoned original underground fuel oil storage tank. No current vehicle fueling system.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1979	1979	3	JH 01/25/18	Underground electrical service to building from pole at street via underground hand hole. Tacoma power meter #001253.

# Facility Summary

City of Tacoma  
 Fire Station #17  
 Infrastructure

403 Electron Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

**G4010 Electrical Distribution**

**G4020 Site Lighting**

1979 1979 4

JH 01/25/18 Wall-packs and floodlights at service bays, small lensed wall-packs at rear of building. Uplights at flag pole. Several of the building mounted lights were not operating.

**G4030 Site Communications and Security**

1979 2000 3

JH 01/25/18 Overhead communications lines to building rear. CCTV at building exterior.





## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Fire Station #17

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Fire Station #17 Building	Foundations	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	Interior Finishes	\$15,000	\$3,750	\$3,750	\$12,375	\$34,875
	Plumbing	\$21,494	\$5,374	\$5,374	\$17,733	\$49,974
	HVAC	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	Electrical	\$13,491	\$3,373	\$3,373	\$11,130	\$31,367
	<b>Facility Total</b>		<b>\$69,985</b>	<b>\$17,496</b>	<b>\$17,496</b>	<b>\$57,738</b>
Infrastructure	Site Improvements	\$11,200	\$2,800	\$2,800	\$9,240	\$26,040
	Site Civil / Mechanical Utilities	\$7,500	\$1,875	\$1,875	\$6,188	\$17,438
	Site Electrical utilities	\$6,000	\$1,500	\$1,500	\$4,950	\$13,950
	<b>Facility Total</b>	<b>\$24,700</b>	<b>\$6,175</b>	<b>\$6,175</b>	<b>\$20,378</b>	<b>\$57,428</b>
	<b>Site Total</b>	<b>\$94,685</b>	<b>\$23,671</b>	<b>\$23,671</b>	<b>\$78,115</b>	<b>\$220,143</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #17

Total Observed Deficiency Repair Direct Cost : \$94,685

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #17 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$10,000</b>
<b>System: Foundations</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$23,250</b>
<b>Slab On Grade</b>									
Concrete Slab	3	3	2018		20	\$500.00	SF	\$10,000	\$23,250

Engine 17 slab spalling (or broken from impacts) in areas at back of bay (zone of roughly 5' x 5').

Investigate and repair concrete slab. (Note: Before sawcutting or any destructive selective demolition for repairs, first confirm area is slab on grade and not over the portion that is concrete topping on precast or post-tensioned plank).



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #17

Total Observed Deficiency Repair Direct Cost : \$94,685

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #17 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$15,000</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$34,875</b>
<b>Ceiling Finishes</b>									
Ceiling finish	4	4	2018		5,000	\$3.00	SF	\$15,000	\$34,875

Interior finishes in apparatus bay and exercise room show signs of wear, dust, and prior patch repairs. And are in need of repainting.

Repaint ceiling and walls in apparatus bay and exercise room.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #17

Total Observed Deficiency Repair Direct Cost : \$94,685

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #17 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$21,494</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$49,974</b>
<b>Plumbing Fixtures</b>									
Plumbing fixtures	4	5	2018		10	\$1,250.00	EA	\$12,500	\$29,063

About 50% of faucets and fixtures, including floor drains are old and in need of replacement.

Replace old fixtures and floor drains.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #17

Total Observed Deficiency Repair Direct Cost : \$94,685

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Station #17 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$21,494</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$49,974</b>
<b>Domestic Water Distribution</b>									
Galvanized pipe	4	2	2018		8,994	\$1.00	SF	\$8,994	\$20,911

Portions of system are original galvanized steel pipe.

Replace remaining galvanized pipe with copper and/or PEX.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #17

Total Observed Deficiency Repair Direct Cost : \$94,685

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Station #17 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$10,000</b>	
<b>System: HVAC</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$23,250</b>	
<b>Terminal and Package Units</b>										
Heat pumps	4	3	2018		1	\$10,000.00	EA	\$10,000	\$23,250	

One smaller heat pump at end of useful life.

Replace heat pump with newer, more efficient unit.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #17

Total Observed Deficiency Repair Direct Cost : \$94,685

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Fire Station #17 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$13,491
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$31,367
<b>Lighting and Branch Wiring</b>									
Egress and exit lighting and receptacles	4	2	2018		8,994	\$1.50	SF	\$13,491	\$31,367

Receptacles in poor condition. Emergency lighting not code compliant.

Replace receptacle add battery backed lighting fixtures .





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #17

Total Observed Deficiency Repair Direct Cost : \$94,685

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Infrastructure					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$11,200
System: Site Improvements					Total System Deficiency Repair Cost (Marked Up):				\$26,040
<b>Parking Lots</b>									
Asphalt	3	5	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Asphalt is showing signs of wear, prior sealed cracks re-opened with growth starting.

Clean and re-seal cracks to extend life.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #17

Total Observed Deficiency Repair Direct Cost : \$94,685

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
<b>System: Site Improvements</b>									<b>\$11,200</b>	
<b>Pedestrian Paving</b>									<b>Total System Deficiency Repair Cost (Marked Up):</b>	
									<b>\$26,040</b>	
Concrete	4	5	2018		100	\$12.00	SF	\$1,200	\$2,790	

Sidewalk is cracked and significant settlement at top of stairs creates a sever tripping hazard.

Remove and replace concrete sidewalk in cracked area and at top of stairs.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #17

Total Observed Deficiency Repair Direct Cost : \$94,685

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: Infrastructure									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: Site Improvements									\$11,200	
Pedestrian Paving									Total System Deficiency Repair Cost (Marked Up):	
Other									\$26,040	
	4	4	2018		1	\$5,000.00	LS	\$5,000	\$11,625	
Concrete stair at rail post breaking apart.				Patch and repair concrete at stair guard rail upport post.						



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #17

Total Observed Deficiency Repair Direct Cost : \$94,685

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$7,500</b>	
<b>System: Site Civil / Mechanical Utilities</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$17,438</b>	
<b>Fuel Distribution</b>										
Underground fuel oil tank	4	3	2018		1	\$7,500.00	LS	\$7,500	\$17,438	
Abandoned underground fuel oil storage tank.				Decommission fuel oil storage tank per regulations.						



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #17

Total Observed Deficiency Repair Direct Cost : \$94,685

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Infrastructure				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$6,000
System: Site Electrical utilities				Total System Deficiency Repair Cost (Marked Up):					\$13,950
<b>Site Lighting</b>									
Exterior lighting	4	5	2018		10	\$600.00	EA	\$6,000	\$13,950

Exterior wall-packs and floodlights are old and near end of useful life.

Replace old and failed exterior lighting with LED.





## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #17

Total Site Opportunity Cost: **\$408,254**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Station #17 Building</b> <b>System: Staircases</b> <span style="float: right;"><b>Total Cost: \$2,000</b></span>						
C2010	Stair Construction	No fall protection, and no hand hold/handrail at top.				
		provide surround fall protection guards at top of attic access opening. Provide transfer hand hold hand rail at top.	1.00	\$2,000.00	LS	\$2,000
<b>Facility: Fire Station #17 Building</b> <b>System: Plumbing</b> <span style="float: right;"><b>Total Cost: \$7,500</b></span>						
D2090	Other Plumbing Systems	No permanent compressed air system.				
		Install permanent compressed air system for minor maintenance.	1.00	\$7,500.00	LS	\$7,500
<b>Facility: Fire Station #17 Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$337,778</b></span>						
D3050	Terminal and Package Units	Older technology HVAC with many independent systems.				
		Upgrade to modern VRF with DOAS technology.	8,994.00	\$35.00	SF	\$314,790
D3060	Controls and Instrumentation	Mix of old and some new stand-alone T-stats and manual control.				
		Upgrade to City standard DDC.	8,994.00	\$2.00	SF	\$17,988
D3090	Other HVAC Systems and Equipment	Original apparatus bay exhaust system little or not used.				
		Upgrade controls for "free" summer ventilation cooling.	1.00	\$5,000.00	LS	\$5,000
<b>Facility: Fire Station #17 Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$35,976</b></span>						
D5020	Lighting and Branch Wiring	Fluorescent lighting with manual control.				
		Upgrade to LED lighting with automatic control.	8,994.00	\$4.00	SF	\$35,976

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #17

Total Site Opportunity Cost: \$408,254

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
Facility: Infrastructure						
System: Site Civil / Mechanical Utilities	Total Cost: \$25,000					
G3060 Fuel Distribution	No vehicle fueling.	Install vehicle fueling same as other larger stations.	1.00	\$25,000.00	LS	\$25,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 Fire Station #18  
 Fire Station #18 Building

302 East 11th Street  
 Tacoma, WA 98407

Facility Size - Gross S.F. 1,472  
 Year Of Original Construction 1929  
 Facility Use Type Fire Station  
 Construction Type Light  
 # of Floors 1  
 Energy Source Heating Oil  
 Year Of Last Renovation 1929  
 Historic Register No



FCI (BMAR/CRV)	0.18	Predicted Renewal Budget (20 yrs)	\$220,158
FCI (Bldg OD/CRV)	0.48	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$579,000	Building	\$280,746
BMAR (Backlog of Maintenance and Repair)	\$103,000	Infrastructure	\$1,096,238
Beginning Budget Year	2018	Total	\$1,376,984
		Opportunity Total Project Cost	\$230,176

## Facility Condition Summary

The Fire Station #18 site contains two buildings. The main building is a single story wood frame building built in 1929. It is in fair condition, but could use new roofing, replacement of the existing galvanized pipe domestic water system, a new furnace, as well as some seismic repairs. MEP systems are a mix of mostly older and some newer equipment and materials with variety of obsolescence, damage, code and other issues, plus opportunities to improve, depending on intended use of this unique older water-front marine fire station with newer floating dock accommodating two fire-boats. The station house is in better condition than the boat shed which appears to have a mix of dedicated and shared utilities with the station house. The large storage container next to the boat shed does not appear to have any connected utilities. Power and water is supplied to the newer floating boat dock with dedicated power with separate utility meter, but water appears to be sub-fed from the station house. Site storm water appear to discharge to a substantial City storm main running under the north parking area and discharging at the crumbling sea wall several feet below the ordinary high water (tide) mark. This entire complex, excepting the relatively new dock is ready for full modernization, as above depending on intended use.

# Facility Summary

City of Tacoma  
 Fire Station #18  
 Fire Station #18 Building

302 East 11th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1929	1929	3	TRB 01/11/18	Standard concrete foundation. Crack on SE end should be sealed.
<b>A1030 Slab On Grade</b>	1929	1929	3	TRB 01/11/18	Concrete slab on grade.
<b>B Shell</b>			<b>3.1</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1929	1929	3	TRB 01/11/18	Wood framed attic framing with shiplap decking.
<b>B1020 Roof Construction</b>	1929	1929	3	TRB 01/11/18	Wood ceiling joists and wood rafters with shiplap decking.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1929	1929	3	TRB 01/11/18	Wood stud walls with shiplap sheathing and brick veneer.
<b>B2020 Exterior Windows</b>	1929	1929	3	TRB 01/11/18	Existing wood frame with retrofited insulated glass.
<b>B2030 Exterior Doors</b>	1929	1929	3	TRB 01/11/18	Solid core wood door.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1929	1929	4	TRB 01/11/18	Newer asphalt composition shingle roofing, fall restraint, and chimney seismic bracing done recently.
<b>B3030 Projections</b>	1929	1929	3	TRB 01/11/18	Hose tower, minor exterior surface cracking in plaster finish.

# Facility Summary

City of Tacoma  
 Fire Station #18  
 Fire Station #18 Building

302 East 11th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.1</b>		
<b>Roofing</b>					
B3030 Projections					
<b>C Interiors</b>			<b>3.0</b>		
<b>Interior Construction</b>					
C1010 Partitions					
	1929	1929	3	TRB 01/11/18	Lath and plaster on wood framing.
C1020 Interior Doors					
	1929	1929	3	TRB 01/11/18	Wood doors and frames Original knob door hardware.
C1030 Fittings					
	1929	1929	3	TRB 01/11/18	Original built in wood lockers. Kitchen cabinets and counters are old, tired and at end of life. No kitchen exhaust or range hood present.
<b>Staircases</b>					
C2010 Stair Construction					
	1929	1929	3	TRB 01/11/18	Tight turn wood frame stair to attic. No handrails.
C2020 Stair Finishes					
	1929	1929	3	TRB 01/11/18	Vinyl tread strips.
<b>Interior Finishes</b>					
C3010 Wall Finishes					
	1929	1929	3	TRB 01/11/18	Painted plaster, wood wainscot in selected areas.
C3020 Floor Finishes					
	1929	1929	3	TRB 01/11/18	Carpet, sheet vinyl in kitchen and toilet room.
C3030 Ceiling Finishes					
	1929	1929	3	TRB 01/11/18	Painted plaster minor cracking.
<b>D Services</b>			<b>3.2</b>		
<b>Plumbing</b>					

# Facility Summary

City of Tacoma  
 Fire Station #18  
 Fire Station #18 Building

302 East 11th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.2</b>		
<b>D2010 Plumbing Fixtures</b>	1929	1929	3	DCS 01/11/18	Mostly original plumbing fixtures are of various materials (cast iron, porcelain, stainless steel) with stains, damage, and marginal at best trim.
<b>D2020 Domestic Water Distribution</b>	1929	1929	4	DCS 01/11/18	Original construction, galvanized piping throughout building with rust-color water when fixtures are first turned-on; bottled water in use. Somewhat newer (2000) A.O. Smith 50-gal electric DHW tank with no recirc pump (not needed for this small building). Relatively high water pressure at 110 psig per gauge.
<b>D2030 Sanitary Waste</b>	1929	1929	3	DCS 01/11/18	CI and galvanized DW&V with no issues reported, but some fixtures are slow to drain.
<b>D2040 Rain Water Drainage</b>	1929	2012	2	DCS 01/11/18	Metal gutter & downspout in good condition, except gutter damage from vehicle strikes at NE corner (minor maintenance item), and draining to failing storm system (see G-series).
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>	1929	1929	3	DCS 01/11/18	Forced air heating with overhead supply and below slab return.
<b>D3050 Terminal and Package Units</b>	1929	2015	2	DCS 01/11/18	Newer (2015) Goodman electric resistance heat furnace; opportunity to upgrade to heat pump. Portable A/C unit in-use in dorm room to east.
<b>D3060 Controls and Instrumentation</b>	1929	2015	2	DCS 01/11/15	Standalone T-stat for furnace; no issues reported. Opportunity to upgrade to City standard DDC.
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>	1929	2000	3	DCS 01/11/18	Fire extinguishers on hooks.

## Facility Summary

City of Tacoma  
 Fire Station #18  
 Fire Station #18 Building

302 East 11th Street  
 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.2</b>		
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1929	1998	2	DCS 01/11/18	Square D 120/240V newer (1998) panel in mechanical room with 200A capacity and no issues reported. Obsolete tone alarm relay panel and wiring should be replaced with modern.
<b>D5020 Lighting and Branch Wiring</b>	1929	1980	4	DCS 01/11/18	Surface-mounted wiring with aging and limited devices T8 linear-tube fluorescent lighting, with all manual control.
<b>D5032 Low Voltage Communication</b>	1928	2010	2	DCS 01/11/18	Avaya phone system with no issues reported. Abandoned comm wiring at hose tower should be demolished.
<b>D5037 Low Voltage Fire Alarm</b>	1929	1970	4	DCS 01/11/18	Obsolete fire alarm system.
<b>D5038 Low Voltage Security</b>	1929	1980	5	DCS 01/11/18	Obsolete electronic security - appears failed or abandoned.
<b>D5039 Low Voltage Data</b>	1929	2010	2	DCS 01/11/18	Newer (2010) high-speed fiber-optic service with switch, twin-portable UPS and ethernet cable distribution to surface-mounted drops.
<b>D5090 Other Electrical Systems</b>	1929	1929	4	DCS 01/11/11	Little or no emergency lighting and no standby or emergency power, other than UPS For telecom.
<b>E Equipment and Furnishings</b>			<b>3.3</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1929	1990	3	DCS 01/11/18	Aging kitchen appliances in fair condition with minimal use; budget \$1K each to replace as they fail over next 5 to 10 years.

## Facility Summary

City of Tacoma  
 Fire Station #18  
 Fire Station #18 Building

302 East 11th Street  
 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>E Equipment and Furnishings</b>			<b>3.3</b>		
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	1929	1970	4	TRB 01/11/18	Mostly original (1929) and some newer (1970) in kitchen.
<b>F Special Construction</b>			<b>3.0</b>		
<b>Special Construction</b>					
<b>F1010 Special Structures</b>	1929	2012	2	TRB 01/11/18	Fixed wood upland pier, articulated metal gangway, and steel pilings with concrete decked floating dock and moorage for two fire boats.
<b>F1050 Special Controls and Instrumentation</b>	1929	1970	4	DCS 01/11/18	Old tone-alarm system with obsolete relay panel.

**Facility Summary**

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**City of Tacoma  
Fire Station #18  
Infrastructure**

**302 East 11th Street  
Tacoma, WA 98407**

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**Facility Condition Summary**

# Facility Summary

City of Tacoma  
 Fire Station #18  
 Infrastructure

302 East 11th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1929	1929	4	TRB 01/11/18	Gravel access to building, numerous potholes.
<b>G2020 Parking Lots</b>	1929	1929	4	TRB 01/11/18	Gravel lot.
<b>G2030 Pedestrian Paving</b>	1929	1929	4	TRB 01/11/18	Concrete surfaces around building, plus strip of asphalt adjacent to out building.
<b>G2040 Site Development</b>	1929	1929	3	TRB 01/11/18	Wood railings to wood fire boat dock. Seawall constructed of stacked precast concrete flats, settling and crumbling and reinforcing steel and angles rusting. Makeshift boat ramp.
<b>G2050 Landscaping</b>	1929	1929	3	TRB 01/11/18	Some grass, no other intentional plant materials. Site consists of gravel and concrete. other plants appear to be weeds.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1929	1929	3	DCS 01/11/18	City water via meter submerged by storm water at time of survey - no issues reported; several hand-vaults labelled irrigation, but for unclear purpose. Service to fire boat dock assume sub-fed from main building service via yard hydrants and hoses with no issues reported.
<b>G3020 Sanitary Sewer</b>	1929	1929	3	DCS 01/11/18	City sewer with no issues reported; no service to dock.
<b>G3030 Storm Sewer</b>	1929	1929	4	DCS 01/11/18	Several catch basins lead to waterway bulkhead outfall; standing water and flooding in low spots.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>					



## Facility Summary

City of Tacoma  
 Fire Station #18  
 Infrastructure

302 East 11th Street  
 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1929	1980	3	DCS 01/11/18	Three separately metered Tacoma Power overhead services at 120/240V to: 1) Fire Station meter #0E5009, 2) Boat Shed meter #0D6390, and 3) Dock meter #0C0370.
<b>G4020 Site Lighting</b>	1929	1990	3	DCS 01/11/18	HID with limited coverage.
<b>G4030 Site Communications and Security</b>	1929	2010	2	DCS 01/11/18	Newer (estimate 2010) fiber-optic and other services with no issues reported.



## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Fire Station #18

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Boat Shop Building	Foundations	\$11,776	\$2,944	\$2,944	\$9,715	\$27,379
	HVAC	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	<b>Facility Total</b>	<b>\$16,776</b>	<b>\$4,194</b>	<b>\$4,194</b>	<b>\$13,840</b>	<b>\$39,004</b>
Fire Station #18 Building	Interior Construction	\$18,000	\$4,500	\$4,500	\$14,850	\$41,850
	Interior Finishes	\$27,000	\$6,750	\$6,750	\$22,275	\$62,775
	Plumbing	\$25,000	\$6,250	\$6,250	\$20,625	\$58,125
	HVAC	\$6,000	\$1,500	\$1,500	\$4,950	\$13,950
	Electrical	\$27,000	\$6,750	\$6,750	\$22,275	\$62,775
	Furnishings	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Special Construction	\$7,500	\$1,875	\$1,875	\$6,188	\$17,438
	<b>Facility Total</b>	<b>\$115,500</b>	<b>\$28,875</b>	<b>\$28,875</b>	<b>\$95,288</b>	<b>\$268,538</b>
Infrastructure	Site Improvements	\$461,500	\$115,375	\$115,375	\$380,738	\$1,072,988
	Site Civil / Mechanical Utilities	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	<b>Facility Total</b>	<b>\$471,500</b>	<b>\$117,875</b>	<b>\$117,875</b>	<b>\$388,988</b>	<b>\$1,096,238</b>
	<b>Site Total</b>	<b>\$603,776</b>	<b>\$150,944</b>	<b>\$150,944</b>	<b>\$498,115</b>	<b>\$1,403,779</b>



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #18

Total Observed Deficiency Repair Direct Cost : \$603,776

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Boat Shop Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$11,776</b>
<b>System: Foundations</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$27,379</b>
<b>Standard Foundations</b>									
Concrete foundations	5	0	2018		1,472	\$8.00	SF	\$11,776	\$27,379

Foundations have settled (in fact building appears to be sinking) causing cracks in unreinforced masonry wall, slab settlement and buckling, steps in roof, and now rainwater is freely flowing down interior walls and ponding in interior).

Demolish building and replace with new maintenance shop and storage.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #18

Total Observed Deficiency Repair Direct Cost : \$603,776

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Boat Shop Building									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: HVAC									\$5,000	
Other HVAC Systems and Equipment									Total System Deficiency Repair Cost (Marked Up):	
Exhaust system									\$11,625	
	5	0	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

The building contains hazardous materials and is used by repair personal but does not have any type of exhaust system.

Install a proper exhaust system.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #18

Total Observed Deficiency Repair Direct Cost : \$603,776

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility:</b> Fire Station #18 Building									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b> \$18,000	
<b>System:</b> Interior Construction									<b>Total System Deficiency Repair Cost (Marked Up):</b> \$41,850	
<b>Fittings</b>										
Plastic Laminate, Built-In Casework	4	4	2018		1	\$18,000.00	EA	\$18,000	\$41,850	

Kitchen is at end of life.

Modernize with new casework and counters, add range hood and exhaust.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

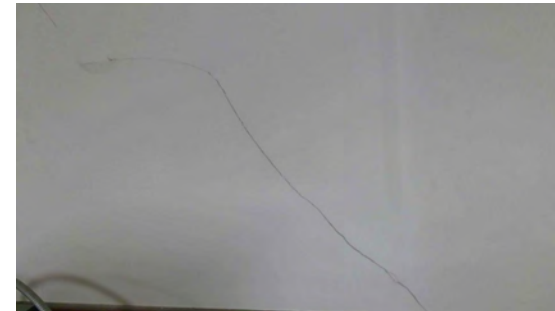
City of Tacoma  
Site: Fire Station #18

Total Observed Deficiency Repair Direct Cost : \$603,776

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #18 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$27,000
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$62,775
<b>Wall Finishes</b>									
Paint	3	5	2018		4,000	\$3.00		\$12,000	\$27,900

Paint is showing wear, minor cracks.

Spot repair walls, clean, and paint.





# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #18

Total Observed Deficiency Repair Direct Cost : \$603,776

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #18 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$27,000
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$62,775
<b>Floor Finishes</b>									
Carpeting	4	3	2018		2,000	\$7.50	SF	\$15,000	\$34,875

Carpet worn and tired.

Remove and replace carpet.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #18

Total Observed Deficiency Repair Direct Cost : \$603,776

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Fire Station #18 Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$25,000
System: Plumbing				Total System Deficiency Repair Cost (Marked Up):					\$58,126
<b>Plumbing Fixtures</b>									
Fixtures & trim	4	2	2018		5	\$2,000.00	EA	\$10,000	\$23,250
Mostly original fixtures, stained, damaged and obsolete.				Replace with new.					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #18

Total Observed Deficiency Repair Direct Cost : \$603,776

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Station #18 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$25,000</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$58,126</b>
<b>Domestic Water Distribution</b>									
Galvanized piping	4	1	2018		1,500	\$5.00	SF	\$7,500	\$17,438

Obsolete galvanized piping delivery rust-colored water to fixtures.

Replace with copper and/or PEX.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #18

Total Observed Deficiency Repair Direct Cost : \$603,776

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Sanitary Waste</b>									
DW&V piping	4	3	2018		1,500	\$5.00	SF	\$7,500	\$17,438

**Deficiency** Action

Facility: Fire Station #18 Building	Total System Deficiency Repair Cost (Undiscounted/Unescalated):	\$25,000
System: Plumbing	Total System Deficiency Repair Cost (Marked Up):	\$58,126

Some tested fixtures are slow to drain. Renew DW&V piping.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #18

Total Observed Deficiency Repair Direct Cost : \$603,776

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Station #18 Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$6,000	
System: HVAC				Total System Deficiency Repair Cost (Marked Up):					\$13,950	
<b>HVAC Distribution Systems</b>										
Ductwork	4	3	2018		1,500	\$4.00	SF	\$6,000	\$13,950	
Ducts are dirty with some damage.				Clean and renew ductwork.						



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #18

Total Observed Deficiency Repair Direct Cost : \$603,776

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Fire Station #18 Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$27,000
System: Electrical				Total System Deficiency Repair Cost (Marked Up):					\$62,776
<b>Lighting and Branch Wiring</b>									
Lighting & wiring	4	3	2018		1,500	\$8.00	SF	\$12,000	\$27,900

Aging and insufficient wiring; aging lighting with marginal illumination.

Replace with new per code.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #18

Total Observed Deficiency Repair Direct Cost : \$603,776

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #18 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$27,000
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$62,776
<b>Low Voltage Fire Alarm</b>									
Fire alarm	4	2	2018		1,500	\$5.00	SF	\$7,500	\$17,438
<b>Obsolete fire alarm system.</b>				<b>Replace with new per City standard.</b>					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #18

Total Observed Deficiency Repair Direct Cost : \$603,776

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Station #18 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$27,000
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$62,776
<b>Low Voltage Security</b>									
Security	5	0	2018		1,500	\$5.00		\$7,500	\$17,438
Abandoned or failed electronic security system.				Replace with new per City standard.					





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #18

Total Observed Deficiency Repair Direct Cost : \$603,776

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: Fire Station #18 Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$5,000	
System: Furnishings				Total System Deficiency Repair Cost (Marked Up):					\$11,625	
<b>Fixed Furnishings</b>										
Casework	4	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Aged fixed furnishing with minor damage.

Repair, refinish or replace as needed.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

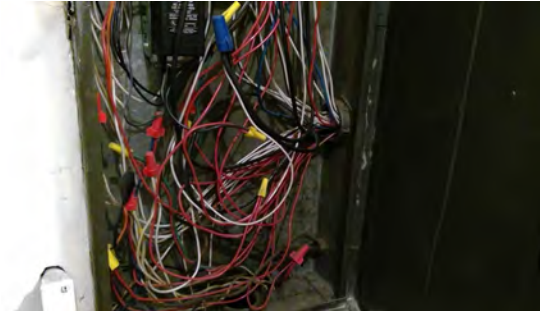
City of Tacoma  
Site: Fire Station #18

Total Observed Deficiency Repair Direct Cost : \$603,776

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Station #18 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$7,500</b>	
<b>System: Special Construction</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$17,438</b>	
<b>Special Controls and Instrumentation</b>										
Station Alarm	4	2	2018		1	\$7,500.00	LS	\$7,500	\$17,438	

Obsolete tone-alarm system.

Replace with City (fire department) standard.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #18

Total Observed Deficiency Repair Direct Cost : \$603,776

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Infrastructure</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>					<b>\$461,500</b>	
<b>System: Site Improvements</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>					<b>\$1,072,988</b>	
<b>Roadways</b>										
Gravel roadway	4	2	2018		2,000	\$2.50	SF	\$5,000	\$11,625	

**Potholes.** Blade, import, and compact gravel.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #18

Total Observed Deficiency Repair Direct Cost : \$603,776

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$461,500</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$1,072,988</b>	
<b>Parking Lots</b>										
Gravel	4	3	2018		5,000	\$2.50	SF	\$12,500	\$29,063	

Potholes. Regrade, import some new gravel, roll compact.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #18

Total Observed Deficiency Repair Direct Cost : \$603,776

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Infrastructure</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>					<b>\$461,500</b>	
<b>System: Site Improvements</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>					<b>\$1,072,988</b>	
<b>Pedestrian Paving</b>										
Asphalt	5	1	2018		600	\$20.00	SF	\$12,000	\$27,900	

Asphalt strip adjacent to out-building is completely deteriorated.

Remove and replace asphalt.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

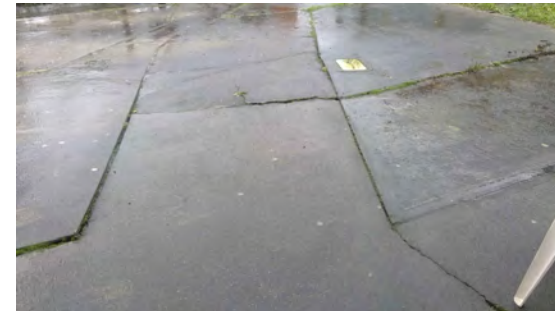
City of Tacoma  
Site: Fire Station #18

Total Observed Deficiency Repair Direct Cost : \$603,776

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				<b>Action</b>						
<b>Deficiency</b>										
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$461,500</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$1,072,988</b>	
<b>Pedestrian Paving</b>										
Concrete	4	3	2018		4,100	\$20.00	SF	\$82,000	\$190,650	

All concrete around building is cracked, broken, and has displaced panels that could be tripping hazard.

Remove and replace concrete around building.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #18

Total Observed Deficiency Repair Direct Cost : \$603,776

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$461,500</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$1,072,988</b>	
<b>Site Development</b>										
Retaining Walls	4	2	2018		1	\$350,000.00	LS	\$350,000	\$813,750	

Seawall constructed of stacked precast concrete flats, settling and crumbling and reinforcing steel and angles rusting. Steep boat ramp.

Replace seawall with modern system, including tie-offs, possible ramp or hoist. Re-grade and install new functional boat ramp.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Station #18

Total Observed Deficiency Repair Direct Cost : \$603,776

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$10,000</b>	
<b>System: Site Civil / Mechanical Utilities</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$23,250</b>	
<b>Storm Sewer</b>										
Storm	4	2	2018		1	\$10,000.00	LS	\$10,000	\$23,250	

Standing water and partial flooding during heavy rain at several locations around site.

Renew storm to reduce flooding and standing water.





## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #18

Total Site Opportunity Cost: \$120,000

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Boat Shop Building</b> <b>System: Fire Protection</b> <span style="float: right;"><b>Total Cost: \$6,000</b></span>						
D4010	Fire Protection Sprinkler Systems					
	No fire sprinkler.	Install fire sprinkler per code.	1,200.00	\$5.00	SF	\$6,000
<b>Facility: Fire Station #18 Building</b> <b>System: Staircases</b> <span style="float: right;"><b>Total Cost: \$1,000</b></span>						
C2010	Stair Construction					
	Handrails - Add handrails to increase life safety.	Add handrails to attic stair.	2.00	\$500.00	EA	\$1,000
<b>Facility: Fire Station #18 Building</b> <b>System: Plumbing</b> <span style="float: right;"><b>Total Cost: \$30,000</b></span>						
D2020	Domestic Water Distribution					
	Hose from upland hydrant along articulated gangway to floating pier.	Install permanent piping with flex connections at articulations and permanent dock-side hose bib.	1.00	\$5,000.00	LS	\$5,000
D2090	Other Plumbing Systems					
	No marine vessel fueling, oily waste handling or sanitary pump-out.	Provide marine services to better support operations.	1.00	\$25,000.00	LS	\$25,000
<b>Facility: Fire Station #18 Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$10,500</b></span>						
D3050	Terminal and Package Units					
	Electric resistance heat with no A/C.	Upgrade to split-Dx heat pump with A/C.	1,500.00	\$7.00	SF	\$10,500
<b>Facility: Fire Station #18 Building</b> <b>System: Fire Protection</b> <span style="float: right;"><b>Total Cost: \$17,000</b></span>						
D4010	Fire Protection Sprinkler Systems					
	No fire sprinkler.	Install fire sprinkler including at attic space.	1,500.00	\$8.00	SF	\$12,000
D4020	Stand-Pipe and Hose Systems					
	No standpipe for pier or floating dock.	Install standpipe system.	1.00	\$5,000.00	LS	\$5,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Station #18

Total Site Opportunity Cost: \$120,000

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Station #18 Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$35,500</b></span>						
D5020	Lighting and Branch Wiring	Fluorescent lighting with manual control.	Upgrade to LED lighting with automatic control - increase illumination levels to City standard.	1,500.00	\$7.00	SF \$10,500
D5090	Other Electrical Systems	No standby power.	Install standby power (generator) system per City standard for fire stations.	1.00	\$25,000.00	LS \$25,000
<b>Facility: Fire Station #18 Building</b> <b>System: Equipment</b> <span style="float: right;"><b>Total Cost: \$5,000</b></span>						
E1010	Commercial Equipment	No laundry.	Install laundry similar to other Stations.	1.00	\$5,000.00	LS \$5,000
<b>Facility: Infrastructure</b> <b>System: Site Improvements</b> <span style="float: right;"><b>Total Cost: \$10,000</b></span>						
G2040	Site Development	No boat or equipment lift	Consider adding a small fixed lift: to hoist engines, pumps, or other equipment (to hoist marine equipment from water onto shore)	1.00	\$10,000.00	EA \$10,000
<b>Facility: Infrastructure</b> <b>System: Site Electrical utilities</b> <span style="float: right;"><b>Total Cost: \$5,000</b></span>						
G4020	Site Lighting	HID lighting.	LED lighting with increased coverage.	1.00	\$5,000.00	LS \$5,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Facility Summary

City of Tacoma  
 Fire Training Center  
 Fire Training Building

2124 Marshall Avenue  
 Tacoma, WA 98407

Facility Size - Gross S.F.	9,450
Year Of Original Construction	1998
Facility Use Type	Fire Station
Construction Type	Light
# of Floors	1
Energy Source	Gas
Year Of Last Renovation	1998
Historic Register	No



FCI (BMAR/CRV)	0.08	Predicted Renewal Budget (20 yrs)	\$973,227
FCI (Bldg OD/CRV)	0.10	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$3,717,000	Building	\$388,478
BMAR (Backlog of Maintenance and Repair)	\$311,000	Infrastructure	\$825,375
Beginning Budget Year	2018	<b>Total</b>	<b>\$1,213,853</b>
		<b>Opportunity Total Project Cost</b>	<b>\$253,890</b>

## Facility Condition Summary

A temporary fire station apparatus shelter is under construction at NE corner of site. Two Lahare/Tsumani mobile warning systems are stored along with several shipping containers, also in the NE corner of the site. Special site systems for fire fighting training include: 1) Old (1961) concrete fire training tower reportedly rarely used and ready for demolition, 2) Newer modular (stacked red containers) trainer with remote propane tank & evaporator, 3) Fire loop to SW with ramps up & down to fire engine drafting tank and test station, 4) Full-size rail with petroleum rail tanker car, 5) Half-dozen totaled passenger vehicles for extraction training, 6) Multiple hydrants for fire engine pump team training, 7) Multiple roof training fixtures, 8) Confined space mock-up with large manholes and interconnecting culvert, 9) Concrete debris pile toward SE, 10) Practice power pole toward SE, and 11) Other smaller training features. A telecommunication station is at the far SE corner of the site with small permanent telecom building and immediately adjacent radio tower.

MEP systems are mostly original and beginning to show signs of age, with replacement of furnaces, condensing units and hot water heater all due over next 3 to 5 years, with possible extension to 5 to 10 years with careful maintenance. Many opportunities to upgrade to modern technology and current code-compliant equipment and systems as their renewals come due, such as replacing original fluorescent lighting with LED. Single story steel frame and wood frame Fire training classroom and administrative office building. Pitched roof with standing seam roofing, Prefinished box metal rib siding, and thermally glazed aluminum windows. New carpeting was installed throughout. The building is in very good condition. Sitework is also in good condition with the exception of asphalt, large areas of ponding, and cracking. There is a new metal training tower, and an original 1961 obsolete multi-story concrete training tower.

# Facility Summary

City of Tacoma  
 Fire Training Center  
 Fire Training Building

2124 Marshall Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1020 Special Foundations</b>	1998	1998	3	TRB 01/11/18	Wood piling with concrete pile caps and grade beams.
<b>B Shell</b>			<b>2.9</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1998	1998	3	TRB 01/11/18	First floor is precast hollow core plank with concrete topping slab spanning between grade beams. Mezzanine is wood I-joist framing with plywood sheathing.
<b>B1020 Roof Construction</b>	1998	1998	3	TRB 01/11/18	Wood I-joist framing with plywood sheathing spanning to exterior stud walls and steel beams.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1998	1998	3	TRB 01/11/18	Wood stud walls with plywood sheathing and horizontal prefinished metal rib siding. Recommend power wash of all exterior walls and surfaces.
<b>B2020 Exterior Windows</b>	1998	1999	2	TRB 01/11/18	Anodized aluminum framing with insulated glazing.
<b>B2030 Exterior Doors</b>	1998	1998	2	TRB 01/11/18	Anodized aluminum storefront doors, metal doors and metal frames.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1998	1998	3	TRB 01/11/18	Galvanized Standing Seam roofing. Recomend pressure wash of roof and gutters. Re-seal gutters.
<b>B3030 Projections</b>					

# Facility Summary

City of Tacoma  
 Fire Training Center  
 Fire Training Building

2124 Marshall Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>2.9</b>		
<b>Roofing</b>					
<b>B3030 Projections</b>	1998	1998	3	TRB 01/11/18	Awnings: Metal roofing on canted timber outriggers, on galvanized pipe beam, on angled wood columns with galvanized anchor brackets.
<b>C Interiors</b>			<b>1.6</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1998	1998	2	TRB 01/11/18	Fixed wood frame partitions.
<b>C1020 Interior Doors</b>	1998	1998	2	TRB 01/11/18	Solid core wood doors in metal frames, wood doors in aluminum storefront frames.
<b>C1030 Fittings</b>	1998	1998	2	TRB 01/11/18	Erasable whiteboards, plastic laminate faced cabinets.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1998	2017	1	TRB 01/11/18	Painted gypsum wallboard, ceramic tile. Interior paint looks new.
<b>C3020 Floor Finishes</b>	1998	2017	1	TRB 01/11/18	Carpet, ceramic tile, vinyl composition tile, sheet vinyl. Carpet is new.
<b>C3030 Ceiling Finishes</b>	1998	1998	2	TRB 01/11/18	Suspended acoustic ceiling. Look in good condition with a minor exception of water stained tiles in storage room behind reception.
<b>D Services</b>			<b>2.5</b>		
<b>Vertical Transportation</b>					
<b>D1010 Elevators and Lifts</b>	1998	1998	4	DCS 01/11/18	No hoist or ready access to replace mezzanine

# Facility Summary

City of Tacoma  
 Fire Training Center  
 Fire Training Building

2124 Marshall Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			2.5		
<b>Vertical Transportation</b>					
<b>D1010 Elevators and Lifts</b>					
					mechanical equipment - provide as needed prior to equipment replacement in next 3 to 5 years.
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					
	1998	1998	2	DCS 01/11/18	Bathroom, locker room, toilet room, kitchen, drinking fountain and other fixtures in good condition, except Men's locker room showers converted to make-shift laundry room. Haws dual-height drinking fountain has remote cooling module above at mezzanine level with filter which needs changing (minor maintenance issue).
<b>D2020 Domestic Water Distribution</b>					
	1998	1998	2	DCS 01/11/11	Domestic water piping system is copper and in good condition, but with pressure maintained high near 90 psig. Original (1998) Rheem gas-fired 100-gal, 199 mbh DHW heaters with recirc pump to three loops.
<b>D2030 Sanitary Waste</b>					
	1998	1998	2	DCS 01/11/18	DW&V piping with tested fixtures flushing & draining well; no issues reported.
<b>D2040 Rain Water Drainage</b>					
	1998	1998	3	DCS 01/11/18	Metal gutters to PVC downspouts to storm; gutters need cleaning and sealing - leaks in multiple locations; some PVC downspouts beginning to weaken.
<b>HVAC</b>					
<b>D3010 Energy Supply</b>					
	1998	1998	2	DCS 01/11/18	Black iron gas piping to mezzanine furnaces and DHW heater; no issues reported.
<b>D3020 Heat Generating Systems</b>					
	1998	1998	3	DCS 01/11/18	Five Carrier high-efficiency (condensing) gas-fired furnaces at mezzanine soon approaching end of life.

# Facility Summary

City of Tacoma  
 Fire Training Center  
 Fire Training Building

2124 Marshall Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.5</b>		
<b>HVAC</b>					
<b>D3030 Cooling Generating Systems</b>	1998	1998	4	DCS 01/11/18	Three original split-Dx condensing units associated with the three mezzanine furnace systems nearing end of life.
<b>D3040 HVAC Distribution Systems</b>	1996	1998	3	DCS 01/11/18	Building ventilation heating and cooling is distributed through galvanized steel ductwork.
<b>D3050 Terminal and Package Units</b>	1998	1998	3	DCS 01/11/18	Ductless split-Dx A/C serving main electrical room with no issues reported; noting outside CU concrete pad is beginning to settle (minor maintenance issue). Several electric unit heaters in storage and support spaces, also with no issues reported.
<b>D3060 Controls and Instrumentation</b>	1998	1998	3	DCS 01/11/18	Honeywell temperature averaging programmable T-stats with multiple sensors per zone; all three T-stats in copy room behind front desk; opportunity to upgrade to DDC upon HVAC system renewal. Control programming and some equipment performance appears sub-optimal and may be wasting energy and/or causing unnecessary discomfort - Building Tune-up is suggested to optimize performance.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>	1998	1998	2	DCS 01/11/18	Four-inch service with FDC on outside wall by main entry to riser in hall closet near main entry; backflow preventor to 2.5-inch sprinkler main. Frost-proof side-wall heads protect exterior canopies; service pressure high at 145 psig.
<b>D4030 Fire Protection Specialties</b>	1998	1998	2	DCS 01/11/18	Fire extinguishers on hooks; AED; first aid kit; all good condition.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					

# Facility Summary

City of Tacoma  
 Fire Training Center  
 Fire Training Building

2124 Marshall Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.5</b>		
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1998	1998	2	DCS 01/11/18	Siemens 208/120V, 3-phase main distribution panel with 600A capacity and off-board TVSS, supplying other panels with no issues reported.
<b>D5020 Lighting and Branch Wiring</b>	1998	1998	2	DCS 01/11/18	Lighting is direct/indirect pendant and parabolic recessed troffers with T8 lamps and recessed can-lights with LED lamps. Branch wiring in conduit, branch devices are typical; no issues reported but opportunity to upgrade to LED and more automatic lighting.
<b>D5032 Low Voltage Communication</b>	1998	1998	3	DCS 01/11/18	Avaya phone system; complex A/V system for training rooms; no issues reported.
<b>D5037 Low Voltage Fire Alarm</b>	1998	1998	3	DCS 01/11/18	Modern fire alarm with no issues reported.
<b>D5038 Low Voltage Security</b>	1998	1998	3	DCS 01/11/18	Radionics security system with motion detection; elaborate but abandoned CCTV system.
<b>D5039 Low Voltage Data</b>	1998	1998	3	DCS 01/11/18	Data equipment in main electrical room with dedicated cooling; data drops in office and classroom areas; aging with no issue reported.
<b>D5090 Other Electrical Systems</b>	1998	1998	2	DCS 01/11/18	Generac 35 kW diesel standby generator with 75-gal belly tank outside in yard to NE and Generac ATS inside in main electrical room. Bug-eye egress lights and exit signs.
<b>E Equipment and Furnishings</b>			<b>2.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1998	1998	2	DCS 01/11/18	Casework at lobby desk, bathrooms, kitchen, and other areas mostly in good condition, but



## Facility Summary

City of Tacoma  
 Fire Training Center  
 Fire Training Building

2124 Marshall Avenue  
 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>E Equipment and Furnishings</b>			<b>2.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>					
					with signs of wear in some areas. Appliances in kitchen in fair to good condition. Make-shift laundry in Men's shower room.
<b>F Special Construction</b>			<b>2.5</b>		
<b>Special Construction</b>					
<b>F1010 Special Structures</b>					
	1998	1998	3	DCS 01/11/18	Rear projection screen room at large training classroom is aging technology. Older (1960) fire training tower of terror no longer used - reportedly to be demolished.
<b>F1050 Special Controls and Instrumentation</b>					
	1998	2017	2	DCS 01/11/18	Tone alarm system with Astron radio, Zetron alarm, and Bogen PA amp & speakers throughout.

# Facility Summary

City of Tacoma  
 Fire Training Center  
 Infrastructure

2124 Marshall Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1998	1998	2	TRB 01/11/18	Concrete entry drive, only minor crack, curb broken from recent impact.
<b>G2020 Parking Lots</b>	1998	1998	4	TRB 01/11/18	Asphalt surface with concrete wheel stops. Parking paint stripe faded including ADA parking stall paint.
<b>G2030 Pedestrian Paving</b>	1998	1998	2	TRB 01/11/18	Concrete walkways, broomed finish, and stamped paver pattern at plaza.
<b>G2040 Site Development</b>	1998	1998	3	TRB 01/11/18	Chain link and wood fencing, benches, tables. Wood fence showing age and algae growth. Rear of lot contains a variety of fire training elements (training roof sections, autos, train car and tracks).
<b>G2050 Landscaping</b>	1998	1998	2	TRB 01/11/18	Grass, shrubs and trees, well maintained in front, rear half of property left in natural landscaping.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1998	1998	2	DCS 01/11/18	City water with no issues reported; separate services for fire and domestic, maybe irrigation. Long term opportunities to use reportedly year-round on-site storm and spring water for fire training water in lieu of City water (not priced).
<b>G3020 Sanitary Sewer</b>	1998	1998	2	DCS 01/11/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1998	1998	3	DCS 01/11/18	On-site storm with no issues reported.
<b>G3060 Fuel Distribution</b>	1998	1998	2	DCS 01/11/18	PSE natural gas meter #474537 with 1,000 cfh capacity supplying main building; no seismic

# Facility Summary

City of Tacoma  
 Fire Training Center  
 Infrastructure

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 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Civil / Mechanical Utilities</b>					
<b>G3060 Fuel Distribution</b>					
					shut-off valve. Estimated 300-gal propane tank for modular fire-fighting trainer. No vehicle fueling system - possible future opportunity.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>					
	1998	1998	2	DCS 01/11/18	Tacoma Power underground from pole across street to 208/120V service entry with meter #49245637 and no issues reported.
<b>G4020 Site Lighting</b>					
	1998	1998	2	DCS 01/11/18	Several parking lot and entry HID pole lights. Many architectural main building perimeter fixtures with CFL lamps. Uplights failed at main sign at street.
<b>G4030 Site Communications and Security</b>					
	1998	1998	2	DCS 01/11/18	Telecom services from purveyors with no issues reported.
<b>Other Site Construction</b>					
<b>G9010 Service and Pedestrian Tunnels</b>					
	2000	2000	4	DCS 01/11/18	Training man-holes with culvert tunnels between SE of main Bldg in marginal condition and potential safety hazard.



# Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma  
Site: Fire Training Center

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Fire Training Building	Exterior Closure	\$18,000	\$4,500	\$4,500	\$14,850	\$41,850
	Roofing	\$20,000	\$5,000	\$5,000	\$16,500	\$46,500
	Plumbing	\$15,000	\$3,750	\$3,750	\$12,375	\$34,875
	HVAC	\$53,088	\$13,272	\$13,272	\$43,797	\$123,428
	Electrical	\$15,000	\$3,750	\$3,750	\$12,375	\$34,875
	Equipment	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Special Construction	\$35,000	\$8,750	\$8,750	\$28,875	\$81,375
	<b>Facility Total</b>	<b>\$161,088</b>	<b>\$40,272</b>	<b>\$40,272</b>	<b>\$132,897</b>	<b>\$374,528</b>
Infrastructure	Site Improvements	\$305,000	\$76,250	\$76,250	\$251,625	\$709,125
	Site Civil / Mechanical Utilities	\$50,000	\$12,500	\$12,500	\$41,250	\$116,250
	<b>Facility Total</b>	<b>\$355,000</b>	<b>\$88,750</b>	<b>\$88,750</b>	<b>\$292,875</b>	<b>\$825,375</b>
	<b>Site Total</b>	<b>\$516,088</b>	<b>\$129,022</b>	<b>\$129,022</b>	<b>\$425,772</b>	<b>\$1,199,903</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Training Center

Total Observed Deficiency Repair Direct Cost : \$516,088

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Fire Training Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$18,000
System: Exterior Closure					Total System Deficiency Repair Cost (Marked Up):				\$41,850
<b>Exterior Walls</b>									
Sealant	4	5	2018		6,000	\$3.00	LF	\$18,000	\$41,850

Sealants nearing end of life.

Remove and re-caulk sealants.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Fire Training Center

Total Observed Deficiency Repair Direct Cost : \$516,088

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Training Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$20,000</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$46,500</b>
<b>Projections</b>									
Canopy	4	5	2018		4	\$5,000.00	EA	\$20,000	\$46,500

Exposed tag ends of wood outriggers are beginning to weather, paint peeling, early degradation starting at outrigger tips and sides.

Recomend treating, power washing, sealing, and capping with prefinished metal cladding and tip caps with drip edges.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Training Center

Total Observed Deficiency Repair Direct Cost : \$516,088

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Fire Training Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$15,000
System: Plumbing					Total System Deficiency Repair Cost (Marked Up):				\$34,875
<b>Plumbing Fixtures</b>									
Showers & trim	4	2	2018		1	\$10,000.00	LS	\$10,000	\$23,250

Men's shower room turned into make-shift laundry room.

Provide laundry room if needed and restore shower room.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Training Center

Total Observed Deficiency Repair Direct Cost : \$516,088

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Training Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$15,000</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$34,875</b>
<b>Rain Water Drainage</b>									
Gutter & downspouts	4	5	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Segmented metal gutter leaking at joints and collecting organic debris at building front under trees. Painted PVC downspouts aging becoming brittle.

Seal gutter joints; clean gutters and install leaf guard (alternately trim vegetation away from building), and budget to replace downspouts before failure.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Training Center

Total Observed Deficiency Repair Direct Cost : \$516,088

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Fire Training Building</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>					<b>\$53,088</b>	
<b>System: HVAC</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>					<b>\$123,428</b>	
<b>Heat Generating Systems</b>										
Furnaces	4	5	2018		5	\$5,000.00	EA	\$25,000	\$58,125	

Gas-fired furnaces approaching end of life.

Budget for replacement prior to failure.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Training Center

Total Observed Deficiency Repair Direct Cost : \$516,088

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Training Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$53,088</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$123,428</b>
<b>Cooling Generating Systems</b>									
Condensing units	4	3	2018		3	\$5,000.00	EA	\$15,000	\$34,875

Aging condensing units approaching end of life.

Budget for replacement prior to failure.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Training Center

Total Observed Deficiency Repair Direct Cost : \$516,088

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Fire Training Building</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>					<b>\$53,088</b>	
<b>System: HVAC</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>					<b>\$123,428</b>	
<b>Terminal and Package Units</b>										
Outdoor condensing units	3	5	2018		2	\$3,000.00	EA	\$6,000	\$13,950	

2 of three outdoor condensing units serving indoor cooling coils are near the end of their life span.

Replace 2 condensing units with new.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Training Center

Total Observed Deficiency Repair Direct Cost : \$516,088

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Fire Training Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$53,088</b>	
<b>System: HVAC</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$123,428</b>	
<b>Controls and Instrumentation</b>										
Controls	4	2	2018		9,450	\$0.75	SF	\$7,088	\$16,478	
Controls programming and some equipment performance appears sub-optimal.				Conduct building Tune-up, Re-Cx, or Energy Audit and take recommended action.						



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Training Center

Total Observed Deficiency Repair Direct Cost : \$516,088

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Fire Training Building</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>					<b>\$15,000</b>	
<b>System: Electrical</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>					<b>\$34,875</b>	
<b>Low Voltage Security</b>										
Security	5	0	2018		1	\$15,000.00	LS	\$15,000	\$34,875	

CCTV system abandoned at this complex, high-value site.

Install new CCTV system per City standard.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Training Center

Total Observed Deficiency Repair Direct Cost : \$516,088

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Fire Training Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$5,000</b>
<b>System: Equipment</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$11,625</b>
<b>Commercial Equipment</b>									
Other	4	5	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Minor wear at some fixed furniture; some appliances approaching end of life.

Dress-up fixed furniture and budget for appliance replacement.





# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Fire Training Center

Total Observed Deficiency Repair Direct Cost : \$516,088

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Fire Training Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$35,000</b>
<b>System: Special Construction</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$81,375</b>
<b>Special Structures</b>									
fire training tower	5	0	2018		1	\$25,000.00	LS	\$25,000	\$58,125

Training tower obsolete with unclear structural integrity and fire resistance. Demolish.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Training Center

Total Observed Deficiency Repair Direct Cost : \$516,088

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Fire Training Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$35,000	
System: Special Construction				Total System Deficiency Repair Cost (Marked Up):					\$81,375	
<b>Special Structures</b>										
Other	4	2	2018		1	\$10,000.00	LS	\$10,000	\$23,250	
Aging classroom projection room and equipment.				Replace with modern technology.						



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Fire Training Center

Total Observed Deficiency Repair Direct Cost : \$516,088

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					

Facility: Infrastructure	Total System Deficiency Repair Cost (Undiscounted/Unescalated):							\$305,000
System: Site Improvements	Total System Deficiency Repair Cost (Marked Up):							\$709,125

Parking Lots									
Asphalt	3	5	2018		30,000	\$10.00	SF	\$300,000	\$697,500

Settlement and significant water ponding occurring. Some minor cracking and settlement has occurred, and most asphalt surfaces are showing sign of wear. Paint stripe faded including ADA parking stall paint.

Address standing water/ponding. Options: Add catch basins to trouble areas and pipe to existing storm system, remove areas and build up compacted sub grade and asphalt. Seal cracks, consider seal coating all asphalt to extend life, re-paint ADA and parking stall striping.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Training Center

Total Observed Deficiency Repair Direct Cost : \$516,088

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Infrastructure</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>						<b>\$305,000</b>
<b>System: Site Improvements</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>						<b>\$709,125</b>
<b>Site Development</b>										
Fencing	3	5	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Wood fence showing aging and algae growth.

Recommend treating, careful power washing, and sealing to extend the life.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Fire Training Center

Total Observed Deficiency Repair Direct Cost : \$516,088

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$50,000</b>	
<b>System: Site Civil / Mechanical Utilities</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$116,250</b>	
<b>Storm Sewer</b>										
Storm	4	2	2018		50,000	\$1.00	SF	\$50,000	\$116,250	

Standing water, flooding with small streams forming across site hardscape during heavy rains.

Install more extensive and robust storm system.





## Opportunity Summary By Subsystem

City of Tacoma

Site: Fire Training Center

Total Site Opportunity Cost: \$120,200

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Fire Training Building</b>						
<b>System: HVAC Total Cost: \$61,950</b>						
D3030	Cooling Generating Systems	Split-Dx CUs for A/C only.				
		Upgrade to hybrid heat pump system upon failure of existing CUs.	3.00	\$7,500.00	EA	\$22,500
D3040	HVAC Distribution Systems	No heat recovery and partial economizer.				
		Upon furnace and/or cooling coil replacement upgrade to heat recovery ventilation and/of full economizer.	3.00	\$10,000.00	EA	\$30,000
D3060	Controls and Instrumentation	No DDC.				
		City standard DDC.	9,450.00	\$1.00	LS	\$9,450
<b>Facility: Fire Training Building</b>						
<b>System: Electrical Total Cost: \$47,250</b>						
D5020	Lighting and Branch Wiring	Mostly T8 with manual control.				
		Upgrade to LED with automatic control.	9,450.00	\$5.00	SF	\$47,250
<b>Facility: Infrastructure</b>						
<b>System: Site Electrical utilities Total Cost: \$11,000</b>						
G4020	Site Lighting	HID & CFL lamps.				
		Upgrade to LED.	20.00	\$300.00		\$6,000
G4030	Site Communications and Security	No site electronic security.				
		Install CCTV system.	5.00	\$1,000.00	EA	\$5,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 Marine Security Operations Center  
 Marine Security Operations Center Building

3301 Ruston Way  
 Tacoma, WA 98407

Facility Size - Gross S.F. 2,985  
 Year Of Original Construction 1980  
 Facility Use Type Fire Station  
 Construction Type Medium  
 # of Floors 1  
 Energy Source Electric  
 Year Of Last Renovation 2014  
 Historic Register No



FCI (BMAR/CRV)	0.05	Predicted Renewal Budget (20 yrs)	\$341,183
FCI (Bldg OD/CRV)		Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$1,305,000	<b>Building</b>	
BMAR (Backlog of Maintenance and Repair)	\$66,000	<b>Infrastructure</b>	\$1,464,750
Beginning Budget Year	2018	<b>Total</b>	
		<b>Opportunity Total Project Cost</b>	\$206,309

## Facility Condition Summary

Marine Security Operations Center (MSOC formerly Fire Station #5) is a 2,050 sq. ft., wood frame structure built in 1980 on wood piling over the water. In 2014, the facility was renovated and a structural steel support frame was constructed under the facility. Also in 2014 a new 935 sq. ft. freestanding wood framed single-bay apparatus building was constructed along with new floating dock. The floating dock has been removed and is scheduled for replacement. The building is in generally good condition with no major observed deficiencies identified.

# Facility Summary

City of Tacoma  
 Marine Security Operations Center  
 Marine Security Operations Center Building

3301 Ruston Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	2014	2014	2	TRB 01/05/18	New 2014 apparatus bay addition is on a standard concrete foundation.
<b>A1020 Special Foundations</b>	1980	2014	2	TRB 01/05/18	2014 galvanized steel pile system into the water.
<b>A1030 Slab On Grade</b>	2014	2014	2	TRB 01/05/18	Slab on grade in new 2014 apparatus bay.
<b>B Shell</b>			<b>2.2</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1980	2014	2	TRB 01/05/18	Wood timber deck on wood and galvanized steel beams sitting on piles.
<b>B1020 Roof Construction</b>	1980	2014	2	TRB 01/05/18	Wood 2x joist plywood sheathing.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1980	2014	3	TRB 01/05/18	Wood stud walls with plywood sheathing. New stained cedar shake siding, but shingles over the water facing north are degrading very rapidly, some need to be replaced. Recommend cleaning and re-sealing.
<b>B2020 Exterior Windows</b>	1980	2014	2	TRB 01/05/18	Punched windows, anodized aluminum frame, insulated glass windows in wood walls.
<b>B2030 Exterior Doors</b>	1980	2014	2	TRB 01/05/18	Wood doors and frames with glass panels. Metal overhead garage door at apparatus bay.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					

# Facility Summary

City of Tacoma  
 Marine Security Operations Center  
 Marine Security Operations Center Building

3301 Ruston Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>2.2</b>		
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1980	2015	2	TRB 01/05/18	Composition shingle.
<b>B3030 Projections</b>	1980	2014	2	TRB 01/05/18	Canopy extension of roofing at entry at rear deck.
<b>C Interiors</b>			<b>2.0</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1980	2014	2	TRB 01/05/18	Wood framed walls with gypsum board.
<b>C1020 Interior Doors</b>	1980	2014	2	TRB 01/05/18	Solid core wood doors with wood frames.
<b>C1030 Fittings</b>	1980	2014	2	TRB 01/05/18	Plastic laminate lockers, plastic laminate cabinets and countertops.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1980	2014	2	TRB 01/05/18	Painted gypsum board throughout, vinyl wall covering in toilet rooms.
<b>C3020 Floor Finishes</b>	1980	2014	2	TRB 01/05/18	Carpet, sheet vinyl, and vinyl composition tile. Exposed concrete in the apparatus bay.
<b>C3030 Ceiling Finishes</b>	1980	2014	2	TRB 01/05/18	Some suspended Acoustical Tile Ceilings, painted gypsum board in great condition with the exception of the Conference Room where some work as been conducted.
<b>D Services</b>			<b>2.0</b>		
<b>Plumbing</b>					

# Facility Summary

City of Tacoma  
 Marine Security Operations Center  
 Marine Security Operations Center Building

3301 Ruston Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.0</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1980	2014	2	DCS 01/05/18	All modern fixtures including dual-flush flushometer water closets, wall-hung lavatories, one-piece fiberglass showers, stainless steel kitchenette sinks with disposals, filters and Insta-hots, and stainless steel deep sink at apparatus bay; all with no issues reported.
<b>D2020 Domestic Water Distribution</b>	1980	2014	2	DCS 01/05/18	Large two-inch copper piping main with possible heat trace for potable water branch line to dock, if not for fire sprinkler main from shore. New (2013) Rheem 80-gal electric DHW heater missing expansion tank and recirc pump. Small 1-gal point-of-use DHW heater at apparatus building deep sink.
<b>D2030 Sanitary Waste</b>	1980	2014	2	DCS 01/05/18	Assume ABS DW&V piping; no issues reported; tested fixtures flush & drain well.
<b>D2040 Rain Water Drainage</b>	1980	2014	3	DCS 01/05/18	Roof drains are gutter & downspout, direct to Puget Sound at original pier-support Bldg. Poor drainage is damaging exterior wood in some locations. Some down-spouts are rusted and leaking.
<b>D2090 Other Plumbing Systems</b>	1980	2014	2	DCS 01/05/18	Air compressor with 5-hp motor and vertical storage tank in new apparatus bay. Floor drain to oil-water separator inside apparatus bay - does not appear to be working properly.
<b>HVAC</b>					
<b>D3030 Cooling Generating Systems</b>	1980	2014	2	DCS 01/05/18	Two Trane XR15 heat pump condensing units at service yard between buildings; clean at least annually to remove salt to extend life in marine environment.
<b>D3040 HVAC Distribution Systems</b>	1980	2014	2	DCS 01/05/18	All new (2014) split-Dx heat pump system with

# Facility Summary

City of Tacoma  
 Marine Security Operations Center  
 Marine Security Operations Center Building

3301 Ruston Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			2.0		
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>					furnace units in attic and condensing units in service yard between buildings for main building; appears to have economizer; one electric unit heater for apparatus bay. Main building equipment is located in difficult to access attic space. Ductwork in main building is a mix of galvanized steel with foil-backed insulation wrap and insulated flex duct.
<b>D3050 Terminal and Package Units</b>	1980	2014	2	DCS 01/05/18	Apparatus building is heated by a single electric unit heater.
<b>D3060 Controls and Instrumentation</b>	1980	2014	2	DCS 01/05/18	Programmable advanced T-stats with on-board economizer control.
<b>D3090 Other HVAC Systems and Equipment</b>	1980	2014	2	DCS 01/05/18	Apparatus bay exhaust system; control is interlocked with door, but no apparent CO/NOx control.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>	1980	2014	2	DCS 01/05/14	Dry-pipe sprinkler system; with 90 psig supply and 40 psig air pressure; may include heat trace for portion from land to over-water riser room; fire sprinkler protects wood structure over water, occupied space and attic of main building, plus 2-inch branch line to the apparatus bay. Under pier sprinkler piping should be inspected at least annual for corrosion.
<b>D4020 Stand-Pipe and Hose Systems</b>	1980	2014	2	DCS 01/05/18	Stand-pipe serves floating dock which is currently missing; after connection should be inspected at least annually for corrosion.
<b>D4030 Fire Protection Specialties</b>	1980	2014	2	DCS 01/05/18	Fire extinguishers on hooks.

## Facility Summary

City of Tacoma  
 Marine Security Operations Center  
 Marine Security Operations Center Building

3301 Ruston Way  
 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.0</b>		
<b>Electrical</b>					
<b>D5010</b>	<b>Electrical Service and Distribution</b>		1980 2014 2	DCS 01/05/18	GE 120/240V main panel supplying GE load centers in each building, 225A at main building, almost full; and 200A panel at apparatus building about 60% full; separate feeder from main GE panel to dock stainless 400A disconnect, with feeders currently disconnected from missing dock.
<b>D5020</b>	<b>Lighting and Branch Wiring</b>		1980 2014 2	DCS 01/05/18	Fluorescent T8 lighting, lay-in and surface with mix of manual and local automatic controls. Receptacles for powered MSOC equipment; some lighting not working. Some wall-mounted occupancy sensors are blocked by furniture (minor maintenance to move).
<b>D5032</b>	<b>Low Voltage Communication</b>		1980 2014 2	DCS 01/05/18	Modern communications including Avaya phone system, all with no issues reported. Battery operated wall-mounted clocks; some with dead batteries (minor maintenance). Older door bell system not working (minor maintenance).
<b>D5037</b>	<b>Low Voltage Fire Alarm</b>		1980 2014 2	DCS 01/05/18	Newer Notifier FACP with new (2017) antenna; but with minimal detection.
<b>D5038</b>	<b>Low Voltage Security</b>		1980 2014 2	DCS 01/05/18	Some CCTV but old-fashioned cipher locks on man-doors (opportunity to upgrade to card-key access).
<b>D5039</b>	<b>Low Voltage Data</b>		1980 2014 2	DCS 01/05/18	Modern data with Cisco WAP and high-speed fiber service.
<b>D5090</b>	<b>Other Electrical Systems</b>		1980 2014 2	DCS 01/05/18	A manual transfer switch is provided for a portable generator; a small 3 kW generator is on-site, but building is wired for full capacity (400A) generator connection. Modern emergency lighting system with battery-backed fixtures for main building; some batteries need replacing. No

# Facility Summary

City of Tacoma  
 Marine Security Operations Center  
 Marine Security Operations Center Building

3301 Ruston Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.0</b>		
<b>Electrical</b>					
<b>D5090 Other Electrical Systems</b>					
					apparent emergency lighting for apparatus building.
<b>E Equipment and Furnishings</b>			<b>2.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>					
	1980	2014	2	DCS 01/05/18	Small appliances at kitchenettes.
<b>E1020 Institutional Equipment</b>					
	1980	2014	2	DCS 02/12/18	Some specialty equipment at apparatus bay for marine operations.
<b>F Special Construction</b>			<b>2.0</b>		
<b>Special Construction</b>					
<b>F1050 Special Controls and Instrumentation</b>					
	1980	2014	2	DCS 01/05/18	Special electronic surveillance equipment on roof with no issues reported.

# Facility Summary

City of Tacoma  
 Marine Security Operations Center  
 Infrastructure

3301 Ruston Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1980	2014	2	TRB 01/05/18	Asphalt drive with concrete walk across drive. Minor cracking at concrete curb-cut at apparatus bay.
<b>G2020 Parking Lots</b>	1980	2014	2	TRB 01/05/18	Asphalt parking spaces with wheel stops.
<b>G2030 Pedestrian Paving</b>	1980	2014	2	TRB 01/05/18	Concrete walkways, some timber lined gravel paths, Pedestrian walkway at building entry is heavy timber and galv, non slip perforated grating, on pier including galvanized metal, rear decking is composite plastic grate walking surfaces.
<b>G2040 Site Development</b>	1980	2014	2	TRB 01/05/18	Brick and cobblestone memorial sculpture adjacent to driveway. Provide temporary safety restraint (chain) at opening (not just warning tape).
<b>G2050 Landscaping</b>	1980	2014	2	TRB 01/05/18	Grass shrubs trees (and ornamental seagrass at rip rap wall), well maintained.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1980	2014	2	DCS 01/05/18	City water with estimated 1-inch meter to RPBP in hot box in parking lot area SE of Bldgs, plus irrigation with separate RPBP in hand vault hear water meter. Six-inch fire service to Bldgs with DDCV in vault, plus separate six-inch standpipe to pier with FDC upland on west side of Bldg. No issues reported.
<b>G3020 Sanitary Sewer</b>	1980	2014	2	DCS 01/05/18	City sewer with no issues reported, except poorly draining oil/water separator in new (2014) apparatus bay.
<b>G3030 Storm Sewer</b>					



# Facility Summary

City of Tacoma  
 Marine Security Operations Center  
 Infrastructure

3301 Ruston Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Civil / Mechanical Utilities</b>					
<b>G3030 Storm Sewer</b>	1980	2014	4	DCS 05/14/09	New (2014) site storm drainage system at upland paved areas including vault filtering system requiring periodic maintenance.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1980	2014	2	DCS 02/12/18	Power underground from street to pad-mounted transformer, then underground to new (2014) electrical service equipment in yard between original over-water Bldg and new upland Bldg. Tacoma Power meter #300125 to outside GE 120/240V, 600A service panel on north wall of new upland apparatus Bldg. The service is split to two distribution panels, one at each Bldg.
<b>G4020 Site Lighting</b>	1980	2014	3	DCS 01/05/18	Aging (1980) metal poles with shoe-box fixtures; mostly minimal older can-lights at original Bldg. Minimal exterior lighting a new Bldg. No issues reported - assume parking lot lighting provides adequate security and after-hours use illumination. CFL uplights at flag pole with moisture intrusion (minor maintenance to seal and replace lamps with LED).
<b>G4030 Site Communications and Security</b>	1980	2014	2	DCS 02/12/18	Newer telecom from underground with no issues reported; some newer CCTV at perimeter.
<b>Other Site Construction</b>					
<b>G9090 Other Site Systems</b>	1980	2014	4	DCS 02/12/18	Site utility services to pier which is current missing, so utilities are disconnected including power, water, and fire service - umbilicals appear retained on-site in service yard and/or in apparatus bay.



**Deficiency Repair Cost Markups By System**

**2018 - 2023**

**City of Tacoma**

**Site: Marine Security Operations Center**

<b>Facility</b>	<b>System</b>	<b>Direct Construction Cost</b>	<b>Contingency 25%</b>	<b>Contractor's OH &amp; P 20%</b>	<b>Project Soft Cost 55%</b>	<b>Total Project Cost</b>
Infrastructure	Site Improvements	\$630,000	\$157,500	\$157,500	\$519,750	\$1,464,750
	<b>Facility Total</b>	<b>\$630,000</b>	<b>\$157,500</b>	<b>\$157,500</b>	<b>\$519,750</b>	<b>\$1,464,750</b>
	<b>Site Total</b>	<b>\$630,000</b>	<b>\$157,500</b>	<b>\$157,500</b>	<b>\$519,750</b>	<b>\$1,464,750</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

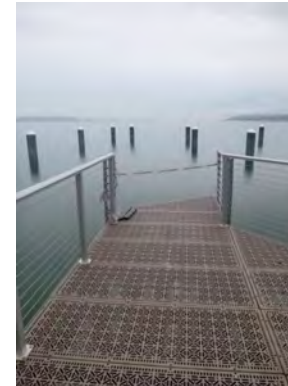
City of Tacoma  
 Site: Marine Security Operations Center

Total Observed Deficiency Repair Direct Cost : \$630,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Infrastructure</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>					<b>\$630,000</b>	
<b>System: Site Improvements</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>					<b>\$1,464,750</b>	
<b>Site Development</b>										
Dock	5	0	2018		1	\$630,000.00	EA	\$630,000	\$1,464,750	

Floating dock and moorage removed.

Provide new floating dock moorage fore fire boat moorage.





## Opportunity Summary By Subsystem

City of Tacoma

Site: Marine Security Operations Center

Total Site Opportunity Cost: \$118,735

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Infrastructure</b> <b>System: Site Civil / Mechanical Utilities</b> <b>Total Cost: \$25,000</b>						
G3060	Fuel Distribution	No vehicle or vessel fueling system.				
		Install vehicle and/or vessel fueling system to allow on-site operations to continue when cut-off from other portions of City during emergencies.	1.00	\$25,000.00	LS	\$25,000
<b>Facility: Infrastructure</b> <b>System: Site Electrical utilities</b> <b>Total Cost: \$5,000</b>						
G4020	Site Lighting	Mostly older exterior light fixtures.				
		Upgrade to LED lighting.	10.00	\$500.00	EA	\$5,000
<b>Facility: Marine Security Operations Center Building</b> <b>System: Exterior Closure</b> <b>Total Cost: \$6,000</b>						
B2010	Exterior Walls	Wood guardrail - add guardrail at exterior decks.				
		Install guardrails on decks on north and east side.	120.00	\$50.00	LF	\$6,000
<b>Facility: Marine Security Operations Center Building</b> <b>System: HVAC</b> <b>Total Cost: \$6,000</b>						
D3060	Controls and Instrumentation	No DDC.				
		Upgrade to DDC for remote monitoring and control.	3,000.00	\$2.00		\$6,000
<b>Facility: Marine Security Operations Center Building</b> <b>System: Fire Protection</b> <b>Total Cost: \$9,485</b>						
D4010	Fire Protection Sprinkler Systems	Fire sprinklers - occupied spaces of building are not served by sprinkler system.				
		Extend existing fire sprinkler system to serve occupied spaces of building.	1,355.00	\$7.00	SF	\$9,485
<b>Facility: Marine Security Operations Center Building</b> <b>System: Electrical</b> <b>Total Cost: \$67,250</b>						
D5020	Lighting and Branch Wiring	Fluorescent lighting with manual control.				
		Upgrade to LED with automatic control.	3,000.00	\$4.00	SF	\$12,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Marine Security Operations Center

Total Site Opportunity Cost: \$118,735

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
D5037	Low Voltage Fire Alarm					
	Little or no direct heat or smoke detection.	Upgrade to full detection.	3,000.00	\$1.75	SF	\$5,250
D5090	Other Electrical Systems					
	Portable 30 kW generator with manual hook-up.	Upgrade to permanent full-size diesel generator with ATS.	1.00	\$50,000.00	LS	\$50,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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City of Tacoma  
2018 Facility Condition Assessment  
*Tacoma Police* Facilities Report

Prepared By:



September 28, 2018





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## Overview of Condition Assessment

### Background

The City's assets are the foundation of the valuable services the City provides to residents and they represent a significant investment. Effective asset management is required to maintain service levels and for long-term fiscal sustainability. Effective asset management is also a good investment in itself, as proper management and stewardship can slow the deterioration of assets, resulting in cost savings.

Effective Asset management generally includes a number of components.

- Assets need to be continually assessed so there is up to date information on their status.
- The information is used to determine needed maintenance and to mitigate issues.
- Each asset should have a plan that addresses its needs for its entire life, including its replacement, inspections, and maintenance.
- There should be a system in place to prioritize asset care and the allocation of limited resources.

To support the City of Tacoma in asset management, capital planning & budgeting efforts, MENG Analysis was contracted to complete a thorough Facility Condition Assessment (FCA) of City-owned General Government (non-enterprise/ non-utility) facilities and sites. The MENG Analysis team reviewed existing operation and maintenance information, conducted field investigations to identify Observed Deficiencies (ODs), developed cost estimates for ODs, and used customized cost models to predict future capital costs over a 20-year horizon (Predicted Renewals or PRs). The team also made note of "Opportunities" to improve the user experience, save energy, and increase system and building longevity.

The following lists the Tacoma Police Department facilities surveyed during this project:

Site	Address	Square Feet	Year Constructed / Last Renovation
Harrison Pistol Range	101 McMurray Rd.	5,000	1960
Police Headquarters	3701 South Pine Street	73,000	2005
Police Warehouse/Fleet	3639 South Pine Street	47,000 <sup>TPD</sup> 82,000 <sup>PW</sup>	1992 / 2004
TPD Sector 1 (Central)	1524 Martin Luther King Way	3,500	2006
TPD Sector 2 (North)	5136 North 26th Street	3,500	2006
TPD Sector 3 (Wapato)	1501 South 72nd Street	3,500	2006
TPD Sector 4 (Stewart Heights)	400 E. 56th St.	3,500	2009
TPD Sector Northeast	4731 Norpoint Way	3,500	2006

The projected costs identified in this report are budgetary in nature and portray a rough order of magnitude for the work based on information available. Information at this budgetary level is often not complete and would require design level investigation to fully realize accurate scope and cost. Identified costs are intended to provide a consistent overview of the needs of City-owned facilities to be compared across the subject portfolio.

### **Facility Survey Methodology**

The methodology for the City of Tacoma FCA started with an initial review of previous records and drawings. An operations and maintenance questionnaire was completed by City staff followed by an O&M workshop to gather additional information.

This preparation stage was followed by eight weeks of on-site field surveys conducted by technical experts who reviewed civil, structural, architectural, mechanical, electrical, plumbing, and site infrastructure systems to a Uniformat II, level 3 detail. The facility surveys were facilitated by an FCA Team Leader to maintain consistency in evaluation, survey forms, condition ratings and system categorization.

Each team member used survey forms to document the apparent facility conditions including:

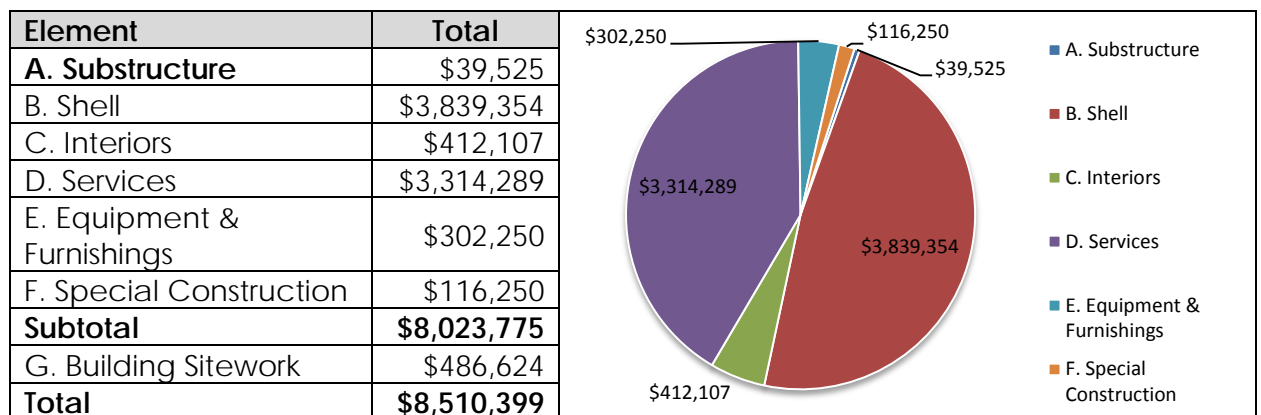
- I. Describing the nature of facility systems per Uniformat II,
- II. Determining the overall condition score of building elements,
- III. Identifying major maintenance deficiencies greater than \$5,000 (direct cost) that are likely to be required for immediate major maintenance repairs (2018), plus the next 5-year period (2019-2023)
- IV. Documenting specific deficiencies of systems with narrative as well as budgetary level cost estimates to repair or replace deficiencies
- V. The survey team also documented specific opportunities for upgrades that will increase facility performance. These items are not required.

### **Observed Deficiencies (ODs), 2018-2023**

Observed Deficiencies are based on known conditions that are witnessed by or disclosed directly to the field surveyors and are generally the best short-term planning tool. The MENG Analysis team uses the Uniformat II system to organize cost estimates for system repairs or replacements. OD estimates include direct costs plus typical construction markups as well as project development markups (design, permitting, management, etc.). ODs are intended as "like" replacements and do not address level-of-service enhancements and/or programmatic building changes or code required upgrades. The following table summarizes the estimated cost for 2018-2023 Observed Deficiencies at each Police Department facility:

Site	Building Systems	Building Sitework	Total
Harrison Pistol Range	\$1,194,667	\$285,278	\$1,479,945
Police Headquarters	\$823,631	\$56,033	\$879,664
Police Warehouse/Fleet	\$5,716,596	\$34,875	\$5,751,471
TPD Sector 1 (Central)	\$93,581	\$51,150	\$144,731
TPD Sector 2 (North)	\$46,500	\$16,275	\$62,775
TPD Sector 3 (Wapato)	\$79,631	\$0	\$79,631
TPD Sector 4 (Stewart Heights)	\$12,206	\$13,950	\$26,156
TPD Sector Northeast	\$56,963	\$29,063	\$86,026
<b>Total</b>	<b>\$8,023,775</b>	<b>\$486,624</b>	<b>\$8,510,399</b>

The following table and chart summarize the Observed Deficiencies for all Police Buildings by major building element:



- (i) Shell includes floor/roof construction, exterior walls, windows/doors, and roofing.
- (ii) Services includes elevators, plumbing, HVAC, fire protection & electrical.

The following summarizes the general findings of the Police Department based on the Observed Deficiencies:

- **Substructures:** Foundations are in relatively good shape. Seismic standards were not evaluated as part of the survey.
- **Shell:** The condition of the building shell for most Police Department is good with the exception of Harrison Pistol Range. Harrison needs roof replacement, new windows & doors and has little to no insulation in the walls or roof. The security and ballistics protection at the building are poor. The Police Warehouse roof is in poor shape and should be scheduled for replacement. The joints at all buildings windows, doors and expansion joints should be re-caulked.
- **Interiors:** Most interiors are in good shape. Areas of public use and flooring are showing signs of heavy traffic and should be scheduled for replacement in the near future. Harrison Range ceilings are heavily water stained and the finishes are heavily worn and in some instances failing. The Warehouse/Fleet center has exposed vinyl faced insulation and is torn in many locations compromising the vapor barrier.



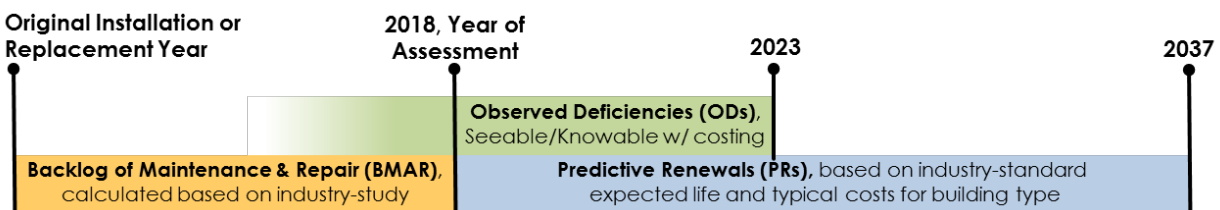
- **Services:**
  - **Heating Ventilation & Air Conditioning (HVAC):** Harrison Range systems are in very poor condition or not working at all. The ventilation system is insufficient for the type of activity at this facility. Police HQ has an older boiler heating system and a combination of chillers and cooling towers for cooling. The cooling system has reported issues and it suggested to have the building re-commissioned to prioritize maintenance. Police Warehouse/Fleet Center is primarily serviced by packaged roof top units. Some of these units are original 1992 equipment and failing. The sector Police Departments are all served with 2 split system furnaces, all noted to be operating under negative building pressure. Section 2, 3, 4, NE all had one of the two units replaced in 2013/14. The remaining units should be scheduled for replacement and buildings be recommissioned. All sectors were noted to have deteriorating refrigerant pipe insulation.
  - **Plumbing:** Gutters and roof drainage at Harrison needs to be addressed. Headquarters is in great shape, but the recirculation pumps are aging and should be serviced or replaced. Warehouse plumbing is in good shape with some opportunities noted for water use reduction and efficiency upgrades. Sector buildings all have tank type toilets. Stations 1 and 3 have urinals that back up and have stained the floor adjacent. Sector 2 requires service or replacement of recirculation pump.
  - **Electrical:** The electrical systems throughout the Police Department are in good working order. Harrison Range is recommended to have a service replacement and additional power circuits added for task oriented power. The security system at Harrison is minimal or nonexistent. Police HQ is undergoing and LED lighting upgrade and should be considered for lighting controls. There are few occupancy sensors and photocells reported as non-functioning. Police Warehouse lighting control system is failing and most of the power sub-panels are full. The Sector buildings power systems are in good shape. Most Sector buildings have a mix of CFL and LED lighting with manual lighting controls.  
**Fire protection:** Police Headquarters and Warehouse are fully sprinkled buildings. The Warehouse has noted concerns regarding the storage of combustibles and chemicals have proper code required coverage. All facilities have adequate fire extinguishers and fire alarm systems.
  
- **Equipment and Furnishings:** All buildings have kitchenettes in good to excellent condition. Other site specific equipment, such as gates and fleet machinery in good working order. Harrison range is the exception. Harrison has a vintage armory storage vault, target system and the casework is in poor shape.
  
- **Sitework:** Site infrastructure is in good condition. All facilities have noted parking lot cracks and faded striping. Harrison Range security gate does not function. Harrison Range sidewalks have heaved and cracked and do not provide ADA accessibility to the building. Warehouse/Fleet entry drive trench drain is broken and needs to be replaced.

## Supplemental Cost Models

In addition to estimated Observed Deficiencies, MENG Analysis has developed two supplemental models summarized below. It is important to clarify that these calculations are independent of the estimated cost calculated for short-term Observed Deficiencies.

- Backlog of Maintenance and Repair (BMAR):** The BMAR is an estimate from original construction to present day, of what should have been spent to bring the facility up to good condition based on current observed condition by the surveyors. This is a parametric calculation derived from a statistical industry study. The BMAR is generally defined as the amount of work required to adequately maintain facilities and related infrastructure for the current use that should have been accomplished, but for a variety of reasons has not.
- Predicted Renewals (PRs):** PRs predict future capital costs over a 20-year horizon (2018-2037). They are based on predictive models that use industry-standard expected life data, combined with original construction or remodel dates as well as system scores from surveyors to estimate when a system will require renewal. Unit costs in the models are updated on a yearly basis and adjusted to our specific northwest region. Similar projects that have been estimated and managed by the team were also referenced against the modeled costs for additional verification of recent costs if they were available.

The following graphic and table summarize the supplement cost model information:



Site	Backlog of Maintenance & Repair (BMAR)	Predicted Renewal (PRs)	Total
Harrison Pistol Range			
Police Headquarters	\$2,584,000	\$11,380,000	\$13,964,000
Police Warehouse/Fleet	\$4,721,000	\$16,653,000	\$21,374,000
TPD Sector 1 (Central)	\$105,000	\$480,000	\$585,000
TPD Sector 2 (North)	\$98,000	\$503,000	\$601,000
TPD Sector 3 (Wapato)	\$97,000	\$480,000	\$577,000
TPD Sector 4 (Stewart Heights)	\$94,000	\$480,000	\$574,000
TPD Sector Northeast	\$98,000	\$503,000	\$601,000
<b>Total</b>	<b>\$7,797,000</b>	<b>\$30,479,000</b>	<b>\$38,276,000</b>

## Facility Condition Index (FCI)

A Facility Condition Index (FCI) calculation is an industry standard used for benchmarking and evaluating the relative condition of a portfolio of facility assets over time. There are a number of different methods used by various organizations to calculate the condition index that best fits their particular portfolio. For this reason, using FCIs to compare the City's facilities to other organizations is not always appropriate, but is a good tool to compare the City's facilities to each other.

In general, the FCI is a ratio of current repair needs to the Current Replacement Value (CRV). For this report the FCI is based on both the BMAR/CRV and ODs/CRV, providing an average range of the buildings condition.

The Current Replacement Value (CRV) is a calculation for reconstructing an asset as it currently exists, without modifications or improvement. The CRV estimate is an approximation of the construction cost based on the cost per square foot of a similar constructed building. The CRV estimate should not be used for any other purpose than to calculate the FCI. Estimates for the actual replacement of individual facilities and projects must incorporate a higher level of detail and accuracy.

Common industry practice is to create a scale for interpreting FCI as a way to prioritize facility needs. Most organizations adjust their classifications of FCI to relate to their own unique criteria. For the City of Tacoma, MENG Analysis recommends the following FCI breakdown to support decision making.

- Excellent = 0 - 0.05 (5%)
- Good = 0.06 - 0.10 (6%-10%)
- Fair = 0.11- 0.20 (11%-20%)
- Poor = 0.21 – 0.25 (21% - 25%)
- Critical = 0.26 (26%) or greater

The following table is a summary of the average FCI and relative scaling for each facility:

Site	Excellent	Good	Fair	Poor	Critical
	0.05	0.10	0.15	0.20	0.25
Harrison Pistol Range					
Police Headquarters		◆ 0.05, Approaching Good			
Police Warehouse/Fleet			◆ 0.11, Fair		
TPD Sector 1 (Central)		◆ 0.08, Good			
TPD Sector 2 (North)		◆ 0.05, Approaching Good			
TPD Sector 3 (Wapato)		◆ 0.06, Good			
TPD Sector 4 (Stewart Hts)	◆ 0.04, Excellent				
TPD Sector Northeast		◆ 0.06, Good			

**Observed Deficiency Over Time (5 years)**

Site	2018-2020	2021-2022	2023	Total
Harrison Pistol Range	\$1,054,388	\$268,619	\$156,938	<b>\$1,479,945</b>
Police Headquarters	\$229,012	\$524,869	\$125,783	<b>\$879,664</b>
Police Warehouse/Fleet	\$2,472,058	\$2,829,525	\$449,888	<b>\$5,751,471</b>
TPD Sector 1	\$11,625	\$86,606	\$46,500	<b>\$144,731</b>
TPD Sector 2	\$11,625	\$11,625	\$39,525	<b>\$62,775</b>
TPD Sector 3	\$20,925	\$35,456	\$23,250	<b>\$79,631</b>
TPD Sector 4	\$0	\$26,156	\$0	<b>\$26,156</b>
TPD Sector NE	\$23,250	\$29,063	\$33,713	<b>\$86,026</b>
<b>Totals</b>	<b>\$3,822,883</b>	<b>\$3,811,919</b>	<b>\$875,597</b>	<b>\$8,510,399</b>

**Predicted Renewals Over Time (20 years)**

Site	2018-2023	2024-2037	Total
Harrison Pistol Range	\$1,743	\$1,697	<b>\$3,440</b>
Police Headquarters	\$2,934,250	\$8,446,088	<b>\$11,380,338</b>
Police Warehouse/Fleet	\$2,486,455	\$14,166,485	<b>\$16,652,940</b>
TPD Sector 1	\$134,087	\$345,808	<b>\$479,895</b>
TPD Sector 2	\$134,087	\$368,894	<b>\$502,981</b>
TPD Sector 3	\$134,087	\$345,808	<b>\$479,895</b>
TPD Sector 4	\$134,087	\$345,808	<b>\$479,895</b>
TPD Sector NE	\$134,087	\$368,894	<b>\$502,981</b>
<b>Totals</b>	<b>\$5,690,622</b>	<b>\$23,328,972</b>	<b>\$29,019,594</b>

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## Terminology and Abbreviations

**Facility Condition Assessment (FCA):** A structured process to document the conditions of site infrastructure and building systems. FCAs are typically performed by a multi-disciplinary team of architects, engineers, construction, and cost specialists. Facility information and condition data should be maintained in a database for ease of updating and reporting. The data should be renewed over time.

**Facility Condition Index (FCI):** A benchmark used to compare relative condition of facilities within a portfolio of assets; derived by the following formula:

$$\text{FCI} = \frac{\text{Backlog of Maintenance and Repair (BMAR)}}{\text{Current Replacement Value (CRV)}}$$

There are a number of different methods used by various organizations to calculate that backlog. For this reason, using FCIs to compare the City's facilities to other organizations is not always appropriate.

This study uses a parametric method that calculates BMAR based on the assessed condition scores. The statistical basis is a study conducted by NASA on over 10,000 surveyed facilities that evaluated the backlog of repair items relative to qualitative condition scores 1 through 5. The parametric backlog for each system is calculated based on a statistical theoretical percentage of that system that would need repair or replacement for each of the qualitative condition scores. The costs of those systems are the facility use cost models customized for the City of Tacoma.

**Life Cycle Renewal Model:** A theoretical forecast of when building systems will exceed their typical lifespan and funding will be required for renewals.

**Parametric Costs:** Parametric cost estimating is a technique that uses statistical relationships between historical cost data and other program variables such as system condition or age. Historical cost data is typically used at a high level (e.g., cost per square foot) and often represent conceptual, order-of-magnitude costs for initial planning or discussion purposes.

**Remaining Useful Life:** An estimate of the years that a facility system may remain serviceable or in operation before failure; which would then require system renewal or replacement.

**Subsystem:** The term subsystem in this report refers to a Uniformat Level 3 building systems category (e.g., B3010 - Roof Coverings; or B3020 – Roof Opening; or B3030 – Projections).

**System:** The term system in this report refers to a Uniformat Level 2 building system category (e.g., B3000 – Roofing)

The following terms are used in the MENG Analysis FCA Database:  
(See also the database user's manual for more specific definitions.)

**Last Major System Renewal:** The year in which a system was last renewed (substantially repaired or replaced).

**Original System Date:** The year a system was originally constructed/installed.

**Subsystem Assessed Condition Score:** The field surveyors' assessment of condition assigned to each facility subsystem. The rating uses a scale of 1 through 5, where 1=excellent, 2=good, 3=fair, 4=poor, 5=unacceptable. Different subsystem % of CRV's are included in the database for each of the different facility use types (e.g. maintenance shops vs. police station vs. office building, etc.)

**BMAR (backlog of maintenance and repair):** This is an estimated amount that would need to be spent to bring the facility up to good condition. Does not guarantee code compliance.

BMAR is generally defined as the amount of work required to safely maintain facilities and related infrastructure for the current use that should have been accomplished, but for a variety of reasons has not. It includes minor seismic, ADA, and fire protection items necessary to maintain current operations, but it does not include major work in those areas that would normally be accomplished in major building renovation for full code compliance.

The MENG Analysis methodology for calculating BMAR is based on the condition scores (1-5, excellent to unsatisfactory) for each system, with each condition bracket having a BMAR defined as the percentage of that system's replacement value needing repair. Those percentages were derived from a statistical industry study that compared specific system maintenance and repair costs for tens of thousands of buildings relative to the condition scores. Within our FCA process, we calculate condition scores for each subsystem, which are then rolled up to the systems level, and a bracketed lookup table used associate those scores with a percentage of replacement value. Those are totaled for the entire facility, and then divided by the replacement value of the entire facility to get the actual FCI index.

**Subsystem Normal Life:** Industry standard expected subsystem life between renewals or replacement cycles.

**System Coverage:** The amount of area in a facility containing a specific system, expressed as percent of building or site area.

Certain FCA terms are also expressed as formulas in the MENG Analysis FCA Database, as follows:

## List of Commonly Used Abbreviations

AC = Asphalt concrete	HVAC = Heating, ventilating, and air conditioning
ACT = Acoustic ceiling tile	IT = Information technology
A/V = Audio/video	LF = Linear feet (measurable unit)
AHU = Air handling unit	LED = Light emitting diode
ASHRAE = American Society of Heating, Refrigeration, & Air Conditioning Engineers	LS = Lump sum (measurable unit)
BUR = Built-up roofing	MDF = Main distribution frame
CCTV = Closed circuit television	OWS = Oil/water separator
CFH = Cubic feet per hour (of natural gas)	PA = Public address
CFL = Compact fluorescent	P-lam = Plastic laminate
CI = Cast iron	PRV = Pressure regulating valve
CMU = Concrete masonry unit	PTAC = Packaged Terminal Air Conditioning
CO2 = Carbon dioxide	Spig = Pounds per square inch (pressure)
CU = Condensing unit	SS Shelving = Stainless Steel Shelving
C = Commissioning	PVC = Polyvinyl chloride
DDC = Direct digital control	RTU = Roof top unit
DHW = Domestic hot water	RPBP = Reduced pressure backflow preventer
Ds = Direct expansion	SF = Square feet (measurable unit)
EA = Each (measurable unit)	UPS = Uninterruptible power supply
EF = Exhaust fan	VAV = Variable air volume
EFIS = Exterior insulation finishing system	VCT = Vinyl composite tile
FRP = Fiber reinforced plastic	VWC = Vinyl wall covering
GI = Grease interceptor	VOIP = Voice over internet protocol
GSHP = Ground-source heat pump	WAP = Wireless access point
HID = High intensity discharge (lamps)	WD = Wood
HM = Hollow metal	



## Condition Survey Form

### Condition Survey Form Development

Survey forms were developed for the facility condition assessments based on the Uniformat Level 3. All Level 3 subsystems are described with evaluation criteria. The evaluation criteria descriptions clearly explain what elements were included and excluded from each Level 3 subsystem.

Each survey form is accompanied by a deficiency report form that is completed when Observed Deficiencies (ODs) are noted. This Observed Deficiency form notes the problem and the recommended action to correct the deficiency. Raw construction costs (i.e., labor and materials) for facility component replacements or repairs are estimated.

### Sample Condition Scoring Criteria

The following section provides six examples of the condition scoring definitions that were used during the condition surveys.

<p><b>Roof Construction</b></p> <p><b>B1020</b></p>	<p>Roof structural frame, structural interior walls supporting roof, roof decks, slabs and sheathing, canopies. Excludes insulation and roofing.</p> <p><b>1 - Excellent:</b> New; Structure is sound and stable; no evidence of cracking, deflection or separation of framing members. Preventative inspection.</p> <p><b>2 - Good:</b> Structure is sound and stable; no evidence of cracking, deflection or separation of framing members. Minor preventative maintenance: rust proofing and / or sealants and tightening of connections.</p> <p><b>3 - Fair:</b> Minor surface cracking or separation of framing members. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Structural damage evident; Twisting, cracking, or separation of structural members affecting surrounding finishes or moisture intrusion. Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> Structurally deficient or damaged beyond repair; major damage to surrounding finishes; jeopardizing occupancy. Replacement.</p>
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<p><b>Exterior Windows</b></p> <p><b>B2020</b></p>	<p>Screens, storm windows, exterior louvers, frame, trim, sills, caulking, flashing. Excludes window shades and treatments.</p> <p><b>1 -Excellent:</b> New; doors operating smoothly; no finish degradation. Preventative inspection.</p> <p><b>2 - Good:</b> Functioning smoothly; no finish degradation. Secure hardware and emergency exiting. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Worn but functional; requires paint or resealing; glass or hardware damage only in isolated doors. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Damaged or deficient hardware, glass, trim or seals; water intrusion. Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> Extensive damage, deficient beyond repair; Hardware not operating, moisture intrusion. Replacement.</p>
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<p><b>Exterior Wall Finishes</b></p> <p><b>B2040</b></p>	<p>Exterior wall - exterior applied finishes</p> <p><b>1 - Excellent:</b> New; no finish degradation. Preventative inspection.</p> <p><b>2 - Good:</b> no cracking or moisture intrusion. Minor finish degradation. Minor preventative maintenance. Cleaning.</p> <p><b>3 - Fair:</b> Minor undamaged but requires sealing. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> Damaged beyond repair, Replacement.</p>
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<p><b>Plumbing Fixtures</b></p> <p><b>D2010</b></p>	<p>Water closets, urinals, lavatories, sink, showers, bathtubs, drinking fountains. Excludes hot water heaters.</p> <p><b>1 - Excellent:</b> New; All fixtures operating well. Preventative inspection.</p> <p><b>2 - Good:</b> system components operational, free of defect, and of adequate utility service and capacity for intended use. Includes water saving features. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Some components worn, fixtures stained. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Many components damaged; limited parts; leaking valves, rust and corrosion. Operating parts &gt; 30 years old. Restoration repairs.</p> <p><b>5 - Unsatisfactory:</b> Many fixtures not operational. Rust, corrosion, and mineral deposits. Leaks causing damage to other finishes and components. Replacement.</p>
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<p><b>Heat Generating Systems</b></p> <p><b>D3020</b></p>	<p>Boilers, piping and fittings adjacent to boilers, primary pumps, auxiliary equipment, equipment and piping insulation.</p> <p><b>1 - Excellent:</b> New. Preventative inspection.</p> <p><b>2 - Good:</b> System is fully operational, suitable capacity, efficient utility utilization, integrated energy management controls. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Equipment worn but reliable, older energy controls; Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Equipment marginal/hard to obtain parts, insulated ext. ductwork, no energy controls. &gt; 40 years old. Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> System non-functional or seriously deficient, not delivering supply to required spaces. Replacement.</p>
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<p><b>Distribution Systems</b></p> <p><b>D3040</b></p>	<p>Supply &amp; return air systems, ventilation &amp; exhaust systems, steam, hot water &amp; chilled water distribution, terminal devices, heat recovery equipment, auxiliary equipment such as secondary pumps, and heat exchangers, piping, duct &amp; equipment insulation.</p> <p><b>1 - Excellent:</b> New. Preventative inspection.</p> <p><b>2 - Good:</b> System is fully operational, suitable capacity, efficient utility utilization, integrated energy management controls. Good insulation. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Equipment worn but reliable, older energy controls; Insulation. Some joints/ sealants loose. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Equipment marginal/hard to obtain parts, no energy controls; Many grilles missing or loose. Air leaks and unbalance. Restorative repair</p> <p><b>5 - Unsatisfactory:</b> Non-functional or seriously deficient. Grilles corroded, missing. Replacement.</p>
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## Facility Summary

City of Tacoma  
 Harrison Pistol Range  
 Harrison Pistol Range

101 McMurray Rd  
 Tacoma, WA 98422

Facility Size - Gross S.F. 8,062  
 Year Of Original Construction 1960  
 Facility Use Type Operational Support  
 Construction Type Light  
 # of Floors 1  
 Energy Source Electric  
 Year Of Last Renovation 1960  
 Historic Register No



FCI (BMAR/CRV)	0.23	Predicted Renewal Budget (20 yrs)	\$922,008
FCI (Bldg OD/CRV)	0.61	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$1,953,000	Building	\$1,194,667
BMAR (Backlog of Maintenance and Repair)	\$447,000	Infrastructure	\$285,278
Beginning Budget Year	2018	<b>Total</b>	<b>\$1,479,945</b>
		<b>Opportunity Total Project Cost</b>	<b>\$1,308,510</b>

## Facility Condition Summary

The Harrison Range includes site, main range building, and simulation lab. The main range building is roughly 4,150 sq. ft., single-story, constructed around 1960. The main range building houses offices, a classroom, weapon loading/unloading, and cleaning stations with compressed air and solvent cleaning sinks/tanks, and a weapons/ammunition storage walk-in vault. An adjacent ancillary 1,550 sq. ft. garage building stores range equipment and target pneumatic compressor and tank, maintenance, and ammunition storage. The building is wood framed, roofing is torch-down with some cedar shingles, wood-framed walls are clad with painted cedar shingles. Flooring is primarily slab on grade. Overall condition and functionality of the main range building is generally poor. The simulation lab is a 2,362 sq. ft. single-story, metal-clad, timber "pole barn" structure on a slab on grade (constructed in 2005) and is located on a remote upper lot. The simulation lab consists of a small classroom, instructor monitoring area, and a demountable partition training simulator (for simulating close-quarters house and building raids). The simulation lab is generally in good condition.

# Facility Summary

City of Tacoma  
 Harrison Pistol Range  
 Harrison Pistol Range

101 McMurray Rd  
 Tacoma, WA 98422

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1960	1960	3	TRB 01/01/18	Standard Concrete foundations, some cracking observed (presumed settlement over the life of the facility).
<b>A1030 Slab On Grade</b>	1960	1960	3	TRB 01/01/18	Original slab-on-grade. Some cracking Two level at gun loading area (with a ± 18" differential between the gun loading and instructor observation level).
<b>B Shell</b>			<b>3.8</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1960	1980	3	TRB 01/01/18	Only classroom has wood platform floor: plywood on sleepers, on slab on grade (everything else is slab on-grade)
<b>B1020 Roof Construction</b>	1960	1960	3	TRB 01/01/18	Simple span shed roof: old wood deck on joists.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1960	1960	4	TRB 01/01/18	Wood stud walls with original cedar shingles (painted), drywall and wood paneling interiors, no ballistic resistive materials. No or limited thermal insulating properties.
<b>B2020 Exterior Windows</b>	1960	1960	5	TRB 01/01/18	Single glazed window systems, with exterior padlocked sliding barn hardware and shutters facing parking, no acoustical properties separating interior from range, no impact resistance. Poor forced entry protection.
<b>B2030 Exterior Doors</b>	1960	1960	4	TRB 01/01/18	Wood doors and frames, obsolete hardware. Water damage. (Pair of newer metal door and framed on range side only, but worn and dented from years of use). Poor forced entry protection.

# Facility Summary

City of Tacoma  
 Harrison Pistol Range  
 Harrison Pistol Range

101 McMurray Rd  
 Tacoma, WA 98422

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.8</b>		
<b>Exterior Closure</b>					
<b>B2030 Exterior Doors</b>					
					Two overhead Garage doors at ancillary storage building, and wood exterior man-door. Two metal OH garage doors and man-door at simulation lab structure.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					
	1960	1960	4	TRB 01/01/18	Torch down low slope asphalt roof, with cedar clad mansard at main buildings in poor condition nearing end of life, un-insulated (or under) roof assembly. Metal roofing at simulation lab structure.
<b>B3030 Projections</b>					
	1960	1960	3	TRB 01/01/18	Mansard projection canopies over doors. (See roof covering for condition of mansard cedar shakes).
<b>C Interiors</b>			<b>3.1</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>					
	1960	1960	3	TRB 01/01/18	Wood stud interior partitions. No bullet resistance protection observed.
<b>C1020 Interior Doors</b>					
	1960	1960	3	TRB 01/01/18	Wood interior doors and frames, some with vision glass into office. No bullet protection. Newer metal doors and frames at storage annex ammunition storage.
<b>C1030 Fittings</b>					
	1960	1960	4	TRB 01/01/18	Built in metal clad countertops for loading and cleaning stations (with accidental bullet holes at cleaning stations), solvent cleaning sinks at cleaning stations. Worn wood base cabinets casework and countertops (at range master, trauma first aid storage, and microwave/coffee bar). Office cubicle 1/2 high partitions. Staff gear lockers, bookshelves, Metal storage shelving in gun and ammo vault, and storage/supply room.

# Facility Summary

City of Tacoma  
 Harrison Pistol Range  
 Harrison Pistol Range

101 McMurray Rd  
 Tacoma, WA 98422

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>3.1</b>		
<b>Interior Construction</b>					
<b>C1030 Fittings</b>					
<b>Staircases</b>					
<b>C2010 Stair Construction</b>					
	1960	1960	3	TRB 01/01/18	Two sets of concrete stairs and pipe rail handrails between two floor levels between gun loading area (with a ± 18" differential between the gun loading and instructor observation level).
<b>C2020 Stair Finishes</b>					
	1960	1960	3	TRB 01/01/18	Concrete with yellow warning paint along top landing.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>					
	1960	1960	4	TRB 01/01/18	Wood paneling and painted gypsum worn and tired, showing years of use, old abandoned brackets and misc. Laminate backed at cleaning stations and coffee/sink counter, painted plywood and bead-boards at office entries. "Tired and Rustic" well used condition.
<b>C3020 Floor Finishes</b>					
	1960	1960	3	TRB 01/01/18	Concrete in gun loading/unloading and cleaning room, non-slip rubber resilient floor tiles in offices and classroom, Old carpet in some small areas (like vault). VCT in toilet rooms.
<b>C3030 Ceiling Finishes</b>					
	1960	1960	3	TRB 01/01/18	Tired and some water stained 2x4 acoustical tiles in main area, painted spray textured drywall in classroom, painted smooth finish drywall in offices.
<b>D Services</b>			<b>3.4</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					
	1960	1990	3	DCS 01/01/18	Somewhat newer fixtures in fair condition with some adjustment and/or service needed.

# Facility Summary

City of Tacoma  
 Harrison Pistol Range  
 Harrison Pistol Range

101 McMurray Rd  
 Tacoma, WA 98422

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.4</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					
<b>D2020 Domestic Water Distribution</b>	1960	1990	3	DCS 01/01/18	Mix of original galvanized and newer copper piping; somewhat newer (2009) 50-gal electric hot water heater in good condition. Bottled drinking water in-use throughout.
<b>D2030 Sanitary Waste</b>	1960	1960	4	DCS 01/01/18	Original DW&V piping with most fixtures slow to drain or flush.
<b>D2040 Rain Water Drainage</b>	1960	1990	4	DCS 01/01/18	Metal gutter and PVC piping to various locations; overflowing with partial flooding into building.
<b>D2090 Other Plumbing Systems</b>	1960	2000	3	DCS 01/01/18	Compressed air for range target, gun-cleaning and other uses; newer compressor with 7.5-hp motor, air-dryer and supplemental receiver tank in shop/garage building; reportedly HDPE piping to range target system; galvanized and copper distribution inside; all in fair to good condition.
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>	1960	1960	4	DCS 01/01/18	Original ventilation system largely abandoned in place in main building; but several old noisy supply fans are used as needed to remove solvent and other odors. Classroom and office ventilation is by operable windows which generally can not be opened during range use.
<b>D3050 Terminal and Package Units</b>	1960	2015	3	DCS 01/01/18	Several newer Fujitsu residential/light-commercial grade ductless split heat pump units serving classroom and office areas; currently office area system is failed with parts on order.
<b>D3060 Controls and Instrumentation</b>	1960	1960	4	DCS 01/01/18	Minimal control of HVAC; mostly manual; opportunity to install modest automation in conjunction with over HVAC upgrades to meet



# Facility Summary

City of Tacoma  
 Harrison Pistol Range  
 Harrison Pistol Range

101 McMurray Rd  
 Tacoma, WA 98422

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.4</b>		
<b>HVAC</b>					
<b>D3060 Controls and Instrumentation</b>					code.
<b>D3090 Other HVAC Systems and Equipment</b>	1960	1960	5	DCS 01/01/18	Solvent clean, chemical storage, ammo storage and other special hazard spaces have little or no industrial ventilation; ammo and weapons storage areas have potable RV driers with no active humidity control.
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>	1960	1990	3	DCS 01/01/18	Fire extinguishers on hooks; first aid kit; AED.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1960	1972	4	DCS 01/01/18	Aged GE service panels at main and shop buildings with 120/240V, 200A panels in aging, but functional condition. Several sub-panels including one blocked by storage cabinet in Bay Area.
<b>D5020 Lighting and Branch Wiring</b>	1960	2017	2	DCS 01/01/18	Many new LED fixtures recently installed in Classroom and Bay Area, with more to be installed in 2018 in Office area; old T12 fixtures in garage (opportunity to upgrade to LED). Insufficient receptacles throughout.
<b>D5032 Low Voltage Communication</b>	1960	2000	3	DCS 01/01/18	Mix of older and newer comm with no issues reported.
<b>D5037 Low Voltage Fire Alarm</b>	1960	2000	3	DCS 01/01/18	Modern fire alarm system with new (2017) antenna and no issues reported.
<b>D5038 Low Voltage Security</b>	1960	2000	3	DCS 01/01/18	At least two electronic security systems; overall security appears in need of modest improvement.

# Facility Summary

City of Tacoma  
 Harrison Pistol Range  
 Harrison Pistol Range

101 McMurray Rd  
 Tacoma, WA 98422

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.4</b>		
<b>Electrical</b>					
<b>D5039 Low Voltage Data</b>	1960	2000	3	DCS 01/01/18	Mix of older and newer comm & data; no issues reported; assume adequate for need.
<b>D5090 Other Electrical Systems</b>	1960	1960	5	DCS 01/01/18	Little or no apparent emergency lighting system.
<b>E Equipment and Furnishings</b>					
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1960	1960	3	TRB 01/01/18	Original vintage walk-in weapons vault. Still functioning, but probably not up to modern security and safety standards.
<b>E1020 Institutional Equipment</b>	1960	1995	4	DCS 01/01/18	Range target systems are + 20 years old and at or near end of life; opportunity to install new range trap system to reduce environmental impact and ease lead recovery. Repair and or replace action target systems with new, durable target systems (weather and ballistic resistant).
<b>E1090 Other Equipment</b>	1960	1990	4	DCS 01/01/18	Aging and make-shift/residential-grade kitchenette and laundry appliances.
<b>F Special Construction</b>					
<b>Special Construction</b>					
<b>F1010 Special Structures</b>	1960	2005	2	TRB 01/01/18	Simulation lab: a 2,362 square foot single story, metal clad, timber "Pole Barn" type structure on a slab on grade (constructed in 2005) is located on a remote upper lot and houses a simulation lab, consisting of a small classroom, instructor video monitoring area, and a demountable simulation training lab/dojo (for simulating enclosed quarters house and building raids). Building is in good condition including full insulation, electric resistance heat and

# Facility Summary

City of Tacoma  
 Harrison Pistol Range  
 Harrison Pistol Range

101 McMurray Rd  
 Tacoma, WA 98422

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### F Special Construction

#### Special Construction

##### F1010 Special Structures

classroom air conditioning. No toilet facilities serve this classroom training building. Outhouses are poor at best.

##### F1030 Special Construction Systems

2005 2005 3

DCS 01/01/18

RBT program modular simulator - while in fair to good condition, it is little used and increasingly obsolete technology; opportunity to replace with modern simulator system.

##### F1040 Special Facilities

1990 1990 3

DCS 01/01/18

Upper range, includes a modified cargo container as a part-time range master and target control office, and houses pneumatic equipment; Container is in poor condition; includes 100A power panel, air compressor and range control; range equipment is somewhat newer but needs service. Opportunity for major improvements.

# Facility Summary

City of Tacoma  
 Harrison Pistol Range  
 Infrastructure

101 McMurray Rd  
 Tacoma, WA 98422

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1960	1960	4	TRB 01/12/18	Asphalt drive is cracking, entry pipe steel security gate is obsolete and non functioning.
<b>G2020 Parking Lots</b>	1960	1960	4	TRB 01/12/18	Asphalt parking area. Cracking, areas of past patch settlement, Ponding. Paint stripe not existing, no ADA parking.
<b>G2030 Pedestrian Paving</b>	1960	1960	3	TRB 01/12/18	Concrete sidewalk at building and in range. Some settlement cracking. (note pathway to building is not ADA Compliant)
<b>G2040 Site Development</b>	1960	1960	5	TRB 01/12/18	The property also includes two outdoor gun ranges: the lower lot supervised by the range master from the main training building with 30 range target stations. There is a small covered picnic shelter between the simulation lab and upper firing range. An upper lot houses an additional range with 10 additional firing stations, using a modified cargo container as a range master and target control office, and pneumatic equipment. Range target protection consists of painted plywood, on heavy wood timbers, backed by a concrete stem wall (protecting pneumatic targeting systems), the backstops consist of low heavy timber retaining sand backfill against the embankment. The target protection wall (timber and concrete) is deteriorating due to ballistic impacts and weather and should be replaced with modern rubber ballistic shooting range blocks. The action targeting systems are 20 years old, also in need of repair or replacement.
<b>G2050 Landscaping</b>	1960	1960	2	TRB 01/12/18	Existing mature landscape, mature planted landscape in the frontage, 95% of the property landscape is natural hillside tree canopy and underbrush.

### Site Civil / Mechanical Utilities

# Facility Summary

City of Tacoma  
 Harrison Pistol Range  
 Infrastructure

101 McMurray Rd  
 Tacoma, WA 98422

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1960	1960	3	DCS 01/01/18	City water with no issues reported.
<b>G3020 Sanitary Sewer</b>	1960	1960	3	DCS 01/01/18	City sewer with bathroom fixtures draining slowly; clean, test & inspect side sewer.
<b>G3030 Storm Sewer</b>	1960	2000	3	DCS 01/01/18	On-site storm including range area lead absorption lime rock below porous pavement. Poor drainage along east side of main building, especially to north.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1960	1960	4	DCS 01/01/18	Overhead power from pole at street; obsolete technology - replace with under-ground service.
<b>G4020 Site Lighting</b>	1960	2015	3	DCS 01/01/18	Many newer LED heads, but with unclear controls and some on older poles; marginal coverage in some areas.
<b>G4030 Site Communications and Security</b>	1960	2000	3	DCS 01/01/18	Mix of older and newer comm & data service; reportedly adequate for need since unclear data upgrade about 2015, including fiber-optic service. Observed services are from overhead

## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Harrison Pistol Range

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Harrison Pistol Range	Exterior Closure	\$141,000	\$35,250	\$35,250	\$116,325	\$327,825
	Roofing	\$36,335	\$9,084	\$9,084	\$29,976	\$84,479
	Interior Construction	\$15,000	\$3,750	\$3,750	\$12,375	\$34,875
	Interior Finishes	\$14,000	\$3,500	\$3,500	\$11,550	\$32,550
	Plumbing	\$22,500	\$5,625	\$5,625	\$18,563	\$52,313
	HVAC	\$55,000	\$13,750	\$13,750	\$45,375	\$127,875
	Electrical	\$50,000	\$12,500	\$12,500	\$41,250	\$116,250
	Equipment	\$130,000	\$32,500	\$32,500	\$107,250	\$302,250
	Special Construction	\$50,000	\$12,500	\$12,500	\$41,250	\$116,250
	<b>Facility Total</b>	<b>\$513,835</b>	<b>\$128,459</b>	<b>\$128,459</b>	<b>\$423,914</b>	<b>\$1,194,666</b>
Infrastructure	Site Improvements	\$110,200	\$27,550	\$27,550	\$90,915	\$256,215
	Site Civil / Mechanical Utilities	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Site Electrical utilities	\$7,500	\$1,875	\$1,875	\$6,188	\$17,438
	<b>Facility Total</b>	<b>\$122,700</b>	<b>\$30,675</b>	<b>\$30,675</b>	<b>\$101,228</b>	<b>\$285,278</b>
	<b>Site Total</b>	<b>\$636,535</b>	<b>\$159,134</b>	<b>\$159,134</b>	<b>\$525,141</b>	<b>\$1,479,944</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					

Facility: Harrison Pistol Range	Total System Deficiency Repair Cost (Undiscounted/Unescalated):							\$141,000
System: Exterior Closure	Total System Deficiency Repair Cost (Marked Up):							\$327,825

Exterior Walls									
Other	5	1	2018		400	\$250.00	LF	\$100,000	\$232,500

No ballistic wall protection preventing errant projectiles from leaving training building. Also assumed un-insulated stud walls.

Add ballistic sheathing to existing exterior walls, provide ballistic protection separating interior from exterior.  
 -Or-  
 Demo existing and build new bullet resistant exterior walls.

Wall protection should meet UL 752 Standard for Bullet-Resisting Materials, and NIJ Standard 0108.01 for Ballistic Resistant Protective Materials.

Recommend also thermally insulating to code minimum or better. Replace exterior cladding at end of life.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Harrison Pistol Range</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$141,000</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$327,825</b>
<b>Exterior Windows</b>									
Aluminum windows	5	1	2018		18	\$1,500.00	EA	\$27,000	\$62,775

Single glazed window systems, no acoustical properties, no impact resistance. Poor forced entry protection.

Replace glazing with thermally glazed units with laminated or glass-clad polycarbonate security/impact resistant glazing (acoustical properties needed facing range).



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
<b>Facility:</b> Harrison Pistol Range					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$141,000</b>
<b>System:</b> Exterior Closure					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$327,825</b>
<b>Exterior Doors</b>									
Doors and Door Hardware	4	1	2018		7	\$2,000.00	EA	\$14,000	\$32,550

Wood doors and frames, obsolete hardware (including barn door style door barricade (with thin brackets) for securing pair of in-swing doors with 2 x 4 drop board). Water damage and delamination. Security concerns.

Replace doors and frames with thermal performance metal or fiber reinforced polyester security door systems with modern security hardware (including robust security hinges). Recommended replacing door leafs with Ballistic resistant doors at front and back sides of training building, interior face with stainless kick and face guard (to limit damage to surfaces with use and wear from holsters and gear).



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Harrison Pistol Range</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>					<b>\$36,335</b>	
<b>System: Roofing</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>					<b>\$84,479</b>	
<b>Roof Coverings</b>										
Roofing	4	4	2018		5,590	\$6.50	SF	\$36,335	\$84,479	

Torch down low slope asphalt roof, with cedar shake clad mansard at main buildings in poor condition and end of life.

Replace roofing, add rigid insulation to improve thermal performance. Recommend considering replacing with higher quality membrane roof system, and metal at mansard roofing.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Harrison Pistol Range</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$15,000</b>
<b>System: Interior Construction</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$34,875</b>
<b>Fittings</b>									
Plastic Laminate, Built-In Casework	4	5	2018		1	\$15,000.00	LS	\$15,000	\$34,875

Casework is tired from years of use and service and at end of useful life. Gun cleaning station countertop with accidental discharge bullet holes.

Replace casework with new. Replace cleaning station metal clad countertop



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				<b>Action</b>					
<b>Facility: Harrison Pistol Range</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$14,000</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$32,550</b>
<b>Wall Finishes</b>									
Wall Finish	4	4	2018		1,500	\$6.00	SF	\$9,000	\$20,925

Wood paneling and painted surfaces worn and showing years of use, old abandoned brackets, patches, etc.

Remove unused and abandoned wall mounted elements, patch and paint interior gypsum surfaces. Consider adding vinyl faced tackable acoustic wall panels above counter level over wood to hide past bracket holes, clean up old notices, and improve acoustics.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Harrison Pistol Range</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$14,000</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$32,550</b>
<b>Ceiling Finishes</b>									
Acoustic Ceiling Tile	4	4	2018		2,000	\$2.50	SF	\$5,000	\$11,625

Tired and some water stained 2x4 acoustical tiles in main area (some sagging).

Remove tiles, paint suspension system, replace acoustical ceiling tiles with new.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Harrison Pistol Range</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$22,500</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$52,313</b>
<b>Domestic Water Distribution</b>									
Galvanized Piping	4	5	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Original galvanized piping is obsolete and approaching end of life.

Replace with copper and/or PEX.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Sanitary Waste</b>									
DW&V piping	4	2	2018		1	\$7,500.00	LS	\$7,500	\$17,438

Original DW&V piping is slow to drain & flush with periodic back-ups.

Replace with new.

Facility: Harrison Pistol Range	Total System Deficiency Repair Cost (Undiscounted/Unescalated):	\$22,500
System: Plumbing	Total System Deficiency Repair Cost (Marked Up):	\$52,313





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: Harrison Pistol Range				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$22,500	
System: Plumbing				Total System Deficiency Repair Cost (Marked Up):					\$52,313	
<b>Rain Water Drainage</b>										
Gutter & downspout	4	2	2018		1	\$10,000.00	LS	\$10,000	\$23,250	

Poor capture with overflow damaging walk and partially flooding near control booth and at door to range.

Replace with more robust system.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Harrison Pistol Range					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$55,000
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$127,875
<b>HVAC Distribution Systems</b>									
Ventilation	4	2	2018		5,000	\$5.00	SF	\$25,000	\$58,125

Little or no mechanical ventilation for office and classrooms, poor ventilation for center Bay Area.

Install code-compliant ventilation throughout; potentially returning original system to service.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Harrison Pistol Range</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$55,000</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$127,875</b>
<b>Terminal and Package Units</b>									
Heat pumps	4	5	2018		2	\$7,500.00	EA	\$15,000	\$34,875

Residential/light-commercial heat pumps not appropriate for heavy commercial use.

Budget upgrade to full commercial grade upon failure.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Harrison Pistol Range</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$55,000</b>	
<b>System: HVAC</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$127,875</b>	
<b>Other HVAC Systems and Equipment</b>										
Industrial ventilation	4	2	2018		5,000	\$3.00	SF	\$15,000	\$34,875	

Little or no industrial ventilation for chemical use or humidity control for ammo & weapon storage.

Install industrial ventilation and humidity control per code and industry best practice.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: Harrison Pistol Range									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: Electrical									\$50,000	
<b>Electrical Service and Distribution</b>										
Electrical distribution	4	5	2018		5,000	\$5.00	SF	\$25,000	\$58,125	

Aged GE service panels and distribution approaching end of life.

Budget for replacement with modern equipment and new feeders.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Harrison Pistol Range</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$50,000</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$116,250</b>
<b>Lighting and Branch Wiring</b>									
Branch wiring and receptacles	4	2	2018		5,000	\$3.00	SF	\$15,000	\$34,875
Insufficient receptacles hampering training and creating fire hazard.				Install additional receptacles per code and program requirements.					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Harrison Pistol Range					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$50,000
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$116,250
<b>Low Voltage Security</b>									
Security	4	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Limited electronic security.

Upgrade to City standard and industry practice for gun ranges, and weapons & ammunition storage.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Harrison Pistol Range</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$50,000</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$116,250</b>
<b>Other Electrical Systems</b>									
Emergency lighting	5	0	2018		5,000	\$1.00	SF	\$5,000	\$11,625
Little or no apparent emergency lighting system (egress pathway and exit signage).				Install per code.					





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: Harrison Pistol Range									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: Equipment									\$130,000	
<b>Institutional Equipment</b>										
Other	4	2	2018		1	\$125,000.00	LS	\$125,000	\$290,625	
Range rotating target at end of life and moving target system failed.				Replace with new, based on vendor quotes (\$100K for rotating action target and \$25K for moving target systems; \$125k total).						



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Harrison Pistol Range					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$130,000
System: Equipment					Total System Deficiency Repair Cost (Marked Up):				\$302,250
<b>Other Equipment</b>									
Other	4	3	2018		5,000	\$1.00	SF	\$5,000	\$11,625
Residential appliances aging.				Replace with commercial grade.					



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: Harrison Pistol Range				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$50,000	
System: Special Construction				Total System Deficiency Repair Cost (Marked Up):					\$116,250	
<b>Special Facilities</b>										
Other	4	3	2018		1	\$50,000.00	LS	\$50,000	\$116,250	

Upper range is showing its age; storm-drainage issues; needs variety of repairs, including repairs to leaking roofing.

Install CCTV, mitigate storm water issue. Repair roof leaks.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: Infrastructure									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: Site Improvements									\$110,200	
									Total System Deficiency Repair Cost (Marked Up):	
									\$256,215	
<b>Roadways</b>										
AC Roadway	4	4	2018		2,000	\$3.00	SF	\$6,000	\$13,950	

Asphalt drive is cracking.

Patch settlement, seal cracks, top seal coat.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$110,200</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$256,215</b>	
<b>Roadways</b>										
Guardrail	5	0	2018		1	\$10,000.00	EA	\$10,000	\$23,250	

Manual entry auto security gate is non-functional and obsolete.

Provide modern robust auto security gate.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Infrastructure</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$110,200</b>
<b>System: Site Improvements</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$256,215</b>
<b>Parking Lots</b>									
AC Paving	4	4	2018		1,200	\$3.50	SF	\$4,200	\$9,765

Cracks, settlement at past utility patching, no paint striping

Seal cracks, topcoat to increase life, paint stripe, consider ADA Parking (Note: facility should still be accessible to an officer recovering from an injury, observer, or even instructor, etc.).



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Infrastructure</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$110,200</b>
<b>System: Site Improvements</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$256,215</b>
<b>Site Development</b>									
Retaining Walls	5	1	2018		300	\$300.00	LF	\$90,000	\$209,250

The target protection wall (timber and concrete) is deteriorating due to ballistic impacts and weather.

Demolish target protection timber and concrete stem walls, replace with new concrete stem wall fronted with new modern ballistic rubber shooting range blocks.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$5,000</b>	
<b>System: Site Civil / Mechanical Utilities</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$11,625</b>	
<b>Storm Sewer</b>										
Storm Drain	4	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Flooding along east side of building, especially at north and near center doors.

Expand storm coverage along east side of main building.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Harrison Pistol Range

Total Observed Deficiency Repair Direct Cost : \$636,535

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$7,500</b>	
<b>System: Site Electrical utilities</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$17,438</b>	
<b>Electrical Distribution</b>										
Site power service and distribution	4	5	2018		1	\$7,500.00	LS	\$7,500	\$17,438	

Old overhead power service.

Replace with underground service.



## Opportunity Summary By Subsystem

City of Tacoma

Site: Harrison Pistol Range

Total Site Opportunity Cost: **\$562,800**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Harrison Pistol Range</b> <b>System: Interior Construction</b> <span style="float: right;"><b>Total Cost: \$12,800</b></span>						
C1010	Partitions	No ballistic protection between gun loading/unloading/cleaning area, and classroom and offices.	400.00	\$17.00	SF	\$6,800
		Provide ballistic interior panel cladding protection separating gun loading/unloading/cleaning area, from classroom and office spaces. Panels should meet UL 752 Standard for Bullet-Resisting Materials, and NIJ Standard 0108.01 for Ballistic Resistant Protective Materials.				
C1020	Interior Doors	No bullet resistance between gun loading/unloading/cleaning area, from classroom and office spaces. Provide modern lever hardware. Provide new frames and hardware for office doors.	4.00	\$1,500.00	EA	\$6,000
		Provide bullet resistant interior doors and window glazing systems separating gun loading/unloading/cleaning area, from classroom and office spaces. Doors should meet UL 752 Standard for Bullet-Resisting Materials, and NIJ Standard 0108.01 for Ballistic Resistant Protective Materials.				
<b>Facility: Harrison Pistol Range</b> <b>System: Fire Protection</b> <span style="float: right;"><b>Total Cost: \$20,000</b></span>						
D4010	Fire Protection Sprinkler Systems	No fire sprinkler for most areas; insufficient sprinkler for main ammo storage.	5,000.00	\$4.00		\$20,000
		Install code required fire sprinkler system.				
<b>Facility: Harrison Pistol Range</b> <b>System: Equipment</b> <span style="float: right;"><b>Total Cost: \$100,000</b></span>						
E1020	Institutional Equipment	No trap system (dirt backstop).	1.00	\$100,000.00	LS	\$100,000
		Install modern trap system to reduce environmental impact and ease lead recovery.				

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Harrison Pistol Range

Total Site Opportunity Cost: \$562,800

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
Facility: Harrison Pistol Range						
System: Special Construction	Total Cost: \$430,000					
F1010	Special Structures					
	No Toilet facilities provided for classroom and training building. Outhouses provided for staff & students.	Construct Code (and ADA) compliant toilet facilities (at least two individual unisex?)	2.00	\$15,000.00	EA	\$30,000
F1030	Special Construction Systems					
	Obsolete static simulator.	Install virtual reality type simulator.	1.00	\$150,000.00	LS	\$150,000
F1040	Special Facilities					
	Upper range has development potential.	Fully develop upper range including paving, lead trap. Construct a permanent building with bathrooms and office.	1.00	\$250,000.00	LS	\$250,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 Police Headquarters  
 Police Headquarters Building

3701 South Pine Street  
 Tacoma, WA 98407

Facility Size - Gross S.F. 73,000  
 Year Of Original Construction 2005  
 Facility Use Type Police Station  
 Construction Type Medium  
 # of Floors 3  
 Energy Source Gas  
 Year Of Last Renovation n/a  
 Historic Register No



FCI (BMAR/CRV)	0.07	Predicted Renewal Budget (20 yrs)	\$11,380,338
FCI (Bldg OD/CRV)	0.03	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$34,813,000	Building	\$823,631
BMAR (Backlog of Maintenance and Repair)	\$2,584,000	Infrastructure	\$56,033
Beginning Budget Year	2018	Total	\$879,664
		Opportunity Total Project Cost	\$1,636,800

## Facility Condition Summary

Constructed in 2005, the three-story Police Headquarters building is a steel framed structure. The roofing system is a membrane roofing on rigid insulation, on metal deck. Exterior systems include CMU veneer, Curtain wall, and punched openings. The building is in good condition and is well maintained. Some MEP systems beginning to show signs of wear. The entry lobby is a three story atrium volume, the south facing curtain wall produces significant heat gain and glare, and overwhelms the HVAC system to keep the interior space comfortable.

# Facility Summary

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.6</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	2005	2005	2	TRB 01/01/18	Standard concrete foundations.
<b>A1020 Special Foundations</b>	2005	2005	2	TRB 01/01/18	Auger cast piles located at braced frames.
<b>A1030 Slab On Grade</b>	2005	2005	3	TRB 01/01/18	Concrete slab on grade. Significant cracking occurring at holding cell area, now impacting CMU walls.
<b>B Shell</b>			<b>2.0</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	2005	2005	2	TRB 01/01/18	Steel beams and composite metal decking with concrete topping. Raised access flooring
<b>B1020 Roof Construction</b>	2005	2005	2	TRB 01/01/18	Steel beams with steel open web joists and metal roof decking. Exterior canopies are steel column/beams with metal roof decking.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	2005	2005	2	TRB 01/01/18	Exterior walls are primarily concrete masonry unit walls. Portions of exterior walls (at east side mechanical rooms) are metal stud walls with metal siding. Some black/grey weather staining starting on CMU (recommend power wash and coat with masonry water repellent).
<b>B2020 Exterior Windows</b>	2005	2005	2	TRB 01/01/18	Exterior windows are a storefront style double pane metal window system. One area has a Kalwall system and the part of the south wall is curtain wall.
<b>B2030 Exterior Doors</b>	2005	2005	2	TRB 01/01/18	Exterior doors are all storefront aluminum with

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>2.0</b>		
<b>Exterior Closure</b>					
<b>B2030 Exterior Doors</b>					
					modern panic hardware and lever locks that are ADA compliant.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					
	2005	2005	2	TRB 01/01/18	Roofing is a white membrane roofing. Walking area and a deck are pre-cast concrete pavers on pedestals. Parapet cap is pre-cast concrete. Metal flashings are "Kynar" type coated metal. Misc leaks occasionally reported, but are fixed by maintenance when occurs.
<b>B3020 Roof Openings</b>					
	2005	2005	2	TRB 01/01/18	Skylights are glazed custom units. No maintenance issues reported
<b>B3030 Projections</b>					
	2005	2005	2	TRB 01/01/18	Sunshades are galvanized steel.
<b>C Interiors</b>			<b>2.1</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>					
	2005	2005	2	TRB 01/01/18	Interior partitions are mainly metal stud. The holding area and some other areas have CMU walls. Atrium rails are painted steel with aircraft cabling.
<b>C1020 Interior Doors</b>					
	2005	2005	2	TRB 01/01/18	Interior doors in office and common areas are hollow metal frames, solid core wood doors with ADA compliant hardware. Holding area and utility type areas have hollow metal doors.
<b>C1030 Fittings</b>					
	2005	2005	2	TRB 01/01/18	Casework is modern plastic laminate type casework. The locker room has metal lockers and built in wood benches. Some wear & tear. Motorized window shades; motorized partitions; motorized meeting room screens; all in good

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.1</b>		
<b>Interior Construction</b>					
<b>C1030 Fittings</b>					
					condition with no issues reported.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>					
	2005	2005	2	TRB 01/01/18	Stairs are concrete filled metal pan system.
<b>C2020 Stair Finishes</b>					
	2005	2005	2	TRB 01/01/18	Retroplate colored concrete on metal pan treads.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>					
	2005	2005	2	TRB 01/01/18	Interior wall finishes are primarily painted GWB. CMU walls are painted or it textured block sealed. Some common area walls have metal paneling and fiber board panels. Most areas have large relites facing the adjoining hall or common areas. most walls are in good condition, however public access and conference room walls have wear and tear evident with gouges, chips, and worn paint areas
<b>C3020 Floor Finishes</b>					
	2005	2005	3	TRB 01/01/18	Floors vary throughout the building. The entry area and atrium spaces are a "retroplate" type colored and sealed concrete floor. the workout is a rubber athletic flooring, This and the holding area are the only floors that are not on a platform. Common areas and offices have carpet tile. Bathrooms and locker rooms have coved sheet vinyl some offices and lab type rooms have radial rubber flooring.
<b>C3030 Ceiling Finishes</b>					
	2005	2005	2	TRB 01/01/18	Conference rooms and offices have 2x4 suspended acoustic tile ceiling system. Most other areas are to structure with an acoustic metal deck being used. Bathrooms have hard lids.hallways have exposed structure (painted).
<b>D Services</b>			<b>2.7</b>		

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			2.7		
<b>Vertical Transportation</b>					
<b>D1010 Elevators and Lifts</b>					
	2005	2005	2	DCS 01/01/18	One Thyssen-Krupp 4,500 lb 3-stop hydraulic passenger elevator with stainless steel finishes and 50 hp motor. One Thyssen-Krupp 2-stop hydraulic Forensic Lab elevator with 30 hp motor; no issues reported, but increasing maintenance is anticipated as these economy
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					
	2005	2005	2	DCS 01/01/18	Plumbing fixtures are of stainless steel and porcelain materials with chrome trim; some trim, especially lavatory faucets need service or replacement. Economy one-piece shower stalls showing signs of wear with 5 to 10-years remaining life. Hydration stations recently added throughout to replace bottled water dispensers.
<b>D2020 Domestic Water Distribution</b>					
	2005	2005	2	DCS 01/01/18	City water supply at 60 psig with 50 psig to building downstream of RPBP and PRV's with bypass. Copper piping throughout building. Two A.O. Smith 250 mbh, 100 gal standard-efficiency gas-fired DHW heaters with 200-gal storage tank and two recirc pumps in aging but still functional condition.
<b>D2030 Sanitary Waste</b>					
	2005	2005	2	DCS 01/01/18	Cast iron DW&V piping where observed with no issues reported; however while tested water closets (toilets) flush well, many tested urinals drain slowly and some lavatories also drain slowly.
<b>D2040 Rain Water Drainage</b>					
	2005	2005	2	DCS 01/01/18	Membrane low slope roof drain system piped to storm with overflow roof drains piped to cow tongues. Most roof drain/overflow roof drain assemblies need cleaning; at least one under third floor view deck is causing overflow staining of outside wall; some roof drain screens are missing. Opportunity to consider upgrade to rain water harvesting in a future modernization.



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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.7</b>		
<b>Plumbing</b>					
<b>D2090 Other Plumbing Systems</b>					
	2005	2005	2	DCS 01/01/18	Acid waste system for forensic lab sinks; safety shower & eyewash for forensic lab areas. Minor opportunity for compressed air and/or DI water for lab in future. Stainless steel detention fixtures in hold cell area; little used in good condition, but trim needs adjustment (minor issue).
<b>HVAC</b>					
<b>D3010 Energy Supply</b>					
	2005	2005	2	DCS 01/01/18	Natural gas piping in good condition; minor opportunity for gas sub-metering to space heat boilers versus DHW heaters.
<b>D3020 Heat Generating Systems</b>					
	2005	2005	3	DCS 01/01/18	Two Aerco gas-fired 1 mmbtu/hr boilers with dedicated recirc pumps and boiler control panel; two constant speed heating hot water pumps of 10-hp each; with large expansion tank approximately 100-gal. Boilers are aging. Opportunity to add reset and/or variable capacity pumping to hot water heating system.
<b>D3030 Cooling Generating Systems</b>					
	2005	2005	3	DCS 01/01/18	Two Trane RTWA 100-ton chillers. Two BAC VTO-527-KX cooling towers with VFD fans with Armstrong pumps - two 7.5 hp constant volume feeding the cooling towers, and four feeding the chillers (two 15-hp supply on VFD and two 5 hp constant volume return); apparent design issue with CT's too far from chillers leading to failure of pumps to prime. CT heat trace failing. CT chemical pump failing (minor issue, reportedly to be replaced by chemistry service provider).
<b>D3040 HVAC Distribution Systems</b>					
	2005	2005	3	DCS 01/01/18	Five Haakon air handling units providing cooling to the building; units include supply fan, return fan, heating & cooling coils and economizer; AHUs showing signs of age. Underfloor air distribution system throughout most the building with comfort issues in some areas. Twenty-one Cook exhaust fans throughout the building. South atrium is too hot in summer due to high solar gain - exterior shades are needed (see B-

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			2.7		
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>					series).
<b>D3050 Terminal and Package Units</b>	2005	2005	3	DCS 01/01/18	Two Mitsubishi PK12FK ductless split systems aging but functional. Electric wall heaters in vestibules, lobbies, stairwells and/or utility rooms in fair condition.
<b>D3060 Controls and Instrumentation</b>	2005	2005	3	DCS 01/01/18	Alerton controls aging but mostly functional with increasing complaints from occupants - Retro-Cx suggested. CO2 monitoring and/or control at AHU return air plenums.
<b>D3090 Other HVAC Systems and Equipment</b>	2005	2005	3	DCS 01/01/18	Crime lab fume hoods; some with dedicated exhaust, some recirculating; no issues reported, noting exhausts may be through side-walls below operable windows above. Lab has RFAD which does not seem appropriate for lab use. Smoke control systems for atria.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>	2005	2005	2	DCS 01/01/18	8-inch service to 4-inch wet pipe and 3-inch dry-pipe risers with 4-inch FDC; City pressure at 60 psig; no issues reported.
<b>D4030 Fire Protection Specialties</b>	2005	2005	2	DCS 01/01/18	Fire extinguishers in good condition.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	2005	2005	2	DCS 01/01/18	Service 1600A at 480V, underground from a pad-mount utility transformer to the east. Switch-gear and panel-boards are square D, 480/208V transformers are FPE; no issues reported. Large 300 kW transformer at main electrical room with smaller transformers at satellite electrical rooms. Some breakers reportedly not labeled correctly complicating and slowing maintenance and

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			2.7		
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					repairs.
<b>D5020 Lighting and Branch Wiring</b>	2005	2005	3	DCS 01/01/18	Original (2005) fluorescent fixtures are being replaced with LED, but new lighting controls are needed - the original Lutron control system is failing. Original light fixtures are typically T8 fluorescent, with dimming ballasts, in a wide variety of recessed and pendant mounted fixture types. Compact fluorescent is also used extensively in surface drums and lowbay industrial fixtures, but are being upgraded to LED with plug-in replacement lamps. Occupancy sensors and photo-cell dimming are widely installed, but marginally operable.
<b>D5032 Low Voltage Communication</b>	2005	2005	3	DCS 01/01/18	PA system recently expanded with speakers in all spaces. Battery operated wall clocks in many spaces. Variety of radio systems for police operations. Place of refuge communications system. Avaya phone system. A/V for conference and training rooms. CATV to some areas.
<b>D5037 Low Voltage Fire Alarm</b>	2005	2005	3	DCS 01/01/18	Notifier addressable fire alarm. Beam detection at atria.
<b>D5038 Low Voltage Security</b>	2005	2005	3	DCS 01/01/18	Extensive CCTV, extensive security with card readers and some bio-readers. Entry control and other special communication systems. Detainee medium security electronic door system. All aging but functional and reportedly adequate for need; opportunity to integrate into a master upgrade plan. Duress system for interview rooms.
<b>D5039 Low Voltage Data</b>	2005	2005	3	DCS 01/01/18	Typical rack mounted voice/data cabling and equipment. Rats are damaging cable plant (chewing wiring) in RFAD plenum; alternately run wiring in conduit. Recently installed WAPs throughout.

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.7</b>		
<b>Electrical</b>					
<b>D5039 Low Voltage Data</b>					
<b>D5090 Other Electrical Systems</b>					
	2005	2005	2	DCS 01/01/18	SDMO 500 KW diesel genset with approximately 200-gal base day-tank and remote approximately 2,000 gal outside double-contained above grade fuel oil storage tank. Four ASCO transfer switches, with load shed. Emergency lighting throughout including egress lighting and exit signs. Powerware UPS in generator room backing the computer panels.
<b>E Equipment and Furnishings</b>			<b>2.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>					
	2005	2005	2	DCS 01/22/18	Residential appliances at kitchenettes and laundry with no issues reported.
<b>E1020 Institutional Equipment</b>					
	2005	2005	2	DCS 01/22/18	Crime lab, evidence storage, and other specialized equipment.
<b>E1030 Vehicular Equipment</b>					
	2005	2005	3	DCS 01/22/18	Motorized gates with card-key access to secure parking area behind building - no issues reported.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>					
	2005	2005	2	DCS 01/01/18	Casework is modern plastic laminate type casework. The locker room has metal lockers and built in wood benches. Some wear & tear. Motorized window shades; motorized partitions; motorized meeting room screens; all in good condition with no issues reported. Powered trash compactor in service yard operable, but rusted and corroding.
<b>F Special Construction</b>			<b>2.0</b>		

# Facility Summary

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Police Headquarters

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
F Special Construction			2.0		
Special Construction					
F1050	Special Controls and Instrumentation		2005 2005 2	DCS 01/01/18	Radio communications.

# Facility Summary

City of Tacoma  
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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	2005	2005	2	TRB 01/01/18	Asphalt surface with concrete curbs.
<b>G2020 Parking Lots</b>	2005	2005	2	TRB 01/01/18	Asphalt surface with concrete curbs.
<b>G2030 Pedestrian Paving</b>	2005	2005	2	TRB 01/01/18	Concrete walks and plaza areas.
<b>G2040 Site Development</b>	2005	2005	2	TRB 01/01/18	Metal fencing and gates, CMU walls; concrete seat walls; CMU planter walls with concrete seat tops.
<b>G2050 Landscaping</b>	2005	2005	2	TRB 01/01/18	Ground cover, shrubs and trees. CMU raised planter boxes
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	2005	2005	2	DCS 01/01/18	City water at 60 psig via approximately 2.5-inch meter with no issues reported.
<b>G3020 Sanitary Sewer</b>	2005	2005	2	DCS 01/01/18	City sewer; no issues reported.
<b>G3030 Storm Sewer</b>	2005	2005	2	DCS 01/01/18	Oil/water separator(s); on-site storm water treatment system in vaults with effluent assumed to City storm; no issues reported or observed with no standing water in parking lot or roadways. However planter boxes at front do not appear to have proper drainage.
<b>G3050 Cooling Distribution</b>	2005	2005	2	DCS 01/22/18	Condenser water piping underground from mechanical room to & from cooling towers in equipment yard at east parking lot.
<b>G3060 Fuel Distribution</b>					

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Civil / Mechanical Utilities</b>					
<b>G3060 Fuel Distribution</b>	2005	2005	2	DCS 01/01/18	Natural gas from Puget Sound Energy (PSE) Meter No. 1325014 with 3,000 cfh (3 mmbtuh) capacity. Diesel fuel oil storage tank in service yard for standby diesel generator in main electrical room in fair condition; consider pressure-washing and sealing concrete to extend life.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	2005	2005	2	DCS 01/01/18	Tacoma Power 1,000 KVA utility transformer (pad-mount) in enclosure in east parking lot; no issues reported.
<b>G4020 Site Lighting</b>	2005	2015	2	DCS 01/01/18	Vertical poles on exterior patios, pole lights recently upgraded to LED lamps, wall sconces on exterior walls. Uplights at landscape area. Several dozen lights on during daylight hours with reportedly control system issues.
<b>G4030 Site Communications and Security</b>	2005	2005	2	DCS 01/01/18	Comm & data from service providers with no issues reported; CCTV at corners of building monitoring site - aging but functional with no issues reported.

## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Police Headquarters

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Infrastructure	Site Improvements	\$14,100	\$3,525	\$3,525	\$11,633	\$32,783
	Site Civil / Mechanical Utilities	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	<b>Facility Total</b>	<b>\$24,100</b>	<b>\$6,025</b>	<b>\$6,025</b>	<b>\$19,883</b>	<b>\$56,033</b>
Police Headquarters Building	Foundations	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	Interior Finishes	\$11,250	\$2,813	\$2,813	\$9,281	\$26,156
	Plumbing	\$25,000	\$6,250	\$6,250	\$20,625	\$58,125
	HVAC	\$157,000	\$39,250	\$39,250	\$129,525	\$365,024
	Electrical	\$151,000	\$37,750	\$37,750	\$124,575	\$351,075
	<b>Facility Total</b>	<b>\$354,250</b>	<b>\$88,562</b>	<b>\$88,562</b>	<b>\$292,256</b>	<b>\$823,630</b>
	<b>Site Total</b>	<b>\$378,350</b>	<b>\$94,587</b>	<b>\$94,587</b>	<b>\$312,138</b>	<b>\$879,663</b>





# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Headquarters

Total Observed Deficiency Repair Direct Cost : \$378,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Infrastructure</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>						<b>\$14,100</b>
<b>System: Site Improvements</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>						<b>\$32,783</b>
<b>Pedestrian Paving</b>										
Concrete	3	5	2018		175	\$12.00	SF	\$2,100	\$4,883	

Sections of concrete walk along southeast entrance drive are broken with minor tripping hazards.

Remove and replace sections of concrete sidewalks.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Headquarters

Total Observed Deficiency Repair Direct Cost : \$378,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility:	Infrastructure			Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$14,100
System:	Site Improvements								Total System Deficiency Repair Cost (Marked Up):
<b>Landscaping</b>									
Planters	4	3	2018		12	\$1,000.00	EA	\$12,000	\$27,900

Planters appear to not have internal liners or drainage.

Investigate and install or correct liners and drainage.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Headquarters

Total Observed Deficiency Repair Direct Cost : \$378,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$10,000</b>	
<b>System: Site Civil / Mechanical Utilities</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$23,250</b>	
<b>Storm Sewer</b>										
Storm Drain	4	3	2018		10	\$1,000.00	LS	\$10,000	\$23,250	

Planter boxes appear to flood during heavy rain; CMU is deteriorating.

Service or install proper planter box drainage; pressure-wash CMU.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Headquarters

Total Observed Deficiency Repair Direct Cost : \$378,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Police Headquarters Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$10,000</b>
<b>System: Foundations</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$23,250</b>
<b>Slab On Grade</b>									
Concrete Slab	4	4	2018		1	\$10,000.00	LS	\$10,000	\$23,250

Detention area slabs and foundation settlement is creating stress fractures in the detention area slab and CMU walls.

Investigate cause of settlement and repair (possible pressure grouting or injecting structural foam). Epoxy fill cracks to patch and seal, and refinish surfaces. Continue observing to verify settlement has stopped and systems have been stabilized.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Police Headquarters

Total Observed Deficiency Repair Direct Cost : \$378,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Police Headquarters Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$11,250
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$26,156
<b>Wall Finishes</b>									
Paint	3	3	2018		3,000	\$3.00	SF	\$9,000	\$20,925

Paint in community, conference, and "public" areas starting to wear.

Clean patch and paint walls where worn



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Headquarters

Total Observed Deficiency Repair Direct Cost : \$378,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Police Headquarters Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$11,250</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$26,156</b>
<b>Floor Finishes</b>									
Carpeting	3	4	2018		300	\$7.50	EA	\$2,250	\$5,231

Miscellaneous stains and wear on carpet.

Replace stained carpet tiles (where stains not cleanable).



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Headquarters

Total Observed Deficiency Repair Direct Cost : \$378,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Police Headquarters Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$25,000</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$58,125</b>
<b>Plumbing Fixtures</b>									
Fixture trim	4	2	2018		20	\$500.00	EA	\$10,000	\$23,250

Lavatory trim (faucets) are increasingly difficult to operate.

Fully service or replace lavatory faucets.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Headquarters

Total Observed Deficiency Repair Direct Cost : \$378,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Police Headquarters Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$25,000</b>	
<b>System: Plumbing</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$58,125</b>	
<b>Domestic Water Distribution</b>										
Domestic Hot Water Heaters	4	5	2018		2	\$5,000.00	EA	\$10,000	\$23,250	

Original DHW heaters approaching end of life.

Schedule replacement upon failure.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Headquarters

Total Observed Deficiency Repair Direct Cost : \$378,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Police Headquarters Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$25,000</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$58,125</b>
<b>Sanitary Waste</b>									
Cast Iron DW&V	4	5	2018		10	\$500.00	EA	\$5,000	\$11,625

Many tested urinals drain slowly suggesting salt build-up in waste lines.

Clean waste lines and evaluate flushing water flow to clear salts from urinal waste piping.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Headquarters

Total Observed Deficiency Repair Direct Cost : \$378,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Police Headquarters Building</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>						<b>\$157,000</b>
<b>System: HVAC</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>						<b>\$365,025</b>
<b>Cooling Generating Systems</b>										
Cooling Systems	4	2	2018		2	\$5,000.00	EA	\$10,000	\$23,250	

Cooling water pumps fail to prime apparently due to long run of piping from CT to condenser water pump.

Reconfigure condenser water system to ensure pumps prime quickly.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Headquarters

Total Observed Deficiency Repair Direct Cost : \$378,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				<b>Action</b>						
<b>Deficiency</b>										
Facility: Police Headquarters Building									Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$157,000	
System: HVAC									Total System Deficiency Repair Cost (Marked Up): \$365,025	
<b>Cooling Generating Systems</b>										
Cooling towers	4	5	2018		2	\$3,000.00		\$6,000	\$13,950	
Cooling towers beginning to approach end of life.				Refurbish cooling towers to extend life.						



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Headquarters

Total Observed Deficiency Repair Direct Cost : \$378,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Police Headquarters Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):						\$157,000
System: HVAC				Total System Deficiency Repair Cost (Marked Up):						\$365,025
<b>HVAC Distribution Systems</b>										
AHUs	4	5	2018		5	\$5,000.00	EA	\$25,000	\$58,125	

AHUs are aging with increasing noise & vibration; main atrium AHU is failed with missing parts.

Repair atrium AHU and refurbish all AHUs to extend life prior to failure.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Headquarters

Total Observed Deficiency Repair Direct Cost : \$378,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Police Headquarters Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$157,000</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$365,025</b>
<b>HVAC Distribution Systems</b>									
HVAC distribution	4	3	2018		73,000	\$0.50	SF	\$36,500	\$84,863

Unclear underfloor air distribution performance in some areas.

Clean, test, adjust and modify as necessary the underfloor air distribution (UFAD) system.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Headquarters

Total Observed Deficiency Repair Direct Cost : \$378,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Police Headquarters Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$157,000</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$365,025</b>
<b>HVAC Distribution Systems</b>									
Hydronic distribution piping	4	2	2018		73,000	\$0.50	SF	\$36,500	\$84,863

Heating hot water piping and control valves deteriorating and leaking; requires heating water system be run year-round.

Refurbish heating hot water distribution system, especially control valve assemblies.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Headquarters

Total Observed Deficiency Repair Direct Cost : \$378,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Police Headquarters Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$157,000
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$365,025
<b>Terminal and Package Units</b>									
A/C	4	5	2018		2	\$3,000.00	EA	\$6,000	\$13,950
Aging ductless split A/C systems.				Budget for replacement upon failure.					





# Detailed Assessment - Observed Deficiencies 2018 - 2023

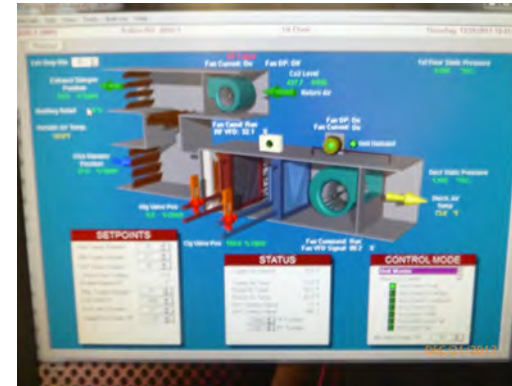
City of Tacoma  
Site: Police Headquarters

Total Observed Deficiency Repair Direct Cost : \$378,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Police Headquarters Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$157,000</b>	
<b>System: HVAC</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$365,025</b>	
<b>Controls and Instrumentation</b>										
Controls	4	2	2018		73,999	\$0.50	SF	\$37,000	\$86,024	

Increasing occupant thermal comfort complaints.

Conduct Retro-Commissioning to determine what is working, not working and where performance can be improved at low or no cost. Includes TAB check.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Headquarters

Total Observed Deficiency Repair Direct Cost : \$378,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Police Headquarters Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$151,000</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$351,075</b>
<b>Lighting and Branch Wiring</b>									
Lighting Controls	4	3	2018		73,000	\$2.00	SF	\$146,000	\$339,450

Lighting controls are obsolete and failing throughout.

Upgrade to DDC-based controls.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Headquarters

Total Observed Deficiency Repair Direct Cost : \$378,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Police Headquarters Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$151,000</b>	
<b>System: Electrical</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$351,075</b>	
<b>Other Electrical Systems</b>										
Emergency lighting UPS	4	1	2018		1	\$5,000.00	LF	\$5,000	\$11,625	
UPS batteries nearly at end of life.				Replace in 2018 per maintenance schedule.						



## Opportunity Summary By Subsystem

City of Tacoma

Site: Police Headquarters

Total Site Opportunity Cost: \$704,000

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Police Headquarters Building</b> <b>System: Exterior Closure</b> <span style="float: right;"><b>Total Cost: \$60,000</b></span>						
B2010	Exterior Walls	Water repellant coat exterior masonry after cleaning	30,000.00	\$2.00	SF	\$60,000
<b>Facility: Police Headquarters Building</b> <b>System: Roofing</b> <span style="float: right;"><b>Total Cost: \$100,000</b></span>						
B3030	Projections	South face atrium gets very hot in the summer (especially on floor 3), with many comfort complaints) with unshaded 2 story curtain wall and direct solar heat gain	1.00	\$100,000.00	EA	\$100,000
<b>Facility: Police Headquarters Building</b> <b>System: Vertical Transportation</b> <span style="float: right;"><b>Total Cost: \$15,000</b></span>						
D1010	Elevators and Lifts	No direct access to high roof for maintenance of outside rooftop air handling units.	1.00	\$15,000.00	LS	\$15,000
<b>Facility: Police Headquarters Building</b> <b>System: Plumbing</b> <span style="float: right;"><b>Total Cost: \$15,000</b></span>						
D2020	Domestic Water Distribution	Standard efficiency DHW heaters approaching end of life.	2.00	\$7,500.00	EA	\$15,000
<b>Facility: Police Headquarters Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$10,000</b></span>						
D3020	Heat Generating Systems	Constant volume heating hot water pumping.	2.00	\$5,000.00	EA	\$10,000
<b>Facility: Police Headquarters Building</b> <b>System: Fire Protection</b> <span style="float: right;"><b>Total Cost: \$10,000</b></span>						
D4020	Stand-Pipe and Hose Systems	No hose cabinet.	2.00	\$5,000.00	EA	\$10,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Police Headquarters

Total Site Opportunity Cost: \$704,000

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
Facility: Police Headquarters Building						
System: Electrical	Total Cost: \$494,000					
D5010	Electrical Service and Distribution					
	Large south-facing window wall need shading and City has a renewable energy policy.	Install building integrated photovoltaic (BIPV) power in the form of solar panel shades at the south atrium south window wall.	200.00	\$500.00	LF	\$100,000
D5020	Lighting and Branch Wiring					
	Increasingly obsolete original fluorescent lighting.	Upgrade to LED; some areas already upgraded; but most remains to be upgraded.	73,000.00	\$3.00	SF	\$219,000
D5032	Low Voltage Communication					
	Many battery operated clocks.	Powered and synchronized clock system.	1.00	\$25,000.00	LS	\$25,000
D5038	Low Voltage Security					
	Current stand-alone security systems.	Integrated security system.	1.00	\$150,000.00		\$150,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Introduction

# Thermal Trend - Lean DB Report

## The Colbert Advantage - Exceptional Execution

### *30 years of exceeding your expectations!*

Colbert Infrared has been providing complete corporate solutions for Infrared Predictive Maintenance Programs, addressing the needs for professional Risk Assessment / Loss Prevention for more than 30 years. From Infrared inspections, Training and Certification, Infrared Camera Sales and installations, or helping you to setup and establish your own Predictive Maintenance programs, we have been right by your side.

We are your global partner for keeping your systems up and running, safely and efficiently. We service national and international companies all over the world, whether they have a single site, or thousands of locations. Our focus has always been on providing the highest quality solutions, with our emphasis on the standardization of services, and highly valuable information. When it comes to the philosophy of our services, we believe that "quality can never be compromised at any price".

Colbert Infrared Services, Inc. pioneered and developed the philosophy of **LEAN IR PREDICTIVE MAINTENANCE** and **LEAN IR Programs** to provide our clients with unsurpassed diagnostic services. This is based on our success with the design and use of the **Thermal Trend - Lean DB** database system. Colbert Infrared Services introduced the Thermal Trend - Lean RDBMS to the predictive maintenance community over 25 years ago to address the concerns of risk managers and maintenance staff - consistency of inspection quality and reporting / problem management. Today this "**Colbert Advantage**" has allowed us to be recognized as being the premier IR consulting company world wide, as well as the most influential in the industry.

The Thermal Trend - Lean report that you have in front of you, and the data collection methods that Colbert Infrared has used to gather and analyze your data is the result of over 25 years of development. The following discussions in this Intent section will provide you with an overall understanding of the testing methods that we have developed. Today the principles that Colbert Infrared has developed, are the most studied and followed testing methods in the world! Colbert Infrared Services, Inc. is at the heart of the world's largest in-house Infrared PdM programs. (Boeing, Ford, Harley-Davidson). We are very proud of the leadership position that we have in our industry and take that responsibility very seriously. We have always been committed to providing the most superior quality services with the highest value possible. Our focus has always been in exceptional execution at exceeding your expectations.

The Colbert Infrared Advantage

*We want your business, and we've been working hard for 30 years to earn it!*

### **Fred Colbert**

Fred Colbert  
President CIS, Inc.  
Certified Level III Infrared Thermographer and Instructor



## Introduction

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The Colbert Advantage - Exceptional Execution

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Data Explanation

Item Severity Criteria

Technical Outline

Our Approach to Thermography

Testing Methodology

Standards and Regulations covering the conduction of Infrared electro-mechanical inspections

**\*Please Note:** Depending on the type of inspection, and the items that were documented, will determine the specific sections that are included in this report. For example: if no Thermal Items / anomalies were found at the time of the inspection, then there will not be a Prioritized List by Temperature Rise, or a Thermal Item Details section. This also holds true depending on what the scope of work was to be, for example if this inspection was to cover only a thermographic inspection of electrical-mechanical equipment, then there will not be sections covering Ultrasonic or Ultraviolet inspection results. For this reason, the specific report sections and the Table of Contents when compared to each other may seem incomplete, but it is only because of the scope of work and the actual data that was documented at the time of the inspection that defines how much of the inspection results sections are included in this report.



Infrared Thermographic Inspection  
 Of  
 Selected Electro-Mechanical Equipment

Provided For  
 Tacoma Police Headquarters  
 01/18/2018

**Summary:**

An Infrared Electrical / Mechanical inspection was performed on 01/18/2018 for Tacoma Police Headquarters

All of the items inspected are listed in the inventory section of this Thermal Trend report. Any anomalies that were found at the time of the inspection (if any) are documented in the Problem Detail section of this report with their appropriate associated data, i.e. Thermograms, Photos, comments, measurements, etc.. They are also listed in the Prioritized list of problems section, in their order of priority based on the components temperature rise, as compared to a similar reference component of equal type, loading, and environmental influences, at the time of the inspection.

The final decision as to the repair priority of any and all problems in this report rests on the owners, management, and/or facilities engineering teams. Colbert Infrared Services, Inc. and the IR Thermographer assumes no liability directly or indirectly as a result of this inspection or the decisions made as to establishing the priority and timeline of repair decisions made by the owners, management, and/or facilities engineering teams. This inspection is not a guarantee or warranty of any kind.

**Executive Overview - for Thermal Items:**

Total number of locations in the database:	26
Total number of pieces of equipment in the database:	86
Total number of Items (open and closed covering all inspections) in the database	
Acute Items:	7
Chronic Items:	0
<b>Overall total of all acute and chronic:</b>	<b>7</b>
Current status of Items, acute and chronic	
Total closed Items (covering all inspections):	1
<b>Current total open Items (tested or not tested at the time of this inspection):</b>	<b>6</b>

I hereby certify that the above project was inspected by myself or under my direction and that the enclosed data is the direct result of this inspection.

**Fred Colbert**

President CIS, Inc.

Certified Level III Infrared Thermographer / Instructor: The Professional Thermographers Association





## Historical Test Status Reconciliation of Locations and Equipment, Thermal and Visual Items

Site: Tacoma Police Headquarters	Insp. #2 01/18/2018	Insp. #1 06/22/2009
Locations: Tested	24	24
Locations: Not-tested	2	2
Equipment: Tested	63	83
Equipment: Not-tested	23	3
Total No. of open Thermal and Visual items (tested or not)	9	1
Total No. of documented Thermal and Visual items this insp.	9	1
Total No. of open Thermal and Visual items	1	9
No. of Thermal items that were closed	0	1

### Data Explanation

#### Locations and Equipment:

Locations refer to places in a route where equipment is located. For example: a Building, Floor, Room, Substation or Area can all be considered locations. The same can be said for a large Switchboards, Motor Control Centers, Distribution Panel, etc.. In each of the examples they would be considered the path to, or the location of where equipment is grouped based on its geographical location.

#### Tested and Not-Tested:

Refers to if the equipment/location, where the equipment is located, was inspected using Infrared Thermography / Visual inspection testing procedures at the time of the inspection. If the equipment was tested, it should not be considered a pass/fail test, but that the equipment was merely "Tested" versus "Not-Tested" at the time of the inspection. There are many factors that can contribute to the conditions under which the equipment can be tested (load, environment, length of time running) that must be taken into consideration, as well as many reasons as to why the equipment was not able to be tested (under repair, not in service, no load).

#### Open and Closed Items:

Refers to the Item status, as in if it has been resolved or not (fixed/repaired and re-inspected to determine that the validity of the repair action).



### Thermal Item List - Prioritized by Temperature Rise

Site: Tacoma Police Headquarters

Inspection # 2

Start Date:

Site: Tacoma Police Headquarters Insp. No. 2 Start Date:

Thermal Item # 4 At: Jan 18 2018 11:38AM

Indirect Measurement: No      Severity: 1      Repair Status:      Problem Status: OPEN 

Route: Roof \ AHU 5

**Location/Equipment: AHU 5 Supply**

Barcode: 107AMB Asset ID:

Voltage: Rated Load: 50 Wind Speed: Ambient:125.0

IR/Image GUID File : df4b00b1-fc7d-4bba-875f-cec82ed26514.idn

	Temp	Phase	Load	% of
<b>Component:</b>	225.0	C Phase	27Amps	@54.0%
<b>Reference:</b>	100.0	A Phase	27Amps	@54.0%
<b>Delta T:</b>	125.0			@54.0%

Comment: C Phase Line Side Wire and Wire Lug Connection on Contactor M2, compromised Internal Contacts

Site: Tacoma Police Headquarters Insp. No. 2 Start Date:

Thermal Item # 2 At: Jan 18 2018 10:57AM

Indirect Measurement: No      Severity: 4      Repair Status:      Problem Status: OPEN 

Route: 3 Floor \ Electrical 364

**Location/Equipment: Panel LS3**

Barcode: 107AMK Asset ID:

Voltage: Rated Load: 40 Wind Speed: Ambient:73.0

IR/Image GUID File : da55c40f-227a-4909-8f14-266cfbd7c054.idn

	Temp	Phase	Load	% of
<b>Component:</b>	110.0	A Phase	16Amps	@40.0%
<b>Reference:</b>	95.0		16Amps	@40.0%
<b>Delta T:</b>	15.0			@40.0%

Comment: A Phase (bottom) Line Side Bolt to Bus Connection on 3-Pole Breaker #20,22,24

Site: Tacoma Police Headquarters Insp. No. 2 Start Date:

Thermal Item # 1 At: Jan 18 2018 9:09AM

Indirect Measurement: No      Severity: 4      Repair Status:      Problem Status: OPEN 

Route: 1 Floor \ Electrical Room

**Location/Equipment: 112.5 KVA XFMR**

Barcode: 107ANR Asset ID:

Voltage: Rated Load: Wind Speed: Ambient:60.0

IR/Image GUID File : 12884e43-636a-406a-84c5-5bc083a3e9aa.idn

	Temp	Phase	Load	% of
<b>Component:</b>	80.0	B Phase		@N/A
<b>Reference:</b>	70.0			@N/A
<b>Delta T:</b>	10.0			@N/A

Comment: Lower B Phase Tap Connection to Coil.

Site: Tacoma Police Headquarters Insp. No. 2 Start Date:

Thermal Item # 3 At: Jan 18 2018 11:00AM

Indirect Measurement: No      Severity:      Repair Status:      Problem Status: OPEN 

Route: 3 Floor \ Electrical 364

**Location/Equipment: Panel LS3**

Barcode: 107AMK Asset ID:

Voltage: Rated Load: 80 Wind Speed: Ambient:74.0

IR/Image GUID File : 55475964-7631-4f44-93d7-15a71633755e.idn

	Temp	Phase	Load	% of
<b>Component:</b>	110.0	N/A	20Amps	@25.0%
<b>Reference:</b>		N/A		@N/A
<b>Delta T:</b>	NaN			@25.0%

Comment: Internal Heating of 3-Pole Breaker #26,28,30



### Thermal Item List - Prioritized by Temperature Rise

**Site:** Tacoma Police Headquarters

**Inspection #** 2

**Start Date:**

Site: Tacoma Police Headquarters Insp. No. 2 Start Date:

**Thermal Item # 5** At: Jan 18 2018 1:58PM

<b>Indirect Measurement:</b> No	<b>Severity:</b>	<b>Repair Status:</b>	<b>Problem Status:</b> OPEN 
---------------------------------	------------------	-----------------------	-----------------------------------------------------------------------------------------------------------------

Route: 1 Floor \ Storage 1211 \ Mechanical Room \ AHU 1

**Location/Equipment:** Control Panel: Return

Barcode: 10AHQ4 Asset ID:

Voltage: Rated Load: 10 Wind Speed: Ambient:70.0

IR/Image GUID File : 044a8cbc-ca6f-483c-a7f9-678839c276fe.idn

	Temp	Phase	Load	% of
<b>Component:</b>	192.0	N/A	1.7Amps	@17.0%
<b>Reference:</b>		_N/A		@N/A
<b>Delta T:</b>	<b>NaN</b>			@17.0%

Comment: Internal Contacts on Contactor M2, Discoloration (heat damage) present

Site: Tacoma Police Headquarters Insp. No. 2 Start Date:

**Thermal Item # 6** At: Jan 18 2018 1:58PM

<b>Indirect Measurement:</b> No	<b>Severity:</b>	<b>Repair Status:</b>	<b>Problem Status:</b> OPEN 
---------------------------------	------------------	-----------------------	-----------------------------------------------------------------------------------------------------------------

Route: 1 Floor \ Storage 1211 \ Mechanical Room \ AHU 1

**Location/Equipment:** Control Panel: Supply

Barcode: 10AHQ3 Asset ID:

Voltage: Rated Load: 20 Wind Speed: Ambient:70.0

IR/Image GUID File : e077a56b-711a-434f-9cc8-7bb5a3340951.idn

	Temp	Phase	Load	% of
<b>Component:</b>	195.0		7Amps	@35.0%
<b>Reference:</b>		-		@N/A
<b>Delta T:</b>	<b>NaN</b>			@35.0%

Comment: Internal Contacts on Contactor M2, Discoloration (heat damage) present



### Thermal Items: Detail Report

 Site: Tacoma Police Headquarters    Insp. No. 2    Start Date: 01/18/2018    **Thermal Item # 1**    At: 01/18/2018 09:09

 Indirect Measurement: No    Severity: 4    Repair Status:    Problem Status: **OPEN** 

Route: 1 Floor \ Electrical Room

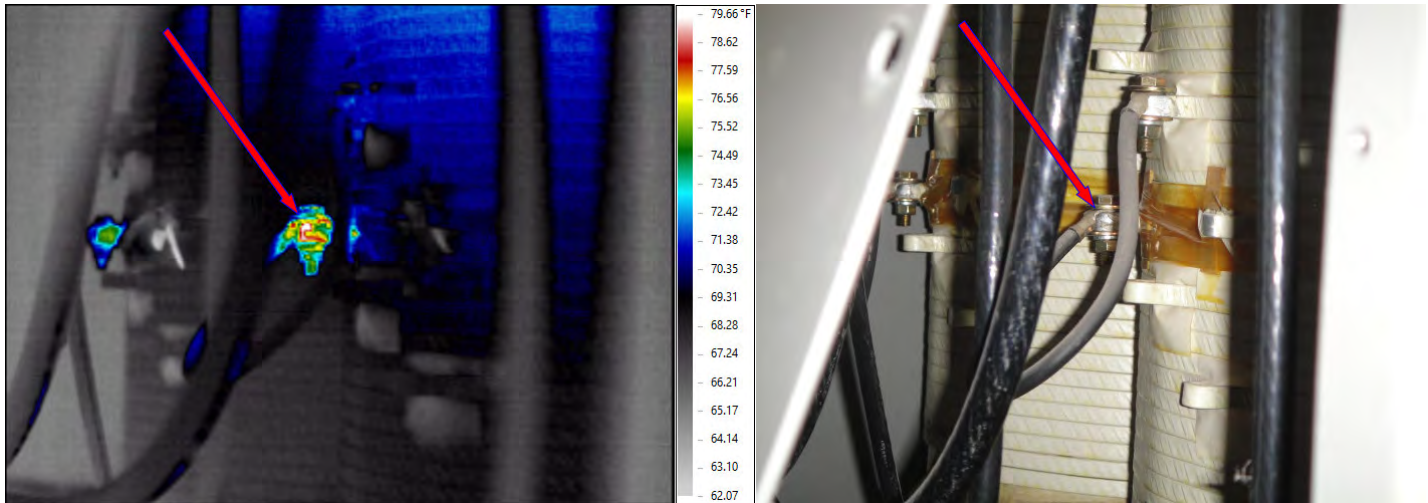
**Location/Equipment: 112.5 KVA XFMR**

Barcode: 107ANR Asset ID:

Voltage: Rated Load: Wind Speed: Ambient:60.0

IR/Image GUID File : 12884e43-636a-406a-84c5-5bc083a3e9aa.idn

	Temp	Phase	Load	% of
<b>Component:</b>	80.0	B Phase		@N/A
<b>Reference:</b>	70.0			@N/A
<b>Delta T:</b>	10.0			@N/A

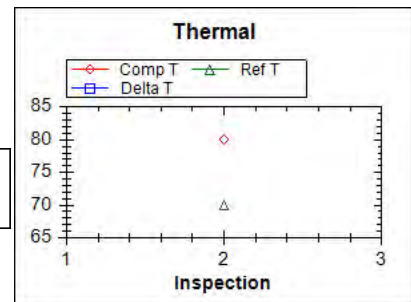

**Comment:**    **Lower B Phase Tap Connection to Coil.**

Probable Cause:    Loose or corroded connection

Recommendation:    Disassemble, Clean and retighten or replace if necessary

#### Historical Sub Report

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	1	01/18/2018	80.0	70.0	10.0	4		N/A		60.0



Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			

### Thermal Items: Detail Report

 Site: Tacoma Police Headquarters Insp. No. 2 Start Date: 01/18/2018 **Thermal Item # 2** At: 01/18/2018 10:57

 Indirect Measurement: No Severity: 4 Repair Status: Problem Status: **OPEN** 

Route: 3 Floor \ Electrical 364

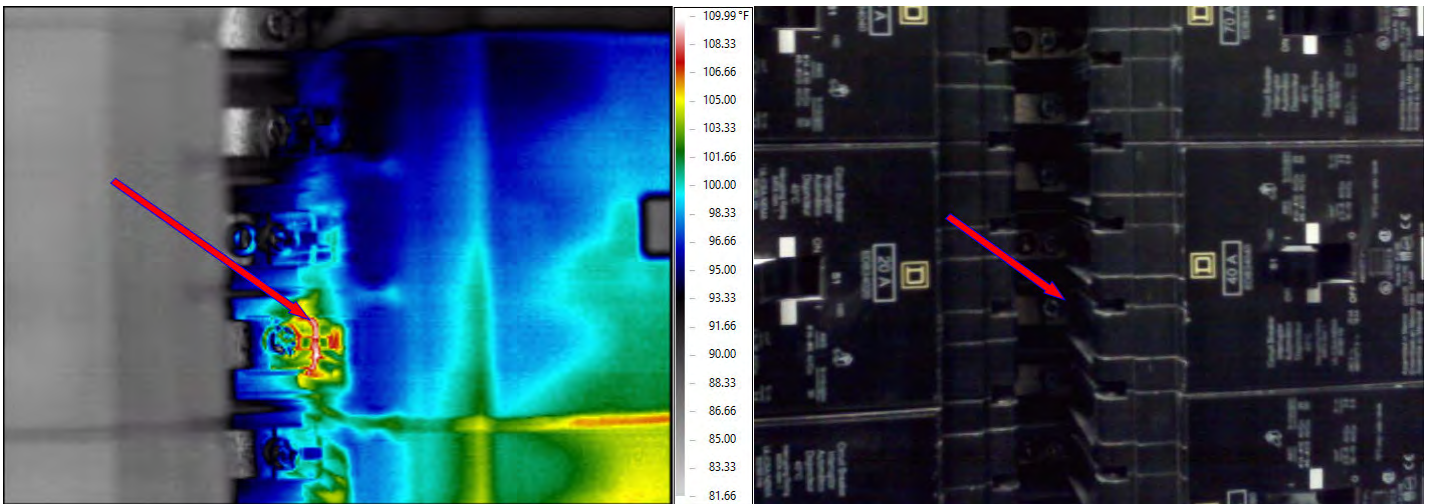
**Location/Equipment: Panel LS3**

Barcode: 107AMK Asset ID:

Voltage: Rated Load: 40 Wind Speed: Ambient:73.0

IR/Image GUID File : da55c40f-227a-4909-8f14-266cfbd7c054.idn

	Temp	Phase	Load	% of
<b>Component:</b>	110.0	A Phase	16Amps	@40.0%
<b>Reference:</b>	95.0		16Amps	@40.0%
<b>Delta T:</b>	15.0			@40.0%

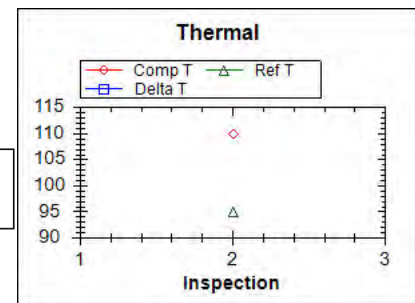

**Comment:** A Phase (bottom) Line Side Bolt to Bus Connection on 3-Pole Breaker #20,22,24

Probable Cause: Loose or corroded connection

Recommendation: Disassemble,Clean and retighten or replace if necessary

#### Historical Sub Report

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	2	01/18/2018	110.0	95.0	15.0	4	16	40.0%		73.0



Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			





### Thermal Items: Detail Report

Site: Tacoma Police Headquarters Insp. No. 2 Start Date: 01/18/2018 Thermal Item # 3 At: 01/18/2018 11:00

Indirect Measurement: No Severity: Repair Status: Problem Status: **OPEN**

Route: 3 Floor \ Electrical 364

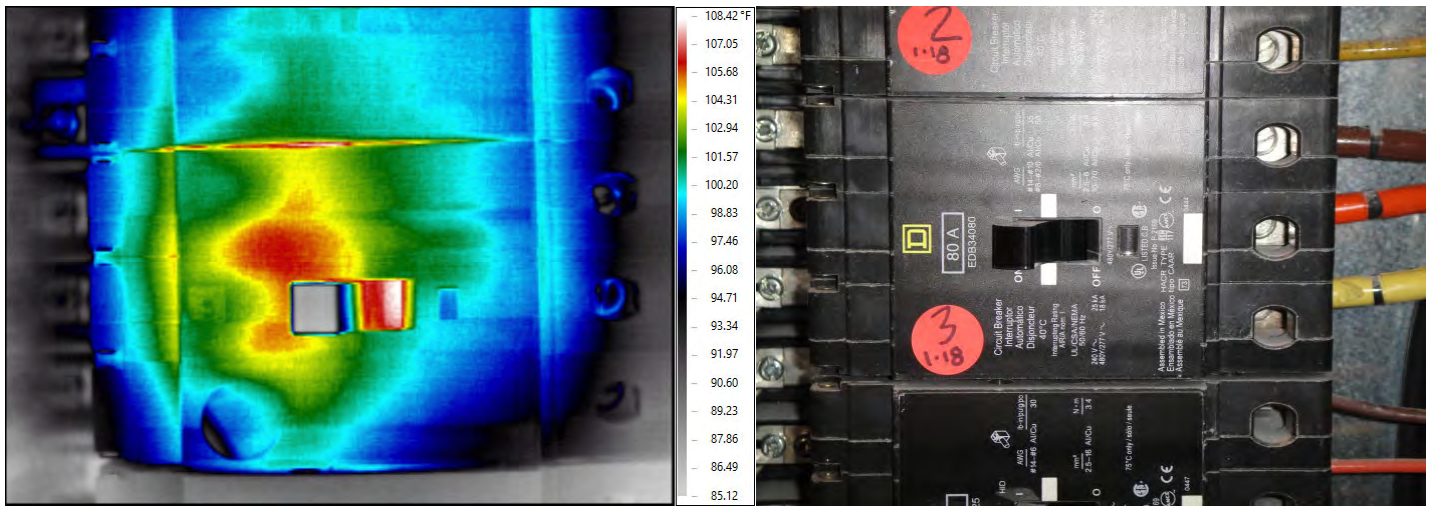
Location/Equipment: Panel LS3

Barcode: 107AMK Asset ID:

Voltage: Rated Load: 80 Wind Speed: Ambient:74.0

IR/Image GUID File : 55475964-7631-4f44-93d7-15a71633755e.idn

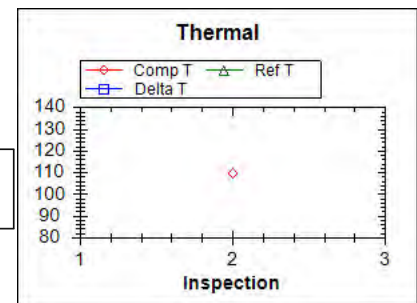
	Temp	Phase	Load	% of
Component:	110.0	N/A	20Amps	@25.0%
Reference:		N/A		@N/A
Delta T:	NaN			@25.0%



**Comment:** Internal Heating of 3-Pole Breaker #26,28,30  
**Probable Cause:** Loose or corroded connection  
**Recommendation:** Disassemble,Clean and retighten or replace if necessary

#### Historical Sub Report

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	3	01/18/2018	110.0				20	25.0%		74.0



Problem Status:  Not repaired  Repair made, but needs IR recheck  Closed

Repair assigned to: \_\_\_\_\_ Repair target date: \_\_\_\_\_

Repair assigned by: \_\_\_\_\_ Date: \_\_\_\_\_

Repaired by: \_\_\_\_\_ Date: \_\_\_\_\_

Type of defect found: \_\_\_\_\_

Corrective action taken: \_\_\_\_\_

### Thermal Items: Detail Report

Site: Tacoma Police Headquarters Insp. No. 2 Start Date: 01/18/2018 Thermal Item # 4 At: 01/18/2018 11:38

 Indirect Measurement: No Severity: 1 Repair Status: Problem Status: **OPEN**

Route: Roof \ AHU 5

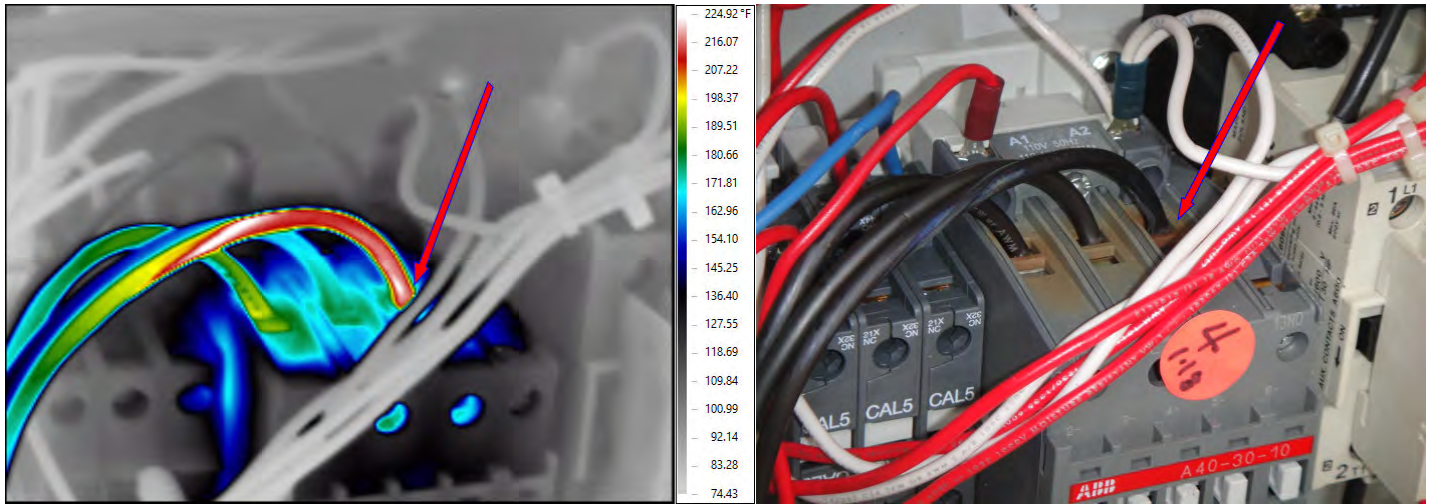
**Location/Equipment: AHU 5 Supply**

Barcode: 107AMB Asset ID:

Voltage: Rated Load: 50 Wind Speed: Ambient: 125.0

IR/Image GUID File : df4b00b1-fc7d-4bba-875f-cec82ed26514.idn

	Temp	Phase	Load	% of
<b>Component:</b>	225.0	C Phase	27Amps	@54.0%
<b>Reference:</b>	100.0	A Phase	27Amps	@54.0%
<b>Delta T:</b>	<b>125.0</b>			@54.0%



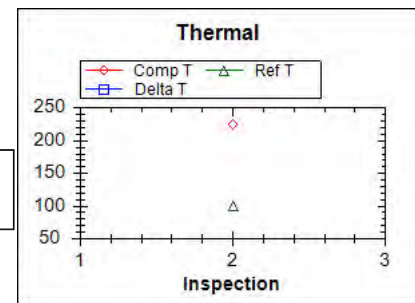
**Comment:** C Phase Line Side Wire and Wire Lug Connection on Contactor M2, compromised Internal Contacts

Probable Cause: loose or corroded connection.

Recommendation: Replace Line Side Wires and contactor

#### Historical Sub Report

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	4	01/18/2018	225.0	100.0	125.0	1	27	54.0%		125.0



Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			

### Thermal Items: Detail Report

 Site: Tacoma Police Headquarters Insp. No. 2 Start Date: 01/18/2018 **Thermal Item # 5** At: 01/18/2018 13:58

 Indirect Measurement: No Severity: Repair Status: Problem Status: **OPEN** 

Route: 1 Floor \ Storage 1211 \ Mechanical Room \ AHU 1

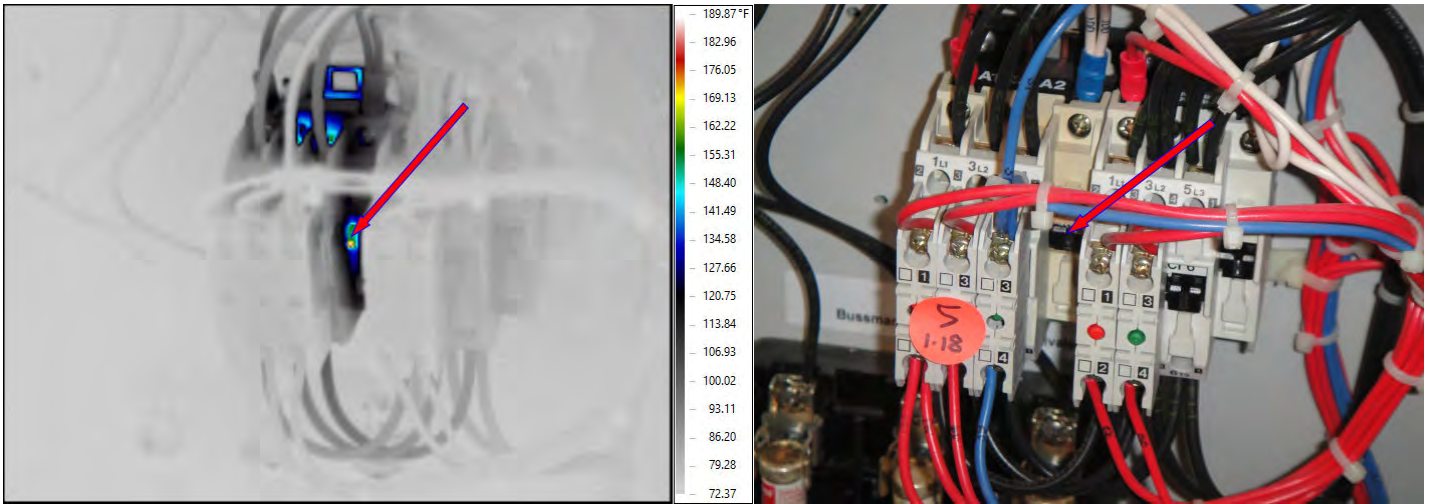
**Location/Equipment: Control Panel: Return**

Barcode: 10AHQ4 Asset ID:

Voltage: Rated Load: 10 Wind Speed: Ambient:70.0

IR/Image GUID File : 044a8cbc-ca6f-483c-a7f9-678839c276fe.idn

	Temp	Phase	Load	% of
<b>Component:</b>	192.0	N/A	1.7Amps	@17.0%
<b>Reference:</b>		N/A		@N/A
<b>Delta T:</b>	NaN			@17.0%

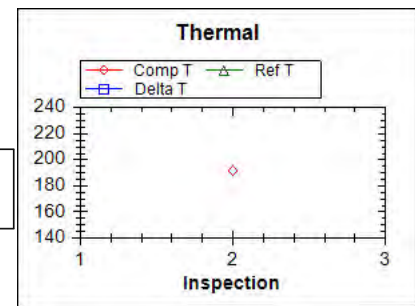

**Comment:** Internal Contacts on Contactor M2, Discoloration (heat damage) present

Probable Cause: loose or corroded internal connection, or underrated contactor.

Recommendation: replace contactor

#### Historical Sub Report

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	5	01/18/2018	192.0				1.7	17.0%		70.0



Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			



### Thermal Items: Detail Report

Site: Tacoma Police Headquarters Insp. No. 2 Start Date: 01/18/2018 Thermal Item # 6 At: 01/18/2018 13:58

 Indirect Measurement: No Severity: Repair Status: Problem Status: **OPEN** 

Route: 1 Floor \ Storage 1211 \ Mechanical Room \ AHU 1

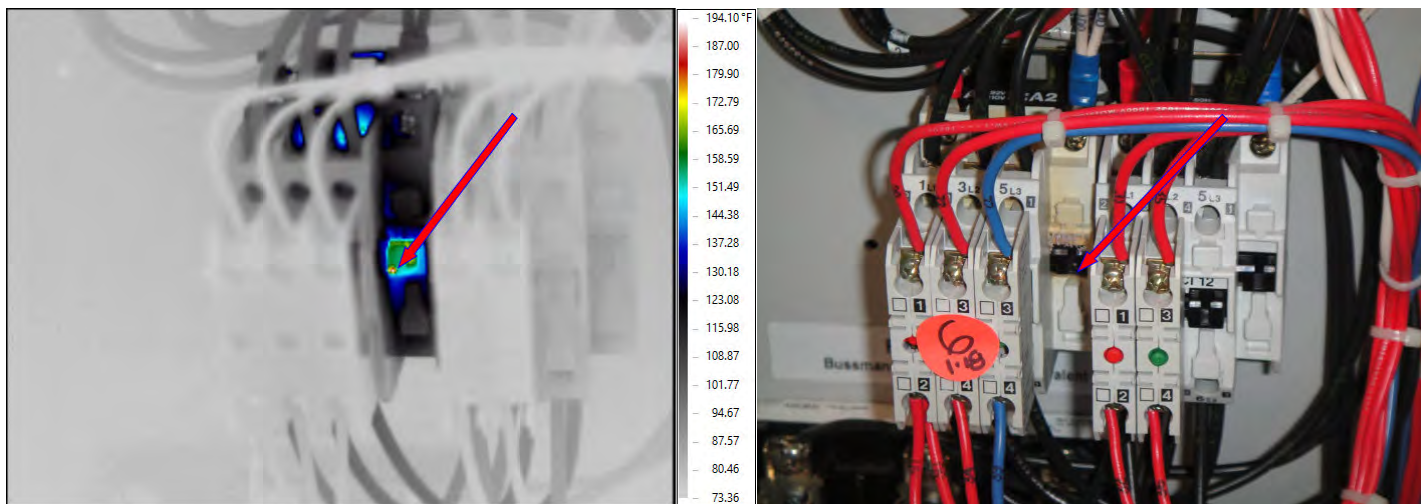
**Location/Equipment: Control Panel: Supply**

Barcode: 10AHQ3 Asset ID:

Voltage: Rated Load: 20 Wind Speed: Ambient:70.0

IR/Image GUID File : e077a56b-711a-434f-9cc8-7bb5a3340951.idn

	Temp	Phase	Load	% of
<b>Component:</b>	195.0		7Amps	@35.0%
<b>Reference:</b>	-			@N/A
<b>Delta T:</b>	NaN			@35.0%

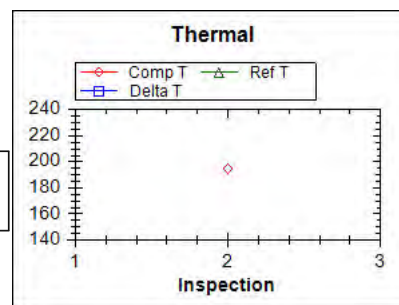

**Comment:** Internal Contacts on Contactor M2, Discoloration (heat damage) present

Probable Cause: loose or corroded internal connection, or underrated contactor

Recommendation: replace contactor

#### Historical Sub Report

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	6	01/18/2018	195.0				7	35.0%		70.0



Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			

Visual Problem List  
Inspection # 2

Site: Tacoma Police Headquarters

---

**Problem # 1**                                      **Barcode:** 107AMH                                      **Severity Code:**  
**Location:** Roof \ AHU 4  
**Equipment:** AHU 4 Supply  
**Description:** Severe Discoloration (heat damage) present on Contactor M2  
**Picture:** 2cb4f52a-b4b8-4a81-800f-c1a413769ce4.idn

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**Problem # 2**                                      **Barcode:** 107AMG                                      **Severity Code:**  
**Location:** Roof \ AHU 4  
**Equipment:** AHU 4 Return  
**Description:** Discoloration (heat damage) present on Contactor M2  
**Picture:** 37feb762-23df-496e-8fd1-9e244cc31903.idn

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**Problem # 3**                                      **Barcode:** 107AN3                                      **Severity Code:**  
**Location:** 2 Floor \ Electrical 243  
**Equipment:** Panel P2C  
**Description:** Uncapped Conductors present in Panel.  
**Picture:** 845aca8d-ff8e-4cce-a2ab-6408e170ff95.idn

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### Visual Problem Details Report

**Site:** Tacoma Police Headquarters

**Problem Status:** OPEN 🚫

**Severity:**

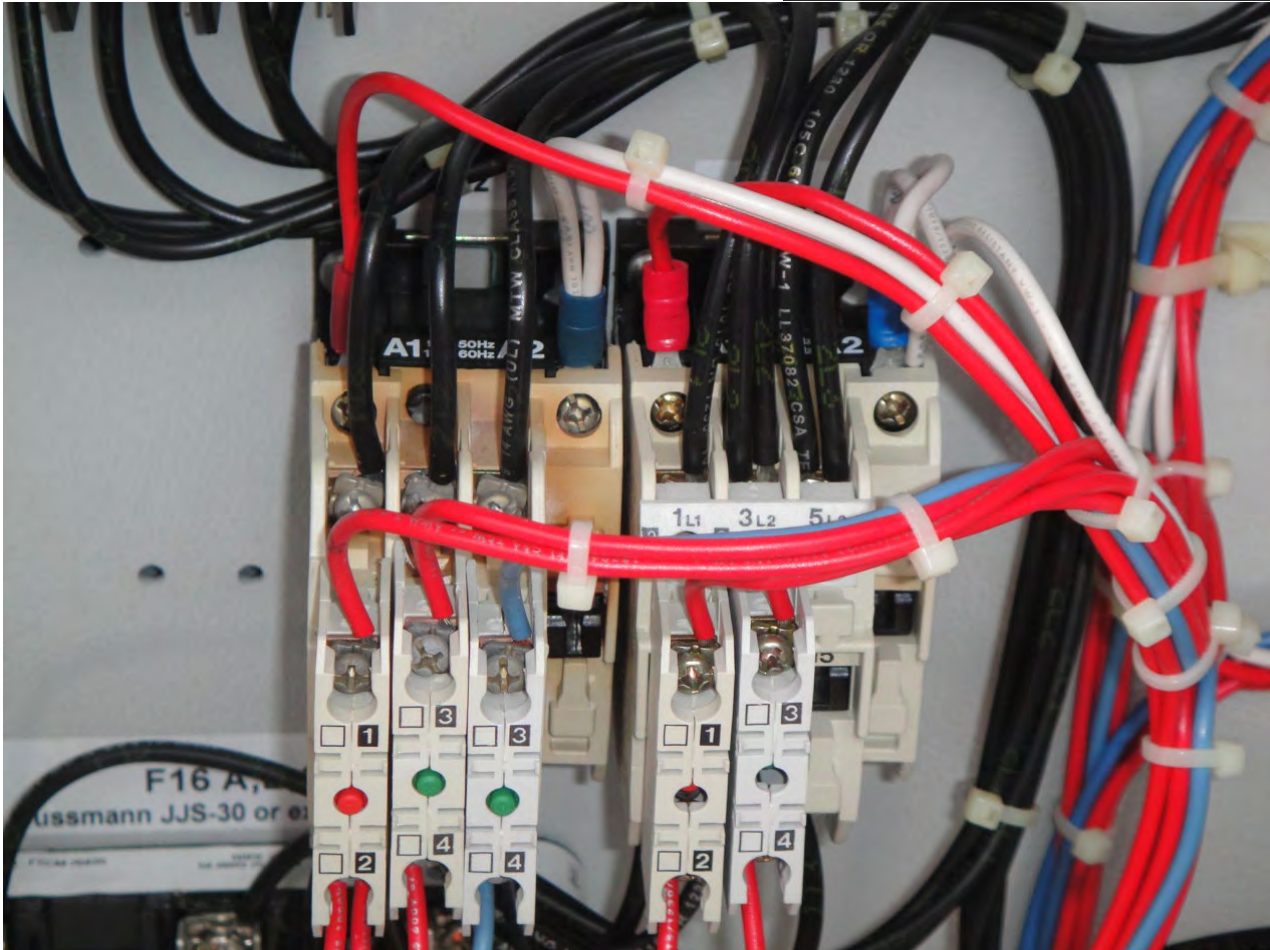
**Work Order #:**

**Location:** Roof \ AHU 4

**Equipment:** AHU 4 Supply

**IDN File:** 2cb4f52a-b4b8-4a81-800f-c1a413769ce4.idn

<b>Inspection#:</b> 2	<b>Problem#:</b> 1
<b>Prob Date&amp;Time:</b>	01/18/2018 11:46
<b>Barcode:</b>	107AMH
<b>AssetID:</b>	



**Description:** Severe Discoloration (heat damage) present on Contactor M2

**Probable Cause:**

**Recommendation:**

**Historical Sub Report**

Inspection Prob#	Date	Sev.Code
2	1	01/18/2018

Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			





### Visual Problem Details Report

**Site:** Tacoma Police Headquarters

**Problem Status:** OPEN 🚫

**Severity:**

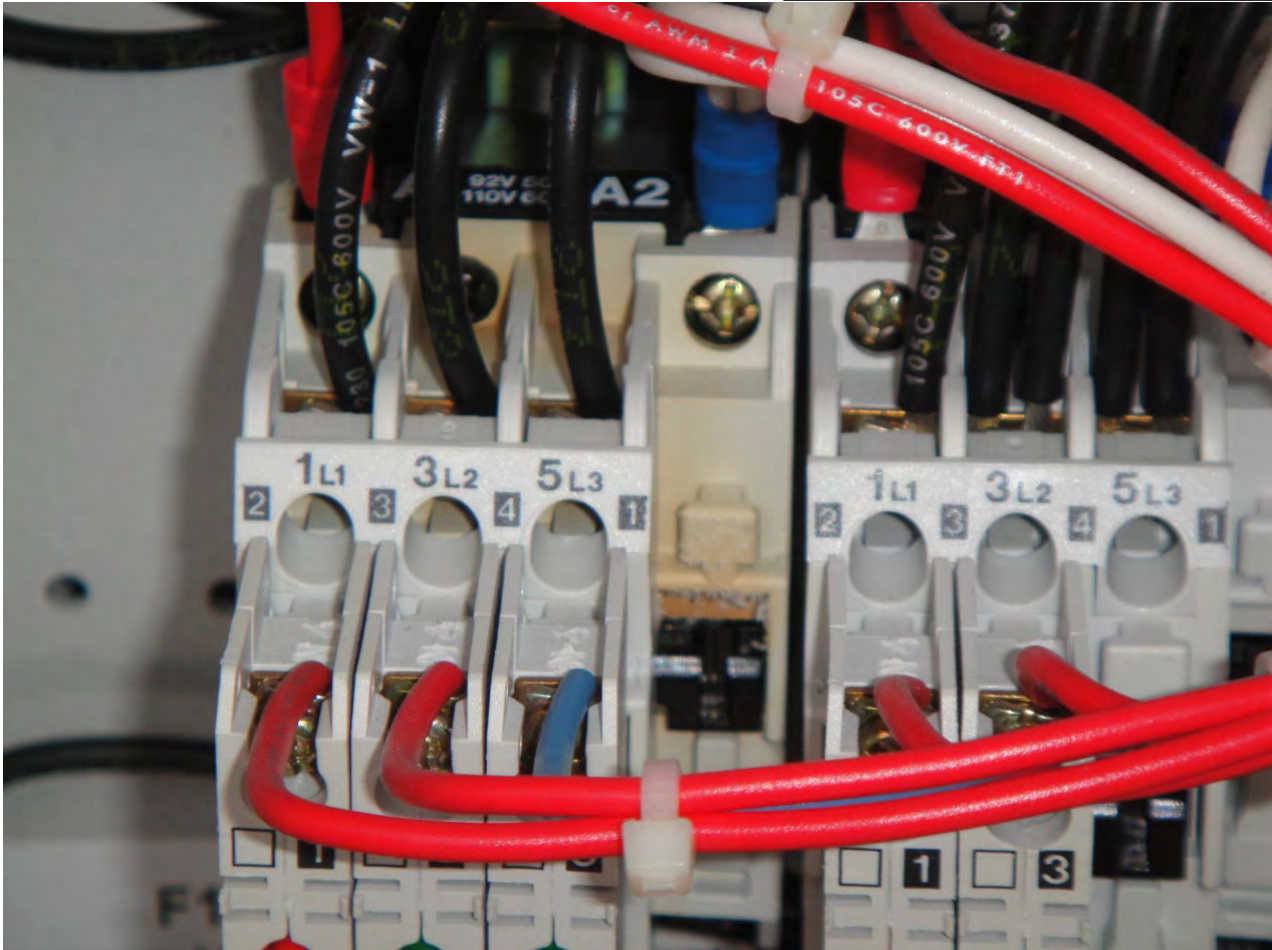
**Work Order #:**

**Location:** Roof \ AHU 4

**Equipment:** AHU 4 Return

**IDN File:** 37feb762-23df-496e-8fd1-9e244cc31903.idn

<b>Inspection#:</b> 2	<b>Problem#:</b> 2
<b>Prob Date&amp;Time:</b>	01/18/2018 11:51
<b>Barcode:</b>	107AMG
<b>AssetID:</b>	



**Description:** Discoloration (heat damage) present on Contactor M2

**Probable Cause:**

**Recommendation:**

**Historical Sub Report**

Inspection Prob#	Date	Sev.Code
2	2	01/18/2018

Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			



### Visual Problem Details Report

**Site:** Tacoma Police Headquarters

**Problem Status:** OPEN 😞

**Severity:**

**Work Order #:**

**Location:** 2 Floor \ Electrical 243

**Equipment:** Panel P2C

**IDN File:** 845aca8d-ff8e-4cce-a2ab-6408e170ff95.idn

<b>Inspection#:</b> 2	<b>Problem#:</b> 3
<b>Prob Date&amp;Time:</b>	01/18/2018 13:29
<b>Barcode:</b>	107AN3
<b>AssetID:</b>	



**Description:** Uncapped Conductors present in Panel.

**Probable Cause:**

**Recommendation:**

**Historical Sub Report**

Inspection	Prob#	Date	Sev.Code
2	3	01/18/2018	

Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			



## Inspection Notes List

Site: Tacoma Police Headquarters

Inspection # 2

Date:

**Inspection Note # 1**    **Barcode:** 107AP9    **Asset ID:**    **Severity Code:**
**Date-Time:** Jan 18 2018 9:46AM

**Location:** 1 Floor \ Chiller Room

**Equipment:** CP-5

**Test Status:** Not Tested

**Description:** "Off" Indicator light is not illuminated.

Notes:

**Inspection Note # 2**    **Barcode:** 107AMX    **Asset ID:**    **Severity Code:**
**Date-Time:** Jan 18 2018 10:23AM

**Location:** 1 Floor \ Sleeping Room

**Equipment:** Panel P1E

**Test Status:** Tested

**Description:** Breaker #32: Tripped

Notes:

**Inspection Note # 3**    **Barcode:** 107AMX    **Asset ID:**    **Severity Code:**
**Date-Time:** Jan 18 2018 10:25AM

**Location:** 1 Floor \ Sleeping Room

**Equipment:** Panel P1E

**Test Status:** Tested

**Description:** Breaker #8: Tripped

Notes:

**Inspection Note # 4**    **Barcode:** 107AMQ    **Asset ID:**    **Severity Code:**
**Date-Time:** Jan 18 2018 11:12AM

**Location:** 3 Floor \ Workroom 321

**Equipment:** Panel P3B

**Test Status:** Tested

**Description:** Breaker #5 (receptacles 313,314) operating above 80% threshold (87.5%)

Notes:

Probable Cause: Space Heaters

**Inspection Note # 5**    **Barcode:** 107AN3    **Asset ID:**    **Severity Code:**
**Date-Time:** Jan 18 2018 1:21PM

**Location:** 2 Floor \ Electrical 243

**Equipment:** Panel P2C

**Test Status:** Tested

**Description:** Breaker #36: Tripped

Notes:



Inspection Notes List

Site: Tacoma Police Headquarters

Inspection # 2

Date:

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Inspection Note # 6	Barcode:	Asset ID:	Severity Code:
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Date-Time: Jan 19 2018 10:05AM

Location:

Equipment: Tacoma Police Headquarters

Test Status: Tested

Description: **Equipment marked "Not Tested" was not running during inspection.**

Notes:

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### Historical Test Status Matrix

Site: Tacoma Police Headquarters

Location/Equipment	Insp. #2	Insp. #1
	01/18/2018	06/22/2009
	Open Prob	Open Prob
	Status	Status
1 Floor	Tested	Tested
Boiler Room	Tested	Tested
CP-1	Tested	Tested
CP-2	Tested	Tested
CP-3A	Not Tested	Tested
CP-3B	Tested	Tested
Chiller Room	Not Tested	Tested
CH-1	Not Tested	Tested
CH-2	Not Tested	Tested
Chiller 1	Not Tested	Tested
Chiller 2	Not Tested	Tested
CP-4	Not Tested	Tested
CP-5	* Not Tested	Tested
CP-6A	Not Tested	Tested
CP-6B	Not Tested	Tested
CP-7	Not Tested	Tested
CP-8	Not Tested	Tested
Panel 4MN	Tested	Tested
Electrical 148	Tested	Tested
Disconnect	Tested	Tested
Panel 2M	Tested	Tested
Panel P1G	Tested	Tested
Panel P1H	Tested	Tested
Panel P1J	Tested	Tested
T2	Tested	Tested
Electrical Room	Tested	Tested
112.5 KVA XFMR	* Tested	Tested
300 KVA XFMR	Tested	Tested
ATS-L	Tested	Tested
ATS-LS	Tested	Tested
ATS-M	Tested	Tested
ATS-P	Tested	Tested
Contactor: External Lighting	Tested	Tested
Distribution Panel: MBPBEH1XX	Tested	Tested
Mainswitch board	Tested	Tested
Panel: 4M	Tested	Tested
Panel: 4P	Tested	Tested
Panel: 4S	Tested	Tested
Panel: G	Tested	Tested
Panel: L1	Tested	Tested
Panel: P1A	Tested	Tested
Panel: P1B	Tested	Tested
Starter: EF 106	Not Tested	Tested
Elevator Machine Room 101	Tested	Tested
Elevator Disconnect	Tested	Tested
Panel EL2	Tested	Tested
Elevator Machine Room 145	Tested	Tested
Disconnect: (above panel)	Tested	Not Tested
Elevator Disconnect	Tested	Tested
Panel EL1	Tested	Tested
Fan Room	Tested	Tested
AHU 3	Tested	Tested
Mens Locker Room 152	Tested	Tested
Panel P1C	Tested	Tested
Panel P1D	Tested	Tested
Panel P1K	Tested	Tested
Operations Desk 108	Tested	Tested
Panel C4	Tested	Tested





## Historical Test Status Matrix

Site: Tacoma Police Headquarters

Location/Equipment	Insp. #2 01/18/2018		Insp. #1 06/22/2009	
	Open Prob	Status	Open Prob	Status
Sleeping Room		Tested		Tested
Panel P1E	*	Tested		Tested
Storage 1211		Tested		Tested
Contactor: (bottom)		Tested		Tested
Contactor: Lib-Crt 2,4,6,8		Tested		Tested
Mechanical Room		Tested		Not Tested
AHU 1		Tested		Not Tested
Control Panel: Return	*	Tested		Not Tested
Control Panel: Supply	*	Tested		Not Tested
Panel LB1		Tested		Tested
Panel P1F		Tested		Tested
2 Floor		Tested		Tested
Electrical 222		Tested		Tested
EF 201		Not Tested		Tested
EF 202		Tested		Tested
Hood Fan		Not Tested		Tested
Panel 2MB		Tested		Tested
Panel C2		Tested		Tested
Panel L2		Tested		Tested
Perimeter Lights		Tested		Tested
Electrical 243		Tested		Tested
Panel P2A		Tested		Tested
Panel P2C	*	Tested		Tested
Panel P2D		Tested		Tested
Electrical Closet - Forensic Area		Tested		Tested
Panel P2B		Tested		Tested
Panel P2E		Tested		Tested
3 Floor		Tested		Tested
Electrical 364		Tested		Tested
EF 309		Not Tested		Tested
Panel 2MC		Tested		Tested
Panel 4MC		Not Tested		Tested
Panel L3		Tested		Tested
Panel LS3	*	Tested		Tested
Panel P3A		Tested		Tested
Panel P3C		Tested		Tested
Phone Room 303		Tested		Tested
Panel C1		Tested		Tested
Workroom 321		Tested		Tested
Panel P3B	*	Tested		Tested
Roof		Tested		Tested
AC Unit		Not Tested		Tested
AC Unit for 2 Floor Crime Lab		Not Tested		Tested
AHU 2		Not Tested		Tested
AHU 2 Return		Not Tested		Tested
AHU 2 Supply		Not Tested		Tested
AHU 4		Tested		Tested
AHU 4 Return	*	Not Tested		Tested
AHU 4 Supply	*	Tested		Tested
AHU 5		Tested		Tested
AHU 5 Return		Tested		Tested
AHU 5 Supply	*	Tested		Tested
EF 307		Not Tested		Tested
EF 308		Not Tested		Tested



## Facility Summary

City of Tacoma  
 Police Warehouse/Fleet  
 Police Warehouse/Fleet Building

3639 South Pine Street  
 Tacoma, WA 98407

Facility Size - Gross S.F. 129,000  
 Year Of Original Construction 1992  
 Facility Use Type Maintenance Shop  
 Construction Type Medium  
 # of Floors 2  
 Energy Source Gas  
 Year Of Last Renovation 2004  
 Historic Register No



FCI (BMAR/CRV)	0.10	Predicted Renewal Budget (20 yrs)	\$16,652,940
FCI (Bldg OD/CRV)	0.12	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$47,601,000	Building	\$5,716,596
BMAR (Backlog of Maintenance and Repair)	\$4,721,000	Infrastructure	\$34,875
Beginning Budget Year	2018	Total	\$5,751,471
		Opportunity Total Project Cost	\$4,929,581

## Facility Condition Summary

The Police Warehouse/Fleet building was originally constructed as a 'Costco' in 1992 and modernized for its current use in 2006. Approximately 82,000 sq. ft. is utilized for Fleet Administration and Maintenance, and approximately 47,000 utilized as Police Storage (Warehouse). The building is in generally good condition, but is in need of critical mechanical equipment replacements and roofing system replacement/repairs. Industrial ventilation for vehicle shop and indoor parking areas should be reviewed for current code compliance. City water, sewer, fire, & storm. Tacoma Power electric and data service. Puget Sound Energy natural gas with separate meters for Fleet and Police, but no separate meters for electrical. Plumbing includes a rain water harvesting system that is underutilized and currently failed due to corroded filters. Opportunity exists to expand capacity and function of roof rainwater harvesting system and add solar PV array to roof in support of City sustainability programs. Fire sprinkler is present throughout in good condition but fire alarm has limited detection capability. Power is 480V, 3-phase but with insufficient 208V/120V capacity. Large standby generator appears sufficient to carry most of the building load during outages, but has limited fuel storage. Low voltage systems including security, data, and phone are present and aging but appear mostly adequate for need.

# Facility Summary

City of Tacoma  
 Police Warehouse/Fleet  
 Police Warehouse/Fleet Building

3639 South Pine Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1992	2004	2	TRB 01/01/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	1992	1992	2	TRB 01/01/18	Concrete slab on grade. Generally in good condition with some limited areas of cracks, and former cooler area needing to be replaced.
<b>B Shell</b>			<b>2.2</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1992	2004	2	TRB 01/01/18	Mezzanine floors consist of wood I-joist framing and plywood sheathing spanning to interior wood stud walls and exterior masonry walls.
<b>B1020 Roof Construction</b>	1992	1992	2	TRB 01/01/18	Roof consists of steel joist with steel roof decking spanning to steel girders, exterior masonry walls and interior steel columns.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1992	2004	2	TRB 01/01/18	Exterior walls are concrete masonry unit walls. Painted recently look in good condition (although interior water and efflorescence on interior walls in welding shop. Interior face of exterior walls in office areas are furred at interior face.
<b>B2020 Exterior Windows</b>	1992	2004	2	TRB 01/01/18	Exterior windows (limited to front office area) are storefront type double glazed metal window system.
<b>B2030 Exterior Doors</b>	1992	2004	2	TRB 01/01/18	Exterior doors at Main Entry are storefront doors. Other man doors are hollow metal framed, hollow metal doors with panic hardware where required. Service areas have metal overhead doors. Other special exterior doors include rapid roll up auto door. all in good

# Facility Summary

City of Tacoma  
 Police Warehouse/Fleet  
 Police Warehouse/Fleet Building

3639 South Pine Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>2.2</b>		
<b>Exterior Closure</b>					
<b>B2030 Exterior Doors</b>					apparent working order
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1992	2004	3	TRB 01/01/18	Roofing is original 1992 standing seam metal that was resealed in 2004. Numerous ongoing leaks reported (and observed). The Quarter master area has a rolled granular roof. Metal cap fascia is showing signs of age.
<b>B3020 Roof Openings</b>	1992	1992	5	TRB 01/01/18	Skylights are plastic dome type skylights. Yellowing with age. fusible links failing, weather stripping failing, mechanical fasteners failing. Root cause of numerous reported roof leaks.
<b>B3030 Projections</b>	1992	2004	2	TRB 01/01/18	The carport on the northeast corner is painted structural steel with corrugated metal roofing (North end increased in 2004)
<b>C Interiors</b>			<b>2.4</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1992	2004	2	TRB 01/01/18	Interior walls are either wood stud with GWB or CMU. Mezzanines have metal railings. Some warehouse areas have galvanized chain link fenced areas.
<b>C1020 Interior Doors</b>	1992	2004	2	TRB 01/01/18	Interior doors are hollow metal frame with solid core wood doors at the office areas, and hollow metal frames and hollow metal doors at warehouse areas. Hardware is ADA compliant. There are overhead doors at some interior partitions.
<b>C1030 Fittings</b>	1992	2004	2	TRB 01/01/18	A variety of systems exist: lockers, casework,

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.4</b>		
<b>Interior Construction</b>					
<b>C1030 Fittings</b>					
					storage shelving, hoist systems, 5 ton gantry crane, maintenance equipment, etc...
<b>Staircases</b>					
<b>C2010 Stair Construction</b>					
	1992	2004	2	TRB 01/01/18	Interior stair systems are metal stair systems.
<b>C2020 Stair Finishes</b>					
	1992	2004	2	TRB 01/01/18	Most stair treads are concrete filled pans. Several stair systems painted metal with metal treads. The main office/entry area has radial rubber treads.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>					
	1992	2004	2	TRB 01/01/18	Interior wall finishes are painted GWB at office areas. Warehouse areas have a corrugated galv. metal wainscot. The main demising wall is corrugated metal, as is the Supervisor Service Office has corrugated wall skin. Some shop areas have a plywood wainscot.
<b>C3020 Floor Finishes</b>					
	1992	2004	3	TRB 01/01/18	Floor finishes are sheet vinyl, carpet and VCT at the office areas. The Main Entry is "Retroplate" concrete. Warehouse and utility areas are sealed concrete. Mezzanines have plywood flooring. Some bathrooms are ceramic tile.
<b>C3030 Ceiling Finishes</b>					
	1992	2004	3	TRB 01/01/18	Ceilings are to structure at warehouse and utility areas. The Conference Room has a hard lid ceiling. Offices have 2x4 suspended acoustic ceilings. The main office common area has a galvanized metal cloud ceiling. Open bays have supersaver vapor barrier (insulation) exposed to below, most in good condition, but vapor barrier torn in many locations and not sealed around many penetrations.
<b>D Services</b>			<b>2.7</b>		

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 Police Warehouse/Fleet Building

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>Vertical Transportation</b>					
<b>D1010 Elevators and Lifts</b>	1992	2004	2	DCS 01/01/18	Thyssen Krupp two-stop hydraulic elevator with 20-hp motor and ductless split cooling for dedicated elevator machinery room; elevator serves the Fleet Admin area. Opportunity to add elevator to serve mezzanine in Police warehouse area. One 5-ton bridge crane in shop in good condition.
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1992	2004	2	DCS 01/01/18	Plumbing fixtures include porcelain flushing and lavatory, fiberglass one-piece showers and stainless steel kitchenette & utility sinks. Some trim (flush valves and faucets) need adjustment or service. Flushing fixtures are slightly stained by rain water harvested (RWH) flushing water, but no action needed - this is common for Northwest RWH systems. Given difficulty maintaining the RWH system, opportunity to upgrade to high-efficiency plumbing fixtures and/or trim to save an equivalent amount of water at potentially lower maintenance cost.
<b>D2020 Domestic Water Distribution</b>	1992	2004	2	DCS 01/01/18	Two-inch city water service with 60 psig pressure to building supplying copper distribution piping throughout, with back-up supply to RWH flushing water system. Hose-bibs around outside perimeter of building. Several domestic hot water heaters including 119-gal electric for Fleet office, 20-gal tank type for Police warehouse, one newer Rheem gas-fired for police support area, plus multiple small point-of-use electric tankless heaters throughout shop areas. All in fair to good condition with no issues reported.
<b>D2030 Sanitary Waste</b>	1992	2004	2	DCS 01/01/18	Mix of cast iron and non-metallic (ABS or PVC) drain, waste & vent (DW&V) piping throughout. Trench drains to oil/water separators at vehicle roll-up doors with OWS's. No floor drains in vehicle shop or storage areas. Most tested fixtures flush & drain well; while a few are somewhat slower, no reports of excessive back-ups - assume acceptable.

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 Police Warehouse/Fleet Building

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			2.7		
<b>Plumbing</b>					
<b>D2040 Rain Water Drainage</b>					
	1992	2004	3	DCS 01/01/18	Low sloped metal roof to large metal gutter integral to roof & parapet wall assembly with internal PVC roof drains to RWH systems at center south (reportedly 3 drains), all others (reportedly 9) piped to storm. The gutter is not insulated resulting in periodic condensate dripping inside the building. Roof overflow is via small openings in the parapet wall with opportunity to add scuppers to make overflows more visible. Opportunity to collect more roof rain water and increase RWH storage to serve adjacent Police HQ building and/or the irrigation system. A drain pan should be built above the main electrical switchboard to protect from the roof drain immediately above which has reportedly leaked in the past.
<b>D2090 Other Plumbing Systems</b>					
	1992	2004	3	DCS 01/01/18	Vehicle repair shop systems including two air compressors (primary Devilbis 2005 with 15-hp motor and secondary IR with 5-hp motor) with refrigerated air dryer and distribution piping & drops, shop fluids system with at least eight pumped fluids and an equal amount of point-of-use dispensers, waste fluid collection tanks (emptied regularly by contract disposal service), and others. Shop fluids room is not explosion rated. Opportunity for large on-site waste oil to energy system. Opportunity for wash rack system.
<b>HVAC</b>					
<b>D3010 Energy Supply</b>					
	1992	2004	3	DCS 01/01/18	Natural gas piping from sub-meters at NE corner under canopy to Fleet and Police area roof top units (RTUs), overhead infrared heat at welding shop and other uses; aging but functional with no issues reported. Opportunity to replace aging diaphragm-type sub-meters with modern electronic meters and tie-in to DDC for continuous monitoring of Fleet versus Police energy use. Note sub-meters at 1,000 cfm (1 mmbtuh) capacity each seem too small for installed gas-fired equipment, but no issues are reported, so no deficiency at this time.

# Facility Summary

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 Police Warehouse/Fleet Building

3639 South Pine Street  
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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			2.7		
<b>HVAC</b>					
<b>D3010 Energy Supply</b>					
<b>D3040 HVAC Distribution Systems</b>					
	1992	2004	2	DCS 01/01/18	Mostly galvanized sheet metal ductwork in shop, warehouse and office areas in good condition, but unclear code compliance in Fleet shop and to lesser degree Police warehouse area. Exhaust fans for bathroom rooms, and large ceiling exhaust fans for shop and warehouse areas. Opportunity for heat recovery ventilation.
<b>D3050 Terminal and Package Units</b>					
	1992	2004	4	DCS 01/01/18	Trane roof top gas-pack units ((RTUs) provide temperature control and ventilation throughout building; original 1992 equipment is past end of life and failing; newer 2004 equipment is in fair condition with 5 to 10 years life remaining, noting some may fail sooner. See detailed Priority Facility Report of 2016 for more detail. Mitsubishi ductless split systems provide cooling for several small comm or equipment rooms. Gordon-Ray gas-fired overhead infrared heaters in welding shop. Opportunity to convert all shop and warehouse spaced to partially-heated with more infrared equipment, all but eliminating problematic RTUs on roof above these spaces.
<b>D3060 Controls and Instrumentation</b>					
	1992	2004	3	DCS 01/01/18	City standard Alerton DDC control system aging but mostly functional; however soon to be obsolete. Good CO and NOx monitoring in Fleet shop and Police warehouse areas, but some outside air intake damper actuators are failed. A separate effort is currently underway to integrated new lighting controls into the old DDC. In the mean time a building tune-up (Re-Commissioning) is suggested to optimize current performance and better plan for upgrades when the shop and warehouse HVAC equipment is replaced.
<b>D3090 Other HVAC Systems and Equipment</b>					
	1992	2004	3	DCS 01/01/18	Industrial ventilation includes ceiling exhaust fans with side-wall ventilation air intake louvers, Nederman vehicle engine exhaust with motorized hose reels, and welding fume exhaust. In fair to good condition; see HVAC Distribution for



# Facility Summary

City of Tacoma

Police Warehouse/Fleet

Police Warehouse/Fleet Building

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			2.7		
<b>HVAC</b>					
<b>D3090 Other HVAC Systems and Equipment</b>					
					concern regarding low shop exhaust and Special Plumbing for concern regarding shop fluids room. Opportunities for paint booth and battery charging/storage room.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>					
	1992	2004	2	DCS 01/01/18	City water and FDC to manifold risers at Police warehouse toward NE including dry pipe system for outside attached canopy area to east and three separate wet risers to Office, Shop, Warehouse and special use areas. No issues reported, but concern regarding bulk tire storage and flammable/combustible liquid storage.
<b>D4030 Fire Protection Specialties</b>					
	1992	2004	2	DCS 01/01/18	Fire extinguishers, AEDs, first aid and portable eyewash stations scattered throughout - assume meets code minimum; however given permanent nature of Fleet shop operations, permanent safety shower and eyewash stations should be installed.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	1992	2004	3	DCS 01/01/18	GE 1600A, 480V main switchboard at north mezzanine with service from utility pad-mount transformer outside to north, adjacent to generator. 480/208V transformers and distribution panels located at north (shop) and east (police warehouse) mezzanines, plus other distribution panels in various locations. Some panels have TVSS protection. Many 208V panels are full. Opportunity for PV system.
<b>D5020 Lighting and Branch Wiring</b>					
	1992	2004	3	DCS 01/01/18	Mix of older and newer T5 & T8 fluorescent fixtures in Fleet shop and Police warehouse with T8, recessed can CFL and some custom lighting in office areas. The 2004 lighting control system is failing with upgrade to Blue Ridge DDC networked lighting controls planned in conjunction with upgrade to LED fixtures.

# Facility Summary

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.7</b>		
<b>Electrical</b>					
<b>D5020</b>	<b>Lighting and Branch Wiring</b>				
<b>D5032</b>	<b>Low Voltage Communication</b>				
	1992	2004	3	DCS 01/01/18	Avaya phone, conference room A/V, police and/or fleet operations radios & antennas. CATV and other special systems. Telecom upgrade underway on service to building during survey (12/22/17).
<b>D5037</b>	<b>Low Voltage Fire Alarm</b>				
	1992	2004	3	DCS 01/01/18	Notifier addressable fire alarm system (but with little or no detection in shop and warehouse areas); recently (2017) upgraded to include wireless alarm transmission.
<b>D5038</b>	<b>Low Voltage Security</b>				
	1992	2004	3	DCS 01/01/18	Exterior CCTV and Bosch intrusion detection systems (reportedly little used as the facility is manned 24 x 7 x 365). No issues reported.
<b>D5039</b>	<b>Low Voltage Data</b>				
	1992	2004	2	DCS 01/01/18	Tacoma Power "Click" data with high-speed fiber optic service. MDF on mezzanine level of Fleet office area; appears to serve all Fleet areas; Police have smaller IDF on warehouse mezzanine. Special systems for Police. Modern voice/data equipment and cabling. No issues reported.
<b>D5090</b>	<b>Other Electrical Systems</b>				
	1992	2004	2	DCS 01/01/18	SDMO 350 kW 480V diesel generator package at grade outside north of Fleet shop with 800-gal on-board diesel fuel belly tank; no issues reported. ATS inside shop fluids room is Thompson TSC800 supplying main X-panel in-turn feeding multiple X-panels throughout building. Battery-powered egress lighting and exit signs in many but not all locations. One electric vehicle charging station, with opportunity for more.
<b>E Equipment and Furnishings</b>			<b>2.7</b>		

## Facility Summary

City of Tacoma  
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 Police Warehouse/Fleet Building

3639 South Pine Street  
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### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>E Equipment and Furnishings</b>			<b>2.7</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1992	2004	3	DCS 01/22/18	Residential appliances at kitchenettes.
<b>E1020 Institutional Equipment</b>	1992	2004	3	DCS 01/22/18	Extensive shop equipment at Fleet maintenance area. Minimal equipment at Police warehouse, but some. All with no issues reported.
<b>E1030 Vehicular Equipment</b>	1992	2004	3	DCS 01/22/18	Vehicle lifts at fleet shop with no issues reported.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	1992	2004	2	DCS 01/01/18	Casework in office areas; counters in bathrooms; special fabrications in some shop areas. Extensive Fleet shop equipment including fixed and movable equipment. No issues reported. Opportunity for fixed heavy vehicle lift.
<b>F Special Construction</b>			<b>3.0</b>		
<b>Special Construction</b>					
<b>F1050 Special Controls and Instrumentation</b>	1992	2004	3	DCS 01/01/18	Fleet and Police antennas on roof, mostly at west edge above MDF, aging, but no issues reported. Opportunity for small antenna tower to better organize the multiple antennas and facilitate roof maintenance.

# Facility Summary

City of Tacoma  
Police Warehouse/Fleet  
Infrastructure

3639 South Pine Street  
Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1992	2017	2	TRB 01/01/18	Resealed Asphalt drive between buildings with concrete curbs and concrete wheel stops.
<b>G2020 Parking Lots</b>	1992	2017	2	TRB 01/01/18	Resealed and re-painted Asphalt surface with concrete perimeter curbs.
<b>G2030 Pedestrian Paving</b>	1992	1992	2	TRB 01/01/18	Concrete walkways and ramps, concrete on metal pan steps with pipe rails. Small area of concrete curb at entry is spalling and should be repaired.
<b>G2040 Site Development</b>	1992	1992	2	TRB 01/01/18	Chain link and metal fencing/gates; CMU, Large stacked precast concrete block retaining walls (showing some cracks, weathering, and mildew and moss growth)
<b>G2050 Landscaping</b>	1992	1992	2	TRB 01/01/18	Shrubs, groundcover and trees.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1992	1992	2	DCS 01/01/18	City water with no issues reported. Apparent original (1992) irrigation is in place to east but reportedly not used - opportunity to repair and return to service to assist in site beautification.
<b>G3020 Sanitary Sewer</b>	1992	1992	2	DCS 01/01/18	City sewer with no reported issues.
<b>G3030 Storm Sewer</b>	1992	2004	2	DSC 01/01/18	On-site storm collected and treated by below-grade vaults with cartridges, then directed to City storm with no issues reported. Standing water in a few small locations. Reportedly the storm drainage system is shared between the Fleet & Police building and adjacent Police HQ building with a total of three water quality treatment vaults shared between the two sites.

# Facility Summary

City of Tacoma  
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 Infrastructure

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Civil / Mechanical Utilities</b>					
<b>G3030 Storm Sewer</b>					
<b>G3060 Fuel Distribution</b>	1992	2004	2	DCS 01/01/18	PSE natural gas meter #473236 with 1,400 cfh capacity, earthquake valve, and two City-owned 1,000 cfh sub-meters - reportedly one each for Fleet and Police.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1992	1992	2	DCS 01/01/18	Tacoma Power underground from street to pad-mounted transformer, then underground to utility room; all at north side of building. TP meter #55425648. The City-owned standby generator is adjacent to the transformer. No issues reported.
<b>G4020 Site Lighting</b>	1992	2015	2	DCS 01/01/18	Original site light poles with new (2015) LED heads; new (2015) LED sconces on building exterior walls.
<b>G4030 Site Communications and Security</b>	1992	2004	2	DCS 01/01/18	Mix of older and newer from communication & data service providers; no issues reported; assume adequate for need. CCTV cameras at perimeter with no issues reported. Upgrade to some comm and/or data service was underway at time of field survey on 12/22/17.

## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Police Warehouse/Fleet

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Infrastructure	Site Improvements	\$15,000	\$3,750	\$3,750	\$12,375	\$34,875
	<b>Facility Total</b>	<b>\$15,000</b>	<b>\$3,750</b>	<b>\$3,750</b>	<b>\$12,375</b>	<b>\$34,875</b>
Police Warehouse/Fleet Building	Foundations	\$7,000	\$1,750	\$1,750	\$5,775	\$16,275
	Roofing	\$1,450,000	\$362,500	\$362,500	\$1,196,250	\$3,371,250
	Interior Finishes	\$122,500	\$30,625	\$30,625	\$101,063	\$284,813
	Plumbing	\$32,750	\$8,188	\$8,188	\$27,019	\$76,144
	HVAC	\$698,500	\$174,625	\$174,625	\$576,263	\$1,624,013
	Fire Protection	\$19,000	\$4,750	\$4,750	\$15,675	\$44,175
	Electrical	\$129,000	\$32,250	\$32,250	\$106,425	\$299,925
	<b>Facility Total</b>	<b>\$2,458,750</b>	<b>\$614,688</b>	<b>\$614,688</b>	<b>\$2,028,469</b>	<b>\$5,716,594</b>
<b>Site Total</b>	<b>\$2,473,750</b>	<b>\$618,438</b>	<b>\$618,438</b>	<b>\$2,040,844</b>	<b>\$5,751,469</b>	



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Warehouse/Fleet

Total Observed Deficiency Repair Direct Cost : \$2,473,750

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$15,000</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$34,875</b>	
<b>Roadways</b>										
Trench Drain	5	1	2018		1	\$15,000.00	EA	\$15,000	\$34,875	

North drive trench drain is broken.

Remove system, re-cast and install new heavy traffic trench drain.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Warehouse/Fleet

Total Observed Deficiency Repair Direct Cost : \$2,473,750

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Police Warehouse/Fleet Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$7,000
System: Foundations					Total System Deficiency Repair Cost (Marked Up):				\$16,275
<b>Slab On Grade</b>									
Concrete Floor	4	4	2018		1	\$7,000.00	LS	\$7,000	\$16,275

Slab failing at former refer location in SID garage not designed for vehicular loading.

Demo and remove slab and insulation, pour new slab



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Warehouse/Fleet

Total Observed Deficiency Repair Direct Cost : \$2,473,750

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Police Warehouse/Fleet Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$1,450,000</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$3,371,250</b>
<b>Roof Coverings</b>									
Metal roofing	4	4	2018		80,000	\$15.00	SF	\$1,200,000	\$2,790,000

Numerous and more frequent roof leaks occurring (saturating roof insulation below).

Repair curbs and flashings, re-coat roof to extend life, or replace all. Replace water damaged insulation and repair vapor barrier. Verify all vapor barrier seams sealed.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Warehouse/Fleet

Total Observed Deficiency Repair Direct Cost : \$2,473,750

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Police Warehouse/Fleet Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$1,450,000	
System: Roofing				Total System Deficiency Repair Cost (Marked Up):					\$3,371,250	
<b>Roof Openings</b>										
Skylights	5	1	2018		100	\$2,500.00	EA	\$250,000	\$581,250	
Skylights at end of life, seals failing, attachments failing, yellowed not transmitting daylight.				Replace all.						



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Warehouse/Fleet

Total Observed Deficiency Repair Direct Cost : \$2,473,750

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Police Warehouse/Fleet Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$122,500</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$284,813</b>
<b>Floor Finishes</b>									
Carpet	4	2	2018		15,000	\$7.50	SF	\$112,500	\$261,563

Worn and stained carpeting.

Replace existing carpet throughout.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Police Warehouse/Fleet

Total Observed Deficiency Repair Direct Cost : \$2,473,750

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Police Warehouse/Fleet Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$122,500</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$284,813</b>
<b>Ceiling Finishes</b>									
Vapor Barrier	3	4	2018		1	\$10,000.00	LS	\$10,000	\$23,250

Numerous areas where vapor barrier (holding up insulation below roof) is torn or not sealed.

Spot repair and tape all exposed vapor barrier seams.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Warehouse/Fleet

Total Observed Deficiency Repair Direct Cost : \$2,473,750

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				<b>Action</b>						
<b>Facility: Police Warehouse/Fleet Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$32,750</b>	
<b>System: Plumbing</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$76,144</b>	
<b>Rain Water Drainage</b>										
Gutter System	4	2	2018		500	\$25.00	LS	\$12,500	\$29,063	

Gutters are exposed to occupied space and un-insulated.

Insulate gutters to reduce condensation and heat loss.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Warehouse/Fleet

Total Observed Deficiency Repair Direct Cost : \$2,473,750

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				<b>Action</b>						
<b>Facility: Police Warehouse/Fleet Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$32,750</b>	
<b>System: Plumbing</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$76,144</b>	
<b>Rain Water Drainage</b>										
Rainwater Harvesting	5	0	2018		3	\$1,750.00	EA	\$5,250	\$12,206	

Rain water harvesting system filters have rusted and are failed.

Replace with corrosion resistant filters.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Warehouse/Fleet

Total Observed Deficiency Repair Direct Cost : \$2,473,750

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Police Warehouse/Fleet Building</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>					<b>\$32,750</b>	
<b>System: Plumbing</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>					<b>\$76,144</b>	
<b>Other Plumbing Systems</b>										
Shop Fluids Room	4	2	2018		1	\$15,000.00	LF	\$15,000	\$34,875	

Shop fluids room includes multiple containers of flammable or combustible materials along with non-rated (non-classified) electrical panels, air compressors and lighting.

Provide segregated shop fluids room with classified electrical devices and ventilation per code.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

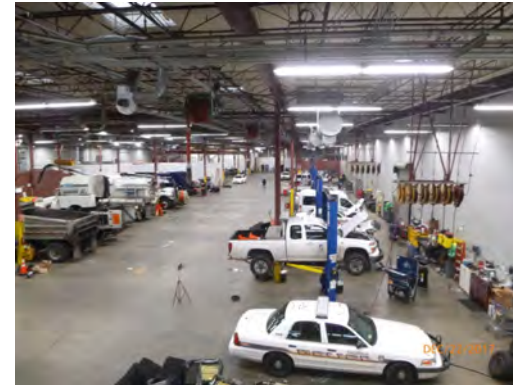
City of Tacoma  
Site: Police Warehouse/Fleet

Total Observed Deficiency Repair Direct Cost : \$2,473,750

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Police Warehouse/Fleet Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$698,500</b>	
<b>System: HVAC</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$1,624,013</b>	
<b>HVAC Distribution Systems</b>										
Exhaust	4	2	2018		1	\$25,000.00	LS	\$25,000	\$58,125	

No apparent low exhaust form shop areas; maybe a be code violation, regardless of CO & NOx control of ceiling/roof exhaust fans.

Install low exhaust where required by code in shop area.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Warehouse/Fleet

Total Observed Deficiency Repair Direct Cost : \$2,473,750

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Police Warehouse/Fleet Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$698,500</b>	
<b>System: HVAC</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$1,624,013</b>	
<b>Terminal and Package Units</b>										
Roof top packaged air handling	4	1	2018		8	\$60,000.00	EA	\$480,000	\$1,116,000	

Original Costco 1992 gas-pack RTU's are past useful and failing.

Replace with new high-efficiency RTUs.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Warehouse/Fleet

Total Observed Deficiency Repair Direct Cost : \$2,473,750

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Police Warehouse/Fleet Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$698,500</b>	
<b>System: HVAC</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$1,624,013</b>	
<b>Controls and Instrumentation</b>										
Controls	4	5	2018		129,000	\$1.50	SF	\$193,500	\$449,888	

2004 DDC controls are nearing end of life.

Upgrade to current City standard.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Warehouse/Fleet

Total Observed Deficiency Repair Direct Cost : \$2,473,750

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: Police Warehouse/Fleet Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$19,000	
System: Fire Protection				Total System Deficiency Repair Cost (Marked Up):					\$44,175	
<b>Fire Protection Sprinkler Systems</b>										
Fire Sprinkler System	4	2	2018		1	\$10,000.00	LF	\$10,000	\$23,250	

Multiple stacks of new and used tires; multiple flammable/combustible storage lockers not vented.

Update HMIS and confirm all below exempt amounts, including tires; take corrective action as needed (reduce amounts, increase separation, and /or provide engineered safety features per code).



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Warehouse/Fleet

Total Observed Deficiency Repair Direct Cost : \$2,473,750

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Police Warehouse/Fleet Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$19,000	
System: Fire Protection				Total System Deficiency Repair Cost (Marked Up):					\$44,175	
<b>Fire Protection Specialties</b>										
Other	4	2	2018		3	\$3,000.00	EA	\$9,000	\$20,925	

Temporary plastic eyewash stations in shop.

Install permanent safety shower & eyewash stations in shop.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Warehouse/Fleet

Total Observed Deficiency Repair Direct Cost : \$2,473,750

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Police Warehouse/Fleet Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$129,000</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$299,926</b>
<b>Electrical Service and Distribution</b>									
Distribution	4	2	2018		129,000	\$0.50	SF	\$64,500	\$149,963

Insufficient 208V system capacity for increasing needs.

Install new feeders, transformers, panels and distribution as needed by growing program requirements.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Police Warehouse/Fleet

Total Observed Deficiency Repair Direct Cost : \$2,473,750

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Police Warehouse/Fleet Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$129,000	
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$299,926	
<b>Lighting and Branch Wiring</b>										
Lighting Controls	4	2	2018		129,000	\$0.50	SF	\$64,500	\$149,963	
Failing lighting controls.				Upgrade to City standard DDC-based system.						



## Opportunity Summary By Subsystem

City of Tacoma

Site: Police Warehouse/Fleet

Total Site Opportunity Cost: \$2,178,250

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Infrastructure</b> <b>System: Site Improvements</b> <span style="float: right;"><b>Total Cost: \$58,000</b></span>						
G2040	Site Development	Mildew staining on Concrete retaining walls and CMU screen walls				
		Mildew/moss treat and power wash, clean and patch cracks in retaining wall concrete blocks and unpainted CMU screen walls. Paint of water repellant treat CMU walls	1.00	\$8,000.00	EA	\$8,000
G2050	Landscaping	Only street tree landscape along public Right Of Way, unsightly barren earth along sidewalk, with little visual interest along length of big box facade.				
		Provide low (CEPTED compliant) drought tolerant landscape beautification along public sidewalk along length of Pine Street.	500.00	\$100.00	LF	\$50,000
<b>Facility: Police Warehouse/Fleet Building</b> <b>System: Interior Construction</b> <span style="float: right;"><b>Total Cost: \$30,000</b></span>						
C1010	Partitions	There is an impromptu classroom on the platform in the Police SID training area between chain link storage areas				
		Create a bonifide teaching classroom space to meet the need	1.00	\$30,000.00	EA	\$30,000
<b>Facility: Police Warehouse/Fleet Building</b> <b>System: Vertical Transportation</b> <span style="float: right;"><b>Total Cost: \$20,000</b></span>						
D1010	Elevators and Lifts	No elevator to Police warehouse mezzanine which has several thousand square feet of office area, plus storage areas.				
		Install heavy-duty two-stop ADA-lift to Police warehouse mezzanine area.	1.00	\$20,000.00	LS	\$20,000
<b>Facility: Police Warehouse/Fleet Building</b> <b>System: Plumbing</b> <span style="float: right;"><b>Total Cost: \$205,000</b></span>						
D2010	Plumbing Fixtures	Existing rain water harvesting (RWH) systems is difficult to maintain and is currently failed due to rusted filters. RWH flushing water also stains plumbing fixtures.				
		Abandon RWH system or re-purpose and replace plumbing fixtures or trim with high-efficiency type to save an equivalent amount of water at lower maintenance cost.	20.00	\$1,000.00	EA	\$20,000
D2040	Rain Water Drainage					

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Police Warehouse/Fleet

Total Site Opportunity Cost: \$2,178,250

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
D2090 Other Plumbing Systems	Reportedly only a fraction (1/4) of the roof rain water is captured for the RWH system; there is no RWH flushing water service to the adjacent Police HQ building; there is no vehicle wash system; there is reportedly no landscape irrigation in use.	Expand the RWH system to collect more roof rain water; add more storage to supply the adjacent Police HQ building, supply new vehicle wash system and supply landscape irrigation.	1.00	\$100,000.00	LS	\$100,000
	No wash rack.	Provide wash rack with pressure washer equipment.	1.00	\$50,000.00	LS	\$50,000
	Minimal waste oil storage; all waste oil removed by disposal contractor.	Provide bulk waste oil storage and waste oil furnace to heat portion of shop with waste oil.	1.00	\$35,000.00	LS	\$35,000
<b>Facility: Police Warehouse/Fleet Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$769,250</b></span>						
D3030 Cooling Generating Systems	Large high-bay spaces in Fleet shop and Police warehouse with no bulk air movement system and largely failed cooling (RTU) equipment.	Install large ceiling fans and/or "pear" warehouse/shop air movement devices to provide 3 to 5 deg F of additional summer cooling comfort and move warm ceiling air down to working floor level in winter to reduce energy use.	12.00	\$1,500.00	EA	\$18,000
D3040 HVAC Distribution Systems	No heat recovery ventilation; all shop and warehouse supply air is fully heated, then exhausted.	Install heat recovery ventilation to improved indoor air quality and/or reduce energy use.	1.00	\$50,000.00	LS	\$50,000
D3050 Terminal and Package Units	RTU's for heating & cooling Fleet shop and Police warehouse spaces.	Convert to more conventional shop & warehouse HVAC system with gas-fired over-head infrared heat.	100,000.00	\$5.00	SF	\$500,000
D3060 Controls and Instrumentation	LEED EBOM certification started in 2016 but reportedly not completed.	Complete LEED EBOM certification including facility improvements as needed to achieve desired certification level.	129,000.00	\$1.00	SF	\$129,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Police Warehouse/Fleet

Total Site Opportunity Cost: \$2,178,250

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
D3090	Other HVAC Systems and Equipment	Unclear performance of individual systems and overall building.	129,000.00	\$0.25	SF	\$32,250
		No battery room.	1.00	\$15,000.00	LS	\$15,000
		No paint booth.	1.00	\$25,000.00	LS	\$25,000
<b>Facility: Police Warehouse/Fleet Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$971,000</b></span>						
D5010	Electrical Service and Distribution	Large relatively flat roof with good southern exposure.	75.00	\$5,000.00	EA	\$375,000
D5020	Lighting and Branch Wiring	Fluorescent lighting in most areas.	129,000.00	\$4.00	SF	\$516,000
D5037	Low Voltage Fire Alarm	Little or no detection in shop & warehouse areas.	1.00	\$50,000.00	LS	\$50,000
D5090	Other Electrical Systems	Just one existing electric vehicle charging station.	10.00	\$3,000.00	EA	\$30,000
<b>Facility: Police Warehouse/Fleet Building</b> <b>System: Equipment</b> <span style="float: right;"><b>Total Cost: \$105,000</b></span>						
E1010	Commercial Equipment	No heavy vehicle lift.	1.00	\$30,000.00	EA	\$30,000
E1020	Institutional Equipment					

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Police Warehouse/Fleet

Total Site Opportunity Cost: \$2,178,250

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
	Some sub-optimal fleet shop systems.	Upgrades to improve efficiency and/or safety.	1.00	\$75,000.00	LS	\$75,000
<b>Facility:</b>	<b>Police Warehouse/Fleet Building</b>					
<b>System:</b>	<b>Special Construction</b>					
<b>Total Cost: \$20,000</b>						
F1010	Special Structures					
	Limited flammable liquid and hazmat storage inside building.	Packaged hazmat storage building with integral containment located outside to increase amount of materials that may be stored between material deliveries and waste pick-ups.	1.00	\$20,000.00	LS	\$20,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Introduction

# Thermal Trend - Lean DB Report

## The Colbert Advantage - Exceptional Execution

### *30 years of exceeding your expectations!*

Colbert Infrared has been providing complete corporate solutions for Infrared Predictive Maintenance Programs, addressing the needs for professional Risk Assessment / Loss Prevention for more than 30 years. From Infrared inspections, Training and Certification, Infrared Camera Sales and installations, or helping you to setup and establish your own Predictive Maintenance programs, we have been right by your side.

We are your global partner for keeping your systems up and running, safely and efficiently. We service national and international companies all over the world, whether they have a single site, or thousands of locations. Our focus has always been on providing the highest quality solutions, with our emphasis on the standardization of services, and highly valuable information. When it comes to the philosophy of our services, we believe that "quality can never be compromised at any price".

Colbert Infrared Services, Inc. pioneered and developed the philosophy of **LEAN IR PREDICTIVE MAINTENANCE** and **LEAN IR Programs** to provide our clients with unsurpassed diagnostic services. This is based on our success with the design and use of the **Thermal Trend - Lean DB** database system. Colbert Infrared Services introduced the Thermal Trend - Lean RDBMS to the predictive maintenance community over 25 years ago to address the concerns of risk managers and maintenance staff - consistency of inspection quality and reporting / problem management. Today this "**Colbert Advantage**" has allowed us to be recognized as being the premier IR consulting company world wide, as well as the most influential in the industry.

The Thermal Trend - Lean report that you have in front of you, and the data collection methods that Colbert Infrared has used to gather and analyze your data is the result of over 25 years of development. The following discussions in this Intent section will provide you with an overall understanding of the testing methods that we have developed. Today the principles that Colbert Infrared has developed, are the most studied and followed testing methods in the world! Colbert Infrared Services, Inc. is at the heart of the world's largest in-house Infrared PdM programs. (Boeing, Ford, Harley-Davidson). We are very proud of the leadership position that we have in our industry and take that responsibility very seriously. We have always been committed to providing the most superior quality services with the highest value possible. Our focus has always been in exceptional execution at exceeding your expectations.

The Colbert Infrared Advantage

*We want your business, and we've been working hard for 30 years to earn it!*

### **Fred Colbert**

Fred Colbert  
President CIS, Inc.  
Certified Level III Infrared Thermographer and Instructor



## Introduction

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The Colbert Advantage - Exceptional Execution

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Data Explanation

Item Severity Criteria

Technical Outline

Our Approach to Thermography

Testing Methodology

Standards and Regulations covering the conduction of Infrared electro-mechanical inspections

**\*Please Note:** Depending on the type of inspection, and the items that were documented, will determine the specific sections that are included in this report. For example: if no Thermal Items / anomalies were found at the time of the inspection, then there will not be a Prioritized List by Temperature Rise, or a Thermal Item Details section. This also holds true depending on what the scope of work was to be, for example if this inspection was to cover only a thermographic inspection of electrical-mechanical equipment, then there will not be sections covering Ultrasonic or Ultraviolet inspection results. For this reason, the specific report sections and the Table of Contents when compared to each other may seem incomplete, but it is only because of the scope of work and the actual data that was documented at the time of the inspection that defines how much of the inspection results sections are included in this report.



Infrared Thermographic Inspection  
 Of  
 Selected Electro-Mechanical Equipment

Provided For  
 Fleet Operations  
 01/18/2018

**Summary:**

An Infrared Electrical / Mechanical inspection was performed on 01/18/2018 for Fleet Operations

All of the items inspected are listed in the inventory section of this Thermal Trend report. Any anomalies that were found at the time of the inspection (if any) are documented in the Problem Detail section of this report with their appropriate associated data, i.e. Thermograms, Photos, comments, measurements, etc.. They are also listed in the Prioritized list of problems section, in their order of priority based on the components temperature rise, as compared to a similar reference component of equal type, loading, and environmental influences, at the time of the inspection.

The final decision as to the repair priority of any and all problems in this report rests on the owners, management, and/or facilities engineering teams. Colbert Infrared Services, Inc. and the IR Thermographer assumes no liability directly or indirectly as a result of this inspection or the decisions made as to establishing the priority and timeline of repair decisions made by the owners, management, and/or facilities engineering teams. This inspection is not a guarantee or warranty of any kind.

**Executive Overview - for Thermal Items:**

Total number of locations in the database:	10
Total number of pieces of equipment in the database:	73
Total number of Items (open and closed covering all inspections) in the database	
Acute Items:	4
Chronic Items:	0
<b>Overall total of all acute and chronic:</b>	<b>4</b>
Current status of Items, acute and chronic	
Total closed Items (covering all inspections):	0
<b>Current total open Items (tested or not tested at the time of this inspection):</b>	<b>4</b>

I hereby certify that the above project was inspected by myself or under my direction and that the enclosed data is the direct result of this inspection.

**Fred Colbert**

President CIS, Inc.

Certified Level III Infrared Thermographer / Instructor: The Professional Thermographers Association



## Historical Test Status Reconciliation of Locations and Equipment, Thermal and Visual Items

Site: Fleet Operations	Insp. #2 01/18/2018	Insp. #1 06/22/2009
Locations: Tested	9	8
Locations: Not-tested	1	2
Equipment: Tested	57	70
Equipment: Not-tested	16	3
Total No. of open Thermal and Visual items (tested or not)	4	1
Total No. of documented Thermal and Visual items this insp.	4	1
Total No. of open Thermal and Visual items	1	4
No. of Thermal items that were closed	1	0

### Data Explanation

#### Locations and Equipment:

Locations refer to places in a route where equipment is located. For example: a Building, Floor, Room, Substation or Area can all be considered locations. The same can be said for a large Switchboards, Motor Control Centers, Distribution Panel, etc.. In each of the examples they would be considered the path to, or the location of where equipment is grouped based on its geographical location.

#### Tested and Not-Tested:

Refers to if the equipment/location, where the equipment is located, was inspected using Infrared Thermography / Visual inspection testing procedures at the time of the inspection. If the equipment was tested, it should not be considered a pass/fail test, but that the equipment was merely "Tested" versus "Not-Tested" at the time of the inspection. There are many factors that can contribute to the conditions under which the equipment can be tested (load, environment, length of time running) that must be taken into consideration, as well as many reasons as to why the equipment was not able to be tested (under repair, not in service, no load).

#### Open and Closed Items:

Refers to the Item status, as in if it has been resolved or not (fixed/repaired and re-inspected to determine that the validity of the repair action).



**Thermal Item List - Prioritized by Temperature Rise**
**Site:** Fleet Operations

**Inspection #** 2

**Start Date:**

 Site: Fleet Operations      Insp. No. 2    Start Date:      **Thermal Item # 4** At: Jan 19 2018 12:19PM

 Indirect Measurement: No      Severity: 4      Repair Status:      Problem Status: **OPEN** 

Route: Roof

**Location/Equipment:** RTU-26

Barcode: 107AQJ Asset ID:

Voltage: Rated Load: 60 Wind Speed: Ambient:44.0

IR/Image GUID File : 70e6f88a-1ac4-4eb8-a374-edd6f22aae6a.idn

	Temp	Phase	Load	% of
<b>Component:</b>	64.0	A Phase	5Amps	@8.3%
<b>Reference:</b>	52.0	B Phase	5Amps	@8.3%
<b>Delta T:</b>	12.0			@8.3%

Comment: A Phase Line Side Stab/Pivot Connection of Disconnect Switch

 Site: Fleet Operations      Insp. No. 2    Start Date:      **Thermal Item # 1** At: Jan 19 2018 11:51AM

 Indirect Measurement: No      Severity: 4      Repair Status:      Problem Status: **OPEN** 

Route: Roof

**Location/Equipment:** RTU-3

Barcode: 107AQ7 Asset ID:

Voltage: Rated Load: 60 Wind Speed: Ambient:44.0

IR/Image GUID File : 972d7aa2-4f5c-4894-942c-9725dea57f16.idn

	Temp	Phase	Load	% of
<b>Component:</b>	66.0	C Phase	5Amps	@8.3%
<b>Reference:</b>	55.0	A Phase	5Amps	@8.3%
<b>Delta T:</b>	11.0			@8.3%

Comment: C Phase Line Side Stab/Pivot Connection of Disconnect Switch

 Site: Fleet Operations      Insp. No. 2    Start Date:      **Thermal Item # 2** At: Jan 19 2018 11:58AM

 Indirect Measurement: No      Severity: 4      Repair Status:      Problem Status: **OPEN** 

Route: Roof

**Location/Equipment:** RTU-10

Barcode: 107AQB Asset ID:

Voltage: Rated Load: 60 Wind Speed: Ambient:44.0

IR/Image GUID File : dd643e2e-161d-4c90-8590-fb80738c1df9.idn

	Temp	Phase	Load	% of
<b>Component:</b>	60.0	B Phase	4Amps	@6.7%
<b>Reference:</b>	50.0		4Amps	@6.7%
<b>Delta T:</b>	10.0			@6.7%

Comment: B Phase Line Side Stab Connection of Disconnect Switch

 Site: Fleet Operations      Insp. No. 2    Start Date:      **Thermal Item # 3** At: Jan 19 2018 12:04PM

 Indirect Measurement: No      Severity: 4      Repair Status:      Problem Status: **OPEN** 

Route: Roof

**Location/Equipment:** RTU-12

Barcode: 107AQE Asset ID:

Voltage: Rated Load: 60 Wind Speed: Ambient:44.0

IR/Image GUID File : c8bfe878-c03b-4e81-9cd8-6143d4f489d5.idn

	Temp	Phase	Load	% of
<b>Component:</b>	60.0		5Amps	@8.3%
<b>Reference:</b>	50.0		5Amps	@8.3%
<b>Delta T:</b>	10.0			@8.3%

Comment: B Phase Line Side Pivot Connection of Disconnect Switch





Thermal Item List - Prioritized by Temperature Rise

**Site:** Fleet Operations

**Inspection #** 2

**Start Date:**

---



### Thermal Items: Detail Report

 Site: Fleet Operations      Insp. No. 2    Start Date: 01/18/2018      **Thermal Item # 1**    At: 01/19/2018 11:51

 Indirect Measurement: No      Severity: 4      Repair Status:      Problem Status: **OPEN** 

Route: Roof

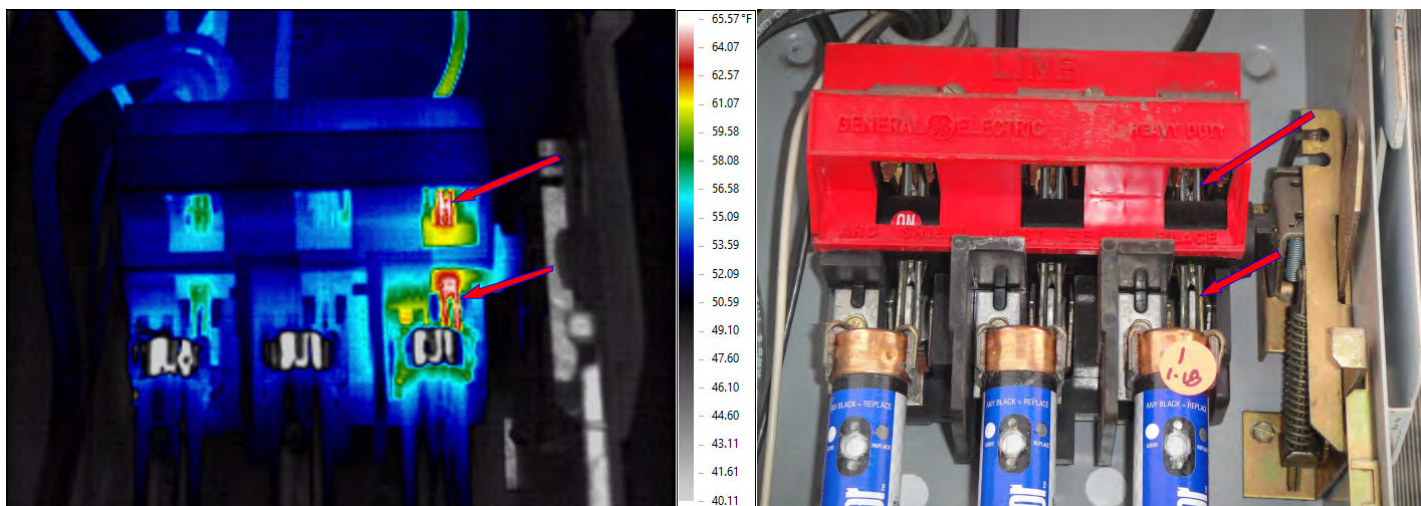
**Location/Equipment: RTU-3**

Barcode: 107AQ7 Asset ID:

Voltage: Rated Load: 60 Wind Speed: Ambient:44.0

IR/Image GUID File : 972d7aa2-4f5c-4894-942c-9725dea57f16.idn

	Temp	Phase	Load	% of
<b>Component:</b>	66.0	C Phase	5Amps	@8.3%
<b>Reference:</b>	55.0	A Phase	5Amps	@8.3%
<b>Delta T:</b>	<b>11.0</b>			@8.3%

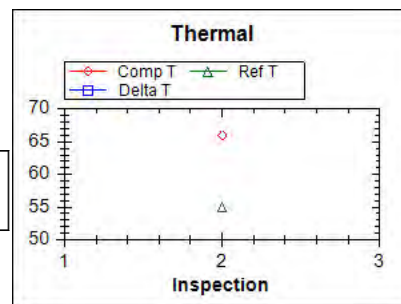

**Comment:**      **C Phase Line Side Stab/Pivot Connection of Disconnect Switch**

Probable Cause: loose or corroded connection.

Recommendation: Disassemble, clean, retighten, or replace as necessary

#### Historical Sub Report

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	1	01/19/2018	66.0	55.0	11.0	4	5	8.3%		44.0



Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			

### Thermal Items: Detail Report

 Site: Fleet Operations      Insp. No. 2   Start Date: 01/18/2018      **Thermal Item # 2**   At: 01/19/2018 11:58

 Indirect Measurement: No      Severity: 4      Repair Status:      Problem Status: **OPEN** 

Route: Roof

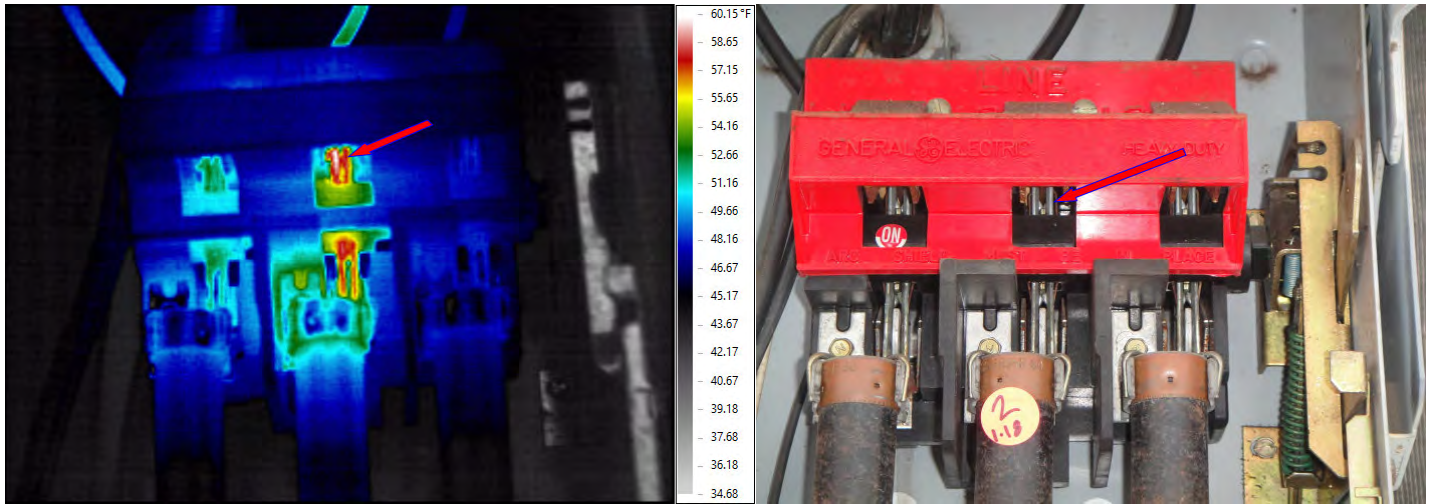
**Location/Equipment: RTU-10**

Barcode: 107AQB Asset ID:

Voltage: Rated Load: 60 Wind Speed: Ambient:44.0

IR/Image GUID File : dd643e2e-161d-4c90-8590-fb80738c1df9.idn

	Temp	Phase	Load	% of
<b>Component:</b>	60.0	B Phase	4Amps	@6.7%
<b>Reference:</b>	50.0		4Amps	@6.7%
<b>Delta T:</b>	10.0			@6.7%

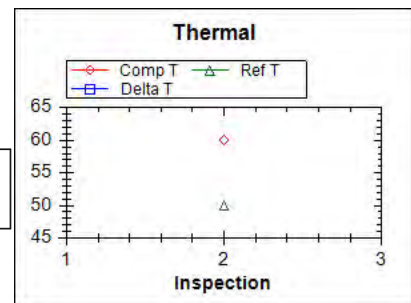

**Comment:**      **B Phase Line Side Stab Connection of Disconnect Switch**

Probable Cause: loose or corroded connection.

Recommendation: Disassemble, clean, retighten, or replace as necessary

#### Historical Sub Report

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	2	01/19/2018	60.0	50.0	10.0	4	4	6.7%		44.0



Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			



### Thermal Items: Detail Report

 Site: Fleet Operations      Insp. No. 2    Start Date: 01/18/2018      **Thermal Item # 3**    At: 01/19/2018 12:04

 Indirect Measurement: No      Severity: 4      Repair Status:      Problem Status: **OPEN** 

Route: Roof

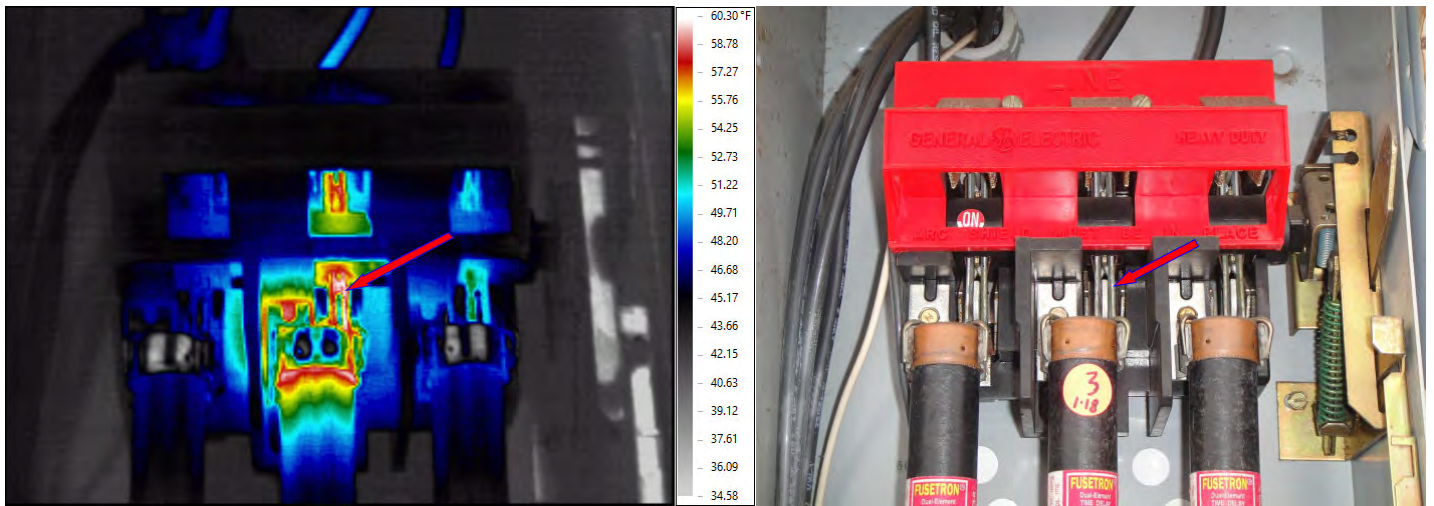
**Location/Equipment: RTU-12**

Barcode: 107AQE Asset ID:

Voltage: Rated Load: 60 Wind Speed: Ambient:44.0

IR/Image GUID File : c8bfe878-c03b-4e81-9cd8-6143d4f489d5.idn

	Temp	Phase	Load	% of
<b>Component:</b>	60.0		5Amps	@8.3%
<b>Reference:</b>	<u>50.0</u>		5Amps	@8.3%
<b>Delta T:</b>	<b>10.0</b>			@8.3%

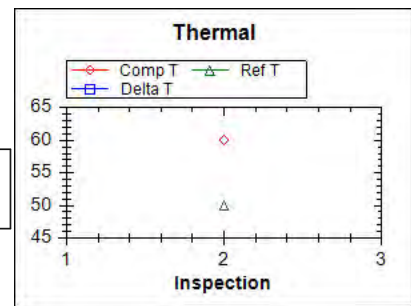

**Comment:**      **B Phase Line Side Pivot Connection of Disconnect Switch**

Probable Cause: loose or corroded connection.

Recommendation: Disassemble, clean, retighten, or replace as necessary

#### Historical Sub Report

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	3	01/19/2018	60.0	50.0	10.0	4	5	8.3%		44.0



Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			

### Thermal Items: Detail Report

 Site: Fleet Operations      Insp. No. 2    Start Date: 01/18/2018      **Thermal Item # 4**    At: 01/19/2018 12:19

 Indirect Measurement: No      Severity: 4      Repair Status:      Problem Status: **OPEN** 

Route: Roof

**Location/Equipment: RTU-26**

Barcode: 107AQJ Asset ID:

Voltage: Rated Load: 60 Wind Speed: Ambient:44.0

IR/Image GUID File : 70e6f88a-1ac4-4eb8-a374-edd6f22aae6a.idn

	Temp	Phase	Load	% of
<b>Component:</b>	64.0	A Phase	5Amps	@8.3%
<b>Reference:</b>	52.0	B Phase	5Amps	@8.3%
<b>Delta T:</b>	<b>12.0</b>			@8.3%

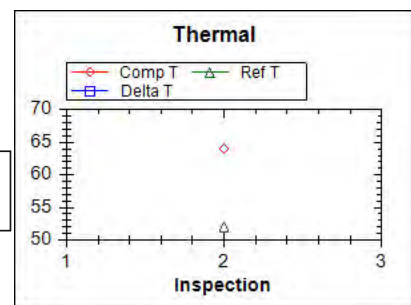

**Comment:**      **A Phase Line Side Stab/Pivot Connection of Disconnect Switch**

Probable Cause: loose or corroded connection.

Recommendation: Disassemble, clean, retighten, or replace as necessary

#### Historical Sub Report

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	4	01/19/2018	64.0	52.0	12.0	4	5	8.3%		44.0



Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			

Closed Items List  
Inspection # 2

Site: Fleet Operations

[ Visual ]                      Problem # 1                      Barcode: 107ARH                      Severity Code: 1

Location: Police Mezz.

Equipment: Panel H3

Description: Neutral bus assembly mounting bracket is broken and bus is hanging out of panel.

Inspection	Prob#	Date	Sev.Code
2	1	01/18/2018	
1	1	06/23/2009	1



### Inspection Notes List

Site: Fleet Operations

Inspection # 2

Date:

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Inspection Note # 1	Barcode:	Asset ID:	Severity Code:
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Date-Time: Jan 22 2018 1:39PM

Location:

Equipment: Fleet Operations

Test Status: Tested

Description: **Items marked as "Not Tested" were not running at time of inspection.**

Notes:

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### Historical Test Status Matrix

Site: Fleet Operations

Location/Equipment	Insp. #2	Insp. #1
	01/18/2018	06/22/2009
	Open Prob	Open Prob
	Status	Status
1 Floor	Tested	Tested
Elevator Room	Tested	Not Tested
Disconnect: Cab Lights	Tested	Not Tested
Disconnect: Elevator Shunt Trip	Tested	Not Tested
F131A Lube & Compressor	Tested	Tested
45 XFMR	Tested	Tested
Air compressor Left	Tested	Tested
Air compressor Right	Tested	Tested
ATS	Tested	Tested
Panel XH3	Tested	Tested
Panel XMDB	Tested	Tested
Panel XP3	Tested	Tested
West Wall	Tested	Not Tested
Panel: H7	Tested	Not Tested
North Fleet Mezz.	Tested	Tested
45 XFMR	Tested	Tested
Panel H1	Tested	Tested
Panel H4	Tested	Tested
Panel H6	Tested	Tested
Panel P1	Tested	Tested
Panel P1A	Tested	Tested
Starter	Tested	Tested
Switchboard	Tested	Tested
Parts Mezz.	Tested	Tested
45 KVA XFMR	Tested	Tested
75KVA XFMR	Tested	Tested
75KVA XFMR	Tested	Tested
Panel C	Tested	Tested
Panel H2	Tested	Tested
Panel H2	Tested	Tested
Panel P2	Tested	Tested
Panel P2	Tested	Tested
Panel XH1 (Base)	Tested	Tested
Panel XP1-1	Tested	Tested
Panel XP1-2	Tested	Tested
Police Mezz.	Tested	Tested
45 XFMR	Tested	Tested
75KVA XFMR	Tested	Tested
75KVA XFMR	Tested	Tested
Panel H3	Tested	* Tested
Panel H3A	Tested	Tested
Panel P5	Tested	Tested
Panel P6	Tested	Tested
Panel P6-1	Tested	Tested
Panel XH2	Tested	Tested
Panel XP2-1	Tested	Tested
Panel XP2-2	Tested	Tested
Trane Disconnect - Left	Tested	Tested
Trane Disconnect - Right	Tested	Tested
Roof	Tested	Tested
RTU-1	Not Tested	Tested
RTU-10	* Tested	Tested
RTU-11	Not Tested	Tested
RTU-12	* Tested	Tested
RTU-13	Not Tested	Tested
RTU-14	Tested	Tested
RTU-15	Not Tested	Tested
RTU-16	Tested	Tested





### Historical Test Status Matrix

Site: Fleet Operations

Location\Equipment

Insp. #2 01/18/2018		Insp. #1 06/22/2009	
Open Prob	Status	Open Prob	Status

RTU-17		Tested	Tested
RTU-18		Not Tested	Tested
RTU-19		Not Tested	Tested
RTU-2		Tested	Tested
RTU-20		Not Tested	Tested
RTU-22		Not Tested	Tested
RTU-23		Tested	Tested
RTU-24		Tested	Tested
RTU-25		Tested	Tested
RTU-26	*	Tested	Tested
RTU-27		Not Tested	Tested
RTU-28		Not Tested	Tested
RTU-29		Not Tested	Tested
RTU-3	*	Tested	Tested
RTU-30		Not Tested	Tested
RTU-4		Tested	Tested
RTU-5		Tested	Tested
RTU-6		Tested	Tested
RTU-7		Not Tested	Tested
RTU-8		Tested	Tested
RTU-8		Tested	Tested
RTU-9		Not Tested	Tested
SID Warehouse		Not Tested	Tested
Heat Pump Left		Not Tested	Tested
Heat Pump Right		Not Tested	Tested



## Facility Summary

City of Tacoma  
 TPD Sector 1  
 TPD Sector 1 Building

1524 Martin Luther King Way  
 Tacoma, WA 98407

Facility Size - Gross S.F. 3,500  
 Year Of Original Construction 2006  
 Facility Use Type Police Station  
 Construction Type Light  
 # of Floors 1  
 Energy Source Electric  
 Year Of Last Renovation 2006  
 Historic Register No



FCI (BMAR/CRV)	0.07	Predicted Renewal Budget (20 yrs)	\$479,895
FCI (Bldg OD/CRV)	0.06	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$1,590,000	Building	\$93,581
BMAR (Backlog of Maintenance and Repair)	\$105,000	Infrastructure	\$51,150
Beginning Budget Year	2018	Total	\$144,731
		Opportunity Total Project Cost	\$415,013

## Facility Condition Summary

The TPD Sector 1 building is a single-story, 3,500 sq. ft. police sub-station built in 2006, with a 49 person community meeting room. The building is a wood frame structure, with slab on grade, a standing seam butterfly roof, concrete masonry unit walls, and cementitious panel cladding. The landscaping and building is well maintained, and in good condition. MEP systems are generally in good condition but beginning to show some signs of age. There are thermal comfort complaints which should be investigated and corrected. Opportunity to add automatic lighting controls throughout and to add solar PV panels to large south sloping portion of north roof.

# Facility Summary

City of Tacoma  
 TPD Sector 1  
 TPD Sector 1 Building

1524 Martin Luther King Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	2006	2006	2	TRB 01/03/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	2006	2006	2	TRB 01/03/18	Concrete slab on grade.
<b>B Shell</b>			<b>2.0</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	2006	2006	2	TRB 01/03/18	Attic floor is wood frame with wood sheathing.
<b>B1020 Roof Construction</b>	2006	2006	2	TRB 01/03/18	TJI framing with wood sheathing.at exterior eaves, exposed wood structure and eaves showing signs of minor stains and weathering.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	2006	2006	2	TRB 01/03/18	Wood stud walls with masonry veneer up to 10 ft. Masonry is a combination of integrally-colored ground-face and split faced CMU of contrasting color; upper wall panels are cement fiber panels with aluminum recessed joints. Repair bullet holes in South Facing Cement board siding. Some South facing efflorescence on CMU below window noted (investigate for moisture intrusion and clean masonry).
<b>B2020 Exterior Windows</b>	2006	2006	2	TRB 01/03/18	Storefront aluminum frames (fixed) with insulating glazing system. Operable vent units at office do not have insect screens.
<b>B2030 Exterior Doors</b>	2006	2006	2	TRB 01/03/18	Storefront doors at main entry with storefront aluminum frames. Hollow metal door and frame at rear exit door.
<b>Roofing</b>					

# Facility Summary

City of Tacoma  
 TPD Sector 1  
 TPD Sector 1 Building

1524 Martin Luther King Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>2.0</b>		
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	2006	2006	2	TRB 01/03/18	Sloped standing seam metal roof at main areas and single ply adhered membrane at connecting low roof.
<b>B3030 Projections</b>	2006	2006	2	TRB 01/03/18	Roof overhangs formed by extended wood decking and glu-lam beams.
<b>C Interiors</b>			<b>2.0</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	2006	2007	2	TRB 01/03/18	Partitions are all gypsum wallboard on wood studs except for main entry wall which is ground face CMU with integral color. Minor miscellaneous damage to drywall in men's room behind door.
<b>C1020 Interior Doors</b>	2006	2006	2	TRB 01/03/18	All door frames are welded hollow metal except for main entry except for meeting room and community center connecting link which are storefront aluminum. Interior doors are solid core birch veneer except for storefront frame areas (per above) which are storefront. Recommend adjusting closers at toilet rooms for softer close.
<b>C1030 Fittings</b>	2006	2006	2	TRB 01/03/18	Ceiling mount projection screen and projector at community room. Whiteboards in select office areas. Plastic laminate-faced pre-manufactured casework in breakroom and work area. P-lam faced Toilet Partitions don't have soft close hardware: recommend adjustments to closing hinge to thwart future system degradation from door slam and associated system racking and vibration.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	2006	2006	2	TRB 01/03/18	Exposed ground-face CMU at main entry. Plastic

# Facility Summary

City of Tacoma  
 TPD Sector 1  
 TPD Sector 1 Building

1524 Martin Luther King Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.0</b>		
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>					laminate wainscots at restrooms. Some areas with patch and repaint misc. Gypsum wall surfaces (partition wall at corridor 119 entry, community room 107).
<b>C3020 Floor Finishes</b>	2006	2006	2	TRB 01/03/18	Linoleum sheet flooring finish at entry, hallways, workrooms and toilets. 2x2 carpet squares at office area. Exposed concrete at mechanical space. Stains and wear of some carpet. Sheet good under urinal stained from overflow.
<b>C3030 Ceiling Finishes</b>	2006	2006	2	TRB 01/03/18	Gypsum wallboard (painted) soffits typical throughout. 2x2 acoustical tile lay-in ceiling tile system at meeting room and main toilets. 2x2 Perforated wood lay-in panels at entry.
<b>D Services</b>			<b>2.7</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	2006	2006	2	DCS 01/03/18	Porcelain and stainless steel fixtures with minimal wear; water closets are tank-type and slightly slow to flush; opportunity to upgrade to pressure-tank type. Urinal backs-up and overflows - probably needs drain cleaning; floor is damaged due to this.
<b>D2020 Domestic Water Distribution</b>	2006	2006	2	DCS 01/03/18	Copper domestic water piping system with 40-gal Rheem electric tank type water heater providing hot water to fixtures; with Grundfos circ pump-heater & pump with 5 to 10 years remaining life.
<b>D2030 Sanitary Waste</b>	2006	2006	2	DCS 01/01/18	ABS plastic piping serves as waste and vent system for plumbing fixtures; no issues reported; tested fixtures drain well and flush somewhat slow, but assume due to fixtures, not piping; except for urinal which needs service (see D2010).

# Facility Summary

City of Tacoma  
 TPD Sector 1  
 TPD Sector 1 Building

1524 Martin Luther King Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			2.7		
<b>Plumbing</b>					
<b>D2030 Sanitary Waste</b>					
<b>D2040 Rain Water Drainage</b>					
	2006	2006	2	DCS 01/03/18	Gutters & downspout with no issues reported, however low roof needs cleaning (minor maintenance issues).
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>					
	2006	2006	2	DCS 01/01/18	Galvanized steel supply and return air ductwork distributes heating and cooling air throughout building. Building operating under negative pressure; little or no airflow to some spaces; unclear return air path.
<b>D3050 Terminal and Package Units</b>					
	2006	2006	3	DCS 01/01/18	Two 5-ton split system heat pumps serve entire building, split into east & west zones; with recently installed electric wall heater at lobby desk. Units approaching end of life. Refrigerant piping insulation is deteriorating. Opportunity to rezone from East-West to North-South to better meet differing public versus police space use, reduce energy use and increase thermal comfort.
<b>D3060 Controls and Instrumentation</b>					
	2006	2006	3	DCS 01/01/18	Each heat pump is controlled by programmable thermostat; aging but functional; replace with new upon furnace/heat pump replacement. This substation has an additional T-stat installed in the public meeting room, assumed due to southern exposure and averaged with one of the office area T-stats.
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>					
	2006	2006	2	DCS 01/01/18	Fire extinguishers in cabinets and first aid cabinet, plus AED; all in good condition with current inspections.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					

# Facility Summary

City of Tacoma  
 TPD Sector 1  
 TPD Sector 1 Building

1524 Martin Luther King Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.7</b>		
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	2006	2006	2	DCS 01/01/18	Service is underground from pad-mounted transformer to Square D 400A, 120/240V, single-phase main distribution panel, includes on-board TVSS; all in good condition with no issues reported, except panel is almost completely filled (room for only one or two more circuits).
<b>D5020 Lighting and Branch Wiring</b>	2006	2006	3	DCS 01/01/18	Lighting is a combination of LED down-lights, T5 pendants and T8 parabolics. Branch devices are typical 20A. Mostly manual control. Beginning to show age, but still fully functional.
<b>D5032 Low Voltage Communication</b>	2006	2006	3	DCS 01/01/18	Front door emergency phone; also front door intercom. Avaya phone system. A/V in conference room. No issues reported.
<b>D5037 Low Voltage Fire Alarm</b>	2006	2006	3	DCS 01/01/18	Fire alarm control panel with recently installed AES wireless alarm transmitter,
<b>D5038 Low Voltage Security</b>	2006	2006	3	DCS 01/01/18	CCTV at front door, card key access control at exterior and some interior doors, plus motion sensors inside. Bosch security panel little used.
<b>D5039 Low Voltage Data</b>	2006	2006	3	DCS 01/01/18	UTP voice/data cabling. Newer WAP(s).
<b>D5090 Other Electrical Systems</b>	2006	2006	2	DCS 01/01/18	75 kW SDMO diesel generator with 270 gal skid mounted tank; 400A ASCO transfer switch backs-up entire facility. Battery-backed egress fixtures and exit signs.
<b>E Equipment and Furnishings</b>			<b>2.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>					

## Facility Summary

City of Tacoma  
 TPD Sector 1  
 TPD Sector 1 Building

1524 Martin Luther King Way  
 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>E Equipment and Furnishings</b>			<b>2.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	2006	2006	2	DCS 01/22/18	Residential appliances at kitchenette.
<b>E1030 Vehicular Equipment</b>	2006	2006	2	DCS 01/22/18	Motorized security parking gates with card-key access; no issues reported.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	2006	2006	2	TRB 01/01/18	Pre-manufactured plastic laminate - faced casework at break-room and workroom; mini-blinds typical at windows except pull-down shades at main meeting room. Mostly in good condition with some minor wear.
<b>F Special Construction</b>			<b>4.0</b>		
<b>Special Construction</b>					
<b>F1050 Special Controls and Instrumentation</b>	2006	2006	4	DCS 01/01/18	Electronic solar-powered interpretive signage on gabion artwork appears to have failed; or perhaps mis-applied solar power charging system (on side of artwork rather than on top).



# Facility Summary

City of Tacoma  
 TPD Sector 1  
 Infrastructure

1524 Martin Luther King Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2020 Parking Lots</b>	2006	2006	2	TRB 01/03/18	Asphalt surface with concrete curbs and wheel stops. some asphalt cracking in need of seal, maintenance top coat recommended. Parking paint striping fading.
<b>G2030 Pedestrian Paving</b>	2006	2006	2	TRB 01/03/18	Concrete walks and gravel paths. In good condition.
<b>G2040 Site Development</b>	2006	2006	2	TRB 01/03/18	Chain link fences and gates.
<b>G2050 Landscaping</b>	2006	2006	2	TRB 01/03/18	Shrubs, trees, and boulders. Mature and in good maintained condition.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	2006	2006	2	DCS 01/03/18	City water supplying building and irrigation system with good pressure and no issues reported.
<b>G3020 Sanitary Sewer</b>	2006	2006	2	DCS 01/03/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	2006	2006	2	DCS 01/03/18	Roof and site storm drain to infiltration pond on north side of secure parking; no issues observed or reported.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	2006	2006	2	DCS 01/03/18	Tacoma Power underground to utility room; no issues reported. Notice posted on NW corner of secure parking indicating Sound Transit will be installing power infrastructure in the near future - may impact future use of the NW portion of the site.

# Facility Summary

City of Tacoma  
 TPD Sector 1  
 Infrastructure

1524 Martin Luther King Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

##### G4020 Site Lighting

2006 2006 2

DCS 01/03/18

Original building mounted architectural sconces, original parking lot metal light poles with recently installed LED heads; all outside lighting on timer control. In-ground up-lights at flag poles appear operable. Sconce lenses are dirty and cracking.

##### G4030 Site Communications and Security

2006 2006 2

DCS 01/03/18

Communication and data service from purveyors underground to utility room; building perimeter CCTV; powered gates to secure parking are slow to operate in cold weather.



# Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma  
Site: TPD Sector 1

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Infrastructure	Site Improvements	\$22,000	\$5,500	\$5,500	\$18,150	\$51,150
	<b>Facility Total</b>	<b>\$22,000</b>	<b>\$5,500</b>	<b>\$5,500</b>	<b>\$18,150</b>	<b>\$51,150</b>
TPD Sector 1 Building	Exterior Closure	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Interior Finishes	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	HVAC	\$30,250	\$7,563	\$7,563	\$24,956	\$70,331
	<b>Facility Total</b>	<b>\$40,250</b>	<b>\$10,063</b>	<b>\$10,063</b>	<b>\$33,206</b>	<b>\$93,581</b>
	<b>Site Total</b>	<b>\$62,250</b>	<b>\$15,563</b>	<b>\$15,563</b>	<b>\$51,356</b>	<b>\$144,731</b>



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector 1

Total Observed Deficiency Repair Direct Cost : \$62,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Infrastructure					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$22,000
System: Site Improvements					Total System Deficiency Repair Cost (Marked Up):				\$51,150
<b>Parking Lots</b>									
AC Paving	3	3	2018		4,000	\$5.50	SF	\$22,000	\$51,150
Asphalt beginning to crack, potholes developing.				Patch, seal and top coat asphalt. Re-stripe paint.					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector 1

Total Observed Deficiency Repair Direct Cost : \$62,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPD Sector 1 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$5,000
System: Exterior Closure					Total System Deficiency Repair Cost (Marked Up):				\$11,625
<b>Exterior Walls</b>									
Sealant	4	2	2018		1	\$5,000.00	EA	\$5,000	\$11,625

Sealants at window frames, masonry expansion joints, and some composite panel joints sealants are beginning to fail.

Re-caulk exterior sealant joints.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector 1

Total Observed Deficiency Repair Direct Cost : \$62,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPD Sector 1 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$5,000
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$11,625
<b>Wall Finishes</b>									
Gypsum Wall Board and Paint	3	4	2018		1	\$5,000.00	LS	\$5,000	\$11,625
Areas of wear and tear of painted gypsum surfaces.				Patch and paint.					





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector 1

Total Observed Deficiency Repair Direct Cost : \$62,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility:</b> TPD Sector 1 Building					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$30,250</b>
<b>System:</b> HVAC					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$70,331</b>
<b>HVAC Distribution Systems</b>									
Ductwork	4	3	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Unclear return air path, especially from spaces fully walled-off reportedly in 2007.

Evaluate return air path and provide full return air path function to improve air circulation and more uniform temperature.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector 1

Total Observed Deficiency Repair Direct Cost : \$62,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPD Sector 1 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$30,250
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$70,331
<b>HVAC Distribution Systems</b>									
Ductwork	4	3	2018		3,500	\$1.50	SF	\$5,250	\$12,206

Building under negative pressure and no airflow to some supply air diffusers.

TAB and/or R-Cx to identify issues and correct.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector 1

Total Observed Deficiency Repair Direct Cost : \$62,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility:</b> TPD Sector 1 Building									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
<b>System:</b> HVAC									<b>\$30,250</b>	
<b>Terminal and Package Units</b>									<b>Total System Deficiency Repair Cost (Marked Up):</b>	
Heat pumps	4	5	2018		2	\$10,000.00	LS	\$20,000	\$46,500	

Remaining original heat pump furnace and condensing unit soon approaching end of life.

Budget for replacement upon failure.



## Opportunity Summary By Subsystem

City of Tacoma

Site: TPD Sector 1

Total Site Opportunity Cost: \$178,500

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: TPD Sector 1 Building</b> <b>System: Exterior Closure</b> <span style="float: right;"><b>Total Cost: \$85,000</b></span>						
B2020	Exterior Windows					
	Police office windows do not appear to have bullet or impact resistant security glazing.	Provide Bullet resistant glazing at Police office windows, or at least enhance with impact resistant security film.	20.00	\$2,500.00	EA	\$50,000
	Office area operable window vent units do not have security stops, and no insect screens	Modify operable windows by providing vent units with security stops (preventing window from opening wide enough for a person to slip in if window is not secured after hours). Provide insect screens.	20.00	\$1,500.00	EA	\$30,000
B2030	Exterior Doors					
	Exterior entry system glazing does not have impact resistant security film.	Provide installation of impact resistant security film at glazed entry systems.	2.00	\$2,500.00	EA	\$5,000
<b>Facility: TPD Sector 1 Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$22,500</b></span>						
D3040	HVAC Distribution Systems					
	Temporary extension ladder in comm room for access to mechanical mezzanine.	Install permanent access to mechanical mezzanine.	1.00	\$5,000.00	LS	\$5,000
	Meeting room is not a separate zone; over-heats during public meetings.	Provide dedicated supplemental ductless split-Dx heating especially cooling for this space.	1.00	\$7,500.00	LS	\$7,500
D3050	Terminal and Package Units					
	Zoned east-west contrary to north-south public versus police use.	Re-zone to north-south consistent with public versus police use to reduce energy use and increase comfort.	2.00	\$5,000.00	LS	\$10,000
<b>Facility: TPD Sector 1 Building</b> <b>System: Fire Protection</b> <span style="float: right;"><b>Total Cost: \$14,000</b></span>						
D4010	Fire Protection Sprinkler Systems					
	No fire sprinkler.	Install fire sprinkler.	3,500.00	\$4.00	SF	\$14,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: TPD Sector 1

Total Site Opportunity Cost: \$178,500

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
Facility: TPD Sector 1 Building						
System: Electrical	Total Cost: \$57,000					
D5010	Electrical Service and Distribution					
	No PV.	Add PV to north roof.	10.00	\$5,000.00	EA	\$50,000
D5020	Lighting and Branch Wiring					
	Mostly manual lighting controls.	Upgrade to automated controls.	3,500.00	\$2.00	SF	\$7,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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Page 2 of 2

## Facility Summary

City of Tacoma  
 TPD Sector 2  
 TPD Sector 2 Building

5136 North 26th Street  
 Tacoma, WA 98407

Facility Size - Gross S.F. 3,500  
 Year Of Original Construction 2006  
 Facility Use Type Police Station  
 Construction Type Light  
 # of Floors 1  
 Energy Source Electric  
 Year Of Last Renovation n/a  
 Historic Register No



FCI (BMAR/CRV)	0.06	Predicted Renewal Budget (20 yrs)	\$502,981
FCI (Bldg OD/CRV)	0.03	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$1,590,000	Building	\$46,500
BMAR (Backlog of Maintenance and Repair)	\$98,000	Infrastructure	\$16,275
Beginning Budget Year	2018	<b>Total</b>	<b>\$62,775</b>
		Opportunity Total Project Cost	\$298,763

## Facility Condition Summary

The TPD Sector 2 building is a single story, 3,500 sq.ft. police sub-station built in 2006, with a 49 person community meeting room. The building is a wood frame structure, with slab on grade, a standing seam butterfly roof, concrete masonry unit walls, and cementitious panel cladding. The landscaping and building is well maintained, and in good condition. MEP systems generally in good condition but beginning to show some signs of age. There are thermal comfort complaints which should be investigated and corrected. Opportunity to add automatic lighting controls throughout.

# Facility Summary

City of Tacoma  
 TPD Sector 2  
 TPD Sector 2 Building

5136 North 26th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	2006	2006	2	TRB 01/01/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	2006	2006	2	TRB 01/01/18	Concrete slab on grade.
<b>B Shell</b>			<b>2.0</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	2006	2006	2	TRB 01/01/18	Attic floor is wood frame with wood sheathing.
<b>B1020 Roof Construction</b>	2006	2006	2	TRB 01/01/18	TJI framing with wood sheathing at exterior eaves, exposed wood structure and eaves showing signs of minor stains and weathering.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	2006	2006	2	TRB 01/01/18	Wood stud walls with masonry veneer up to 10 ft. Masonry is a combination of integrally-colored ground-face and split faced CMU of contrasting color. Upper wall panels are cement fiber panels with aluminum recessed joints.
<b>B2020 Exterior Windows</b>	2006	2006	2	TRB 01/01/18	Storefront aluminum frames (fixed) with insulating glazing system. Operable vent units at office do not have insect screens.
<b>B2030 Exterior Doors</b>	2006	2006	2	TRB 01/01/18	Storefront doors at main entry with storefront aluminum frames. Hollow metal door and frame at rear exit door.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	2006	2006	2	TRB 01/01/18	Sloped standing seam metal roof at main areas and single-ply adhered membrane at connecting

# Facility Summary

City of Tacoma  
 TPD Sector 2  
 TPD Sector 2 Building

5136 North 26th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>2.0</b>		
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					low roof.
<b>B3030 Projections</b>	2006	2006	2	TRB 01/01/18	Roof overhangs formed by extended wood decking and glu-lam beams.
<b>C Interiors</b>			<b>2.0</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	2006	2007	2	TRB 01/01/18	Partitions are all gypsum wallboard on wood studs except for main entry wall which is ground face CMU with integral color. Minor miscellaneous damage to drywall in men's room behind door.
<b>C1020 Interior Doors</b>	2006	2006	2	TRB 01/01/18	All door frames are welded hollow metal except for main entry, meeting room, and community center connecting link which are storefront aluminum. Interior doors are solid core birch veneer except for storefront frame areas (per above) which are storefront. Recommend adjusting closers at toilet rooms for softer close.
<b>C1030 Fittings</b>	2006	2006	2	TRB 01/01/18	Ceiling mount projection screen and projector at community room. Whiteboards in select office areas. Plastic laminate-faced pre-manufactured casework in breakroom and work area. P-lam faced Toilet Partitions don't have soft close hardware: recommend adjustments to closing hinge to thwart future system degradation from door slam and associated system racking and vibration.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	2006	2010	2	TRB 01/01/18	Exposed ground-face CMU at main entry. Plastic laminate wainscots at restrooms. Paint to all other wall surfaces. Minor areas of chipped paint



# Facility Summary

City of Tacoma  
 TPD Sector 2  
 TPD Sector 2 Building

5136 North 26th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.0</b>		
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>					behind doors and in conference room.
<b>C3020 Floor Finishes</b>	2006	2006	2	TRB 01/01/18	Linoleum sheet flooring finish at entry, hallways, workrooms and toilets. 2x2 carpet squares at office area. Exposed concrete at mechanical space. Sheet good seams lifting at Men's Restroom in need of seam re-sealing.
<b>C3030 Ceiling Finishes</b>	2006	2006	2	TRB 01/01/18	Gypsum wallboard (painted) soffits typical throughout. 2x2 acoustical tile lay-in ceiling tile system at meeting room and main toilets. 2x2 perforated wood lay-in panels at entry.
<b>D Services</b>			<b>2.6</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	2006	2006	2	DCS 01/01/18	Porcelain and stainless steel fixtures with minimal wear; water closets are tank-type and somewhat slow to flush, but acceptable with patience; opportunity to upgrade to pressure-tank type.
<b>D2020 Domestic Water Distribution</b>	2006	2006	2	DCS 01/01/18	Copper domestic water piping system with 38-gal Rheem electric tank type water heater providing hot water to fixtures; recirc pump is failing (minor maintenance issue).
<b>D2030 Sanitary Waste</b>	2006	2006	2	DCS 01/01/18	ABS plastic piping serves as waste and vent system for plumbing fixtures; no issues reported; tested fixtures drain well and flush somewhat slow, but assume due to fixtures, not piping.
<b>D2040 Rain Water Drainage</b>	2006	2006	2	DCS 01/01/18	Gutters & downspout with no issues reported or observed - annual cleaning needed each fall (minor maintenance issue).

# Facility Summary

City of Tacoma  
 TPD Sector 2  
 TPD Sector 2 Building

5136 North 26th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.6</b>		
<b>Plumbing</b>					
D2040 Rain Water Drainage					
<b>HVAC</b>					
D3040 HVAC Distribution Systems					
	2006	2006	2	DCS 01/01/18	Galvanized steel supply and return air ductwork distributes heating and cooling air throughout building.
D3050 Terminal and Package Units					
	2006	2006	3	DCS 01/01/18	Two 5-ton split system heat pumps serve entire building, split into east & west zones; with recently installed electric wall heater at lobby desk. One unit was replaced in 2013, the other is approaching end of life. Refrigerant piping insulation is deteriorating. Opportunity to rezone from East-West to North-South to better meet differing public versus police space use, reduce energy use and increase thermal comfort.
D3060 Controls and Instrumentation					
	2006	2006	3	DCS 01/01/18	Each heat pump is controlled by programmable thermostat; aging but functional; replace with new upon furnace/heat pump replacement.
<b>Fire Protection</b>					
D4030 Fire Protection Specialties					
	2006	2006	2	DCS 01/01/18	Fire extinguishers in cabinets and first aid cabinet; all in good condition with current inspections.
<b>Electrical</b>					
D5010 Electrical Service and Distribution					
	2006	2006	2	DCS 01/01/18	Service is underground from pad-mounted transformer to Square D 400A, 120/240V, single-phase main distribution panel; all in good condition with no issues reported.
D5020 Lighting and Branch Wiring					
	2006	2006	3	DCS 01/01/18	Lighting is a combination of CFL down-lights, T5 pendants and T8 parabolics. Branch devices are typical 20A. Mostly manual control. Beginning to

# Facility Summary

City of Tacoma  
 TPD Sector 2  
 TPD Sector 2 Building

5136 North 26th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.6</b>		
<b>Electrical</b>					
<b>D5020</b>	<b>Lighting and Branch Wiring</b>				show age, but still fully functional.
<b>D5032</b>	<b>Low Voltage Communication</b>				
	2006	2006	2	DCS 01/22/18	Avaya phone system; intercom to front door; emergency call box at front door; A/V at public meeting room - all with no issues reported.
<b>D5037</b>	<b>Low Voltage Fire Alarm</b>				
	2006	2006	2	DCS 01/01/18	Fire Shield fire alarm control panel with recent (2017) alarm transmission antenna installed,
<b>D5038</b>	<b>Low Voltage Security</b>				
	2006	2006	3	DCS 01/01/18	CCTV at front door, access control at all exterior and one interior door, occupancy sensors throughout with Bosch security panel, little or not used.
<b>D5039</b>	<b>Low Voltage Data</b>				
	2006	2006	3	DCS 01/01/18	UTP voice/data cabling with newer WAP(s); no issues reported.
<b>D5090</b>	<b>Other Electrical Systems</b>				
	2006	2006	2	DCS 01/01/18	80 kW SDMO diesel generator with 270 gal skid mounted tank; ASCO 400A transfer switch (ATS) backs-up entire facility. Battery-backed egress fixtures and exit signs.
<b>E Equipment and Furnishings</b>			<b>2.0</b>		
<b>Equipment</b>					
<b>E1010</b>	<b>Commercial Equipment</b>				
	2006	2006	2	DCS 01/22/18	Residential appliances at kitchenette.
<b>E1030</b>	<b>Vehicular Equipment</b>				
	2006	2006	2	DCS 01/22/18	Motorized gate with card-key access to secure parking area.
<b>Furnishings</b>					
<b>E2010</b>	<b>Fixed Furnishings</b>				

## Facility Summary

City of Tacoma  
 TPD Sector 2  
 TPD Sector 2 Building

5136 North 26th Street  
 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>E Equipment and Furnishings</b>			<b>2.0</b>		
<b>Furnishings</b>					
	2006	2006	2	TRB 01/01/18	Pre-manufactured plastic laminate - faced casework at break-room and workroom; mini-blinds typical at windows except pull-down shades at main meeting room. Mostly in good condition with some minor wear.
<b>F Special Construction</b>			<b>4.0</b>		
<b>Special Construction</b>					
<b>F1050 Special Controls and Instrumentation</b>					
	2006	2006	4	DCS 01/01/18	Electronic solar-powered interpretive signage on gabion artwork appears to have failed; or perhaps mis-applied solar power charging system (on side of artwork rather than on top).

# Facility Summary

City of Tacoma  
 TPD Sector 2  
 Infrastructure

5136 North 26th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	2006	2012	3	TRB 01/01/18	Asphalt entrance drive with extruded concrete curbs.
<b>G2020 Parking Lots</b>	2006	2006	2	TRB 01/01/18	Asphalt parking spaces with extruded concrete curbs and concrete wheel stops. Secure area is asphalt with concrete wheel stops and concrete wheel stops. Paint and ADA faded
<b>G2030 Pedestrian Paving</b>	2006	2006	2	TRB 01/01/18	Concrete sidewalks/ramps. Ramp has new pipe rails on both sides.
<b>G2040 Site Development</b>	2006	2006	2	TRB 01/01/18	Chain link fencing around secure parking area. Rolling automotive security gate functioning well.
<b>G2050 Landscaping</b>	2006	2006	2	TRB 01/01/18	Landscaping consists of rocks, shrubs, and bark groundcover, and randomly placed boulders. Well maintained. Some beauty bark washed away near community room window.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	2006	2006	2	DCS 01/01/18	City water in good condition; approximately 1-inch service (meter) size. Site irrigation system in fair condition.
<b>G3020 Sanitary Sewer</b>	2006	2006	2	DCS 01/01/18	On-site sanitary lift station shared with adjacent Boys & Girls assumed pumped to City sewer; no issues reported.
<b>G3030 Storm Sewer</b>	2006	2006	2	DCS 01/01/18	Site storm drainage reportedly to City storm service at street; no issues reported, no ponding observed.
<b>Site Electrical utilities</b>					

# Facility Summary

City of Tacoma  
 TPD Sector 2  
 Infrastructure

5136 North 26th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	2006	2006	2	DCS 01/01/18	Utility power from Tacoma Power via pad-mounted transformer with no issues reported; meter No. 300133.
<b>G4020 Site Lighting</b>	2006	2006	2	DCS 01/01/18	Building wall mounted up & down wall-packs in fair condition with cleaning needed; one shoe-box fixture on pole in security parking area; several newer LED heads on poles in parking lot to west; no issues reported, however flag pole up-lights are "on" during daylight hours (minor issue).
<b>G4030 Site Communications and Security</b>	2006	2006	2	DCS 01/01/18	Comm & data service from local purveyors with no issues reported, except reader board at entry missing panels - reportedly replacements are on order.



## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma  
Site: TPD Sector 2

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Infrastructure	Site Improvements	\$7,000	\$1,750	\$1,750	\$5,775	\$16,275
	<b>Facility Total</b>	<b>\$7,000</b>	<b>\$1,750</b>	<b>\$1,750</b>	<b>\$5,775</b>	<b>\$16,275</b>
TPD Sector 2 Building	Exterior Closure	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	HVAC	\$15,000	\$3,750	\$3,750	\$12,375	\$34,875
	<b>Facility Total</b>	<b>\$20,000</b>	<b>\$5,000</b>	<b>\$5,000</b>	<b>\$16,500</b>	<b>\$46,500</b>
	<b>Site Total</b>	<b>\$27,000</b>	<b>\$6,750</b>	<b>\$6,750</b>	<b>\$22,275</b>	<b>\$62,775</b>





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector 2

Total Observed Deficiency Repair Direct Cost : \$27,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
<b>System: Site Improvements</b>									<b>\$7,000</b>	
									<b>Total System Deficiency Repair Cost (Marked Up):</b>	
									<b>\$16,275</b>	
<b>Roadways</b>										
Asphalt roadway surface	3	5	2018		1	\$7,000.00	LS	\$7,000	\$16,275	

Asphalt is beginning to show signs of wear with aggregate being exposed. Joint cracks starting where past utility pavement patch work occurred. Paint striping faded, including ADA parking symbol.

Apply seal coat to prolong life of asphalt. Re-stripe parking, arrows, and ADA Stall.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector 2

Total Observed Deficiency Repair Direct Cost : \$27,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPD Sector 2 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$5,000
System: Exterior Closure					Total System Deficiency Repair Cost (Marked Up):				\$11,625
<b>Exterior Walls</b>									
Sealant	4	2	2018		1	\$5,000.00	EA	\$5,000	\$11,625

Sealants at window frames, masonry expansion joints, and some composite panel joints sealants are beginning to fail.

Re-caulk exterior sealant joints.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

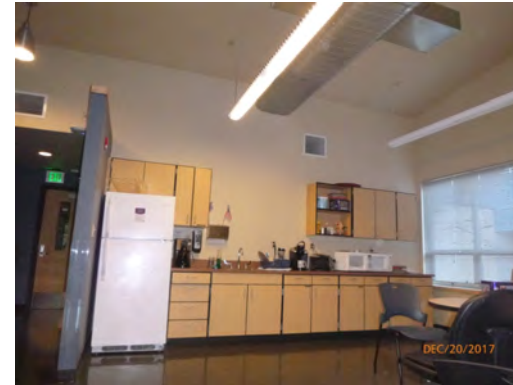
City of Tacoma  
Site: TPD Sector 2

Total Observed Deficiency Repair Direct Cost : \$27,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPD Sector 2 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$15,000
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$34,875
<b>HVAC Distribution Systems</b>									
Ductwork	4	3	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Unclear return air path, especially from spaces fully walled-off reportedly in 2007.

Evaluate return air path and provide full return air path function to improve air circulation and more uniform temperature.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector 2

Total Observed Deficiency Repair Direct Cost : \$27,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: TPD Sector 2 Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
<b>System: HVAC</b>									<b>\$15,000</b>	
<b>Terminal and Package Units</b>									<b>Total System Deficiency Repair Cost (Marked Up):</b>	
Heat pumps	4	5	2018		1	\$10,000.00	LS	\$10,000	\$23,250	

Remaining original heat pump furnace and condensing unit soon approaching end of life.

Budget for replacement upon failure.



## Opportunity Summary By Subsystem

City of Tacoma  
Site: TPD Sector 2

Total Site Opportunity Cost: **\$128,500**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: TPD Sector 2 Building</b> <b>System: Exterior Closure</b> <span style="float: right;"><b>Total Cost: \$85,000</b></span>						
B2020	Exterior Windows					
	Office area operable window vent units do not have security stops, and no insect screens	Modify operable windows by providing vent units with security stops (preventing window from opening wide enough for a person to slip in if window not secured after hours). Provide Insect Screens.	20.00	\$1,500.00	EA	\$30,000
	Police office windows do not appear to have bullet or impact resistant security glazing.	Provide Bullet resistant glazing at Police office windows, or at least enhance with impact resistant security film.	20.00	\$2,500.00	EA	\$50,000
B2030	Exterior Doors					
	Exterior entry system glazing does not have impact resistant security film.	Provide installation of impact resistant security film at glazed entry systems.	2.00	\$2,500.00	EA	\$5,000
<b>Facility: TPD Sector 2 Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$22,500</b></span>						
D3040	HVAC Distribution Systems					
	Meeting room is not a separate zone; over-heats during public meetings.	Provide dedicated supplemental ductless split-Dx heating especially cooling for this space.	1.00	\$7,500.00	LS	\$7,500
	Temporary extension ladder in comm room for access to mechanical mezzanine.	Install permanent access to mechanical mezzanine.	1.00	\$5,000.00	LS	\$5,000
D3050	Terminal and Package Units					
	Zoned east-west contrary to north-south public versus police use.	Re-zone to north-south consistent with public versus police use to reduce energy use and increase comfort.	2.00	\$5,000.00	LS	\$10,000
<b>Facility: TPD Sector 2 Building</b> <b>System: Fire Protection</b> <span style="float: right;"><b>Total Cost: \$14,000</b></span>						
D4010	Fire Protection Sprinkler Systems					
	No fire sprinkler.	Install fire sprinkler.	3,500.00	\$4.00	SF	\$14,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: TPD Sector 2

Total Site Opportunity Cost: \$128,500

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
Facility: TPD Sector 2 Building						
System: Electrical	Total Cost: \$7,000					
D5020 Lighting and Branch Wiring	Mostly manual lighting controls.	Upgrade to automated controls.	3,500.00	\$2.00	SF	\$7,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 TPD Sector 3  
 TPD Sector 3 Building

1501 South 72nd Street  
 Tacoma, WA 98407

Facility Size - Gross S.F. 3,500  
 Year Of Original Construction 2006  
 Facility Use Type Police Station  
 Construction Type Light  
 # of Floors 1  
 Energy Source Electric  
 Year Of Last Renovation 2006  
 Historic Register No



FCI (BMAR/CRV)	0.06	Predicted Renewal Budget (20 yrs)	\$479,895
FCI (Bldg OD/CRV)	0.05	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$1,590,000	Building	\$79,631
BMAR (Backlog of Maintenance and Repair)	\$97,000	Infrastructure	
Beginning Budget Year	2018	Total	
		Opportunity Total Project Cost	\$403,388

## Facility Condition Summary

TPD Sector 3 (also known as "Wapato Sub-station") is a one-story 3,500 square foot police sub-station. The facility is a wood frame, slab on grade structure, with a butterfly roof, metal standing seam roofing, cementitious panel cladding and concrete masonry unit veneer, and aluminum door and punched windows. The grounds and building are well maintained and in good condition. The building is oriented North-South on the site. MEP systems are in good condition and beginning to age. As at most other newer TPD Substations, there is no separate temperature control zone for the community meeting room, so there are comfort complaints when in use which should be investigated and corrected. Opportunity to add automatic lighting controls throughout.



# Facility Summary

City of Tacoma  
 TPD Sector 3  
 TPD Sector 3 Building

1501 South 72nd Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	2006	2006	2	TRB 01/03/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	2006	2006	2	TRB 01/03/18	Concrete slab on grade.
<b>B Shell</b>			<b>2.0</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	2006	2006	2	TRB 01/03/18	Attic floor is wood frame with wood sheathing.
<b>B1020 Roof Construction</b>	2006	2006	2	TRB 01/03/18	Wood framing with wood sheathing.at exterior eaves, exposed wood structure and eaves showing signs of minor stains and weathering.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	2006	2006	2	TRB 01/03/18	Wood stud walls with masonry veneer up to 10 ft. Masonry is a combination of integrally-colored ground-face and split faced CMU of contrasting color. Upper wall panels are cement fiber panels with aluminum recessed joints.
<b>B2020 Exterior Windows</b>	2006	2006	2	TRB 01/03/18	Storefront aluminum frames (fixed) with insulating glazing system. Operable vent units at office do not have insect screens.
<b>B2030 Exterior Doors</b>	2006	2006	2	TRB 01/03/18	Storefront doors at main entry with storefront aluminum frames. Hollow metal door and frame at rear exit door. Rear door showing wear; repaint. Front entry door glass broken.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	2006	2006	2	TRB 01/03/18	Sloped standing seam metal roof at main areas

# Facility Summary

City of Tacoma  
 TPD Sector 3  
 TPD Sector 3 Building

1501 South 72nd Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>2.0</b>		
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					and single-ply adhered membrane at connecting low roof. Gutter on south roof seams leaking, re-seal needed, investigate wood fascia for any rot, treat and seal.
<b>B3030 Projections</b>	2006	2006	2	TRB 01/03/18	Roof overhangs formed by extended wood decking and glu-lam beams.
<b>C Interiors</b>			<b>2.0</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	2006	2007	2	TRB 01/03/18	Partitions are all gypsum wallboard on wood studs except for main entry wall which is ground face CMU with integral color. Minor miscellaneous damage to drywall in men's room behind door.
<b>C1020 Interior Doors</b>	2006	2006	2	TRB 01/03/18	All door frames are welded hollow metal except for main entry except for meeting room and community center connecting link which are storefront aluminum. Interior doors are solid core birch veneer except for storefront frame areas (per above) which are storefront. Recommend adjusting closers at toilet rooms for softer close.
<b>C1030 Fittings</b>	2006	2006	2	TRB 01/03/18	Ceiling mount projection screen and projector at community room. Whiteboards in select office areas. Plastic laminate-faced pre-manufactured casework in breakroom and work area. P-lam faced Toilet Partitions don't have soft close hardware: recommend adjustments to closing hinge to thwart future system degradation from door slam and associated system racking and vibration.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>					

# Facility Summary

City of Tacoma  
 TPD Sector 3  
 TPD Sector 3 Building

1501 South 72nd Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.0</b>		
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	2006	2006	2	TRB 01/03/18	Exposed ground-face CMU at main entry. Plastic laminate wainscots at restrooms. Some areas need minor patch and repaint misc.
<b>C3020 Floor Finishes</b>	2006	2006	2	TRB 01/03/18	Linoleum sheet flooring finish at entry, hallways, workrooms and toilets. 2x2 carpet squares at office area. Exposed concrete at mechanical space. Stains and wear of some minor carpet areas.
<b>C3030 Ceiling Finishes</b>	2006	2006	2	TRB 01/03/18	Gypsum wallboard (painted) soffits typical throughout. 2x2 acoustical tile lay-in ceiling tile system at meeting room and main toilets. 2x2 perforated wood lay-in panels at entry.
<b>D Services</b>			<b>2.5</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	2006	2006	2	DCS 01/03/18	Porcelain and stainless steel fixtures with minimal wear; water closets are tank-type and slightly slow to flush; opportunity to upgrade to pressure-tank type. Urinal back-ups somewhat, minor maintenance needed to clean drain line.
<b>D2020 Domestic Water Distribution</b>	2006	2006	2	DCS 01/03/18	Copper domestic water piping system with 30-gal electric tank type water heater and recirc pump. Bottled water in use in some spaces, despite water filter at kitchen sink - opportunity to install hydration station.
<b>D2030 Sanitary Waste</b>	2006	2006	2	DCS 01/03/18	ABS plastic piping serves as waste and vent system for plumbing fixtures; no issues reported; tested fixtures drain well and flush somewhat slow, but assume due to fixtures, not piping; except for urinal which needs service (see D2010).

# Facility Summary

City of Tacoma  
 TPD Sector 3  
 TPD Sector 3 Building

1501 South 72nd Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.5</b>		
<b>Plumbing</b>					
<b>D2040 Rain Water Drainage</b>					
	2006	2006	2	DCS 01/03/18	Gutters & downspout with no issues reported; however low roof needs cleaning (minor maintenance issue).
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>					
	2006	2006	2	DCS 01/03/18	Galvanized steel supply and return air ductwork distributes heating and cooling air throughout building. Building operating under slightly negative pressure; air flow shut-off to some spaces, and original HVAC ductwork appears to have been modified for unclear reasons.
<b>D3050 Terminal and Package Units</b>					
	2006	2006	3	DCS 01/03/18	Two 5-ton split system heat pumps serve entire building, split into east & west zones; with recently installed electric wall heater at lobby desk. One system is original and approaching end of life; the other was replaced in 2014 and is in good condition. Refrigerant piping insulation is deteriorating. Opportunity to rezone from East-West to North-South to better meet differing public versus police space use, reduce energy use and increase thermal comfort.
<b>D3060 Controls and Instrumentation</b>					
	2006	2006	3	DCS 01/03/18	Each heat pump is controlled by programmable thermostat; aging but functional; replace with new upon furnace/heat pump replacement.
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>					
	2006	2006	2	DCS 01/03/18	Fire extinguishers in cabinets and first aid cabinet, plus AED; all in good condition with current inspections.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	2006	2006	2	DCS 01/03/18	Service is underground from pad-mounted transformer to Siemens D 400A, main distribution panel with external Leviton TVSS; all

# Facility Summary

City of Tacoma  
 TPD Sector 3  
 TPD Sector 3 Building

1501 South 72nd Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.5</b>		
<b>Electrical</b>					
<b>D5010</b>	<b>Electrical Service and Distribution</b>				in good condition with no issues reported; panel has several empty spaces for future use.
<b>D5020</b>	<b>Lighting and Branch Wiring</b>	2006	2006	2	DCS 01/03/18 Lighting is a combination of LED down-lights, T5 pendants and T8 parabolics. Branch devices are typical 20A. Mostly manual control with signs asking occupants to leave lights on 24x7. Fixtures are in good condition for age.
<b>D5032</b>	<b>Low Voltage Communication</b>	2006	2006	3	DCS 01/03/18 Front door emergency phone; also front door intercom. Avaya phone system. A/V at community meeting room. No issues reported.
<b>D5037</b>	<b>Low Voltage Fire Alarm</b>	2006	2006	2	DCS 01/03/18 FACP with recently (2017) installed wireless alarm transmitter.
<b>D5038</b>	<b>Low Voltage Security</b>	2006	2006	3	DCS 01/03/18 CCTV at front door, card key access control at exterior and some interior doors, plus motion sensors inside with little used Bosch security panel.
<b>D5039</b>	<b>Low Voltage Data</b>	2006	2006	2	DCS 01/03/18 UTP voice/data cabling. Newer WAP. No issues reported.
<b>D5090</b>	<b>Other Electrical Systems</b>	2006	2006	2	DCS 01/03/18 75 kW SDMO diesel generator with 270 gal skid mounted tank; 400A ASCO transfer switch backs-up entire facility. Battery-backed egress fixtures and exit signs; some egress batteries appear dead (minor maintenance to replace).
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010</b>	<b>Commercial Equipment</b>				

## Facility Summary

City of Tacoma  
 TPD Sector 3  
 TPD Sector 3 Building

1501 South 72nd Street  
 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	2006	2006	2	DCS 01/22/18	Residential appliances at kitchenette.
<b>E1030 Vehicular Equipment</b>	2006	2006	2	DCS 01/22/18	Motorized gate with card-key access to secure parking area with no issues reported.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	2006	2006	3	TRB 01/03/18	Pre-manufactured plastic laminate - faced casework at break-room and workroom; mini-blinds typical at windows except pull-down shades at main meeting room. Mostly in good condition with some minor wear.
<b>F Special Construction</b>			<b>4.0</b>		
<b>Special Construction</b>					
<b>F1050 Special Controls and Instrumentation</b>	2006	2006	4	DCS 01/03/18	Electronic solar-powered interpretive signage on gabion artwork appears to have failed; or perhaps mis-applied solar power charging system (on side of artwork rather than on top).

# Facility Summary

City of Tacoma  
 TPD Sector 3  
 Infrastructure

1501 South 72nd Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	2006	2006	2	TRB 01/03/18	Asphalt driveway off shared park driveway. In good condition. Center stripe pavement paint faded and not legible.
<b>G2020 Parking Lots</b>	2006	2006	2	TRB 01/03/18	Asphalt surface with concrete curbs and wheel stops. Parking paint striping fading.
<b>G2030 Pedestrian Paving</b>	2006	2006	2	TRB 01/03/18	Concrete walks and gravel paths. In good condition.
<b>G2040 Site Development</b>	2006	2006	2	TRB 01/03/18	Chain link fences and gates.
<b>G2050 Landscaping</b>	2006	2006	2	TRB 01/03/18	Shrubs, trees, and boulders. Mature and in good maintained condition.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	2006	2006	2	DCS 01/03/18	City water supplying building and irrigation system with good pressure and no issues reported; appears to be 1-inch meter for irrigation and 5/8-inch meter for domestic service.
<b>G3020 Sanitary Sewer</b>	2006	2006	2	DCS 01/03/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	2006	2006	2	DCS 01/03/18	Roof and site storm appears to drain to adjacent park with pond; no issues observed or reported.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	2006	2006	2	DCS 01/03/18	Tacoma Power underground to utility room with meter #300143; no issues reported.
<b>G4020 Site Lighting</b>					

# Facility Summary

City of Tacoma  
 TPD Sector 3  
 Infrastructure

1501 South 72nd Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

	2006	2006	2	DCS 01/03/18	Original building mounted architectural sconces, original parking lot metal light poles with recently installed LED heads; all outside lighting on timer control with manual over-ride. In-ground up-lights at flag poles appear operable. Sconces are dirty with flimsy architectural sheet metal treatment hampering maintenance; one sconce missing SE door.
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#### G4030 Site Communications and Security

	2006	2006	2	DCS 01/03/18	Communication and data service from purveyors underground to utility room; building perimeter CCTV; powered gates to secure parking with no issues reported.
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# Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma  
 Site: TPD Sector 3

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
TPD Sector 3 Building	Exterior Closure	\$9,000	\$2,250	\$2,250	\$7,425	\$20,925
	Interior Finishes	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	HVAC	\$20,250	\$5,063	\$5,063	\$16,706	\$47,081
	<b>Facility Total</b>	<b>\$34,250</b>	<b>\$8,563</b>	<b>\$8,563</b>	<b>\$28,256</b>	<b>\$79,631</b>
	<b>Site Total</b>	<b>\$34,250</b>	<b>\$8,563</b>	<b>\$8,563</b>	<b>\$28,256</b>	<b>\$79,631</b>



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector 3

Total Observed Deficiency Repair Direct Cost : \$34,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: TPD Sector 3 Building									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: Exterior Closure									\$9,000	
									Total System Deficiency Repair Cost (Marked Up):	
									\$20,925	
<b>Exterior Walls</b>										
Sealant	4	2	2018		1	\$5,000.00	EA	\$5,000	\$11,625	

Sealants at window frames, masonry expansion joints, and some composite panel joints sealants are beginning to fail.

Re-caulk exterior sealant joints.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector 3

Total Observed Deficiency Repair Direct Cost : \$34,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPD Sector 3 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$9,000
System: Exterior Closure					Total System Deficiency Repair Cost (Marked Up):				\$20,925
<b>Exterior Doors</b>									
Glazing	5	0	2018		2	\$2,000.00	EA	\$4,000	\$9,300

Shattered glazing.

Replace glazing at shattered unit, and apply impact resistant security film at all entry door and relite glazing areas.

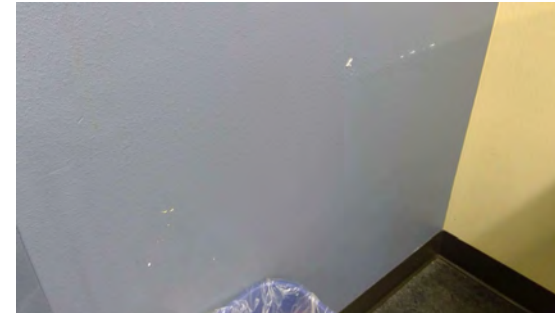


## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector 3

Total Observed Deficiency Repair Direct Cost : \$34,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: TPD Sector 3 Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$5,000	
System: Interior Finishes				Total System Deficiency Repair Cost (Marked Up):					\$11,625	
<b>Wall Finishes</b>										
Gypsum Wall Board and Paint	3	4	2018		1	\$5,000.00	EA	\$5,000	\$11,625	
Areas of wear and tear of painted gypsum surfaces.				Patch and paint.						



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector 3

Total Observed Deficiency Repair Direct Cost : \$34,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPD Sector 3 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$20,250
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$47,081
<b>HVAC Distribution Systems</b>									
Ductwork	4	3	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Unclear return air path, especially from spaces fully walled-off reportedly in 2007.

Evaluate return air path and provide full return air path function to improve air circulation and more uniform temperature.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector 3

Total Observed Deficiency Repair Direct Cost : \$34,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: TPD Sector 3 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$20,250</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$47,081</b>
<b>HVAC Distribution Systems</b>									
Ductwork	4	3	2018		3,500	\$1.50	SF	\$5,250	\$12,206

Building under slightly negative pressure and airflow shut-off to some spaces, with portable unit heater(s) in use.

TAB and/or R-Cx to identify issues and correct.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector 3

Total Observed Deficiency Repair Direct Cost : \$34,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: TPD Sector 3 Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$20,250</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$47,081</b>
<b>Terminal and Package Units</b>									
Heat pumps	4	5	2018		1	\$10,000.00	LS	\$10,000	\$23,250

Remaining original heat pump furnace and condensing unit soon approaching end of life.

Budget for replacement upon failure.



## Opportunity Summary By Subsystem

City of Tacoma  
Site: TPD Sector 3

Total Site Opportunity Cost: \$173,500

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: TPD Sector 3 Building</b> <b>System: Exterior Closure</b> <span style="float: right;"><b>Total Cost: \$80,000</b></span>						
B2020	Exterior Windows					
	Office area operable window vent units do not have security stops, and no insect screens	Modify operable windows by providing vent units with security stops (preventing window from opening wide enough for a person to slip in if window is not secured after hours). Provide insect screens.	20.00	\$1,500.00	EA	\$30,000
	Police office windows do not appear to have bullet or impact resistant security glazing.	Provide Bullet resistant glazing at Police office windows, or at least enhance with impact resistant security film.	20.00	\$2,500.00	EA	\$50,000
<b>Facility: TPD Sector 3 Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$22,500</b></span>						
D3040	HVAC Distribution Systems					
	Temporary extension ladder in comm room for access to mechanical mezzanine.	Install permanent access to mechanical mezzanine.	1.00	\$5,000.00	LS	\$5,000
	Meeting room is not a separate zone; over-heats during public meetings.	Provide dedicated supplemental ductless split-Dx heating especially cooling for this space.	1.00	\$7,500.00	LS	\$7,500
D3050	Terminal and Package Units					
	Zoned east-west contrary to north-south public versus police use.	Re-zone to north-south consistent with public versus police use to reduce energy use and increase comfort.	2.00	\$5,000.00	LS	\$10,000
<b>Facility: TPD Sector 3 Building</b> <b>System: Fire Protection</b> <span style="float: right;"><b>Total Cost: \$14,000</b></span>						
D4010	Fire Protection Sprinkler Systems					
	No fire sprinkler.	Install fire sprinkler.	3,500.00	\$4.00	SF	\$14,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: TPD Sector 3

Total Site Opportunity Cost: \$173,500

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
Facility: TPD Sector 3 Building						
System: Electrical	Total Cost: \$57,000					
D5010	Electrical Service and Distribution					
	No PV.	Add PV to north roof.	10.00	\$5,000.00	EA	\$50,000
D5020	Lighting and Branch Wiring					
	Mostly manual lighting controls.	Upgrade to automated controls.	3,500.00	\$2.00	SF	\$7,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Facility Summary

City of Tacoma  
 TPD Sector 4  
 TPD Sector 4 Building

400 East 56th Street  
 Tacoma, WA

Facility Size - Gross S.F. 3,500  
 Year Of Original Construction 2009  
 Facility Use Type Police Station  
 Construction Type Light  
 # of Floors 1  
 Energy Source Electric  
 Year Of Last Renovation 2009  
 Historic Register No



FCI (BMAR/CRV)	0.06	Predicted Renewal Budget (20 yrs)	\$479,895
FCI (Bldg OD/CRV)	0.01	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$1,590,000	<b>Building</b>	\$12,206
BMAR (Backlog of Maintenance and Repair)	\$94,000	<b>Infrastructure</b>	\$13,950
Beginning Budget Year	2018	<b>Total</b>	\$26,156
		<b>Opportunity Total Project Cost</b>	\$374,325

## Facility Condition Summary

TPD Sector 4 (also referred to as "Steward Heights" or "Eastside Sub-station") is a one-story, 3,500 sq. ft. police sub-station built in 2009, with a 49 person community meeting room. It is a wood frame structure, slab on grade with a standing seam butterfly roof, concrete masonry unit, and cement panel cladding. The landscaping and building is well maintained, and in good condition.

# Facility Summary

City of Tacoma  
 TPD Sector 4  
 TPD Sector 4 Building

400 East 56th Street  
 Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	2009	2009	2	TRB 01/03/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	2009	2009	2	TRB 01/03/18	Concrete slab on grade.
<b>B Shell</b>			<b>2.0</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	2009	2009	2	TRB 01/03/18	Attic floor is wood frame with wood sheathing.
<b>B1020 Roof Construction</b>	2009	2009	2	TRB 01/03/18	Wood framing with wood sheathing at exterior eaves.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	2009	2009	2	TRB 01/03/18	Wood stud walls with masonry veneer up to 10 ft. Masonry is a combination of integrally-colored ground-face and split faced CMU of contrasting color. Upper wall panels are cement fiber panels with aluminum recessed joints.
<b>B2020 Exterior Windows</b>	2009	2009	2	TRB 01/03/18	Storefront aluminum frames (fixed) with insulating glazing system. Operable vent units at office do not have insect screens.
<b>B2030 Exterior Doors</b>	2009	2009	2	TRB 01/03/18	Storefront doors at main entry with storefront aluminum frames. Hollow metal door and frame at rear exit door.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	2009	2009	2	TRB 01/03/18	Sloped standing seam metal roof at main areas and single-ply adhered membrane at connecting low roof.

# Facility Summary

City of Tacoma  
 TPD Sector 4  
 TPD Sector 4 Building

400 East 56th Street  
 Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>2.0</b>		
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					
<b>B3030 Projections</b>					
	2009	2009	2	TRB 01/03/18	Roof overhangs formed by extended wood decking and glu-lam beams.
<b>C Interiors</b>			<b>2.0</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>					
	2009	2009	2	TRB 01/03/18	Partitions are all gypsum wallboard on wood studs except for main entry wall which is ground face CMU with integral color.
<b>C1020 Interior Doors</b>					
	2009	2009	2	TRB 01/03/18	All door frames are welded hollow metal except for main entry except for meeting room and community center connecting link which are storefront aluminum. Interior doors are solid core birch veneer except for storefront frame areas (per above) which are storefront.
<b>C1030 Fittings</b>					
	2009	2009	2	TRB 01/03/18	Ceiling mount projection screen and projector at community room. Whiteboards in select office areas. Plastic laminate-faced pre-manufactured casework in breakroom and work area. P-lam faced Toilet Partitions.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>					
	2009	2009	2	TRB 01/03/18	Exposed ground-face CMU at main entry. Plastic laminate wainscots at restrooms. Some areas need minor patch and repaint misc.
<b>C3020 Floor Finishes</b>					
	2009	2009	2	TRB 01/03/18	Linoleum sheet flooring finish at entry, hallways, workrooms and toilets. 2x2 carpet squares at office area. Exposed concrete at mechanical space.

# Facility Summary

City of Tacoma  
 TPD Sector 4  
 TPD Sector 4 Building

400 East 56th Street  
 Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.0</b>		
<b>Interior Finishes</b>					
<b>C3030 Ceiling Finishes</b>					
	2009	2009	2	TRB 01/03/18	Gypsum wallboard (painted) soffits typical throughout. 2x2 acoustical tile lay-in ceiling tile system at meeting room and main toilets. 2x2 perforated wood lay-in panels at entry.
<b>D Services</b>			<b>2.5</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					
	2009	2009	2	DCS 01/03/18	Porcelain and stainless steel fixtures with minimal wear; water closets are tank-type and slightly slow to flush; opportunity to upgrade to pressure-tank type.
<b>D2020 Domestic Water Distribution</b>					
	2009	2009	2	DCS 01/03/18	Copper domestic water piping system with A.O. Smith 30-gal electric tank type water heater and recirc pump. Opportunity to add filtered water hydration station.
<b>D2030 Sanitary Waste</b>					
	2009	2009	2	DCS 01/03/18	Cast iron piping drain, waste & vent piping with no issues reported; tested fixtures drain well and flush somewhat slow, but assume due to fixtures, not piping.
<b>D2040 Rain Water Drainage</b>					
	2009	2009	2	DCS 01/03/18	Gutters & downspouts with no issues reported; however low roof needs cleaning as grass and moss are beginning to grow on some roof surfaces (minor maintenance issue).
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>					
	2006	2006	2	DCS 01/01/18	Galvanized steel supply and return air ductwork distributes heating and cooling air throughout building. Building operating under slightly negative pressure; air flow shut-off to some spaces, and original HVAC ductwork appears to have been modified for unclear reasons.

# Facility Summary

City of Tacoma  
 TPD Sector 4  
 TPD Sector 4 Building

400 East 56th Street  
 Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.5</b>		
<b>HVAC</b>					
<b>D3050 Terminal and Package Units</b>					
	2006	2006	3	DCS 01/03/18	Two 5-ton split system heat pumps serve entire building, split into east & west zones; with recently installed electric wall heater at lobby desk. One system is original and approaching end of life; the other was replaced in 2014 and is in good condition. Refrigerant piping insulation is deteriorating. Opportunity to rezone from East-West to North-South to better meet differing public versus police space use, reduce energy use and increase thermal comfort.
<b>D3060 Controls and Instrumentation</b>					
	2009	2009	3	DCS 01/03/18	Each heat pump is controlled by programmable thermostat; aging but functional; replace with new upon furnace/heat pump replacement.
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>					
	2009	2009	2	DCS 01/03/18	Fire extinguishers in cabinets; AED in cabinet, plus first aid cabinet; all in good condition with current inspections.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	2009	2009	2	DCS 01/03/18	Service is underground from pad-mounted transformer to Eaton 120/250V, 400A main distribution panel and 400A sub-panel; TVSS is installed; both panels in good condition with no issues reported; panels have several empty spaces for future use. Distribution appears to conduit in walls and MC cable where exposed.
<b>D5020 Lighting and Branch Wiring</b>					
	2009	2009	2	DCS 01/03/18	Lighting is a combination of original CFL and some upgraded LED down-lights, T5 pendants and T8 parabolics. Mostly manual lighting for common areas, meeting room and large office areas; occupancy sensor for small offices.
<b>D5032 Low Voltage Communication</b>					
	2009	2009	3	DCS 01/03/18	Front door emergency phone; also front door intercom. A/V at community room. Avaya phone



## Facility Summary

City of Tacoma  
 TPD Sector 4  
 TPD Sector 4 Building

400 East 56th Street  
 Tacoma, WA

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.5</b>		
<b>Electrical</b>					
<b>D5032 Low Voltage Communication</b>					system. All with no issues reported.
<b>D5037 Low Voltage Fire Alarm</b>	2009	2009	2	DCS 01/03/18	Gamewell FACP with recently (2017) installed wireless alarm transmitter,
<b>D5038 Low Voltage Security</b>	2009	2009	3	DCS 01/03/18	CCTV at front door, HID card key access control at exterior and some interior doors, plus motion sensors inside with little used Bosch security panel.
<b>D5039 Low Voltage Data</b>	2009	2009	2	DCS 01/03/18	Tacoma Power Click Network fiber-optic data service with switch supplying drops to wall jacks and newer WAP; all with no issues reported.
<b>D5090 Other Electrical Systems</b>	2009	2009	2	DCS 01/03/18	80 kW Kohler diesel generator with approximately 300 gal belly tank outside in secure parking area; Kohler ATS inside utility room. Unclear egress lighting and battery-backed exit signs.
<b>E Equipment and Furnishings</b>			<b>2.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	2009	2009	2	DCS 01/22/18	Residential appliances at kitchenette.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	2006	2006	2	DCS 01/03/18	Pre-manufactured plastic laminate - faced casework at break-room and workroom; mini-blinds typical at windows except pull-down shades at main meeting room. Most in good condition; just minor wear in some locations (minor maintenance).

# Facility Summary

City of Tacoma

TPD Sector 4

TPD Sector 4 Building

400 East 56th Street  
Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
F Special Construction			4.0		

### Special Construction

F1050 Special Controls and Instrumentation

2009 2009 4

DCS 01/03/18

Electronic solar-powered interpretive signage on gabion artwork appears to have failed.

# Facility Summary

City of Tacoma  
 TPD Sector 4  
 Infrastructure

400 East 56th Street  
 Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	2009	2009	2	TRB 01/03/18	Asphalt driveway off shared Park driveway. In good condition.
<b>G2020 Parking Lots</b>	2009	2009	2	TRB 01/03/18	Asphalt surface with concrete curbs and wheel stops. Parking paint striping fading.
<b>G2030 Pedestrian Paving</b>	2009	2009	2	TRB 01/03/18	Concrete walks and gravel paths. In good condition.
<b>G2040 Site Development</b>	2009	2009	2	TRB 01/03/18	Chain link fences with slats, and gates. In good condition.
<b>G2050 Landscaping</b>	2009	2009	2	TRB 01/03/18	Shrubs, trees and boulders. Mature and in good maintained condition.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	2009	2009	2	DCS 01/03/18	City water supplying building and irrigation system with good pressure and no issues reported.
<b>G3020 Sanitary Sewer</b>	2009	2009	2	DCS 01/03/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	2009	2009	2	DCS 01/03/18	Roof and site storm appears to drain to City storm utility; no issues observed or reported.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	2009	2009	2	DCS 01/03/18	Tacoma Power underground to pad-mounted transformer in secure yard, then underground to utility room with meter #301825; no issues reported. Service at 120/240V, single-phase.

# Facility Summary

City of Tacoma  
 TPD Sector 4  
 Infrastructure

400 East 56th Street  
 Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

##### G4020 Site Lighting

2009 2009 2

DCS 01/03/18

Original building mounted architectural sconces, original parking lot metal light poles with recently installed LED heads; all outside lighting on timer control. In-ground up-light at flag poles appears operable. Sconces are failing fixtures with architectural covers.

##### G4030 Site Communications and Security

2009 2009 2

DCS 01/03/18

Communication and data service from purveyors underground to utility room; building perimeter CCTV; one powered gate with card key operation; no issues reported.



# Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma  
Site: TPD Sector 4

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Infrastructure	Site Electrical utilities	\$6,000	\$1,500	\$1,500	\$4,950	\$13,950
	<b>Facility Total</b>	<b>\$6,000</b>	<b>\$1,500</b>	<b>\$1,500</b>	<b>\$4,950</b>	<b>\$13,950</b>
TPD Sector 4 Building	HVAC	\$5,250	\$1,313	\$1,313	\$4,331	\$12,206
	<b>Facility Total</b>	<b>\$5,250</b>	<b>\$1,313</b>	<b>\$1,313</b>	<b>\$4,331</b>	<b>\$12,206</b>
	<b>Site Total</b>	<b>\$11,250</b>	<b>\$2,813</b>	<b>\$2,813</b>	<b>\$9,281</b>	<b>\$26,156</b>



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector 4

Total Observed Deficiency Repair Direct Cost : \$11,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility:</b> Infrastructure <b>System:</b> Site Electrical utilities					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$6,000</b>
					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$13,950</b>
<b>Site Lighting</b>									
Exterior Lighting	4	3	2018		12	\$500.00	EA	\$6,000	\$13,950

Outside wall sconce light fixtures are failing and difficult to maintain with architectural metal cover.

Replace with commercial-grade LED fixtures.





# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector 4

Total Observed Deficiency Repair Direct Cost : \$11,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPD Sector 4 Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$5,250
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$12,206
<b>HVAC Distribution Systems</b>									
Ductwork	4	3	2018		3,500	\$1.50	SF	\$5,250	\$12,206

Unclear economizer operation and air flow balances.

TAB and/or R-Cx to identify issues and correct.



## Opportunity Summary By Subsystem

City of Tacoma  
Site: TPD Sector 4

Total Site Opportunity Cost: \$161,000

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: TPD Sector 4 Building</b> <b>System: Exterior Closure</b> <span style="float: right;"><b>Total Cost: \$75,000</b></span>						
B2020	Exterior Windows	Police office windows do not appear to have bullet or impact resistant security glazing.	20.00	\$2,500.00	EA	\$50,000
		Office area operable window vent units do not have insect screens	20.00	\$1,000.00	EA	\$20,000
B2030	Exterior Doors	Exterior entry system glazing does not have impact resistant security film.	2.00	\$2,500.00	EA	\$5,000
<b>Facility: TPD Sector 4 Building</b> <b>System: Plumbing</b> <span style="float: right;"><b>Total Cost: \$10,000</b></span>						
D2010	Plumbing Fixtures	No shower.	1.00	\$10,000.00	LS	\$10,000
<b>Facility: TPD Sector 4 Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$5,000</b></span>						
D3040	HVAC Distribution Systems	Temporary extension ladder in comm room for access to mechanical mezzanine.	1.00	\$5,000.00	LS	\$5,000
<b>Facility: TPD Sector 4 Building</b> <b>System: Fire Protection</b> <span style="float: right;"><b>Total Cost: \$14,000</b></span>						
D4010	Fire Protection Sprinkler Systems	No fire sprinkler.	3,500.00	\$4.00	SF	\$14,000
<b>Facility: TPD Sector 4 Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$57,000</b></span>						
D5010	Electrical Service and Distribution	No PV.	10.00	\$5,000.00	EA	\$50,000
D5020	Lighting and Branch Wiring					

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: TPD Sector 4

Total Site Opportunity Cost: \$161,000

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
	Mostly manual lighting controls.	Upgrade to automated controls.	3,500.00	\$2.00	SF	\$7,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Facility Summary

City of Tacoma  
 TPD Sector Northeast  
 TPD Sector NE Building

4731 Norpoint Way  
 Tacoma, WA 98407

Facility Size - Gross S.F. 3,500  
 Year Of Original Construction 2006  
 Facility Use Type Police Station  
 Construction Type Light  
 # of Floors 1  
 Energy Source Electric  
 Year Of Last Renovation n/a  
 Historic Register No



FCI (BMAR/CRV)	0.06	Predicted Renewal Budget (20 yrs)	\$502,981
FCI (Bldg OD/CRV)	0.04	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$1,590,000	Building	\$56,963
BMAR (Backlog of Maintenance and Repair)	\$98,000	Infrastructure	\$29,063
Beginning Budget Year	2018	Total	\$86,026
		Opportunity Total Project Cost	\$294,113

## Facility Condition Summary

TPD Sector NE is a single-story, 3,500 sq. ft. police sub-station, constructed in 2006. The building is wood frame, slab on grade, with a standing seam metal butterfly roof, and cementitious cladding and concrete masonry unit veneer cladding. The building is in excellent condition and no major deficiencies were noted. However, an allowance for interior paint has been included for maintenance planning purposes.

# Facility Summary

City of Tacoma  
 TPD Sector Northeast  
 TPD Sector NE Building

4731 Norpoint Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	2006	2006	2	TRB 01/01/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	2006	2006	2	TRB 01/01/18	Concrete slab on grade.
<b>B Shell</b>			<b>2.0</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	2006	2006	2	TRB 01/01/18	Mezzanine framing is wood framing with plywood sheathing supported by interior and exterior wood stud walls.
<b>B1020 Roof Construction</b>	2006	2006	2	TRB 01/01/18	Roof framing is wood I-joists. Wood framing and pre-manufactured wood trusses with plywood sheathing supported by interior and exterior wood stud walls. Underside of exposed eave wood starting to show weathering
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	2006	2006	2	TRB 01/01/18	Exterior walls are wood stud with plywood sheathing exterior finish is masonry veneer and fiber cement board siding.
<b>B2020 Exterior Windows</b>	2006	2006	2	TRB 01/01/18	Exterior windows are storefront type double pane metal system. Operable vent units at office do not have insect screens.
<b>B2030 Exterior Doors</b>	2006	2006	2	TRB 01/01/18	Exterior doors are storefront type at entries and hollow metal frames, hollow metal doors at back areas.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					

# Facility Summary

City of Tacoma  
 TPD Sector Northeast  
 TPD Sector NE Building

4731 Norpoint Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>2.0</b>		
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	2006	2006	2	TRB 01/01/18	Roofing is standing seam metal pan system with "Kynar" type coated metal flashings. Soffits are sealed wood plank.
<b>B3030 Projections</b>	2006	2006	2	TRB 01/01/18	Entry canopies are wood timber, wood plank with metal roofing.
<b>C Interiors</b>			<b>2.0</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	2006	2006	2	TRB 01/01/18	Interior walls are wood stud with GWB surface.
<b>C1020 Interior Doors</b>	2006	2006	2	TRB 01/01/18	Interior doors are hollow metal framed, solid core wood doors with ADA compliant hardware.
<b>C1030 Fittings</b>	2006	2006	2	TRB 01/01/18	Ceiling mount projection screen and projector at community room. Whiteboards in select office areas. Plastic laminate - faced pre-manufactured casework in breakroom and work area. P-lam faced Toilet Partitions don't have soft close hardware: recommend adjustments to closing hinge to thwart future system degradation from door slam and associated system racking and vibration.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	2006	2006	2	TRB 01/01/18	Interior wall finish is painted textured GWB.
<b>C3020 Floor Finishes</b>	2006	2006	2	TRB 01/01/18	Floor finishes are sheet vinyl at the corridors, common areas, and wet areas; carpet at offices and Conference Room, some areas where carpet tiles stained - maintenance item to clean or replace.

# Facility Summary

City of Tacoma  
 TPD Sector Northeast  
 TPD Sector NE Building

4731 Norpoint Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.0</b>		
<b>Interior Finishes</b>					
<b>C3030 Ceiling Finishes</b>					
	2006	2006	2	TRB 01/01/18	Ceilings are hard lid in tile Break Room and offices wing and 2x4 suspended acoustic tile at bathroom and Conference Room wing. The entry has a perforated wood "cloud" ceiling...wood panel was broken near the West door, missing now for several years; recommend having replacement fabricated.
<b>D Services</b>			<b>2.6</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					
	2006	2006	2	DCS 01/01/18	Plumbing fixtures are a mixture of porcelain and stainless steel materials. Tank-type water closets flush slow - opportunity to upgrade to pressure-assist type.
<b>D2020 Domestic Water Distribution</b>					
	2006	2006	2	DCS 01/01/18	Copper piping throughout building; electric 40-gal tank-type DHW heater with recirc pump at mechanical mezzanine.
<b>D2030 Sanitary Waste</b>					
	2006	2006	2	DCS 01/01/18	Observed DW&V piping is cast iron, but some ABS may be present.
<b>D2040 Rain Water Drainage</b>					
	2006	2006	2	DCS 01/01/18	Sloped metal roof drains to gutter, then to flat membrane roof, then to down-spout piped to storm, with over-flow roof drain near main entry. No issues observed or reported, but annual roof & gutter cleaning each fall is suggested.
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>					
	2006	2006	2	DCS 01/01/18	Galvanized sheet metal ductwork with unclear return air path and comfort complaints from public area.
<b>D3050 Terminal and Package Units</b>					

# Facility Summary

City of Tacoma  
 TPD Sector Northeast  
 TPD Sector NE Building

4731 Norpoint Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.6</b>		
<b>HVAC</b>					
<b>D3050 Terminal and Package Units</b>	2006	2006	3	DCS 01/01/18	Two 5-ton Trane split Dx heat pump systems with electric aux heat and economizer; one replaced in 2013; then other soon approaching end of life. Recently installed electric wall heater at reception desk helps comfort there.
<b>D3060 Controls and Instrumentation</b>	2006	2006	3	DCS 01/01/18	Original controls aging but functional; replace with replacement of heat pump equipment.
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>	2006	2006	2	DCS 01/01/18	Fire extinguishers in cabinets and first aid cabinet; all in good condition with current inspections.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	2006	2006	2	DCS 01/01/18	Service is underground from pad-mounted transformer to Square D 400A, 120/240V, single-phase main distribution panel; all in good condition with no issues reported.
<b>D5020 Lighting and Branch Wiring</b>	2006	2006	3	DCS 01/01/18	Lighting is a combination of CFL down-lights, T5 pendants and T8 parabolics. Branch devices are typical 20A. Mostly manual control. Beginning to show age, but still fully functional.
<b>D5032 Low Voltage Communication</b>	2006	2006	2	DCS 01/22/18	Avaya phone system; intercom at front door; emergency phone at front door; A/V at community room; all with no issues reported.
<b>D5037 Low Voltage Fire Alarm</b>	2006	2006	2	DCS 01/01/18	Fire-shield FACP recently (2017) upgraded to wireless alarm transmitter.
<b>D5038 Low Voltage Security</b>	2006	2006	3	DCS 01/01/18	CCTV at front door, access, control at all doors,



# Facility Summary

City of Tacoma  
 TPD Sector Northeast  
 TPD Sector NE Building

4731 Norpoint Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.6</b>		
<b>Electrical</b>					
<b>D5038 Low Voltage Security</b>					occupancy sensors throughout with little used Bosch control panel.
<b>D5039 Low Voltage Data</b>	2006	2006	2	DCS 01/01/18	UTP voice/data cabling with newer WAP(s) installed; newer Tacoma Power Click data service; all with no issues reported.
<b>D5090 Other Electrical Systems</b>	2006	2006	2	DCS 01/01/18	80 kW SDMO diesel generator with 270 gal skid mounted tank; ASCO 400A transfer switch (ATS) backs-up entire facility. Battery-backed egress fixtures and exit signs.
<b>E Equipment and Furnishings</b>			<b>2.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	2006	2006	2	DCS 01/22/18	Residential appliances at kitchenette.
<b>E1030 Vehicular Equipment</b>	2006	2006	2	DCS 01/22/18	Motorized gate with card-key access at secure parking area with no issues reported.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	2006	2006	2	TRB 01/01/18	Pre-manufactured plastic laminate - faced casework at break-room and workroom; mini-blinds typical at windows except pull-down shades at main meeting room. Mostly in good condition with some minor wear.
<b>F Special Construction</b>			<b>4.0</b>		
<b>Special Construction</b>					
<b>F1050 Special Controls and Instrumentation</b>	2006	2006	4	DCS 01/01/18	Electronic solar-powered interpretive signage on gabion artwork appears to have failed; or

## Facility Summary

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City of Tacoma  
 TPD Sector Northeast  
 TPD Sector NE Building

4731 Norpoint Way  
 Tacoma, WA 98407

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### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
F Special Construction			4.0		

#### Special Construction

F1050 Special Controls and Instrumentation

perhaps mis-applied solar power charging system (on side of artwork rather than on top).

# Facility Summary

City of Tacoma  
 TPD Sector Northeast  
 Infrastructure

4731 Norpoint Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	2006	2006	3	TRB 01/01/18	Asphalt surface with concrete curbs. numerous areas of alegatoring and potholes.
<b>G2020 Parking Lots</b>	2006	2006	2	TRB 01/01/18	Asphalt surface with concrete curbs and wheel stops. Parking stripe paint fading.
<b>G2030 Pedestrian Paving</b>	2006	2006	2	TRB 01/01/18	Concrete sidewalks and gravel paths. Concrete steps and ramps with pipe handrails.
<b>G2040 Site Development</b>	2006	2006	3	TRB 01/01/18	Chain link fence and gates. Low modular block wall. Issues with auto gate reported
<b>G2050 Landscaping</b>	2006	2006	2	TRB 01/01/18	Grass, shrubs, trees and boulders. Gravel pathway edge lining loose in areas needs maintenance to re-set and stake.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	2006	2006	2	DCS 01/01/18	City water from approximately 1-inch water meter in good condition. Irrigation system with some control boxes flooded.
<b>G3020 Sanitary Sewer</b>	2006	2006	1	DCS 01/01/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	2006	2006	2	DCS 01/01/18	Catch basins and piping to detention pond with overflow to City storm system. Pond requires periodic maintenance - currently looks good. A brine solution tank is located near the storm drainage pond and is maintained at this site by Public Works for convenience to serve neighborhood, not the police station.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>					

## Facility Summary

City of Tacoma  
 TPD Sector Northeast  
 Infrastructure

4731 Norpoint Way  
 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Electrical utilities</b>					
	2006	2006	2	DCS 01/01/18	Underground power from street to pad-mounted transformer, then underground to building electrical room; no issues reported.
<b>G4020 Site Lighting</b>	2006	2015	2	DCS 01/01/18	New LED head recently installed on original poles. Original building up & down wall-packs need cleaning and replacement of several damaged lenses.
<b>G4030 Site Communications and Security</b>	2006	2006	2	DCS 01/01/18	Comm & data from service providers with no issues reported. Minimal site security cameras and card-key access control for gate to fenced secure parking; also no issues reported.



# Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: TPD Sector Northeast

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Infrastructure	Site Improvements	\$12,500	\$3,125	\$3,125	\$10,313	\$29,063
	<b>Facility Total</b>	<b>\$12,500</b>	<b>\$3,125</b>	<b>\$3,125</b>	<b>\$10,313</b>	<b>\$29,063</b>
TPD Sector NE Building	Exterior Closure	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Interior Finishes	\$4,500	\$1,125	\$1,125	\$3,713	\$10,463
	HVAC	\$15,000	\$3,750	\$3,750	\$12,375	\$34,875
	<b>Facility Total</b>	<b>\$24,500</b>	<b>\$6,125</b>	<b>\$6,125</b>	<b>\$20,213</b>	<b>\$56,963</b>
	<b>Site Total</b>	<b>\$37,000</b>	<b>\$9,250</b>	<b>\$9,250</b>	<b>\$30,525</b>	<b>\$86,025</b>



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector Northeast

Total Observed Deficiency Repair Direct Cost : \$37,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
<b>System: Site Improvements</b>									<b>\$12,500</b>	
									<b>Total System Deficiency Repair Cost (Marked Up):</b>	
									<b>\$29,063</b>	
<b>Roadways</b>										
Asphalt	3	4	2018		2,500	\$5.00	SF	\$12,500	\$29,063	

Potholes and alligating of asphalt paving.

Patch potholes, seal cracks, and topcoat to extend pavement life.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector Northeast

Total Observed Deficiency Repair Direct Cost : \$37,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPD Sector NE Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$5,000
System: Exterior Closure					Total System Deficiency Repair Cost (Marked Up):				\$11,625
<b>Exterior Walls</b>									
Sealant	4	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Sealants at window frames, masonry expansion joints, and some composite panel joints sealants are beginning to fail.

Remove existing sealant systems, clean, and prep surfaces, and re-caulk exterior sealant joints with application specific sealant systems.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector Northeast

Total Observed Deficiency Repair Direct Cost : \$37,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPD Sector NE Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$4,500
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$10,463
<b>Wall Finishes</b>									
Paint	3	5	2018		1,500	\$3.00	SF	\$4,500	\$10,463

Paint is starting to wear, especially in public areas. some minor holes where wall attached elements removed.

Clean, patch, and paint walls.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector Northeast

Total Observed Deficiency Repair Direct Cost : \$37,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPD Sector NE Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$15,000
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$34,875
<b>HVAC Distribution Systems</b>									
Ductwork	4	2	2018		1	\$5,000.00	LF	\$5,000	\$11,625

Comfort complaints may be due in part to unclear return air path.

Verify return air path, especially at reported 2007 full height-partition added in police area, and from public area, especially meeting room.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPD Sector Northeast

Total Observed Deficiency Repair Direct Cost : \$37,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility:</b> TPD Sector NE Building									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b> \$15,000	
<b>System:</b> HVAC									<b>Total System Deficiency Repair Cost (Marked Up):</b> \$34,875	
<b>Terminal and Package Units</b>										
Heat pumps	4	5	2018		1	\$10,000.00	EA	\$10,000	\$23,250	

Aging heat pump.

Budget replacement before failure.





## Opportunity Summary By Subsystem

City of Tacoma

Site: TPD Sector Northeast

Total Site Opportunity Cost: \$126,500

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: TPD Sector NE Building</b> <b>System: Exterior Closure</b> <span style="float: right;"><b>Total Cost: \$85,000</b></span>						
B2020	Exterior Windows					
	Office area operable window vent units do not have security stops, and no insect screens	Modify operable windows by providing vent units with security stops (preventing window from opening wide enough for a person to slip in if window not secured after hours). Provide Insect Screens.	20.00	\$1,500.00	EA	\$30,000
	Police office windows do not appear to have bullet or impact resistant security glazing.	Provide Bullet resistant glazing at Police office windows, or at least enhance with impact resistant security film.	20.00	\$2,500.00	EA	\$50,000
B2030	Exterior Doors					
	Exterior entry system glazing does not have impact resistant security film.	Provide installation of impact resistant security film at glazed entry systems.	2.00	\$2,500.00	EA	\$5,000
<b>Facility: TPD Sector NE Building</b> <b>System: Vertical Transportation</b> <span style="float: right;"><b>Total Cost: \$5,000</b></span>						
D1010	Elevators and Lifts					
	No permanent access to mechanical mezzanine.	Install permanent access, such as ship's ladder.	1.00	\$5,000.00	LS	\$5,000
<b>Facility: TPD Sector NE Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$5,000</b></span>						
D3040	HVAC Distribution Systems					
	No operable windows at public meeting room.	Station staff suggests operable windows to improve indoor air quality during large/long public meetings.	1.00	\$5,000.00	LS	\$5,000
<b>Facility: TPD Sector NE Building</b> <b>System: Fire Protection</b> <span style="float: right;"><b>Total Cost: \$14,000</b></span>						
D4010	Fire Protection Sprinkler Systems					
	No fire sprinkler.	Install fire sprinkler.	3,500.00	\$4.00	SF	\$14,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: TPD Sector Northeast

Total Site Opportunity Cost: **\$126,500**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
Facility: TPD Sector NE Building						
System: Electrical	Total Cost: \$17,500					
D5020	Lighting and Branch Wiring					
	Mostly manual lighting controls.	Upgrade to automated controls.	3,500.00	\$2.00	SF	\$7,000
	Mostly fluorescent lighting.	Upgrade to LED.	3,500.00	\$3.00	SF	\$10,500

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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City of Tacoma

## 2018 Facility Condition Assessment

*Municipal **Service** Facilities Report*

Prepared By:

**MENG**  
ANALYSIS

September 28, 2018





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## Overview of Condition Assessment

### Background

The City's assets are the foundation of the valuable services the City provides to residents and they represent a significant investment. Effective asset management is required to maintain service levels and for long-term fiscal sustainability. Effective asset management is also a good investment in itself, as proper management and stewardship can slow the deterioration of assets, resulting in cost savings.

Effective Asset management generally includes a number of components.

- Assets need to be continually assessed so there is up to date information on their status.
- The information is used to determine needed maintenance and to mitigate issues.
- Each asset should have a plan that addresses its needs for its entire life, including its replacement, inspections, and maintenance.
- There should be a system in place to prioritize asset care and the allocation of limited resources.

To support the City of Tacoma in asset management, capital planning & budgeting efforts, MENG Analysis was contracted to complete a thorough Facility Condition Assessment (FCA) of City-owned General Government (non-enterprise/ non-utility) facilities and sites. The MENG Analysis team reviewed existing operation and maintenance information, conducted field investigations to identify Observed Deficiencies (ODs), developed cost estimates for ODs, and used customized cost models to predict future capital costs over a 20-year horizon (Predicted Renewals or PRs). The team also made note of "Opportunities" to improve the user experience, save energy, and increase system and building longevity.

The following lists the Municipal Service facilities surveyed during this project:

Site	Address	Square Feet	Year Constructed / Last Renovation
Municipal Services Center (MSC or TV Tacoma)	1224 Martin Luther King Jr Way	6,857	1960 / 1999
Tacoma Municipal Building (TMB)	747 Market Street	207,020	1930 / 1980
Tacoma Muni. Bldg. North (TMBN)	733 Market Street	41,400	1954 / 1995

The projected costs identified in this report are budgetary in nature and portray a rough order of magnitude for the work based on information available. Information at this budgetary level is often not complete and would require design level investigation to fully realize accurate scope and cost. Identified costs are intended to provide a consistent overview of the needs of City-owned facilities to be compared across the subject portfolio.

## Facility Survey Methodology

The methodology for the City of Tacoma FCA started with an initial review of previous records and drawings. An operations and maintenance questionnaire was completed by City staff followed by an O&M workshop to gather additional information.

This preparation stage was followed by eight weeks of on-site field surveys conducted by technical experts who reviewed civil, structural, architectural, mechanical, electrical, plumbing, and site infrastructure systems to a Uniformat II, level 3 detail. The facility surveys were facilitated by an FCA Team Leader to maintain consistency in evaluation, survey forms, condition ratings and system categorization.

Each team member used survey forms to document the apparent facility conditions including:

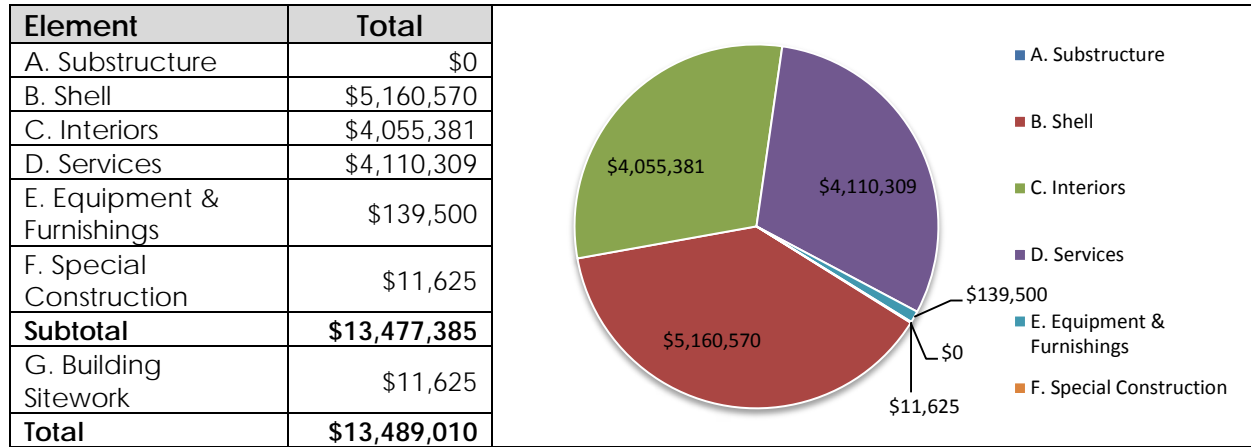
- I. Describing the nature of facility systems per Uniformat II,
- II. Determining the overall condition score of building elements,
- III. Identifying major maintenance deficiencies greater than \$5,000 (direct cost) that are likely to be required for immediate major maintenance repairs (2018), plus the next 5-year period (2019-2023)
- IV. Documenting specific deficiencies of systems with narrative as well as budgetary level cost estimates to repair or replace deficiencies
- V. The survey team also documented specific opportunities for upgrades that will increase facility performance. These items are not required.

## Observed Deficiencies (ODs), 2018-2023

Observed Deficiencies are based on known conditions that are witnessed by or disclosed directly to the field surveyors and are generally the best short-term planning tool. The MENG Analysis team uses the Uniformat II system to organize cost estimates for system repairs or replacements. OD estimates include direct costs plus typical construction markups as well as project development markups (design, permitting, management, etc.). ODs are intended as “like” replacements and do not address level-of-service enhancements and/or programmatic building changes or code required upgrades. The following table summarizes the estimated cost for 2018-2023 Observed Deficiencies at each Municipal Service facility:

<b>Site</b>	<b>Building Systems</b>	<b>Building Sitework</b>	<b>Total</b>
Municipal Services Center	\$128,706	\$11,625	<b>\$140,331</b>
Tacoma Municipal Building	\$11,206,540	\$0	<b>\$11,206,540</b>
Tacoma Muni. Bldg. North	\$2,142,139	\$0	<b>\$2,142,139</b>
<b>Total</b>	<b>\$13,477,385</b>	<b>\$11,625</b>	<b>\$13,489,010</b>

The following table and chart summarize the Observed Deficiencies for all Municipal Service facilities by major building element:



- (i) Shell includes floor/roof construction, exterior walls, windows/doors, and roofing.
- (ii) Services includes elevators, plumbing, HVAC, fire protection & electrical.

The following summarizes the general findings of the Municipal Service facilities based on the Observed Deficiencies:

- **Substructures:** Foundations are in relatively good shape. Seismic standards were not evaluated as part of the survey.
- **Shell:** The TMB & TMBN buildings require exterior maintenance. The façade of TMB needs to be cleaned and repairs made to spalling stone, failing relieving angles and heavy carbon deposits. Window frames and seals of both TMB and TMBN require replacement and/or repair. TMBN and TMB 5<sup>th</sup> Floor roofs are in need of recoating or replacement. The 15<sup>th</sup> and 17<sup>th</sup> floor roofs of TMB need replacement.
- **Interiors:** The interior finishes of the Municipal Service buildings are in relatively good condition. Many spaces within these buildings have received attention from recent tenant improvement projects. Carpet, paint and ceiling tile work is the most common maintenance deficiency.
- **Services:**
  - **Heating Ventilation & Air Conditioning (HVAC):** MSC HVAC systems are at the end of useful service. The TMB operates in cooling mode much of the year. Some heat pump upgrades have been completed in TMB, but many are in need of replacement. The TMB cooling tower has been noted to have excessive corrosion. TMB-North furnace is at end of life and the roof mounted air handling units need refurbishment.
  - **Plumbing:** The plumbing systems are functional but there is evidence of corrosion in the piping and fixtures are outdated and inefficient.

- **Electrical:** Lighting controls are aging and beginning to fail. Scheduled replacement of lighting fixtures and controls should be incorporated into all tenant improvements.
- **Fire protection:** Fire protection is in fair condition. The fire pump at TMB is original and is currently undergoing code required assessment as well as pressure reduction valves on a per floor basis.
- **Equipment and Furnishings:** The kitchenettes in TMB & TMBN are aging, but functional. Appliances, hardware and finishes should be incorporated into the tenant improvements or budgeted for replacement upon failure.
- **Sitework:** Site infrastructure is in good condition. Exterior lighting is aging and should be scheduled for upgrade to LED with lighting controls.

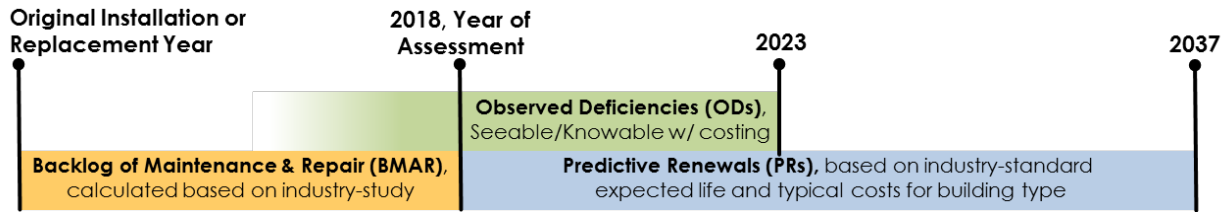
### Supplemental Cost Models

In addition to estimated Observed Deficiencies, MENG Analysis has developed two supplemental models summarized below. It is important to clarify that these calculations are independent of the estimated cost calculated for short-term Observed Deficiencies.

- **Backlog of Maintenance and Repair (BMAR):** The BMAR is an estimate from original construction to present day, of what should have been spent to bring the facility up to good condition based on current observed condition by the surveyors. This is a parametric calculation derived from a statistical industry study. The BMAR is generally defined as the amount of work required to adequately maintain facilities and related infrastructure for the current use that should have been accomplished, but for a variety of reasons has not.
- **Predicted Renewals (PRs):** PRs predict future capital costs over a 20-year horizon (2018-2037). They are based on predictive models that use industry-standard expected life data, combined with original construction or remodel dates as well as system scores from surveyors to estimate when a system will require renewal.. Unit costs in the models are updated on a yearly basis and adjusted to our specific northwest region. Similar projects that have been estimated and managed by the team were also referenced against the modeled costs for additional verification of recent costs if they were available.



The following graphic and table summarize the supplement cost model information:



Site	Backlog of Maintenance & Repair (BMAR)	Predicted Renewal (PRs)	Total
Municipal Services Center	\$603,000	\$1,719,000	\$2,322,000
Tacoma Municipal Building	\$20,919,000	\$55,200,000	\$76,119,000
Tacoma Municipal Bldg. North	\$3,008,000	\$9,756,000	\$12,764,000
<b>Total</b>	<b>\$24,530,000</b>	<b>\$66,675,000</b>	<b>\$91,205,000</b>

As previously noted ODs are based on visual observation and are independent of the modeled costs for BMAR and PRs.

### Facility Condition Index (FCI)

A Facility Condition Index (FCI) calculation is an industry standard used for benchmarking and evaluating the relative condition of a portfolio of facility assets over time. There are a number of different methods used by various organizations to calculate the condition index that best fits their particular portfolio. For this reason, using FCIs to compare the City’s facilities to other organizations is not always appropriate, but is a good tool to compare the City’s facilities to each other.

In general, the FCI is a ratio of current repair needs to the Current Replacement Value (CRV). For this report the FCI is based on both the BMAR/CRV and ODs/CRV, providing an average range of the buildings condition.

The Current Replacement Value (CRV) is a calculation for reconstructing an asset as it currently exists, without modifications or improvement. The CRV estimate is an approximation of the construction cost based on the cost per square foot of a similar constructed building. The CRV estimate should not be used for any other purpose than to calculate the FCI. Estimates for the actual replacement of individual facilities and projects must incorporate a higher level of detail and accuracy.

Common industry practice is to create a scale for interpreting FCI as a way to prioritize facility needs. Most organizations adjust their classifications of FCI to relate to their own unique criteria. For the City of Tacoma, MENG Analysis recommends the following FCI breakdown to support decision making.

- Excellent = 0 - 0.05 (5%)
- Good = 0.06 - 0.10 (6%-10%)
- Fair = 0.11- 0.20 (11%-20%)
- Poor = 0.21 – 0.25 (21% - 25%)
- Critical = 0.26 (26%) or greater

The following table is a summary of the average FCI and relative scaling for each facility:

Site	Excellent 0.05	Good 0.10	Fair 0.15	Poor 0.20	Critical 0.25	0.30
Municipal Services Center	◆ 0.10, Approaching Fair					
Tacoma Municipal Bldg.	Fair, 0.15◆					
Tacoma Muni. Bldg. North	◆ 0.11, Fair					

#### Observed Deficiency Over Time (5 years)

Site	2018-2020	2021 - 2022	2023	Total
Municipal Services Center	\$72,075	\$68,256	\$0	<b>\$140,331</b>
Tacoma Municipal Building	\$1,667,071	\$6,843,608	\$2,695,861	<b>\$11,206,540</b>
Tacoma Muni. Bldg. North	\$17,438	\$690,525	\$1,434,176	<b>\$2,142,139</b>
<b>Totals</b>	<b>\$1,756,584</b>	<b>\$7,602,389</b>	<b>\$4,130,037</b>	<b>\$13,489,010</b>

#### Predicted Renewals Over Time (20 years)

Site	2018-2023	2024-2037	Total
Municipal Services Center	\$408,365	\$1,311,073	<b>\$1,719,438</b>
Tacoma Municipal Building	\$17,594,086	\$37,606,196	<b>\$55,200,282</b>
Tacoma Muni. Bldg. North	\$3,166,737	\$6,588,778	<b>\$9,755,515</b>
<b>Totals</b>	<b>\$21,169,188</b>	<b>\$45,506,047</b>	<b>\$66,675,235</b>

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## Terminology and Abbreviations

**Facility Condition Assessment (FCA):** A structured process to document the conditions of site infrastructure and building systems. FCAs are typically performed by a multi-disciplinary team of architects, engineers, construction, and cost specialists. Facility information and condition data should be maintained in a database for ease of updating and reporting. The data should be renewed over time.

**Facility Condition Index (FCI):** A benchmark used to compare relative condition of facilities within a portfolio of assets; derived by the following formula:

$$\text{FCI} = \frac{\text{Backlog of Maintenance and Repair (BMAR)}}{\text{Current Replacement Value (CRV)}}$$

There are a number of different methods used by various organizations to calculate that backlog. For this reason, using FCIs to compare the City's facilities to other organizations is not always appropriate.

This study uses a parametric method that calculates BMAR based on the assessed condition scores. The statistical basis is a study conducted by NASA on over 10,000 surveyed facilities that evaluated the backlog of repair items relative to qualitative condition scores 1 through 5. The parametric backlog for each system is calculated based on a statistical theoretical percentage of that system that would need repair or replacement for each of the qualitative condition scores. The costs of those systems are the facility use cost models customized for the City of Tacoma.

**Life Cycle Renewal Model:** A theoretical forecast of when building systems will exceed their typical lifespan and funding will be required for renewals.

**Parametric Costs:** Parametric cost estimating is a technique that uses statistical relationships between historical cost data and other program variables such as system condition or age. Historical cost data is typically used at a high level (e.g., cost per square foot) and often represent conceptual, order-of-magnitude costs for initial planning or discussion purposes.

**Remaining Useful Life:** An estimate of the years that a facility system may remain serviceable or in operation before failure; which would then require system renewal or replacement.

**Subsystem:** The term subsystem in this report refers to a Uniformat Level 3 building systems category (e.g., B3010 - Roof Coverings; or B3020 - Roof Opening; or B3030 - Projections).

**System:** The term system in this report refers to a Uniformat Level 2 building system category (e.g., B3000 - Roofing)

The following terms are used in the MENG Analysis FCA Database:  
(See also the database user's manual for more specific definitions.)

**Last Major System Renewal:** The year in which a system was last renewed (substantially repaired or replaced).

**Original System Date:** The year a system was originally constructed/installed.

**Subsystem Assessed Condition Score:** The field surveyors' assessment of condition assigned to each facility subsystem. The rating uses a scale of 1 through 5, where 1=excellent, 2=good, 3=fair, 4=poor, 5=unacceptable. Different subsystem % of CRV's are included in the database for each of the different facility use types (e.g. maintenance shops vs. police station vs. office building, etc.)

**BMAR (backlog of maintenance and repair):** This is an estimated amount that would need to be spent to bring the facility up to good condition. Does not guarantee code compliance.

BMAR is generally defined as the amount of work required to safely maintain facilities and related infrastructure for the current use that should have been accomplished, but for a variety of reasons has not. It includes minor seismic, ADA, and fire protection items necessary to maintain current operations, but it does not include major work in those areas that would normally be accomplished in major building renovation for full code compliance.

The MENG Analysis methodology for calculating BMAR is based on the condition scores (1-5, excellent to unsatisfactory) for each system, with each condition bracket having a BMAR defined as the percentage of that system's replacement value needing repair. Those percentages were derived from a statistical industry study that compared specific system maintenance and repair costs for tens of thousands of buildings relative to the condition scores. Within our FCA process, we calculate condition scores for each subsystem, which are then rolled up to the systems level, and a bracketed lookup table used associate those scores with a percentage of replacement value. Those are totaled for the entire facility, and then divided by the replacement value of the entire facility to get the actual FCI index.

**Subsystem Normal Life:** Industry standard expected subsystem life between renewals or replacement cycles.

**System Coverage:** The amount of area in a facility containing a specific system, expressed as percent of building or site area.

Certain FCA terms are also expressed as formulas in the MENG Analysis FCA Database, as follows:

## List of Commonly Used Abbreviations

AC = Asphalt concrete	HVAC = Heating, ventilating, and air conditioning
ACT = Acoustic ceiling tile	IT = Information technology
A/V = Audio/video	LF = Linear feet (measurable unit)
AHU = Air handling unit	LED = Light emitting diode
ASHRAE = American Society of Heating, Refrigeration, & Air Conditioning Engineers	LS = Lump sum (measurable unit)
BUR = Built-up roofing	MDF = Main distribution frame
CCTV = Closed circuit television	OWS = Oil/water separator
CFH = Cubic feet per hour (of natural gas)	PA = Public address
CFL = Compact fluorescent	P-lam = Plastic laminate
CI = Cast iron	PRV = Pressure regulating valve
CMU = Concrete masonry unit	PTAC = Packaged Terminal Air Conditioning
CO <sub>2</sub> = Carbon dioxide	Spig = Pounds per square inch (pressure)
CU = Condensing unit	SS Shelving = Stainless Steel Shelving
C = Commissioning	PVC = Polyvinyl chloride
DDC = Direct digital control	RTU = Roof top unit
DHW = Domestic hot water	RPBP = Reduced pressure backflow preventer
Ds = Direct expansion	SF = Square feet (measurable unit)
EA = Each (measurable unit)	UPS = Uninterruptible power supply
EF = Exhaust fan	VAV = Variable air volume
EFIS = Exterior insulation finishing system	VCT = Vinyl composite tile
FRP = Fiber reinforced plastic	VWC = Vinyl wall covering
GI = Grease interceptor	VOIP = Voice over internet protocol
GSHP = Ground-source heat pump	WAP = Wireless access point
HID = High intensity discharge (lamps)	WD = Wood
HM = Hollow metal	

## Condition Survey Form

### Condition Survey Form Development

Survey forms were developed for the facility condition assessments based on the Uniformat Level 3. All Level 3 subsystems are described with evaluation criteria. The evaluation criteria descriptions clearly explain what elements were included and excluded from each Level 3 subsystem.

Each survey form is accompanied by a deficiency report form that is completed when Observed Deficiencies (ODs) are noted. This Observed Deficiency form notes the problem and the recommended action to correct the deficiency. Raw construction costs (i.e., labor and materials) for facility component replacements or repairs are estimated.

### Sample Condition Scoring Criteria

The following section provides six examples of the condition scoring definitions that were used during the condition surveys.

<p><b>Roof Construction</b></p> <p><b>B1020</b></p>	<p>Roof structural frame, structural interior walls supporting roof, roof decks, slabs and sheathing, canopies. Excludes insulation and roofing.</p> <p><b>1 - Excellent:</b> New; Structure is sound and stable; no evidence of cracking, deflection or separation of framing members. Preventative inspection.</p> <p><b>2 - Good:</b> Structure is sound and stable; no evidence of cracking, deflection or separation of framing members. Minor preventative maintenance: rust proofing and / or sealants and tightening of connections.</p> <p><b>3 - Fair:</b> Minor surface cracking or separation of framing members. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Structural damage evident; Twisting, cracking, or separation of structural members affecting surrounding finishes or moisture intrusion. Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> Structurally deficient or damaged beyond repair; major damage to surrounding finishes; jeopardizing occupancy. Replacement.</p>
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<p><b>Exterior Windows</b></p> <p><b>B2020</b></p>	<p>Screens, storm windows, exterior louvers, frame, trim, sills, caulking, flashing. Excludes window shades and treatments.</p> <p><b>1 -Excellent:</b> New; doors operating smoothly; no finish degradation. Preventative inspection.</p> <p><b>2 - Good:</b> Functioning smoothly; no finish degradation. Secure hardware and emergency exiting. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Worn but functional; requires paint or resealing; glass or hardware damage only in isolated doors. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Damaged or deficient hardware, glass, trim or seals; water intrusion. Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> Extensive damage, deficient beyond repair; Hardware not operating, moisture intrusion. Replacement.</p>
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<p><b>Exterior Wall Finishes</b></p> <p><b>B2040</b></p>	<p>Exterior wall - exterior applied finishes</p> <p><b>1 - Excellent:</b> New; no finish degradation. Preventative inspection.</p> <p><b>2 - Good:</b> no cracking or moisture intrusion. Minor finish degradation. Minor preventative maintenance. Cleaning.</p> <p><b>3 - Fair:</b> Minor undamaged but requires sealing. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> Damaged beyond repair, Replacement.</p>
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<p><b>Plumbing Fixtures</b></p> <p><b>D2010</b></p>	<p>Water closets, urinals, lavatories, sink, showers, bathtubs, drinking fountains. Excludes hot water heaters.</p> <p><b>1 - Excellent:</b> New; All fixtures operating well. Preventative inspection.</p> <p><b>2 - Good:</b> system components operational, free of defect, and of adequate utility service and capacity for intended use. Includes water saving features. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Some components worn, fixtures stained. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Many components damaged; limited parts; leaking valves, rust and corrosion. Operating parts &gt; 30 years old. Restoration repairs.</p> <p><b>5 - Unsatisfactory:</b> Many fixtures not operational. Rust, corrosion, and mineral deposits. Leaks causing damage to other finishes and components. Replacement.</p>
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<p><b>Heat Generating Systems</b></p> <p><b>D3020</b></p>	<p>Boilers, piping and fittings adjacent to boilers, primary pumps, auxiliary equipment, equipment and piping insulation.</p> <p><b>1 - Excellent:</b> New. Preventative inspection.</p> <p><b>2 - Good:</b> System is fully operational, suitable capacity, efficient utility utilization, integrated energy management controls. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Equipment worn but reliable, older energy controls; Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Equipment marginal/hard to obtain parts, insulated ext. ductwork, no energy controls. &gt; 40 years old. Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> System non-functional or seriously deficient, not delivering supply to required spaces. Replacement.</p>
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<p><b>Distribution Systems</b></p> <p><b>D3040</b></p>	<p>Supply &amp; return air systems, ventilation &amp; exhaust systems, steam, hot water &amp; chilled water distribution, terminal devices, heat recovery equipment, auxiliary equipment such as secondary pumps, and heat exchangers, piping, duct &amp; equipment insulation.</p> <p><b>1 - Excellent:</b> New. Preventative inspection.</p> <p><b>2 - Good:</b> System is fully operational, suitable capacity, efficient utility utilization, integrated energy management controls. Good insulation. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Equipment worn but reliable, older energy controls; Insulation. Some joints/ sealants loose. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Equipment marginal/hard to obtain parts, no energy controls; Many grilles missing or loose. Air leaks and unbalance. Restorative repair</p> <p><b>5 - Unsatisfactory:</b> Non-functional or seriously deficient. Grilles corroded, missing. Replacement.</p>
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## Facility Summary

City of Tacoma  
Municipal Services Center  
Municipal Services Center Building

1224 Martin Luther King Jr Way  
Tacoma, WA 98407

Facility Size - Gross S.F. 6,857  
Year Of Original Construction 1960  
Facility Use Type Office  
Construction Type Medium  
# of Floors 2  
Energy Source Electric  
Year Of Last Renovation 1960  
Historic Register No



FCI (BMAR/CRV)	0.16	Predicted Renewal Budget (20 yrs)	\$1,719,438
FCI (Bldg OD/CRV)	0.04	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$3,670,000	<b>Building</b>	\$128,706
BMAR (Backlog of Maintenance and Repair)	\$603,000	<b>Infrastructure</b>	\$11,625
Beginning Budget Year	2018	<b>Total</b>	\$140,331
		<b>Opportunity Total Project Cost</b>	\$577,426

## Facility Condition Summary

The Municipal Services Center, also known as TV Tacoma, is a partial 2-story building with full basement constructed in the 1960's. The building is constructed of masonry and wood with concrete basement walls below grade. Reported square footage appears to exclude the built-out and occupied basement, finish space including the basement may be closer to 8,600 square feet. The building is in generally good condition, but is in need of roofing and mechanical equipment replacements.

# Facility Summary

City of Tacoma  
 Municipal Services Center  
 Municipal Services Center Building

1224 Martin Luther King Jr Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1960	1960	3	AA 01/19/18	Standard concrete foundations at interior columns and west addition.
<b>A1030 Slab On Grade</b>	1960	1960	3	AA 01/19/18	Concrete slab on grade at basement and west addition.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1960	1960	3	AA 01/19/18	Concrete basement walls between foundation and 1st floor.
<b>B Shell</b>			<b>3.0</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1960	1960	3	AA 01/19/18	Original building is wood post and beam with wood joists and sheathing. 2nd level of addition is wood framing with plywood sheathing.
<b>B1020 Roof Construction</b>	1960	1960	3	AA 01/19/18	Original building is wood glulam beams and tongue and groove decking supported on exterior concrete masonry unit walls. Addition is wood framing with plywood sheathing supported by stud walls, concrete masonry unit walls and interior wood beams.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1960	2011	3	AA 01/19/18	Concrete masonry unit walls at original building. Addition is concrete masonry unit walls and wood stud walls with plywood sheathing and stucco exterior finish. Wall cracks on CMU fronting S 13th St, fix cracks in CMU with polyurethane caulk.
<b>B2020 Exterior Windows</b>	1960	2011	3	AA 01/19/18	Exterior windows are double pane metal window

# Facility Summary

City of Tacoma  
 Municipal Services Center  
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 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.0</b>		
<b>Exterior Closure</b>					
<b>B2020 Exterior Windows</b>					
					system; storefront style.
<b>B2030 Exterior Doors</b>					
	1960	2011	3	AA 01/19/18	Double sliding glazed aluminum-framed exterior doors fronting MLK Jr Way; electronic access control (2011). Double swinging hollow metal doors with relite at back alley, and single metal overhead garage door also at the back alley. Inside face of hollow metal door at back alley is severely scratched up; refurbish, repair, and repaint door.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					
	1960	1990	3	AA 01/19/18	Roofing is BUR with granular type cap sheets. Organic growth at multiple areas of roof. Treat moss and clean organic growth from roof.
<b>C Interiors</b>			<b>3.2</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>					
	1960	2011	3	AA 01/19/18	Interior partitions are mainly 2x4 stud wall. Some walls at the back end of the building are CMU.
<b>C1020 Interior Doors</b>					
	1960	2011	3	AA 01/19/18	Mostly wood framed interior doors with ADA compliant hardware. Some basement and back end of building doors are hollow metal doors. Paint at some of the basement metal doors are wearing off, repaint doors.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>					
	1960	1960	3	AA 01/19/18	Stair systems are wood framed.
<b>C2020 Stair Finishes</b>					
	1960	2011	2	AA 01/19/18	Stair treads and risers are carpeted with wood rails.

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>3.2</b>		
<b>Staircases</b>					
<b>C2020 Stair Finishes</b>					
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>					
	1960	2011	3	AA 01/19/18	Interior wall finishes are mainly painted textured GWB. Some walls at building back end are painted CMU. The Studio, floor #1 hall, and Conference Room have acoustic sound panels. Some basement offices have wood paneling. Wall cracks on basement CMU, fix cracks in CMU with polyurethane caulk.
<b>C3020 Floor Finishes</b>					
	1960	2011	3	AA 01/19/18	Floor finishes vary. They are sheet vinyl in utility and bathroom areas, VCT in the Server Room, concrete in the basement utility areas and carpet in the remaining areas (Halls, Office, Master Control, Studio; new carpet in 2011, Production). Wear and tear of existing linoleum flooring, at back end of building, appear to be from the original 1960 installation; replace linoleum with modern standard floor tiles. Carpet at Data Center show some damages, patch/repair carpet as necessary.
<b>C3030 Ceiling Finishes</b>					
	1960	2011	4	AA 01/19/18	Ceilings are mostly 2x4 suspended acoustic tiles at office areas.
<b>D Services</b>			<b>3.1</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					
	1960	1999	3	DCS 01/19/18	Various porcelain and stainless steel plumbing fixtures at toilet rooms and kitchenettes ranging from fair to good condition; upper floor toilet room water closet flushes slowly (minor maintenance issue); no issues reported.
<b>D2020 Domestic Water Distribution</b>					
	1960	1999	3	DCS 01/19/18	Mix of copper to newer fixtures and some galvanized as original basement mechanical

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<b>D Services</b>			<b>3.1</b>		
<b>Plumbing</b>					
<b>D2020 Domestic Water Distribution</b>					room; bottled water in use. DHW is from aging A.O. Smith 80-gal electric heater with no expansion tank or recirc pump (opportunity to upgrade per code).
<b>D2030 Sanitary Waste</b>	1960	1999	3	DCS 01/19/18	Mix of original cast iron and newer ABS with no issues reported; tested fixtures flush & drain well, except water closet at 2nd floor (minor maintenance issue).
<b>D2040 Rain Water Drainage</b>	1960	1999	4	DCS 01/19/18	Entire roof slope to south with roof projection (horizontal eave) with several un-screened and poorly flashed roof drains to downspout below. No drainage or pocket at roof access from 2nd floor toilet room window - see B3010 for details. Overflow is sheet flow over edge of roof into landscape below.
<b>D2090 Other Plumbing Systems</b>	1960	1999	3	DCS 01/19/18	Simplex sump pump in basement below west stair - appears operational, with no issues (flooding or odors) reported; basement appears dry. Continuously flowing water into sump is from studio air conditioning equipment condensate drains.
<b>HVAC</b>					
<b>D3010 Energy Supply</b>	1960	1999	3	DCS 01/19/18	Natural gas piping to basement mechanical room is capped-off and abandoned in place with opportunity to reuse if facility mechanical systems are returned to gas-based heat in the future.
<b>D3030 Cooling Generating Systems</b>	1960	1999	3	DCS 01/19/18	Chilled water system for studio air conditioning system including Trane estimated 20-ton air-cooled chiller at enclosed service year to SW, two estimated 1-hp chilled water recirc pumps, one estimated 100-gal thermal energy buffer tank, one small expansion tank, and

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.1</b>		
<b>HVAC</b>					
<b>D3030 Cooling Generating Systems</b>					
					interconnecting piping and controls; all with no issues reported.
<b>D3040 HVAC Distribution Systems</b>					
	1960	1999	2	DCS 01/19/18	Relatively new (1999) galvanized steel ductwork is in good condition to studios. Somewhat newer (1995) ductwork fully exposed at 2nd floor but reportedly functional. No issues reported. Three newer (1999) Trane fan coil units in basement serving studio areas with electric resistance heat and chilled water cooling; but with unclear or no economizer (free) cooling.
<b>D3050 Terminal and Package Units</b>					
	1960	1995	4	DCS 01/19/18	One older (1991) Carrier 3-ton rooftop condensing unit at end of useful life assumed serving the Lennox furnace in the original basement mechanical room - may be failed. One aging (1996) Lennox packaged roof-top heat pump unit serving 2nd floor offices near end of life. One through-wall newer LG PTAC unit in good condition serving equipment room reportedly too hot due to insufficient cooling from permanent A/C system.
<b>D3060 Controls and Instrumentation</b>					
	1960	1999	3	DCS 01/19/18	Built-up digital control system for studio HVAC system in non-standard, but fair condition with no issues reported. Several stand-alone T-stats.
<b>D3090 Other HVAC Systems and Equipment</b>					
	1960	2008	3	DCS 01/19/18	One Trane equipment room split-Dx fan coil heat pump system with electric resistance supplemental heat and no economizer. Battery charging room is not vented.
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>					
	1960	1999	3	DCS 01/19/18	Fire extinguishers on hooks.
<b>Electrical</b>					



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Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.1</b>		
<b>Electrical</b>					
<b>D5010</b>	<b>Electrical Service and Distribution</b>		1960 1999 3	DCS 01/19/18	From roof down to original electrical closet with 208/120V 3-phase service to mix of older and newer panels with unclear code compliance, but no reported issues. Main panel may be 400A, in turn supplying two approximately 200A distribution panes in electrical closet, plus other panels in studio and basement.
<b>D5020</b>	<b>Lighting and Branch Wiring</b>		1960 1999 3	DCS 01/19/18	Variety of lighting, mostly T8 fluorescent with manual control with no issues reported.
<b>D5032</b>	<b>Low Voltage Communication</b>		1960 1999 3	DCS 01/19/18	Telephone and special CATV related to broadcast operations; with no issues reported.
<b>D5037</b>	<b>Low Voltage Fire Alarm</b>		1960 2015 3	DCS 01/19/18	Newer Gamewell E3 FACP with even newer (2017) AES antenna with no issues reported.
<b>D5038</b>	<b>Low Voltage Security</b>		1960 1999 3	DCS 01/19/18	Aging card-key access and NAPCO motion detection and little or no CCTV - consider upgrading to City standard.
<b>D5039</b>	<b>Low Voltage Data</b>		1960 1999 3	DCS 01/19/18	Newer high-speed data with Cisco service and UTP cabling and more recently installed WAP(s); no issues reported.
<b>D5090</b>	<b>Other Electrical Systems</b>		1960 1999 3	DCS 01/19/18	Somewhat unclear egress lighting and exit signs - not up to code. Standby Cummins diesel generator roughly 60 kW with 75 gal fuel tank supplying 208V 225A electrical X-panel via Onan ATS.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1960	1999	3	DCS 01/19/18	Minimal appliances at kitchenettes with no issues reported.
<b>E1020 Institutional Equipment</b>	1960	1999	2	DCS 01/19/18	Extensive relatively modern television studio equipment and support systems with no issues reported.
<b>E1030 Vehicular Equipment</b>	1960	1999	3	DCS 01/19/18	Steep basement garage vehicle ramp with front wheel-stop bar; motor-operated garage door at entry off alley - appears somewhat dangerous to enter and exit the ramp.
<b>E1090 Other Equipment</b>	1960	1999	3	DCS 01/19/18	Large temporarily ballasted satellite antenna.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	1960	1985	3	DCS 01/19/18	Limited casework, aging but mostly functional; some minor damage.
<b>F Special Construction</b>					
<b>Special Construction</b>					
<b>F1030 Special Construction Systems</b>	1960	1999	3	DCS 01/19/18	Television studio overhead grid system and sound stage walls with no issues reported.
<b>F1050 Special Controls and Instrumentation</b>	1960	1999	3	DCS 01/19/18	Extensive racks and control consoles for studio operations with no issues reported; excessive obsolete gear stored on-site.

# Facility Summary

City of Tacoma  
Municipal Services Center  
Infrastructure

1224 Martin Luther King Jr Way  
Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2020 Parking Lots</b>	1960	2017	2	AA 01/19/18	Concrete parking with concrete wheel stops. Street parking paint striping recently re-stripped (2017).
<b>G2030 Pedestrian Paving</b>	1960	1999	3	AA 01/19/18	Concrete sidewalks, some areas poured recently.
<b>G2040 Site Development</b>	1960	1999	3	TRB 02/12/18	Concrete poured in place raised landscape planter between street and sidewalk.
<b>G2050 Landscaping</b>	1960	1960	3	AA 01/19/18	Shrubs and trees.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1960	1960	3	DCS 01/19/18	City water with no issues reported; irrigation installed serving landscaped areas to east and south.
<b>G3020 Sanitary Sewer</b>	1960	1960	3	DCS 01/19/19	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1960	1999	3	DCS 01/19/18	Roof drains piped to storm with no issues reported or observed. Parking area to south simply drains to City street storm drain, also with no issues reported.
<b>G3050 Cooling Distribution</b>	1960	1999	3	DCS 01/19/18	Underground chilled water piping from building basement to chiller in fenced equipment enclosure at SW corner of site; no issues reported.
<b>G3060 Fuel Distribution</b>	1960	1999	3	DCS 01/19/18	Original natural gas service line is still installed, but capped-off, assume during 1999 improvements - opportunity to return to gas-heat in future.

# Facility Summary

City of Tacoma  
 Municipal Services Center  
 Infrastructure

1224 Martin Luther King Jr Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Civil / Mechanical Utilities</b>					
<b>G3060 Fuel Distribution</b>					
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>					
	1960	1999	3	DCS 01/19/18	Overhead power from pole to NW to second story weather head, then in conduit across high roof to roof box, then dropping down to assumed original (1960) electrical closet with Tacoma Power meter #49246435; no issues reported - opportunity to replace with modern underground power to new proper electrical room.
<b>G4020 Site Lighting</b>					
	1960	1999	4	DCS 01/19/18	Old T-12 fluorescent shop lights under fabric canopy to east and SE, some failing. Newer LED wallpacks along south wall for parking and concrete walk. Nearly all lights on during daylight hours with photocells appearing deliberately overridden (quick 5-minute fix to correct). One older high wall-pack at alley to west almost directly under power service weather-head. Uplights at planter boxes to east failing.
<b>G4030 Site Communications and Security</b>					
	1960	1999	3	DCS 01/19/18	Significant telecom supporting broadcast studio operations with no issues reported; however similar to power, served via over-head lines to weather-heads.

## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Municipal Services Center

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Infrastructure	Site Electrical utilities	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	<b>Facility Total</b>	<b>\$5,000</b>	<b>\$1,250</b>	<b>\$1,250</b>	<b>\$4,125</b>	<b>\$11,625</b>
Municipal Services Center Building	Roofing	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Interior Finishes	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Plumbing	\$12,857	\$3,214	\$3,214	\$10,607	\$29,893
	HVAC	\$20,000	\$5,000	\$5,000	\$16,500	\$46,500
	Electrical	\$7,500	\$1,875	\$1,875	\$6,188	\$17,438
	Special Construction	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	<b>Facility Total</b>	<b>\$55,357</b>	<b>\$13,839</b>	<b>\$13,839</b>	<b>\$45,670</b>	<b>\$128,705</b>
	<b>Site Total</b>	<b>\$60,357</b>	<b>\$15,089</b>	<b>\$15,089</b>	<b>\$49,795</b>	<b>\$140,330</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Municipal Services Center

Total Observed Deficiency Repair Direct Cost : \$60,357

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Infrastructure</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$5,000</b>
<b>System: Site Electrical utilities</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$11,625</b>
<b>Site Lighting</b>									
Lighting	4	2	2018		10	\$500.00	EA	\$5,000	\$11,625

Old T-12 fixtures under canopy to east and SE with some failing - these fixtures are not for exterior application and additionally are not efficient.

Replace with all-weather LED lighting and place on correctly operating photocell and/or timer.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Municipal Services Center

Total Observed Deficiency Repair Direct Cost : \$60,357

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				<b>Action</b>					
<b>Facility: Municipal Services Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$5,000</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$11,625</b>
<b>Roof Coverings</b>									
Metal drain cover	5	1	2018		2,000	\$2.50	SF	\$5,000	\$11,625

Ponding water at gutter fronting South 13th Street. Roof overflow drain covers have completely fallen-off or missing. Significant moss growth occurring.

Unplug rain-leader and install metal drain covers. Treat and remove moss, clean roof.





# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Municipal Services Center

Total Observed Deficiency Repair Direct Cost : \$60,357

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Municipal Services Center Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$5,000
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$11,625
<b>Ceiling Finishes</b>									
Acoustic Tile	4	4	2018		2,000	\$2.50	SF	\$5,000	\$11,625

Acoustic ceiling tiles at some offices are sagging and show water-intrusion evidence.

Replace all sagging, damaged, and stained acoustic tiles.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Municipal Services Center

Total Observed Deficiency Repair Direct Cost : \$60,357

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Municipal Services Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$12,857</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$29,893</b>
<b>Domestic Water Distribution</b>									
Galvanized steel piping	4	3	2018		6,857	\$1.00	SF	\$6,857	\$15,943

Original galvanized pipe is past useful life.

Replace galvanized piping with modern copper and/or PEX tubing.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Municipal Services Center

Total Observed Deficiency Repair Direct Cost : \$60,357

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Municipal Services Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$12,857</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$29,893</b>
<b>Rain Water Drainage</b>									
Floor Drains	4	2	2018		4	\$1,500.00	EA	\$6,000	\$13,950

Poorly constructed roof drains, with at least one leaking down pipe through roof projection concealed space, potentially damaging structure. Drains are unprotected and appear undersized.

Construct proper roof drains; investigate and repair any damage to roof projection structure from water leakage.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Municipal Services Center

Total Observed Deficiency Repair Direct Cost : \$60,357

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					

Facility: Municipal Services Center Building	Total System Deficiency Repair Cost (Undiscounted/Unescalated):	\$20,000
System: HVAC	Total System Deficiency Repair Cost (Marked Up):	\$46,500

**Terminal and Package Units**

Condensing units	4	2	2018		1	\$5,000.00	EA	\$5,000	\$11,625
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Old (1991) Carrier rooftop condensing unit past end of life. Replace with new if still needed.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Municipal Services Center

Total Observed Deficiency Repair Direct Cost : \$60,357

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Municipal Services Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$20,000</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$46,500</b>
<b>Terminal and Package Units</b>									
Packaged Units	4	2	2018		1	\$5,000.00	EA	\$5,000	\$11,625

Insufficient permanent cooling for first floor equipment room; currently cooled by temporary through-wall PTAC unit.

Install permanent cooling for equipment room.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Municipal Services Center

Total Observed Deficiency Repair Direct Cost : \$60,357

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Municipal Services Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$20,000</b>	
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$46,500</b>	
<b>Terminal and Package Units</b>										
Roof Top Unit	4	3	2018		1	\$10,000.00	EA	\$10,000	\$23,250	

Lennox packaged rooftop heat pump unit serving 2nd floor approaching end of life.

Replace with new.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Municipal Services Center

Total Observed Deficiency Repair Direct Cost : \$60,357

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Municipal Services Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$7,500</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$17,438</b>
<b>Electrical Service and Distribution</b>									
Electrical distribution	4	3	2018		1	\$7,500.00	LS	\$7,500	\$17,438

Unclear distribution and code compliance.

Fully inspect and test electrical distribution, and resolve issues.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Municipal Services Center

Total Observed Deficiency Repair Direct Cost : \$60,357

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Municipal Services Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$5,000</b>
<b>System: Special Construction</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$11,625</b>
<b>Special Controls and Instrumentation</b>									
Other	4	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Excessive obsolete equipment stored on-site, mostly in basement.

Eliminate excessive storage materials.





## Opportunity Summary By Subsystem

City of Tacoma

Site: Municipal Services Center

Total Site Opportunity Cost: \$279,355

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Infrastructure</b>						
<b>System: Site Civil / Mechanical Utilities</b>						
<b>Total Cost: \$5,000</b>						
G3060	Fuel Distribution					
	Natural gas service capped-off and left in place.	Use natural gas service for future modernization or energy efficiency improvement.	1.00	\$5,000.00	LS	\$5,000
<b>Facility: Infrastructure</b>						
<b>System: Site Electrical utilities</b>						
<b>Total Cost: \$26,000</b>						
G4010	Electrical Distribution					
	Large overhead power conduits run across the roof and down to an interior electrical closet.	Replace with underground power to new electrical room.	1.00	\$20,000.00	LS	\$20,000
G4030	Site Communications and Security					
	Overhead telecom lines to rooftop weather heads.	Underground telecom services.	2.00	\$3,000.00	LS	\$6,000
<b>Facility: Municipal Services Center Building</b>						
<b>System: Vertical Transportation</b>						
<b>Total Cost: \$100,000</b>						
D1010	Elevators and Lifts					
	No elevator to basement or second-story.	Add three-stop elevator serving basement, ground floor and 2nd floor.	1.00	\$100,000.00	LS	\$100,000
<b>Facility: Municipal Services Center Building</b>						
<b>System: HVAC</b>						
<b>Total Cost: \$46,214</b>						
D3040	HVAC Distribution Systems					
	Unclear or no economizer cooling for three studio HVAC systems.	If missing or partial, install full economizer.	3.00	\$7,500.00	EA	\$22,500
D3060	Controls and Instrumentation					
	Non-standard digital controls.	Upgrade to City standard DDC system.	6,857.00	\$2.00	SF	\$13,714
D3090	Other HVAC Systems and Equipment					
	No economizer for basement equipment room Trane system.	Install economizer for free cooling; alternately capture waste heat from equipment room to heat other spaces in winter.	1.00	\$10,000.00	LS	\$10,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Municipal Services Center

Total Site Opportunity Cost: \$279,355

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Municipal Services Center Building</b> <b>System: Fire Protection</b> <span style="float: right;"><b>Total Cost: \$27,428</b></span>						
D4010	Fire Protection Sprinkler Systems	No fire sprinkler system despite extensive archives, costly specialized equipment, and many combustible materials.	Install fire sprinkler system.	6,857.00	\$4.00	SF \$27,428
<b>Facility: Municipal Services Center Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$49,713</b></span>						
D5020	Lighting and Branch Wiring	Mostly fluorescent lighting with manual control.	Upgrade to LED with automatic control.	6,857.00	\$4.00	SF \$27,428
D5037	Low Voltage Fire Alarm	Code minimum fire alarm.	Upgrade fire alarm, specifically detection to more pro-actively protect costly equipment and potentially mission critical broadcast system.	6,857.00	\$1.50	SF \$10,286
D5038	Low Voltage Security	Limited and aging electronic security.	Upgrade to City standard.	6,857.00	\$1.75	SF \$12,000
<b>Facility: Municipal Services Center Building</b> <b>System: Equipment</b> <span style="float: right;"><b>Total Cost: \$25,000</b></span>						
E1030	Vehicular Equipment	Awkward reporting vehicle parking.	Reconfigure to improve safety - ideally with reporting vehicle at ground floor, not basement level.	1.00	\$25,000.00	LS \$25,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 Tacoma Municipal Building  
 Tacoma Municipal Building

747 Market Street  
 Tacoma, WA 98407

Facility Size - Gross S.F. 207,020  
 Year Of Original Construction 1930  
 Facility Use Type Office  
 Construction Type Heavy  
 # of Floors 15  
 Energy Source Electric  
 Year Of Last Renovation 1980  
 Historic Register Yes



FCI (BMAR/CRV)	0.20	Predicted Renewal Budget (20 yrs)	\$55,200,282
FCI (Bldg OD/CRV)	0.11	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$106,729,000	<b>Building</b>	\$11,299,540
BMAR (Backlog of Maintenance and Repair)	\$20,919,000	<b>Infrastructure</b>	
Beginning Budget Year	2018	<b>Total</b>	
		<b>Opportunity Total Project Cost</b>	\$25,502,032

## Facility Condition Summary

The Tacoma Municipal Building (TMB) was constructed in 1930 as the Rhoes Medical Arts Building and was listed on the National Register of Historic Places in 1978. The TMB is a 15-story building of reinforced concrete construction, with full basement, partial sub-basement (boiler room), multiple floor plates & roof decks, and two-story penthouse with attached TMB Garage (TMBG), and interconnected newer TMB North (TMBN, separately documented). The City of Tacoma purchased and modernized the building in 1980 to house all of the City's Municipal Departments. The building is generally in fair condition, with deteriorating exterior materials in need of refurbishment, aging coverings & finishes, and aging MEP systems. Recent work includes high roof, parapet bracing and roof anchorages, ADA improvements, some tenant improvements and finish work, elevator control and cab renewal, new rooftop unit and HVAC controls. Many opportunities exist to further improve this historic building to extend its life into the 21st century. The TMBG was also constructed in 1930 and is of similar construction type. The TMBG is about nine levels running approximately from TMB floors 1 to 5 with interconnects to TMBN through the east-side office spaces on about three levels. Portions of the TMBG have been converted to office space, while the west half levels remain parking.

# Facility Summary

City of Tacoma  
Tacoma Municipal Building  
Tacoma Municipal Building

747 Market Street  
Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1930	1930	3	AA 01/16/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	1930	1930	3	AA 01/16/18	Concrete slab on grade.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1930	1930	3	AA 01/16/18	Concrete basement walls, rubble walls under market street, sidewalk on west side.
<b>B Shell</b>			<b>3.3</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1930	1930	3	AA 01/16/18	Concrete beams and slab spanning to concrete columns.
<b>B1020 Roof Construction</b>	1930	1930	3	AA 01/16/18	Concrete beams and slab spanning to concrete columns.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1930	1930	3	AA 01/16/18	Exterior stone cladding with granite wainscot at ground level supported by studs and brick masonry infill on the interior face.
<b>B2020 Exterior Windows</b>	1930	1980	3	AA 01/16/18	Most wall openings are covered by double-glazed aluminum-clad wood windows. The 24 wall openings on the parking garage face fronting Market street are all metal screened in wood frames. The wall openings of the top-floors "open" exit stairs are also screened.
<b>B2030 Exterior Doors</b>	1930	1980	4	AA 01/16/18	On the ground level, single-glazed wood framed double doors equipped with automatic operators

# Facility Summary

City of Tacoma  
Tacoma Municipal Building  
Tacoma Municipal Building

747 Market Street  
Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.3</b>		
<b>Exterior Closure</b>					
<b>B2030 Exterior Doors</b>					
					within a vestibule to the west and east. On all roof levels, the exterior doors leading to the roofs are metal. On the "cooling tower" level, the double-hung wood-window overlooking the adjacent roof was removed and converted into a "door" to the roof. Remove existing wood enclosure and replace with a real door.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					
	1930	1980	5	AA 01/16/18	The TMB has multiple roof levels with built-up roofing system. 3rd floor reroof (2009), rooftop anchors (2010), 10th floor patio reroof/waterproofing (2016/2017), 17th floor reroof (2017). There are roofs on the 16th, 12th, 10th, and 4th floors and on top of the garage area.
<b>B3020 Roof Openings</b>					
	1930	1930	3	AA 01/16/18	Cladding deteriorating in need of cleaning, sealing, and re-painting
<b>B3030 Projections</b>					
	1930	1930	5	AA 01/16/18	Miscellaneous counter-flashings at roof areas. Water seeps under Mayor's outside door into Mayor's office during rainfall. Elongate existing copper rain leader, below roof level, directly above Mayor's outside door. Also, install a "slide on door sweep stop" to Mayor's outside door.
<b>C Interiors</b>			<b>3.2</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>					
	1930	1980	4	AA 01/16/18	Stud framed partitions with gypsum board or plaster.
<b>C1020 Interior Doors</b>					
	1930	1980	3	AA 01/16/18	Wood doors and frames - many have been modified previously from 2'-8" wide to 3'-0" wide units.

# Facility Summary

City of Tacoma  
Tacoma Municipal Building  
Tacoma Municipal Building

747 Market Street  
Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>3.2</b>		
<b>Interior Construction</b>					
<b>C1020 Interior Doors</b>					
<b>C1030 Fittings</b>					
	1930	1980	3	AA 01/16/18	Wood trim, and misc fittings showing age.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>					
	1930	1930	3	AA 01/16/18	Poured-in-place concrete.
<b>C2020 Stair Finishes</b>					
	1930	1930	3	AA 01/16/18	1st, 2nd, and 3rd floor main stairway has marble or terrazzo surfacing. All other stairs are fire exits with probable plaster finish material. The wall finish from floors 4-16 typically show bubbles and paint peelings due to water intrusion. The concrete stairs have anti-slip lips.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>					
	1930	1980	3	AA 01/16/18	Some partitions have vinyl wall covering mostly at hallway locations and some areas have acoustical fabric-covered surfaces. 1st, 2nd, and restrooms are marble clad. 1st floor Council Chambers TI (2016).
<b>C3020 Floor Finishes</b>					
	1930	1980	3	AA 01/16/18	The finishes at hallways and offices are typically carpet - restrooms and 1st and 2nd floor lobbies are marble or terrazzo. Some utility areas are vinyl composition tile.
<b>C3030 Ceiling Finishes</b>					
	1930	1980	3	AA 01/16/18	2x4 lay-in ceiling systems of varying vintages. 1st and 2nd floor lobbies are decorative architectural special ceilings.
<b>D Services</b>			<b>2.9</b>		
<b>Vertical Transportation</b>					
<b>D1010 Elevators and Lifts</b>					

# Facility Summary

City of Tacoma  
Tacoma Municipal Building  
Tacoma Municipal Building

747 Market Street  
Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.9</b>		
<b>Vertical Transportation</b>					
<b>D1010 Elevators and Lifts</b>					
	1930	2018	2	DCS 01/16/18	Four overhead traction elevators, all older Westinghouse cabs with vintage GE motors and recently replaced (2017/2018, with work still underway at time of survey) Kone controls. Nos. 1, 2 & 3 are 15-stop 2,500 lb passenger elevators with 48 hp DC motors; No. 4 is a 16-stop (including basement) 3,500 lb freight (gurney) elevator with 60-hp motor. The elevator machine room (EMR) includes a new (2017) split-Dx cooling system and new (2017) elevator hoistway smoke control fans (mostly completed at time of survey, with minor work remaining). Elevator Nos. 1 & 2 share a common hoistway, as do Nos. 3 & 4, totaling two separate hoistways.
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					
	1930	1980	3	DCS 01/16/18	Mix of original, older and some newer fixtures at toilet rooms, kitchenettes, corridor drinking fountains and custodial closets. Basement showers currently out of commission (missing shower trim). Little or no toilet room service for garage building offices.
<b>D2020 Domestic Water Distribution</b>					
	1930	1980	3	DCS 01/16/18	Domestic water system is a combination of older galvanized steel and newer copper piping; bottled water in use in many areas. City water reportedly direct from basement to Floor 7, then boosted to upper floors from newer 5-hp pump and older 15-hp pump in boiler room, with hydro-pneumatic tanks at penthouse for upper level flushing system. DHW is from electric tank-type heaters including newer (2012) NST with recirc pump supplying lower floors and aging (1996) Rheem serving upper floors. Some DHW piping is un-insulated.
<b>D2030 Sanitary Waste</b>					
	1930	1980	3	DCS 01/16/18	Mix of cast iron and galvanized DW&V piping with no issues reported and tested fixtures flushing & draining well, excepting several custodial floor sink drains due to debris in screen (minor maintenance to clean).

# Facility Summary

City of Tacoma  
 Tacoma Municipal Building  
 Tacoma Municipal Building

747 Market Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.9</b>		
<b>Plumbing</b>					
<b>D2030 Sanitary Waste</b>					
<b>D2040 Rain Water Drainage</b>					
	1930	1980	3	DCS 01/16/18	Roof drains at all roofs; but no overflow roof drains; however some roofs have scuppers to roofs below; but some do not have overflow. Some roof drains are no longer at roof low points, but this appears to be from roof covering, not roof drain issues. Opportunity for rain water harvesting at high roof - see D2020.
<b>D2090 Other Plumbing Systems</b>					
	1930	1980	3	DCS 01/16/18	Two sumps at boiler room with no issues reported. Compressed air system at boiler room with aging (1994) IR 7.5-hp compressor, three vertical receivers and one air dryer to copper pipe for unclear purposes. Additional compressed air systems at penthouse for upper level flushing water bladderless hydropneumatic tank charging.
<b>HVAC</b>					
<b>D3020 Heat Generating Systems</b>					
	1930	1980	4	DCS 01/16/18	One Coates 1977 all-electric (720 kW, 208V/1000A) low pressure (<15 psig) steam boiler appears to supply only steam-to-hot-water converter which in turn heats the water source heat pump (WSHP) condenser water loop during heating season.
<b>D3030 Cooling Generating Systems</b>					
	1930	1980	3	DCS 01/16/18	One aging (assume 2003) BAC VF1-144N-21P open cycle cooling tower at penthouse level with side-stream particulate filter and condenser water loop water chemistry; all fans and pumps appear to be constant speed. One somewhat newer air-cooled chiller on Council Chamber roof to SW serving unclear load but in good condition.
<b>D3040 HVAC Distribution Systems</b>					
	1930	1980	3	DCS 01/16/18	Condenser water piping serving heat pumps is a combination of steel, copper, PVC piping and tubing, plus various flexible connection hoses; ranging from poor to good condition. Two PACO



# Facility Summary

City of Tacoma  
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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
D Services			2.9		

### HVAC

#### D3040 HVAC Distribution Systems

condenser water pumps in basement boiler room with 7.5 hp motors for primary loop, plus 1 to 1.5-hp secondary pumps at each floor; all constant speed. Building steam & condensate piping is abandoned in place, except at boiler room itself from boiler to & from converter. Ductwork is galvanized steel, ductboard, factory-insulated flex duct, aluminized flex duct and others supplying variety of older & newer grills, registers & diffusers (GRDs). General and special exhaust. While no issues are reported the building appears to be under strong negative pressure, older ductwork and many GRDs need cleaning. New (2015) Greenheck heat recovery unit at high roof supply all ventilation air to building via vertical duct in shaft to all floors; appears to be constant volume with electric resistance pre-heat coils.

#### D3050 Terminal and Package Units

1930 1980 4

DCS 01/16/18

Most zones served by aged (1980) WSHPs at or near end of life. Some newer electric unit heaters at entry vestibules, storage and utility spaces. Original (1930) steam radiators abandoned in place in some locations such as behind decorative grills at entry vestibules.

#### D3060 Controls and Instrumentation

1930 2015 2

DCS 01/16/18

All new Alerton DDC control system with no issues reported by maintenance staff. Discomfort reported by some occupants appears due to non-control issues, such as TAB, failed equipment, leaking windows, and so forth, as discussed under other systems.

#### D3090 Other HVAC Systems and Equipment

1930 1980 3

DCS 01/16/18

Exhaust fan(s) for parking garage ventilation. Building smoke control system of unclear function, but no issues reported. Light industrial ventilation in basement shop areas with no issues reported.

### Fire Protection

#### D4010 Fire Protection Sprinkler Systems

# Facility Summary

City of Tacoma  
 Tacoma Municipal Building  
 Tacoma Municipal Building

747 Market Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.9</b>		
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>					
	1930	1980	3	DCS 01/16/18	TMB: City fire service to aging Buffalo 500 gpm @ 231 ft tdh, 50-hp electric fire pump and newer, smaller Grundfos jockey pump. Wye FDCs at east & west street levels. Many heads appear older style. TMBG: City fire service to: 1) Dry pipe riser for garage areas to east & west, and 2) Wet pipe riser for office areas to east. No issues reported.
<b>D4020 Stand-Pipe and Hose Systems</b>					
	1930	1930	3	DCS 01/17/18	Original standpipe system hose cabinets without hoses - assume by Fire Marshall and insurance underwriter and/or risk management approval. No issues reported, however if this system is required by authorities, the system should be tested.
<b>D4030 Fire Protection Specialties</b>					
	1930	1980	3	DCS 01/17/18	Fire extinguishers and AEDs in cabinets; no issues reported.
<b>D4090 Other Fire Protection Systems</b>					
	1930	1980	2	DCS 06/10/09	Modern gaseous fire suppression for two ground floor level computer rooms. Original south facade window deluge system in unclear condition. Original penthouse fire storage tank abandoned in place with opportunity to re-purpose - see plumbing.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	1930	1980	3	DCS 06/10/09	Two electrical services, all Square D equipment in basement main electrical room at 208/120V, 3-phase: 1) No. 1 is 5,000A serving shell & core including electric boiler, and 2) No. 2 serving TI (build-out) lighting, receptacles and miscellaneous. From main electrical room stacked east & west core electrical closets are individually fed (no bus-duct). See separate infrared thermography (IR) report for more detail on condition, including loose connections and overloaded circuits. While the electrical system is aged, its original high quality and good maintenance are extending system life at least 5

# Facility Summary

City of Tacoma  
Tacoma Municipal Building  
Tacoma Municipal Building

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Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.9</b>		
<b>Electrical</b>					
<b>D5010</b>	<b>Electrical Service and Distribution</b>				to 10 years, and possibly longer (15 to 20 maximum). Energy monitoring system is failed.
<b>D5020</b>	<b>Lighting and Branch Wiring</b>				
	1930	1980	3	DCS 01/17/18	Mostly aging but functional T8 fluorescent lay-in lighting, but some surface-mount; mostly 2x4, but some 2x2 fixtures. Newer sealed T8 fixtures in parking garage. Wide mix of recessed and surface-mounted can-lights with mix of CFL and some LED lamps; several type of track lighting, variety of task lighting, some incandescent, and several other types of lighting and fixtures, including some specialty lighting, such as at the Council Chamber. Several historic chandelier fixtures at lobbies. Lighting controls mostly aging low-voltage manual with relays in ceiling space; some newer TI spaces have occupancy sensor controls per energy code. Many aged receptacles with insufficient coverage; extensive use of base-board level raceway for 120V power distribution.
<b>D5032</b>	<b>Low Voltage Communication</b>				
	1930	1980	2	DCS 01/17/18	Avaya phone; standard A/V at conference rooms; special A/V at Council Chambers; several radio systems; several intercom systems; CATV to some areas; no DAS or similar; no issues reported, but opportunity for integrated cell & DAS (first responder) system.
<b>D5037</b>	<b>Low Voltage Fire Alarm</b>				
	1930	2010	2	DCS 01/17/18	Modern fire alarm system including fire control room with no issues reported. Panels are newer Gamewell E3-series. System appears to have been upgraded within last ten years; antenna alarm installed in 2017.
<b>D5038</b>	<b>Low Voltage Security</b>				
	1930	1980	3	DCS 01/18/18	Mix of older and newer card-key proximity card-readers, infrared detectors and lock controls, both in frames and wireless in doors; mix of older Altronix and newer Lenel control panels. Old mechanical-button cypher door locks at most toilet room doors. Significant CCTV with displays at 1st & 2nd floor guard stations, but little or no

# Facility Summary

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.9</b>		

### Electrical

**D5038 Low Voltage Security**

intrusion detection. New elevator lock-down system, but little or no other apparent lock-down features. Little or no duress systems were observed. Despite some aging and non-interfaced systems, no issues are reported.

**D5039 Low Voltage Data**

1930 2010 2

DCS 01/18/18

Newer fiber-optic back-bone to combination electrical & comm closets on each floor with UTP cabling in ceiling space to drops to wall jacks; newer WAPs are recently installed at closets and other locations; no issues reported.

**D5090 Other Electrical Systems**

1930 1980 3

DCS 01/17/18

Large UPS in computer room, reportedly no longer in use. Marathon 175 kW diesel generator at garage lowest level with small 250-gal fuel tank in adjacent room; generator exhaust is up to roof. Battery exit signs in some areas, with generator power-backed fixtures elsewhere. Egress lighting served by emergency panel, which is powered from Russ break-before-make electric automatic transfer switch (ATS). Some battery-ballast emergency lighting, and a few stand-alone emergency lights.

## E Equipment and Furnishings

**3.0**

### Equipment

**E1010 Commercial Equipment**

1930 1980 3

DCS 01/17/18

Kitchen appliances at several dozen kitchenettes ranging from older to newer with minimal complaints.

**E1020 Institutional Equipment**

1930 1980 3

DCS 01/18/18

Shop equipment at basement shops with no issues reported.

**E1030 Vehicular Equipment**

1930 1980 3

DCS 01/18/18

Traffic management features at parking garage; no loading dock.

## Facility Summary

City of Tacoma  
 Tacoma Municipal Building  
 Tacoma Municipal Building

747 Market Street  
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### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>					
	1930	1980	3	DCS 01/17/18	Variety of some older but mostly somewhat newer (1980) casework. Recently modernized Council Chambers.

# Facility Summary

City of Tacoma  
Tacoma Municipal Building  
Infrastructure

747 Market Street  
Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1930	1980	3	AA 01/16/18	Concrete driveway apron to parking garage.
<b>G2020 Parking Lots</b>	1930	1980	3	AA 01/16/18	Parking is street parking - asphalt surfacing. Some minor surface wear on St. Helens St. frontage.
<b>G2030 Pedestrian Paving</b>	1930	1980	3	AA 01/16/18	Concrete sidewalks.
<b>G2050 Landscaping</b>	1930	1980	3	AA 01/16/18	Street trees in concrete planter boxes along St. Helens street frontage.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1930	1980	3	DCS 01/16/18	City water with no issues reported. Unclear source of irrigation water to planter boxes on St. Helen's Ave, but no issues reported.
<b>G3020 Sanitary Sewer</b>	1930	1980	3	DCS 01/16/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1930	1980	3	DCS 01/16/18	Assume roof drains to City storm; no issues reported.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1930	1980	3	DCS 01/16/18	Two separate 208V electrical services to same facility with Tacoma Power meter Nos. 003540 & 001598 for Disconnects 1 & 2 respectively with no issues reported.
<b>G4020 Site Lighting</b>	1930	1980	3	DCS 01/16/18	One historic pendant fixture at east entry from St. Helen's Ave with no issues reported. Most street level lighting is provided by historic public street pole fixtures.

# Facility Summary

City of Tacoma  
Tacoma Municipal Building  
Infrastructure

747 Market Street  
Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

**G4020 Site Lighting**

**G4030 Site Communications and Security**

1930 2000 3

DCS 01/16/18 Mix of older and newer telecom services underground, most from St. Helens Ave to east, with no issues reported; appears newer high-speed fiber-optic service is provided.

#### Other Site Construction

**G9010 Service and Pedestrian Tunnels**

1930 1980 3

DCS 01/16/18 Semi-tunnel between TMB & TMBN via TMBG with no issues reported.





## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Tacoma Municipal Building

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Tacoma Municipal Building	Exterior Closure	\$1,475,000	\$368,750	\$368,750	\$1,216,875	\$3,429,375
	Roofing	\$324,000	\$81,000	\$81,000	\$267,300	\$753,300
	Interior Finishes	\$1,371,000	\$342,750	\$342,750	\$1,131,075	\$3,187,575
	Plumbing	\$407,020	\$101,755	\$101,755	\$335,792	\$946,322
	HVAC	\$768,775	\$192,194	\$192,194	\$634,239	\$1,787,402
	Fire Protection	\$51,755	\$12,939	\$12,939	\$42,698	\$120,330
	Electrical	\$362,467	\$90,617	\$90,617	\$299,035	\$842,736
	Equipment	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	Furnishings	\$50,000	\$12,500	\$12,500	\$41,250	\$116,250
	<b>Facility Total</b>	<b>\$4,820,017</b>	<b>\$1,205,004</b>	<b>\$1,205,004</b>	<b>\$3,976,514</b>	<b>\$11,206,540</b>
	<b>Site Total</b>	<b>\$4,820,017</b>	<b>\$1,205,004</b>	<b>\$1,205,004</b>	<b>\$3,976,514</b>	<b>\$11,206,540</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

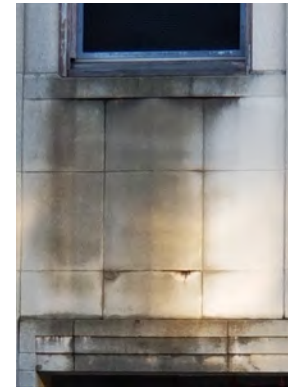
Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					

Facility: Tacoma Municipal Building	Total System Deficiency Repair Cost (Undiscounted/Unescalated):							\$1,475,000
System: Exterior Closure	Total System Deficiency Repair Cost (Marked Up):							\$3,429,375

Exterior Walls									
Exterior building wall (surface)	4	3	2018		95,000	\$15.00	SF	\$1,425,000	\$3,313,125

Chipped stone cladding at multiple areas, damaged stone fascias due to water-pressure washing, and discoloration of stone fascias due to weatherization.

Power wash all exterior wall surfaces, tuck-point joints where deteriorated, repair damaged stones, and waterproof cleaned wall surface with a penetrating clear sealer.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					

Facility: Tacoma Municipal Building	Total System Deficiency Repair Cost (Undiscounted/Unescalated):	\$1,475,000
System: Exterior Closure	Total System Deficiency Repair Cost (Marked Up):	\$3,429,375

**Exterior Windows**

Windows	4	3	2018		100	\$500.00	EA	\$50,000	\$116,250
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Paint peelings on cracked wood frames. Caulking and seals leak at most windows. All observed metal screens are past their useful life and in some areas are coming out of the wood frames or missing.

Remove all existing screens at 16th & top-floors exit stairs and replace with new. Repair window caulking/seals as necessary, paint wood-frame, and completely replace severely cracked wood-frames.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					

<b>Facility:</b> Tacoma Municipal Building	<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	<b>\$324,000</b>
<b>System:</b> Roofing	<b>Total System Deficiency Repair Cost (Marked Up):</b>	<b>\$753,300</b>

**Roof Coverings**

Built-up roofing system and rigid insulation	4	3	2018		18,000	\$18.00	SF	\$324,000	\$753,300
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The 1980 installed BURs have lost most of their granules, are ponding in multiple areas, and have been patched repeatedly.

Remove all existing roof coverings and insulation down to the substrate. Re-slope tapered insulation to roof drains, assemble roofing system; new insulation should be per code at time of anticipated construction.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

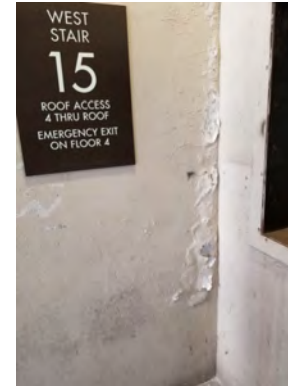
City of Tacoma  
 Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Tacoma Municipal Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$1,371,000
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$3,187,575
<b>Wall Finishes</b>									
Paint	4	5	2018		6,000	\$6.00	SF	\$36,000	\$83,700

Water damaged wall finish in the open egress stair.

Sand-bubble deteriorating surfaces smooth, clean, and paint the walls.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Tacoma Municipal Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$1,371,000
System: Interior Finishes				Total System Deficiency Repair Cost (Marked Up):					\$3,187,575
<b>Wall Finishes</b>									
Paint	4	5	2018		100,000	\$3.00	SF	\$300,000	\$697,500

Paint is starting to wear on most walls.

Clean and paint the walls.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Tacoma Municipal Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$1,371,000
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$3,187,575
<b>Floor Finishes</b>									
Carpet	4	3	2018		50,000	\$7.50	SF	\$375,000	\$871,875

About 20% of the carpet in the building is still original 1980's that is torn and stained.

Replace existing damaged, worn-out, stained carpet with new carpet.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

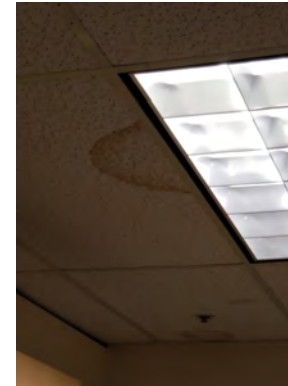
City of Tacoma  
Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Tacoma Municipal Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$1,371,000
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$3,187,575
<b>Ceiling Finishes</b>									
Ceiling tile	4	5	2018		110,000	\$6.00	SF	\$660,000	\$1,534,500

Some acoustic tiles are discolored, have cracks, and show evidence of water intrusion.

Install new ceiling tiles.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Tacoma Municipal Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$407,020</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$946,322</b>
<b>Plumbing Fixtures</b>									
Fixtures & trim	4	2	2018		50	\$1,500.00	EA	\$75,000	\$174,375

Some original and older fixtures stained, damaged and/or with difficult to operate trim.

Replace with new.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Tacoma Municipal Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$407,020
System: Plumbing					Total System Deficiency Repair Cost (Marked Up):				\$946,322
<b>Domestic Water Distribution</b>									
Booster pumps	4	5	2018		1	\$50,000.00	LS	\$50,000	\$116,250

Aging fixed-speed booster pumps with problematic flushing water system.

Replace older booster pumps and bladderless tanks with modern variable speed duplex pump skid and bladder-type hydro-pneumatic tank.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Tacoma Municipal Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$407,020</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$946,322</b>
<b>Domestic Water Distribution</b>									
Galvanized piping	4	3	2018		207,020	\$1.00	SF	\$207,020	\$481,322

Original galvanized pipe in some locations with discolored water at some fixtures.

Replace galvanized with copper and/or PEX tubing.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Tacoma Municipal Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$407,020</b>	
<b>System: Plumbing</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$946,322</b>	
<b>Rain Water Drainage</b>										
Overflow roof drains	4	2	2018		5	\$15,000.00	EA	\$75,000	\$174,375	

No overflow roof drains or scuppers at some roof locations

Install overflow roof drains and/or scuppers per code.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Tacoma Municipal Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$768,775	
System: HVAC				Total System Deficiency Repair Cost (Marked Up):					\$1,787,402	
<b>Heat Generating Systems</b>										
Boiler system	4	3	2018		1	\$150,000.00	EA	\$150,000	\$348,750	
Electric steam boiler near end of life.				Renew boiler if not replaced with more cost-effective technology (such as gas-fired boiler).						



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Tacoma Municipal Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$768,775</b>	
<b>System: HVAC</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$1,787,402</b>	
<b>Cooling Generating Systems</b>										
Cooling Tower	4	2	2018		1	\$10,000.00	LS	\$10,000	\$23,250	

Portions of cooling tower are heavily corroded, especially louvers at discharge throat; other components may need renewal. The side-stream filter appears to run continuously, even in winter and should be interlocked with tower controls.

Fully inspect and renew cooling tower components to extend life 10 to 15 years; consider interlock for filter pump, unless needed for freezer-protection purposes.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Tacoma Municipal Building</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>					<b>\$768,775</b>	
<b>System: HVAC</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>					<b>\$1,787,402</b>	
<b>HVAC Distribution Systems</b>										
Condenser water piping	4	5	2018		207,020	\$0.50		\$103,510	\$240,661	

Mixed material piping with signs of galvanic corrosion and leakage, plus embrittlement of PVC piping.

Replace PVC with metallic or more durable non-metallic piping.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Tacoma Municipal Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$768,775</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$1,787,402</b>
<b>HVAC Distribution Systems</b>									
HVAC system	4	2	2018		10,000	\$10.00	SF	\$100,000	\$232,500

Excessive too cold complaints at TMB Garage offices. These offices appear added to the original parking garage at every-other floor with unclear insulation from outside - the heating load may be higher than originally assumed.

Fully insulate TMB Garage offices and add permanent heat to fully condition the occupied spaces per code.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Tacoma Municipal Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$768,775</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$1,787,402</b>
<b>HVAC Distribution Systems</b>									
Test, Adjust, and Balance (TAB) & Commissioning	4	1	2018		207,020	\$0.75	SF	\$155,265	\$360,991

Building appears to be operating under significant negative pressure throughout - worse on lower floors. Unclear return air path from some spaces.

TAB and R-CX to balance building pressure and ensure design air flows, good comfort, and indoor air quality are maintained in each occupied space or zone.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Tacoma Municipal Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$768,775</b>	
<b>System: HVAC</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$1,787,402</b>	
<b>Terminal and Package Units</b>										
Heat pumps	4	1	2018		50	\$5,000.00	EA	\$250,000	\$581,250	

Many old (1980) WSHPs at end of life.

Install new WSHPs.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

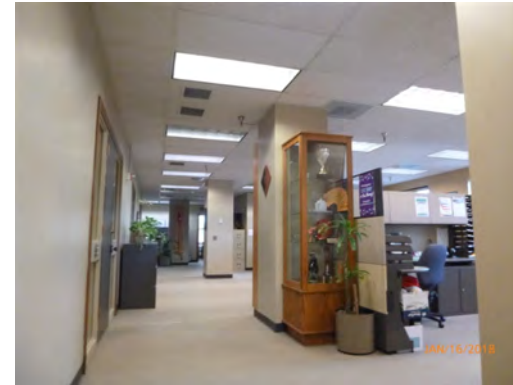
City of Tacoma  
 Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Tacoma Municipal Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$51,755
System: Fire Protection					Total System Deficiency Repair Cost (Marked Up):				\$120,330
<b>Fire Protection Sprinkler Systems</b>									
Sprinkler system	4	2	2018		207,020	\$0.25	SF	\$51,755	\$120,330

Many sprinkler heads appear to be older style - many are obsolete.

Fully inspect and renew fire sprinkler system, including distribution piping and especially heads.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Tacoma Municipal Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$362,467</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$842,736</b>
<b>Lighting and Branch Wiring</b>									
Lighting Controls	4	3	2018		207,202	\$1.00	SF	\$207,202	\$481,745

Aging (1980) low voltage lighting controls beginning to fail.

Replace with new low voltage lighting controls in conjunction with TI work space by space, or budget for replacement prior to failure.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Tacoma Municipal Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$362,467</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$842,736</b>
<b>Lighting and Branch Wiring</b>									
Wiring devices	4	3	2018		207,020	\$0.75	EA	\$155,265	\$360,991

Aged and damaged older (1980) devices (receptacle and line-voltage switches); insufficient coverage in some TI spaces. especially at Garage offices.

Renew devices and add new per code.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Tacoma Municipal Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$10,000
System: Equipment					Total System Deficiency Repair Cost (Marked Up):				\$23,250
<b>Commercial Equipment</b>									
Kitchen Appliances	4	5	2018		10	\$1,000.00	EA	\$10,000	\$23,250
Aging kitchenette appliances.				Budget for replacement prior to failures; consider Energy Star appliances.					



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Tacoma Municipal Building

Total Observed Deficiency Repair Direct Cost : \$4,820,017

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Tacoma Municipal Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$50,000</b>	
<b>System: Furnishings</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$116,250</b>	
<b>Fixed Furnishings</b>										
Casework	4	3	2018		1	\$50,000.00	LS	\$50,000	\$116,250	

Some casework showing signs age with wear, discoloration, chips and failing hardware.

Renew casework to extend life until next major renovation.





## Opportunity Summary By Subsystem

City of Tacoma

Site: Tacoma Municipal Building

Total Site Opportunity Cost: \$11,553,615

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Infrastructure</b>						
<b>System: Site Civil / Mechanical Utilities</b>						
<b>Total Cost: \$510,000</b>						
G3040	Heating Distribution	No central plant for TMB, TMBG & TMBN facilities.				
		Provide single central plant to serve all three facilities.	1.00	\$500,000.00	LS	\$500,000
G3060	Fuel Distribution	Currently all-electric heat with natural gas in vicinity.				
		Upgrade to more cost-effective natural gas heat, starting with new gas service to TMB.	1.00	\$10,000.00	LS	\$10,000
<b>Facility: Infrastructure</b>						
<b>System: Site Electrical utilities</b>						
<b>Total Cost: \$75,000</b>						
G4010	Electrical Distribution	Two separate services with two separate meters and associated monthly base meter charges.				
		If building is made more energy-efficient and/or converts to natural gas-based heat, consolidate from two separate to just one electrical service and meter.	1.00	\$25,000.00	LS	\$25,000
		208V power is obsolete for high-rise buildings with all-electric heat.				
		If building remains all-electric upgrade to 480V power.	2.00	\$25,000.00	LS	\$50,000
<b>Facility: Tacoma Municipal Building</b>						
<b>System: Interior Construction</b>						
<b>Total Cost: \$2,849,140</b>						
C1010	Partitions	Clay-tile wall is not supported structurally. Some of these are partition walls and some enclose means of egress; these are life-safety concern considering exit stairs will be what building occupants will use in the event of fire.				
		Structurally retrofit all clay-tile walls enclosing exit stairs and all means of egress.	40,702.00	\$70.00	SF	#####
<b>Facility: Tacoma Municipal Building</b>						
<b>System: Vertical Transportation</b>						
<b>Total Cost: \$25,000</b>						
D1090	Other Conveying Systems	Awkward lift path from Floor 15 to Penthouse levels.				
		Permanent lift path from Floor 15 to Penthouse levels.	1.00	\$25,000.00	LS	\$25,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Tacoma Municipal Building

Total Site Opportunity Cost: \$11,553,615

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Tacoma Municipal Building</b> <b>System: Plumbing</b> <span style="float: right;"><b>Total Cost: \$155,000</b></span>						
D2010	Plumbing Fixtures	Little or no toilet room service for TBM Garage offices.	4.00	\$20,000.00	LS	\$80,000
		Install dedicated toilet rooms for Garage offices.				
D2020	Domestic Water Distribution	Abandoned penthouse fire storage tank with estimated 3 to 5 kgal capacity with piped roof drains above.	1.00	\$75,000.00	LS	\$75,000
		Collect high roof drains to storage tank and reconfigure upper toilet rooms for tank-type water closets to use gravity fill from storage tank converted for rain water harvesting (RWH) use.				
<b>Facility: Tacoma Municipal Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$5,469,010</b></span>						
D3020	Heat Generating Systems	Large abandoned water storage tank at Penthouse.	1.00	\$15,000.00	LS	\$15,000
		Re-purpose the water storage tank for thermal energy storage use, same as the two tanks in the garage basement to further increase system efficiency.				
		Currently high-cost all-electric heat; with natural gas in vicinity.	1.00	\$125,000.00	LS	\$125,000
		Replace electric boiler with gas-fired boiler to sharply reduce heating energy cost.				
D3040	HVAC Distribution Systems	New HRU system has electric resistance heat.	1.00	\$50,000.00	LS	\$50,000
		Consider upgrade to gas-furnace or heat-pump pre-heating/pre-cooling and upgrade to variable flow in conjunction with new variable air flow WSHPs at TI (build-out) space.				
		Obsolete, inefficient HVAC technology (WSHP with electric boiler) all nearing end of life, except for new rooftop HRV equipment.	207,020.00	\$25.00	SF	#####
		Replace with modern system such as HRV DOAS with heat recovery VRF heating & cooling with advanced controls including integration with operable windows.				
D3060	Controls and Instrumentation					

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Tacoma Municipal Building

Total Site Opportunity Cost: \$11,553,615

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
	Unknown energy use or cost.	Conduct energy audit and/or building tune-up to optimize performance and plan for future upgrades to further improve comfort, reduce energy use, and simplify O&M.	207,020.00	\$0.50	SF	\$103,510
<b>Facility: Tacoma Municipal Building</b> <b>System: Fire Protection</b> <span style="float: right;"><b>Total Cost: \$25,000</b></span>						
D4010	<b>Fire Protection Sprinkler Systems</b>					
	Obsolete high-rise life/safety systems, such as place of refuge, smoke control, egress, emergency lighting, and others.	Conduct a full life/safety review and develop a life/safety improvement program. This Opportunity cost is for the review only - resulting improvements considerable more expensive, up to several \$M.	1.00	\$25,000.00	LS	\$25,000
<b>Facility: Tacoma Municipal Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$2,395,465</b></span>						
D5020	<b>Lighting and Branch Wiring</b>					
	Awkward baseboard 120V power raceway.	Replace with permanently powered receptacles in-wall; alternately integrated with powered furniture (similar to TMBN).	207,020.00	\$2.00	SF	\$414,040
	Fluorescent lighting in most areas.	Upgrade to LED lighting.	207,020.00	\$4.00	EA	\$828,080
D5032	<b>Low Voltage Communication</b>					
	No DAS or cell booster system.	Integrated cell & DAS antenna system.	207,020.00	\$0.75	SF	\$155,265
D5037	<b>Low Voltage Fire Alarm</b>					
	Little or no detection in TI (build-out) space, only notification.	Upgrade to full detection.	207,020.00	\$1.00	SF	\$207,020
D5038	<b>Low Voltage Security</b>					
	Variety of aging and dis-integrated electronic security systems.	Conduct threat evaluation and develop security improvement plan. This Opportunity is for plan development only; implementation may be several \$M.	1.00	\$20,000.00	LS	\$20,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Tacoma Municipal Building

Total Site Opportunity Cost: \$11,553,615

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost														
D5090 Other Electrical Systems	Old push-button cypher-locks at most toilet room doors	Replace with card-key control.	30.00	\$5,000.00	EA	\$150,000														
	Standby power system is small and obsolete for what appears to be a mission critical City of Tacoma facility.	Upgrade to modern full-size standby power system complete with three-day fuel supply, make-before-break (bumpless transfer), uniform emergency lighting and other modern mission-critical standby power and high-rise emergency power system.	207,020.00	\$3.00	LS	\$621,060														
<table border="1" style="width: 100%;"> <tr> <td>Facility: Tacoma Municipal Building</td> <td colspan="6"></td> </tr> <tr> <td>System: Equipment</td> <td colspan="6" style="text-align: center;"><b>Total Cost: \$50,000</b></td> </tr> </table>							Facility: Tacoma Municipal Building							System: Equipment	<b>Total Cost: \$50,000</b>					
Facility: Tacoma Municipal Building																				
System: Equipment	<b>Total Cost: \$50,000</b>																			
E1030 Vehicular Equipment	No loading dock.	Create small loading dock with easy access to freight elevator.	1.00	\$35,000.00	LS	\$35,000														
	No electric vehicle charging stations.	Add EV charging stations.	2.00	\$7,500.00	EA	\$15,000														

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Introduction

# Thermal Trend - Lean DB Report

## The Colbert Advantage - Exceptional Execution

### *30 years of exceeding your expectations!*

Colbert Infrared has been providing complete corporate solutions for Infrared Predictive Maintenance Programs, addressing the needs for professional Risk Assessment / Loss Prevention for more than 30 years. From Infrared inspections, Training and Certification, Infrared Camera Sales and installations, or helping you to setup and establish your own Predictive Maintenance programs, we have been right by your side.

We are your global partner for keeping your systems up and running, safely and efficiently. We service national and international companies all over the world, whether they have a single site, or thousands of locations. Our focus has always been on providing the highest quality solutions, with our emphasis on the standardization of services, and highly valuable information. When it comes to the philosophy of our services, we believe that "quality can never be compromised at any price".

Colbert Infrared Services, Inc. pioneered and developed the philosophy of **LEAN IR PREDICTIVE MAINTENANCE** and **LEAN IR Programs** to provide our clients with unsurpassed diagnostic services. This is based on our success with the design and use of the **Thermal Trend - Lean DB** database system. Colbert Infrared Services introduced the Thermal Trend - Lean RDBMS to the predictive maintenance community over 25 years ago to address the concerns of risk managers and maintenance staff - consistency of inspection quality and reporting / problem management. Today this "**Colbert Advantage**" has allowed us to be recognized as being the premier IR consulting company world wide, as well as the most influential in the industry.

The Thermal Trend - Lean report that you have in front of you, and the data collection methods that Colbert Infrared has used to gather and analyze your data is the result of over 25 years of development. The following discussions in this Intent section will provide you with an overall understanding of the testing methods that we have developed. Today the principles that Colbert Infrared has developed, are the most studied and followed testing methods in the world! Colbert Infrared Services, Inc. is at the heart of the world's largest in-house Infrared PdM programs. (Boeing, Ford, Harley-Davidson). We are very proud of the leadership position that we have in our industry and take that responsibility very seriously. We have always been committed to providing the most superior quality services with the highest value possible. Our focus has always been in exceptional execution at exceeding your expectations.

The Colbert Infrared Advantage

*We want your business, and we've been working hard for 30 years to earn it!*

### **Fred Colbert**

Fred Colbert  
President CIS, Inc.  
Certified Level III Infrared Thermographer and Instructor



## Introduction

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- Our Approach to Thermography
- Testing Methodology
- Standards and Regulations covering the conduction of Infrared electro-mechanical inspections

**\*Please Note:** Depending on the type of inspection, and the items that were documented, will determine the specific sections that are included in this report. For example: if no Thermal Items / anomalies were found at the time of the inspection, then there will not be a Prioritized List by Temperature Rise, or a Thermal Item Details section. This also holds true depending on what the scope of work was to be, for example if this inspection was to cover only a thermographic inspection of electrical-mechanical equipment, then there will not be sections covering Ultrasonic or Ultraviolet inspection results. For this reason, the specific report sections and the Table of Contents when compared to each other may seem incomplete, but it is only because of the scope of work and the actual data that was documented at the time of the inspection that defines how much of the inspection results sections are included in this report.



Infrared Thermographic Inspection  
 Of  
 Selected Electro-Mechanical Equipment

Provided For  
 Tacoma Municipal Building  
 01/16/2018

**Summary:**

An Infrared Electrical / Mechanical inspection was performed on 01/16/2018 for Tacoma Municipal Building

All of the items inspected are listed in the inventory section of this Thermal Trend report. Any anomalies that were found at the time of the inspection (if any) are documented in the Problem Detail section of this report with their appropriate associated data, i.e. Thermograms, Photos, comments, measurements, etc.. They are also listed in the Prioritized list of problems section, in their order of priority based on the components temperature rise, as compared to a similar reference component of equal type, loading, and environmental influences, at the time of the inspection.

The final decision as to the repair priority of any and all problems in this report rests on the owners, management, and/or facilities engineering teams. Colbert Infrared Services, Inc. and the IR Thermographer assumes no liability directly or indirectly as a result of this inspection or the decisions made as to establishing the priority and timeline of repair decisions made by the owners, management, and/or facilities engineering teams. This inspection is not a guarantee or warranty of any kind.

**Executive Overview - for Thermal Items:**

Total number of locations in the database:	105
Total number of pieces of equipment in the database:	131
Total number of Items (open and closed covering all inspections) in the database	
Acute Items:	13
Chronic Items:	1
<b>Overall total of all acute and chronic:</b>	<b>14</b>
Current status of Items, acute and chronic	
Total closed Items (covering all inspections):	3
<b>Current total open Items (tested or not tested at the time of this inspection):</b>	<b>11</b>

I hereby certify that the above project was inspected by myself or under my direction and that the enclosed data is the direct result of this inspection.

**Fred Colbert**

President CIS, Inc.

Certified Level III Infrared Thermographer / Instructor: The Professional Thermographers Association



## Historical Test Status Reconciliation of Locations and Equipment, Thermal and Visual Items

Site: Tacoma Municipal Building	Insp. #2 01/16/2018	Insp. #1 06/09/2009
Locations: Tested	104	77
Locations: Not-tested	1	28
Equipment: Tested	120	92
Equipment: Not-tested	11	39
Total No. of open Thermal and Visual items (tested or not)	12	6
Total No. of documented Thermal and Visual items this insp.	11	6
Total No. of open Thermal and Visual items	2	9
No. of Thermal items that were closed	3	0

### Data Explanation

#### Locations and Equipment:

Locations refer to places in a route where equipment is located. For example: a Building, Floor, Room, Substation or Area can all be considered locations. The same can be said for a large Switchboards, Motor Control Centers, Distribution Panel, etc.. In each of the examples they would be considered the path to, or the location of where equipment is grouped based on its geographical location.

#### Tested and Not-Tested:

Refers to if the equipment/location, where the equipment is located, was inspected using Infrared Thermography / Visual inspection testing procedures at the time of the inspection. If the equipment was tested, it should not be considered a pass/fail test, but that the equipment was merely "Tested" versus "Not-Tested" at the time of the inspection. There are many factors that can contribute to the conditions under which the equipment can be tested (load, environment, length of time running) that must be taken into consideration, as well as many reasons as to why the equipment was not able to be tested (under repair, not in service, no load).

#### Open and Closed Items:

Refers to the Item status, as in if it has been resolved or not (fixed/repaired and re-inspected to determine that the validity of the repair action).





**Thermal Item List - Prioritized by Temperature Rise**
**Site:** Tacoma Municipal Building

**Inspection #** 2

**Start Date:**

Site: Tacoma Municipal Building    Insp. No. 2    Start Date:

**Thermal Item # 8** At: Jan 17 2018 9:34AM

**Indirect Measurement:** No    **Severity:** 2    **Repair Status:**    **Problem Status:** OPEN 

Route: 1 Floor \ Mezzanine Mechanical Room \ MCC

**Location/Equipment:** Exhaust Fan #8

Barcode: 10AJ6W Asset ID:

Voltage: Rated Load: 30 Wind Speed: Ambient:76.0

IR/Image GUID File : 3eb474cc-e9fa-4d17-a6a5-b180cfe4c9bb.idn

	Temp	Phase	Load	% of
<b>Component:</b>	182.0	B Phase	6.5Amps	@21.7%
<b>Reference:</b>	<u>97.0</u>	A Phase	6.5Amps	@21.7%
<b>Delta T:</b>	<b>85.0</b>			@21.7%

Comment: B Phase Line Side Wire Lug Connection on Circuit Breaker

Site: Tacoma Municipal Building    Insp. No. 2    Start Date:

**Thermal Item # 5** At: Jan 16 2018 11:13AM

**Indirect Measurement:** No    **Severity:** 2    **Repair Status:**    **Problem Status:** OPEN 

Route: 10 Floor \ Mechanical Room

**Location/Equipment:** Starter: Secondary Circulation Water Pump

Barcode: Asset ID:

Voltage: Rated Load: 30 Wind Speed: Ambient:74.0

IR/Image GUID File : 0262fbd7-b906-4e6f-bc6d-cedbb1ba2382.idn

	Temp	Phase	Load	% of
<b>Component:</b>	165.0	A Phase	4.5Amps	@15.0%
<b>Reference:</b>	<u>89.0</u>		5Amps	@16.7%
<b>Delta T:</b>	<b>76.0</b>			@15.0%

Comment: A phase load side wire lug connection on thermal overload

Site: Tacoma Municipal Building    Insp. No. 2    Start Date:

**Thermal Item # 1** At: Jan 16 2018 8:43AM

**Indirect Measurement:** No    **Severity:** 2    **Repair Status:**    **Problem Status:** OPEN 

Route: 16 Floor \ Roof

**Location/Equipment:** Control Panel: Water Tower

Barcode: 107AKJ Asset ID:

Voltage: Rated Load: 40 Wind Speed: Ambient:56.0

IR/Image GUID File : 664f42d9-5808-4035-9ba9-06c50238a008.idn

	Temp	Phase	Load	% of
<b>Component:</b>	162.0	B Phase	10Amps	@25.0%
<b>Reference:</b>	<u>101.0</u>	A Phase	10Amps	@25.0%
<b>Delta T:</b>	<b>61.0</b>			@25.0%

Comment: B Phase Load Side Wire Crimp Connection on Contactor C3 (heater)

Site: Tacoma Municipal Building    Insp. No. 2    Start Date:

**Thermal Item # 2** At: Jan 16 2018 8:48AM

**Indirect Measurement:** No    **Severity:** 2    **Repair Status:**    **Problem Status:** OPEN 

Route: 16 Floor \ Roof

**Location/Equipment:** Control Panel: Water Tower

Barcode: 107AKJ Asset ID:

Voltage: Rated Load: 40 Wind Speed: Ambient:56.0

IR/Image GUID File : 1ea113d1-ca44-4e6e-b841-3b514756cda4.idn

	Temp	Phase	Load	% of
<b>Component:</b>	162.0	C Phase	10Amps	@25.0%
<b>Reference:</b>	<u>101.0</u>		10Amps	@25.0%
<b>Delta T:</b>	<b>61.0</b>			@25.0%

Comment: C Phase Load Side Wire Crimp Connection on Contactor C3 (heater)



**Thermal Item List - Prioritized by Temperature Rise**
**Site:** Tacoma Municipal Building

**Inspection #** 2

**Start Date:**
**Site:** Tacoma Municipal Building    **Insp. No.** 2    **Start Date:**    **Thermal Item # 10** At: Jan 17 2018 12:06PM

**Indirect Measurement:** No    **Severity:** 2    **Repair Status:**    **Problem Status:** OPEN 

Route: Basement \ Boiler Room

**Location/Equipment:** Electrical Boiler

Barcode: 107AL9 Asset ID:

Voltage: Rated Load: Wind Speed: Ambient:73.0

IR/Image GUID File : 34d715f9-50dc-458f-b991-8e2ac3ac922a.idn

	Temp	Phase	Load	% of
<b>Component:</b>	220.0			@N/A
<b>Reference:</b>	<u>172.0</u>			@N/A
<b>Delta T:</b>	<b>48.0</b>			@N/A

Comment: Far Right Fuse Block: Heating in fuse body, emanating through line side clp, and wire lug connection .

**Site:** Tacoma Municipal Building    **Insp. No.** 2    **Start Date:**    **Thermal Item # 9** At: Jan 17 2018 11:51AM

**Indirect Measurement:** No    **Severity:** 3    **Repair Status:**    **Problem Status:** OPEN 

Route: Basement \ McQuay Room \ MCC-B

**Location/Equipment:** Supply fan 12

Barcode: Asset ID:

Voltage: 480 Rated Load: Wind Speed: 0 Ambient:74.0

IR/Image GUID File : 060a5ee4-ad27-4581-b790-f2fb55557010.idn

	Temp	Phase	Load	% of
<b>Component:</b>	139.0	A Phase	6Amps	@N/A
<b>Reference:</b>	<u>105.0</u>	C Phase	6Amps	@N/A
<b>Delta T:</b>	<b>34.0</b>			@N/A

Comment: A phase line side wire lug connection or top screw connection on element of thermal overload relay.

**Site:** Tacoma Municipal Building    **Insp. No.** 2    **Start Date:**    **Thermal Item # 4** At: Jan 16 2018 10:23AM

**Indirect Measurement:** No    **Severity:** 3    **Repair Status:**    **Problem Status:** OPEN 

Route: 12 Floor \ Mechanical Room

**Location/Equipment:** Starter: Secondary Circulation Water Pump

Barcode: Asset ID:

Voltage: Rated Load: 10 Wind Speed: Ambient:70.0

IR/Image GUID File : 3fae6ecc-1870-458d-97b1-1a4e72853202.idn

	Temp	Phase	Load	% of
<b>Component:</b>	116.0	B Phase	3.5Amps	@35.0%
<b>Reference:</b>	<u>87.0</u>		3.5Amps	@35.0%
<b>Delta T:</b>	<b>29.0</b>			@35.0%

Comment: B Phase Line Side Wire Lug Connection on Disconnect Switch.

**Site:** Tacoma Municipal Building    **Insp. No.** 2    **Start Date:**    **Thermal Item # 3** At: Jan 16 2018 9:49AM

**Indirect Measurement:** No    **Severity:** 3    **Repair Status:**    **Problem Status:** OPEN 

Route: 15 Floor \ Mechanical Room

**Location/Equipment:** Starter: Secondary Circulation Water Pump

Barcode: Asset ID:

Voltage: Rated Load: 15 Wind Speed: Ambient:73.0

IR/Image GUID File : e1786333-5368-44a8-bdd9-8ddb127d5557.idn

	Temp	Phase	Load	% of
<b>Component:</b>	123.0		3.5Amps	@23.3%
<b>Reference:</b>	<u>99.0</u>		3.5Amps	@23.3%
<b>Delta T:</b>	<b>24.0</b>			@23.3%

Comment: B Phase Load Side Screw Connection on Thermal Overload Element



## Thermal Item List - Prioritized by Temperature Rise

Site: Tacoma Municipal Building

Inspection # 2

Start Date:

Site: Tacoma Municipal Building Insp. No. 2 Start Date:

Thermal Item # 6 At: Jan 16 2018 11:31AM

 Indirect Measurement: No Severity: 3 Repair Status: Problem Status: OPEN 

Route: 9 Floor \ Mechanical Room

Location/Equipment: Starter: Secondary Circulation Water Pump

Barcode: Asset ID:

Voltage: Rated Load: 30 Wind Speed: Ambient:74.0

IR/Image GUID File : 2215c365-9007-4033-a2d7-2f8dd0f8729b.idn

	Temp	Phase	Load	% of
<b>Component:</b>	119.0		5.5Amps	@18.3%
<b>Reference:</b>	<u>96.0</u>		5Amps	@16.7%
<b>Delta T:</b>	<b>23.0</b>			@18.3%

Comment: A phase load side Fuse Clip connection on fused Disconnect

Site: Tacoma Municipal Building Insp. No. 2 Start Date:

Thermal Item # 7 At: Jan 16 2018 1:57PM

 Indirect Measurement: No Severity: 4 Repair Status: Problem Status: OPEN 

Route: 5 Floor \ West Elect. Closet

Location/Equipment: Panel 5P

Barcode: 107AJE Asset ID:

Voltage: Rated Load: Wind Speed: Ambient:71.0

IR/Image GUID File : 4e003147-e281-4d29-aef1-e063a23bbe36.idn

	Temp	Phase	Load	% of
<b>Component:</b>	81.0	Neutral	2Amps	@N/A
<b>Reference:</b>	<u>72.0</u>	Neutral	1.8Amps	@N/A
<b>Delta T:</b>	<b>9.0</b>			@N/A

Comment: Neutral Phase Crimp Connection to Bus



### Thermal Items: Detail Report

 Site: Tacoma Municipal Building    Insp. No. 2    Start Date: 01/16/2018    **Thermal Item # 1**    At: 01/16/2018 08:43

 Indirect Measurement: No    Severity: 2    Repair Status:    Problem Status: **OPEN** 

Route: 16 Floor \ Roof

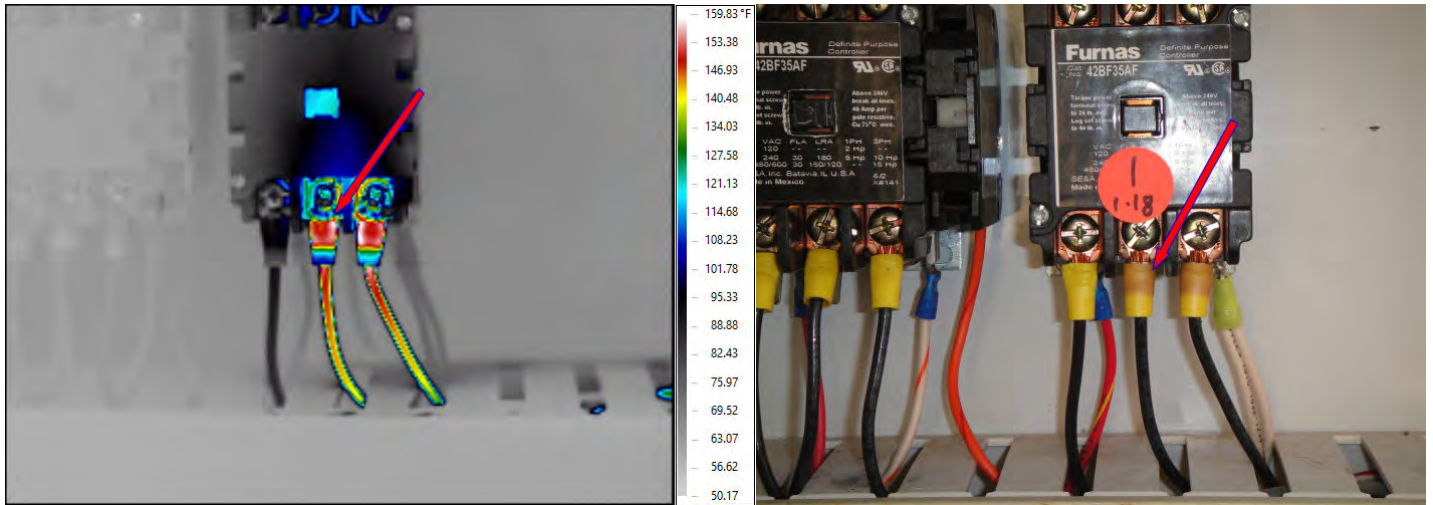
**Location/Equipment: Control Panel: Water Tower**

Barcode: 107AKJ Asset ID:

Voltage: Rated Load: 40 Wind Speed: Ambient:56.0

IR/Image GUID File : 664f42d9-5808-4035-9ba9-06c50238a008.idn

	Temp	Phase	Load	% of
<b>Component:</b>	162.0	B Phase	10Amps	@25.0%
<b>Reference:</b>	101.0	A Phase	10Amps	@25.0%
<b>Delta T:</b>	<b>61.0</b>			@25.0%

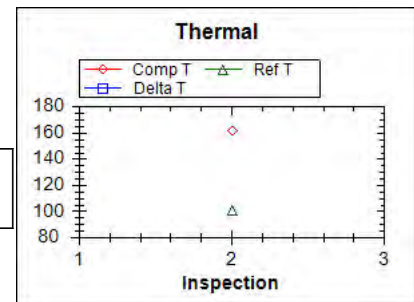

**Comment:**    **B Phase Load Side Wire Crimp Connection on Contactor C3 (heater)**

Probable Cause:    Loose or corroded connection

Recommendation:    Disassemble, Clean and retighten or replace if necessary

#### Historical Sub Report

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	1	01/16/2018	162.0	101.0	61.0	2	10	25.0%		56.0



Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			



### Thermal Items: Detail Report

 Site: Tacoma Municipal Building    Insp. No. 2    Start Date: 01/16/2018    **Thermal Item # 2**    At: 01/16/2018 08:48

 Indirect Measurement: No    Severity: 2    Repair Status:    Problem Status: **OPEN** 

Route: 16 Floor \ Roof

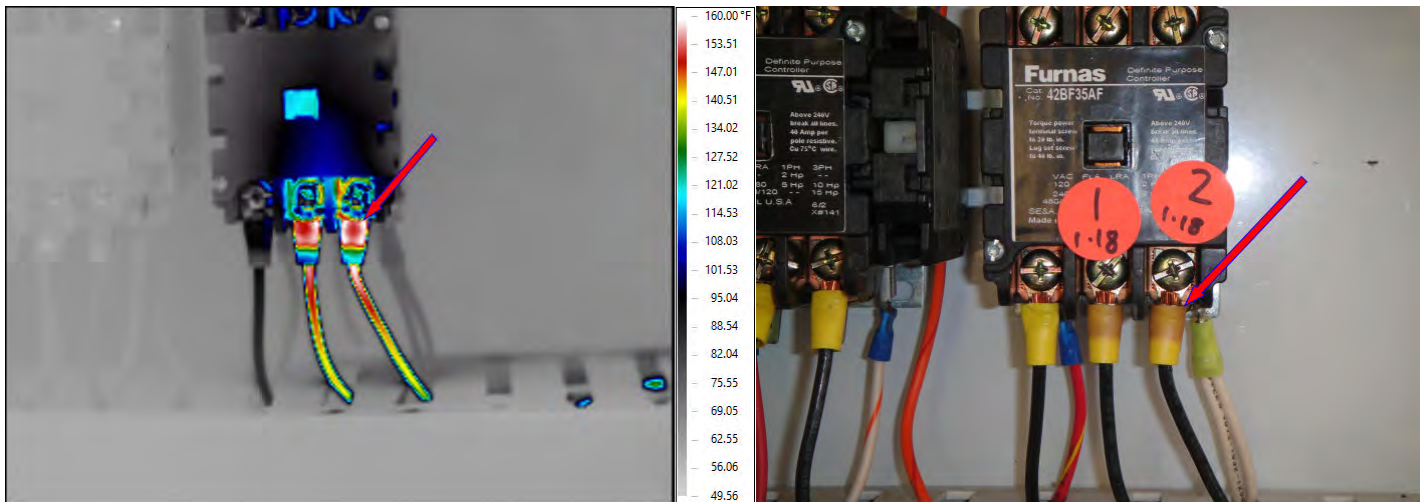
**Location/Equipment: Control Panel: Water Tower**

Barcode: 107AKJ Asset ID:

Voltage: Rated Load: 40 Wind Speed: Ambient:56.0

IR/Image GUID File : 1ea113d1-ca44-4e6e-b841-3b514756cda4.idn

	Temp	Phase	Load	% of
<b>Component:</b>	162.0	C Phase	10Amps	@25.0%
<b>Reference:</b>	<u>101.0</u>		10Amps	@25.0%
<b>Delta T:</b>	<b>61.0</b>			@25.0%

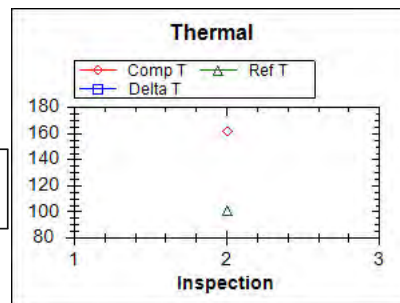

**Comment:**    **C Phase Load Side Wire Crimp Connection on Contactor C3 (heater)**

Probable Cause:    Loose or corroded connection

Recommendation:    Disassemble, Clean and retighten or replace if necessary

#### Historical Sub Report

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	2	01/16/2018	162.0	101.0	61.0	2	10	25.0%		56.0



Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			

### Thermal Items: Detail Report

 Site: Tacoma Municipal Building    Insp. No. 2    Start Date: 01/16/2018    **Thermal Item # 3**    At: 01/16/2018 09:49

 Indirect Measurement: No    Severity: 3    Repair Status:    Problem Status: **OPEN** 

Route: 15 Floor \ Mechanical Room

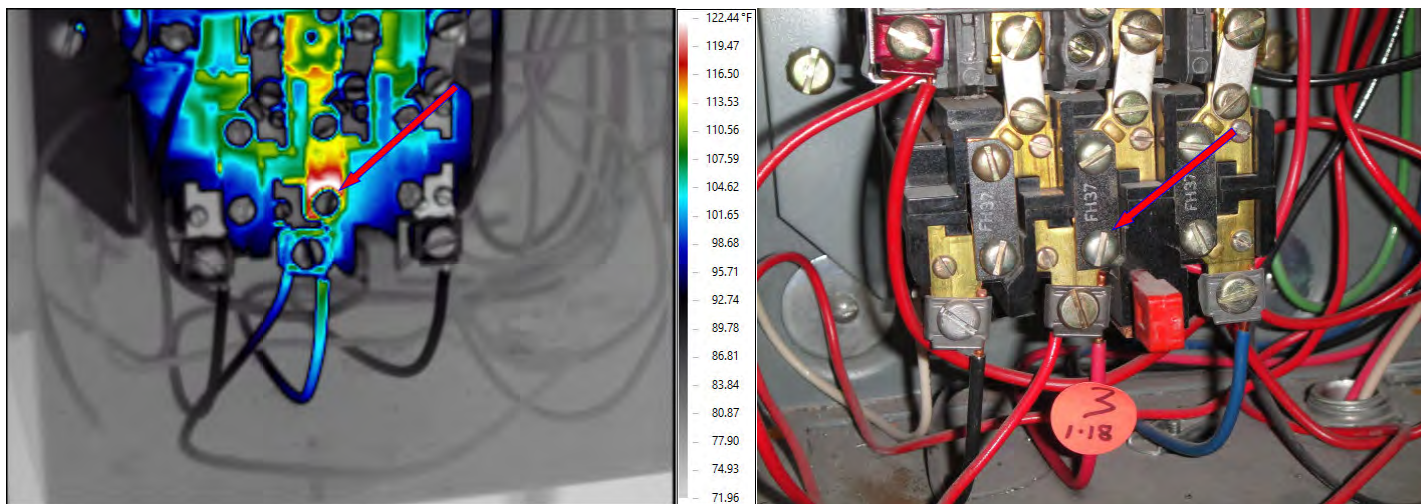
**Location/Equipment: Starter: Secondary Circulation Water Pump**

Barcode: Asset ID:

Voltage: Rated Load: 15 Wind Speed: Ambient:73.0

IR/Image GUID File : e1786333-5368-44a8-bdd9-8ddb127d5557.idn

	Temp	Phase	Load	% of
<b>Component:</b>	123.0		3.5Amps	@23.3%
<b>Reference:</b>	<u>99.0</u>		3.5Amps	@23.3%
<b>Delta T:</b>	<b>24.0</b>			@23.3%

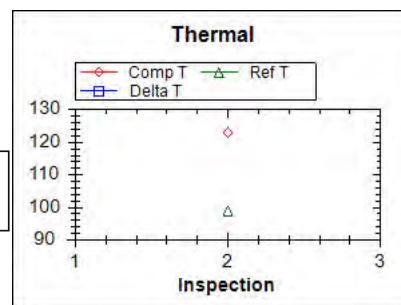

**Comment:**    **B Phase Load Side Screw Connection on Thermal Overload Element**

Probable Cause: Loose or corroded connection

Recommendation: Disassemble, Clean and retighten or replace if necessary

#### Historical Sub Report

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	3	01/16/2018	123.0	99.0	24.0	3	3.5	23.3%		73.0



Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			

### Thermal Items: Detail Report

 Site: Tacoma Municipal Building    Insp. No. 2    Start Date: 01/16/2018    **Thermal Item # 4**    At: 01/16/2018 10:23

 Indirect Measurement: No    Severity: 3    Repair Status:    Problem Status: **OPEN** 

Route: 12 Floor \ Mechanical Room

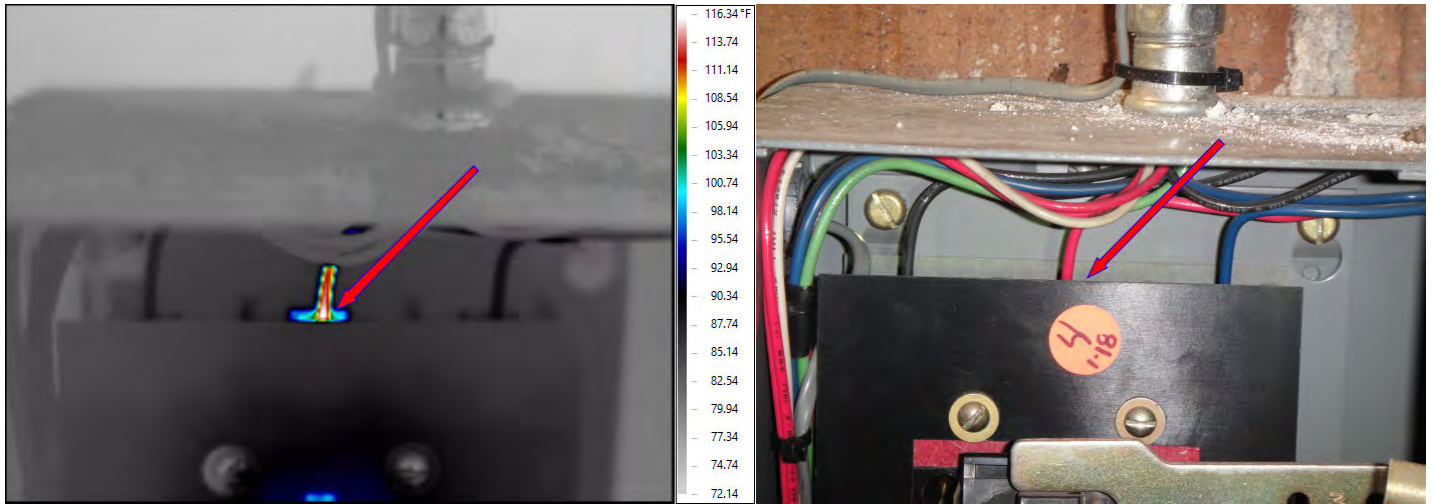
**Location/Equipment: Starter: Secondary Circulation Water Pump**

Barcode: Asset ID:

Voltage: Rated Load: 10 Wind Speed: Ambient:70.0

IR/Image GUID File : 3fae6ecc-1870-458d-97b1-1a4e72853202.idn

	Temp	Phase	Load	% of
<b>Component:</b>	116.0	B Phase	3.5Amps	@35.0%
<b>Reference:</b>	87.0		3.5Amps	@35.0%
<b>Delta T:</b>	29.0			@35.0%

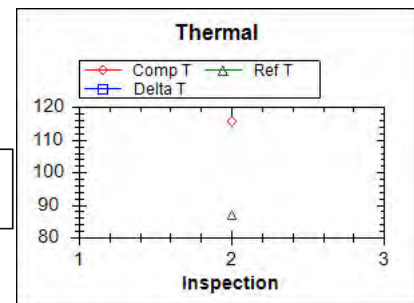

**Comment:**    **B Phase Line Side Wire Lug Connection on Disconnect Switch.**

Probable Cause: Loose or corroded connection

Recommendation: Disassemble, Clean and retighten or replace if necessary

#### Historical Sub Report

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	4	01/16/2018	116.0	87.0	29.0	3	3.5	35.0%		70.0



Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			



### Thermal Items: Detail Report

 Site: Tacoma Municipal Building    Insp. No. 2    Start Date: 01/16/2018    **Thermal Item # 5**    At: 01/16/2018 11:13

 Indirect Measurement: No    Severity: 2    Repair Status:    Problem Status: **OPEN** 

Route: 10 Floor \ Mechanical Room

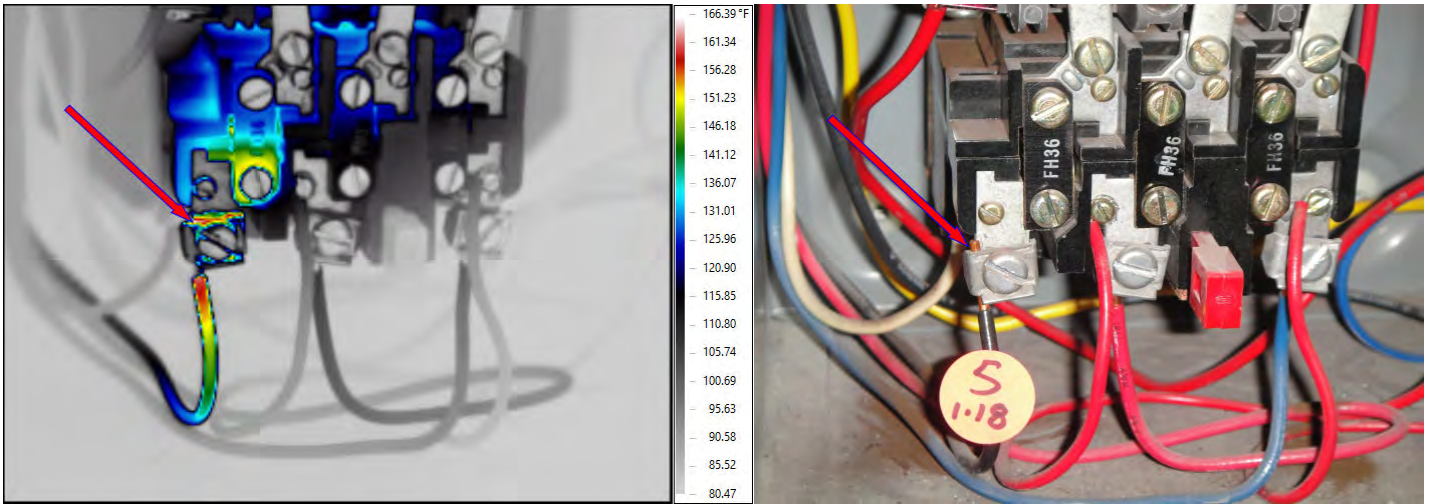
**Location/Equipment: Starter: Secondary Circulation Water Pump**

Barcode: Asset ID:

Voltage: Rated Load: 30 Wind Speed: Ambient:74.0

IR/Image GUID File : 0262fbd7-b906-4e6f-bc6d-cedbb1ba2382.idn

	Temp	Phase	Load	% of
<b>Component:</b>	165.0	A Phase	4.5Amps	@15.0%
<b>Reference:</b>	89.0		5Amps	@16.7%
<b>Delta T:</b>	<b>76.0</b>			@15.0%

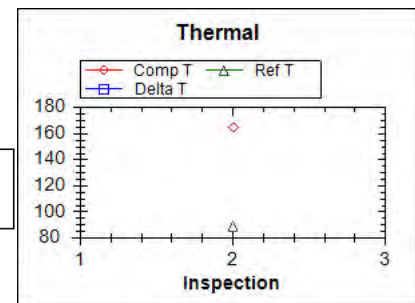

**Comment:**    **A phase load side wire lug connection on thermal overload**

Probable Cause: Loose or corroded connection

Recommendation: Disassemble, Clean and retighten or replace if necessary

#### Historical Sub Report

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	5	01/16/2018	165.0	89.0	76.0	2	4.5	15.0%		74.0



Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			



### Thermal Items: Detail Report

 Site: Tacoma Municipal Building    Insp. No. 2    Start Date: 01/16/2018    **Thermal Item # 6**    At: 01/16/2018 11:31

 Indirect Measurement: No    Severity: 3    Repair Status:    Problem Status: **OPEN** 

Route: 9 Floor \ Mechanical Room

**Location/Equipment: Starter: Secondary Circulation Water Pump**

Barcode: Asset ID:

Voltage: Rated Load: 30 Wind Speed: Ambient:74.0

IR/Image GUID File : 2215c365-9007-4033-a2d7-2f8dd0f8729b.idn

	Temp	Phase	Load	% of
<b>Component:</b>	119.0		5.5Amps	@18.3%
<b>Reference:</b>	<u>96.0</u>		5Amps	@16.7%
<b>Delta T:</b>	<b>23.0</b>			@18.3%

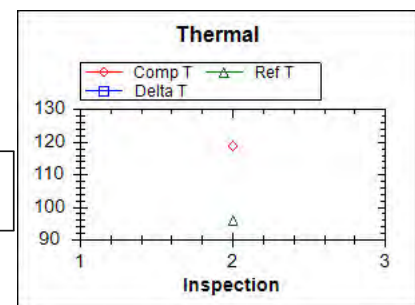

**Comment:**    **A phase load side Fuse Clip connection on fused Disconnect**

Probable Cause: Loose or corroded connection

Recommendation: Disassemble, Clean and retighten or replace if necessary

#### Historical Sub Report

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	6	01/16/2018	119.0	96.0	23.0	3	5.5	18.3%		74.0



Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			

### Thermal Items: Detail Report

 Site: Tacoma Municipal Building    Insp. No. 2    Start Date: 01/16/2018    **Thermal Item # 7**    At: 01/16/2018 13:57

 Indirect Measurement: No    Severity: 4    Repair Status:    Problem Status: **OPEN** 

Route: 5 Floor \ West Elect. Closet

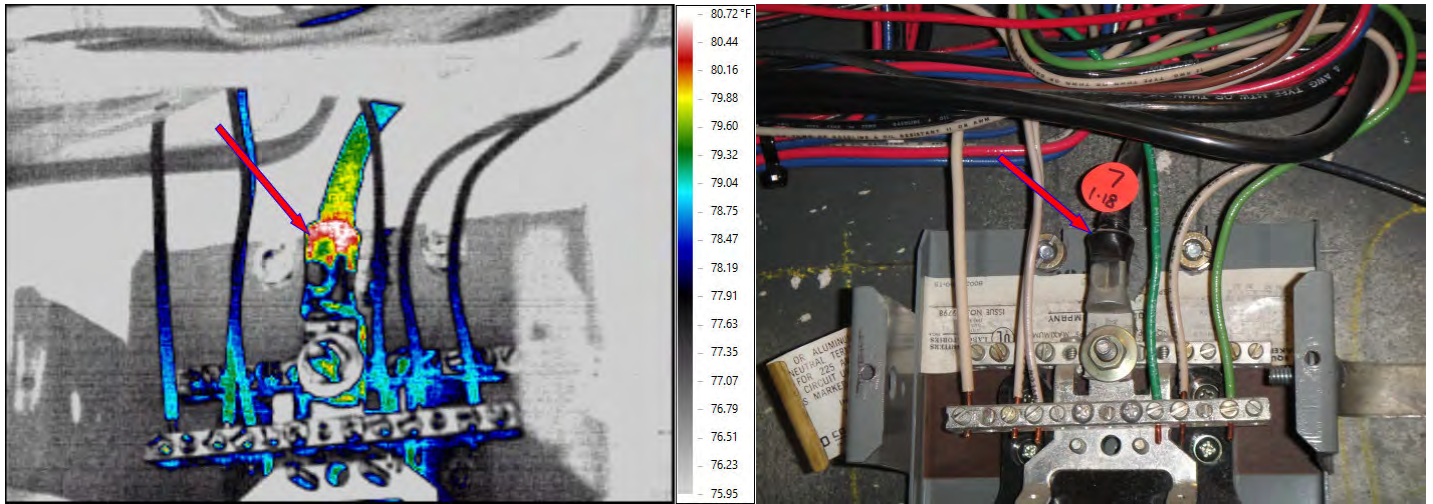
**Location/Equipment: Panel 5P**

Barcode: 107AJE Asset ID:

Voltage: Rated Load: Wind Speed: Ambient:71.0

IR/Image GUID File : 4e003147-e281-4d29-aef1-e063a23bbe36.idn

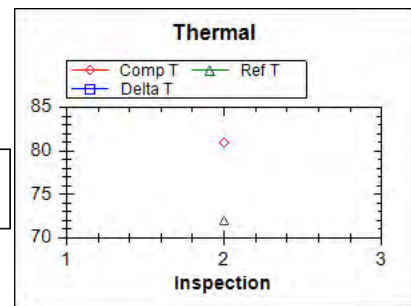
	Temp	Phase	Load	% of
<b>Component:</b>	81.0	Neutral	2Amps	@N/A
<b>Reference:</b>	72.0	Neutral	1.8Amps	@N/A
<b>Delta T:</b>	<b>9.0</b>			@N/A



**Comment:**    **Neutral Phase Crimp Connection to Bus**  
 Probable Cause:    Loose or corroded connection  
 Recommendation:    Disassemble, Clean and retighten or replace if necessary

#### Historical Sub Report

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	7	01/16/2018	81.0	72.0	9.0	4	2	N/A		71.0



Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			

### Thermal Items: Detail Report

 Site: Tacoma Municipal Building    Insp. No. 2    Start Date: 01/16/2018    **Thermal Item # 8**    At: 01/17/2018 09:34

 Indirect Measurement: No    Severity: 2    Repair Status:    Problem Status: **OPEN**

Route: 1 Floor \ Mezzanine Mechanical Room \ MCC

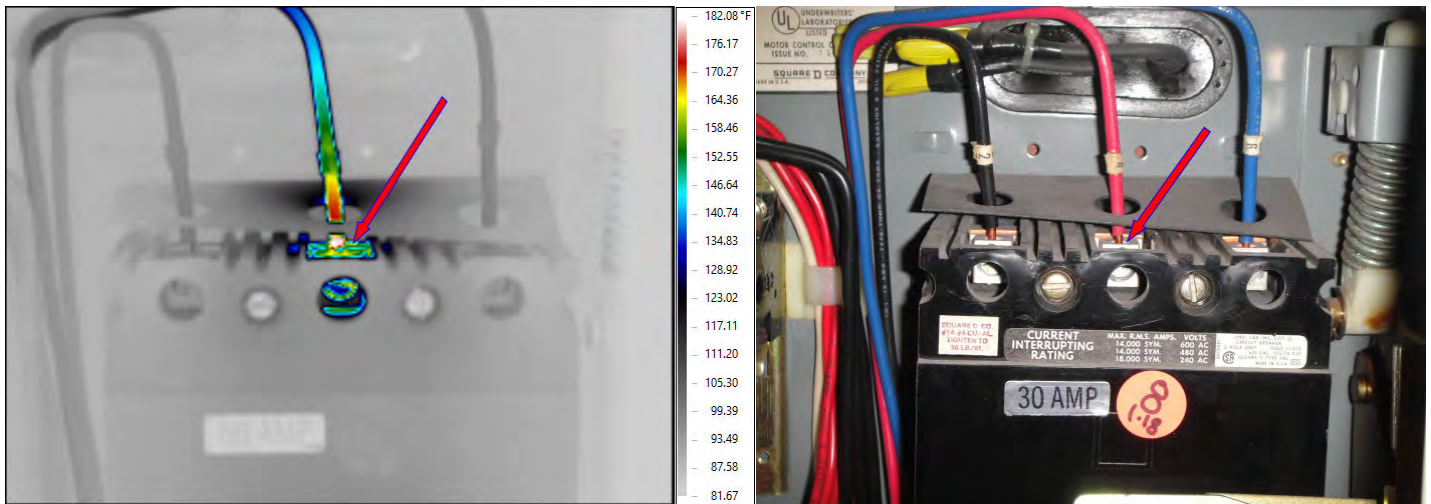
**Location/Equipment: Exhaust Fan #8**

Barcode: 10AJ6W Asset ID:

Voltage: Rated Load: 30 Wind Speed: Ambient:76.0

IR/Image GUID File : 3eb474cc-e9fa-4d17-a6a5-b180cfe4c9bb.idn

	Temp	Phase	Load	% of
<b>Component:</b>	182.0	B Phase	6.5Amps	@21.7%
<b>Reference:</b>	97.0	A Phase	6.5Amps	@21.7%
<b>Delta T:</b>	<b>85.0</b>			@21.7%

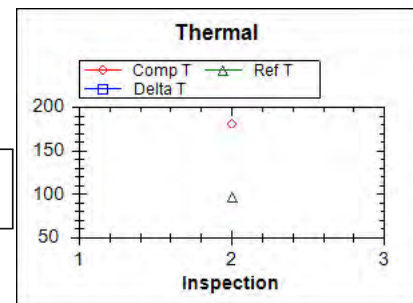

**Comment:**    **B Phase Line Side Wire Lug Connection on Circuit Breaker**

Probable Cause: Loose or corroded connection

Recommendation: Disassemble, Clean and retighten or replace if necessary

#### Historical Sub Report

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	8	01/17/2018	182.0	97.0	85.0	2	6.5	21.7%		76.0



Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			



### Thermal Items: Detail Report

 Site: Tacoma Municipal Building    Insp. No. 2    Start Date: 01/16/2018    **Thermal Item # 9**    At: 01/17/2018 11:51

 Indirect Measurement: No    Severity: 3    Repair Status:    Problem Status: **OPEN** 

Route: Basement \ McQuay Room \ MCC-B

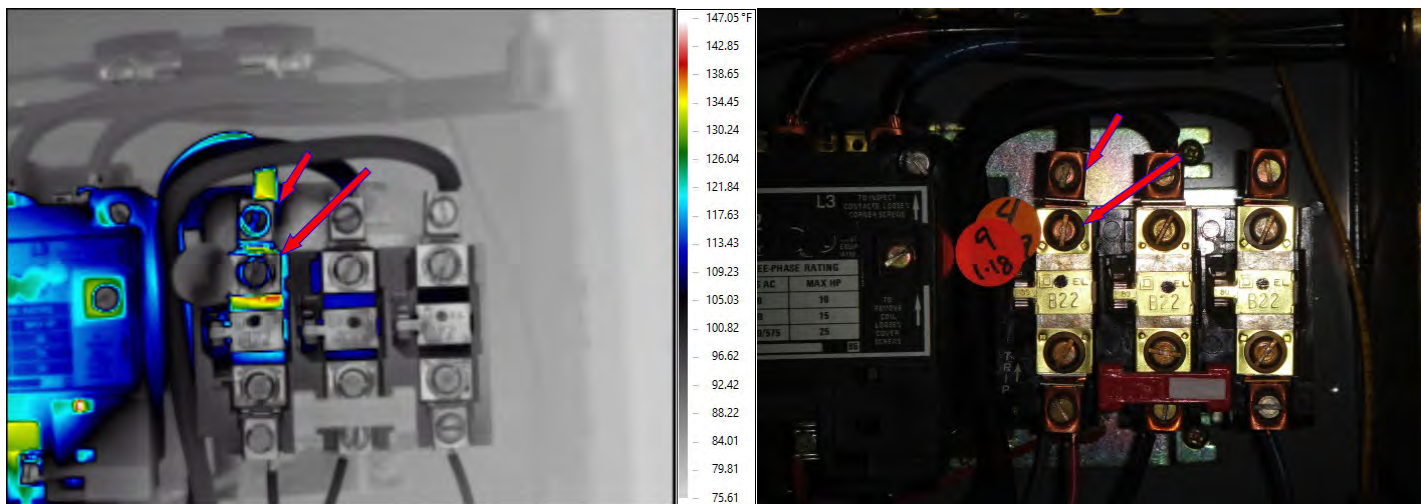
**Location/Equipment: Supply fan 12**

Barcode: Asset ID:

Voltage: 480 Rated Load: Wind Speed: 0 Ambient:74.0

IR/Image GUID File : 060a5ee4-ad27-4581-b790-f2fb55557010.idn

	Temp	Phase	Load	% of
<b>Component:</b>	139.0	A Phase	6Amps	@N/A
<b>Reference:</b>	105.0	C Phase	6Amps	@N/A
<b>Delta T:</b>	<b>34.0</b>			@N/A



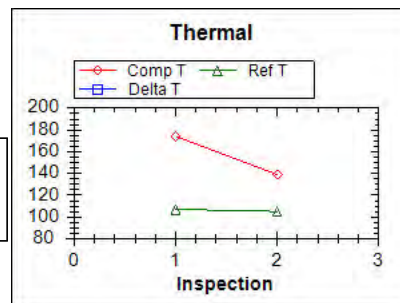
**Comment:** A phase line side wire lug connection or top screw connection on element of thermal overload relay.

Probable Cause: Poor connection

Recommendation: Disassemble, Clean retighten or replace if necessary

#### Historical Sub Report

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	9	01/17/2018	139.0	105.0	34.0	3	6	N/A		74.0
1	4	06/10/2009	174.0	107.0	67.0	2	6	N/A		74.0



Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			

### Thermal Items: Detail Report

Site: Tacoma Municipal Building    Insp. No. 2    Start Date: 01/16/2018    **Thermal Item # 10**    At: 01/17/2018 12:06

Indirect Measurement: No    Severity: 2    Repair Status:    Problem Status: **OPEN** 

Route: Basement \ Boiler Room

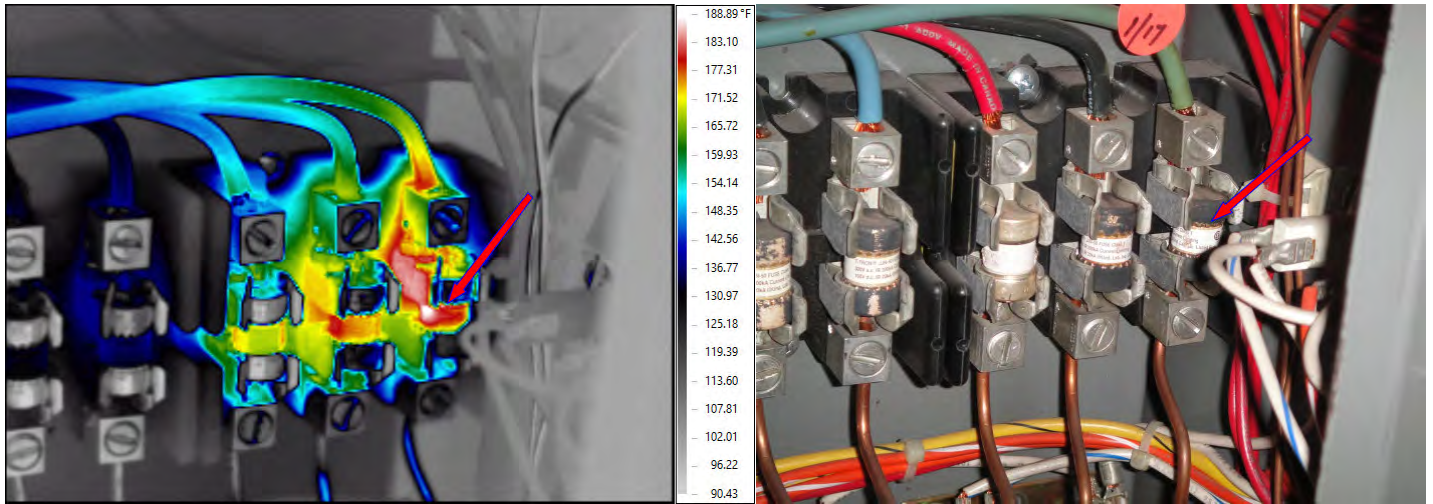
**Location/Equipment: Electrical Boiler**

Barcode: 107AL9 Asset ID:

Voltage: Rated Load: Wind Speed: Ambient:73.0

IR/Image GUID File : 34d715f9-50dc-458f-b991-8e2ac3ac922a.idn

	Temp	Phase	Load	% of
<b>Component:</b>	220.0			@N/A
<b>Reference:</b>	<u>172.0</u>			@N/A
<b>Delta T:</b>	<b>48.0</b>			@N/A



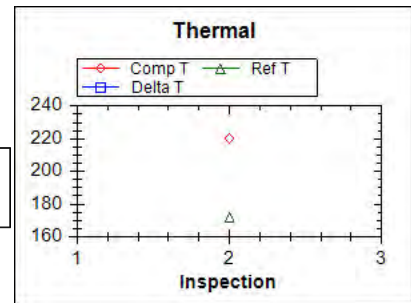
**Comment:** Far Right Fuse Block: Heating in fuse body, emanating through line side clip, and wire lug connection .

Probable Cause: Loose or corroded connection

Recommendation: Disassemble, Clean and retighten or replace if necessary

#### Historical Sub Report

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	10	01/17/2018	220.0	172.0	48.0	2		N/A		73.0



Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			

## Closed Items List

Site: Tacoma Municipal Building

Inspection # 2

**[ Thermal ]                      Problem # 1                      Barcode: 107AK9                      Severity Code: 2**
**Location:** 1 Floor \ Electrical Room

**Equipment:** Panel 1C Transformer

**Description:** B phase primary side wire lug / crimp connection on the terminal strip.

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	2	01/17/2018	84.0	83.0	1.0		4	N/A		74.0
1	1	06/09/2009	187.0	106.0	81.0	2	44	N/A		78.0

**[ Thermal ]                      Problem # 2                      Barcode: 107AKJ                      Severity Code: 3**
**Location:** 16 Floor \ Roof

**Equipment:** Control Panel: Water Tower

**Description:** Grounding conductor has been cut and abandoned inside of the panel.

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	1	01/16/2018	100.0	75.0	25.0		40	N/A		70.0
1	2	06/10/2009	100.0	75.0	25.0	3	40	N/A		70.0

**[ Thermal ]                      Problem # 3                      Barcode: 107AKJ                      Severity Code: 4**
**Location:** 16 Floor \ Roof

**Equipment:** Control Panel: Water Tower

**Description:** B phase load side wire lug connection on fuse F17 (no Load 2018)

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
1	3	06/10/2009	97.0	76.0	21.0	4	24	12.0%		70.0





## Before Vs. After Thermal Item Details Report

Site: Tacoma Municipal Building

Problem Status: CLOSED 😊

Severity:

Work order #:

Location: 1 Floor \ Electrical Room

Equipment: Panel 1C Transformer

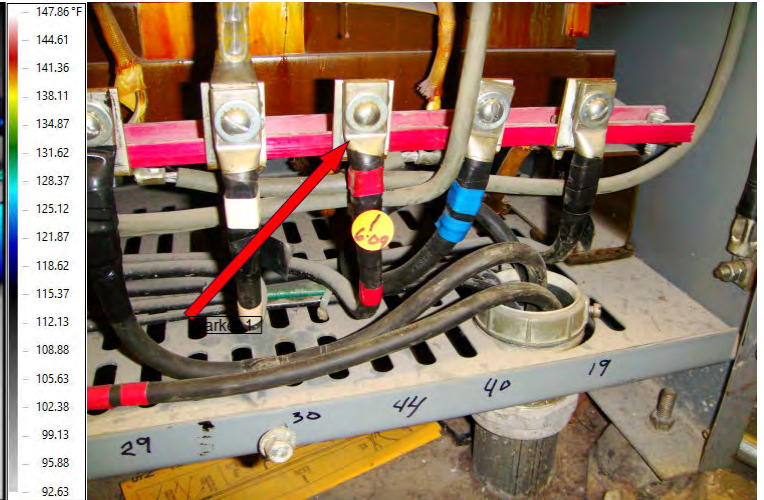
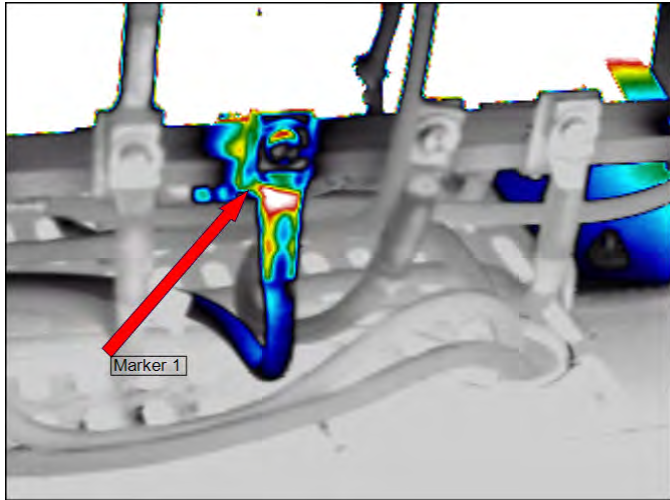
Voltage: 208 Barcode: 107AK9

Rated Load: Asset ID:

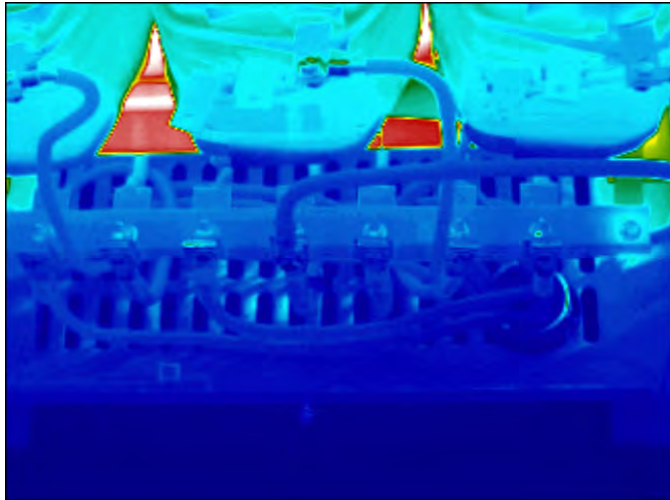
Before: 1

IDN File: f105b8b9-1e5b-4e82-92fe-911691886448.idn

Inspection#: 2	Prob#: 2
Prob Date&Time: 01/17/2018 08:31	
Indirect Temp.Measurement: No	
Component Temp.: 84.0@N/A	
Reference Temp.: 83.0@N/A	
Temp.Rise: 1.0@N/A	



After: IDN File: d40d0c41-f4f9-49f1-b5a8-f5dcaf1fdeda.idn



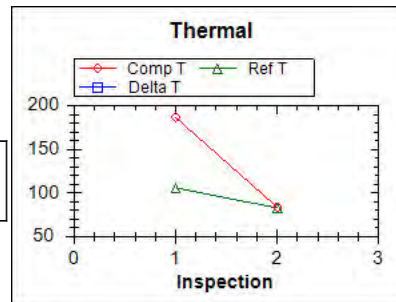
Description: B phase primary side wire lug / crimp connection on the terminal strip.

Type of Defect:

Action Taken:

## Historical Sub Report

Insp.#	Prob.#	Date	Comp Temp	Ref. Temp	Temp Rise	Sev. Code	Load	% Load	Wind Spd.	Amb. Temp
2	2	01/17/2018	84.0	83.0	1.0	4	N/A			74.0
1	1	06/09/2009	187.0	106.0	81.0	2	44	N/A		78.0



Visual Problem List  
Inspection # 2

Site: Tacoma Municipal Building

---

**Problem # 1**

**Barcode:** 107AKA

**Severity Code:**

**Location:** Basement \ Room B21

**Equipment:** Panel B1

**Description:** Grounding conductor has been cut and abandoned inside of the panel.

**Picture:** 369a520d-0c0c-496a-85aa-dc4d1a77f1bc.idn

---





### Visual Problem Details Report

**Site:** Tacoma Municipal Building

**Problem Status:** OPEN 😞

**Location:** Basement \ Room B21

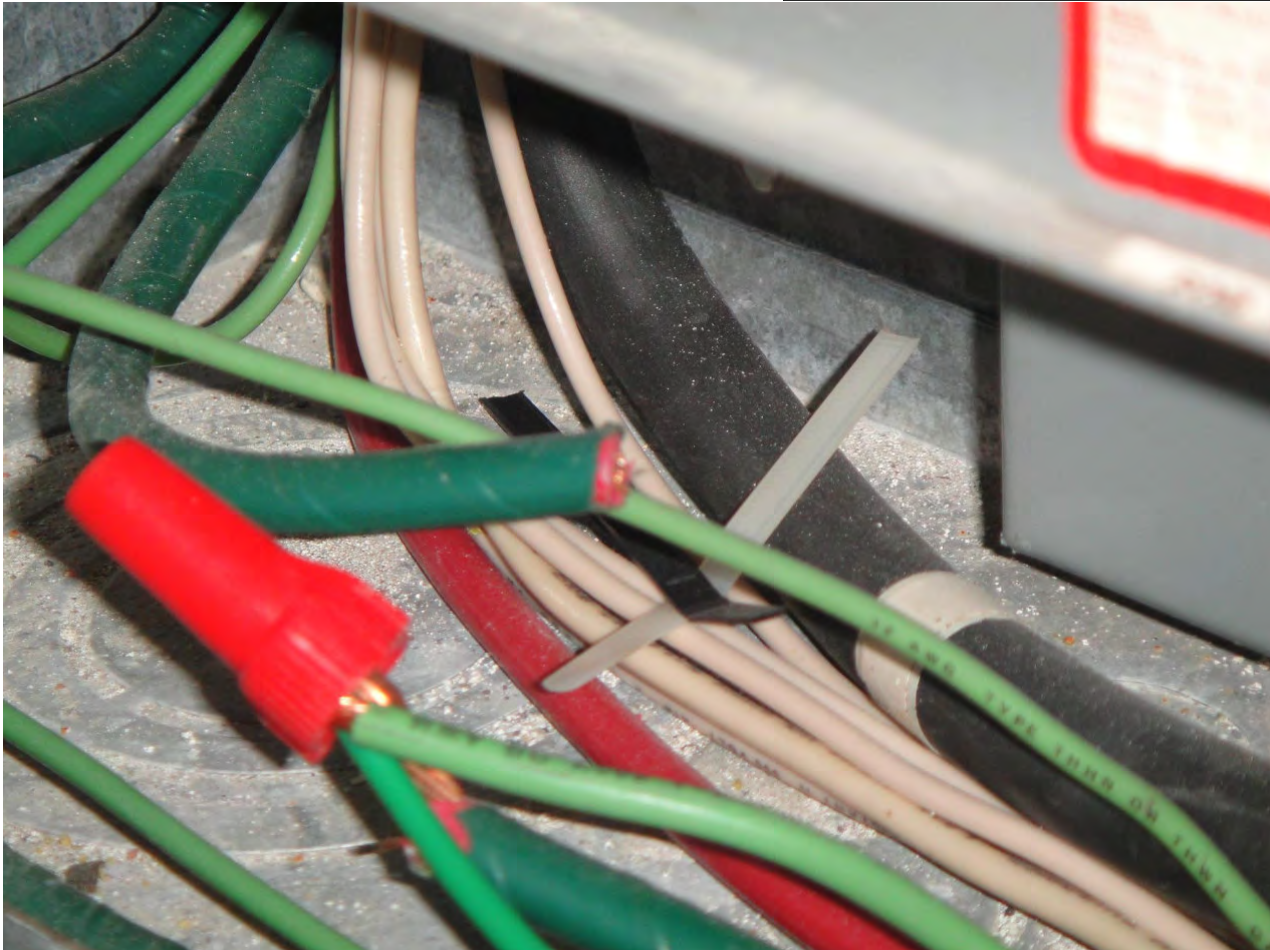
**Equipment:** Panel B1

**IDN File:** 369a520d-0c0c-496a-85aa-dc4d1a77f1bc.idn

**Severity:**

**Work Order #:**

<b>Inspection#:</b> 2	<b>Problem#:</b> 1
<b>Prob Date&amp;Time:</b>	01/17/2018 12:28
<b>Barcode:</b>	107AKA
<b>AssetID:</b>	



**Description:** Grounding conductor has been cut and abandoned inside of the panel.

**Probable Cause:** Poor workmanship

**Recommendation:** Remove the conductor.

**Historical Sub Report**

Inspection	Prob#	Date	Sev.Code
1	1	06/09/2009	4
2	1	01/17/2018	

Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			





## Inspection Notes List

Site: Tacoma Municipal Building

Inspection # 2

Date:

**Inspection Note # 6**    **Barcode:**    **Asset ID:**    **Severity Code:**  
**Date-Time:** Jan 16 2018 9:26AM  
**Location:** 16 Floor \ Hallway  
**Equipment:** Contactor: Supply Fan #4  
**Test Status:** Not Tested  
**Description:** No Load at time of inspection.  
 Notes:

**Inspection Note # 7**    **Barcode:**    **Asset ID:**    **Severity Code:**  
**Date-Time:** Jan 16 2018 9:26AM  
**Location:** 16 Floor \ Hallway  
**Equipment:** Contactor: Circulation Pump #16  
**Test Status:** Not Tested  
**Description:** No Load at time of inspection.  
 Notes:

**Inspection Note # 8**    **Barcode:** 107AHU    **Asset ID:**    **Severity Code:**  
**Date-Time:** Jan 16 2018 10:44AM  
**Location:** 11 Floor \ West Elect. Closet  
**Equipment:** Panel 11P  
**Test Status:** Tested  
**Description:** Main Neutral Wire is Undersized.  
 Notes:

**Inspection Note # 9**    **Barcode:** 107AHX    **Asset ID:**    **Severity Code:**  
**Date-Time:** Jan 16 2018 11:08AM  
**Location:** 10 Floor \ West Elect. Closet  
**Equipment:** Panel 10P (Caution: No Feet)  
**Test Status:** Tested  
**Description:** Main Neutral Wire is Undersized.  
 Notes:

**Inspection Note # 10**    **Barcode:** 107AHX    **Asset ID:**    **Severity Code:**  
**Date-Time:** Jan 16 2018 11:10AM  
**Location:** 10 Floor \ West Elect. Closet  
**Equipment:** Panel 10P (Caution: No Feet)  
**Test Status:** Tested  
**Description:** Improper Screws Securing Panel Cover.  
 Notes:









## Inspection Notes List

Site: Tacoma Municipal Building

Inspection # 2

Date:

**Inspection Note # 21    Barcode:** 107AJM                      **Asset ID:**                      **Severity Code:****Date-Time:** Jan 16 2018 2:23PM**Location:** 3 Floor \ West Elect. Closet**Equipment:** Panel 3PW (Caution: No Feet)**Test Status:** Tested**Description:** Improper Screws Securing Panel Cover.

Notes:

**Inspection Note # 22    Barcode:** 107AJM                      **Asset ID:**                      **Severity Code:****Date-Time:** Jan 16 2018 2:23PM**Location:** 3 Floor \ West Elect. Closet**Equipment:** Panel 3PW (Caution: No Feet)**Test Status:** Tested**Description:** Main Neutral Wire is Undersized.

Notes:

**Inspection Note # 23    Barcode:** 107AJK                      **Asset ID:**                      **Severity Code:****Date-Time:** Jan 16 2018 2:41PM**Location:** 3 Floor \ East Elect. Closet**Equipment:** Panel 3RE (Caution: No Feet)**Test Status:** Tested**Description:** 3-Pole 30Amp Breaker #26,28,30: Unbalanced Load - A (bottom phase)=5Amps, B (center phase)=20Amps, C (top phase)=20Amps,

Notes:

**Inspection Note # 24    Barcode:** 107AKX                      **Asset ID:**                      **Severity Code:****Date-Time:** Jan 17 2018 8:47AM**Location:** 1 Floor \ Storage**Equipment:** Circ. Pump 1**Test Status:** Not Tested**Description:** No Load at time of inspection.

Notes:

**Inspection Note # 25    Barcode:** 107AKS                      **Asset ID:**                      **Severity Code:****Date-Time:** Jan 17 2018 8:53AM**Location:** 1 Floor \ RJE Room**Equipment:** Heat Pump Disconnect**Test Status:** Not Tested**Description:** No Load at time of inspection.

Notes:



Professional

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Association

Inspection Notes List

**Site:** Tacoma Municipal Building

**Inspection #** 2

**Date:**

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## Inspection Notes List

Site: Tacoma Municipal Building

Inspection # 2

Date:

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**Inspection Note # 26 Barcode:** 107ALA **Asset ID:** **Severity Code:**  
**Date-Time:** Jan 17 2018 1:26PM  
**Location:** Basement \ Boiler Room  
**Equipment:** Air compressor starter  
**Test Status:** Not Tested  
**Description:** No Load at time of inspection.  
Notes:

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**Inspection Note # 27 Barcode:** 107AL8 **Asset ID:** **Severity Code:**  
**Date-Time:** Jan 17 2018 1:26PM  
**Location:** Basement \ Boiler Room  
**Equipment:** Disconnect for air compressor  
**Test Status:** Not Tested  
**Description:** No Load at time of inspection.  
Notes:

---

**Inspection Note # 28 Barcode:** 107AL4 **Asset ID:** **Severity Code:**  
**Date-Time:** Jan 17 2018 1:27PM  
**Location:** Basement \ Boiler Room  
**Equipment:** Starter - Unmarked Right  
**Test Status:** Not Tested  
**Description:** No Load at time of inspection.  
Notes:

---

**Inspection Note # 29 Barcode:** 107AL2 **Asset ID:** **Severity Code:**  
**Date-Time:** Jan 17 2018 1:27PM  
**Location:** Basement \ Boiler Room  
**Equipment:** Starter for HWP 1  
**Test Status:** Not Tested  
**Description:** No Load at time of inspection.  
Notes:

---





## Historical Test Status Matrix

Site: Tacoma Municipal Building

Location/Equipment	Insp. #2 01/16/2018	Insp. #1 06/09/2009
	Open Prob Status	Open Prob Status
1 Floor		
Council Chamber Control Room	Tested	Tested
Panel: 1LA	Tested	Not Tested
Council Chambers Ante Room: 148	Tested	Not Tested
Panel 1D	Tested	Tested
Panel 1LB	Tested	Tested
Panel 1RB	Tested	Tested
Electrical Closet (St. Helen Side)	Tested	Tested
Panel: 1LE	Tested	Not Tested
Electrical Room	Tested	Not Tested
Panel 1 DC	Tested	Tested
Panel 1C Transformer	Tested	* Tested
Panel 1LC	Tested	Tested
Panel 1LD	Tested	Tested
Mezzanine Mechanical Room	Tested	Tested
MCC	Tested	Tested
Exhaust Fan #8	* Tested	Not Tested
Panel 1M	Tested	Tested
Panel 1MDA	Tested	Tested
Panel 1MDB	Tested	Tested
Unmarked Disconnect	Tested	Tested
RJE Room	Tested	Tested
Disconnect: UPS A	Tested	Not Tested
Heat Pump Disconnect	* Not Tested	Tested
Panel 1C	Tested	Tested
Panel 1CC	Tested	Tested
Panel MBPBBB11X	Tested	Tested
Sub Panel 1	Tested	Tested
Room 108	Tested	Tested
Panel 1LF	Tested	Tested
Panel 1LF	Tested	Tested
Storage	Tested	Tested
Circ. Pump 1	* Not Tested	Tested
Circ. Pump 2.	Tested	Tested
Pit	Tested	Tested
EF-10	Tested	Tested
EF-7	Tested	Tested
10 Floor	Tested	Tested
East Elect. Closet	Tested	Tested
Panel 10L	Tested	Tested
Panel 10R	Tested	Tested
Mechanical Room	Tested	Not Tested
Starter: Secondary Circulation Water Pump	* Tested	Not Tested
West Elect. Closet	Tested	Tested
Panel 10P (Caution: No Feet)	* Tested	Tested
11 Floor	Tested	Tested
East Elect. Closet	Tested	Tested
Panel 11L	Tested	Tested
Panel 11R	Tested	Tested
Mechanical Room	Tested	Not Tested
Starter: Secondary Circulation Water Pump	Tested	Not Tested
West Elect. Closet	Tested	Tested
Panel 11P	* Tested	Tested
12 Floor	Tested	Tested
East Elect. Closet	Tested	Tested
Panel 12L	Tested	Tested
Mechanical Room	Tested	Not Tested
Starter: Secondary Circulation Water Pump	* Tested	Not Tested

### Historical Test Status Matrix

Site: Tacoma Municipal Building

Location/Equipment	Insp. #2 01/16/2018	Insp. #1 06/09/2009
	Open Prob Status	Open Prob Status
West Elect. Closet	Tested	Tested
Panel 12P	Tested	Tested
13 Floor	Tested	Tested
East Elect. Closet	Tested	Tested
Panel 13L	Tested	Tested
Mechanical Room	Tested	Not Tested
Starter: Secondary Circulation Water Pump	Tested	Not Tested
West Elect. Closet	Tested	Tested
Panel 13P	Tested	Tested
14 Floor	Tested	Tested
East Elect. Closet	Tested	Tested
Panel 14L	Tested	Tested
Mechanical Room	Tested	Not Tested
Starter: Secondary Circulation Water Pump	Tested	Not Tested
West Elect. Closet	Tested	Tested
Panel 14P	Tested	Tested
15 Floor	Tested	Tested
East Elect. Closet	Tested	Tested
Panel 15L	Tested	Tested
Mechanical Room	Tested	Not Tested
Starter: Secondary Circulation Water Pump	* Tested	Not Tested
West Elect. Closet	Tested	Tested
Panel 15P	Tested	Tested
16 Floor	Tested	Tested
Hallway	Tested	Tested
Contactors: Circulation Pump #16	* Not Tested	Not Tested
Contactors: Restroom Exhaust Fan	Tested	Not Tested
Contactors: Supply Fan #4	* Not Tested	Not Tested
Disconnect: Supply Fan #4	* Not Tested	Tested
Panel 16PW	Tested	Tested
Unmarked Panel	* Tested	Tested
Roof	Tested	Tested
Control Panel: Cooling Tower Water Treatment	Tested	Not Tested
Control Panel: Water Tower	* Tested	* Tested
Disconnect: Splt System Heat Pump	* Not Tested	Not Tested
17 Floor	Tested	Tested
Elevator Machine Room	Tested	Tested
Disconnect: Car #1	Tested	Not Tested
Panel 1	* Tested	Tested
Panel 2	* Tested	Tested
Panel: Unmarked	Tested	Not Tested
Transformer	Tested	Not Tested
2 Floor	Tested	Tested
East Elect. Closet	Tested	Tested
Panel 2LE	Tested	Tested
Parking Structure	Tested	Not Tested
Level 2	Tested	Not Tested
City Clerk Records Vault	Tested	Tested
Panel 2GA	Tested	Tested
Pipe Room	Tested	Not Tested
Panel: Unmarked	Tested	Not Tested
Level1	Tested	Not Tested
Panel: Garage Lvl 1	Tested	Not Tested
Room 220	Tested	Tested
Panel 2LB	Tested	Tested
Room 243	Tested	Tested
Panel 2F	Tested	Tested
West Elect. Closet	Tested	Tested



### Historical Test Status Matrix

Site: Tacoma Municipal Building

Location\Equipment	Insp. #2 01/16/2018	Insp. #1 06/09/2009
	Open Prob Status	Open Prob Status
Panel 2LA	Tested	Tested
Panel 2MDB	Tested	Tested
Feeder: Panel 2LA	Tested	Tested
Feeder: Panel 2LB	Tested	Tested
Feeder: Panel 2P	Tested	Tested
Panel 2P	Tested	Tested
3 Floor	Tested	Tested
East Elect. Closet	Tested	Tested
Panel 3LE	Tested	Tested
Panel 3RE (Caution: No Feet)	* Tested	Tested
Mechanical Room	Tested	Not Tested
Contactor: Exhaust Fan #2	Tested	Not Tested
Disconnect: Exhaust Fan #2	Tested	Not Tested
Starter: Secondary Circulation Water Pump	Tested	Not Tested
Roof	Not Tested	Tested
Chiller CH-1	* Not Tested	Tested
Room 332	Tested	Tested
Panel 3LR	Tested	Tested
West Elect. Closet	Tested	Tested
Panel 3LW	Tested	Tested
Panel 3PW (Caution: No Feet)	* Tested	Tested
Panel 3RW	Tested	Tested
4 Floor	Tested	Tested
East Elect. Closet	Tested	Tested
Panel 4L	Tested	Tested
Panel 4R	Tested	Tested
Mechanical Room	Tested	Not Tested
Starter: Secondary Circulation Water Pump	Tested	Not Tested
Room 444: Management & Budget	Tested	Not Tested
Panel: 4RA	Tested	Not Tested
West Elect. Closet	Tested	Tested
Panel 4P (Caution: No Feet)	* Tested	Tested
5 Floor	Tested	Tested
East Elect. Closet	Tested	Tested
Panel 5L	Tested	Tested
Panel 5R	Tested	Tested
Mechanical Room	Tested	Not Tested
Starter: Secondary Circulation Water Pump	Tested	Not Tested
Room G53: Storage	Tested	Not Tested
Panel: 5	Tested	Not Tested
West Elect. Closet	Tested	Tested
Panel 5P	* Tested	Tested
Panel 5PA	* Tested	Tested
6 Floor	Tested	Tested
East Elect. Closet	Tested	Tested
Panel 6L	Tested	Tested
Panel 6R	Tested	Tested
Mechanical Room	Tested	Not Tested
Starter: Secondary Circulation Water Pump	Tested	Not Tested
West Elect. Closet	Tested	Tested
Panel 6P	* Tested	Tested
7 Floor	Tested	Tested
East Elect. Closet	Tested	Tested
Panel 7L	Tested	Tested
Panel 7R	Tested	Tested
Mechanical Room	Tested	Not Tested
Starter: Secondary Circulation Water Pump	Tested	Not Tested
Room 715: Vending Area	Tested	Not Tested



## Historical Test Status Matrix

Site: Tacoma Municipal Building	Insp. #2 01/16/2018		Insp. #1 06/09/2009	
	Open Prob	Status	Open Prob	Status
Panel: 7RA		Tested		Not Tested
Room 737 Public Works		Tested		Tested
Panel 7PA		Tested		Tested
West Elect. Closet		Tested		Tested
Panel 7P	*	Tested		Tested
8 Floor		Tested		Tested
East Elect. Closet		Tested		Tested
Panel 8L (Caution: No Feet)		Tested		Tested
Panel 8R		Tested		Tested
Mechanical Room		Tested		Not Tested
Starter: Secondary Circulation Water Pump		Tested		Not Tested
West Elect. Closet		Tested		Tested
Panel 8P (Caution: No Feet)	*	Tested		Tested
9 Floor		Tested		Tested
East Elect. Closet		Tested		Tested
Panel 9L (Caution: No Feet)		Tested		Tested
Panel 9R		Tested		Tested
Mechanical Room		Tested		Not Tested
Starter: Secondary Circulation Water Pump	*	Tested		Not Tested
West Elect. Closet		Tested		Tested
Panel 9P (Caution: No Feet)	*	Tested		Tested
Basement		Tested		Tested
Boiler Room		Tested		Tested
Air compressor starter	*	Not Tested		Tested
Disconnect for air compressor	*	Not Tested		Tested
Electrical Boiler	*	Tested		Tested
Panel - Unmarked		Tested		Tested
Starter - Unmarked Right	*	Not Tested		Tested
Starter for HWP 1	*	Not Tested	*	Tested
Starter for HWP2		Tested		Tested
Unmarked Starter		Tested		Tested
Main Elect. Room		Tested		Tested
Disconnect: Panel B4A Telecom Room		Tested		Not Tested
Distribution Switchboard 1		Tested		Tested
Distribution Switchboard 2		Tested		Tested
Distribution Switchboard 3		Tested		Tested
Emergency SWBD		Tested		Tested
Panel B4		Tested		Tested
Panel ED		Tested		Tested
Section 7		Tested		Tested
Section 8		Tested		Tested
SWBD Main Service Disconnect 1		Tested		Tested
SWBD Main Service Disconnect 2		Tested		Tested
McQuay Room		Tested		Tested
MCC-B		Tested		Tested
Supply fan 12	*	Tested	*	Tested
Room B21		Tested		Tested
Panel B1	*	Tested	*	Tested
Panel B2		Tested		Tested
Panel B3		Tested		Tested
Room B8: Maintenance Shop		Tested		Not Tested
Panel: Machine Room		Tested		Not Tested
Panel: Work Benches		Tested		Not Tested
Storage Hallway		Tested		Not Tested
Distribution Switchboard: No. 4		Tested		Not Tested
Distribution Switchboard: No. 5		Tested		Not Tested
Distribution Switchboard: No. 6		Tested		Not Tested
Panel: E		Tested		Not Tested

### Historical Test Status Matrix

**Site:** Tacoma Municipal Building

**Location/Equipment**

	Insp. #2 01/16/2018	Insp. #1 06/09/2009
	Open Prob	Open Prob
	Status	Status
Telecom/Server Room	Tested	Not Tested
Disconnect Breaker: UPS	Tested	Not Tested
Panel: B4A	Tested	Not Tested
Panel: UPS	Tested	Not Tested



## Facility Summary

City of Tacoma  
Tacoma Municipal Building North  
Tacoma Municipal Building North

733 Market Street  
Tacoma, WA 98407

Facility Size - Gross S.F. 41,400  
Year Of Original Construction 1954  
Facility Use Type Office  
Construction Type Heavy  
# of Floors 6  
Energy Source Electric  
Year Of Last Renovation 1995  
Historic Register No



FCI (BMAR/CRV)	0.13	Predicted Renewal Budget (20 yrs)	\$9,755,515
FCI (Bldg OD/CRV)	0.10	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$22,411,000	<b>Building</b>	\$2,142,139
BMAR (Backlog of Maintenance and Repair)	\$3,008,000	<b>Infrastructure</b>	
Beginning Budget Year	2018	<b>Total</b>	
		<b>Opportunity Total Project Cost</b>	\$1,473,585

## Facility Condition Summary

The Tacoma Municipal Building North (TMBN), formerly known as the Center Plaza Building, was constructed in 1954 as a five-story concrete and masonry building with full basement, partial sub-basement, and small elevator core penthouse. In 1995, it was modernized as City office space and was laterally tied into the Tacoma Municipal Building parking structure to the south. This is a modern building with most systems in fair to good condition. HVAC system equipment is soon due for renewal.

# Facility Summary

City of Tacoma  
Tacoma Municipal Building North  
Tacoma Municipal Building North

733 Market Street  
Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1954	1954	3	AA 01/18/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	1954	1954	3	AA 01/18/18	Concrete slab on grade.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1954	1954	3	AA 01/18/18	Concrete basement walls.
<b>B Shell</b>			<b>3.2</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1954	1954	3	AA 01/18/18	Concrete beams and slabs spanning concrete girders and concrete walls and columns.
<b>B1020 Roof Construction</b>	1954	1954	3	AA 01/18/18	Concrete beams and slabs spanning to concrete girders and concrete walls and columns.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1954	1995	4	AA 01/18/18	Concrete exterior walls with exterior finishes including tile, wainscot, precast concrete panels, and dryvit. Chipped concrete at multiple areas; repair damaged concrete.
<b>B2020 Exterior Windows</b>	1954	1995	2	AA 06/11/09	Light framed aluminum with bronze anodized finish, fixed sash, and insulating glass.
<b>B2030 Exterior Doors</b>	1954	1995	3	AA 01/17/18	Caulking at panel joints. Metal joint cover at vertical connection between TMB and TMB North.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					



# Facility Summary

City of Tacoma  
Tacoma Municipal Building North  
Tacoma Municipal Building North

733 Market Street  
Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.2</b>		
<b>Roofing</b>					
	1954	1995	3	AA 01/17/18	Built-up roofing system with granular cap sheet.
<b>B3030 Projections</b>	1954	1995	3	AA 01/17/18	3' High parapet with counter-flashing and cap flashing.
<b>C Interiors</b>			<b>2.1</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>					
	1954	1995	2	AA 01/17/18	Framed partitions with gypsum wall board and some clay tile walls with plaster at mechanical and core areas. 4th floor TI (2015).
<b>C1020 Interior Doors</b>					
	1954	2015	2	AA 01/17/18	Solid core veneer wood doors in welded hollow metal frames. 4th floor TI (2015).
<b>Staircases</b>					
<b>C2010 Stair Construction</b>					
	1954	1954	2	AA 01/17/18	Concrete poured-in-place stairways.
<b>C2020 Stair Finishes</b>					
	1954	1954	2	AA 01/17/18	Exposed concrete except at 1st floor which has marble surfacing.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>					
	1954	1995	3	AA 01/17/18	Painted gypsum wallboard typical with selected area of vinyl covering (hallways), ceramic tile wainscots at restrooms, marble 1st floor hallway, and acoustical wall fabric at selected areas.
<b>C3020 Floor Finishes</b>					
	1954	1995	2	AA 01/17/18	Carpeting typical throughout. Vinyl composition tile at main areas of the basement and at staff break areas, and marble cladding at 1st floor elevator lobby.

# Facility Summary

City of Tacoma  
 Tacoma Municipal Building North  
 Tacoma Municipal Building North

733 Market Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			2.1		
<b>Interior Finishes</b>					
<b>C3030 Ceiling Finishes</b>	1954	1995	2	AA 01/17/18	2x4 lay-in acoustical tile ceiling system.
<b>D Services</b>			2.7		
<b>Vertical Transportation</b>					
<b>D1010 Elevators and Lifts</b>	1954	1995	3	DCS 01/17/18	Two original (1954) Westinghouse overhead traction elevators with 25-hp motors in penthouse EMR with only natural ventilation cooling. Controls replaced in 1995 modernization with Montgomery. Remaining life on control and cab finishes estimated at 5 to 10 years with continued minimal use and good maintenance.
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1954	1995	2	DCS 01/17/18	Various porcelain, stainless steel and tile fixtures are in fair to good condition with no issues reported; some trim with minor wear. Drinking fountains in hallway and kitchenettes in TI spaces.
<b>D2020 Domestic Water Distribution</b>	1954	1995	2	DCS 01/17/18	Domestic water distribution is copper. The main water entrance is galvanized steel. Three newer electric tank-type A.O. Smith DHW heaters with recirc pump(s). No issues reported, however bottled water is in use by occupants.
<b>D2030 Sanitary Waste</b>	1954	1995	2	DCS 01/17/18	Cast iron DW&V piping - tested fixtures flush & drain well; no issues reported.
<b>D2040 Rain Water Drainage</b>	1954	1995	3	DCS 01/17/18	Internal roof drains to storm with overflow scupper through parapet. Standing water in several locations due to poor roof slope, not drains.

## HVAC

## Facility Summary

City of Tacoma  
Tacoma Municipal Building North  
Tacoma Municipal Building North

733 Market Street  
Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			2.7		
<b>HVAC</b>					
<b>D3010 Energy Supply</b>	1954	1995	3	DCS 01/17/18	Rooftop black-iron gas pipe from meter at grade up to two furnaces at roof - piping is rusting; opportunity to clean & preserve for 5 to 10 years additional life, but should be replaced upon furnace replacement.
<b>D3020 Heat Generating Systems</b>	1954	1995	4	DCS 01/17/18	Two large gas-fired furnaces approaching end of life.
<b>D3040 HVAC Distribution Systems</b>	1954	1995	4	DCS 01/18/18	Traditional commercial office building VAV system with two Trane SXHFC7060 rooftop packaged AHUs with on-board fans and Dx-cooling, but off-board gas furnace pre-heat. AHU-1 appears to serve west and AHU-2 east half of building. Supply and return air duct mains run across roof then down to each floor via a scabbed-on chase on north side of building which is beginning to fail - the chase houses the east & west VAV supply air ducts and doubles as the return air path from the open ceiling plenum return via smoke/fire damper at each floor. Fan-powered VAVs with electric resistance reheat coils serve each zone in the TI spaces. General exhaust for toilet rooms. New dedicated systems for new (2017) basement Fitness Center.
<b>D3050 Terminal and Package Units</b>	1954	1995	3	DCS 01/17/18	Vari-Trane fan-powered VAV boxes with electric resistance reheat. Too cold complaints at toilet rooms.
<b>D3060 Controls and Instrumentation</b>	1954	2015	2	DCS 01/17/18	Recently (estimate 2015) upgraded DDC controls with no issues reported; includes CO2 monitoring and maybe control.
<b>D3090 Other HVAC Systems and Equipment</b>	1954	1995	4	DCS 01/17/18	Recently installed laundry in sub-basement mechanical room exhausts to space increasing humidity.

# Facility Summary

City of Tacoma  
 Tacoma Municipal Building North  
 Tacoma Municipal Building North

733 Market Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			2.7		
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>					
	1954	1995	2	DCS 01/17/18	Wet pipe fire sprinkler throughout with riser in sub-basement location, gauge shows 130 psig City water pressure. Service is 4-inch from City and 4-inch from FDC at west (Market) all at grade above. No issues reported.
<b>D4020 Stand-Pipe and Hose Systems</b>					
	1954	1995	2	DCS 01/17/18	One standpipe at SE stairwell with hose connections at each floor; no issues reported; however standpipe at roof is rusting, poorly supported and complicates repairing roof leak at this location.
<b>D4030 Fire Protection Specialties</b>					
	1954	1995	3	DCS 01/17/18	Fire extinguishers in cabinets and AEDs also in cabinets; first aid kits not observed; but no issues reported.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	1954	1995	2	DCS 01/17/18	MSB is 120/208V, 3 phase with 2,000A capacity. Distribution panels are Square D in stacked core electrical rooms with no issues reported.
<b>D5020 Lighting and Branch Wiring</b>					
	1954	1995	2	DCS 01/17/18	Mostly T8 fluorescent with mix of 1995 and some newer fixtures, but mostly 2x4 lay-in. Some CFL recessed can lighting and others at some common areas. Controls are mostly manual. Receptacles are located in walls, at outside wall surface-mounted raceway, in walker-duct floor and in some area through powered modular furniture. All with no issues reported, but opportunities to upgrade to LED and automatic controls.
<b>D5032 Low Voltage Communication</b>					
	1954	1995	3	DCS 01/18/18	Avaya phone and other comm systems with no issues reported.
<b>D5037 Low Voltage Fire Alarm</b>					
	1954	2015	2	DCS 01/18/18	Modern Gamewell FACP and system.

# Facility Summary

City of Tacoma  
 Tacoma Municipal Building North  
 Tacoma Municipal Building North

733 Market Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.7</b>		
<b>Electrical</b>					
<b>D5037</b>	<b>Low Voltage Fire Alarm</b>				
<b>D5038</b>	<b>Low Voltage Security</b>	1954	1995	3	DCS 01/18/18 Mix of older (1995) and newer card-key access; some CCTV; all with no issues reported.
<b>D5039</b>	<b>Low Voltage Data</b>	1954	2010	3	DCS 01/18/18 High-speed fiber back-bone to comm closet equipment at each floor with no issues reported.
<b>D5090</b>	<b>Other Electrical Systems</b>	1954	1995	3	DCS 01/17/18 Battery exit signs and unclear egress lighting.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010</b>	<b>Commercial Equipment</b>	1954	1995	3	DCS 01/17/18 Kitchen appliances at kitchenettes and residential laundry washer & dryer at sub-basement with no issues reported.
<b>E1020</b>	<b>Institutional Equipment</b>	1954	1995	1	DCS 01/18/18 Gym equipment in new complete basement fitness center.
<b>Furnishings</b>					
<b>E2010</b>	<b>Fixed Furnishings</b>	1954	1995	3	DCS 01/17/18 Plastic laminate-faced casework at breakrooms and reception counters. Most casework in fair to good condition with just minor work needed for all to be good.

# Facility Summary

City of Tacoma  
Tacoma Municipal Building North  
Infrastructure

733 Market Street  
Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2020 Parking Lots</b>	1954	1995	3	AA 01/18/18	Parking is street frontage (asphalt surface) with concrete curbs.
<b>G2030 Pedestrian Paving</b>	1954	1995	3	AA 01/18/18	Concrete sidewalks.
<b>G2040 Site Development</b>	1954	1995	3	AA 01/18/18	Concrete and modular block retaining walls. Metal railings on wall. Brick pavers and gravel areas in plaza area. Appears to be relatively new construction.
<b>G2050 Landscaping</b>	1954	1995	3	AA 01/18/18	Shrubs, trees - appears to be relatively new construction.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1954	1995	3	DCS 01/18/18	City water from vault at market to west with no issues reported.
<b>G3020 Sanitary Sewer</b>	1954	1995	3	DCS 01/18/18	City sewer assumed gravity draining to St. Helens to east with no issues reported.
<b>G3030 Storm Sewer</b>	1954	1995	3	DCS 01/18/18	Roof drains assumed to City storm at St. Helens to east with no issues reported.
<b>G3060 Fuel Distribution</b>	1954	1995	2	DCS 01/18/18	Modern PSE rotary natural gas service at NW corner of Bldg supplying rooftop HVAC system furnaces; capacity estimated at several thousand cfh (several million btuh).
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1954	1995	2	DCS 01/18/18	Tacoma Power underground from vault at St. Helen to basement main electrical room with no

# Facility Summary

City of Tacoma  
Tacoma Municipal Building North  
Infrastructure

733 Market Street  
Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

##### G4010 Electrical Distribution

issues reported.

##### G4020 Site Lighting

1954 1995 3

DCS 01/18/18

Just one wall-mounted sealed T8 fixture above north outside door; no issues reported - most site lighting is from City street lights.

##### G4030 Site Communications and Security

1954 1995 2

DCS 01/18/18

Telecom services underground from purveyors at St. Helens to east.





## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Tacoma Municipal Building North

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Tacoma Municipal Building North	Exterior Closure	\$250,000	\$62,500	\$62,500	\$206,250	\$581,250
	Roofing	\$165,600	\$41,400	\$41,400	\$136,620	\$385,020
	Interior Finishes	\$368,250	\$92,063	\$92,063	\$303,806	\$856,181
	Vertical Transportation	\$7,500	\$1,875	\$1,875	\$6,188	\$17,438
	Plumbing	\$25,000	\$6,250	\$6,250	\$20,625	\$58,125
	HVAC	\$105,000	\$26,250	\$26,250	\$86,625	\$244,125
	<b>Facility Total</b>	<b>\$921,350</b>	<b>\$230,338</b>	<b>\$230,338</b>	<b>\$760,114</b>	<b>\$2,142,139</b>
	<b>Site Total</b>	<b>\$921,350</b>	<b>\$230,338</b>	<b>\$230,338</b>	<b>\$760,114</b>	<b>\$2,142,139</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

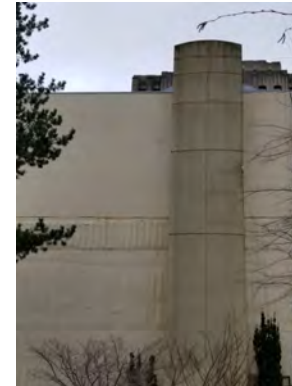
City of Tacoma  
 Site: Tacoma Municipal Building North

Total Observed Deficiency Repair Direct Cost : \$921,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Tacoma Municipal Building North					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$250,000
System: Exterior Closure					Total System Deficiency Repair Cost (Marked Up):				\$581,250
<b>Exterior Walls</b>									
Paint	4	5	2018		50,000	\$5.00	SF	\$250,000	\$581,250

Water is seeping into the tile-wainscot causing grouting issues. Paint on the exterior wall surfaces starting to wear. Also, shades of some parts of the exterior dryvit appear dark-brown due to weatherization.

Pressure wash cementitious (dryvit) fascia, repair and paint the walls. Grout tiles as necessary. Also, redo window seals as necessary.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma

Total Observed Deficiency Repair Direct Cost : \$921,350

Site: Tacoma Municipal Building North

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Tacoma Municipal Building North</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$165,600</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$385,020</b>
<b>Roof Coverings</b>									
Built-Up Roof	4	5	2018		41,400	\$4.00	SF	\$165,600	\$385,020

The built-up roofing is losing its granules and there are some water ponding.

Sno-coat over existing roofing to extend the life.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

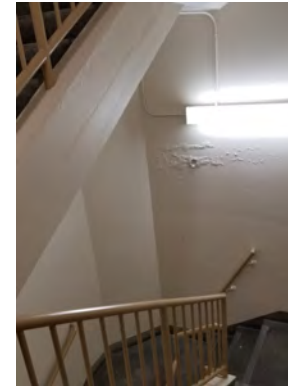
City of Tacoma  
 Site: Tacoma Municipal Building North

Total Observed Deficiency Repair Direct Cost : \$921,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Tacoma Municipal Building North					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$368,250
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$856,181
<b>Wall Finishes</b>									
Paint	4	5	2018		5,000	\$3.00	SF	\$15,000	\$34,875

Water damaged wall finish in the egress stair.

Sand-bubble deteriorating surfaces smooth, clean, and paint the walls.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Tacoma Municipal Building North

Total Observed Deficiency Repair Direct Cost : \$921,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Tacoma Municipal Building North</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$368,250</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$856,181</b>
<b>Floor Finishes</b>									
Carpeting	3	5	2018		19,500	\$7.50	SF	\$146,250	\$340,031

At the 5th, 3rd 1/2 of 2nd, and 1st floors the 15 year old carpeting is worn in heavy traffic areas, has bad seams in areas, patched where walls have been removed, and stained in some areas.

Replace existing carpeting with new carpeting.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

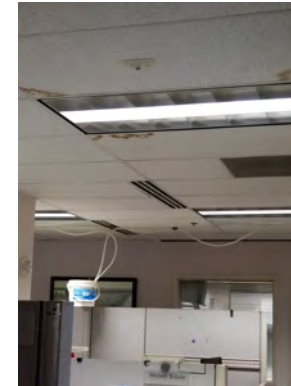
City of Tacoma  
 Site: Tacoma Municipal Building North

Total Observed Deficiency Repair Direct Cost : \$921,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Tacoma Municipal Building North</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$368,250</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$856,181</b>
<b>Ceiling Finishes</b>									
Acoustic Tile	4	4	2018		41,400	\$5.00	SF	\$207,000	\$481,275

Some acoustic tiles are discolored, have cracks, and show evidence of water intrusion.

Install new ceiling tiles.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Tacoma Municipal Building North

Total Observed Deficiency Repair Direct Cost : \$921,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: Tacoma Municipal Building North				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$7,500	
System: Vertical Transportation				Total System Deficiency Repair Cost (Marked Up):					\$17,438	
<b>Elevators and Lifts</b>										
Elevator Machine Room Cooling	5	0	2018		1	\$7,500.00	LS	\$7,500	\$17,438	

No mechanical cooling for EMR.

Install cooling per code.





# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Tacoma Municipal Building North

Total Observed Deficiency Repair Direct Cost : \$921,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Tacoma Municipal Building North</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$25,000</b>	
<b>System: Plumbing</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$58,125</b>	
<b>Domestic Water Distribution</b>										
Domestic water piping	4	3	2018		1	\$25,000.00	LS	\$25,000	\$58,125	

Galvanized service entry and possible other runs of piping with bottled water used throughout.

Replace remaining original galvanized pipe with copper.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Tacoma Municipal Building North

Total Observed Deficiency Repair Direct Cost : \$921,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility:</b> Tacoma Municipal Building North									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$105,000</b>	
<b>System:</b> HVAC									<b>Total System Deficiency Repair Cost (Marked Up): \$244,125</b>	
<b>Heat Generating Systems</b>										
Furnaces	4	5	2018		2	\$20,000.00	EA	\$40,000	\$93,000	

Furnaces approaching end of life.

Budget for replacement prior to failure.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma

Total Observed Deficiency Repair Direct Cost : \$921,350

Site: Tacoma Municipal Building North

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Tacoma Municipal Building North</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$105,000</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$244,125</b>
<b>HVAC Distribution Systems</b>									
AHUs	4	3	2018		2	\$20,000.00	LS	\$40,000	\$93,000

Aging AHUs due for refurbishment to extend life 10 to 15 years.

Refurbish AHUs to extend life until change to different type of HVAC system upon next building-wide modernization.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Tacoma Municipal Building North

Total Observed Deficiency Repair Direct Cost : \$921,350

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost		
				Action							
<b>Deficiency</b>											
Facility: Tacoma Municipal Building North									Total System Deficiency Repair Cost (Undiscounted/Unescalated):		\$105,000
System: HVAC									Total System Deficiency Repair Cost (Marked Up):		\$244,125
<b>Terminal and Package Units</b>											
Terminal units	4	3	2018		50	\$500.00	EA	\$25,000	\$58,125		

Aging FPVAVs with some controls beginning to fail.

Refurbish FPVAV boxes before failure.



## Opportunity Summary By Subsystem

City of Tacoma

Site: Tacoma Municipal Building North

Total Site Opportunity Cost: \$758,800

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Infrastructure</b> <b>System: Site Civil / Mechanical Utilities</b> <span style="float: right;"><b>Total Cost: \$125,000</b></span>						
G3040	Heating Distribution	No central plant.	1.00	\$100,000.00	LS	\$100,000
		Establish central plant to serve TMB campus (TMB, TMBG & TMBN) - this cost to tie-into plant at TMB.				
G3060	Fuel Distribution	Apparent surplus meter capacity.	1.00	\$25,000.00	LS	\$25,000
		Extend surplus capacity to TMB such as for gas-furnace instead of electric pre-heat at penthouse rooftop air handling unit.				
<b>Facility: Tacoma Municipal Building North</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$270,000</b></span>						
D3020	Heat Generating Systems	Standard efficiency furnace.	2.00	\$5,000.00	EA	\$10,000
		Upgrade to high-efficiency upon replacement; this Opportunity is additional cost beyond base cost for high-efficiency.				
D3040	HVAC Distribution Systems	HVAC AHUs approaching end of life in 5 years or 10 to 15 years with life extension and ugly, inefficient ductwork on roof and failing north scab-on duct chase to north.	1.00	\$250,000.00	LS	\$250,000
		Expand core adjacent to existing stacked kitchenette & comm closet area toward middle of building; alternately at elevator & toilet room core to eliminate rooftop duct work and demolish the north scab-on chase.				
D3050	Terminal and Package Units	No heat at toilet rooms.	10.00	\$1,000.00	EA	\$10,000
		Install electric wall heaters.				
<b>Facility: Tacoma Municipal Building North</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$363,800</b></span>						
D5020	Lighting and Branch Wiring	Mostly manual lighting controls.	41,400.00	\$2.00	SF	\$82,800
		Upgrade to mostly automatic lighting controls.				

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Tacoma Municipal Building North

Total Site Opportunity Cost: **\$758,800**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
D5037 Low Voltage Fire Alarm	Mostly fluorescent lighting.	Upgrade to LED lighting.	41,400.00	\$4.00	SF	\$165,600
D5090 Other Electrical Systems	Little or no detection in TI space.	Upgrade to full detection.	40,400.00	\$1.00	SF	\$40,400
	No standby generator.	Install approximately 100 kW standby generator or tie-in to TMB system.	1.00	\$75,000.00	LS	\$75,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Introduction

# Thermal Trend - Lean DB Report

## The Colbert Advantage - Exceptional Execution

### *30 years of exceeding your expectations!*

Colbert Infrared has been providing complete corporate solutions for Infrared Predictive Maintenance Programs, addressing the needs for professional Risk Assessment / Loss Prevention for more than 30 years. From Infrared inspections, Training and Certification, Infrared Camera Sales and installations, or helping you to setup and establish your own Predictive Maintenance programs, we have been right by your side.

We are your global partner for keeping your systems up and running, safely and efficiently. We service national and international companies all over the world, whether they have a single site, or thousands of locations. Our focus has always been on providing the highest quality solutions, with our emphasis on the standardization of services, and highly valuable information. When it comes to the philosophy of our services, we believe that "quality can never be compromised at any price".

Colbert Infrared Services, Inc. pioneered and developed the philosophy of **LEAN IR PREDICTIVE MAINTENANCE** and **LEAN IR Programs** to provide our clients with unsurpassed diagnostic services. This is based on our success with the design and use of the **Thermal Trend - Lean DB** database system. Colbert Infrared Services introduced the Thermal Trend - Lean RDBMS to the predictive maintenance community over 25 years ago to address the concerns of risk managers and maintenance staff - consistency of inspection quality and reporting / problem management. Today this "**Colbert Advantage**" has allowed us to be recognized as being the premier IR consulting company world wide, as well as the most influential in the industry.

The Thermal Trend - Lean report that you have in front of you, and the data collection methods that Colbert Infrared has used to gather and analyze your data is the result of over 25 years of development. The following discussions in this Intent section will provide you with an overall understanding of the testing methods that we have developed. Today the principles that Colbert Infrared has developed, are the most studied and followed testing methods in the world! Colbert Infrared Services, Inc. is at the heart of the world's largest in-house Infrared PdM programs. (Boeing, Ford, Harley-Davidson). We are very proud of the leadership position that we have in our industry and take that responsibility very seriously. We have always been committed to providing the most superior quality services with the highest value possible. Our focus has always been in exceptional execution at exceeding your expectations.

The Colbert Infrared Advantage

*We want your business, and we've been working hard for 30 years to earn it!*

### **Fred Colbert**

Fred Colbert  
President CIS, Inc.  
Certified Level III Infrared Thermographer and Instructor



## Introduction

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The Colbert Advantage - Exceptional Execution

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Our Approach to Thermography

Testing Methodology

Standards and Regulations covering the conduction of Infrared electro-mechanical inspections

**\*Please Note:** Depending on the type of inspection, and the items that were documented, will determine the specific sections that are included in this report. For example: if no Thermal Items / anomalies were found at the time of the inspection, then there will not be a Prioritized List by Temperature Rise, or a Thermal Item Details section. This also holds true depending on what the scope of work was to be, for example if this inspection was to cover only a thermographic inspection of electrical-mechanical equipment, then there will not be sections covering Ultrasonic or Ultraviolet inspection results. For this reason, the specific report sections and the Table of Contents when compared to each other may seem incomplete, but it is only because of the scope of work and the actual data that was documented at the time of the inspection that defines how much of the inspection results sections are included in this report.





Infrared Thermographic Inspection  
 Of  
 Selected Electro-Mechanical Equipment

Provided For  
 Tacoma Municipal Building North  
 01/17/2018

**Summary:**

An Infrared Electrical / Mechanical inspection was performed on 01/17/2018 for Tacoma Municipal Building North

All of the items inspected are listed in the inventory section of this Thermal Trend report. Any anomalies that were found at the time of the inspection (if any) are documented in the Problem Detail section of this report with their appropriate associated data, i.e. Thermograms, Photos, comments, measurements, etc.. They are also listed in the Prioritized list of problems section, in their order of priority based on the components temperature rise, as compared to a similar reference component of equal type, loading, and environmental influences, at the time of the inspection.

The final decision as to the repair priority of any and all problems in this report rests on the owners, management, and/or facilities engineering teams. Colbert Infrared Services, Inc. and the IR Thermographer assumes no liability directly or indirectly as a result of this inspection or the decisions made as to establishing the priority and timeline of repair decisions made by the owners, management, and/or facilities engineering teams. This inspection is not a guarantee or warranty of any kind.

**Executive Overview - for Thermal Items:**

Total number of locations in the database:	10
Total number of pieces of equipment in the database:	19
Total number of Items (open and closed covering all inspections) in the database	
Acute Items:	0
Chronic Items:	0
<b>Overall total of all acute and chronic:</b>	<b>0</b>
Current status of Items, acute and chronic	
Total closed Items (covering all inspections):	0
<b>Current total open Items (tested or not tested at the time of this inspection):</b>	<b>0</b>

I hereby certify that the above project was inspected by myself or under my direction and that the enclosed data is the direct result of this inspection.

**Fred Colbert**

President CIS, Inc.

Certified Level III Infrared Thermographer / Instructor: The Professional Thermographers Association



## Historical Test Status Reconciliation of Locations and Equipment, Thermal and Visual Items

Site: Tacoma Municipal Building North	Insp. #2 01/17/2018	Insp. #1 06/10/2009
Locations: Tested	10	10
Locations: Not-tested	0	0
Equipment: Tested	19	17
Equipment: Not-tested	0	2
Total No. of open Thermal and Visual items (tested or not)	1	1
Total No. of documented Thermal and Visual items this insp.	1	0
Total No. of open Thermal and Visual items	1	1
No. of Thermal items that were closed	0	0

### Data Explanation

#### Locations and Equipment:

Locations refer to places in a route where equipment is located. For example: a Building, Floor, Room, Substation or Area can all be considered locations. The same can be said for a large Switchboards, Motor Control Centers, Distribution Panel, etc.. In each of the examples they would be considered the path to, or the location of where equipment is grouped based on its geographical location.

#### Tested and Not-Tested:

Refers to if the equipment/location, where the equipment is located, was inspected using Infrared Thermography / Visual inspection testing procedures at the time of the inspection. If the equipment was tested, it should not be considered a pass/fail test, but that the equipment was merely "Tested" versus "Not-Tested" at the time of the inspection. There are many factors that can contribute to the conditions under which the equipment can be tested (load, environment, length of time running) that must be taken into consideration, as well as many reasons as to why the equipment was not able to be tested (under repair, not in service, no load).

#### Open and Closed Items:

Refers to the Item status, as in if it has been resolved or not (fixed/repaired and re-inspected to determine that the validity of the repair action).

Visual Problem List

Site: Tacoma Municipal Building North

Inspection # 2

---

**Problem # 1**

**Barcode:** 10AHQ0

**Severity Code:**

**Location:** Roof

**Equipment:** RTU2

**Description:** All 3 Line Side Phases are lacking Washers at Lug Connections

**Picture:** afae6fa5-019f-42d6-8dba-2334e887a86c.idn

---



### Visual Problem Details Report

**Site:** Tacoma Municipal Building North

**Problem Status:** OPEN 🚫

**Location:** Roof

**Equipment:** RTU2

**IDN File:** afae6fa5-019f-42d6-8dba-2334e887a86c.idn

**Severity:**

**Work Order #:**

<b>Inspection#:</b> 2	<b>Problem#:</b> 1
<b>Prob Date&amp;Time:</b>	01/17/2018 13:30
<b>Barcode:</b>	10AHQ0
<b>AssetID:</b>	



**Description:** All 3 Line Side Phases are lacking Washers at Lug Connections

**Probable Cause:**

**Recommendation:** install washers

**Historical Sub Report**

Inspection Prob#	Date	Sev.Code
2	1	01/17/2018

Problem Status:	<input type="checkbox"/> Not repaired	<input type="checkbox"/> Repair made, but needs IR recheck	<input type="checkbox"/> Closed
Repair assigned to:	Repair target date:		
Repair assigned by:	Date:		
Repaired by:	Date:		
Type of defect found:			
Corrective action taken:			



### Inspection Notes List

Site: Tacoma Municipal Building North

Inspection # 2

Date:

---

Inspection Note # 1	Barcode: 107ALY	Asset ID:	Severity Code:
---------------------	-----------------	-----------	----------------

**Date-Time:** Jan 17 2018 1:52PM

**Location:** 3 Floor Electrical Room

**Equipment:** Panel L3

**Test Status:** Tested

**Description:** Main Inoming Lines, Unbalanced Load, A=14, B=30, C=22

Notes:

---



### Historical Test Status Matrix

Site: Tacoma Municipal Building North

Location/Equipment	Insp. #2	Insp. #1		
	01/17/2018	06/10/2009		
	Open Prob	Status	Open Prob	Status
1 Floor		Tested		Tested
Storage Room 14		Tested		Tested
Panel L1		Tested		Tested
Panel L1H		Tested		Tested
2 Floor Electrical Room		Tested		Tested
Panel L2		Tested		Tested
Panel L2H		Tested		Tested
3 Floor Electrical Room		Tested		Tested
Panel L3	*	Tested		Tested
Panel L3H		Tested		Tested
4 Floor Electrical Room		Tested		Tested
Panel L4		Tested		Tested
Panel L4H		Tested		Tested
Panel L5		Tested		Tested
Panel L5A		Tested		Tested
Basement		Tested		Tested
Sprinkler Room		Tested		Tested
Disconnect: Hot Water Heater (left)		Tested		Not Tested
Disconnect: Hot Water Heater (right)		Tested		Not Tested
Panel LB		Tested		Tested
Storage B1		Tested		Tested
Panel B1		Tested		Tested
Panel B2		Tested		Tested
SWBD		Tested		Tested
Roof		Tested		Tested
Elevator Machine Room		Tested		Tested
Panel 3		Tested		Tested
RTU1		Tested		Tested
RTU2	*	Tested		Tested







City of Tacoma  
2018 Facility Condition Assessment  
*Public Works Facilities Report*

Prepared By:



September 28, 2018







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## Overview of Condition Assessment

### Background

The City's assets are the foundation of the valuable services the City provides to residents and they represent a significant investment. Effective asset management is required to maintain service levels and for long-term fiscal sustainability. Effective asset management is also a good investment in itself, as proper management and stewardship can slow the deterioration of assets, resulting in cost savings.

Effective Asset management generally includes a number of components.

- Assets need to be continually assessed so there is up to date information on their status.
- The information is used to determine needed maintenance and to mitigate issues.
- Each asset should have a plan that addresses its needs for its entire life, including its replacement, inspections, and maintenance.
- There should be a system in place to prioritize asset care and the allocation of limited resources.

To support the City of Tacoma in asset management, capital planning & budgeting efforts, MENG Analysis was contracted to complete a thorough Facility Condition Assessment (FCA) of City-owned General Government (non-enterprise/ non-utility) facilities and sites. The MENG Analysis team reviewed existing operation and maintenance information, conducted field investigations to identify Observed Deficiencies (ODs), developed cost estimates for ODs, and used customized cost models to predict future capital costs over a 20-year horizon (Predicted Renewals or PRs). The team also made note of "Opportunities" to improve the user experience, save energy, and increase system and building longevity.

The following lists the Public Works facilities surveyed during this project:

Site	Address	Square Feet	Year Constructed / Last Renovation
Cavanaugh Building	1423 Puyallup Ave	24,200	1951
Grounds Maintenance & Sign Shop	2308 S. Holgate St.	28,600	1900 / 1949
Streets Operation Bldg.	2324 So. C St.	27,340	1909
Asphalt Plant	3010 Center Street	2,350	1987
Traffic Signal Shop	3401-A So. Orchard St.	12,000	1983

The projected costs identified in this report are budgetary in nature and portray a rough order of magnitude for the work based on information available. Information at this budgetary level is often not complete and would require design level investigation to fully realize accurate scope and cost. Identified costs are intended to provide a consistent overview of the needs of City-owned facilities to be compared across the subject portfolio.

## Facility Survey Methodology

The methodology for the City of Tacoma FCA started with an initial review of previous records and drawings. An operations and maintenance questionnaire was completed by City staff followed by an O&M workshop to gather additional information.

This preparation stage was followed by eight weeks of on-site field surveys conducted by technical experts who reviewed civil, structural, architectural, mechanical, electrical, plumbing, and site infrastructure systems to a Uniformat II, level 3 detail. The facility surveys were facilitated by an FCA Team Leader to maintain consistency in evaluation, survey forms, condition ratings and system categorization.

Each team member used survey forms to document the apparent facility conditions including:

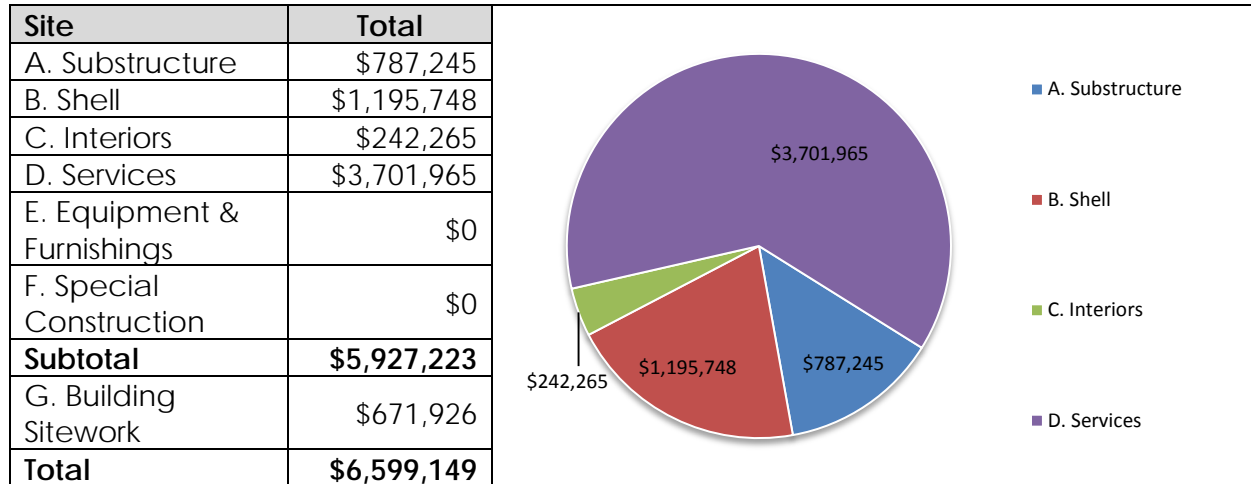
- I. Describing the nature of facility systems per Uniformat II,
- II. Determining the overall condition score of building elements,
- III. Identifying major maintenance deficiencies greater than \$5,000 (direct cost) that are likely to be required for immediate major maintenance repairs (2018), plus the next 5-year period (2019-2023)
- IV. Documenting specific deficiencies of systems with narrative as well as budgetary level cost estimates to repair or replace deficiencies
- V. The survey team also documented specific opportunities for upgrades that will increase facility performance. These items are not required.

## Observed Deficiencies (ODs), 2018-2023

Observed Deficiencies are based on known conditions that are witnessed by or disclosed directly to the field surveyors and are generally the best short-term planning tool. The MENG Analysis team uses the Uniformat II system to organize cost estimates for system repairs or replacements. OD estimates include direct costs plus typical construction markups as well as project development markups (design, permitting, management, etc.). ODs are intended as “like” replacements and do not address level-of-service enhancements and/or programmatic building changes or code required upgrades. The following table summarizes the estimated cost for 2018-2023 Observed Deficiencies at each Public Works facility:

<b>Site</b>	<b>Building Systems</b>	<b>Building Sitework</b>	<b>Total</b>
Cavanaugh Building	\$450,120	\$232,500	<b>\$682,620</b>
Grounds Maintenance & Sign Shop	\$4,336,824	\$165,076	<b>\$4,501,900</b>
Streets Operations Bldg.	\$960,789	\$111,600	<b>\$1,072,389</b>
Asphalt Plant	\$84,165	\$162,750	<b>\$246,915</b>
Traffic Signal Shop	\$95,325	\$0	<b>\$95,325</b>
<b>Total</b>	<b>\$5,927,223</b>	<b>\$671,926</b>	<b>\$6,599,149</b>

The following table and chart summarize the Observed Deficiencies for all Public Works by major building element:



- (i) Shell includes floor/roof construction, exterior walls, windows/doors, and roofing.
- (ii) Services includes elevators, plumbing, HVAC, fire protection & electrical.

The following summarizes the general findings of the Public Works based on the Observed Deficiencies:

- **Substructures:** Grounds and Maintenance critically needs attention. The vehicle access ramp is failing and closed in some areas. The basement vault structural reinforcing has failed. The area needs to be rebuilt or filled in. Cavanaugh Building needs a full structural evaluation. Building is beyond visual inspection.
- **Shell:** Grounds and Maintenance is the most deteriorated shell of the group. Reinforcing is showing and rusting in many areas. Windows, doors, exterior appearance and roofing all need to be addressed. Asphalt plant needs roof attention and siding repair and paint. Streets and grounds need windows and seismic bracing of the chimney. Sign shop needs roof maintenance. The traffic signal shop had a flood and is believed to have been caused by lack of foundation. A waterproofing system should be considered.
- **Interiors:** The interiors of the building are based on high durability, functional finishes. They are dated and worn and some components need immediate attention as they have failed. The traffic signal shop had a water damage incident that has not fully been restored. Streets and Grounds offices should be considered for a finish upgrade that includes the protection of historical building features.
- **Services:**
  - **Heating Ventilation & Air Conditioning (HVAC):** The furnace is failing at the asphalt plant. HVAC systems throughout this group are averaged at over 25 years old and improvements completed have been done on an emergency basis.

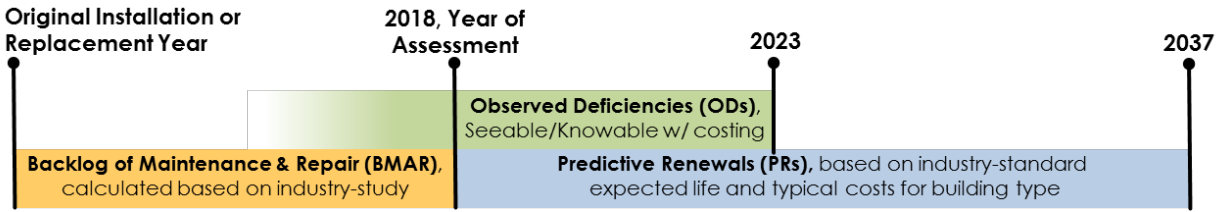
- **Plumbing:** The plumbing systems are functional but there is evidence of corrosion in the piping and fixtures are outdated and inefficient.
  - **Electrical:** Power distribution limited in most areas with evidence of old cloth style wiring. Lighting controls are aging and beginning to fail. Code compliant service and subpanel evaluation is recommended.
  - **Fire protection:** The Grounds Maintenance, Signal Shop and the Street Operations buildings have sprinkler systems. Grounds and Maintenance was inspected in 2012 when the roof reconstruction occurred, however has been noted to have lingering issues. The asphalt plant and Cavanaugh building are protected with fire extinguishers.
- **Equipment and Furnishings:** Most buildings have residential grade kitchenette/breakroom and laundry appliances in working condition. Building specific shop equipment is aged, but working with no issues reported.
  - **Sitework:** Site infrastructure is condition it mixed upon facilities. Street Operations sidewalks are cracked and heaved causing tripping hazards and lack of ADA compliance. Cavanaugh building has no storm water management and water is continuing to deteriorate the exterior base and foundations. Grounds Maintenance has series of issues with regards to failing retaining walls, proximity to overhead power lines, site lighting and cracked and ponding asphalt. The Asphalt plant needs some parking lot repair, topping and striping.

### Supplemental Cost Models

In addition to estimated Observed Deficiencies, MENG Analysis has developed two supplemental models summarized below. It is important to clarify that these calculations are independent of the estimated cost calculated for short-term Observed Deficiencies.

- **Backlog of Maintenance and Repair (BMAR):** The BMAR is an estimate from original construction to present day, of what should have been spent to bring the facility up to good condition based on current observed condition by the surveyors. This is a parametric calculation derived from a statistical industry study. The BMAR is generally defined as the amount of work required to adequately maintain facilities and related infrastructure for the current use that should have been accomplished, but for a variety of reasons has not.
- **Predicted Renewals (PRs):** PRs predict future capital costs over a 20-year horizon (2018-2037). They are based on predictive models that use industry-standard expected life data, combined with original construction or remodel dates as well as system scores from surveyors to estimate when a system will require renewal. Unit costs in the models are updated on a yearly basis and adjusted to our specific northwest region. Similar projects that have been estimated and managed by the team were also referenced against the modeled costs for additional verification of recent costs if they were available.

The following graphic and table summarize the supplement cost model information:



Site	Backlog of Maintenance & Repair (BMAR)	Predicted Renewal (PRs)	Total
Cavanaugh Building	\$2,683,000	\$3,745,000	\$6,428,000
Grounds Maintenance & Sign Shop	\$2,683,000	\$5,477,000	\$8,160,000
Streets Operations Bldg.	\$1,495,000	\$5,072,000	\$6,567,000
Asphalt Plant	\$147,000	\$517,000	\$664,000
Traffic Signal Shop	\$594,000	\$1,937,000	\$2,531,000
<b>Total</b>	<b>\$7,602,000</b>	<b>\$16,748,000</b>	<b>\$24,350,000</b>

As previously noted ODs are based on visual observation and are independent of the modeled costs for BMAR and PRs.

### Facility Condition Index (FCI)

A Facility Condition Index (FCI) calculation is an industry standard used for benchmarking and evaluating the relative condition of a portfolio of facility assets over time. There are a number of different methods used by various organizations to calculate the condition index that best fits their particular portfolio. For this reason, using FCIs to compare the City’s facilities to other organizations is not always appropriate, but is a good tool to compare the City’s facilities to each other.

In general, the FCI is a ratio of current repair needs to the Current Replacement Value (CRV). For this report the FCI is based on both the BMAR/CRV and ODs/CRV, providing an average range of the buildings condition.

The Current Replacement Value (CRV) is a calculation for reconstructing an asset as it currently exists, without modifications or improvement. The CRV estimate is an approximation of the construction cost based on the cost per square foot of a similar constructed building. The CRV estimate should not be used for any other purpose than to calculate the FCI. Estimates for the actual replacement of individual facilities and projects must incorporate a higher level of detail and accuracy.

Common industry practice is to create a scale for interpreting FCI as a way to prioritize facility needs. Most organizations adjust their classifications of FCI to relate to their own unique criteria. For the City of Tacoma, MENG Analysis recommends the following FCI breakdown to support decision making.



- Excellent = 0 - 0.05 (5%)
- Good = 0.06 - 0.10 (6%-10%)
- Fair = 0.11- 0.20 (11%-20%)
- Poor = 0.21 – 0.25 (21% - 25%)
- Critical = 0.26 (26%) or greater

The following table is a summary of the average FCI and relative scaling for each facility:

Site						
	0	0.05	0.10	0.15	0.20	0.25
Cavanaugh Building	Critical, <b>0.41</b> ◆					
Grounds Maintenance & Sign Shop	Approaching Critical, <b>0.25</b> ◆					
Asphalt Plant	Approaching Poor, <b>0.19</b> ◆					
Streets Operations Bldg.	◆ <b>0.12</b> , Fair					
Traffic Signal Shop	◆ <b>0.09</b> , Good					

#### Observed Deficiency Over Time (5 years)

Site	2018-2020	2021-2022	2023	Total
Asphalt Plant	\$44,175	\$0	\$202,740	<b>\$246,915</b>
Grounds Maintenance & Sign Shop	\$3,605,961	\$449,306	\$446,633	<b>\$4,501,900</b>
Cavanaugh Building	\$682,620	\$0	\$0	<b>\$682,620</b>
Streets Operations Bldg.	\$428,265	\$488,349	\$155,775	<b>\$1,072,389</b>
Traffic Signal & Sign	\$23,250	\$34,875	\$37,200	<b>\$95,325</b>
<b>Totals</b>	<b>\$4,784,271</b>	<b>\$972,530</b>	<b>\$842,348</b>	<b>\$6,599,149</b>

#### Predicted Renewals Over Time (20 years)

Site	2018-2023	2024-2037	Total
Asphalt Plant	\$170,130	\$346,679	<b>\$516,809</b>
Grounds Maintenance & Sign Shop	\$2,679,611	\$2,797,318	<b>\$5,476,929</b>
Cavanaugh Building	\$3,024,546	\$720,180	<b>\$3,744,726</b>
Streets Operations Bldg.	\$987,624	\$4,084,872	<b>\$5,072,496</b>
Traffic Signal & Sign	\$226,016	\$1,711,385	<b>\$1,937,401</b>
<b>Totals</b>	<b>\$7,087,927</b>	<b>\$9,660,434</b>	<b>\$16,748,361</b>

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## Terminology and Abbreviations

**Facility Condition Assessment (FCA):** A structured process to document the conditions of site infrastructure and building systems. FCAs are typically performed by a multi-disciplinary team of architects, engineers, construction, and cost specialists. Facility information and condition data should be maintained in a database for ease of updating and reporting. The data should be renewed over time.

**Facility Condition Index (FCI):** A benchmark used to compare relative condition of facilities within a portfolio of assets; derived by the following formula:

$$\text{FCI} = \frac{\text{Backlog of Maintenance and Repair (BMAR)}}{\text{Current Replacement Value (CRV)}}$$

There are a number of different methods used by various organizations to calculate that backlog. For this reason, using FCIs to compare the City's facilities to other organizations is not always appropriate.

This study uses a parametric method that calculates BMAR based on the assessed condition scores. The statistical basis is a study conducted by NASA on over 10,000 surveyed facilities that evaluated the backlog of repair items relative to qualitative condition scores 1 through 5. The parametric backlog for each system is calculated based on a statistical theoretical percentage of that system that would need repair or replacement for each of the qualitative condition scores. The costs of those systems are the facility use cost models customized for the City of Tacoma.

**Life Cycle Renewal Model:** A theoretical forecast of when building systems will exceed their typical lifespan and funding will be required for renewals.

**Parametric Costs:** Parametric cost estimating is a technique that uses statistical relationships between historical cost data and other program variables such as system condition or age. Historical cost data is typically used at a high level (e.g., cost per square foot) and often represent conceptual, order-of-magnitude costs for initial planning or discussion purposes.

**Remaining Useful Life:** An estimate of the years that a facility system may remain serviceable or in operation before failure; which would then require system renewal or replacement.

**Subsystem:** The term subsystem in this report refers to a Uniformat Level 3 building systems category (e.g., B3010 - Roof Coverings; or B3020 – Roof Opening; or B3030 – Projections).

**System:** The term system in this report refers to a Uniformat Level 2 building system category (e.g., B3000 – Roofing)

The following terms are used in the MENG Analysis FCA Database:  
(See also the database user's manual for more specific definitions.)

**Last Major System Renewal:** The year in which a system was last renewed (substantially repaired or replaced).

**Original System Date:** The year a system was originally constructed/installed.

**Subsystem Assessed Condition Score:** The field surveyors' assessment of condition assigned to each facility subsystem. The rating uses a scale of 1 through 5, where 1=excellent, 2=good, 3=fair, 4=poor, 5=unacceptable. Different subsystem % of CRV's are included in the database for each of the different facility use types (e.g. maintenance shops vs. police station vs. office building, etc.)

**BMAR (backlog of maintenance and repair):** This is an estimated amount that would need to be spent to bring the facility up to good condition. Does not guarantee code compliance.

BMAR is generally defined as the amount of work required to safely maintain facilities and related infrastructure for the current use that should have been accomplished, but for a variety of reasons has not. It includes minor seismic, ADA, and fire protection items necessary to maintain current operations, but it does not include major work in those areas that would normally be accomplished in major building renovation for full code compliance.

The MENG Analysis methodology for calculating BMAR is based on the condition scores (1-5, excellent to unsatisfactory) for each system, with each condition bracket having a BMAR defined as the percentage of that system's replacement value needing repair. Those percentages were derived from a statistical industry study that compared specific system maintenance and repair costs for tens of thousands of buildings relative to the condition scores. Within our FCA process, we calculate condition scores for each subsystem, which are then rolled up to the systems level, and a bracketed lookup table used associate those scores with a percentage of replacement value. Those are totaled for the entire facility, and then divided by the replacement value of the entire facility to get the actual FCI index.

**Subsystem Normal Life:** Industry standard expected subsystem life between renewals or replacement cycles.

**System Coverage:** The amount of area in a facility containing a specific system, expressed as percent of building or site area.

Certain FCA terms are also expressed as formulas in the MENG Analysis FCA Database, as follows:

## List of Commonly Used Abbreviations

AC = Asphalt concrete	HVAC = Heating, ventilating, and air conditioning
ACT = Acoustic ceiling tile	IT = Information technology
A/V = Audio/video	LF = Linear feet (measurable unit)
AHU = Air handling unit	LED = Light emitting diode
ASHRAE = American Society of Heating, Refrigeration, & Air Conditioning Engineers	LS = Lump sum (measurable unit)
BUR = Built-up roofing	MDF = Main distribution frame
CCTV = Closed circuit television	OWS = Oil/water separator
CFH = Cubic feet per hour (of natural gas)	PA = Public address
CFL = Compact fluorescent	P-lam = Plastic laminate
CI = Cast iron	PRV = Pressure regulating valve
CMU = Concrete masonry unit	PTAC = Packaged Terminal Air Conditioning
CO2 = Carbon dioxide	Spig = Pounds per square inch (pressure)
CU = Condensing unit	SS Shelving = Stainless Steel Shelving
C = Commissioning	PVC = Polyvinyl chloride
DDC = Direct digital control	RTU = Roof top unit
DHW = Domestic hot water	RPBP = Reduced pressure backflow preventer
Ds = Direct expansion	SF = Square feet (measurable unit)
EA = Each (measurable unit)	UPS = Uninterruptible power supply
EF = Exhaust fan	VAV = Variable air volume
EFIS = Exterior insulation finishing system	VCT = Vinyl composite tile
FRP = Fiber reinforced plastic	VWC = Vinyl wall covering
GI = Grease interceptor	VOIP = Voice over internet protocol
GSHP = Ground-source heat pump	WAP = Wireless access point
HID = High intensity discharge (lamps)	WD = Wood
HM = Hollow metal	

## Condition Survey Form

### Condition Survey Form Development

Survey forms were developed for the facility condition assessments based on the Unifomat Level 3. All Level 3 subsystems are described with evaluation criteria. The evaluation criteria descriptions clearly explain what elements were included and excluded from each Level 3 subsystem.

Each survey form is accompanied by a deficiency report form that is completed when Observed Deficiencies (ODs) are noted. This Observed Deficiency form notes the problem and the recommended action to correct the deficiency. Raw construction costs (i.e., labor and materials) for facility component replacements or repairs are estimated.

### Sample Condition Scoring Criteria

The following section provides six examples of the condition scoring definitions that were used during the condition surveys.

<p><b>Roof Construction</b></p> <p><b>B1020</b></p>	<p>Roof structural frame, structural interior walls supporting roof, roof decks, slabs and sheathing, canopies. Excludes insulation and roofing.</p> <p><b>1 - Excellent:</b> New; Structure is sound and stable; no evidence of cracking, deflection or separation of framing members. Preventative inspection.</p> <p><b>2 - Good:</b> Structure is sound and stable; no evidence of cracking, deflection or separation of framing members. Minor preventative maintenance: rust proofing and / or sealants and tightening of connections.</p> <p><b>3 - Fair:</b> Minor surface cracking or separation of framing members. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Structural damage evident; Twisting, cracking, or separation of structural members affecting surrounding finishes or moisture intrusion. Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> Structurally deficient or damaged beyond repair; major damage to surrounding finishes; jeopardizing occupancy. Replacement.</p>
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<p><b>Exterior Windows</b></p> <p><b>B2020</b></p>	<p>Screens, storm windows, exterior louvers, frame, trim, sills, caulking, flashing. Excludes window shades and treatments.</p> <p><b>1 -Excellent:</b> New; doors operating smoothly; no finish degradation. Preventative inspection.</p> <p><b>2 - Good:</b> Functioning smoothly; no finish degradation. Secure hardware and emergency exiting. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Worn but functional; requires paint or resealing; glass or hardware damage only in isolated doors. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Damaged or deficient hardware, glass, trim or seals; water intrusion. Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> Extensive damage, deficient beyond repair; Hardware not operating, moisture intrusion. Replacement.</p>
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<p><b>Exterior Wall Finishes</b></p> <p><b>B2040</b></p>	<p>Exterior wall - exterior applied finishes</p> <p><b>1 - Excellent:</b> New; no finish degradation. Preventative inspection.</p> <p><b>2 - Good:</b> no cracking or moisture intrusion. Minor finish degradation. Minor preventative maintenance. Cleaning.</p> <p><b>3 - Fair:</b> Minor undamaged but requires sealing. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> Damaged beyond repair, Replacement.</p>
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<p><b>Plumbing Fixtures</b></p> <p><b>D2010</b></p>	<p>Water closets, urinals, lavatories, sink, showers, bathtubs, drinking fountains. Excludes hot water heaters.</p> <p><b>1 - Excellent:</b> New; All fixtures operating well. Preventative inspection.</p> <p><b>2 - Good:</b> system components operational, free of defect, and of adequate utility service and capacity for intended use. Includes water saving features. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Some components worn, fixtures stained. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Many components damaged; limited parts; leaking valves, rust and corrosion. Operating parts &gt; 30 years old. Restoration repairs.</p> <p><b>5 - Unsatisfactory:</b> Many fixtures not operational. Rust, corrosion, and mineral deposits. Leaks causing damage to other finishes and components. Replacement.</p>
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<p><b>Heat Generating Systems</b></p> <p><b>D3020</b></p>	<p>Boilers, piping and fittings adjacent to boilers, primary pumps, auxiliary equipment, equipment and piping insulation.</p> <p><b>1 - Excellent:</b> New. Preventative inspection.</p> <p><b>2 - Good:</b> System is fully operational, suitable capacity, efficient utility utilization, integrated energy management controls. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Equipment worn but reliable, older energy controls; Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Equipment marginal/hard to obtain parts, insulated ext. ductwork, no energy controls. &gt; 40 years old. Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> System non-functional or seriously deficient, not delivering supply to required spaces. Replacement.</p>
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<p><b>Distribution Systems</b></p> <p><b>D3040</b></p>	<p>Supply &amp; return air systems, ventilation &amp; exhaust systems, steam, hot water &amp; chilled water distribution, terminal devices, heat recovery equipment, auxiliary equipment such as secondary pumps, and heat exchangers, piping, duct &amp; equipment insulation.</p> <p><b>1 - Excellent:</b> New. Preventative inspection.</p> <p><b>2 - Good:</b> System is fully operational, suitable capacity, efficient utility utilization, integrated energy management controls. Good insulation. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Equipment worn but reliable, older energy controls; Insulation. Some joints/ sealants loose. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Equipment marginal/hard to obtain parts, no energy controls; Many grilles missing or loose. Air leaks and unbalance. Restorative repair</p> <p><b>5 - Unsatisfactory:</b> Non-functional or seriously deficient. Grilles corroded, missing. Replacement.</p>
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## Facility Summary

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City of Tacoma  
 Asphalt Plant  
 Asphalt Plant

Tacoma, WA

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Facility Size - Gross S.F. 2,000  
 Year Of Original Construction 1987  
 Facility Use Type Admin - Low rise  
 Construction Type Light  
 # of Floors 1  
 Energy Source Other  
 Year Of Last Renovation 1987  
 Historic Register No



FCI (BMAR/CRV)	0.14	Predicted Renewal Budget (20 yrs)	\$516,809
FCI (Bldg OD/CRV)	0.08	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$1,054,000	<b>Building</b>	\$84,165
BMAR (Backlog of Maintenance and Repair)	\$147,000	<b>Infrastructure</b>	\$162,750
Beginning Budget Year	2018	<b>Total</b>	\$246,915
		<b>Opportunity Total Project Cost</b>	\$547,770

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## Facility Condition Summary

The plant operations building is a roughly 1,800 square foot building housing 2 management offices, large staff break room, toilet and shower facilities and locker room. Other site operations support structures include: 1) 1947 asphalt batch plant building, 2) Five prefabricated steel materials shelters, 3) Multiple tool sheds, 4) Truck weigh station and small scale-house, and 5) Open-air gravel materials storage yards.

# Facility Summary

City of Tacoma  
 Asphalt Plant  
 Asphalt Plant

Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1987	1987	3	TRB 02/07/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	1987	1987	3	TRB 02/07/18	Minimal cracking observed.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1987	1987	3	TRB 02/07/18	Concrete basement.
<b>B Shell</b>			<b>3.4</b>		
<b>Superstructure</b>					
<b>B1020 Roof Construction</b>	1987	1987	3	TRB 02/07/18	Wood deck on wood trusses.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1987	1987	4	TRB 02/07/18	T-111 siding, sections at end of life, paint peeling on several sides.
<b>B2020 Exterior Windows</b>	1987	1987	3	TRB 02/07/18	Thermally insulated aluminum windows.
<b>B2030 Exterior Doors</b>	1987	1987	3	TRB 02/07/18	Wood doors, worn with use, recommend painting and adding kick plates. Hardware also not functioning with ease, repair or replace.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1987	1987	4	TRB 02/07/18	Composition shingle roofing nearing end of life. Treat and remove moss to extend life.
<b>C Interiors</b>			<b>2.6</b>		

# Facility Summary

City of Tacoma  
 Asphalt Plant  
 Asphalt Plant

Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.6</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1987	1987	3	TRB 02/07/18	Wood stud interior walls.
<b>C1020 Interior Doors</b>	1987	1987	3	TRB 02/07/18	Wood doors and frames.
<b>C1030 Fittings</b>	1987	1987	3	TRB 02/07/18	Staff lockers, etc.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1987	2015	2	TRB 02/07/18	Painted textured gypsum, appears to have been painted recently.
<b>C3020 Floor Finishes</b>	1987	1987	3	TRB 02/07/18	Exposed concrete slab on grade (appropriate for the use and abuse of this work environment).
<b>C3030 Ceiling Finishes</b>	1987	2015	2	TRB 02/07/18	Painted textured gypsum. Appears to have been painted recently.
<b>D Services</b>			<b>3.1</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1987	1987	3	JH 02/07/18	Plumbing fixtures are a mix of enameled cast iron and porcelain; no issues reported.
<b>D2020 Domestic Water Distribution</b>	1987	1987	3	JH 02/07/18	Modern copper piping; somewhat newer Whirlpool 50-gal electric DHW heater; no issues reported.
<b>D2030 Sanitary Waste</b>	1987	1987	3	JH 02/07/18	Cast iron DW&V piping with no issues reported.
<b>D2040 Rain Water Drainage</b>					

# Facility Summary

City of Tacoma  
 Asphalt Plant  
 Asphalt Plant

Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.1</b>		
<b>Plumbing</b>					
<b>D2040 Rain Water Drainage</b>	1987	1987	3	JH 02/07/18	Gutter and downspouts discharging direct to grade.
<b>D2090 Other Plumbing Systems</b>	1987	1987	3	JH 02/07/18	Large outside Ingersoll-Rand air compressor.
<b>HVAC</b>					
<b>D3010 Energy Supply</b>	1987	1987	3	JH 02/07/18	Propane to crew building; natural gas to plant building.
<b>D3040 HVAC Distribution Systems</b>	1987	1987	3	JH 02/07/18	Residential propane furnace in attic, unit approaching end of life with periodic failure.
<b>D3050 Terminal and Package Units</b>	1987	1987	3	JH 02/07/18	Aging Global wall-mounted A/C units.
<b>D3060 Controls and Instrumentation</b>	1987	2005	3	JH 02/07/18	Newer Honeywell wall-mounted programmable T-stat.
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>	1987	1987	3	JH 02/07/18	Fire extinguishers on hooks.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1987	1987	3	JH 02/07/18	Single residential panel.
<b>D5020 Lighting and Branch Wiring</b>	1987	1987	3	JH 02/07/18	Commercial fluorescent T8 lighting at office/crew building; industrial HID fixtures at industrial building(s).
<b>D5032 Low Voltage Communication</b>	1987	1987	3	JH 02/07/18	Phone with no issues reported.

# Facility Summary

City of Tacoma  
 Asphalt Plant  
 Asphalt Plant

Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.1</b>		
<b>Electrical</b>					
<b>D5032</b>	<b>Low Voltage Communication</b>				
<b>D5037</b>	<b>Low Voltage Fire Alarm</b>				
	1987	1987	5	JH 02/07/18	No fire alarm system.
<b>D5038</b>	<b>Low Voltage Security</b>				
	1987	1987	3	JH 02/07/18	Minimal security with no issues reported.
<b>D5039</b>	<b>Low Voltage Data</b>				
	1987	1987	3	JH 02/07/18	Fiber to data patch panel to wired data.
<b>D5090</b>	<b>Other Electrical Systems</b>				
	1987	1987	3	JH 02/07/18	Radio for backup Emergency Operations Center (EOC). Consider adding generator.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010</b>	<b>Commercial Equipment</b>				
	1987	1987	3	JH 02/07/18	Kitchenette appliances.
<b>E1020</b>	<b>Institutional Equipment</b>				
	1987	1987	3	JH 02/07/18	Miscellaneous maintenance and process support equipment; aging but no issues reported; assume adequate for function.
<b>E1030</b>	<b>Vehicular Equipment</b>				
	1987	1987	3	JH 02/07/18	Truck wash area and equipment; no issues reported.
<b>Furnishings</b>					
<b>E2010</b>	<b>Fixed Furnishings</b>				
	1987	1987	3	TRB 02/07/18	Minimal: plastic laminate counters, painted wood base cabinetry. Aged but functional.

# Facility Summary

City of Tacoma  
Asphalt Plant  
Infrastructure

Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1947	1987	4	TRB 02/07/18	Asphalt drives around the site are heavily cracked, and patched.
<b>G2020 Parking Lots</b>	1947	1987	4	TRB 02/07/18	Asphalt parking lot areas cracking.
<b>G2040 Site Development</b>	1947	1987	3	TRB 02/07/18	Fences, retaining walls, picnic table.
<b>G2050 Landscaping</b>	1947	1987	3	TRB 02/07/18	Perimeter trees, minimal on site ornamental landscaping, grass bio-swale.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1987	1987	3	JH 02/07/18	City water with no issues reported; various site yard hydrants, hoses and hose racks.
<b>G3020 Sanitary Sewer</b>	1987	1987	3	JH 02/07/18	In addition to the office/crew building, the site has special industrial waste and storm water treatment requirements. Currently oil/water separator used for 20% of site. Outflow test port also exists. Keeping this system current and operational is a facility requirement. No issues reported.
<b>G3030 Storm Sewer</b>	1987	1987	3	JH 02/07/18	Site has special needs with asphalt plant. Environmental design has addressed these issues recently. Bio-filtration pond with skimmer is existing as are test wells. Keeping this system current and operational is a facility requirement. No issues reported. Monitoring wells are present.
<b>G3060 Fuel Distribution</b>	1987	1987	3	JH 02/07/18	Propane to crew building and plant facility. PSE rotary natural gas meter with service to plant facility. Opportunity to consolidate. Diesel fuel tank for unknown purpose. Propane tanks need cleaning and may need inspection.

# Facility Summary

City of Tacoma  
 Asphalt Plant  
 Infrastructure

Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Civil / Mechanical Utilities</b>					
<b>G3060 Fuel Distribution</b>					
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>					
	1987	1987	3	JH 02/07/18	UG service to facility with UG to residential type service panel for office building; separate service to plant building. Tacoma Power meters #205056 and #013618.
<b>G4020 Site Lighting</b>					
	1987	2017	2	JH 02/07/18	Cobra head pole lamps recently (2017) upgraded to LED heads.
<b>G4030 Site Communications and Security</b>					
	1987	1987	3	JH 02/07/18	Basic keypad and sensor security system. Phone and comm routed to plant boiling and Office/crew building.
<b>Other Site Construction</b>					
<b>G9010 Service and Pedestrian Tunnels</b>					
	1987	1987	3	JH 02/07/18	Asphalt plant (process equipment) aging with no issues reported; assume adequate for need.
<b>G9090 Other Site Systems</b>					
	1987	1987	3	TRB 02/07/18	A number of operations support structures exist on site: 1947 asphalt plant building, 5 prefabricated steel materials shelters, tool sheds, a truck weigh station and small weigh station, an out building, and open air gravel materials storage yards.





## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Asphalt Plant

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Asphalt Plant	Exterior Closure	\$10,200	\$2,550	\$2,550	\$8,415	\$23,715
	Roofing	\$12,000	\$3,000	\$3,000	\$9,900	\$27,900
	HVAC	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Electrical	\$9,000	\$2,250	\$2,250	\$7,425	\$20,925
	<b>Facility Total</b>	<b>\$36,200</b>	<b>\$9,050</b>	<b>\$9,050</b>	<b>\$29,865</b>	<b>\$84,165</b>
Infrastructure	Site Improvements	\$65,000	\$16,250	\$16,250	\$53,625	\$151,125
	Other Site Construction	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	<b>Facility Total</b>	<b>\$70,000</b>	<b>\$17,500</b>	<b>\$17,500</b>	<b>\$57,750</b>	<b>\$162,750</b>
	<b>Site Total</b>	<b>\$106,200</b>	<b>\$26,550</b>	<b>\$26,550</b>	<b>\$87,615</b>	<b>\$246,915</b>



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Asphalt Plant

Total Observed Deficiency Repair Direct Cost : \$106,200

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Asphalt Plant					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$10,200
System: Exterior Closure					Total System Deficiency Repair Cost (Marked Up):				\$23,715
<b>Exterior Walls</b>									
Wood Siding	4	5	2018		1,700	\$6.00	SF	\$10,200	\$23,715

Sections of siding at end of life, remaining needs repainting.

Replace sections of siding, repaint remaining.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Asphalt Plant

Total Observed Deficiency Repair Direct Cost : \$106,200

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Asphalt Plant</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$12,000</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$27,900</b>
<b>Roof Coverings</b>									
Composition Shingle	4	5	2018		2,000	\$6.00	SF	\$12,000	\$27,900

Composition shingle roofing nearing end of life. Treat and remove moss to extend life.

Budget to replace roof in 5-10 years (when roof reaches end of life).



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Asphalt Plant

Total Observed Deficiency Repair Direct Cost : \$106,200

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: Asphalt Plant									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: HVAC									\$5,000	
HVAC Distribution Systems									Total System Deficiency Repair Cost (Marked Up):	
Furnaces									\$11,625	
	4	2	2018		1	\$5,000.00	EA	\$5,000	\$11,625	
Furnace failing.				Replace prior to complete failure.						



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Asphalt Plant

Total Observed Deficiency Repair Direct Cost : \$106,200

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Asphalt Plant				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$9,000	
System: Electrical				Total System Deficiency Repair Cost (Marked Up):					\$20,925	
<b>Low Voltage Fire Alarm</b>										
Fire alarm	5	0	2018		1,800	\$5.00	SF	\$9,000	\$20,925	
No fire alarm.				Install fire alarm per code.						



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Asphalt Plant

Total Observed Deficiency Repair Direct Cost : \$106,200

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				<b>Action</b>						
<b>Deficiency</b>										
Facility: Infrastructure									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: Site Improvements										\$65,000
Roadways									Total System Deficiency Repair Cost (Marked Up):	
Asphalt	4	5	2018		10,000	\$5.00	SF	\$50,000	\$116,250	

Asphalt drive surfaces in need of patch and repair.

Repair asphalt drive surfaces.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Asphalt Plant

Total Observed Deficiency Repair Direct Cost : \$106,200

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$65,000</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$151,125</b>	
<b>Parking Lots</b>										
Asphalt	4	5	2018		5,000	\$3.00	SF	\$15,000	\$34,875	

Asphalt parking area cracking.

Seal and topcoat to extend lot life, re-stripe.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Asphalt Plant

Total Observed Deficiency Repair Direct Cost : \$106,200

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Infrastructure									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: Other Site Construction									\$5,000	
Other Site Systems									Total System Deficiency Repair Cost (Marked Up):	
Other									\$11,625	
	5	0	2018		1	\$5,000.00	LS	\$5,000	\$11,625	
Obsolete 500 gal oil tank.				Decommission and remove tank.						





## Opportunity Summary By Subsystem

City of Tacoma  
Site: Asphalt Plant

Total Site Opportunity Cost: \$273,100

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Asphalt Plant</b> <b>System: Plumbing</b> <span style="float: right;"><b>Total Cost: \$10,000</b></span>						
D2040	Rain Water Drainage	Downspouts discharge direct to grade.	Pipe to storm.	10.00	\$1,000.00	EA \$10,000
<b>Facility: Asphalt Plant</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$120,000</b></span>						
D3040	HVAC Distribution Systems	Original forced air heat with separate PTAC cooling.	Upgrade to integrated heating & cooling system compliant with current energy code.	4,000.00	\$30.00	SF \$120,000
<b>Facility: Asphalt Plant</b> <b>System: Fire Protection</b> <span style="float: right;"><b>Total Cost: \$21,600</b></span>						
D4010	Fire Protection Sprinkler Systems	No fire sprinkler.	Install fire sprinkler per code.	1,800.00	\$12.00	SF \$21,600
<b>Facility: Asphalt Plant</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$59,000</b></span>						
D5020	Lighting and Branch Wiring	Fluorescent lighting with manual control.	Upgrade to LED with automatic control.	1,800.00	\$5.00	SF \$9,000
D5090	Other Electrical Systems	Building serves as back-up EOC but has no generator.	Install 35 kW diesel generator and ATS.	1.00	\$50,000.00	LS \$50,000
<b>Facility: Asphalt Plant</b> <b>System: Equipment</b> <span style="float: right;"><b>Total Cost: \$25,000</b></span>						
E1030	Vehicular Equipment	Temporary truck with portable equipment.	Permanent truck with permanent equipment.	1.00	\$25,000.00	LS \$25,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma  
Site: Asphalt Plant

Total Site Opportunity Cost: \$273,100

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Infrastructure</b> <b>System: Site Civil / Mechanical Utilities</b>						
<b>Total Cost: \$7,500</b>						
G3060	Fuel Distribution					
	Separate utility gas server and local propane tank(s).	Consolidate normal gaseous fuel use to all natural gas from one meter.	1.00	\$7,500.00	LS	\$7,500
<b>Facility: Infrastructure</b> <b>System: Site Electrical utilities</b>						
<b>Total Cost: \$30,000</b>						
G4010	Electrical Distribution					
	Separate power services for office and plant buildings; office is residential style.	Consolidate to one electrical service (one meter) for campus and upgrade office to commercial (3-phase) power.	1.00	\$25,000.00	LS	\$25,000
G4030	Site Communications and Security					
	Asphalt batch plant is not monitored after-hours.	Add remote monitoring for asphalt batch plant.	1.00	\$5,000.00	LS	\$5,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Facility Summary

City of Tacoma  
 Grounds Maintenance  
 Grounds Maintenance Building

2308 S. Holgate St.  
 Tacoma, WA 98407

Facility Size - Gross S.F. 28,600  
 Year Of Original Construction 1900  
 Facility Use Type Maintenance Shop  
 Construction Type Medium  
 # of Floors 2  
 Energy Source Gas  
 Year Of Last Renovation 1949  
 Historic Register No



FCI (BMAR/CRV)	0.20	Predicted Renewal Budget (20 yrs)	\$5,476,929
FCI (Bldg OD/CRV)	0.39	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$11,081,000	Building	\$4,336,824
BMAR (Backlog of Maintenance and Repair)	\$2,260,000	Infrastructure	\$165,076
Beginning Budget Year	2018	<b>Total</b>	<b>\$4,501,900</b>
		Opportunity Total Project Cost	\$2,285,940

## Facility Condition Summary

This building was originally constructed as a 2-story steel and wood frame building in the early 1900's and had a CMU and wood frame addition in 1949. The building is approaching poor condition, with many of the building components past their useful life. The exterior concrete ramp to the upper level is failing and should be re-built soon. MEP systems range from original 1900 historic belt-driven shop equipment to modern digital fire alarm system, but most is aging, obsolete, or failed, with variety of abandoned systems and code issues. The 2012 roof collapse destroyed most the upper floor radiant heating system, and the aged 1939 boiler-based heating system has been mostly dismantled, leaving much of the large upper floor areas with no heat. There are three separate electrical services with overhead power lines running dangerously close to the building. The roof drains for the north & south roof have no overflow, which could lead to roof collapses similar to the middle high roof collapse of 2012. Water on the lower floor of the north section is corroding the structural column foundation embedments. A comprehensive code study and major renovation is suggested.

# Facility Summary

City of Tacoma  
 Grounds Maintenance  
 Grounds Maintenance Building

2308 S. Holgate St.  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1900	1900	3	TRB 02/08/18	Standard concrete foundations.
<b>A1020 Special Foundations</b>	1900	1939	5	TRB 02/08/18	Ramp is a raised cast-in place concrete slab on concrete columns and beams, in very poor structural condition.
<b>A1030 Slab On Grade</b>	1900	1900	3	TRB 02/08/18	Concrete slab on grade.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1900	1900	3	TRB 02/08/18	Wall along west side of original building appears to be a tapered concrete butress retaining wall.
<b>B Shell</b>			<b>3.5</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1900	1900	3	TRB 02/08/18	Original building structure: comprised of large timber wood post/beam/joists and car deck floor boards.
<b>B1020 Roof Construction</b>	1900	1900	3	TRB 02/08/18	Original building is made of riveted cast or wrought iron trusses with heavy wood joists and straight sheathing. North addition is iron with wood joists. In 2012 1/8 of the roof collapsed and was replaced with new wood framing.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1900	1939	4	TRB 02/08/18	Original building is wood stud walls with straight sheathing. North addition is concrete masonry unit infill wall at 2nd level and 1st level north wall. 1st level west wall is concrete.
<b>B2020 Exterior Windows</b>					

# Facility Summary

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.5</b>		
<b>Exterior Closure</b>					
<b>B2020 Exterior Windows</b>	1900	1939	4	TRB 02/08/18	1939 North addition has rusting single glazed steel frames. 1900 building windows have been replaced with aluminum: West wall are single glazed units (perhaps c.1975?), the East wall are 2012 thermally glazed aluminum.
<b>B2030 Exterior Doors</b>	1900	1939	4	TRB 02/08/18	Exterior doors have wood frames. Some have solid wood doors. Others have hollow metal doors. Vehicle doors at the garage area are metal overhead doors.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1900	1980	4	TRB 02/08/18	Roofing is rolled granular with rusting metal flashing. Both "lower" roofs have only single internal drains near parapets, with no overflow, ponding and weed growth occurring. Lower roofs are nearing end of life. (Prior high roof collapsed when matching single drain detail clogged and with no overflow) only high roof is newer replaced in 2012.
<b>B3020 Roof Openings</b>	1900	2012	2	TRB 02/08/18	New roof hatch with safety rail surround.
<b>B3030 Projections</b>	1900	1900	5	TRB 02/08/18	Unreinforced obsolete 1900 chimney passes from the ground, through the second floor to above the roof. Masonry joints are cracking, and clay bricks are broken, represents a seismic collapse liability.
<b>C Interiors</b>			<b>2.9</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1900	1939	3	TRB 02/08/18	Walls are wood stud throughout.
<b>C1020 Interior Doors</b>					



# Facility Summary

City of Tacoma  
 Grounds Maintenance  
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 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.9</b>		
<b>Interior Construction</b>					
<b>C1020 Interior Doors</b>	1900	2012	2	TRB 02/08/18	Most interior doors were replaced in 2012 with rework after roof collapse. At office area are wood framed, solid core wood doors with ADA compliant hardware. Some doors in other areas are wood framed, hollow metal.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>	1900	1900	3	TRB 02/08/18	Interior stair systems are wood framed.
<b>C2020 Stair Finishes</b>	1900	1980	3	TRB 02/08/18	One stair system at concrete shop have radial rubber treads. Other stair systems have wood treads and wood rails.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1900	1900	3	TRB 02/08/18	Wall finishes are bare structure throughout building except at Grounds offices. Grounds offices are painted GWB.
<b>C3020 Floor Finishes</b>	1900	1980	3	TRB 02/08/18	Floor finishes vary. They are concrete at the lower level. The Grounds office area is mainly VCT. The non-VCT areas have carpet. The Grounds utility areas are wood structure.
<b>C3030 Ceiling Finishes</b>	1900	2012	3	TRB 02/08/18	The 2012 new offices are hard lid GWB. The other areas, are exposed structure. An upper mezzanine has a bead board ceiling.
<b>D Services</b>			<b>3.3</b>		
<b>Vertical Transportation</b>					
<b>D1090 Other Conveying Systems</b>	1900	1939	5	DCS 02/08/18	10-ton gantry crane at upper level with one original (1900) 1-ton jib crane and slightly newer (1939) 1.5-ton jib crane with traveling hoist.

# Facility Summary

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 Grounds Maintenance  
 Grounds Maintenance Building

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 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.3</b>		
<b>Vertical Transportation</b>					
<b>D1090 Other Conveying Systems</b>					
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					
	1900	1980	3	DCS 02/08/18	Various fiberglass, porcelain, stainless steel fixtures including men's & women's locker rooms on main (upper) floor absent showers, residential laundry washing machine on lower (basement) level, peculiar safety shower & eyewash, deep sink, partial kitchenettes, and others; with no issues reported. A few poor fixtures but most fair, a few good.
<b>D2020 Domestic Water Distribution</b>					
	1900	1980	3	DCS 02/08/18	Piping is combination of newer (1980) copper and older (1939) galvanized steel. Water heater is newer (201) GE 50-gal electric tank type, missing expansion tank seismic straps and recirc pumps (opportunity to bring up to code).
<b>D2030 Sanitary Waste</b>					
	1900	1939	3	DCS 02/08/18	Mix of older (1900/1939) cast iron and some galvanized and somewhat newer (1980) ABS DW&V piping; with no issues reported; most tested fixtures flush & drain Ok but a few are slow (minor maintenance). Few or no floor or trench drains with pooling water in some locations especially on lower (daylight basement/garage) level - opportunity to add floor or trench drains if integrated with structural retrofits - cost would vary widely depending on scope. Water on floor in north basement vehicle parking area may be corroding building structure column foundation anchors. See G-series for storm water treatment at north vehicle wash area.
<b>D2040 Rain Water Drainage</b>					
	1900	1939	4	DCS 02/08/18	The three roof areas (north, middle and south) are each sloped to just one scupper with metal downspout to grade; only the new (2012) high roof in the middle has an overflow scupper. While the new middle high roof is draining well, both north and south low roofs have ponding water; both these roofs have organic material collecting as well - the organic material is

# Facility Summary

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			3.3		
<b>Plumbing</b>					
<b>D2040 Rain Water Drainage</b>					
					partially blocking water drainage, lack of proper roof drain to scupper box screening, uneven roof slop, and especially lack of overflow scupper could lead to catatrophic roof failure of these two low roofs, similar to the high (middle) room failure several years ago. Excessive organic material is collecting oddly at the SE corner of the south roof around a gas-fired unit heater flue.
<b>D2090 Other Plumbing Systems</b>					
	1900	1980	4	DCS 02/08/18	Shop compressed air systems in several shop areas using portable air compressors and rubber hoses. Several abandoned compressors and piping.
<b>HVAC</b>					
<b>D3010 Energy Supply</b>					
	1900	1980	4	DCS 02/08/18	Original coal system mostly demolished. Assume mid-20th Century heating fuel-oil tankage assumed removed. Somewhat newer (1980) gas piping was about half destroyed by the middle high roof collapse several years ago - most of this piping is abandoned in place; remaining operable gas piping supplies about half-dozen gas-fired unit heater furnaces in several office and smaller shop areas. Due to damage from the roof collapse there is no heat in the larger upper level shop areas.
<b>D3020 Heat Generating Systems</b>					
	1900	1939	4	DCS 02/10/18	Original lower level (daylight basement) boiler is demolished, but some infrastructure remains including free-standing brick chimney to north up to low roof, then rusting metal stack continuing up to high roof.
<b>D3030 Cooling Generating Systems</b>					
	1900	1980	4	DCS 02/08/18	Several through-window or wall PTAC units, some older, some newer.
<b>D3040 HVAC Distribution Systems</b>					
	1900	1939	4	DCS 02/08/18	Little or no original (1900) HVAC; some modernization (1939) HVAC equipment is

# Facility Summary

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 Grounds Maintenance Building

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			3.3		
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>					
					damaged or abandoned in place, but some may still be partially operable, but use by occupants is unclear; somewhat newer (1980) electric forced-air furnace system appears to served portions of the current sign-shop area, but in conjunction with other older and newer portions of other system types; relatively new (2012) upper floor middle high-bay shop exhaust fan. Operable windows and doors for natural ventilation of some areas, but many windows are damaged - see B-series.
<b>D3050 Terminal and Package Units</b>	1900	1939	4	DCS 02/08/18	Building is served by various gas fired unit heaters and infrared heaters of older vintage, but in fair condition. Breakroom is served by forced air electric heating system, also in fair condition.
<b>D3060 Controls and Instrumentation</b>	1900	1970	4	DCS 02/08/18	Mostly aging stand-alone controls for aging unit heaters and PTACs. Abandoned or demolished controls for most shop areas, which were mostly not heated at time of survey (2018).
<b>D3090 Other HVAC Systems and Equipment</b>	1900	2012	3	DCS 02/08/18	Upper level middle high-bay shop exhausted by new (2012) exhaust fan; other older (1939) fans remain in place with unclear operability. Various abandoned in place industrial ventilation hoods, ducts and fans, all of unclear functionality - most do not appear to comply with modern code.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>					
	1900	2012	3	DCS 02/08/18	Six-inch service with four-inch twin-head FDC on outside wall at alley to west supplying relatively low 60-psig water pressure to a single six-inch dry pipe riser with 30 psig air pressure maintained. The system was fully tested in 2012, assumedly in conjunction with reconstruction of the collapsed high roof; however there are reportedly lingering issues with aging riser devices including the alarm valve and accelerator. It is unclear if coverage is sufficient

# Facility Summary

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 Grounds Maintenance Building

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			3.3		
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>					
					for extensive fueled vehicle parking and equipment storage, plus multiple flammable material storage storage areas and cabinets.
<b>D4030 Fire Protection Specialties</b>					
	1900	1980	3	DCS 02/08/18	Fire extinguishers on hooks.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	1900	2002	3	DCS 02/08/18	Three electrical services from overhead to weather-heads at upper floor, middle area, east wall to three inside meters, each with separate distribution panels: 1) Original (1900) A.G. Manufacturing cabinets with two somewhat newer (1970) Square D 120/240V, 200A distribution panels, 2) Somewhat newer (1990) 120/240V, 200A panel, and 3) Newer (2002) modern 480V, 3-phase panel with 225A capacity apparently installed to power glass-shop kilns that have since been removed - currently this panel appears to serve only one load - the new (2012) high-bay exhaust fan. Various older, aging and newer sub-panels are found throughout the facility, as are several original (1900) panels assumed abandoned in place.
<b>D5020 Lighting and Branch Wiring</b>					
	1900	1970	3	DCS 02/08/18	Light fixtures are a wide mix of older, aging and some newer incandescent, compact fluorescent (CFL), linear fluorescent (from obsolete T12 to modern T5), metal halide, and others, most or all on manual controls, with widely varying conduit, wiring and receptacle ages and conditions.
<b>D5032 Low Voltage Communication</b>					
	1900	2000	3	DCS 02/08/18	Newer Avaya digital phone system. Signs of other abandoned comm systems. No issues reported - assume adequate for function.
<b>D5037 Low Voltage Fire Alarm</b>					
	1900	2013	2	DCS 02/08/18	Fire alarm appears to have been all new in 2013, following collapsed roof repair, upgraded again in 2017 to include AES antenna alarm transmission.

## Facility Summary

City of Tacoma  
 Grounds Maintenance  
 Grounds Maintenance Building

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### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.3</b>		
<b>Electrical</b>					
<b>D5037</b>	<b>Low Voltage Fire Alarm</b>				
<b>D5038</b>	<b>Low Voltage Security</b>				
	1900	1980	4	DCS 02/08/18	Aging electronic security system with some exterior man-door position monitoring, plus limited intrusion detection.
<b>D5039</b>	<b>Low Voltage Data</b>				
	1900	2000	3	DCS 02/08/18	Somewhat newer Cisco data equipment in cabinet on mezzanine above office area; aging and dusty but with no issues reported.
<b>D5090</b>	<b>Other Electrical Systems</b>				
	1900	1900	4	DCS 02/08/18	Minimal emergency lighting - a few combination battery-backed bug-eye & exit sign fixtures.
<b>E Equipment and Furnishings</b>			<b>3.1</b>		
<b>Equipment</b>					
<b>E1010</b>	<b>Commercial Equipment</b>				
	1900	2000	3	DCS 02/08/18	Small kitchen appliances; one clothes washing machine; no issues reported.
<b>E1020</b>	<b>Institutional Equipment</b>				
	1900	1939	4	DCS 02/08/18	Variety of mostly aged shop equipment; some is historic 1900 belt-driven..Assume adequate for current function. Assume modernization of this equipment is beyond the scope of this condition assessment - modern shop equipment could range from \$100K to several \$M depending on shop program.
<b>Furnishings</b>					
<b>E2010</b>	<b>Fixed Furnishings</b>				
	2012	2012	2	TRB 02/08/18	P-lam counters with sinks in toilet room, break-room casework and counter, lockers. Other areas throughout contain historical heavy duty wood work counters and parts and materials shelving.

# Facility Summary

City of Tacoma  
 Grounds Maintenance  
 Infrastructure

2308 S. Holgate St.  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1900	1970	4	TRB 02/08/18	Asphalt drive at Streets and Grounds upper yard. For deteriorating concrete ramp (See A1020 for deficiency write up).
<b>G2020 Parking Lots</b>	1900	1949	4	TRB 02/08/18	Asphalt and concrete - north and east side of building. Gravel parking on west side of building.
<b>G2040 Site Development</b>	1900	1900	4	TRB 02/08/18	Old unreinforced brick retaining wall at Streets and Grounds upper yard, deteriorating, bricks falling, wall looks like it is at high risk of collapse in a significant seismic event.
<b>G2050 Landscaping</b>	1910	1900	3	TRB 02/08/18	Minimal landscaping, small area of stone and old plaza overgrown around the rock lined natural artesian spring grotto, that could be cleaned up and made into a nice break area for staff.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1910	1939	3	DCS 02/08/18	City water with no issues reported; meter in hand vault to north. Fire service is six-inch from vault in alley to west. No apparent irrigation, but there are several north yard hydrants for vehicle wash and/or tank fill.
<b>G3020 Sanitary Sewer</b>	1910	1939	3	DCS 02/08/18	City sewer with no issues reported; but full clean & inspect service is suggested.
<b>G3030 Storm Sewer</b>	1910	1939	3	DCS 02/08/18	Aging concrete storm drain assumed to city storm; somewhat newer wash apron area to north to catch basin with temporary filter media and assumed turn-downed effluent pipe. Large high roof downspouts discharge to grade.
<b>G3060 Fuel Distribution</b>	1910	1970	3	DCS 02/08/18	Original coal and/or fuel oil systems assumed

# Facility Summary

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Civil / Mechanical Utilities</b>					
<b>G3060 Fuel Distribution</b>					
					demolished, with modern natural gas service from PSE meter #456600 with 1,000 cfh capacity; no seismic shut-off valve (minor maintenance to install). Opportunity for vehicle fueling system.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>					
	1910	2002	4	DCS 02/08/18	Three different overhead power services to second story weather heads, with most aerial cabling dangerously close to building complicating maintenance and posing some hazard to occupants. See D-Series for opportunity to consolidate services.
<b>G4020 Site Lighting</b>					
	1910	1970	4	DCS 02/08/18	Three older (1970) street pole-type high pressure sodium fixtures to north, plus one Tacoma Power utility fixture at north yard; two somewhat newer (1990) wall-packs to east; no lighting at back of building to west; zero-lot line with adjacent property to south so no fixtures there. Public street lighting to east and north provides some additional site illumination, but overall lighting is marginal. About half the outside lights are on all day (minor maintenance to place on photocell and/or timer). Opportunity to upgrade to LED.
<b>G4030 Site Communications and Security</b>					
	1910	2000	3	DCS 02/08/18	Telecom from local purveyors with no issues reported; except comm services are from overhead close to building.
<b>Other Site Construction</b>					
<b>G9090 Other Site Systems</b>					
	1910	1980	3	RB/DC 02/08/18	Streets and Grounds upper yard contains numerous simple storage structures for supporting operations: Two 8-bay wood-framed pole barn-type covered parking structures with metal roofs and concrete SOG; west has two enclosed bays at north & south ends; east has one enclosed by to north - all three with garage doors, at least on housing pesticide storage;



# Facility Summary

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 Infrastructure

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Other Site Construction

G9090 Other Site Systems

Each building approximately 120 ft long x 25 ft wide x 12 ft high, with somewhat newer sealed-lens T8 fluorescent lighting. Tacoma Power 120/240V, assumed 200A service to west building, north bay meter #161104. Distribution to selected parked vehicles for battery charging. Newer (1999) large (2-inch) water meter and service to the yard; meter in sidewalk at NW corner of site. Unclear power to about half-dozen yard light fixtures on leaning poles; appears original HPS are abandoned in place with newer LED head in use. No telecom services observed; no HVAC or building plumbing observed, but several yard hydrants are present plus artesian well system including stilling pond, pump well, raised storage tank, and overflow catch-basin draining to small stream in rail siding swale down-slope to east. Fire protection and safety includes several extinguishers on hooks and a first aid kit - consider portable eyewash, especially near pesticide area. Covered vehicle and equipment parking canopies, Barrel vault tent covered structures for storing bulk road salts and other loose materials. Brine solution mixing tank with powered pumping tuff-shed. Other open air storage areas for bulk materials and equipment. Site storm drainage is sheet-flow down-slope to east to flowing swale along abandoned railroad siding, except at covered bulk material storage and brine mix & tank area which is curbed with drainage to catch-basin with unclear treatment and discharge. Manual twin-leaf hinged gates to north and south with opportunity for motorized automatic gates. West site retaining wall is mix of newer ecology block, old brick, and vegetation restrained steep soil ranging from poor to good condition. The main north-south drive is paved; some parking and material storage areas are paved; other parking is gravel; small unkept patio area around spring stilling pond; no apparent maintained landscaping and no observed irrigation system. The entire site perimeter is fenced with 8-ft high chain link with 3-strand barbed-wire top, but no site electronic security; with opportunity to install motorized gates at north & south entrances.

## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Grounds Maintenance

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Grounds Maintenance Building	Foundations	\$145,000	\$36,250	\$36,250	\$119,625	\$337,125
	Exterior Closure	\$323,100	\$80,775	\$80,775	\$266,558	\$751,208
	Roofing	\$93,000	\$23,250	\$23,250	\$76,725	\$216,225
	Interior Finishes	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Vertical Transportation	\$40,000	\$10,000	\$10,000	\$33,000	\$93,000
	Plumbing	\$42,500	\$10,625	\$10,625	\$35,063	\$98,813
	HVAC	\$944,550	\$236,138	\$236,138	\$779,254	\$2,196,079
	Fire Protection	\$7,500	\$1,875	\$1,875	\$6,188	\$17,438
	Electrical	\$264,650	\$66,163	\$66,163	\$218,336	\$615,311
	<b>Facility Total</b>	<b>\$1,865,300</b>	<b>\$466,325</b>	<b>\$466,325</b>	<b>\$1,538,873</b>	<b>\$4,336,823</b>
Infrastructure	Site Improvements	\$43,500	\$10,875	\$10,875	\$35,888	\$101,138
	Site Electrical utilities	\$27,500	\$6,875	\$6,875	\$22,688	\$63,938
	<b>Facility Total</b>	<b>\$71,000</b>	<b>\$17,750</b>	<b>\$17,750</b>	<b>\$58,575</b>	<b>\$165,075</b>
	<b>Site Total</b>	<b>\$1,936,300</b>	<b>\$484,075</b>	<b>\$484,075</b>	<b>\$1,597,448</b>	<b>\$4,501,898</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Grounds Maintenance

Total Observed Deficiency Repair Direct Cost : \$1,936,300

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Grounds Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$145,000</b>
<b>System: Foundations</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$337,125</b>
<b>Special Foundations</b>									
Concrete ramp	5	0	2018		2,000	\$30.00	SF	\$60,000	\$139,500

Below active vehicle loading ramp (concrete ramp above storage area below) has significant areas of concrete deck spalling, exposed oxidizing reinforcing steel, and cracking.

Investigate structural safety and capacity of existing conditions, provide temporary shoring, repair concrete structure.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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				Action					
<b>Facility: Grounds Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$145,000</b>
<b>System: Foundations</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$337,125</b>
<b>Special Foundations</b>									
Concrete ramp	5	0	2018		2,000	\$30.00	LS	\$60,000	\$139,500

At the exterior ramp, the concrete slab, beams, and columns have spalled with exposed and oxidizing reinforcing. Columns have significant cracking and appear to be in failure mode. Many elements appeared to have failed.

Add temporary structural support shoring, (or repair concrete columns, beams, and slab).



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Grounds Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$145,000</b>
<b>System: Foundations</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$337,125</b>
<b>Special Foundations</b>									
Other	4	1	2018		1	\$25,000.00	LS	\$25,000	\$58,125

Roughly 30% of the wood columns below the grounds maintenance facility are significantly cracked, connection plates at column bases are rusted.

Conduct further professional analysis by professional structural engineer for remediation/retrofit recommendations. Estimate for professional evaluation and recommendations only (and does not include cost for remediation of the structure). Recommend also evaluation of entire structure with remediation plan. Include ASCE seismic evaluation.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Grounds Maintenance

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				<b>Action</b>					
<b>Facility: Grounds Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$323,100</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$751,208</b>
<b>Exterior Walls</b>									
Cast-in-Place (CIP) Concrete	4	2	2018		1	\$100,000.00	LS	\$100,000	\$232,500

Exterior concrete is showing signs of moisture intrusion and reinforcing corrosion caused spalling of the concrete. Sections of reinforcing are exposed, other areas of concrete are in the process of spalling out.

Have a concrete restoration expert review the condition of the walls and provide recommendations for repair (typically involves removal of concrete around corroded reinforcing, corrosion removal and treatment, concrete primer treatment and patching, penetrating anti corrosion treatment, and possibly even finish coating with an elastomeric protection paint to finish and slow future degradation).



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Grounds Maintenance

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				Action					
<b>Facility: Grounds Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$323,100</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$751,208</b>
<b>Exterior Walls</b>									
Paint	5	4	2018		42,000	\$4.00	SF	\$168,000	\$390,600

Paint on the exterior walls is in poor condition.

Clean and paint the walls.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Grounds Maintenance

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<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Grounds Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$323,100</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$751,208</b>
<b>Exterior Windows</b>									
Exterior Glazing	4	1	2018		20	\$1,500.00	EA	\$30,000	\$69,750

Single glazed rusting steel frames.

Replace with thermally insulated windows and frames.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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				Action					
<b>Facility: Grounds Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$323,100</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$751,208</b>
<b>Exterior Doors</b>									
Door Opener	5	1	2018		7	\$300.00	EA	\$2,100	\$4,883

No safety sensor door operators.

Replace hardware for OH doors with modern sensor operators.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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				Action						
<b>Facility: Grounds Maintenance Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$323,100</b>	
<b>System: Exterior Closure</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$751,208</b>	
<b>Exterior Doors</b>										
Doors and Frames	5	1	2018		1	\$15,000.00	EA	\$15,000	\$34,875	

Threshold at upper level OH door at end of ramp is not water tight and is causing moisture intrusion and structural slab and wood beam and wall rot below.

Repair concrete, replace wood structure, revise threshold detail to prevent moisture intrusion.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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				Action						
<b>Facility: Grounds Maintenance Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$323,100</b>	
<b>System: Exterior Closure</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$751,208</b>	
<b>Exterior Doors</b>										
Overhead garage door	4	5	2018		4	\$2,000.00	EA	\$8,000	\$18,600	

OH wood doors weathering and nearing end of life.

Replace OH doors with new.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Grounds Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$93,000</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$216,225</b>
<b>Roof Coverings</b>									
Built Up Roofing / Flashing	4	5	2018		12,000	\$6.50	SF	\$78,000	\$181,350

Roofing is rolled granular with rusting metal flashing. Both "lower" roofs have only single internal drains near parapets, with no overflow, ponding and weed growth occurring. Lower roofs are nearing end of life. (Prior high roof collapsed when matching single drain detail clogged and with no overflow).

Replace roofing, revise drainage to provide larger strainer type roof drain and through parapet overflow drains. Consider also adding tapered insulation cricketing to move drain path away from side walls.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Grounds Maintenance

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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Grounds Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$93,000</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$216,225</b>
<b>Projections</b>									
Other	5	1	2018		1	\$15,000.00	LS	\$15,000	\$34,875

Old unreinforced chimney passing through grounds maintenance to roof, cracking at joints, breaking clay bricks.

Remove chimney.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Grounds Maintenance

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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Grounds Maintenance Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$5,000</b>	
<b>System: Interior Finishes</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$11,625</b>	
<b>Floor Finishes</b>										
Sheet Vinyl	4	2	2018		500	\$10.00	SF	\$5,000	\$11,625	

Sign shop floor degraded into plywood sub floor. VCT in offic hallway to mens locker and toilet is in poor condition.

Replace flooring and sub-floor in Sign Shop, replace VCT at hall.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Grounds Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$40,000</b>
<b>System: Vertical Transportation</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$93,000</b>
<b>Other Conveying Systems</b>									
Cranes	5	0	2018		1	\$30,000.00	LS	\$30,000	\$69,750

Gantry crane currently abandoned in place, with weight bearing on aging foundation piers and wood timber columns. Jib crane testing appears out of date.

Renew gantry and jib cranes to restore shops to full function. Cost estimate excludes cost of new foundation work which may be on the order of \$100K.





# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Grounds Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$40,000</b>
<b>System: Vertical Transportation</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$93,000</b>
<b>Other Conveying Systems</b>									
Cranes	5	0	2018		1	\$10,000.00	LS	\$10,000	\$23,250

10-ton gantry crane on 1900 wrought iron structure bearing on wood columns. Not currently used, operation status unknown but Life Safety/structural support capacity suspect. Do not use without professional evaluation.

Prior to any use, conduct professional evaluation of supporting structural system by a structural engineer, and have crane inspected by knowledgeable crane technician.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Grounds Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$42,500</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$98,813</b>
<b>Domestic Water Distribution</b>									
Galvanized pipe	4	5	2018		1	\$7,500.00	LS	\$7,500	\$17,438

Some older galvanized pipe - mix of abandoned and some still in use.

Replace remaining galvanized pipe with copper and/or PEX.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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				Action					
<b>Facility: Grounds Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$42,500</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$98,813</b>
<b>Rain Water Drainage</b>									
Roof Drains, Overflow Roof Drains, and Scuppers	4	1	2018		2	\$7,500.00	EA	\$15,000	\$34,875

No overflow roof drains or scuppers for north and south low roofs. Roof drains do not have proper drain screens. Excessive organic material is collecting on the low roofs. Portions of the low roofs, especially north, do not drain properly; additional roof drains may be required.

Install overflow roof drain scuppers ASAP. Install proper roof drain screens. Remove all organic matter from roofs. Reslope north low roof and/or install new roof drains.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

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<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Grounds Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$42,500</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$98,813</b>
<b>Other Plumbing Systems</b>									
Compressed Air Systems	4	3	2018		1	\$20,000.00	LS	\$20,000	\$46,500

Temporary/portable air compressors and rubber hoses;  
some abandoned compressors and piping.

Remove temporary/portable compressor and hoses and install one permanent compressed air system; install end of line receiver(s) as necessary to maintain system performance.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Grounds Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$944,550</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$2,196,079</b>
<b>Energy Supply</b>									
Gas piping	5	0	2018		1	\$20,000.00	LS	\$20,000	\$46,500

Gas piping damaged in roof collapse is missing or abandoned in place with no heat for main (upper) floor shop areas.

Repair gas piping in shop areas damaged from roof collapse and restore a fully functioning gas distribution system to re-enable heating to these spaces.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

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<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Grounds Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$944,550</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$2,196,079</b>
<b>Heat Generating Systems</b>									
Other	4	2	2018		1	\$15,000.00	LS	\$15,000	\$34,875

Abandoned north brick chimney to low roof with metal chimney extending up to high roof with just one rusting metal brace.

Seismically retrofit abandoned chimney and properly brace metal stack or demolish all if no longer needed.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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<b>Deficiency</b>				<b>Action</b>						
Facility: Grounds Maintenance Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$944,550	
System: HVAC				Total System Deficiency Repair Cost (Marked Up):					\$2,196,079	
<b>Cooling Generating Systems</b>										
Air conditioning	4	3	2018		3	\$1,750.00	EA	\$5,250	\$12,206	

Aging PTACs. Replace with new.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

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<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Grounds Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$944,550</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$2,196,079</b>
<b>HVAC Distribution Systems</b>									
HVAC	4	2	2018		28,600	\$25.00	SF	\$715,000	\$1,662,375

Unclear building, mechanical and energy code compliance for most spaces in this facility with many abandoned, aging and make-shift partial HVAC.

Conduct code compliance study in conjunction with whole-building modernization plan and upgrade HVAC system as needed.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

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				Action						
<b>Facility: Grounds Maintenance Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$944,550</b>	
<b>System: HVAC</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$2,196,079</b>	
<b>Terminal and Package Units</b>										
Radiant Heaters	5	0	2018		8	\$10,000.00	EA	\$80,000	\$186,000	

All observed newer (1980) gas-fired overhead infrared radiant heaters are disconnected from services and abandoned in place, with no replacement source of heat.

Replace abandoned gas-fired infrared heaters with new.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

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<b>Deficiency</b>				<b>Action</b>						
Facility: Grounds Maintenance Building									Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$944,550	
System: HVAC									Total System Deficiency Repair Cost (Marked Up): \$2,196,079	
<b>Terminal and Package Units</b>										
Terminal units	5	0	2018		6	\$7,500.00	EA	\$45,000	\$104,625	

All observed older (1939) steam or hot water terminal heating units are disconnected from services and abandoned in place, most with no replacement source of heat.

Replace abandoned steam/water heaters with new gas-fired equipment where heat is still needed and not to be provided by new radiant heating equipment.



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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Grounds Maintenance Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$944,550</b>	
<b>System: HVAC</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$2,196,079</b>	
<b>Controls and Instrumentation</b>										
Controls	4	2	2018		28,600	\$0.50	SF	\$14,300	\$33,248	
Obsolete, failed, missing or aging controls.				Replace with modern controls.						



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Grounds Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$944,550</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$2,196,079</b>
<b>Other HVAC Systems and Equipment</b>									
Industrial ventilation	5	0	2018		1	\$50,000.00	LS	\$50,000	\$116,250

Abandoned industrial ventilation systems, especially on lower (daylight basement) level shops in middle and south sections.

Conduct code study and bring any industrial ventilation intended for continued use up to modern code standards including adequate fume/odor/particulate capture, make-up air, heat recovery, explosion protection, and so forth.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Grounds Maintenance

Total Observed Deficiency Repair Direct Cost : \$1,936,300

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Grounds Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$7,500</b>
<b>System: Fire Protection</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$17,438</b>
<b>Fire Protection Sprinkler Systems</b>									
Other	4	1	2018		1	\$7,500.00	LS	\$7,500	\$17,438

Extensive parking and storage of fueled vehicles and equipment, plus flammable material storage.

Conduct life/safety study to ensure hazardous materials are within exempt amounts; if not develop an action plan to reduce quantity of materials and/or mitigate hazards.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Grounds Maintenance

Total Observed Deficiency Repair Direct Cost : \$1,936,300

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Grounds Maintenance Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$264,650</b>	
<b>System: Electrical</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$615,311</b>	
<b>Electrical Service and Distribution</b>										
Electrical Panels	4	5	2018		5	\$5,000.00	EA	\$25,000	\$58,125	

Various abandoned, obsolete and aging sub-panels.

Demolish abandoned and replace obsolete with new.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

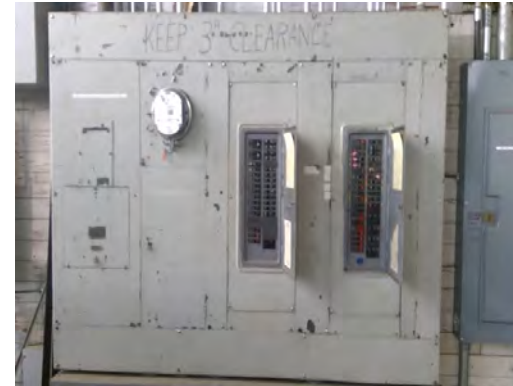
City of Tacoma  
Site: Grounds Maintenance

Total Observed Deficiency Repair Direct Cost : \$1,936,300

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Grounds Maintenance Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$264,650</b>	
<b>System: Electrical</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$615,311</b>	
<b>Electrical Service and Distribution</b>										
Service	4	1	2018		1	\$18,000.00	LS	\$18,000	\$41,850	

The existing electrical service is a very old 600 AMP 208V system that is way past it's expected life span.

Install a new electrical service.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Grounds Maintenance

Total Observed Deficiency Repair Direct Cost : \$1,936,300

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Grounds Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$264,650</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$615,311</b>
<b>Lighting and Branch Wiring</b>									
Branch wiring	4	1	2018		28,600	\$4.00	SF	\$114,400	\$265,980

Obsolete, failed, corroded and insufficient wiring and devices in many areas.

Replace with new per code.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Grounds Maintenance

Total Observed Deficiency Repair Direct Cost : \$1,936,300

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Grounds Maintenance Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$264,650
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$615,311
<b>Lighting and Branch Wiring</b>									
Lighting	4	2	2018		28,600	\$2.00	SF	\$57,200	\$132,990
<p>Obsolete T12 and other old lighting types, with insufficient lighting in many areas.</p>				<p>Replace all obsolete lighting with modern; increase lighting levels to code minimum.</p>					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Grounds Maintenance

Total Observed Deficiency Repair Direct Cost : \$1,936,300

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Grounds Maintenance Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$264,650	
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$615,311	
<b>Low Voltage Security</b>										
Security	4	5	2018		28,600	\$1.00	SF	\$28,600	\$66,495	
Aging and limited electronic security.				Upgrade to City standard.						



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Grounds Maintenance

Total Observed Deficiency Repair Direct Cost : \$1,936,300

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Grounds Maintenance Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$264,650</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$615,311</b>
<b>Other Electrical Systems</b>									
Emergency lighting	4	1	2018		28,600	\$0.75	SF	\$21,450	\$49,871

Minimal emergency lighting.

Review life/safety plan and provide additional emergency lighting per code.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Grounds Maintenance

Total Observed Deficiency Repair Direct Cost : \$1,936,300

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Infrastructure					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$43,500
System: Site Improvements					Total System Deficiency Repair Cost (Marked Up):				\$101,138
<b>Roadways</b>									
Asphalt Access Road	4	5	2018		4,000	\$5.00	SF	\$20,000	\$46,500

Streets and Grounds upper yard asphalt drive alligating.

Patch and repair asphalt drive surface.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Grounds Maintenance

Total Observed Deficiency Repair Direct Cost : \$1,936,300

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost		
				Action							
<b>Deficiency</b>											
Facility: Infrastructure									Total System Deficiency Repair Cost (Undiscounted/Unescalated):		
System: Site Improvements									\$43,500		
Parking Lots										Total System Deficiency Repair Cost (Marked Up):	
Asphalt										\$101,138	
	4	2	2018		500	\$7.00	SF	\$3,500	\$8,138		

Area at north end of building indicates subgrade failure due to settlement, cracking and alligating occurring.

Remove and replace settlement area of asphalt.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Grounds Maintenance

Total Observed Deficiency Repair Direct Cost : \$1,936,300

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$43,500</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$101,138</b>	
<b>Site Development</b>										
Retaining Walls	5	5	2018		100	\$200.00	LF	\$20,000	\$46,500	

Old unreinforced brick retaining wall at Streets and Grounds upper yard, deteriorating, bricks falling can damage vehicles and equipment stored near by, wall looks like a it will be at high risk of collapse in a seismic event.

Mitigate risk and protect gear and equipment with ecology block wall spaced in front of brick wall.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Grounds Maintenance

Total Observed Deficiency Repair Direct Cost : \$1,936,300

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Infrastructure</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>					<b>\$27,500</b>	
<b>System: Site Electrical utilities</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>					<b>\$63,938</b>	
<b>Electrical Distribution</b>										
Overhead power	4	2	2018		3	\$7,500.00	EA	\$22,500	\$52,313	

Three overhead power services with aerial cabling dangerously close to building.

Reconfigure overhead services to sharply reduce aerial cabling running close to building and/or under-ground service(s).



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Grounds Maintenance

Total Observed Deficiency Repair Direct Cost : \$1,936,300

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
<b>System: Site Electrical utilities</b>									<b>\$27,500</b>	
									<b>Total System Deficiency Repair Cost (Marked Up):</b>	
									<b>\$63,938</b>	
<b>Site Lighting</b>										
Light fixtures	4	5	2018		4	\$1,250.00		\$5,000	\$11,625	

Obsolete HPS street lamps to north with unclear controls. Little or no lighting at east vehicle entry to north wing.

Replace with modern fixtures with automatic control. Add fixture to north wing vehicle entry.







## Opportunity Summary By Subsystem

City of Tacoma

Site: Grounds Maintenance

Total Site Opportunity Cost: \$1,074,200

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Grounds Maintenance Building</b> <b>System: Roofing</b> <span style="float: right;"><b>Total Cost: \$14,000</b></span>						
B3010	Roof Coverings	No fall restraint exists on existing lower sections of roofing	Provide Fall restraint systems	2.00	\$7,000.00	EA \$14,000
<b>Facility: Grounds Maintenance Building</b> <b>System: Vertical Transportation</b> <span style="float: right;"><b>Total Cost: \$125,000</b></span>						
D1010	Elevators and Lifts	No elevator.	Install two-stop elevator.	1.00	\$100,000.00	LS \$100,000
D1090	Other Conveying Systems	Abandoned bridge crane.	Sell crane to lighten load on building foundation and structure; replace with portable/mobile lifts and hoists.	1.00	\$25,000.00	LS \$25,000
<b>Facility: Grounds Maintenance Building</b> <b>System: Plumbing</b> <span style="float: right;"><b>Total Cost: \$60,000</b></span>						
D2030	Sanitary Waste	No floor or trench drains in vehicle parking areas.	Install floor and/or trench drains.	10.00	\$3,000.00	EA \$30,000
D2040	Rain Water Drainage	Large roof areas with drainage already concentrated to just three downspouts on the east side coupled with non-potable water use for vehicle washing and/or tank-filling.	Collect rain water in cistern and pump for non-potable water use, instead of City water; may be integrated with west (upper) service yard atesian well water for year-round non-potable water availability.	1.00	\$30,000.00	LS \$30,000
<b>Facility: Grounds Maintenance Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$591,200</b></span>						
D3020	Heat Generating Systems	No operable heating system for much of Bldg; with some boiler infrastructure and possibly reusable terminal equipment still in place.	Install new high-efficiency gas-fired boiler system, distribution piping, and new terminal heating units and/or refurbish existing 1939 units where re-useable. Eliminate most or all gas-fired unit heaters.	28,600.00	\$15.00	SF \$429,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Grounds Maintenance

Total Site Opportunity Cost: \$1,074,200

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
D3030	Cooling Generating Systems					
	Through-wall or window PTACs for office and stall area cooling; some of these spaces also have gas-fired unit and/or electric resistance heat.	VRF heat & cooling system with HRV DOAS ventilation for fully conditioned, human-occupied spaces; eliminate PTACs and older gas furnaces; newer furnaces can be retained for back-up.	3,000.00	\$35.00	SF	\$105,000
D3060	Controls and Instrumentation					
	No DDC controls.	Upgrade to DDC controls in conjunction with new HVAC system.	28,600.00	\$2.00	SF	\$57,200
<b>Facility: Grounds Maintenance Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$188,000</b></span>						
D5010	Electrical Service and Distribution					
	Three separate electrical services, with newest 480V, 225A service with almost no load.	Consolidate all services into one - potentially served only by the one modern 480V service; alternately at least reduce to one 480V and one 120/240V service.	3.00	\$15,000.00	EA	\$45,000
D5020	Lighting and Branch Wiring					
	Mostly fluorescent lighting with manual control.	Upgrade to LED with automatic control.	28,600.00	\$5.00	SF	\$143,000
<b>Facility: Grounds Maintenance Building</b> <b>System: Equipment</b> <span style="float: right;"><b>Total Cost: \$5,000</b></span>						
E1020	Institutional Equipment					
	Original 1900 belt-drive motor and pullys, and blacksmith shop equipment is historic.	Preserve original belt-drive and driven equipment - possible museum pieces.	1.00	\$5,000.00	LS	\$5,000

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Grounds Maintenance

Total Site Opportunity Cost: \$1,074,200

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Infrastructure</b> <b>System: Site Improvements</b>						
<b>Total Cost: \$45,000</b>						
G2010	Roadways	Manual security drive entry gates only at Streets and Grounds upper yard.				
		Add an automatic security gate system for trucks entering and exiting the Streets and Grounds upper yard. provide systems on both street access entries with transponder controls. Modify security fencing to allow space for trucks to pull off road in front of gates without blocking traffic.	2.00	\$20,000.00	EA	\$40,000
G2050	Landscaping	The small area of stone lining the artesian spring and pond has an old plaza which is littered with discarded objects and is overgrown and forgotten.				
		Clean up the area around the pond and return it into a nice park-like break area for staff.	1.00	\$5,000.00	LS	\$5,000
<b>Facility: Infrastructure</b> <b>System: Site Civil / Mechanical Utilities</b>						
<b>Total Cost: \$15,000</b>						
G3030	Storm Sewer	No oil/water separator for vehicle wash area.				
		Install oil/water separator and/or diverter system per code and SWPP.	1.00	\$15,000.00	LS	\$15,000
<b>Facility: Infrastructure</b> <b>System: Site Electrical utilities</b>						
<b>Total Cost: \$16,000</b>						
G4020	Site Lighting	HPS fixtures with unclear control.				
		Upgrade to LED lighting with automatic control.	6.00	\$1,000.00	EA	\$6,000
G4030	Site Communications and Security	Overhead telecom services.				
		Underground telecom services.	1.00	\$10,000.00	LS	\$10,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Grounds Maintenance

Total Site Opportunity Cost: \$1,074,200

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
Facility: Infrastructure						
System: Other Site Construction	Total Cost: \$15,000					
G9090 Other Site Systems	Artesian well with continuous flow to drainage swale along rail siding to east.	Pipe to main Grounds Bldg north service yard for vehicle-wash and tank-fill water instead of potable city water.	1.00	\$15,000.00	LS	\$15,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Facility Summary

City of Tacoma  
Cavanaugh Building  
Cavanaugh Building

1423 Puyallup Avenue  
Tacoma, WA 98407

Facility Size - Gross S.F. 24,200  
Year Of Original Construction 1951  
Facility Use Type Warehouse  
Construction Type Medium  
# of Floors 1  
Energy Source Electric  
Year Of Last Renovation 1951  
Historic Register No



FCI (BMAR/CRV)	0.41	Predicted Renewal Budget (20 yrs)	\$3,744,726
FCI (Bldg OD/CRV)	0.07	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$6,607,000	Building	\$450,120
BMAR (Backlog of Maintenance and Repair)	\$2,683,000	Infrastructure	\$232,500
Beginning Budget Year	2018	<b>Total</b>	<b>\$682,620</b>
		Opportunity Total Project Cost	\$4,615,590

## Facility Condition Summary

The Cavanaugh Building is a one story warehouse type structure with an exterior canopy along one side. The original date of construction is unknown, but records indicate it was constructed circa 1930. Sometime around 1985, condition sign shop interior offices and related work space was constructed in a small portion at south end of the space, and has now been abandoned for a number of years. Besides the office areas, the building is un-conditioned. It has buckling concrete floors (likely caused by excessive sub-grade settlement) and the building is largely a hazardous condition. The roof leaks (many areas are exposed to daylight), exterior walls, and sections of the main structure at perimeters are rotting (and are well past useful life), most heavy timbers appear to be in good enough condition to have salvage value. Given the buildings current state, demolition of the structure is recommended.

# Facility Summary

City of Tacoma  
 Sign Shop (Cavanaugh Building)  
 Sign Shop (Cavanaugh Building)

1423 Puyallup Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>5.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1890	1951	5	TRB 02/08/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	1890	1951	5	TRB 02/08/18	Concrete slab on grade.
<b>B Shell</b>			<b>5.0</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1890	1951	3	TRB 02/08/18	Mezzanines are wood joists with decking or plywood sheathing.
<b>B1020 Roof Construction</b>	1890	1951	5	TRB 02/08/18	Heavy timber trusses and beams with wood decking. Roof is supported by heavy timber columns. Wood roof boards are broken and missing in many areas, water damaged and collapsing in others.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1890	1951	5	TRB 02/08/18	Wood stud walls with exterior wood 2x tongue and groove siding or shiplap with double tongue and groove siding. Siding is in poor condition.
<b>B2020 Exterior Windows</b>	1890	1951	5	TRB 02/08/18	Exterior windows are wire glazed wood units at high wall main warehouse areas.
<b>B2030 Exterior Doors</b>	1890	1951	5	TRB 02/08/18	Exterior doors are wood framed, solid core wood doors. Some are old heavy wood heavy sliders with sheet metal facing. Metal OH coiling door.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1890	1951	5	TRB 02/08/18	Roofing is metal at center pitched area and membrane at new north addition. The area

# Facility Summary

City of Tacoma  
 Sign Shop (Cavanaugh Building)  
 Sign Shop (Cavanaugh Building)

1423 Puyallup Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>5.0</b>		
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					between the pitched and membrane areas have 3 - tab roofing.
<b>C Interiors</b>			<b>3.3</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1890	1980	3	TRB 02/08/18	Interior partitions are 2x4 wood framed construction in limited areas.
<b>C1020 Interior Doors</b>	1890	1980	3	TRB 02/08/18	Interior doors are a mix of hollow metal framed, hollow metal doors and solid core wood doors with wood frames. Hardware is mainly commercial grade.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>	1890	1980	3	TRB 02/08/18	Stair systems are wood framed.
<b>C2020 Stair Finishes</b>	1890	1980	3	TRB 02/08/18	Stairs have wood treads, handrails and balustrades.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1890	1980	3	TRB 02/08/18	Interior wall finishes are painted GWB at rooms. Warehouse areas have no finishes.
<b>C3020 Floor Finishes</b>	1890	1980	3	TRB 02/08/18	Floors are painted concrete at rooms and unpainted concrete at warehouse areas.
<b>C3030 Ceiling Finishes</b>	1890	1980	5	TRB 02/08/18	Ceilings at rooms are painted GWB. Other areas are to structure. Moisture intrusion and failure in areas



# Facility Summary

City of Tacoma  
 Sign Shop (Cavanaugh Building)  
 Sign Shop (Cavanaugh Building)

1423 Puyallup Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.6</b>		
<b>Vertical Transportation</b>					
<b>D1090 Other Conveying Systems</b>					
	1951	1951	5	DCS 02/08/18	Old gantry crane with 10-ton minimum estimated capacity; does not appear operational.
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					
	1951	1992	4	DCS 02/08/18	Mostly modern fixtures but dirty and abused.
<b>D2020 Domestic Water Distribution</b>					
	1951	1992	3	DCS 02/08/18	Mostly copper with some galvanized steel piping. Aging (1992) water heater is electric tank type.
<b>D2030 Sanitary Waste</b>					
	1951	1992	3	DCS 02/08/18	DW&V piping for bath & break rooms at south end; tested fixtures drain somewhat slow, but may be from lack of use - fully service before regular use.
<b>D2040 Rain Water Drainage</b>					
	1951	1985	4	DCS 02/08/18	Metal gutter & downspout from high roof draining to valley at east & west sawtooths, then along hot-mopped valley to sawtooth scupper then to downspout to grade. High roof gutter is about 50% full of organic debris. Downspouts are about 50% completely failed with most needing work or replacement.
<b>D2090 Other Plumbing Systems</b>					
	1951	1070	4	DCS 02/08/18	Copper compressed air distribution piping and drops, but air compressor appears missing.
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>					
	1951	1985	4	DCS 02/08/18	Old (1985) electric forced air furnace for clean shop area with galvanized steel ductwork.
<b>D3050 Terminal and Package Units</b>					
	1951	1985	3	DCS 02/08/18	Electric wall or ceiling-mounted unit heater for print shop and break rooms in fair condition. Electric baseboard heaters for bathrooms, rusting.

# Facility Summary

City of Tacoma  
 Sign Shop (Cavanaugh Building)  
 Sign Shop (Cavanaugh Building)

1423 Puyallup Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.6</b>		
<b>HVAC</b>					
<b>D3050 Terminal and Package Units</b>					
<b>D3060 Controls and Instrumentation</b>					
	1951	1985	4	DCS 02/08/18	Electric furnace is controlled by an aging T-stat; electric unit heaters and baseboard heaters locally controlled. No DDC.
<b>D3090 Other HVAC Systems and Equipment</b>					
	1951	1985	3	DCS 02/08/18	Paint room is ventilated by exhaust fan on mezzanine; needs work to restore to service.
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>					
	1951	1985	3	DCS 02/08/18	Fire extinguishers on hooks.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	1951	1985	3	DCS 02/08/18	Two services: 1) 208V, 3-phase at 150A, and 2) 120/240, 1-phase at 200A; minimal power for south-end shop and restroom area, plus minimal overhead high-bay lighting; insufficient power for large scale shop and/or warehouse operation.
<b>D5020 Lighting and Branch Wiring</b>					
	1951	1985	4	DCS 02/08/18	Minimal pendant HID in high-bay shop & warehouse areas. Linear fluorescent in south-end clean shops and break areas. Minimal receptacles.
<b>D5032 Low Voltage Communication</b>					
	1951	2000	3	DCS 02/08/18	Somewhat newer but minimal telecom, assume adequate for need; no issues reported.
<b>D5037 Low Voltage Fire Alarm</b>					
	1951	1951	3	DCS 02/08/18	No fire alarm.
<b>D5038 Low Voltage Security</b>					
	1951	1951	4	DCS 02/08/18	Little or no electronic security.
<b>D5039 Low Voltage Data</b>					

## Facility Summary

City of Tacoma  
 Sign Shop (Cavanaugh Building)  
 Sign Shop (Cavanaugh Building)

1423 Puyallup Avenue  
 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.6</b>		
<b>Electrical</b>					
<b>D5039 Low Voltage Data</b>	1951	2000	3	DCS 02/08/18	Somewhat newer data system with no issues reported, assume adequate for need.
<b>D5090 Other Electrical Systems</b>	1951	1951	5	DCS 02/08/18	Little or no observed emergency lighting system. No standby power.
<b>E Equipment and Furnishings</b>			<b>4.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1951	1985	4	DCS 02/08/18	Appliances appear removed from break room.
<b>E1020 Institutional Equipment</b>	1951	1951	4	DCS 02/08/18	Most shop equipment removed, but a few pieces remain abandoned in place with unknown operability - cost to outfit shops and warehouse equipment vary widely.
<b>E1030 Vehicular Equipment</b>	1951	1985	4	DCS 02/08/18	One fork truck and fork truck battery charging station are present, but with unclear operability.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	1890	1980	4	TRB 02/08/18	wood casework in poor condition.

# Facility Summary

City of Tacoma  
 Sign Shop (Cavanaugh Building)  
 Infrastructure

1423 Puyallup Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1951	2015	2	TRB 02/08/18	Asphalt lot approach.
<b>G2020 Parking Lots</b>	1951	2015	1	TRB 02/08/18	Asphalt surface parking/storage area. Yard recently reworked and in good shape. Occupied by temporary emergency shelters for transition housing services.
<b>G2040 Site Development</b>	1951	2015	2	TRB 02/08/18	Perimeter security fencing around the East portion of the property in good shape (protecting temporary emergency shelter area).
<b>G2050 Landscaping</b>	1951	1951	3	TRB 02/08/18	Street trees and ground cover (along street frontage only).
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1951	2015	2	DCS 02/08/18	City water from new approximately 1-inch meter with above-grade RPBP in hot-box to south, reportedly supplying both permanent building and temporary homeless camp on east-side of the Bldg; no issues reported.
<b>G3020 Sanitary Sewer</b>	1951	1951	3	DCS 02/08/18	City sewer with no issues reported; however side-sewer should be cleaned and inspected before any future regular use.
<b>G3030 Storm Sewer</b>	1951	1951	4	DCS 02/08/18	Unclear site storm drainage; many saw-tooth roof valleys are missing downspouts and drop down side of building to foundation to west; to east the butterfly roof includes roof drains pipes to an assumed site storm system of unclear design; some roof drains appear to directed to wetland at north-end of Bldg. The recently developed homeless camp to west was recently paved and is assumed to have its own storm drain system.

# Facility Summary

City of Tacoma  
 Sign Shop (Cavanaugh Building)  
 Infrastructure

1423 Puyallup Avenue  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1951	1951	3	DCS 02/08/18	Two Tacoma Power electrical services overhead from pole to south: 1) TP #131864 at 120/240V, 1-phase, and 2) TP #013459 at 480V, 3-phase.
<b>G4020 Site Lighting</b>	1951	2010	3	DCS 02/08/18	Lowbay HID fixtures at canopy area to east; otherwise no site lighting, but adjacent street and parking lot lighting provides some night illumination - no issues reported.
<b>G4030 Site Communications and Security</b>	1951	2000	3	DCS 02/08/18	Telecom overhead from local purveyors with no issues reported. Limited newer (2017) electronic security consisting of CCTV cameras attached to building at east side.

## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Sign Shop (Cavanaugh Building)

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Infrastructure	Site Civil / Mechanical Utilities	\$100,000	\$25,000	\$25,000	\$82,500	\$232,500
	<b>Facility Total</b>	<b>\$100,000</b>	<b>\$25,000</b>	<b>\$25,000</b>	<b>\$82,500</b>	<b>\$232,500</b>
Sign Shop (Cavanaugh Building)	Foundations	\$193,600	\$48,400	\$48,400	\$159,720	\$450,120
	<b>Facility Total</b>	<b>\$193,600</b>	<b>\$48,400</b>	<b>\$48,400</b>	<b>\$159,720</b>	<b>\$450,120</b>
	<b>Site Total</b>	<b>\$293,600</b>	<b>\$73,400</b>	<b>\$73,400</b>	<b>\$242,220</b>	<b>\$682,620</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Sign Shop (Cavanaugh Building)

Total Observed Deficiency Repair Direct Cost : \$293,600

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Infrastructure</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$100,000</b>
<b>System: Site Civil / Mechanical Utilities</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$232,500</b>
<b>Storm Sewer</b>									
Storm Drain	4	1	2018		1	\$100,000.00	LS	\$100,000	\$232,500

Roof drains discharge onto foundation and neighboring parking lot paving with no apparent collection system; hence slowly destroying building foundation and structure. Roof drains to north may be over-feeding the wetland, in-turn saturating soils under the the north portion of the building which shows more signs of structural damage than the south portion.

Provide an engineered storm water system to protect the building foundation, and stop damage to neighboring properties.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Sign Shop (Cavanaugh Building)

Total Observed Deficiency Repair Direct Cost : \$293,600

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Sign Shop (Cavanaugh Building)</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$193,600</b>
<b>System: Foundations</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$450,120</b>
<b>Standard Foundations</b>									
Substructure Foundation	5	0	2018		24,200	\$8.00	SF	\$193,600	\$450,120

Entire structure appears to be past useful life. Significant settlement has occurred. Large areas where roof leaks have caused significant water damage to roof, exterior walls, interior heavy timber structural elements, and interior partition framing, ceilings, and insulation. There are areas with roofing missing (open to the sky), ponding water inside, and sections of roofing collapsing.

Consider demolishing the remaining structure, salvaging and selling heavy (old growth) timbers to offset the cost of demolition.



## Opportunity Summary By Subsystem

City of Tacoma

Site: Sign Shop (Cavanaugh Building)

Total Site Opportunity Cost: \$2,010,200

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Infrastructure</b> <b>System: Site Civil / Mechanical Utilities</b> <span style="float: right;"><b>Total Cost: \$10,000</b></span>						
G3060	Fuel Distribution	All electric heat; no gas service, but gas in vicinity.				
		Install gas service and use for any future space heating.	1.00	\$10,000.00	LS	\$10,000
<b>Facility: Infrastructure</b> <b>System: Site Electrical utilities</b> <span style="float: right;"><b>Total Cost: \$15,000</b></span>						
G4010	Electrical Distribution	Two overhead electrical services.				
		Combine into one large service with underground wiring to reduce metering cost and increase safety.	2.00	\$7,500.00	EA	\$15,000
<b>Facility: Sign Shop (Cavanaugh Building)</b> <b>System: Foundations</b> <span style="float: right;"><b>Total Cost: \$1,694,000</b></span>						
A1010	Standard Foundations	Entire structure appears to be past useful life. See deficiency discussion - But, there is value in the existing heavy timber frame enclosing this large volume space. Rehabilitation should still be cheaper than replacing with an all new structure of this size.				
		Adaptive re-use: Consider conducting a structural evaluation and remediation to stabilize and upgrade the existing structure for adaptive reuse. Remove and replace the exterior sheathing and re-clad the envelope. Provide new roof sheathing and roofing and drainage systems, Demolish interior elements and slab, compact grade and pour new slab, provide fire protection and new utilities to repurpose the facility for a new cold shell use (farmers market, warehouse, or other similar function?).	24,200.00	\$70.00	SF	#####
<b>Facility: Sign Shop (Cavanaugh Building)</b> <b>System: Plumbing</b> <span style="float: right;"><b>Total Cost: \$25,000</b></span>						
D2020	Domestic Water Distribution	Few or no hose bibs for housekeeping or shop service.				
		Install hose bibs in say every other bay.	10.00	\$2,500.00	EA	\$25,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Sign Shop (Cavanaugh Building)

Total Site Opportunity Cost: \$2,010,200

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Sign Shop (Cavanaugh Building)</b> <b>System: HVAC</b>						
<b>Total Cost: \$24,200</b>						
D3060	Controls and Instrumentation	No DDC.				
		Upgrade to DDC per City standard in conjunction with all new HVAC system throughout.	24,200.00	\$1.00	SF	\$24,200
<b>Facility: Sign Shop (Cavanaugh Building)</b> <b>System: Electrical</b>						
<b>Total Cost: \$242,000</b>						
D5010	Electrical Service and Distribution	Insufficient power for full-scale shop and/or warehouse operations.				
		Upgrade one modern, industrial capacity electrical service and distribution.	24,200.00	\$3.00	SF	\$72,600
D5020	Lighting and Branch Wiring	Aged HID and fluorescent lighting with manual control.				
		Upgrade to LED lighting with increased coverage and automatic control.	24,200.00	\$5.00	SF	\$121,000
		Little or no receptacles in high-bay shop & warehouse areas.				
		Install receptacles throughout.	24,200.00	\$2.00	SF	\$48,400

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 Streets & Grounds Offices  
 Streets & Grounds Offices Building

2324 South 'C' Street  
 Tacoma, WA 98407

Facility Size - Gross S.F. 27,340  
 Year Of Original Construction 1909  
 Facility Use Type Maintenance Shop  
 Construction Type Medium  
 # of Floors 2  
 Energy Source Gas  
 Year Of Last Renovation 1909  
 Historic Register Yes



FCI (BMAR/CRV)	0.14	Predicted Renewal Budget (20 yrs)	\$5,072,496
FCI (Bldg OD/CRV)	0.09	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$10,593,000	Building	\$960,789
BMAR (Backlog of Maintenance and Repair)	\$1,495,000	Infrastructure	\$111,600
Beginning Budget Year	2018	<b>Total</b>	<b>\$1,072,389</b>
		Opportunity Total Project Cost	\$2,882,099

## Facility Condition Summary

The Streets and Grounds Building is a 2-story concrete and wood structure built in 1909. The building is listed on the Washington State Heritage Barn Register. It is in generally fair condition. The roof structure was upgraded and new roofing installed in 2013. There is a small area at the southwest portion of the building that has been abandoned for at least 20 years, and would require a significant remodel to become habitable. A wide variety of conditions and systems exist throughout the building. The electrical systems should be updated and fire sprinklers and/or fire alarm system should be installed.

# Facility Summary

City of Tacoma  
 Streets & Grounds Offices  
 Streets & Grounds Offices Building

2324 South 'C' Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1909	1909	3	TRB 02/07/18	Standard concrete foundations. No new settlement observed.
<b>A1030 Slab On Grade</b>	1909	1909	3	TRB 02/07/18	Concrete slab on grade.
<b>B Shell</b>			<b>2.9</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1909	1909	3	TRB 02/07/18	Wood joists with wood decking spanning to wood girders and interior wood columns and exterior concrete walls.
<b>B1020 Roof Construction</b>	1909	2013	3	TRB 02/07/18	Wood joists and ship-lap sheathing spanning to wood beams and wood trusses, which are supported by interior wood columns and exterior concrete walls. Recent work included new exterior sheathing diaphragm, and roof framing shoring and upgrades. A portion of the lower roof framing was removed and replaced and new metal deck installed.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1909	1909	3	TRB 02/07/18	Concrete walls with cementitious coating at exterior. 2011 work included lead paint abatement, concrete patch repairs, and re-painting of original concrete walls.
<b>B2020 Exterior Windows</b>	1909	1909	4	TRB 02/07/18	Exterior windows are wood framed and metal. They are single glazed units. Refinishing of original wood systems occurred for many windows, but not on East and Southeast windows. Staff complain of drafts.
<b>B2030 Exterior Doors</b>	1909	1950	4	TRB 02/07/18	Exterior doors are mainly wood doors with wood

# Facility Summary

City of Tacoma  
 Streets & Grounds Offices  
 Streets & Grounds Offices Building

2324 South 'C' Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>2.9</b>		
<b>Exterior Closure</b>					
<b>B2030 Exterior Doors</b>					
					frames. The garage area has metal overhead doors. Some exterior doors are hollow metal doors in wood frames.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					
	1909	2013	2	TRB 02/07/18	Replaced in 2013: roofing on main building is 3-tab composition shingle, and new torch down asphalt on the lower roof. Fascia and soffits are wood.
<b>B3030 Projections</b>					
	1909	1909	4	TRB 02/07/18	Unenforced masonry chimney (top was lowered, but is still unsupported).
<b>C Interiors</b>			<b>3.0</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>					
	1909	1950	3	TRB 02/07/18	Interior walls are either wood stud or concrete.
<b>C1020 Interior Doors</b>					
	1909	1950	3	TRB 02/07/18	Interior doors are mainly wood doors with wood frames. The Carpentry Shop has hollow metal doors with hollow metal frames.
<b>C1030 Fittings</b>					
	1909	1950	3	TRB 02/07/18	Changing rooms have wood lockers, other miscellaneous features.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>					
	1909	1909	3	TRB 02/07/18	Limited areas of wood framed stairs (access to the second floor is only by the exterior vehicle ramp).
<b>C2020 Stair Finishes</b>					
	1909	1950	3	TRB 02/07/18	Adhered non slip on painted wood.

# Facility Summary

City of Tacoma  
 Streets & Grounds Offices  
 Streets & Grounds Offices Building

2324 South 'C' Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>3.0</b>		
<b>Staircases</b>					
<b>C2020 Stair Finishes</b>					
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>					
	1909	1950	3	TRB 02/07/18	Interior wall finishes are painted GWB in office areas. Some office and conference rooms have acoustic sound panels. The Material Control Test Lab has wood plank walls as do a few remaining utility areas. Other areas are unpainted concrete.
<b>C3020 Floor Finishes</b>					
	1909	1950	3	TRB 02/07/18	Floors vary. Some offices are carpeted. Other office areas are sheet vinyl. Men's toilet is VCT, remaining areas are painted or unpainted concrete. The carpentry shop and adjoining storage area have unpainted plywood wood floors. The upper storage floor is tar on floor boards.
<b>C3030 Ceiling Finishes</b>					
	1909	1950	3	TRB 02/07/18	The office areas are mainly 2x4 suspended acoustic ceiling. The entry, some offices, break, change rooms, and most utility areas are hard lid. Other ceiling areas are exposed structure.
<b>D Services</b>			<b>3.0</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					
	1909	1970	3	JH 02/07/18	Plumbing fixtures of various materials (cast iron, composite, fiberglass, porcelain and stainless steel) with vintage and new fixtures.
<b>D2020 Domestic Water Distribution</b>					
	1909	1970	3	JH 02/07/18	Copper and galvanized water piping throughout building. One newer gas-fired tank-type DHW heater with expansion tank; several older and one newer GE electric tank-type. Some heat-traced pipe is missing insulation.
<b>D2030 Sanitary Waste</b>					

# Facility Summary

City of Tacoma  
 Streets & Grounds Offices  
 Streets & Grounds Offices Building

2324 South 'C' Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>Plumbing</b>					
<b>D2030 Sanitary Waste</b>	1909	1970	3	JH 02/07/18	Waste piping of various materials (cast iron and galvanized) and vintage. Plaster trap in material testing. Drain in material testing to exterior oil/water separator does not appear to be used or maintained (minor maintenance to service). No issues reported.
<b>D2040 Rain Water Drainage</b>	1909	1970	3	JH 02/07/18	Metal gutter system with downspouts; some tight-lined to storm drain, others discharge to grade.
<b>D2090 Other Plumbing Systems</b>	1909	1970	3	JH 02/07/18	Various systems for different areas including: 1) Carpenter shop compressed air and 2) West-end tire shop (no longer used), shop fluids system piping should be decommissioned or demolished.
<b>HVAC</b>					
<b>D3010 Energy Supply</b>	1909	1970	3	JH 02/07/18	Natural gas to equipment.
<b>D3040 HVAC Distribution Systems</b>	1909	1970	3	JH 02/07/18	Exhaust fans throughout building in high need ventilating areas. Small gas tool storage room needs additional intake ventilation and verify compliance Class 1, Division 2 space requirements.
<b>D3050 Terminal and Package Units</b>	1909	1990	3	JH 02/07/18	Mitsubishi and York split-Dx system heat pumps, gas-furnaces, wall-mounted or through-window A/C units, portable box fans, mix of newer and somewhat newer Reznor and some older Hastings gas-fired unit heaters. Heat and vent (H&V) unit in lunchroom not operational.
<b>D3060 Controls and Instrumentation</b>	1909	1990	3	JH 02/07/18	Stand-alone controls with age same as associated equipment.
<b>D3090 Other HVAC Systems and Equipment</b>					



# Facility Summary

City of Tacoma  
 Streets & Grounds Offices  
 Streets & Grounds Offices Building

2324 South 'C' Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>HVAC</b>					
<b>D3090 Other HVAC Systems and Equipment</b>					
	1909	2010	3	JH 02/07/18	Relatively new (2010) AAF ArrestAll dust collector outside carpenter shop. Filter hood or clean-air booth needed for paint shop - existing filter is not adequate
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>					
	1909	1970	3	JH 02/07/18	Fire sprinklers on hooks and AED in cabinet.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	1909	2010	3	JH 02/07/18	There is a 200A overhead service to the second floor and two 200A services to the first floor. There are multiple load centers throughout the building, some are old. Panel A & B and panel in janitor room do not have NEC code clearance.
<b>D5020 Lighting and Branch Wiring</b>					
	1909	1990	3	JH 02/07/18	Mostly fluorescent with some parabolics and surface modular fixtures in offices. Mostly 4' and 8' strip lighting in shops; mix of T8 and old T12. Newer branch wiring and devices in lower and upper offices, older elsewhere. Some fixtures are damaged.
<b>D5032 Low Voltage Communication</b>					
	1909	2000	3	JH 02/07/18	Avaya VOIP phone system. Older PA system with unclear operability.
<b>D5037 Low Voltage Fire Alarm</b>					
	1909	1970	3	JH 02/07/18	Smoke detection and alarm in some areas but not complete. For a non-sprinkled building the fire detection/alarm should provide complete coverage. Manual pull station on exterior of building should be repaired or fixed.
<b>D5038 Low Voltage Security</b>					
	1909	1970	3	JH 02/07/18	Old Vista security monitoring system serving some areas.

# Facility Summary

City of Tacoma  
 Streets & Grounds Offices  
 Streets & Grounds Offices Building

2324 South 'C' Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>Electrical</b>					
<b>D5039 Low Voltage Data</b>	1909	2000	3	JH 02/07/18	Data and back-up EOC radio room and separate telecom room; both on building East-side; data includes recent WAP.
<b>D5090 Other Electrical Systems</b>	1909	2000	3	JH 02/07/18	Some battery egress lights and exit signs. No standby generator.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1909	1990	3	JH 02/07/18	Breakroom appliances in fair condition.
<b>E1020 Institutional Equipment</b>	1909	1970	3	JH 02/07/18	Miscellaneous shop equipment; assume adequate for need.
<b>E1030 Vehicular Equipment</b>	1909	2010	3	JH 02/07/18	Vehicle scale in street at front of building; recently renewed with no issues reported. Motorized garage door openers.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	1909	1950	3	TRB 02/07/18	Casework where occurs is plastic laminate.

# Facility Summary

City of Tacoma  
 Streets & Grounds Offices  
 Infrastructure

2324 South 'C' Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1909	1909	3	TRB 02/07/18	There is a concrete ramp drive on wood heavy timbers accessing the second story of the building.
<b>G2030 Pedestrian Paving</b>	1909	1950	4	TRB 02/07/18	Perimeter concrete sidewalks along the Northeast, and West elevations; Sections of walks are in poor condition, breaking apart and exposing original brick cobble pavers below.
<b>G2040 Site Development</b>	1909	1909	4	TRB 02/07/18	There is a flag pole on the Northeast end of the building that is rusting, recommend re-painting.
<b>G2050 Landscaping</b>	1909	1909	3	TRB 02/07/18	Minor landscape areas, some grass and shrubs along east and north sides of building. Recommend cutting shrubs back away from face of wall.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1909	1970	3	JH 02/07/18	City water with no issues reported.
<b>G3020 Sanitary Sewer</b>	1909	1970	3	JH 02/07/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1909	1970	3	JH 02/07/18	To East one downspout spills to grade leaving standing water against the foundation. Other drains appears operational, draining to area storm or street. Oil/water separator on West side of building, little or not used.
<b>G3060 Fuel Distribution</b>	1909	1970	3	JH 02/07/18	Multiple gas meters.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>					

# Facility Summary

City of Tacoma  
 Streets & Grounds Offices  
 Infrastructure

2324 South 'C' Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

##### G4010 Electrical Distribution

1909 1980 3

JH 02/07/18 Overhead electrical service from utility poles to Tacoma Power meters #69300843, #178924 and one more.

##### G4020 Site Lighting

1909 1990 3

JH 02/07/18 HID wall-packs around perimeter of building.

##### G4030 Site Communications and Security

1909 1990 3

JH 02/07/18 Overhead telecom services to building from purveyors; no issues reported.



## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Streets & Grounds Offices

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Infrastructure	Site Improvements	\$48,000	\$12,000	\$12,000	\$39,600	\$111,600
	<b>Facility Total</b>	<b>\$48,000</b>	<b>\$12,000</b>	<b>\$12,000</b>	<b>\$39,600</b>	<b>\$111,600</b>
Streets & Grounds Offices Building	Exterior Closure	\$55,000	\$13,750	\$13,750	\$45,375	\$127,875
	Roofing	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Interior Finishes	\$79,200	\$19,800	\$19,800	\$65,340	\$184,140
	Plumbing	\$38,333	\$9,583	\$9,583	\$31,624	\$89,123
	HVAC	\$65,000	\$16,250	\$16,250	\$53,625	\$151,125
	Electrical	\$170,710	\$42,678	\$42,678	\$140,836	\$396,901
	<b>Facility Total</b>	<b>\$413,243</b>	<b>\$103,311</b>	<b>\$103,311</b>	<b>\$340,925</b>	<b>\$960,789</b>
	<b>Site Total</b>	<b>\$461,243</b>	<b>\$115,311</b>	<b>\$115,311</b>	<b>\$380,525</b>	<b>\$1,072,389</b>



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Streets & Grounds Offices

Total Observed Deficiency Repair Direct Cost : \$461,243

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Infrastructure</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$48,000</b>
<b>System: Site Improvements</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$111,600</b>
<b>Pedestrian Paving</b>									
Concrete	5	1	2018		4,000	\$12.00	SF	\$48,000	\$111,600

Perimeter concrete sidewalks on west, and western half of the north side of the building are badly cracked and broken. Tripping hazard and not ADA compliant.

Remove and replace perimeter pathways and garage access drive aprons new concrete (replace with ADA compliant surfaces and transitions).





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Streets & Grounds Offices

Total Observed Deficiency Repair Direct Cost : \$461,243

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Streets &amp; Grounds Offices Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$55,000</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$127,875</b>
<b>Exterior Walls</b>									
Concrete window sills	4	2	2018		2	\$2,500.00	EA	\$5,000	\$11,625

Above low roof (at old door), concrete wall at window sills are spalled with exposed reinforcing.

Clean spalling concrete and patch with repair mortar, replace siding infill panels, re-paint.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Streets & Grounds Offices

Total Observed Deficiency Repair Direct Cost : \$461,243

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility:</b> Streets & Grounds Offices Building					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$55,000</b>
<b>System:</b> Exterior Closure					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$127,875</b>
<b>Exterior Windows</b>									
Exterior Windows	5	1	2018		30	\$1,500.00	EA	\$45,000	\$104,625

East and Southeast windows have not been replaced.  
Staff complain of drafts.

Remove and replace windows with historically sensitive thermally insulated units at occupied areas.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Streets & Grounds Offices

Total Observed Deficiency Repair Direct Cost : \$461,243

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Streets &amp; Grounds Offices Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$55,000</b>	
<b>System: Exterior Closure</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$127,875</b>	
<b>Exterior Doors</b>										
Door Opener	5	1	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

OH garage doors do not have safety sensor stop integrated operator hardware.

Replace operator hardware with modern safety operators.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Streets & Grounds Offices

Total Observed Deficiency Repair Direct Cost : \$461,243

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Streets & Grounds Offices Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$5,000
System: Roofing					Total System Deficiency Repair Cost (Marked Up):				\$11,625
<b>Projections</b>									
Projections	4	3	2018		1	\$5,000.00		\$5,000	\$11,625

Unenforced masonry chimney (top was lowered, but is still a very tall unsupported masonry, ans a seismic risk)

Review with structural engineer; adding seismic strapping (securing chimney to concrete wall) may be advised.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Streets & Grounds Offices

Total Observed Deficiency Repair Direct Cost : \$461,243

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Streets & Grounds Offices Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$79,200
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$184,140
<b>Wall Finishes</b>									
Paint	4	5	2018		5,000	\$5.00	SF	\$25,000	\$58,125

Areas of worn paint, chipping and peeling in the upper offices, and other areas where prior wall mount elements removed (women's toilet pictured as an example).

Test for lead (remediation if encountered), scrape and patch and repaint where needed.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Streets & Grounds Offices

Total Observed Deficiency Repair Direct Cost : \$461,243

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Streets & Grounds Offices Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$79,200
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$184,140
<b>Floor Finishes</b>									
Epoxy Floor	5	4	2018		900	\$10.00	SF	\$9,000	\$20,925

Paint on concrete at locker rooms worn.

Strip finish, and re-finish with non-slip epoxy on concrete.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Total Observed Deficiency Repair Direct Cost : \$461,243

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Streets &amp; Grounds Offices Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$79,200</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$184,140</b>
<b>Floor Finishes</b>									
Other	4	5	2018		5,000	\$5.00	SF	\$25,000	\$58,125

Upper storage floor is the original second floor horse barn, covered in tar or thin asphalt (floor boards showing through in areas).

Cover floor with marine grade plywood (to encapsulate and protect historical sub-floor).



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Streets & Grounds Offices

Total Observed Deficiency Repair Direct Cost : \$461,243

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Streets &amp; Grounds Offices Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$79,200</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$184,140</b>
<b>Floor Finishes</b>									
Sheet Vinyl	4	4	2018		200	\$10.00	SF	\$2,000	\$4,650

Womens restroom sheet good flooring yellowing, and former floor tile adhesive chemically telegraphing through.

Remove and provide new seam sealed cove based sheet good flooring.





# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Streets & Grounds Offices

Total Observed Deficiency Repair Direct Cost : \$461,243

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Streets & Grounds Offices Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$79,200
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$184,140
<b>Floor Finishes</b>									
VCT	5	2	2018		300	\$4.00	SF	\$1,200	\$2,790

Mens room VCT at end of life, and unsanitary.

Remove and provide new seam sealed cove based sheet good flooring.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Streets & Grounds Offices

Total Observed Deficiency Repair Direct Cost : \$461,243

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					

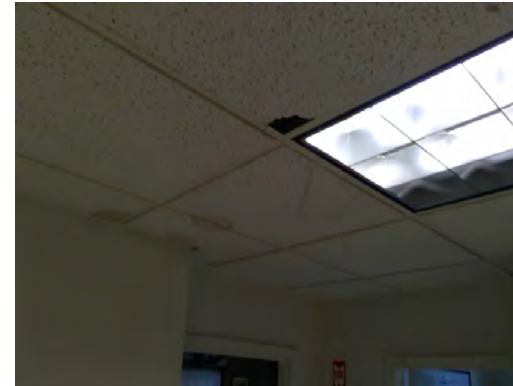
Facility: Streets & Grounds Offices Building	Total System Deficiency Repair Cost (Undiscounted/Unescalated):	\$79,200
System: Interior Finishes	Total System Deficiency Repair Cost (Marked Up):	\$184,140

**Ceiling Finishes**

Acoustical Ceiling Tile	4	5	2018		2,000	\$2.50	SF	\$5,000	\$11,625
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Areas in the office area have broken and stained acoustical ceiling tile.

Replace ceiling tile with new.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Streets & Grounds Offices

Total Observed Deficiency Repair Direct Cost : \$461,243

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Streets & Grounds Offices Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$79,200
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$184,140
<b>Ceiling Finishes</b>									
Gypsum and Plaster	4	5	2018		4,000	\$3.00	SF	\$12,000	\$27,900

Ceilings on the top floor had been heavily water damaged prior to the re-roof, alleyway patch and repair work has occurred but has not been painted.

Paint gypsum ceilings.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Streets & Grounds Offices

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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Streets &amp; Grounds Offices Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$38,333</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$89,123</b>
<b>Domestic Water Distribution</b>									
Galvanized Piping	4	3	2018		15,333	\$2.50	SF	\$38,333	\$89,123

Old galvanized pipe.

Replace with copper and/or PEX.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Total Observed Deficiency Repair Direct Cost : \$461,243

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Streets & Grounds Offices Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$65,000
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$151,125
<b>Terminal and Package Units</b>									
HVAC	4	3	2018		5	\$6,000.00	EA	\$30,000	\$69,750

Some aging HVAC equipment.

Replace upon failure.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Total Observed Deficiency Repair Direct Cost : \$461,243

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				Action						
<b>Deficiency</b>										
Facility: Streets & Grounds Offices Building									Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$65,000	
System: HVAC									Total System Deficiency Repair Cost (Marked Up): \$151,125	
<b>Other HVAC Systems and Equipment</b>										
Paint booth	4	2	2018		1	\$35,000.00	LS	\$35,000	\$81,375	

No paint booth or hood.

Install paint booth.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Streets & Grounds Offices

Total Observed Deficiency Repair Direct Cost : \$461,243

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Streets &amp; Grounds Offices Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$170,710</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$396,901</b>
<b>Electrical Service and Distribution</b>									
Electrical distribution	4	3	2018		25,142	\$5.00	SF	\$125,710	\$292,276

Insufficient panel access clearance; old load centers and disconnects; and old wiring in some areas.

Provide code clearance for panels; replace old load centers and disconnects. Replace any remaining RHW (cloth-covered) wiring.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Streets & Grounds Offices

Total Observed Deficiency Repair Direct Cost : \$461,243

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Streets & Grounds Offices Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$170,710
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$396,901
<b>Low Voltage Fire Alarm</b>									
Fire alarm	4	2	2018		15,000	\$3.00	SF	\$45,000	\$104,625

Partial fire alarm coverage.

Increase covered to including entire building.







## Opportunity Summary By Subsystem

City of Tacoma

Site: Streets & Grounds Offices

Total Site Opportunity Cost: \$1,254,612

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Infrastructure</b> <b>System: Site Civil / Mechanical Utilities</b> <b>Total Cost: \$10,000</b>						
G3060	Fuel Distribution					
	Multiple gas meters.	Consolidate into one meter to reduce metering charges.	1.00	\$10,000.00	LS	\$10,000
<b>Facility: Infrastructure</b> <b>System: Site Electrical utilities</b> <b>Total Cost: \$5,000</b>						
G4020	Site Lighting					
	HID wall-packs.	Upgrade to LED.	10.00	\$500.00	EA	\$5,000
<b>Facility: Streets &amp; Grounds Offices Building</b> <b>System: Roofing</b> <b>Total Cost: \$5,000</b>						
B3010	Roof Coverings					
	At the lower roof adjacent to the ramp, there is no guard fence preventing public access to the roof.	Provide a security fence at the end of the ramp to prevent unauthorized access onto the roof.	1.00	\$5,000.00	LS	\$5,000
<b>Facility: Streets &amp; Grounds Offices Building</b> <b>System: Staircases</b> <b>Total Cost: \$20,000</b>						
C2010	Stair Construction					
	There is no second floor egress, and no internal access from the first to second floor	Consider constructing an internal stair connecting both floors, and acting as a second means of egress from the second floor.	1.00	\$20,000.00	LS	\$20,000
<b>Facility: Streets &amp; Grounds Offices Building</b> <b>System: Vertical Transportation</b> <b>Total Cost: \$50,000</b>						
D1010	Elevators and Lifts					
	No elevator and abandoned hose drying tower.	Install two-stop elevator or lift at hose tower.	1.00	\$50,000.00	LS	\$50,000
<b>Facility: Streets &amp; Grounds Offices Building</b> <b>System: HVAC</b> <b>Total Cost: \$804,544</b>						
D3050	Terminal and Package Units					
	Wide mix of inefficient, inconsistent HVAC systems.	Replace all with modern, code-compliant HVAC technology.	25,142.00	\$30.00	SF	\$754,260

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Streets & Grounds Offices

Total Site Opportunity Cost: \$1,254,612

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
D3060 Controls and Instrumentation	No DDC.	Install DDC per City standard.	25,142.00	\$2.00	SF	\$50,284
<b>Facility: Streets &amp; Grounds Offices Building</b> <b>System: Fire Protection Total Cost: \$184,500</b>						
D4010 Fire Protection Sprinkler Systems	No existing fire sprinkler system - Provide and install new fire sprinkler system.	Provide new wet fire sprinkler system throughout building.	36,900.00	\$5.00	SF	\$184,500
<b>Facility: Streets &amp; Grounds Offices Building</b> <b>System: Electrical Total Cost: \$175,568</b>						
D5020 Lighting and Branch Wiring	Fluorescent lighting with manual control.	LED with automatic control.	25,142.00	\$4.00	SF	\$100,568
D5090 Other Electrical Systems	No standby generator.	Install 50 kW standby diesel generator with ATS to provide essential function during power outage.	1.00	\$75,000.00	LS	\$75,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 Traffic Signal Shop  
 Traffic Signal Shop Building

3401-A South Orchard Street  
 Tacoma, WA 98407

Facility Size - Gross S.F. 12,000  
 Year Of Original Construction 1983  
 Facility Use Type Maintenance Shop  
 Construction Type Light  
 # of Floors 1  
 Energy Source Electric  
 Year Of Last Renovation 1983  
 Historic Register No



FCI (BMAR/CRV)	0.14	Predicted Renewal Budget (20 yrs)	\$1,937,401
FCI (Bldg OD/CRV)	0.04	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$4,304,000	Building	\$190,650
BMAR (Backlog of Maintenance and Repair)	\$594,000	Infrastructure	
Beginning Budget Year	2018	Total	
		Opportunity Total Project Cost	\$267,375

## Facility Condition Summary

The Traffic Signal Shop is a metal 'Butler' type building constructed in 1983. It is generally in good condition. Pre-engineered metal shop building (insulated), with internal offices, and a parts storage mezzanine above. The roof extends to provide covered parking for department boom trucks. The exterior metal roof and siding are showing years of service.

# Facility Summary

City of Tacoma  
 Traffic Signal Shop  
 Traffic Signal Shop Building

3401-A South Orchard Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1983	1983	3	TRB 01/25/18	Assumed concrete foundations at structural members, and turn down slab edges at perimeter elsewhere..
<b>A1030 Slab On Grade</b>	1983	1983	3	TRB 01/25/18	Concrete slab on grade. Miscellaneous minor cracks observed.
<b>B Shell</b>			<b>2.5</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1983	1983	3	TRB 01/25/18	Mezzanine are wood joists and plywood sheathing supported by wood stud walls.
<b>B1020 Roof Construction</b>	1983	1983	2	TRB 01/25/18	Light gage metal joists with metal roofing support by structural steel moment frames at interior bays and steel post and beam at end bays.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1983	1983	3	TRB 01/25/18	Light gauge steel girts with metal siding spanning between exterior steel columns. Batt insulated with "supersaver" type vapor barrier exposed to interiors (wood stud and clad with gyp at conditioned office.shop areas). Exterior metal begging to show age, with rust at bottom sill flashing, and some fasteners beginning to corrode, and a variety of dents. Exterior wall at office area (near trees) is looking dirty - cleaning recommended for aesthetics, and sealing all through wall penetrations.
<b>B2020 Exterior Windows</b>	1983	1983	3	TRB 01/25/18	Exterior windows are double pane metal window system. Many insect screens are torn or damaged - recommend mesh repair or replacement.

# Facility Summary

City of Tacoma  
 Traffic Signal Shop  
 Traffic Signal Shop Building

3401-A South Orchard Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>2.5</b>		
<b>Exterior Closure</b>					
<b>B2030 Exterior Doors</b>	1983	1983	3	TRB 01/25/18	Exterior doors are hollow metal framed, hollow metal doors with modern hardware. Single high bay metal insulated roll up garage door.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1983	1983	3	TRB 01/25/18	Original aging standing seam metal roofing, Scuppers, flashings, gutters are "Kynar" type coated sheet metal as is the roofing. Metal roof reportedly recieved a coating in 2005.
<b>C Interiors</b>			<b>3.0</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1983	1983	3	TRB 01/25/18	Interior walls are "2x" wood construction with Gypsum surface. Railings are painted metal.
<b>C1020 Interior Doors</b>	1983	1983	3	TRB 01/25/18	Interior doors are solid core wood with hollow metal frames at office areas. Doors at utility areas are hollow metal doors with hollow metal frames. Some heavier use doors receiving extra paint wear with equipment and personnel. Recommend cleaning, repainting, and adding 1/3 high stainless kick plates.
<b>C1030 Fittings</b>	1983	1983	3	TRB 01/25/18	Storage shelving is heavy utility painted metal warehouse shelving.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>	1983	1983	3	TRB 01/25/18	Stairs to mezzanine are wood.
<b>C2020 Stair Finishes</b>	1983	1983	3	TRB 01/25/18	Handrails and balustrades are metal. Treads are wood.

# Facility Summary

City of Tacoma  
 Traffic Signal Shop  
 Traffic Signal Shop Building

3401-A South Orchard Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>3.0</b>		
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1983	1983	3	TRB 01/25/18	Interior wall finishes are painted sheet rock in most office and break areas.
<b>C3020 Floor Finishes</b>	1983	1983	3	TRB 01/25/18	Flooring is mainly VCT in office and break rooms showing age. Some office areas are partly carpeted and are stained and in poor condition. The warehouse areas are concrete. The mezzanine is plywood.
<b>C3030 Ceiling Finishes</b>	1983	1983	3	TRB 01/25/18	Ceilings in office and break areas are hard lid sheetrock that is painted. Warehouse ceilings are exposed to structure.
<b>D Services</b>			<b>3.1</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1983	1938	3	JH 01/25/18	Plumbing fixtures are various composite, porcelain and cast iron of varying vintage. Large hand-wash basins need maintenance, sink in office kitchen has drain trap issues and insta-hot needs replacement.
<b>D2020 Domestic Water Distribution</b>	1983	1983	3	JH 01/25/18	Domestic water piping appears is copper and in fair to good condition. One newer Rheem 50-gal and one aging A.O. Smith 66-gal electric water heaters; both missing seismic straps. No significant issues reported.
<b>D2030 Sanitary Waste</b>	1983	1983	3	JH 01/25/18	Cast iron DW&V with no issues reported.
<b>D2040 Rain Water Drainage</b>	1983	1983	3	JH 01/25/18	Downspouts to grade, then surface flow to catch basins. At least one downspout is clogged and one is missing, replace with temporary hose.
<b>D2090 Other Plumbing Systems</b>					

# Facility Summary

City of Tacoma  
 Traffic Signal Shop  
 Traffic Signal Shop Building

3401-A South Orchard Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.1</b>		
<b>Plumbing</b>					
	1983	1983	3	JH 01/25/18	Curtis 5 hp air compressor and distribution piping serving shop area.
<b>HVAC</b>					
<b>D3010 Energy Supply</b>					
	1983	1983	3	JH 01/25/18	Two propane tanks; appears to be one for the generator and one for shop gas-fired unit heaters. Opportunity to consolidate tanks and expand service to including office furnaces (change from electric resistance to propane-fired). Investigate natural gas availability to site, potentially shared with adjacent Fire Garage and other campus facilities.
<b>D3020 Heat Generating Systems</b>					
	1983	1983	3	JH 01/25/18	Electric forced-air furnaces for some office areas. Propane unit heaters for shop areas, plus overhead electric infrared heaters above shop work benches. Some electric wall heaters. Small electric heater in drying room needs replacement.
<b>D3030 Cooling Generating Systems</b>					
	1983	2000	4	JH 01/25/18	Fujitsu and Mitsubishi condensing units for ductless splits. Temporary cooling for data room.
<b>D3040 HVAC Distribution Systems</b>					
	1983	1983	3	JH 01/25/18	Duct system appears to be galvanized steel and in fair condition. Duct from cabinet exhaust fan in shop is disconnected.
<b>D3050 Terminal and Package Units</b>					
	1983	1983	4	JH 06/04/09	Five ductless split-Dx systems, and two residential grade electric furnaces service office areas. Propane-fired unit heaters temper the shop areas. Electric wall heaters for smaller spaces.
<b>D3060 Controls and Instrumentation</b>					
	1983	1983	3	JH 06/04/09	Ductless AC split systems have factory T-stats. Electric furnaces are controlled by standard solid-state thermostats.
<b>D3090 Other HVAC Systems and Equipment</b>					



# Facility Summary

City of Tacoma  
 Traffic Signal Shop  
 Traffic Signal Shop Building

3401-A South Orchard Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.1</b>		
<b>HVAC</b>					
<b>D3090 Other HVAC Systems and Equipment</b>					
	1983	1983	3	JH 06/04/09	Welding bay in shop is served by a large hood with exhaust fan.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>					
	1983	1983	3	JH 01/25/18	Mostly sprinkled building; opportunity to extend to areas not covered.
<b>D4030 Fire Protection Specialties</b>					
	1983	1983	3	JH 01/25/18	Fire extinguishers on hooks.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	1983	1983	3	JH 06/04/09	Service is underground from pad-mounted transformer to Square D 120/208V, 3 phase, 400A MDP serving multiple branch panels. One panel has generator back-up via ATS.
<b>D5020 Lighting and Branch Wiring</b>					
	1983	2000	3	JH 06/04/09	Lighting is a mix of T5 and T8 strips, wraparounds, and high-bay industrial fluorescence. Standard fluorescent fixtures are used in damp locations under the vehicle parking and are showing affects of weather. Wire plug-mold is installed in some office areas.
<b>D5032 Low Voltage Communication</b>					
	1983	1983	3	JH 01/25/18	Clocks are wall-hung battery-operated, no issues reported.
<b>D5037 Low Voltage Fire Alarm</b>					
	1983	2000	3	JH 01/25/18	Fire alarm system exists in office area with new (2017) AES antenna-type alarm transmitter.
<b>D5038 Low Voltage Security</b>					
	1983	1983	3	JH 01/25/18	Older ADT Focus security system is installed, no issues reported.
<b>D5039 Low Voltage Data</b>					

# Facility Summary

City of Tacoma  
 Traffic Signal Shop  
 Traffic Signal Shop Building

3401-A South Orchard Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.1</b>		
<b>Electrical</b>					
<b>D5039 Low Voltage Data</b>	1983	1983	3	JH 01/25/18	Structured cable system is modern Cat 5E with modern switch in make-shift comm room.
<b>D5090 Other Electrical Systems</b>	1983	2006	3	JH 01/25/18	Generac 60 kW propane-fired generator with one Generac RTS automatic transfer switch (ATS). Stenciled exit signs. Some battery-backed egress bug-eye wall-packs are present.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1983	1983	3	JH 01/25/18	Residential-grade appliances in breakroom and laundry; no issues reported.
<b>E1020 Institutional Equipment</b>	1983	1983	3	JH 01/25/18	Variety of shop equipment assumed adequate for need; no issues reported.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	1983	1983	3	TRB 01/25/18	P-lam faced wood casework and countertops in break room.

## Facility Summary

City of Tacoma  
Traffic Signal Shop  
Infrastructure

3401-A South Orchard Street  
Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1983	1983	2	TRB 01/25/18	Asphalt.
<b>G2020 Parking Lots</b>	1983	1983	3	TRB 01/25/18	Parking/storage yard is asphalt surface with extruded concrete curbing (minor chipping).
<b>G2040 Site Development</b>	1983	1983	2	TRB 01/25/18	Chain link fencing with razor wire; ecology block retaining wall and gravel storage areas.
<b>G2050 Landscaping</b>	1983	1983	3	TRB 01/25/18	Shrubs and trees along side of building with beauty bark, some ferns and weeds.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1983	1983	3	JH 01/25/18	City water with no issues reported supplying domestic water and fire service with little or no apparent irrigation, and no issues reported.
<b>G3020 Sanitary Sewer</b>	1983	1983	3	JH 01/25/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1983	1983	3	JH 01/25/18	Catch basins in paved areas assumed to City storm service, with no issues reported. Opportunity pipe roof downspouts to storm underground.
<b>G3060 Fuel Distribution</b>	1983	1983	2	JH 01/25/18	Two above grade propane storage tanks, approximately 300 to 500-gal each, one serving generator, one serving building gas-fired HVAC equipment.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1983	1983	3	JH 01/25/18	Underground primary to pad-mounted transformer with underground feed to the

# Facility Summary

City of Tacoma  
 Traffic Signal Shop  
 Infrastructure

3401-A South Orchard Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>					building. Assume Tacoma Power.
<b>G4020 Site Lighting</b>	1983	1983	3	JH 01/25/18	Cobra-head type pole mount fixtures in parking lot; some newer LED sconces mounted on outside walls. No issues reported.
<b>G4030 Site Communications and Security</b>	1983	2000	3	JH 01/25/18	Comm services from purveyors. Site CCTV with aging cameras mounted on pole(s); all with no issues reported.
<b>Other Site Construction</b>					
<b>G9090 Other Site Systems</b>	1983	2000	3	TRB 01/25/18	Three free standing prefabricated metal canopy storage structures. Some roof leaking noted.



# Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Traffic Signal Shop

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Traffic Signal Shop Building	Roofing	\$16,000	\$4,000	\$4,000	\$13,200	\$37,200
	Interior Finishes	\$20,000	\$5,000	\$5,000	\$16,500	\$46,500
	HVAC	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	<b>Facility Total</b>	<b>\$41,000</b>	<b>\$10,250</b>	<b>\$10,250</b>	<b>\$33,825</b>	<b>\$95,325</b>
	<b>Site Total</b>	<b>\$41,000</b>	<b>\$10,250</b>	<b>\$10,250</b>	<b>\$33,825</b>	<b>\$95,325</b>



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Traffic Signal Shop

Total Observed Deficiency Repair Direct Cost : \$41,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Traffic Signal Shop Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$16,000</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$37,200</b>
<b>Roof Coverings</b>									
Metal roofing	4	5	2018		16,000	\$1.00	SF	\$16,000	\$37,200

Roof aging, with moss growth. roof leaks reported on both gable ends (expected at antenna boom penetrations).

To extend service and life: carefully treat then clean roof of moss (and debris). Investigate condition of past seal coat and spot touch up areas if needed. At antenna booms, Investigate, seal, and re-flash antenna areas and associated penetrations.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Traffic Signal Shop

Total Observed Deficiency Repair Direct Cost : \$41,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
<b>Facility:</b> Traffic Signal Shop Building					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$20,000</b>
<b>System:</b> Interior Finishes					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$46,500</b>
<b>Floor Finishes</b>									
Carpeting	4	4	2018		1,000	\$15.00	SF	\$15,000	\$34,875

Carpets are stained, tired and worn from years of use. Staff reported a one time "flood" (of unknown origin in the front corner office area) that stained the carpet.

Flood event occurred only one time 6 months ago. As no drywall damage is evident, source could be from above, or a window flashing failure in a wind driven rain event, or, suspect an exterior flood event backed up on concrete outside and passed under the sill as most logical source (there is likely no concrete stem wall in this pre-engineered building - just a turned down slab edge). As a precaution to thwart future flooding, review and clean exterior drainage pathways on exterior, clean moss, dirt and debris away from base metal, and seal base flashing condition at exterior. Replace carpeting as final step.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Traffic Signal Shop

Total Observed Deficiency Repair Direct Cost : \$41,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Traffic Signal Shop Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$20,000</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$46,500</b>
<b>Ceiling Finishes</b>									
Ceiling Finishes	4	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Numerous areas where "supersaver" vapor barrier/insulation retention system is torn or has holes (and one large area in central area where insulation is even falling in).

Repair area where insulation falling in, and tape seal all other tears in the vapor barrier (to prevent condensation inside insulation level and rusting out metal deck).



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Traffic Signal Shop

Total Observed Deficiency Repair Direct Cost : \$41,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Traffic Signal Shop Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$5,000	
System: HVAC				Total System Deficiency Repair Cost (Marked Up):					\$11,625	
<b>Cooling Generating Systems</b>										
Cooling	4	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Temporary/portable cooling for data room.

Install permanent cooling.



## Opportunity Summary By Subsystem

City of Tacoma

Site: Traffic Signal Shop

Total Site Opportunity Cost: \$149,000

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Infrastructure</b> <b>System: Site Civil / Mechanical Utilities</b>						
<b>Total Cost: \$34,000</b>						
G3030	Storm Sewer					
	Roof drains discharge to grade.	Pipe to storm.	6.00	\$1,500.00	EA	\$9,000
G3060	Fuel Distribution					
	Two propane tanks.	Develop natural gas service to site, including adjacent Fire Garage and other campus facilities.	1.00	\$25,000.00	LS	\$25,000
<b>Facility: Traffic Signal Shop Building</b> <b>System: HVAC</b>						
<b>Total Cost: \$80,000</b>						
D3050	Terminal and Package Units					
	Aged and inefficient HVAC technology.	Upgrade to high-efficiency furnaces with heat recovery ventilation, replace stand-alone ductless splits with multi-zone system.	7.00	\$10,000.00	EA	\$70,000
D3060	Controls and Instrumentation					
	No DDC.	Upgrade to City standard DDC.	1.00	\$10,000.00	LS	\$10,000
<b>Facility: Traffic Signal Shop Building</b> <b>System: Electrical</b>						
<b>Total Cost: \$35,000</b>						
D5020	Lighting and Branch Wiring					
	Fluorescent lighting with manual control.	Upgrade to LED with automatic control.	7,000.00	\$5.00	SF	\$35,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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City of Tacoma  
2018 Facility Condition Assessment  
*Neighborhood & Community Service Facilities Report*

Prepared By:

**MENG**  
ANALYSIS

September 28, 2018





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## Overview of Condition Assessment

### Background

The City's assets are the foundation of the valuable services the City provides to residents and they represent a significant investment. Effective asset management is required to maintain service levels and for long-term fiscal sustainability. Effective asset management is also a good investment in itself, as proper management and stewardship can slow the deterioration of assets, resulting in cost savings.

Effective Asset management generally includes a number of components.

- Assets need to be continually assessed so there is up to date information on their status.
- The information is used to determine needed maintenance and to mitigate issues.
- Each asset should have a plan that addresses its needs for its entire life, including its replacement, inspections, and maintenance.
- There should be a system in place to prioritize asset care and the allocation of limited resources.

To support the City of Tacoma in asset management, capital planning & budgeting efforts, MENG Analysis was contracted to complete a thorough Facility Condition Assessment (FCA) of City-owned General Government (non-enterprise/ non-utility) facilities and sites. The MENG Analysis team reviewed existing operation and maintenance information, conducted field investigations to identify Observed Deficiencies (ODs), developed cost estimates for ODs, and used customized cost models to predict future capital costs over a 20-year horizon (Predicted Renewals or PRs). The team also made note of "Opportunities" to improve the user experience, save energy, and increase system and building longevity.

The following lists the Neighborhood and Community Service (NCS) facilities surveyed during this project:

Site	Address	Square Feet	Year Constructed / Last Renovation
Beacon Senior Center	415 South 13th Street	12,122	1941 / 1983
Lighthouse Senior Center	5016 "A" Street	8,777	1950 / 1981
Pt. Defiance Senior Center	4716 North Baltimore	3,806	1965 / 1990
T.A.C.I.D.	6315 South 19th Street	10,367	1983 / NA
Tacoma Learning Center	6316 South 12th Street	5,256	1987 / NA

The projected costs identified in this report are budgetary in nature and portray a rough order of magnitude for the work based on information available. Information at this budgetary level is often not complete and would require design level investigation to fully realize accurate scope and cost. Identified costs are intended to provide a consistent overview of the needs of City-owned facilities to be compared across the subject portfolio.

## Facility Survey Methodology

The methodology for the City of Tacoma FCA started with an initial review of previous records and drawings. An operations and maintenance questionnaire was completed by city staff. Additional information was gathered from City staff followed by an O&M workshop to gather additional information.

This preparation stage was followed by eight weeks of on-site field surveys conducted by technical experts who reviewed civil, structural, architectural, mechanical, electrical, plumbing, and site infrastructure systems to a Uniformat II, level 3 detail. The facility surveys were facilitated by an FCA Team Leader to maintain consistency in evaluation, survey forms, condition ratings and system categorization.

Each team member used survey forms to document the apparent facility conditions including:

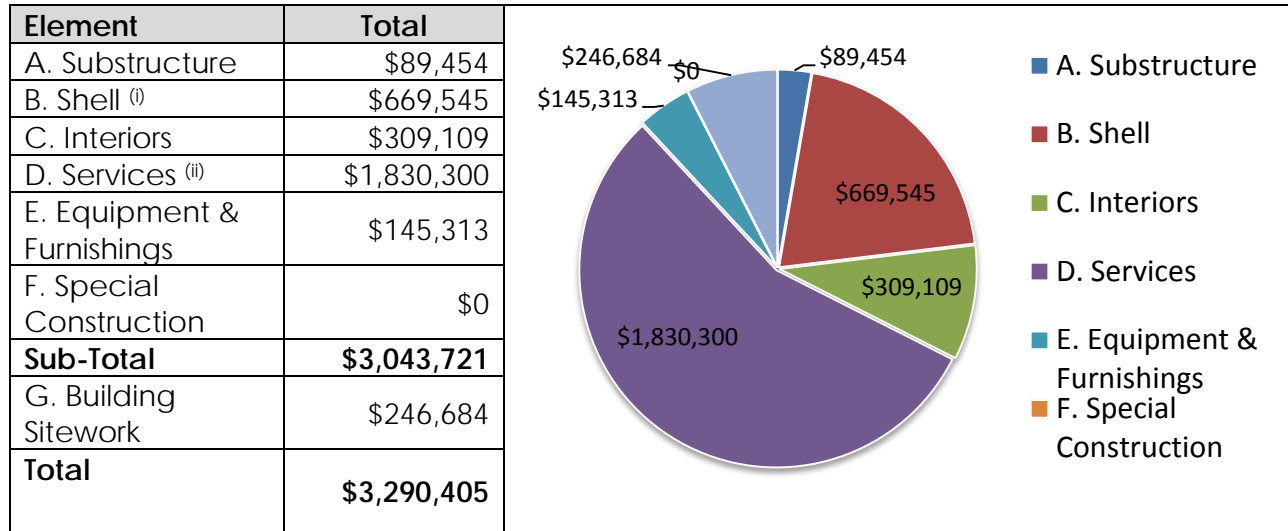
- I. Describing the nature of facility systems per Uniformat II,
- II. Determining the overall condition score of building elements,
- III. Identifying major maintenance deficiencies greater than \$5,000 (direct cost) that are likely to be required for immediate major maintenance repairs (2018), plus the next 5-year period (2019-2023)
- IV. Documenting specific deficiencies of systems with narrative as well as budgetary level cost estimates to repair or replace deficiencies
- V. The survey team also documented specific opportunities for upgrades that will increase facility performance. These items are not required.

## Observed Deficiencies (ODs), 2018-2023

Observed Deficiencies are based on known conditions that are witnessed by or disclosed directly to the field surveyors and are generally the best short-term planning tool. The MENG Analysis team uses the Uniformat II system to organize cost estimates for system repairs or replacements. OD estimates include direct costs plus typical construction markups as well as project development markups (design, permitting, management, etc.). ODs are intended as “like” replacements and do not address level-of-service enhancements and/or programmatic building changes or code required upgrades. The following table summarizes the estimated cost for (2018-2023) Observed Deficiencies at each NCS facility:

<b>Site</b>	<b>Building Systems</b>	<b>Building Sitework</b>	<b>Total</b>
Beacon Senior Center	\$1,658,931	\$66,263	<b>\$1,725,194</b>
Lighthouse Senior Center	\$855,113	\$38,130	<b>\$893,243</b>
Pt. Defiance Senior Center	\$352,704	\$53,475	<b>\$406,179</b>
T.A.C.I.D.	\$107,804	\$71,378	<b>\$179,182</b>
Tacoma Learning Center	\$69,169	\$17,438	<b>\$86,607</b>
<b>Total</b>	<b>\$3,043,721</b>	<b>\$246,684</b>	<b>\$3,290,405</b>

The following table and chart summarize the Observed Deficiencies for all NCS facilities by major building element:



- (i) Shell includes floor/roof construction, exterior walls, windows/doors, and roofing.
- (ii) Services includes elevators, plumbing, HVAC, fire protection & electrical.

The following summarizes the general findings of the Neighborhood and Community Service Facilities based on the Observed Deficiencies:

- **Substructures:** Foundations are in relatively good shape. Cosmetic updates would be considered during renovation projects, but not an immediate concern. Structural seismic upgrades at Beacon and Lighthouse are anticipated to be code required at any major renovation. Seismic standards were not evaluated as part of the survey.
- **Shell:** The roofing, siding and windows are aging but functional at most buildings. Windows at Lighthouse senior center are currently scheduled for replacement. Roof at Point Defiance needs to be replaced and has active bids under review. The siding at Beacon Center is functioning, but is cosmetically poor and needs maintenance. Weatherization maintenance should be performed throughout all buildings.
- **Interiors:** The interior finishes through most of the buildings are comprised of carpet and VCT on the floors with some hardwood in the auditoriums. The walls are mostly painted drywall and plaster. The finishes in the 3 senior centers are dated and in some areas heavily worn out or damaged. At a minimum the 3 senior centers are recommended to be painted. TACID and TLC have recently been painted and some flooring has been replaced.

- **Services:**
  - **Heating Ventilation & Air Conditioning (HVAC):** Of all building components the HVAC systems need the most attention. The heating component in all buildings, except TLC, are past useful life cycles and are being maintained and serviced hoping to make it through the heating season. Ventilation in most buildings is lacking and inefficient, and air conditioning is handled with spot coolers and miscellaneous window units.
  - **Plumbing:** The hot water heaters should be replaced. The plumbing systems are functional but there is evidence of corrosion in the piping and fixtures are outdated and inefficient.
  - **Electrical:** Power and lighting is functional but in most cases inefficient or lacking as compared to current code standards.
  - **Fire protection:** Beacon center is the only building sprinklered. All buildings have a fire alarm system with limited coverage. The kitchen grease hood at Beacon and Point Defiance need service and inspection.
  
- **Equipment and Furnishings:** The kitchen equipment at Point Defiance and Beacon center is in poor condition but functioning. Lighthouse kitchen equipment is in fair condition with no issues reported. Casework and other fixed furnishings are dated and worn with some visible damage, but functional.
  
- **Sitework:** Most sites and infrastructure are in good condition, but some repairs are needed to parking areas due to tree roots. Beacon Center parking lot needs to be repaved and the sidewalks are in need of repair. Point Defiance could use top seal coating and striping. Landscaping varies across the facilities but is generally in fair condition and receiving ongoing maintenance.

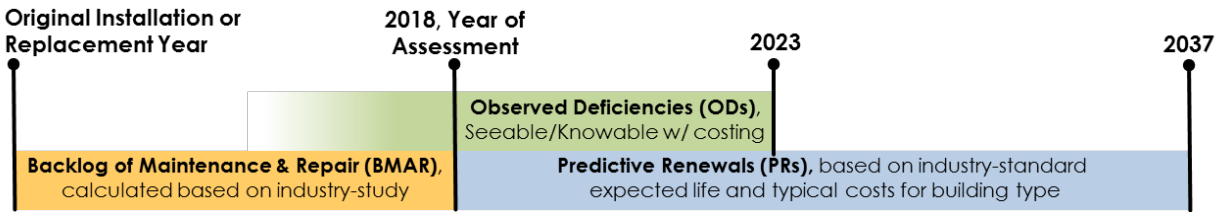
### Supplemental Cost Models

In addition to estimated Observed Deficiencies, MENG Analysis has developed two supplemental models summarized below. It is important to clarify that these calculations are independent of the estimated cost calculated for short-term Observed Deficiencies.

- **Backlog of Maintenance and Repair (BMAR):** The BMAR is an estimate from original construction to present day, of what should have been spent to bring the facility up to good condition based on current observed condition by the surveyors. This is a parametric calculation derived from a statistical industry study. The BMAR is generally defined as the amount of work required to adequately maintain facilities and related infrastructure for the current use that should have been accomplished, but for a variety of reasons has not.
  
- **Predicted Renewals (PRs):** PRs predict future capital costs over a 20-year horizon (2018-2037). They are based on predictive models that use industry-standard expected life data, combined with original construction or remodel dates as well as system scores from surveyors to estimate when a system will require renewal.

Unit costs in the models are updated on a yearly basis and adjusted to our specific northwest region. Similar projects that have been estimated and managed by the team were also referenced against the modeled costs for additional verification of recent costs if they were available.

The following graphic and table summarize the supplement cost model information:



Site	Backlog of Maintenance & Repair (BMAR)	Predicted Renewal (PRs)	Total
Beacon Senior Center	\$844,000	\$2,222,000	<b>\$3,066,000</b>
Lighthouse Senior Center	\$581,000	\$1,412,000	<b>\$1,993,000</b>
Pt. Defiance Senior Center	\$237,000	\$717,000	<b>\$954,000</b>
T.A.C.I.D.	\$483,000	\$1,371,000	<b>\$1,854,000</b>
Tacoma Learning Center	\$182,000	\$716,000	<b>\$898,000</b>
<b>Total</b>	<b>\$2,327,000</b>	<b>\$6,438,000</b>	<b>\$8,765,000</b>

**Facility Condition Index (FCI)**

A Facility Condition Index (FCI) calculation is an industry standard used for benchmarking and evaluating the relative condition of a portfolio of facility assets over time. There are a number of different methods used by various organizations to calculate the condition index that best fits their particular portfolio. For this reason, using FCIs to compare the City’s facilities to other organizations is not always appropriate, but is a good tool to compare the City’s facilities to each other.

In general, the FCI is a ratio of current repair needs to the Current Replacement Value (CRV). For this report the FCI is based on both the BMAR/CRV and ODs/CRV, providing an average range of the buildings condition.

The Current Replacement Value (CRV) is a calculation for reconstructing an asset as it currently exists, without modifications or improvement. The CRV estimate is an approximation of the construction cost based on the cost per square foot of a similar constructed building. The CRV estimate should not be used for any other purpose than to calculate the FCI. Estimates for the actual replacement of individual facilities and projects must incorporate a higher level of detail and accuracy.

Common industry practice is to create a scale for interpreting FCI as a way to prioritize facility needs. Most organizations adjust their classifications of FCI to relate to their own unique criteria. For the City of Tacoma, MENG Analysis recommends the following FCI breakdown to support decision making.

- Excellent = 0 - 0.05 (5%)
- Good = 0.06 - 0.10 (6%-10%)
- Fair = 0.11- 0.20 (11%-20%)
- Poor = 0.21 – 0.25 (21% - 25%)
- Critical = 0.26 (26%) or greater

The following table is a summary of the average FCI and relative scaling for each facility:

Site	Excellent 0.05	Good 0.10	Fair 0.15	Poor 0.20	Critical 0.25	0.30
Beacon Senior Center	Approaching Critical, <b>0.24</b> ◆					
Lighthouse Senior Center	Poor, <b>0.23</b> ◆					
Pt. Defiance Senior Center	Approaching Poor, <b>0.21</b> ◆					
T.A.C.I.D.	◆ <b>0.09</b> , Good					
Tacoma Learning Center	◆ <b>0.07</b> , Good					

**Observed Deficiency Over Time (5 years)**

Site	2018-2020	2021-2022	2023	Total
Beacon Senior Center	\$1,114,671	\$598,898	\$11,625	<b>\$1,725,194</b>
Lighthouse Senior Center	\$141,593	\$15,694	\$735,956	<b>\$893,243</b>
Pt. Defiance Senior Center	\$222,038	\$160,891	\$23,250	<b>\$406,179</b>
T.A.C.I.D.	\$134,541	\$17,438	\$27,203	<b>\$179,182</b>
Tacoma Learning Center	\$43,594	\$43,013	\$0	<b>\$86,607</b>
<b>Totals</b>	<b>\$1,656,437</b>	<b>\$835,934</b>	<b>\$798,034</b>	<b>\$3,290,405</b>

**Predicted Renewals Over Time (20 years)**

Site	2018-2023	2024-2037	Total
Beacon Senior Center	\$385,680	\$1,836,588	<b>\$2,222,268</b>
Lighthouse Senior Center	\$366,315	\$1,045,211	<b>\$1,411,526</b>
Pt. Defiance Senior Center	\$153,802	\$563,654	<b>\$717,456</b>
T.A.C.I.D.	\$288,900	\$1,082,096	<b>\$1,370,996</b>
Tacoma Learning Center	\$48,661	\$667,207	<b>\$715,868</b>
<b>Totals</b>	<b>\$1,243,358</b>	<b>\$5,194,756</b>	<b>\$6,438,114</b>

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## Terminology and Abbreviations

**Facility Condition Assessment (FCA):** A structured process to document the conditions of site infrastructure and building systems. FCAs are typically performed by a multi-disciplinary team of architects, engineers, construction, and cost specialists. Facility information and condition data should be maintained in a database for ease of updating and reporting. The data should be renewed over time.

**Facility Condition Index (FCI):** A benchmark used to compare relative condition of facilities within a portfolio of assets; derived by the following formula:

$$\text{FCI} = \frac{\text{Backlog of Maintenance and Repair (BMAR)}}{\text{Current Replacement Value (CRV)}}$$

There are a number of different methods used by various organizations to calculate that backlog. For this reason, using FCIs to compare the City's facilities to other organizations is not always appropriate.

This study uses a parametric method that calculates BMAR based on the assessed condition scores. The statistical basis is a study conducted by NASA on over 10,000 surveyed facilities that evaluated the backlog of repair items relative to qualitative condition scores 1 through 5. The parametric backlog for each system is calculated based on a statistical theoretical percentage of that system that would need repair or replacement for each of the qualitative condition scores. The costs of those systems are the facility use cost models customized for the City of Tacoma.

**Life Cycle Renewal Model:** A theoretical forecast of when building systems will exceed their typical lifespan and funding will be required for renewals.

**Parametric Costs:** Parametric cost estimating is a technique that uses statistical relationships between historical cost data and other program variables such as system condition or age. Historical cost data is typically used at a high level (e.g., cost per square foot) and often represent conceptual, order-of-magnitude costs for initial planning or discussion purposes.

**Remaining Useful Life:** An estimate of the years that a facility system may remain serviceable or in operation before failure; which would then require system renewal or replacement.

**Subsystem:** The term subsystem in this report refers to a Uniformat Level 3 building systems category (e.g., B3010 - Roof Coverings; or B3020 - Roof Opening; or B3030 - Projections).

**System:** The term system in this report refers to a Uniformat Level 2 building system category (e.g., B3000 - Roofing)

The following terms are used in the MENG Analysis FCA Database:  
(See also the database user's manual for more specific definitions.)

**Last Major System Renewal:** The year in which a system was last renewed (substantially repaired or replaced).

**Original System Date:** The year a system was originally constructed/installed.

**Subsystem Assessed Condition Score:** The field surveyors' assessment of condition assigned to each facility subsystem. The rating uses a scale of 1 through 5, where 1=excellent, 2=good, 3=fair, 4=poor, 5=unacceptable. Different subsystem % of CRV's are included in the database for each of the different facility use types (e.g. maintenance shops vs. police station vs. office building, etc.)

**BMAR (backlog of maintenance and repair):** This is an estimated amount that would need to be spent to bring the facility up to good condition. Does not guarantee code compliance.

BMAR is generally defined as the amount of work required to safely maintain facilities and related infrastructure for the current use that should have been accomplished, but for a variety of reasons has not. It includes minor seismic, ADA, and fire protection items necessary to maintain current operations, but it does not include major work in those areas that would normally be accomplished in major building renovation for full code compliance.

The MENG Analysis methodology for calculating BMAR is based on the condition scores (1-5, excellent to unsatisfactory) for each system, with each condition bracket having a BMAR defined as the percentage of that system's replacement value needing repair. Those percentages were derived from a statistical industry study that compared specific system maintenance and repair costs for tens of thousands of buildings relative to the condition scores. Within our FCA process, we calculate condition scores for each subsystem, which are then rolled up to the systems level, and a bracketed lookup table used associate those scores with a percentage of replacement value. Those are totaled for the entire facility, and then divided by the replacement value of the entire facility to get the actual FCI index.

**Subsystem Normal Life:** Industry standard expected subsystem life between renewals or replacement cycles.

**System Coverage:** The amount of area in a facility containing a specific system, expressed as percent of building or site area.

Certain FCA terms are also expressed as formulas in the MENG Analysis FCA Database, as follows:

## List of Commonly Used Abbreviations

AC = Asphalt concrete	HVAC = Heating, ventilating, and air conditioning
ACT = Acoustic ceiling tile	IT = Information technology
A/V = Audio/video	LF = Linear feet (measurable unit)
AHU = Air handling unit	LED = Light emitting diode
ASHRAE = American Society of Heating, Refrigeration, & Air Conditioning Engineers	LS = Lump sum (measurable unit)
BUR = Built-up roofing	MDF = Main distribution frame
CCTV = Closed circuit television	OWS = Oil/water separator
CFH = Cubic feet per hour (of natural gas)	PA = Public address
CFL = Compact fluorescent	P-lam = Plastic laminate
CI = Cast iron	PRV = Pressure regulating valve
CMU = Concrete masonry unit	PTAC = Packaged Terminal Air Conditioning
CO2 = Carbon dioxide	Spig = Pounds per square inch (pressure)
CU = Condensing unit	SS Shelving = Stainless Steel Shelving
C = Commissioning	PVC = Polyvinyl chloride
DDC = Direct digital control	RTU = Roof top unit
DHW = Domestic hot water	RPBP = Reduced pressure backflow preventer
Ds = Direct expansion	SF = Square feet (measurable unit)
EA = Each (measurable unit)	UPS = Uninterruptible power supply
EF = Exhaust fan	VAV = Variable air volume
EFIS = Exterior insulation finishing system	VCT = Vinyl composite tile
FRP = Fiber reinforced plastic	VWC = Vinyl wall covering
GI = Grease interceptor	VOIP = Voice over internet protocol
GSHP = Ground-source heat pump	WAP = Wireless access point
HID = High intensity discharge (lamps)	WD = Wood
HM = Hollow metal	

## Condition Survey Form

### Condition Survey Form Development

Survey forms were developed for the facility condition assessments based on the Uniformat Level 3. All Level 3 subsystems are described with evaluation criteria. The evaluation criteria descriptions clearly explain what elements were included and excluded from each Level 3 subsystem.

Each survey form is accompanied by a deficiency report form that is completed when Observed Deficiencies (ODs) are noted. This Observed Deficiency form notes the problem and the recommended action to correct the deficiency. Raw construction costs (i.e., labor and materials) for facility component replacements or repairs are estimated.

### Sample Condition Scoring Criteria

The following section provides six examples of the condition scoring definitions that were used during the condition surveys.

<b>Roof Construction</b>  <b>B1020</b>	<p>Roof structural frame, structural interior walls supporting roof, roof decks, slabs and sheathing, canopies. Excludes insulation and roofing.</p> <p><b>1 - Excellent:</b> New; Structure is sound and stable; no evidence of cracking, deflection or separation of framing members. Preventative inspection.</p> <p><b>2 - Good:</b> Structure is sound and stable; no evidence of cracking, deflection or separation of framing members. Minor preventative maintenance: rust proofing and / or sealants and tightening of connections.</p> <p><b>3 - Fair:</b> Minor surface cracking or separation of framing members. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Structural damage evident; Twisting, cracking, or separation of structural members affecting surrounding finishes or moisture intrusion. Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> Structurally deficient or damaged beyond repair; major damage to surrounding finishes; jeopardizing occupancy. Replacement.</p>
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<b>Exterior Windows</b>  <b>B2020</b>	<p>Screens, storm windows, exterior louvers, frame, trim, sills, caulking, flashing. Excludes window shades and treatments.</p> <p><b>1 -Excellent:</b> New; doors operating smoothly; no finish degradation. Preventative inspection.</p> <p><b>2 - Good:</b> Functioning smoothly; no finish degradation. Secure hardware and emergency exiting. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Worn but functional; requires paint or resealing; glass or hardware damage only in isolated doors. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Damaged or deficient hardware, glass, trim or seals; water intrusion. Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> Extensive damage, deficient beyond repair; Hardware not operating, moisture intrusion. Replacement.</p>
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<p><b>Exterior Wall Finishes</b></p> <p><b>B2040</b></p>	<p>Exterior wall - exterior applied finishes</p> <p><b>1 - Excellent:</b> New; no finish degradation. Preventative inspection.</p> <p><b>2 - Good:</b> no cracking or moisture intrusion. Minor finish degradation. Minor preventative maintenance. Cleaning.</p> <p><b>3 - Fair:</b> Minor undamaged but requires sealing. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> Damaged beyond repair, Replacement.</p>
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<p><b>Plumbing Fixtures</b></p> <p><b>D2010</b></p>	<p>Water closets, urinals, lavatories, sink, showers, bathtubs, drinking fountains. Excludes hot water heaters.</p> <p><b>1 - Excellent:</b> New; All fixtures operating well. Preventative inspection.</p> <p><b>2 - Good:</b> system components operational, free of defect, and of adequate utility service and capacity for intended use. Includes water saving features. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Some components worn, fixtures stained. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Many components damaged; limited parts; leaking valves, rust and corrosion. Operating parts &gt; 30 years old. Restoration repairs.</p> <p><b>5 - Unsatisfactory:</b> Many fixtures not operational. Rust, corrosion, and mineral deposits. Leaks causing damage to other finishes and components. Replacement.</p>
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<p><b>Heat Generating Systems</b></p> <p><b>D3020</b></p>	<p>Boilers, piping and fittings adjacent to boilers, primary pumps, auxiliary equipment, equipment and piping insulation.</p> <p><b>1 - Excellent:</b> New. Preventative inspection.</p> <p><b>2 - Good:</b> System is fully operational, suitable capacity, efficient utility utilization, integrated energy management controls. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Equipment worn but reliable, older energy controls; Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Equipment marginal/hard to obtain parts, insulated ext. ductwork, no energy controls. &gt; 40 years old. Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> System non-functional or seriously deficient, not delivering supply to required spaces. Replacement.</p>
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<p><b>Distribution Systems</b></p> <p><b>D3040</b></p>	<p>Supply &amp; return air systems, ventilation &amp; exhaust systems, steam, hot water &amp; chilled water distribution, terminal devices, heat recovery equipment, auxiliary equipment such as secondary pumps, and heat exchangers, piping, duct &amp; equipment insulation.</p> <p><b>1 - Excellent:</b> New. Preventative inspection.</p> <p><b>2 - Good:</b> System is fully operational, suitable capacity, efficient utility utilization, integrated energy management controls. Good insulation. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Equipment worn but reliable, older energy controls; Insulation. Some joints/ sealants loose. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Equipment marginal/hard to obtain parts, no energy controls; Many grilles missing or loose. Air leaks and unbalance. Restorative repair</p> <p><b>5 - Unsatisfactory:</b> Non-functional or seriously deficient. Grilles corroded, missing. Replacement.</p>
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## Facility Summary

**City of Tacoma**  
**Beacon Senior Center**  
**Beacon Senior Center Building**

**415 South 13th Street**  
**Tacoma, WA 98407**

**Facility Size - Gross S.F.** 12,122  
**Year Of Original Construction** 1941  
**Facility Use Type** Community Center  
**Construction Type** Medium  
**# of Floors** 1  
**Energy Source** Gas  
**Year Of Last Renovation** 1983  
**Historic Register** No



<b>FCI (BMAR/CRV)</b>	0.17	<b>Predicted Renewal Budget (20 yrs)</b>	\$2,222,268
<b>FCI (Bldg OD/CRV)</b>	0.34	<b>Observed Deficiencies (6 yrs)</b>	
<b>Current Replacement Value (CRV)</b>	\$4,923,000	<b>Building</b>	\$1,658,931
<b>BMAR (Backlog of Maintenance and Repair)</b>	\$844,000	<b>Infrastructure</b>	\$66,263
<b>Beginning Budget Year</b>	2018	<b>Total</b>	\$1,725,194
		<b>Opportunity Total Project Cost</b>	\$1,787,535

## Facility Condition Summary

The Beacon Senior Center is a single-story wood framed building over crawl-space with small basement and one-car garage constructed in 1941 as a U.S. Army USO Building. The building appears to have been converted for use as a senior center in 1983 with significant finishes and MEP systems renewed. The Building is generally in poor condition but has issues with exterior materials and interior finishes with important MEP systems obsolete and/or nearing end of life - this building is a candidate for major renovation.



# Facility Summary

City of Tacoma  
 Beacon Senior Center  
 Beacon Senior Center Building

415 South 13th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1941	1941	3	AA 01/19/18	Standard concrete foundations
<b>A1030 Slab On Grade</b>	1941	1941	3	AA 01/19/18	Boiler room has concrete slab on grade. Also, there is slab on grade from public concrete walkway to building entrance on South Fawcett Avenue. Concrete paving is adjacent to exit stair and the parking lot fronting South Court D Street.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1941	1941	3	AA 01/19/18	Boiler room has concrete basement walls. No maintenance since 1941, paint different basement building components as necessary.
<b>B Shell</b>			<b>3.0</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1941	1941	3	AA 01/19/18	Wood joists with diagonal decking. Joists span to wood beams and exterior concrete columns in crawl space.
<b>B1020 Roof Construction</b>	1941	1941	3	AA 01/19/18	Auditorium is heavy timber trusses with wood decking. Remainder is wood beams with wood decking.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1941	1997	3	AA 01/19/18	Wood stud walls with wood sheathing. Exterior finish is vinyl siding. Interior finish is plaster. Auditorium has acoustical panels applied at interior face. Plants growth on vinyl sidings are changing exterior walls color; pressure water-wash off all plants on walls as necessary, and grub roots of plants around building perimeter.
<b>B2020 Exterior Windows</b>					

# Facility Summary

City of Tacoma  
 Beacon Senior Center  
 Beacon Senior Center Building

415 South 13th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.0</b>		
<b>Exterior Closure</b>					
<b>B2020 Exterior Windows</b>	1941	1997	3	AA 01/19/18	Exterior windows are vinyl type double-glazed windows. Corroded window metal-sill, refurbish and paint metal-sill.
<b>B2030 Exterior Doors</b>	1941	1983	3	AA 01/19/18	Exterior doors are wood framed, wood doors with panic hardware.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1941	1995	3	AA 01/19/18	Roofing is 3-tab composition shingle. Gutters and downspouts are "Kynar" type coated metal. Roof is about 20 years old. Organic growth on north-face hip roof; bristle scrub and brush off moss's root system from roof coverings.
<b>C Interiors</b>			<b>3.0</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1941	1941	3	AA 01/19/18	Partitions are wood stud most areas. The boiler room is concrete walled. Wall cracks visible at some walls, Plaster and paint over.
<b>C1020 Interior Doors</b>	1941	1941	3	AA 01/19/18	Interior doors are wood framed, wood doors.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>	1941	1941	3	AA 01/19/18	Stair system to boiler room is wood framed.
<b>C2020 Stair Finishes</b>	1941	1941	3	AA 01/19/18	Stair finishes are painted wood. The rails are metal. Paint is wearing off on handrails, risers, and treads; clean and paint all component of stairs.
<b>Interior Finishes</b>					

# Facility Summary

City of Tacoma  
 Beacon Senior Center  
 Beacon Senior Center Building

415 South 13th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>3.0</b>		
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1941	1941	3	AA 01/19/18	Wall finishes are textured painting GWB in most locations. The auditorium has plywood wainscot at lower walls and "fiberboard" type acoustic tiles at upper areas.
<b>C3020 Floor Finishes</b>	1941	1983	3	AA 01/19/18	The auditorium has a wood floor that was refinished recently. The kitchen is sheet vinyl. The dining room and "pool hall" room have VCT flooring.
<b>C3030 Ceiling Finishes</b>	1941	1941	3	AA 01/19/18	The auditorium has "fiberboard" type acoustic panels. The other ceilings are painted plaster ceilings. Plaster ceilings are damaged, show signs of water intrusion, and open joints between panels; replace damaged plaster ceilings.
<b>D Services</b>			<b>3.3</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1941	1983	3	DCS 01/19/18	Various stainless steel, cast iron, porcelain fixtures of varying vintages.
<b>D2020 Domestic Water Distribution</b>	1941	1983	3	DCS 01/19/18	Mix of original galvanized and newer copper piping. Newer A.O. Smith 100-gal, 198 mbtuh gas-fired water heater. Opportunity for filtration to kitchen and/or drinking fountains. At least one point-of-use electric DHW heater at stage toilet room.
<b>D2030 Sanitary Waste</b>	1941	1983	3	DCS 01/19/18	Mix of original cast iron and some newer ABS with no issues reported; tested fixtures mostly flush & drain well; a few are slow but appear due to fixtures, not piping.
<b>D2040 Rain Water Drainage</b>	1941	1997	3	DCS 01/19/18	Metal gutter & downspout to make-shift "storm"

# Facility Summary

City of Tacoma  
 Beacon Senior Center  
 Beacon Senior Center Building

415 South 13th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.3</b>		
<b>Plumbing</b>					
<b>D2040 Rain Water Drainage</b>					(see G-series) with no issues reported; however past ivy growth up walls is still caught in portions of crawl-space vents, siding, gutters & downspouts.
<b>HVAC</b>					
<b>D3010 Energy Supply</b>	1941	1983	3	DCS 01/19/18	Black iron pipe from meter to boiler room and kitchen in fair condition with no issues reported.
<b>D3020 Heat Generating Systems</b>	1941	1941	4	DCS 01/19/18	Original Kewanee 2.4 mmbtuh gas-fired scotch-marine cast-iron low pressure (operated at 5 psig) steam boiler with newer (2011) condensate receiver and pump. Steam & condensate distributed via mostly original (1941) insulated steel piping. All with variety of issues reported.
<b>D3030 Cooling Generating Systems</b>	1941	2015	4	DCS 01/19/18	Several through-window PTAC air-conditioning (cooling) units. At least one portable evaporative cooler, set-up semi-permanently in dining room. Variety of portable fans, several permanent fans, and many semi-operable windows.
<b>D3040 HVAC Distribution Systems</b>	1941	1941	4	DCS 01/19/18	Original air handling units are noisy and past end of life; duct-work is also old, dirty and damaged with marginal distribution. Louvers at north end of crawl space are damaged.
<b>D3050 Terminal and Package Units</b>	1941	1941	4	DCS 01/19/18	Original steam radiators past useful life and failing.
<b>D3060 Controls and Instrumentation</b>	1941	1983	4	DCS 01/19/18	Obsolete T-stats.
<b>D3090 Other HVAC Systems and Equipment</b>	1941	1983	3	DCS 01/19/18	Commercial kitchen grease and heat exhaust hoods in fair condition but in need of service.

# Facility Summary

City of Tacoma  
 Beacon Senior Center  
 Beacon Senior Center Building

415 South 13th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.3</b>		
<b>HVAC</b>					
<b>D3090 Other HVAC Systems and Equipment</b>					
					Original brick fireplace - little or not used - opportunity to upgrade to sealed combustion fire place with gas-log-set.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>					
	1941	1983	3	DCS 01/19/18	Six-inch service with six-inch dry pipe alarm valve to four-inch distribution including to crawl space; includes four-inch FDC from outside wall. Service pressure 110 psig with 45 psig dry-side pressure. No issues reported.
<b>D4030 Fire Protection Specialties</b>					
	1941	1983	3	DCS 01/19/18	Fire extinguishers on hoods plus AED in cabinet.
<b>D4090 Other Fire Protection Systems</b>					
	1941	1983	3	DCS 01/19/18	Kitchen grease hood with no issues reported.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	1941	1983	3	DCS 01/19/18	CH 120/208V, 3-phase, 600A main switchboard with six disconnect to CH branch panels via wire in conduit; all aging but functional with no issues reported.
<b>D5020 Lighting and Branch Wiring</b>					
	1941	1983	3	DCS 01/19/18	Lighting is surface mounted 1x4 wraparounds in most areas and pendant in assembly (dance hall) area; all with T8 fluorescent and manual control. Minimal receptacles, with wire-mold added where more were needed. All with no issues reported.
<b>D5032 Low Voltage Communication</b>					
	1941	2010	3	DCS 01/19/18	Phone system with no issues reported.
<b>D5037 Low Voltage Fire Alarm</b>					
	1941	2015	3	DCS 01/19/18	Newer Gamewell E3 FACP with new (2017) AES antenna and no issues reported; however there is minimal detection. Battery-operated CO

# Facility Summary

City of Tacoma  
 Beacon Senior Center  
 Beacon Senior Center Building

415 South 13th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.3</b>		
<b>Electrical</b>					
<b>D5037 Low Voltage Fire Alarm</b>					alarm(s) installed.
<b>D5038 Low Voltage Security</b>	1941	1983	4	DCS 01/19/18	Aging electronic security with minimal coverage.
<b>D5039 Low Voltage Data</b>	1941	2010	3	DCS 01/19/18	Newer service with limited distribution; but no issues reported.
<b>D5090 Other Electrical Systems</b>	1941	2000	3	DCS 01/19/18	Battery exit signs and egress lighting; check batteries and coverage.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1941	1983	3	DCS 01/19/18	Commercial kitchen with gas-fired range, grease hood, dishwasher, cooler/freezer and related; all aging but functional with no issue reported except dishwasher needs renewal.
<b>E1090 Other Equipment</b>	1941	1983	4	DCS 01/19/18	Stage in assembly room with little used and obsolete equipment.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	1941	1983	3	DCS 01/19/18	Limited casework worn, but functional. Mini-blinds as most windows in fair condition; but most windows are missing screens (see B2020).

# Facility Summary

City of Tacoma  
 Beacon Senior Center  
 Infrastructure

415 South 13th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2020 Parking Lots</b>	1941	1941	4	AA 01/19/18	Very small asphalt parking area adjacent to court 'D'.
<b>G2030 Pedestrian Paving</b>	1941	1941	3	AA 01/19/18	Concrete walks; concrete steps with pipe handrails.
<b>G2040 Site Development</b>	1941	1941	3	AA 01/19/18	Chain link fencing; rockeries; and shrubs.
<b>G2050 Landscaping</b>	1941	1997	3	AA 01/19/18	Ground cover; shrubs and trees. Remove weeds and blackberry growth in steep slope areas.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1941	1941	3	DCS 01/19/18	City water with no issues reported.
<b>G3020 Sanitary Sewer</b>	1941	1941	3	DCS 01/19/18	City sewer with no issues reported. Kitchen grease interceptor to east (downhill-side) also with no issues reported.
<b>G3030 Storm Sewer</b>	1941	1941	4	DCS 01/19/18	Storm drainage has failed on west (uphill) side of site with west roof drains lead back under building via crawl space. Signs of failure to east (downhill) site as well.
<b>G3060 Fuel Distribution</b>	1941	1980	3	DCS 01/19/18	PSE natural gas meter #389956 with 1,000 cfm capacity; no issues reported, but exposed piping to west is rusted & corroded. No seismic shut-off valve.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1941	1983	3	DCS 01/19/18	Underground power from pole at street underground to pad-mounted transformer, then

# Facility Summary

City of Tacoma  
 Beacon Senior Center  
 Infrastructure

415 South 13th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

##### G4010 Electrical Distribution

underground to boiler room with outside wall Tacoma Power meter #004214; all with no issues reported.

##### G4020 Site Lighting

1941 1983 3

DCS 01/19/18

Several exterior wall-packs; at least one with damaged lens (minor maintenance issue).

##### G4030 Site Communications and Security

1941 2000 3

DCS 01/19/18

Telecom services from purveyors with no issues reported.





## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Beacon Senior Center

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Beacon Senior Center Building	Foundations	\$38,475	\$9,619	\$9,619	\$31,742	\$89,454
	Exterior Closure	\$52,312	\$13,078	\$13,078	\$43,157	\$121,625
	Roofing	\$145,464	\$36,366	\$36,366	\$120,008	\$338,204
	Interior Finishes	\$59,450	\$14,863	\$14,863	\$49,046	\$138,221
	Plumbing	\$80,610	\$20,153	\$20,153	\$66,503	\$187,418
	HVAC	\$312,964	\$78,241	\$78,241	\$258,195	\$727,641
	Electrical	\$24,244	\$6,061	\$6,061	\$20,001	\$56,367
	<b>Facility Total</b>	<b>\$713,519</b>	<b>\$178,380</b>	<b>\$178,380</b>	<b>\$588,653</b>	<b>\$1,658,932</b>
Infrastructure	Site Improvements	\$18,500	\$4,625	\$4,625	\$15,263	\$43,013
	Site Civil / Mechanical Utilities	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	<b>Facility Total</b>	<b>\$28,500</b>	<b>\$7,125</b>	<b>\$7,125</b>	<b>\$23,513</b>	<b>\$66,263</b>
	<b>Site Total</b>	<b>\$742,019</b>	<b>\$185,505</b>	<b>\$185,505</b>	<b>\$612,166</b>	<b>\$1,725,194</b>



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Beacon Senior Center

Total Observed Deficiency Repair Direct Cost : \$742,019

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				<b>Action</b>					
<b>Facility: Beacon Senior Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$38,475</b>
<b>System: Foundations</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$89,454</b>
<b>Slab On Grade</b>									
Concrete	4	3	2018		2,565	\$15.00	SF	\$38,475	\$89,454

Multiple weatherization cracks visible on concrete.

Selective demo of concrete and replace with new to improve appearance.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Beacon Senior Center

Total Observed Deficiency Repair Direct Cost : \$742,019

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Beacon Senior Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$52,312</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$121,625</b>
<b>Exterior Walls</b>									
Vinyl Siding	4	3	2018		5,789	\$8.00	SF	\$46,312	\$107,675

Vinyl siding damage at multiple areas of exterior walls (including impact damage).

Replace lap siding.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Beacon Senior Center

Total Observed Deficiency Repair Direct Cost : \$742,019

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				<b>Action</b>					
<b>Facility: Beacon Senior Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$52,312</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$121,625</b>
<b>Exterior Windows</b>									
Wood Windows	4	4	2018		1	\$6,000.00	LS	\$6,000	\$13,950

Wood frames are deteriorating and paint is coming off.

Repair and paint exterior window wood-frames.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Beacon Senior Center

Total Observed Deficiency Repair Direct Cost : \$742,019

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Beacon Senior Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$145,464</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$338,204</b>
<b>Roof Coverings</b>									
Composition Shingle	5	2	2018		12,122	\$12.00	SF	\$145,464	\$338,204
Roofing is 20+ years old and at end of life, with moss growth.				Replace roofing.					



# Detailed Assessment - Observed Deficiencies 2018 - 2023

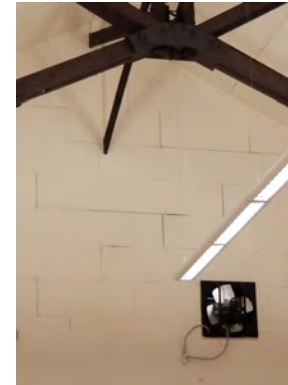
City of Tacoma  
 Site: Beacon Senior Center

Total Observed Deficiency Repair Direct Cost : \$742,019

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Beacon Senior Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$59,450</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$138,221</b>
<b>Wall Finishes</b>									
Paint	3	4	2018		30,300	\$1.50	SF	\$45,450	\$105,671

Visible open joints between auditorium's "fiberboard" acoustic wall panels. This creates challenges for cleaning or pest control.

Remove old fiberboard acoustic wall panels and replace with modern GWB.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Beacon Senior Center

Total Observed Deficiency Repair Direct Cost : \$742,019

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Beacon Senior Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$59,450</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$138,221</b>
<b>Floor Finishes</b>									
VCT flooring	4	4	2018		3,500	\$4.00	SF	\$14,000	\$32,550

VCT flooring is cracked and seams are beginning to open. Lots of unsightly damage to auditorium's wood floor.

Remove VCT flooring and replace with new. Refurbish auditorium flooring.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Beacon Senior Center

Total Observed Deficiency Repair Direct Cost : \$742,019

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Beacon Senior Center Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$80,610</b>	
<b>System: Plumbing</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$187,418</b>	
<b>Plumbing Fixtures</b>										
Showers & trim	5	0	2018		1	\$20,000.00	LS	\$20,000	\$46,500	

Shower(s) reportedly inoperable.

Restore shower(s) to operation.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Beacon Senior Center

Total Observed Deficiency Repair Direct Cost : \$742,019

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Beacon Senior Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$80,610</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$187,418</b>
<b>Domestic Water Distribution</b>									
Galvanized steel piping	4	3	2018		12,122	\$5.00	EA	\$60,610	\$140,918

Portions of original galvanized pipe remain.

Replace any remaining original galvanized with new copper and/or PEX tubing.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Beacon Senior Center

Total Observed Deficiency Repair Direct Cost : \$742,019

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				<b>Action</b>						
<b>Facility: Beacon Senior Center Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$312,964</b>	
<b>System: HVAC</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$727,642</b>	
<b>Heat Generating Systems</b>										
Steam boiler system	4	2	2018		12,122	\$10.00	SF	\$121,220	\$281,837	

Boiler pan is failing and leaking water. Little or no steam to some radiators.

Renew boiler and piping.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Beacon Senior Center

Total Observed Deficiency Repair Direct Cost : \$742,019

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Beacon Senior Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$312,964</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$727,642</b>
<b>Cooling Generating Systems</b>									
Cooling	4	2	2018		5,000	\$25.00	SF	\$125,000	\$290,625

Make-shift cooling with several through-window PTAC A/C units, variety of portable fans, several permanent fans, and at least one evaporative (swamp) cooler.

Install economical A/C in all "living" areas (other than assembly hall) using modern ductless split VRF technology. Cost includes electrical upgrade to support additional electrical load.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Beacon Senior Center

Total Observed Deficiency Repair Direct Cost : \$742,019

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Beacon Senior Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$312,964</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$727,642</b>
<b>HVAC Distribution Systems</b>									
AHU and ductwork	4	3	2018		12,122	\$2.00	SF	\$24,244	\$56,367
<b>Deficiency</b>				<b>Action</b>					
Ductwork dirty & damaged with marginal air distribution.				Clean and repair ductwork and improve distribution.					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Beacon Senior Center

Total Observed Deficiency Repair Direct Cost : \$742,019

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Beacon Senior Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$312,964</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$727,642</b>
<b>HVAC Distribution Systems</b>									
AHU and ductwork	4	3	2018		3	\$7,500.00	EA	\$22,500	\$52,313
<b>Air handling units in poor condition.</b>				<b>Refurbish air handling units.</b>					



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Beacon Senior Center

Total Observed Deficiency Repair Direct Cost : \$742,019

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					

Facility: Beacon Senior Center Building	Total System Deficiency Repair Cost (Undiscounted/Unescalated):	\$312,964
System: HVAC	Total System Deficiency Repair Cost (Marked Up):	\$727,642

**Terminal and Package Units**

Terminal units	4	2	2018		20	\$1,000.00	EA	\$20,000	\$46,500
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Cast iron radiators are deteriorating with decreasing heat output and flaking finish.

Recondition cast iron radiators.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Beacon Senior Center

Total Observed Deficiency Repair Direct Cost : \$742,019

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Beacon Senior Center Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$24,244	
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$56,367	
<b>Low Voltage Security</b>										
Security	4	2	2018		12,122	\$2.00	SF	\$24,244	\$56,367	

Aging and minimal electronic security.

Upgrade to City standard; additionally conduct CPTED study and apply recommended improvements.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Beacon Senior Center

Total Observed Deficiency Repair Direct Cost : \$742,019

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Infrastructure</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$18,500</b>
<b>System: Site Improvements</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$43,013</b>
<b>Parking Lots</b>									
Asphalt	4	2	2018		1,800	\$7.50	SF	\$13,500	\$31,388

Asphalt in small parking area adjacent to court 'D' is deteriorated with cracks and spalling. Striping is non-existent.

Remove and replace asphalt. Restripe.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Beacon Senior Center

Total Observed Deficiency Repair Direct Cost : \$742,019

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$18,500</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$43,013</b>	
<b>Pedestrian Paving</b>										
Concrete	3	5	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Several areas of concrete walks are cracked and/or broken - bottom of steps adjacent to court 'D'; panel adjacent to 13th; and around telephone vault adjacent to Fawcett and Fawcett entry.

Remove and replace damaged concrete walkways.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Beacon Senior Center

Total Observed Deficiency Repair Direct Cost : \$742,019

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Infrastructure</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$10,000</b>
<b>System: Site Civil / Mechanical Utilities</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$23,250</b>
<b>Storm Sewer</b>									
Storm Drain	4	2	2018		10	\$1,000.00	EA	\$10,000	\$23,250

Original roof drain connections to site storm have failed with west storm drainage lead through crawl space to east; some east roof drain connections to storm also appear failed, with temporary redirection failing and damaging recently renewed landscape.

Renew permanent storm drain system.





## Opportunity Summary By Subsystem

City of Tacoma

Site: Beacon Senior Center

Total Site Opportunity Cost: \$768,832

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost	
<b>Facility: Beacon Senior Center Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$621,100</b></span>							
D3020	Heat Generating Systems	Increasing obsolete and difficult to maintain steam boiler; at the same time incremental improvements in building thermal envelope (insulation) have been occurring reducing heating load.	Convert from steam to hot water (hydronic) heat reusing distribution piping and radiators where ever possible after cleaning, inspecting and repairing or replacing. Replace cast iron boiler with modern high-efficiency gas-fired heating hot water boiler with duplex hot water recirc pumps.	12,122.00	\$10.00	SF	\$121,220
D3040	HVAC Distribution Systems	Obsolete, noisy, inefficient, unreliable HVAC system with poor ventilation and little or no permanent cooling.	Replace entire HVAC system with modern technology such as VRF with DOAS.	12,122.00	\$35.00	SF	\$424,270
D3060	Controls and Instrumentation	No DDC.	Upgrade to DDC per City standard.	12,122.00	\$5.00	SF	\$60,610
D3090	Other HVAC Systems and Equipment	Constant speed grease hood.	Upgrade to modern, energy-efficient, variable-capacity grease hood.	1.00	\$15,000.00	EA	\$15,000
<b>Facility: Beacon Senior Center Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$147,732</b></span>							
D5020	Lighting and Branch Wiring	Aging T8 fluorescent with manual control.	Upgrade to LED with automatic control.	12,122.00	\$5.00	SF	\$60,610
D5039	Low Voltage Data	Minimal data distribution.	Install additional drops and increase wireless bandwidth; add computer area for users.	12,122.00	\$1.00	SF	\$12,122
D5090	Other Electrical Systems						

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Beacon Senior Center

Total Site Opportunity Cost: \$768,832

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
	No generator.	Install 50 kW diesel generator with ATS to support shelter, cooling and similar uses.	1.00	\$75,000.00	LS	\$75,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 Lighthouse Senior Center  
 Lighthouse Senior Center Building

5016 'A' Street  
 Tacoma, WA 98407

Facility Size - Gross S.F. 8,777  
 Year Of Original Construction 1950  
 Facility Use Type Community Center  
 Construction Type Light  
 # of Floors 2  
 Energy Source Gas  
 Year Of Last Renovation 1981  
 Historic Register No



FCI (BMAR/CRV)	0.18	Predicted Renewal Budget (20 yrs)	\$1,411,526
FCI (Bldg OD/CRV)	0.27	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$3,237,000	<b>Building</b>	\$855,113
BMAR (Backlog of Maintenance and Repair)	\$581,000	<b>Infrastructure</b>	\$38,130
Beginning Budget Year	2018	<b>Total</b>	\$893,243
		<b>Opportunity Total Project Cost</b>	\$1,683,956

## Facility Condition Summary

The Lighthouse Senior Center is a 2-story building, with the lower floor constructed as a daylight basement. Originally constructed in 1950 as a church, the building consists of wood roof trusses and floor joists spanning to unreinforced masonry exterior walls, which are supported by reinforced concrete stem walls on standard concrete foundations. The building is generally in poor condition but needs new dual glazed exterior windows (planned for 2018), replacement of the galvanized water piping system with new copper pipe including fixtures, and replacement of the old steam boiler heating system with a modern HVAC.



# Facility Summary

City of Tacoma  
 Lighthouse Senior Center  
 Lighthouse Senior Center Building

5016 'A' Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1950	1950	3	TRB 02/06/18	Standard concrete foundations. Some settlement evident from cracks running up masonry.
<b>A1030 Slab On Grade</b>	1950	1950	3	TRB 02/06/18	Concrete slab on grade.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1950	1950	3	TRB 02/06/18	Concrete basement walls with interior furring with plaster finish.
<b>B Shell</b>			<b>3.2</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1950	1950	3	TRB 02/06/18	Wood framing with wood decking spanning to interior and exterior wood stud walls. Boiler room lid is concrete slab and joists spanning to concrete walls.
<b>B1020 Roof Construction</b>	1950	1950	3	TRB 02/06/18	Wood trusses with wood decking spanning to exterior wood stud walls.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1950	1950	3	TRB 02/06/18	Wood stud walls with shiplap sheathing. Exterior finish is stone veneer. Interior finish is plaster.
<b>B2020 Exterior Windows</b>	1950	1950	5	TRB 02/06/18	Exterior windows are single pane steel window system. The glazing is multi-color wavy church privacy type. The windows are rusting, the hardware is not fully functional, and they are not energy efficient.
<b>B2030 Exterior Doors</b>	1950	1950	3	TRB 02/06/18	Exterior doors are wood framed, wood doors.

# Facility Summary

City of Tacoma  
 Lighthouse Senior Center  
 Lighthouse Senior Center Building

5016 'A' Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>3.2</b>		
<b>Exterior Closure</b>					
<b>B2030 Exterior Doors</b>					Most have panic hardware at main exits.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1950	1985	3	TRB 02/06/18	Roofing is 3 - tab composition shingle. Gutters and downspouts are "Kynar" type coated metal. Moss growth.
<b>C Interiors</b>			<b>3.0</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1950	1950	3	TRB 02/06/18	Interior walls are wood stud construction. The boiler room walls are concrete. The main Auditorium room has an accordion wall.
<b>C1020 Interior Doors</b>	1950	1950	3	TRB 02/06/18	Interior doors are wood framed wood doors. Some hardware is lever lock. The doors and trim are dark stained.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>	1950	1950	3	TRB 02/06/18	Stair systems are wood framed.
<b>C2020 Stair Finishes</b>	1950	1950	3	TRB 02/06/18	Stair finishes are carpet tread and risers with wood rails. Other stairs have rubber treads.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1950	1950	3	TRB 02/06/18	Wall finishes are primarily painted GWB. Some offices have wood paneling. Trim is wood.
<b>C3020 Floor Finishes</b>	1950	1950	3	TRB 02/06/18	Floor finishes vary. Half the Auditorium is wood. The other half is sheet vinyl. Most halls upstairs

# Facility Summary

City of Tacoma  
 Lighthouse Senior Center  
 Lighthouse Senior Center Building

5016 'A' Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>3.0</b>		
<b>Interior Finishes</b>					
<b>C3020 Floor Finishes</b>					are carpet The kitchen and most downstairs areas are VCT. There is about 300 SF of VAT in backrooms.
<b>C3030 Ceiling Finishes</b>	1950	1950	3	TRB 02/06/18	Ceiling finishes are painted light texture GWB or plaster.
<b>D Services</b>			<b>3.3</b>		
<b>Vertical Transportation</b>					
<b>D1010 Elevators and Lifts</b>	1950	1950	3	TRB 02/06/18	Elevator is reported as out of order, maintenance is due to arrive to work on it. Staff and senior report the car ride needs improvement.
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1950	1950	3	JH 02/06/18	Various porcelain and stainless steel fixtures of varying vintage. Most are in good condition; some older, some newer. Newer high quality manual faucets, typical. Newer flush valves and newer tank toilets. Newer A.O. Smith gas-fired DHW tank. No issues reported.
<b>D2020 Domestic Water Distribution</b>	1950	1950	4	JH 02/06/18	Domestic water piping mostly galvanized; with some copper evident in exposed areas.
<b>D2030 Sanitary Waste</b>	1950	1950	3	JH 02/06/18	Cast iron drain, waste and vent with no issues reported.
<b>D2040 Rain Water Drainage</b>	1950	1985	3	JH 02/06/18	Metal gutter and downspout, spilling to grade. Overflow issue on both sides of entrance - downspouts are needed; some downspouts poorly support.

# Facility Summary

City of Tacoma  
 Lighthouse Senior Center  
 Lighthouse Senior Center Building

5016 'A' Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.3</b>		
<b>HVAC</b>					
<b>D3010 Energy Supply</b>	1950	1985	3	JH 02/06/18	Boiler and kitchen equipment served by natural gas piping; no seismic shut-off valve and exterior piping is rusting.
<b>D3020 Heat Generating Systems</b>	1950	2015	4	JH 02/06/18	Original fuel oil-fired converted to natural gas (1985) Birchfield low pressure (15 psig) steam boiler operating at 5 psig supplying original steam distribution piping. Cabinet unit heaters are well placed to heat lower level.
<b>D3030 Cooling Generating Systems</b>	1950	2010	2	JH 02/06/18	Multi-zone heat pump connected to four AHUs in Attic. No cooling on 1st floor except for several window AC units.
<b>D3040 HVAC Distribution Systems</b>	1950	1950	4	JH 02/06/18	Steam and condensate piping is original construction, beyond expected life but still operational (see D3020). Newer (2010) ductwork on upper floor.
<b>D3050 Terminal and Package Units</b>	1950	2010	4	JH 02/06/18	Steam convectors and unit heaters serve lower floor; cabinets are physically damaged (see D3020). Coils and controls appear generally operational. HVAC units in attic good condition.
<b>D3060 Controls and Instrumentation</b>	1950	1985	4	JH 02/06/18	Room temperature settings are controlled by older style mercury thermostats. T-stats mounted on convectors for direct control to F&T steam traps. See D2030 for general upgrade.
<b>D3090 Other HVAC Systems and Equipment</b>	1950	1950	4	JH 02/06/18	Type 1 hood system for commercial kitchen.
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>	1950	1985	3	JH 02/06/18	Fire extinguishers on hooks.

# Facility Summary

City of Tacoma  
 Lighthouse Senior Center  
 Lighthouse Senior Center Building

5016 'A' Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.3</b>		
<b>Fire Protection</b>					
<b>D4090 Other Fire Protection Systems</b>					
	1950	1995	3	JH 02/06/18	Draft stop in attic needs repair. No fire suppression for grease hood.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	1950	2000	3	JH 02/06/18	Cutler Hammer 120/208V, 3-phase, 600A; branch panels also Cutler Hammer; all newer (2000).
<b>D5020 Lighting and Branch Wiring</b>					
	1950	2000	3	JH 02/06/18	Lighting is typically 1x4 fluorescent wraparounds and surface modulars with some acrylic lensed 2x4; no issues reported. Significant surface-mounted conduit, wire and plug-mold.
<b>D5032 Low Voltage Communication</b>					
	1950	2000	3	JH 02/06/18	Somewhat newer telephone service entrance in attic.
<b>D5037 Low Voltage Fire Alarm</b>					
	1950	2017	1	JH 02/06/18	Newer Gamewell E3 FACP with smoke detectors and manual pull stations, plus new (2017) AES alarm antenna.
<b>D5038 Low Voltage Security</b>					
	1950	2000	3	JH 02/06/18	Minimal electronic security with no issues reported.
<b>D5039 Low Voltage Data</b>					
	1950	2000	3	JH 02/06/18	Small Cat 5E patch panel in basement.
<b>D5090 Other Electrical Systems</b>					
	1950	2010	3	JH 02/06/18	Newer (2010) battery egress fixtures and exit signs. No standby generator.

## E Equipment and Furnishings

3.0

### Equipment

#### E1010 Commercial Equipment

## Facility Summary

City of Tacoma  
 Lighthouse Senior Center  
 Lighthouse Senior Center Building

5016 'A' Street  
 Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
	1950	1985	3	JH 02/06/18	Commercial kitchen appliances in fair condition; no issues reported.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	1950	1950	3	TRB 02/06/18	Misc. built in wood casework, some wear and broken or chipped wood.

# Facility Summary

City of Tacoma  
Lighthouse Senior Center  
Infrastructure

5016 'A' Street  
Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1950	2017	1	TRB 02/06/18	New asphalt drives around building to parking in back.
<b>G2020 Parking Lots</b>	1950	2017	1	TRB 02/06/18	Asphalt parking/drives. striping, including ADA.
<b>G2030 Pedestrian Paving</b>	1950	2017	3	TRB 02/06/18	Concrete walks/ramps. Concrete steps with pipe rails. Patched cracks in stair repaired, but have separated further (reseal).
<b>G2040 Site Development</b>	1950	1950	3	TRB 02/06/18	Chain link fencing; concrete retaining walls.
<b>G2050 Landscaping</b>	1950	1950	2	TRB 02/06/18	Grass, shrubs, and trees.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1950	1950	3	JH 02/06/18	City water with no issues reported.
<b>G3020 Sanitary Sewer</b>	1950	1950	3	JH 02/06/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1950	1985	3	JH 02/06/18	Catch basin in parking lot, reportedly new in 2017. Downspouts in back spill on asphalt parking and drain to catch basins.
<b>G3060 Fuel Distribution</b>	1950	1985	3	JH 02/06/18	Natural gas from PSE. Signs of original below grade fuel oil storage tank - verify tank has been properly decommissioned.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1950	2010	2	JH 02/06/18	Underground to building from pole-mounted transfers at street; Tacoma Power meter

# Facility Summary

City of Tacoma  
 Lighthouse Senior Center  
 Infrastructure

5016 'A' Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

**G4010 Electrical Distribution**

#004413. Service renewed in 2010.

**G4020 Site Lighting**

1950 2015 2

JH 02/06/18 Most building mounted lights upgraded to LED. No pole mounted lighting.

**G4030 Site Communications and Security**

1950 1990 3

JH 02/06/18 Overhead telecom cables to building; no issues reported.





## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Lighthouse Senior Center

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Infrastructure	Site Improvements	\$16,400	\$4,100	\$4,100	\$13,530	\$38,130
	<b>Facility Total</b>	<b>\$16,400</b>	<b>\$4,100</b>	<b>\$4,100</b>	<b>\$13,530</b>	<b>\$38,130</b>
Lighthouse Senior Center Building	Exterior Closure	\$47,000	\$11,750	\$11,750	\$38,775	\$109,275
	Roofing	\$7,000	\$1,750	\$1,750	\$5,775	\$16,275
	Interior Finishes	\$10,750	\$2,688	\$2,688	\$8,869	\$24,994
	Vertical Transportation	\$120,000	\$30,000	\$30,000	\$99,000	\$279,000
	Plumbing	\$43,885	\$10,971	\$10,971	\$36,205	\$102,033
	HVAC	\$131,655	\$32,914	\$32,914	\$108,615	\$306,098
	Fire Protection	\$7,500	\$1,875	\$1,875	\$6,188	\$17,438
	<b>Facility Total</b>	<b>\$367,790</b>	<b>\$91,948</b>	<b>\$91,948</b>	<b>\$303,427</b>	<b>\$855,112</b>
<b>Site Total</b>	<b>\$384,190</b>	<b>\$96,048</b>	<b>\$96,048</b>	<b>\$316,957</b>	<b>\$893,242</b>	



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Lighthouse Senior Center

Total Observed Deficiency Repair Direct Cost : \$384,190

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$16,400</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$38,130</b>	
<b>Pedestrian Paving</b>										
Concrete	3	1	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Entry stair/ramp, loose handrail, settled concrete (trip hazard), and additional cracking.

Solid grout handrail in place, grind concrete lip (or remove and re-pour) at top of ramp.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Lighthouse Senior Center

Total Observed Deficiency Repair Direct Cost : \$384,190

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				<b>Action</b>					
<b>Facility: Infrastructure</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$16,400</b>
<b>System: Site Improvements</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$38,130</b>
<b>Site Development</b>									
Chain link fence	4	2	2018		160	\$40.00	LF	\$6,400	\$14,880

Chain link fence along south line is badly damaged and rusted. Posts are bent; fabric is bent and not attached in some areas.

Replace chain link fence and posts along south edge of property. Coated system to match back black coated fencing.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Lighthouse Senior Center

Total Observed Deficiency Repair Direct Cost : \$384,190

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Infrastructure					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$16,400
System: Site Improvements					Total System Deficiency Repair Cost (Marked Up):				\$38,130
<b>Landscaping</b>									
Landscape	4	5	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Landscape grown against building.

Cut plant material away from building per CPTED standard recommendations.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Lighthouse Senior Center

Total Observed Deficiency Repair Direct Cost : \$384,190

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Lighthouse Senior Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$47,000</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$109,275</b>
<b>Exterior Walls</b>									
Stone veneer	4	5	2018		200	\$25.00	LF	\$5,000	\$11,625

Veneer has shrinkage cracks primarily on west and south sides. Past sealant attempt not holding.

Seal smaller cracks by epoxy injection or other methods. Re-point others. May need elastomeric sealant between lower entry vestibule and wall plain.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

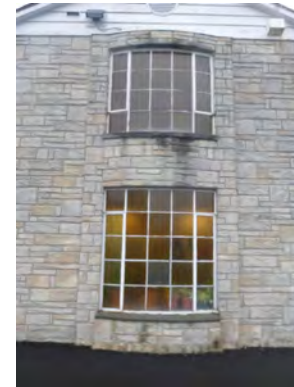
City of Tacoma  
Site: Lighthouse Senior Center

Total Observed Deficiency Repair Direct Cost : \$384,190

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Lighthouse Senior Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$47,000</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$109,275</b>
<b>Exterior Windows</b>									
Steel windows	4	1	2018		42	\$1,000.00	EA	\$42,000	\$97,650

Steel frames are rusting and corroded. The hardware is not fully functional. Glazing is single pane and not energy efficient.

Remove steel window system and replace with modern double pane metal window system.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Lighthouse Senior Center

Total Observed Deficiency Repair Direct Cost : \$384,190

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Lighthouse Senior Center Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$7,000	
System: Roofing				Total System Deficiency Repair Cost (Marked Up):					\$16,275	
<b>Roof Coverings</b>										
Asphalt Shingles	4	5	2018		7,000	\$1.00	SF	\$7,000	\$16,275	

Significant moss growth starting. Arrangement of gutters and downspout from upper roof are overwhelming gutter at corner of wall (overflowing gutter and staining wall stone).

Treat and remove moss, apply zink to thwart future moss re-growth. Adjust downspouts and gutters, clean, and seal stonework.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Lighthouse Senior Center

Total Observed Deficiency Repair Direct Cost : \$384,190

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Lighthouse Senior Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$10,750</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$24,994</b>
<b>Floor Finishes</b>									
Carpet	4	3	2018		900	\$7.50	SF	\$6,750	\$15,694

Miscellaneous areas in need of carpet replacement:  
 computer room, back stairs, fitness.

Replace carpet (recommend carpet tile in rooms).



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Lighthouse Senior Center

Total Observed Deficiency Repair Direct Cost : \$384,190

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility:</b> Lighthouse Senior Center Building					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$10,750</b>
<b>System:</b> Interior Finishes					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$24,994</b>
<b>Floor Finishes</b>									
VCT	4	5	2018		1,000	\$4.00	SF	\$4,000	\$9,300

Kitchen VCT cracking and seams cupping from years of use and moisture exposure (now unsanitary).

Remove VCT and install non-slip, seam-sealed, cove-base, kitchen rated sheet good flooring.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Lighthouse Senior Center

Total Observed Deficiency Repair Direct Cost : \$384,190

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Lighthouse Senior Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$120,000</b>
<b>System: Vertical Transportation</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$279,000</b>
<b>Elevators and Lifts</b>									
Elevator	5	5	2018		1	\$120,000.00	LS	\$120,000	\$279,000

Elevator currently out of order (maintenance has been scheduled). Ride quality needs improvement and is due for modernization.

Perform 3-stop elevator modernization for ride quality and reliability.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Lighthouse Senior Center

Total Observed Deficiency Repair Direct Cost : \$384,190

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Lighthouse Senior Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$43,885</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$102,033</b>
<b>Domestic Water Distribution</b>									
Galvanized steel piping	4	5	2018		8,777	\$5.00	SF	\$43,885	\$102,033

Original galvanized steel piping past useful life.

Replace with copper and/or PEX.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Lighthouse Senior Center

Total Observed Deficiency Repair Direct Cost : \$384,190

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Lighthouse Senior Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$131,655</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$306,098</b>
<b>Heat Generating Systems</b>									
Steam heating system	4	5	2018		8,777	\$15.00	SF	\$131,655	\$306,098

Steam heating system, including boiler, piping, convectors, and controls are past their useful life span.

Renew system and convert to hot water system.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Lighthouse Senior Center

Total Observed Deficiency Repair Direct Cost : \$384,190

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Lighthouse Senior Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$7,500</b>
<b>System: Fire Protection</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$17,438</b>
<b>Other Fire Protection Systems</b>									
Grease Hood	5	0	2018		1	\$7,500.00	LS	\$7,500	\$17,438
<b>No fire suppression for grease hood.</b>				<b>Install grease hood fire suppression per code.</b>					



## Opportunity Summary By Subsystem

City of Tacoma

Site: Lighthouse Senior Center

Total Site Opportunity Cost: \$729,282

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Infrastructure</b> <b>System: Site Civil / Mechanical Utilities</b> <b>Total Cost: \$5,000</b>						
G3030	Storm Sewer					
	Downspouts to grade.	Pipe downspouts to storm.	5.00	\$1,000.00	EA	\$5,000
<b>Facility: Lighthouse Senior Center Building</b> <b>System: Plumbing</b> <b>Total Cost: \$15,000</b>						
D2090	Other Plumbing Systems					
	No apparent grease interceptor for kitchen.	Install grease interceptor per code.	1.00	\$15,000.00	LS	\$15,000
<b>Facility: Lighthouse Senior Center Building</b> <b>System: HVAC</b> <b>Total Cost: \$518,850</b>						
D3020	Heat Generating Systems					
	Old and piece-meal HVAC system.	Upgrade to modern integrated HVAC system such as VRF heating & cooling with DOAS	8,777.00	\$45.00	SF	\$394,965
D3030	Cooling Generating Systems					
	Window A/C units for lower floor.	Upgrade lower floor to multi-zone system similar to upper floor.	4,000.00	\$20.00	SF	\$80,000
D3060	Controls and Instrumentation					
	No DDC.	Upgrade to City standard DDC.	8,777.00	\$5.00	SF	\$43,885
<b>Facility: Lighthouse Senior Center Building</b> <b>System: Fire Protection</b> <b>Total Cost: \$105,324</b>						
D4010	Fire Protection Sprinkler Systems					
	No fire sprinkler.	Install fire sprinkler per code.	8,777.00	\$12.00	SF	\$105,324
<b>Facility: Lighthouse Senior Center Building</b> <b>System: Electrical</b> <b>Total Cost: \$85,108</b>						
D5020	Lighting and Branch Wiring					
	Fluorescent fixtures with manual control.	Upgrade to LED with automatic control.	8,777.00	\$4.00	SF	\$35,108
D5090	Other Electrical Systems					

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Lighthouse Senior Center

Total Site Opportunity Cost: \$729,282

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
	No standby generator.	Install 35 kW diesel generator and ATS to power essential systems.	1.00	\$50,000.00	LS	\$50,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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## Facility Summary

City of Tacoma  
 Point Defiance Senior Center  
 Point Defiance Senior Center Building

4716 North Baltimore  
 Tacoma, WA 98407

Facility Size - Gross S.F. 3,806  
 Year Of Original Construction 1965  
 Facility Use Type Community Center  
 Construction Type Medium  
 # of Floors 1  
 Energy Source Gas  
 Year Of Last Renovation 1990  
 Historic Register No



FCI (BMAR/CRV)	0.15	Predicted Renewal Budget (20 yrs)	\$717,456
FCI (Bldg OD/CRV)	0.24	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$1,560,000	<b>Building</b>	\$352,704
BMAR (Backlog of Maintenance and Repair)	\$237,000	<b>Infrastructure</b>	\$53,475
Beginning Budget Year	2018	<b>Total</b>	\$406,179
		<b>Opportunity Total Project Cost</b>	\$563,332

## Facility Condition Summary

The Point Defiance Senior Center is owned and maintained by the City, but operated by a third party, plus volunteers. The original CMU-walled building with wood roof was constructed in 1965, with modernization and small wood-framed addition in 1990. While the structure itself is in poor condition, many systems are approaching end of life, especially those with heavy use, such as the kitchen and other MEP equipment. Site parking is supplemented by adjacent parking shared with the park next door. The large trees to east are damaging the hardscape and complicating roof maintenance and drainage. The site includes a fenced garden to west; additionally two sheds are located at the SW corner of the building - one larger metal, one smaller wood. Roof replacement is planned for 2018.

# Facility Summary

City of Tacoma  
 Point Defiance Senior Center  
 Point Defiance Senior Center Building

4716 North Baltimore  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.6</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1965	1965	3	LS 02/01/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	1965	1965	2	LS 02/01/18	Concrete slab on grade. There is a slight bump where the addition meets the original construction.
<b>B Shell</b>			<b>3.1</b>		
<b>Superstructure</b>					
<b>B1020 Roof Construction</b>	1965	1990	3	LS 02/01/18	Glu-lam beams with tongue and groove decking.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1965	1990	3	LS 02/01/18	Concrete masonry unit walls with stud wall furring at interior face. Exterior face is a combination of lap siding, and vertical "board and batten". Some moss / algae growth on east and north sides should be power washed.
<b>B2020 Exterior Windows</b>	1965	1990	3	LS 02/01/18	Aluminum light-gage windows with insulating glass, some side-sliding sash with aluminum screens. Trim on south window needs to be nailed down.
<b>B2030 Exterior Doors</b>	1965	1990	3	LS 02/01/18	Hollow metal frames with hollow metal doors. All doors need to be painted on the interior.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1965	1990	4	LS 02/01/18	Built-up roofing system with granular cap sheet.
<b>B3020 Roof Openings</b>	1965	1990	3	LS 02/01/18	All vent openings are bent or pinched closed.

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## Facility Components

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<b>B Shell</b>			<b>3.1</b>		
<b>Roofing</b>					
<b>B3030 Projections</b>	1965	1990	3	LS 02/01/18	Wood canopies with steel post at each entry door. Replace cloth canopy over sitting area outside front door.
<b>C Interiors</b>			<b>3.1</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1965	2015	3	LS 02/01/18	Wood-framed partitions with gypsum wallboard. All signage is mounted too high; remove and lower signage.
<b>C1020 Interior Doors</b>	1965	1990	3	LS 02/01/18	Hollow metal frames with hollow core wood doors. The door to the janitors closet in the kitchen area is missing hardware; install hardware.
<b>C1030 Fittings</b>	1965	2010	3	LS 02/01/18	Kitchen has laminate base cabinets with stainless steel counter-tops. Kitchen sinks are not ADA accessible. Toilets have been retrofitted for ADA compliance but enamel steel partitions are old and worn. Laminate cabinets in main room are newer and ADA compliant. All signage appears ADA compliant except it is mounted too high. Reinstall at proper elevation.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1965	1990	3	LS 02/01/18	Paint typical throughout except at restrooms which have some plastic laminate wainscoting to 4' high accordion partitions occurs at dining area.
<b>C3020 Floor Finishes</b>	1965	1990	4	LS 02/01/18	Vinyl composition tile throughout except at offices which are carpeted.
<b>C3030 Ceiling Finishes</b>					

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<b>C Interiors</b>			<b>3.1</b>		
<b>Interior Finishes</b>					
<b>C3030 Ceiling Finishes</b>	1965	1990	2	LS 02/01/18	2x4 Lay-in ceiling system throughout except at entry and wet areas which are gypsum board.
<b>D Services</b>			<b>3.1</b>		
<b>Vertical Transportation</b>					
<b>D1090 Other Conveying Systems</b>	1965	1990	4	DCS 02/01/18	No roof access.
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1965	1990	3	DCS 02/01/18	Wall mounted flushing fixtures with manual flush valves; lavatories with ADA lever operators; kitchenette stainless steel sink with water filter. Aging and well-used but functional. Some fixtures flush or drain somewhat slow and should be serviced along with trim adjustment.
<b>D2020 Domestic Water Distribution</b>	1965	1990	3	DCS 02/01/18	Copper distribution with multiple shut-off valves. Newer A.O. Smith gas-fired DHW heater, 120 mbh, approximately 80-gal; missing expansion tank and recirc pump; needs service.
<b>D2030 Sanitary Waste</b>	1965	1965	3	DCS 02/01/18	Cast iron where observed; about half the fixtures draining slow. Grease interceptor west in garden.
<b>D2040 Rain Water Drainage</b>	1965	1990	4	DCS 02/01/18	Scupper boxes from flat roof to downspouts to storm; standing water in multiple locations.
<b>HVAC</b>					
<b>D3010 Energy Supply</b>	1965	1990	3	DCS 02/01/18	Black iron gas piping to furnace, water heater and kitchen appliances.
<b>D3030 Cooling Generating Systems</b>					

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## Facility Components

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<b>D Services</b>			<b>3.1</b>		
<b>HVAC</b>					
<b>D3030 Cooling Generating Systems</b>	1965	1990	4	DCS 02/01/18	
<b>D3040 HVAC Distribution Systems</b>	1965	1990	3	DCS 02/01/18	Single forced-air HVAC system with Lennox 100 mbtuh high-efficiency (90%) condensing furnace, with galvanized steel sheet metal supply air ductwork and return air through wall grille and ceiling grille to furnace. Bathroom exhaust fan on roof. Natural ventilation for addition classroom.
<b>D3050 Terminal and Package Units</b>	1965	1990	3	DCS 02/01/18	Electric wall heater with on-board manual T-stats at 1990 addition and several other spaces; aging but functional; some need cleaning and service.
<b>D3060 Controls and Instrumentation</b>	1965	1990	3	DCS 02/01/18	Furnace is controlled by a wall-mounted 7-day programmable Honeywell thermostat. Furnace has motorized outside air damper for minimum outside air. T-stat should be replaced when new furnace and/or heat pump is installed. Opportunity to upgrade to City standard DDC.
<b>D3090 Other HVAC Systems and Equipment</b>	1965	1990	3	DCS 02/01/18	Kitchen cooking equipment served by stainless steel hood and rooftop upblast fan, with no apparent make-up air system. No exhaust for scullery (dish wash) area.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>	1965	1990	5	DCS 02/01/18	No fire sprinkler.
<b>D4030 Fire Protection Specialties</b>	1965	1990	3	DCS 02/01/18	FEs in cabs.
<b>D4090 Other Fire Protection Systems</b>	1965	1990	4	DCS 02/01/18	Chemical fire suppression system for kitchen grease hood with out of date inspections.

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## Facility Components

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<b>D Services</b>			<b>3.1</b>		
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1965	1990	3	DCS 02/01/18	GE 120/240V main panel with 200A capacity; while functional this residential-type service is obsolete for commercial facilities and has limited capacity to serve future needs, such as addition of air conditioning.
<b>D5020 Lighting and Branch Wiring</b>	1965	1990	3	DCS 02/01/18	Fluorescent mostly T8 lighting typically 2x4 acrylic-lensed troffer. Kitchen has gasketed fluorescent and some surface mounted 1x4's. All manual lighting control. Wiring, devices and fixtures aging but functional.
<b>D5032 Low Voltage Communication</b>	1965	1990	3	DCS 02/01/18	Aging but functional phone system. Newer hearing assistance system with two amps and ceiling antenna wiring. Modest A/V systems for group room activities. Newer Ham-radio system with outside vertical antenna. Xfinity CATV. No issues reported.
<b>D5037 Low Voltage Fire Alarm</b>	1965	2010	2	DCS 02/01/18	Modern Gamewell E3 addressable fire alarm with remote annunciator at front door and recently added (2017) AES antenna.
<b>D5038 Low Voltage Security</b>	1965	2015	3	DCS 02/01/18	Newer (2015) CCTV system, but little or no other electronic security.
<b>D5039 Low Voltage Data</b>	1965	2000	3	DCS 02/01/18	Medium-speed data from cable with modem and newer, but limited WiFi; opportunity to upgrade to higher-speed fiber-optic system with WAP(s).
<b>D5090 Other Electrical Systems</b>	1965	1990	3	DCS 02/01/18	Obsolete incandescent exit signs; somewhat newer bug-eye battery egress fixtures; no standby power system - opportunity to upgrade exit signs to battery-backed LED type.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		

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### Facility Components

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<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1965	1990	3	DCS 02/01/18	Commercial kitchen appliances including gas-fired range & ovens, electric ovens, microwaves, reach-in refrigerators, dishwasher and others; all heavily used and worn, with some failing.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	1965	1990	3	DCS 02/01/18	Kitchenette, bathroom and other cabinetry.
<b>F Special Construction</b>			<b>3.0</b>		
<b>Special Construction</b>					
<b>F1010 Special Structures</b>	1965	1990	3	DCS 02/01/18	Two sheds - one metal, assumed for organizational storage; one wood assumed for garden tool storage.



# Facility Summary

City of Tacoma  
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 Infrastructure

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	1965	2010	2	LS 02/01/18	Asphalt drive into lot with some cracking. Consider applying sealer.
<b>G2020 Parking Lots</b>	1965	2015	2	LS 02/01/18	Asphalt surface with extruded curbs.
<b>G2030 Pedestrian Paving</b>	1965	2010	2	LS 02/01/18	Concrete walkways. Cross slope on sidewalk to back door appears non-ADA compliant.
<b>G2040 Site Development</b>	1965	1990	3	LS 02/01/18	Fix benches. Smoking shelter. Bike rack. Vegetable garden on west side maintained by users.
<b>G2050 Landscaping</b>	1965	2015	2	LS 02/01/18	Grass, shrubs, and trees.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1965	1965	3	DCS 02/01/18	City water with good pressure (95 psig) and no issues reported. Irrigation system is present. No fire service. Several frost-free yard hydrants at garden area to west.
<b>G3020 Sanitary Sewer</b>	1965	1965	3	DCS 02/01/18	City sewer with no issues reported; system includes a kitchen grease waste interceptor to west in garden area; no issues reported, noting some fixtures drain slow - side sewer should be cleaned and inspected.
<b>G3030 Storm Sewer</b>	1965	1990	3	DCS 02/01/18	Several catch basins at north and south parking lots, which appear to also receive roof drain flow. While storm system itself appear in good condition, tree damage and settlement at hardscape is resulting in ponding.
<b>G3060 Fuel Distribution</b>					

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 Point Defiance Senior Center  
 Infrastructure

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Civil / Mechanical Utilities</b>					
<b>G3060 Fuel Distribution</b>	1965	1990	3	DCS 02/01/18	Natural gas service from PSE meter #399859 with 425 cfh capacity; no seismic shut-off valve; meter increasing below grade as landscape is built-up.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1965	1990	3	DCS 02/01/18	Overhead power from pole to north with Tacoma Power meter #126391 at 120/240V, single-phase and no issues reported, noting this is a sub-standard service for commercial application.
<b>G4020 Site Lighting</b>	1965	1990	3	DCS 02/01/18	Small wallpack fixture above entry door; little other site lighting, except from street fixtures. Opportunity to install several LED wall packs to illuminate the first row of parking and sidewalks to entries.
<b>G4030 Site Communications and Security</b>	1965	1990	3	DCS 02/01/18	Overhead telecom services from purveyors with no issues reported. Opportunities to upgrade to high-speed fiber-optic data and/or underground service lines.



## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Point Defiance Senior Center

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Infrastructure	Site Improvements	\$12,000	\$3,000	\$3,000	\$9,900	\$27,900
	Site Civil / Mechanical Utilities	\$11,000	\$2,750	\$2,750	\$9,075	\$25,575
	<b>Facility Total</b>	<b>\$23,000</b>	<b>\$5,750</b>	<b>\$5,750</b>	<b>\$18,975</b>	<b>\$53,475</b>
Point Defiance Senior Center Building	Roofing	\$24,700	\$6,175	\$6,175	\$20,378	\$57,428
	Interior Finishes	\$32,000	\$8,000	\$8,000	\$26,400	\$74,400
	Plumbing	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	HVAC	\$17,500	\$4,375	\$4,375	\$14,438	\$40,688
	Fire Protection	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Equipment	\$52,500	\$13,125	\$13,125	\$43,313	\$122,063
	Furnishings	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	<b>Facility Total</b>	<b>\$151,700</b>	<b>\$37,925</b>	<b>\$37,925</b>	<b>\$125,153</b>	<b>\$352,703</b>
	<b>Site Total</b>	<b>\$174,700</b>	<b>\$43,675</b>	<b>\$43,675</b>	<b>\$144,128</b>	<b>\$406,178</b>



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Point Defiance Senior Center

Total Observed Deficiency Repair Direct Cost : \$174,700

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Deficiency</b>									
Facility: Infrastructure					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$12,000
System: Site Improvements					Total System Deficiency Repair Cost (Marked Up):				\$27,900
<b>Pedestrian Paving</b>									
ADA ramp	4	1	2018		1	\$12,000.00	LS	\$12,000	\$27,900

ADA Ramp from south parking lot is too steep, and tree root upheaval and cracking of a portion of the access path concrete.

Remove ramp and portion of sidewalk and replace with ADA compliant slope transitions.



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				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$11,000</b>	
<b>System: Site Civil / Mechanical Utilities</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$25,575</b>	
<b>Storm Sewer</b>										
Storm	4	2	2018		2	\$3,000.00	EA	\$6,000	\$13,950	

Localized ponding due to hardscape damage.

If hardscape is not corrected to improve drainage, install additional catch basins to eliminate standing water.



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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$11,000</b>	
<b>System: Site Civil / Mechanical Utilities</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$25,575</b>	
<b>Fuel Distribution</b>										
Gas service	4	3	2018		1	\$5,000.00	LS	\$5,000	\$11,625	
Gas meter is increasingly below grade as landscape builds-up; no seismic shut-off valve.				Raise meter to above grade location and update service piping, including seismic shut-off valve.						





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Point Defiance Senior Center Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$24,700</b>	
<b>System: Roofing</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$57,428</b>	
<b>Roof Coverings</b>										
Built-up roofing system	4	3	2018		3,800	\$6.50	SF	\$24,700	\$57,428	

Roof is worn, has some spongy spots, and has been patched. Some areas pond water.

Scheduled for replacement 2018.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Point Defiance Senior Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$32,000</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$74,400</b>
<b>Floor Finishes</b>									
Flooring	4	3	2018		3,200	\$10.00	SF	\$32,000	\$74,400

Vinyl composition tile is worn, in some areas cracked and joints are separated and partially displaced vertically. Carpet is badly worn and stained.

Remove all existing flooring materials down to bear slab substrate. Replace with new VCT and carpeting per current locations.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Point Defiance Senior Center

Total Observed Deficiency Repair Direct Cost : \$174,700

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Point Defiance Senior Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$10,000</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$23,250</b>
<b>Domestic Water Distribution</b>									
DWH heater	4	1	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Code and maintenance issues - missing expansion tank, recirc pump and insulating base; combustion issue resulting in excessive corrosion of this relatively new DWH heater.

Correct code items and combustion issue.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Point Defiance Senior Center

Total Observed Deficiency Repair Direct Cost : \$174,700

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Point Defiance Senior Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$10,000</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$23,250</b>
<b>Rain Water Drainage</b>									
Scupper & downspouts	4	2	2018		5	\$1,000.00	EA	\$5,000	\$11,625

Scuppers not at low points; easily blocked by leaves; several large and small ponding areas.

Improve scuppers; add roof drains if necessary to eliminate standing water.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Total Observed Deficiency Repair Direct Cost : \$174,700

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Point Defiance Senior Center Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$17,500	
System: HVAC				Total System Deficiency Repair Cost (Marked Up):					\$40,688	
<b>HVAC Distribution Systems</b>										
Furnaces	4	3	2018		1	\$7,500.00	EA	\$7,500	\$17,438	

Aging gas-furnace.

Budget for replacement prior to failure.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Point Defiance Senior Center Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$17,500	
System: HVAC				Total System Deficiency Repair Cost (Marked Up):					\$40,688	
<b>Other HVAC Systems and Equipment</b>										
Kitchen hoods	4	2	2018		1	\$10,000.00	LS	\$10,000	\$23,250	

Aging kitchen hood with no apparent make-up air system and no hood for scullery (dish wash) area.

Refurbish grease hood, provide conditioned make-up air per code and add scullery exhaust.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

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				Action						
<b>Facility: Point Defiance Senior Center Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$5,000</b>	
<b>System: Fire Protection</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$11,625</b>	
<b>Other Fire Protection Systems</b>										
Grease hood fire suppression	4	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Out of date kitchen grease hood fire suppression.

Service and certify grease hood fire suppression system.



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				Action						
<b>Facility:</b> Point Defiance Senior Center Building									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
<b>System:</b> Equipment									<b>\$52,500</b>	
<b>Commercial Equipment</b>									<b>Total System Deficiency Repair Cost (Marked Up):</b>	
Laundry equipment	4	2	2018		7	\$7,500.00	EA	\$52,500	\$122,063	

Worn kitchen equipment wearing, failing, obsolete and inefficient, especially failed gas-fired ovens and leaking dishwasher.

Replace with all new code compliant kitchen equipment.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Point Defiance Senior Center Building</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>					<b>\$10,000</b>	
<b>System: Furnishings</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>					<b>\$23,250</b>	
<b>Fixed Furnishings</b>										
Casework	4	5	2018		1	\$10,000.00	LS	\$10,000	\$23,250	

Cabinetry wear and tear. Refurbish for extended life.



## Opportunity Summary By Subsystem

City of Tacoma

Site: Point Defiance Senior Center

Total Site Opportunity Cost: \$249,793

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Infrastructure</b> <b>System: Site Electrical utilities</b> <b>Total Cost: \$7,500</b>						
G4010	Electrical Distribution	Residential 120/240V single phase service via overhead lines.	Upgrade to 120/208V three-phase power via underground line.	1.00	\$7,500.00	LS \$7,500
<b>Facility: Point Defiance Senior Center Building</b> <b>System: Roofing</b> <b>Total Cost: \$53,200</b>						
B3010	Roof Coverings	Remove BUR replace with membrane roof. Add insulation.	Remove all roofing and substrate materials down to the heavy timber deck and install new roofing system over R-30 insulation. Provide new parapets flashing and gutters.	3,800.00	\$14.00	SF \$53,200
<b>Facility: Point Defiance Senior Center Building</b> <b>System: Interior Construction</b> <b>Total Cost: \$5,000</b>						
C1020	Interior Doors	Bathroom doors are hard to open by people in wheelchairs.	Auto door operators on bathroom doors.	2.00	\$2,500.00	EA \$5,000
<b>Facility: Point Defiance Senior Center Building</b> <b>System: Interior Finishes</b> <b>Total Cost: \$57,600</b>						
C3020	Floor Finishes	Upgrade flooring to more sustainable option that is easier to maintain.	Install rubber, marmoleum, or linoleum.	3,200.00	\$18.00	SF \$57,600
<b>Facility: Point Defiance Senior Center Building</b> <b>System: Vertical Transportation</b> <b>Total Cost: \$5,000</b>						
D1090	Other Conveying Systems	Simplify roof maintenance.	Install permanent roof access.	1.00	\$5,000.00	LS \$5,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: Point Defiance Senior Center

Total Site Opportunity Cost: **\$249,793**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Point Defiance Senior Center Building</b>						
<b>System: HVAC Total Cost: \$33,209</b>						
D3030	Cooling Generating Systems					
	Gas furnace forced air heat and no A/C.	Upgrade to hybrid heat pump system to improve energy efficiency and provide cooling.	1.00	\$15,000.00	EA	\$15,000
	Add cooling other than circulating fans.	Install split-Dx cooling at existing furnace system.	1.00	\$12,500.00	LS	\$12,500
D3060	Controls and Instrumentation					
	No DDC.	Upgrade to City standard DDC.	3,806.00	\$1.50		\$5,709
<b>Facility: Point Defiance Senior Center Building</b>						
<b>System: Fire Protection Total Cost: \$19,030</b>						
D4010	Fire Protection Sprinkler Systems					
	Add fire sprinkler.	Add fire sprinkler per code.	3,806.00	\$5.00	SF	\$19,030
<b>Facility: Point Defiance Senior Center Building</b>						
<b>System: Electrical Total Cost: \$69,254</b>						
D5010	Electrical Service and Distribution					
	Residential-type single-phase power.	Upgrade to commercial-type three-phase power with increased capacity to provide cooling.	3,806.00	\$4.00		\$15,224
D5020	Lighting and Branch Wiring					
	Fluorescent lighting with manual control.	Upgrade to LED lighting with automatic control.	3,806.00	\$5.00	SF	\$19,030
D5090	Other Electrical Systems					
	No standby generator.	Install 25 kW generator with ATS.	1.00	\$35,000.00	LS	\$35,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Facility Summary

City of Tacoma  
T.A.C.I.D.  
T.A.C.I.D. Building

6315 South 19th Street  
Tacoma, WA 98407

Facility Size - Gross S.F. 10,367  
Year Of Original Construction 1983  
Facility Use Type Community Center  
Construction Type Light  
# of Floors 1  
Energy Source Electric  
Year Of Last Renovation n/a  
Historic Register No



FCI (BMAR/CRV)	0.13	Predicted Renewal Budget (20 yrs)	\$1,370,996
FCI (Bldg OD/CRV)	0.04	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$3,789,000	Building	\$107,804
BMAR (Backlog of Maintenance and Repair)	\$483,000	Infrastructure	\$71,378
Beginning Budget Year	2018	Total	\$179,182
		Opportunity Total Project Cost	\$1,000,924

## Facility Condition Summary

The TACID building is owned by the City and located on leased land from Tacoma Community College and operated by a third party. Originally constructed in 1983, the building is a one-story wood framed building with large ceiling space, mechanical mezzanine and mechanical roof well. The site includes a perimeter roadway with parking, landscaping, and shed structure at NE corner of the main building, plus other modest hard & softscape improvements. The building is in generally good condition, but is in need of repairs to the parking areas, building exterior, and interior finishes.

# Facility Summary

City of Tacoma  
 T.A.C.I.D.  
 T.A.C.I.D. Building

6315 South 19th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1983	1983	2	LS 02/01/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	1983	1983	2	LS 02/01/18	Concrete slab on grade.
<b>B Shell</b>			<b>2.5</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1983	1983	3	LS 02/01/18	Mezzanine is wood joist framing with plywood sheathing. Water Stains from prior chilled water system.
<b>B1020 Roof Construction</b>	1983	1983	3	LS 02/01/18	Pre-engineered wood trusses with plywood sheathing, high bay is parallel chord joists/trusses.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1983	1983	2	LS 02/01/18	Wood stud walls with plywood sheathing. Exterior finish is exterior insulation and finish system. Interior finish is gypsum wall board. Metal siding panels at parapet have heavy moss growth and need to be power washed.
<b>B2020 Exterior Windows</b>	1983	1983	2	LS 02/01/18	Light gage aluminum with some awning out operable units. Glazing is insulated glass. 4 large windows on South side are newer. Additional sashes have been replaced.
<b>B2030 Exterior Doors</b>	1983	1983	2	LS 02/01/18	Hollow metal doors and frames. Need paint on interior.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					

# Facility Summary

City of Tacoma  
 T.A.C.I.D.  
 T.A.C.I.D. Building

6315 South 19th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>2.5</b>		
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1983	2014	2	LS 02/01/18	Asphalt shingle at main building with single membrane roofing system at low slope above center high point of building with roof-top mechanical units.
<b>B3020 Roof Openings</b>	1983	1983	3	LS 02/01/18	Two(2) 8'x10' wide aluminum framed skylights. Some moss growth from winter rains should be cleaned in spring.
<b>B3030 Projections</b>	1983	1983	2	LS 02/01/18	Parapet and steel parapet railing around mechanical roof equipment area.
<b>C Interiors</b>			<b>3.1</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1983	1983	2	LS 02/01/18	Split faced concrete masonry units around central building core. All other wood framed partitions with gypsum wallboard.
<b>C1020 Interior Doors</b>	1983	1983	3	LS 02/01/18	Wood frames with solid core wood veneer doors. Some damage from wheelchair traffic.
<b>C1030 Fittings</b>	1983	1983	3	LS 02/01/18	Plastic laminate faced kitchen cabinets. Dated but functional. Signage is installed too high; remove and reinstall at appropriate height.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1983	1983	3	LS 02/01/18	Painted gypsum wallboard or CMU throughout except for restrooms which have 1"x1" ceramic tile. All new paint in 2017.
<b>C3020 Floor Finishes</b>	1983	1983	4	LS 02/01/18	Carpeting typical throughout building except for

# Facility Summary

City of Tacoma  
 T.A.C.I.D.  
 T.A.C.I.D. Building

6315 South 19th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>3.1</b>		
<b>Interior Finishes</b>					
<b>C3020 Floor Finishes</b>					
					multi-purpose room which is V.C.T. and restrooms which are 1"x1" ceramic tile. All new carpet in 2017 except room 10. Minor VCT repair of minor cracking and gaps.
<b>C3030 Ceiling Finishes</b>					
	1983	1983	4	LS 02/01/18	2x4 ceiling tiles, multiple stained. Bent grid is several of the east side rooms.
<b>D Services</b>			<b>3.0</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					
	1983	1983	3	DCS 02/01/18	Wall mounted vitreous china water closets and floor type urinal; all with automatic flush valves. Lavatories are countertop vitreous china type with automatic faucets. One non-ADA drinking fountain near entry. Multiple kitchenette and kitchen sinks - all stainless steel. No issues reported, except too few bathrooms with too few fixtures for occupant load and use requirements (programmatic issue).
<b>D2020 Domestic Water Distribution</b>					
	1983	1983	3	DCS 02/01/18	Water piping system is of copper construction, insulated with 2.5-inch service including PRV but no RPBP; pressure good at 90 psig before PRV. Newer (2013) GE electric 80-gal DHW heater with expansion tank and recirc pump. No issues reported. Hose bibs at outside walls; at least one near NW corner may be leaking in wall, but signs of EFIS moisture damage from inside.
<b>D2030 Sanitary Waste</b>					
	1983	1983	3	DCS 02/01/18	Cast iron DW&V piping where observed; floor drains in bathrooms; no apparent grease interception at residential-grade kitchens; no issues reported - known back-ups have been due to operator error.
<b>D2040 Rain Water Drainage</b>					
	1983	2014	2	DCS 02/01/18	Gutter & downspouts mostly to storm, except at

# Facility Summary

City of Tacoma  
 T.A.C.I.D.  
 T.A.C.I.D. Building

6315 South 19th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>Plumbing</b>					
<b>D2040 Rain Water Drainage</b>					main entry - see G-series for corrective action. Excessive standing water at mechanical roof well, but appears due to roof slope, not insufficient scuppers. At least one scupper backed-up - minor maintenance required.
<b>HVAC</b>					
<b>D3030 Cooling Generating Systems</b>	1983	2006	2	DCS 02/01/18	Original chilled water system largely demolished and replaced with rooftop packed units with on-board Dx cooling; however portions of original chilled water piping remain and might be used for future upgrades.
<b>D3040 HVAC Distribution Systems</b>	1983	2006	3	DCS 02/01/18	Two newer (2006) Trane 10-ton rooftop packaged heat pump units with sheet metal and flexible duct to supply air diffusers with assumed VVT terminal units. Appears to be open plenum return via ceiling grills and light fixture bezels, including centralized economizer relief. An above ceiling cabinet fan serves the restroom and custodian room exhaust. Another small cabinet fan with electric heat serves the entry area.
<b>D3050 Terminal and Package Units</b>	1983	1983	3	DCS 02/01/18	Variable volume & temperature (VVT) terminal units associated with the two 10-ton RTUs, plus most perimeter zones have ceiling-mounted electric resistance radiant heating panels.
<b>D3060 Controls and Instrumentation</b>	1983	2006	3	DCS 02/01/18	Building has a newer (2006) Alerton DDC system with most occupied spaces having zone control. Bypass dampers are installed between return and supply air to maintain air flow through the constant volume roof top units.
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>	1983	1983	2	DCS 02/01/18	Fire extinguishers in cabinets with current inspections.



# Facility Summary

City of Tacoma  
 T.A.C.I.D.  
 T.A.C.I.D. Building

6315 South 19th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>Fire Protection</b>					
D4030 Fire Protection Specialties					
<b>Electrical</b>					
D5010 Electrical Service and Distribution					
	1983	1983	3	DCS 02/01/18	ITE main panel is 120/208V, 3-phase with 800A capacity supplying several distribution panels and two 30 kVA step-up transformers (208V to 480V) supplying the newer (2006) HVAC rooftop units (RTU-1 & 2). No apparent TVSS, but no power quality, capacity, or reliability issues reported.
D5020 Lighting and Branch Wiring					
	1983	1983	3	DCS 02/01/18	Most light fixtures are T8 fluorescent including bladed cove along corridor wall, office with two-lamp parabolics, and multi-purpose room with four-lamp parabolics; all with manual lighting controls. Receptacles reportedly adequate for need.
D5032 Low Voltage Communication					
	1983	2000	3	DCS 02/01/18	Telephone, A/V, bathroom assistance alarm, and other communication systems; aging but with no issues reported - assume adequate for need.
D5037 Low Voltage Fire Alarm					
	1983	2015	2	DCS 02/01/18	Newer Gamewell E3 addressible fire alarm system with recent (2017) upgrade to antenna alarm transmission.
D5038 Low Voltage Security					
	1983	2015	3	DCS 02/01/18	Newer CCTV at entries, corridors and certain other spaces. Older intrusion detection system. No card-key access. No issues reported.
D5039 Low Voltage Data					
	1983	2000	3	DCS 02/01/18	Aging data system but reportedly adequate for need; significant surface-mounted raceway and work boxes, but reportedly most patrons use more recently installed, if limited band-width WiFi (WAPs), all with no issues reported.
D5090 Other Electrical Systems					

## Facility Summary

City of Tacoma  
T.A.C.I.D.  
T.A.C.I.D. Building

6315 South 19th Street  
Tacoma, WA 98407

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>Electrical</b>					
<b>D5090 Other Electrical Systems</b>					
	1983	2000	3	DCS 02/01/18	Battery exit signs, but unclear egress lighting.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>					
	1983	1983	3	DCS 02/01/18	Aging but little used and functional kitchen appliances with no issues reported.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>					
	1983	1983	3	DCS 02/01/18	Some minor wear.
<b>F Special Construction</b>					
<b>Special Construction</b>					
<b>F1020 Integrated Construction</b>					
	1983	2000	4	DCS 02/01/18	Make-shift bulk records storage (archive) in the west program room - consider upgrade to high-density shelf-type system.

# Facility Summary

City of Tacoma  
T.A.C.I.D.  
Infrastructure

6315 South 19th Street  
Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2020 Parking Lots</b>	1983	1983	2	LS 02/01/18	Asphalt surface parking/drives with concrete curbs and wheel stops.
<b>G2030 Pedestrian Paving</b>	1983	1983	3	LS 02/01/18	Concrete walkways and circular asphalt area at northeast corner of site. Concrete walks appear to have been ground in many areas.
<b>G2040 Site Development</b>	1983	1983	2	LS 02/01/18	Concrete seat walls at entry.
<b>G2050 Landscaping</b>	1983	1983	3	LS 02/01/18	Grass, shrubs, and trees. Vegetable garden maintained by users.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1983	1983	3	DCS 02/01/18	City water from meter to south at sidewalk - meter vault is flooded from small stream flooding down sidewalk - unclear who is responsible to correct. Fire hydrant in parking area, but no fire service to building. Pressure to building good at 90 psig. Irrigation system present as well with no issues reported.
<b>G3020 Sanitary Sewer</b>	1983	1983	2	DCS 02/01/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1983	1983	2	DCS 02/01/18	On-site storm collection network of catch basins and non-metallic piping assumed discharging to City system at street. Good drainage except where tree roots are damaging asphalt, causing localized ponding - see G20X0 for corrective action. Also one catch basin still has filter from past construction work - minor maintenance to remove. Two downspouts at main entry discharge at grade to building foundation.
<b>Site Electrical utilities</b>					

# Facility Summary

City of Tacoma  
 T.A.C.I.D.  
 Infrastructure

6315 South 19th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

##### G4010 Electrical Distribution

1983	1983	3	DCS	02/01/18	Underground power to assumed Tacoma Power transformer at SE corner of building, then underground to building main electrical closet; no issues reported.
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##### G4020 Site Lighting

1983	1983	3	DCS	02/01/18	About six metal poles with shoe-box HID lamps; poles need paint. About ten decorative concrete bollards at main entry with HID fixtures which may be failed. Several newer HID wall-packs at building perimeter. Several older scones at entries.
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##### G4030 Site Communications and Security

1983	1983	3	DCS	02/01/18	Telecommunications overhead from street pole to building high roof, then down to main communications closet, with no issues reported - appears to be CATV and copper telephone. Minimal site electronic security limited to CCTV at front and back entries, but no issues reported.
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## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: T.A.C.I.D.

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Infrastructure	Site Improvements	\$30,700	\$7,675	\$7,675	\$25,328	\$71,378
	<b>Facility Total</b>	<b>\$30,700</b>	<b>\$7,675</b>	<b>\$7,675</b>	<b>\$25,328</b>	<b>\$71,378</b>
T.A.C.I.D. Building	Exterior Closure	\$11,500	\$2,875	\$2,875	\$9,488	\$26,738
	Interior Construction	\$7,500	\$1,875	\$1,875	\$6,188	\$17,438
	Interior Finishes	\$12,000	\$3,000	\$3,000	\$9,900	\$27,900
	HVAC	\$15,367	\$3,842	\$3,842	\$12,678	\$35,728
	<b>Facility Total</b>	<b>\$46,367</b>	<b>\$11,592</b>	<b>\$11,592</b>	<b>\$38,253</b>	<b>\$107,803</b>
	<b>Site Total</b>	<b>\$77,067</b>	<b>\$19,267</b>	<b>\$19,267</b>	<b>\$63,580</b>	<b>\$179,181</b>



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: T.A.C.I.D.

Total Observed Deficiency Repair Direct Cost : \$77,067

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Infrastructure</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$30,700</b>
<b>System: Site Improvements</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$71,378</b>
<b>Parking Lots</b>									
Asphalt	3	5	2018		3,900	\$3.00	SF	\$11,700	\$27,203

Asphalt surface is very worn with some cracking and weed growth.

Clean cracks and apply seal coat to all asphalt surfaces. Restripe after seal coat application.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: T.A.C.I.D.

Total Observed Deficiency Repair Direct Cost : \$77,067

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
<b>System: Site Improvements</b>									<b>\$30,700</b>	
<b>Parking Lots</b>									<b>Total System Deficiency Repair Cost (Marked Up):</b>	
Wheel stops	4	2	2018		30	\$300.00	EA	\$9,000	\$20,925	

Most wheel stops are broken and spalled. Curbs are in good condition. Some appear to be missing.

Remove and replace concrete wheel stops.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: T.A.C.I.D.

Total Observed Deficiency Repair Direct Cost : \$77,067

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: Infrastructure									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: Site Improvements									\$30,700	
Pedestrian Paving									Total System Deficiency Repair Cost (Marked Up):	
Asphalt	5	0	2018		1	\$10,000.00	LS	\$10,000	\$23,250	

Landscape islands have large trees and all have roots growing into the asphalt.

Remove and replace asphalt in all corner locations. Remove roots or entire tree based on arborist recommendations.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: T.A.C.I.D.

Total Observed Deficiency Repair Direct Cost : \$77,067

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: T.A.C.I.D. Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$11,500	
System: Exterior Closure				Total System Deficiency Repair Cost (Marked Up):					\$26,738	
<b>Exterior Walls</b>										
EIFS	4	1	2018		1	\$6,500.00	LS	\$6,500	\$15,113	

Some spalling and cracking at SW corner near entry repair cracks at south side windows.

Patch and repair. Pull soil away from the bottom. Fill and repair cracks.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: T.A.C.I.D.

Total Observed Deficiency Repair Direct Cost : \$77,067

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: T.A.C.I.D. Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$11,500	
System: Exterior Closure				Total System Deficiency Repair Cost (Marked Up):					\$26,738	
<b>Exterior Windows</b>										
Aluminum windows	5	1	2018		2	\$2,500.00	EA	\$5,000	\$11,625	

Seals failed.

Replace 2x4 sashes.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: T.A.C.I.D.

Total Observed Deficiency Repair Direct Cost : \$77,067

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: T.A.C.I.D. Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$7,500	
System: Interior Construction				Total System Deficiency Repair Cost (Marked Up):					\$17,438	
<b>Interior Doors</b>										
Wood Doors and Frames	4	3	2018		25	\$300.00	EA	\$7,500	\$17,438	

Jambs and door bottoms are banged up from wheelchair traffic.

Strip finish, sand and fill damaged areas, repaint. Replace jambs where required.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: T.A.C.I.D.

Total Observed Deficiency Repair Direct Cost : \$77,067

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: T.A.C.I.D. Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$12,000
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$27,900
<b>Ceiling Finishes</b>									
ACT	4	2	2018		2,000	\$6.00	SF	\$12,000	\$27,900

Stained tiles and bent ceiling grids.

Replace all stained ceiling tiles - correct/replace sagging and bent grids.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: T.A.C.I.D.

Total Observed Deficiency Repair Direct Cost : \$77,067

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: T.A.C.I.D. Building				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$15,367	
System: HVAC				Total System Deficiency Repair Cost (Marked Up):					\$35,728	
<b>HVAC Distribution Systems</b>										
Ductwork	4	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Unclear return air path from some spaces - may pass through fiberglass-insulated attic space.

Verify return air path and economizer function for all forced air system spaces; corrective action, if any would be additional cost.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: T.A.C.I.D.

Total Observed Deficiency Repair Direct Cost : \$77,067

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility:</b> T.A.C.I.D. Building <b>System:</b> HVAC					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				\$15,367
					<b>Total System Deficiency Repair Cost (Marked Up):</b>				\$35,728
<b>Controls and Instrumentation</b>									
Re-Cx	4	2	2018		10,367	\$1.00	SF	\$10,367	\$24,103

Disturbed insulation in attic/ceiling space, plus unclear return air path, and inconsistent DDC programming.

Check thermal envelope integrity with visual inspection and infrared thermography; tune-up HVAC system and controls.







## Opportunity Summary By Subsystem

City of Tacoma

Site: T.A.C.I.D.

Total Site Opportunity Cost: **\$439,505**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Infrastructure</b>						
<b>System: Site Electrical utilities</b>						
<b>Total Cost: \$9,000</b>						
G4020	Site Lighting					
	Mostly original HID lighting on poles and in bollards.	Upgrade all to LED.	18.00	\$500.00		\$9,000
<b>Facility: T.A.C.I.D. Building</b>						
<b>System: Interior Finishes</b>						
<b>Total Cost: \$10,000</b>						
C3020	Floor Finishes					
	Replace VCT	Upgrade to more sustainable material such as marmoleum, linoleum, or rubber flooring. Especially for maintenance and cleaning	1,000.00	\$10.00	SF	\$10,000
<b>Facility: T.A.C.I.D. Building</b>						
<b>System: HVAC</b>						
<b>Total Cost: \$20,000</b>						
D3060	Controls and Instrumentation					
	VVT with constant speed RTU fans.	Upgrade to true VAV with variable capacity RTU fans.	2.00	\$10,000.00	EA	\$20,000
<b>Facility: T.A.C.I.D. Building</b>						
<b>System: Fire Protection</b>						
<b>Total Cost: \$51,835</b>						
D4010	Fire Protection Sprinkler Systems					
	No fire sprinkler.	Install fire sprinkler per code, including attic, ceiling and mezzanine spaces.	10,367.00	\$5.00	SF	\$51,835
<b>Facility: T.A.C.I.D. Building</b>						
<b>System: Electrical</b>						
<b>Total Cost: \$328,670</b>						
D5010	Electrical Service and Distribution					
	South-sloping roof with good southern-exposure and public view.	Install 25 kW PV panel system.	25.00	\$6,000.00	EA	\$150,000
	Peculiar electrical system with 208V service and step-up transformers to 480V RTUs.	In the future either: 1) Install 208V RTUs and eliminate transformers, or 2) Upgrade electrical service to 480V and use transformers to supply 208/120V panels.	10,367.00	\$3.00	SF	\$31,101

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Opportunity Summary By Subsystem

City of Tacoma

Site: T.A.C.I.D.

Total Site Opportunity Cost: **\$439,505**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
D5020	Lighting and Branch Wiring					
	Fluorescent lighting with manual control.	LED lighting with automatic control.	10,367.00	\$5.00	SF	\$51,835
D5038	Low Voltage Security					
	No card key access with most spaces locked - staff spends significant time with keys.	Upgrade to carder access for all regularly used locked spaces.	10,367.00	\$2.00	SF	\$20,734
D5090	Other Electrical Systems					
	No generator.	Intstall 50 kW generator and ATS.	1.00	\$75,000.00	LS	\$75,000
Facility:	T.A.C.I.D. Building					
System:	Special Construction					
	<b>Total Cost: \$20,000</b>					
F1020	Integrated Construction					
	Make-shift bulk record storage.	Install high-density storage system.	1.00	\$20,000.00	LS	\$20,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Facility Summary

City of Tacoma  
Tacoma Learning Center  
Tacoma Learning Center Building

6316 South 12th Street  
Tacoma, WA 98407

Facility Size - Gross S.F. 5,256  
Year Of Original Construction 1987  
Facility Use Type Community Center  
Construction Type Light  
# of Floors 1  
Energy Source Electric  
Year Of Last Renovation 1987  
Historic Register No



FCI (BMAR/CRV)	0.09	Predicted Renewal Budget (20 yrs)	\$715,868
FCI (Bldg OD/CRV)	0.04	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$1,939,000	Building	\$69,169
BMAR (Backlog of Maintenance and Repair)	\$182,000	Infrastructure	\$17,438
Beginning Budget Year	2018	Total	\$86,607
		Opportunity Total Project Cost	\$599,925

## Facility Condition Summary

The Tacoma Learning Center is a single-story wood-framed building constructed in 1987 on the campus of Tacoma Community College. The building is generally in good condition; with recently replaced roof, rooftop heat pump unit, and other partial renewals. The main building houses two separate programs in the two semi-separated halves of the building. One of the halves appears set-up for child development, but is now mostly used as office space. A breezeway connects the TLC building with another of unknown use with a covered patio and free-standing shed in between. The backyard also includes a gazebo on concrete slab.

# Facility Summary

City of Tacoma  
 Tacoma Learning Center  
 Tacoma Learning Center Building

6316 South 12th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1987	1987	2	LS 02/01/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	1987	1987	2	LS 02/01/18	Concrete slab on grade.
<b>B Shell</b>			<b>2.7</b>		
<b>Superstructure</b>					
<b>B1020 Roof Construction</b>	1987	1987	3	LS 02/01/18	Wood I - joist framing with plywood sheathing spanning to interior and exterior stud walls.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1987	1987	3	LS 02/01/18	Wood stud walls with exterior plywood sheathing (T1-11). Interior finish is gypsum wallboard. Shed in back: No gutters, water is streaming down back wall and rotting siding, foliage is growing up wall. Needs maintenance.
<b>B2020 Exterior Windows</b>	1987	1987	2	LS 02/01/18	Exterior windows are double pane glazed metal window system. Some window sashes have recently been replaced. One window with a failed seal was found (see photo).
<b>B2030 Exterior Doors</b>	1987	1987	2	LS 02/01/18	Exterior doors are hollow metal framed, hollow metal doors with panic hardware.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1987	2014	2	LS 02/01/18	Roofing is rolled granular. Scuppers and downspouts are "Kynar" type coated metal. Roof was new in 2014. Some ponding was found but alleviated with cleaning of leaves out of scupper openings.

# Facility Summary

City of Tacoma  
 Tacoma Learning Center  
 Tacoma Learning Center Building

6316 South 12th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>2.7</b>		
<b>Roofing</b>					
<b>B3020 Roof Openings</b>	1987	1987	2	LS 02/01/18	Lead flashed vent opening.
<b>B3030 Projections</b>	1987	1987	3	LS 02/01/18	Canopy at front entry, eave over south side of building.
<b>C Interiors</b>			<b>2.4</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1987	1987	2	LS 02/01/18	Interior walls are wood stud.
<b>C1020 Interior Doors</b>	1987	1987	3	LS 02/01/18	Interior doors are hollow metal framed solid core wood doors with ADA compliant hardware.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1987	2015	2	LS 02/01/18	Interior wall finishes are painted textured GWB. Paint looks new.
<b>C3020 Floor Finishes</b>	1987	2005	3	LS 02/01/18	Carpet is used in halls, offices, classroom dry areas and main rooms. Sheet vinyl is the floor finish at bathrooms, classroom wet areas and other utility areas. 50% of carpet is <15 years, the rest is older.
<b>C3030 Ceiling Finishes</b>	1987	1987	2	LS 02/01/18	Ceilings are 2x4 acoustic tile suspended ceiling system throughout building except the Electric Room/Janitor's Closet which is hard lid.
<b>D Services</b>			<b>2.9</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					

# Facility Summary

City of Tacoma  
Tacoma Learning Center  
Tacoma Learning Center Building

6316 South 12th Street  
Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.9</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1987	1987	3	DCS 02/01/18	Plumbing fixtures are various materials (porcelain and stainless steel); including children's fixtures; no issues reported.
<b>D2020 Domestic Water Distribution</b>	1987	1987	3	DCS 02/01/18	Original construction, copper piping throughout. Original A.O. Smith 80-gal electric DHW heater with no expansion tank and no recirc pump; buy includes PRV and TMV.
<b>D2030 Sanitary Waste</b>	1987	1987	3	DCS 02/01/18	Waste piping of cast iron material; no issues reported; tested fixtures flush & drain well.
<b>D2040 Rain Water Drainage</b>	1987	2014	3	DCS 02/01/18	Flat-roof scuppers & downspouts; new (2014) roof drains marginally to scuppers; tree debris blocking most scupper resulting in excessive ponding - frequent maintenance required; permanent roof access would facilitate; cutting back trees from near roof would also help.
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>	1987	2014	3	DCS 02/01/18	Newer (2011) Trane rooftop heat pump unit (with electric back-up strip heat) and ductwork to open office toward middle of west half of the building; system is not well coordinated with perimeter PTAC zones - see controls. Air flow partially blocked by high partitions (TI issue). One general exhaust fan on the roof.
<b>D3050 Terminal and Package Units</b>	1987	2014	3	DCS 02/01/18	At least one dozen through-wall PTACS including several original (1987) Trane, at least one older (2006) Fredreich, several somewhat older Amana (2010) with analog controls, and several newer (2014) Amana with digital controls. All PTACs using the original (1987) Trane exterior cabinet - these are in fair condition, but most need cleaning and some have disconnected condensate drain lines (minor maintenance). Electric radiant ceiling panels in toilet rooms with

# Facility Summary

City of Tacoma  
 Tacoma Learning Center  
 Tacoma Learning Center Building

6316 South 12th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.9</b>		
<b>HVAC</b>					
<b>D3050 Terminal and Package Units</b>					local manual T-stats.
<b>D3060 Controls and Instrumentation</b>	1987	1987	4	DCS 02/01/18	Original Honeywell control system abandoned in place behind old panel in electrical room; newer T-stat for newer (2014) rooftop unit serving one open office area; most areas with stand-alone on-board PTAC manual controls. No apparent interlocks to prevent simultaneous heating & cooling of the open office zone. Opportunity to upgrade to City standard DDC, but in conjunction with new integrated HVAC system.
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>	1987	1987	3	DCS 02/01/18	Fire extinguishers in cabinets.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1987	1987	3	DCS 02/01/18	Two Square D 120/208V, 225A panels A & B both fed from Square D main distribution panel outside the building in NEMA 3R enclosure; no TVSS, but no issues reported.
<b>D5020 Lighting and Branch Wiring</b>	1987	1987	3	DCS 02/01/18	Lighting fluorescent T8 in 2x4 two-lamp acrylic-lensed troffers; all manual controls. Wiring & devices aging, but functional with no issues reported.
<b>D5032 Low Voltage Communication</b>	1987	1987	3	DCS 02/01/18	Two separate communication systems including phone equipment (one is NEC); one for each of the two tenants - both aging, but no issues reported. CCTV present.
<b>D5037 Low Voltage Fire Alarm</b>	1987	2015	2	DCS 02/01/18	Newer Gamewell E3 addressible fire alarm system with recent (2017) AES antenna.



# Facility Summary

City of Tacoma  
 Tacoma Learning Center  
 Tacoma Learning Center Building

6316 South 12th Street  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.9</b>		
<b>Electrical</b>					
<b>D5038 Low Voltage Security</b>	1987	2010	2	DCS 02/04/18	Newer intrusion detection system with no issues reported.
<b>D5039 Low Voltage Data</b>	1987	2005	3	DCS 02/01/18	Aging data system with no issues reported.
<b>D5090 Other Electrical Systems</b>	1987	1987	4	DCS 02/01/18	Battery exit signs, but no egress lighting.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1987	2000	3	DCS 02/01/18	Kitchen and laundry equipment in fair condition with no issues reported.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	1987	1987	3	DCS 02/01/18	Laminate counter-tops.Variety of cabinetry from fair to good condition, cabinets look dated but are functional. Minor touch-up needed.

# Facility Summary

City of Tacoma  
Tacoma Learning Center  
Infrastructure

6316 South 12th Street  
Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2020 Parking Lots</b>	1987	2015	1	LS 02/01/18	Sealer and striping for ADA spaces appears fairly new.
<b>G2030 Pedestrian Paving</b>	1987	1987	2	LS 02/01/18	Concrete sidewalks and concrete pavers in play area. Concrete slab in covered play area.
<b>G2040 Site Development</b>	1987	1987	2	LS 02/01/18	Chain link fencing and small-child play equipment.
<b>G2050 Landscaping</b>	1987	1987	2	LS 02/01/18	Grass, shrubs, and trees.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1987	1987	3	DCS 02/01/18	City water with no issues reported; service approximately 1.25-inch.
<b>G3020 Sanitary Sewer</b>	1987	1987	3	DCS 02/01/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1987	1987	4	DCS 02/01/18	Limited storm service assumed conveyed to college system; significant flooding at back of building and some roof drain down-spout connections overflow at heavy load.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1987	1987	3	DCS 02/01/18	Tacoma Power underground to pad-mounted transformer, then short underground to outside main switchboard in all-weather enclosure which may feed more than one building. The enclosure concrete pad foundation is settling resulting in enclosure leaning away from building and standing water on small roof - opportunity to jack-up the small pad foundation and straighten enclosure to eliminate standing water on top.

# Facility Summary

City of Tacoma  
Tacoma Learning Center  
Infrastructure

6316 South 12th Street  
Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Electrical utilities</b>					
<b>G4020 Site Lighting</b>	1987	1987	3	DCS 02/01/18	Compact fluorescent wallpack at front door, compact fluorescent floodlights around perimeter. Opportunity to upgrade to LED and increase coverage.
<b>G4030 Site Communications and Security</b>	1987	1987	3	DCS 02/04/18	Telecom services from purveyors with no issues reported. Little or no site electronic security - opportunity to add minimal system.
<b>Other Site Construction</b>					
<b>G9090 Other Site Systems</b>	1987	1987	3	DCS 02/01/18	Large detached shed with power; need gutter & downspout and removal of vegetation growing up the back. Covered picnic shelter. Covered walk to covered play area.

# Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Tacoma Learning Center

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Infrastructure	Site Civil / Mechanical Utilities	\$7,500	\$1,875	\$1,875	\$6,188	\$17,438
	<b>Facility Total</b>	<b>\$7,500</b>	<b>\$1,875</b>	<b>\$1,875</b>	<b>\$6,188</b>	<b>\$17,438</b>
Tacoma Learning Center Building	Interior Finishes	\$11,250	\$2,813	\$2,813	\$9,281	\$26,156
	Plumbing	\$6,000	\$1,500	\$1,500	\$4,950	\$13,950
	HVAC	\$12,500	\$3,125	\$3,125	\$10,313	\$29,063
	<b>Facility Total</b>	<b>\$29,750</b>	<b>\$7,438</b>	<b>\$7,438</b>	<b>\$24,544</b>	<b>\$69,169</b>
	<b>Site Total</b>	<b>\$37,250</b>	<b>\$9,313</b>	<b>\$9,313</b>	<b>\$30,731</b>	<b>\$86,606</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Tacoma Learning Center

Total Observed Deficiency Repair Direct Cost : \$37,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$7,500</b>	
<b>System: Site Civil / Mechanical Utilities</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$17,438</b>	
<b>Storm Sewer</b>										
Storm Drain	4	2	2018		1	\$7,500.00	LS	\$7,500	\$17,438	

Ponding around gazebo and several other areas during heavy rain; some downspout connections overflow onto sidewalk under cover.

Add catch basins and capacity if needed to eliminate ponding near gazebo and other areas with standing water; clean roof drain lines to storm.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Tacoma Learning Center

Total Observed Deficiency Repair Direct Cost : \$37,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Tacoma Learning Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$11,250</b>
<b>System: Interior Finishes</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$26,156</b>
<b>Floor Finishes</b>									
Carpet	4	2	2018		1,500	\$7.50	SF	\$11,250	\$26,156

Old carpet in some areas.

Replace old carpet.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Tacoma Learning Center

Total Observed Deficiency Repair Direct Cost : \$37,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Tacoma Learning Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$6,000</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$13,950</b>
<b>Domestic Water Distribution</b>									
DHW Heater	4	3	2018		1	\$6,000.00	LS	\$6,000	\$13,950

Original DHW heater with no expansion tank, no recirc pump, and no seismic strap.

Replace DHW heater before failure and add expansion tank, recirc pump & piping, and seismic straps.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Tacoma Learning Center

Total Observed Deficiency Repair Direct Cost : \$37,250

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Tacoma Learning Center Building</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$12,500</b>	
<b>System: HVAC</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$29,063</b>	
<b>Terminal and Package Units</b>										
Wall mounted A/C units	4	3	2018		5	\$2,500.00	EA	\$12,500	\$29,063	

Several remaining original and older Trane and Freidrichs heat pump PTACs at end of life; some may not be working now in all modes.

Replace with new.



## Opportunity Summary By Subsystem

City of Tacoma

Site: Tacoma Learning Center

Total Site Opportunity Cost: **\$258,032**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Tacoma Learning Center Building</b> <b>System: Vertical Transportation</b> <b>Total Cost: \$5,000</b>						
D1010	Elevators and Lifts					
	No permanent roof access.	Install permanent roof access.	1.00	\$5,000.00	LS	\$5,000
<b>Facility: Tacoma Learning Center Building</b> <b>System: Plumbing</b> <b>Total Cost: \$6,000</b>						
D2010	Plumbing Fixtures					
	Children's fixtures little or not used; minimal fixtures for adult staff.	Convert say half the children's fixtures to adult.	4.00	\$1,500.00	EA	\$6,000
<b>Facility: Tacoma Learning Center Building</b> <b>System: HVAC</b> <b>Total Cost: \$199,728</b>						
D3040	HVAC Distribution Systems					
	Mix of PTACS and one rooftop heat pump unit (RTU).	Upgrade to modern HVAC system such as VRF with DOAS.	5,256.00	\$35.00	SF	\$183,960
D3060	Controls and Instrumentation					
	No integrated controls.	Upgrade to City standard DDC system in conjunction with new HVAC system.	5,256.00	\$3.00	SF	\$15,768
<b>Facility: Tacoma Learning Center Building</b> <b>System: Fire Protection</b> <b>Total Cost: \$21,024</b>						
D4010	Fire Protection Sprinkler Systems					
	No fire sprinkler.	Install fire sprinkler.	5,256.00	\$4.00	SF	\$21,024
<b>Facility: Tacoma Learning Center Building</b> <b>System: Electrical</b> <b>Total Cost: \$26,280</b>						
D5020	Lighting and Branch Wiring					
	Fluorescent lighting with manual control.	Upgrade to LED lighting with automatic control.	5,256.00	\$5.00	SF	\$26,280

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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City of Tacoma  
2018 Facility Condition Assessment  
*Metro Parks Maintained Facilities Report*

Prepared By:



September 28, 2018





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## Overview of Condition Assessment

### Background

The City's assets are the foundation of the valuable services the City provides to residents and they represent a significant investment. Effective asset management is required to maintain service levels and for long-term fiscal sustainability. Effective asset management is also a good investment in itself, as proper management and stewardship can slow the deterioration of assets, resulting in cost savings.

Effective Asset management generally includes a number of components.

- Assets need to be continually assessed so there is up to date information on their status.
- The information is used to determine needed maintenance and to mitigate issues.
- Each asset should have a plan that addresses its needs for its entire life, including its replacement, inspections, and maintenance.
- There should be a system in place to prioritize asset care and the allocation of limited resources.

To support the City of Tacoma in asset management, capital planning & budgeting efforts, MENG Analysis was contracted to complete a thorough Facility Condition Assessment (FCA) of City-owned General Government (non-enterprise/ non-utility) facilities and sites. The MENG Analysis team reviewed existing operation and maintenance information, conducted field investigations to identify Observed Deficiencies (ODs), developed cost estimates for ODs, and used customized cost models to predict future capital costs over a 20-year horizon (Predicted Renewals or PRs). The team also made note of "Opportunities" to improve the user experience, save energy, and increase system and building longevity.

The following lists the Metro Parks maintained facilities surveyed during this project:

Site	Address	Square Feet	Year Constructed / Last Renovation
Peoples Community Center	1602 Martin Luther King Way	21,436	1978/2016
Old Town Dock & Restroom	2123 Ruston Way	36,000	1970/2013
Chinese Reconciliation Park	1741 N Schuster Parkway	270,000	2006
Point Ruston Waterwalk	4891 Ruston Way	290,110	2014

The projected costs identified in this report are budgetary in nature and portray a rough order of magnitude for the work based on information available. Information at this budgetary level is often not complete and would require design level investigation to fully realize accurate scope and cost. Identified costs are intended to provide a



consistent overview of the needs of City-owned facilities to be compared across the subject portfolio.

### **Facility Survey Methodology**

The methodology for the City of Tacoma FCA started with an initial review of previous records and drawings. An operations and maintenance questionnaire was completed by City staff followed by an O&M workshop to gather additional information.

This preparation stage was followed by eight weeks of on-site field surveys conducted by technical experts who reviewed civil, structural, architectural, mechanical, electrical, plumbing, and site infrastructure systems to a Uniformat II, level 3 detail. The facility surveys were facilitated by an FCA Team Leader to maintain consistency in evaluation, survey forms, condition ratings and system categorization.

Each team member used survey forms to document the apparent facility conditions including:

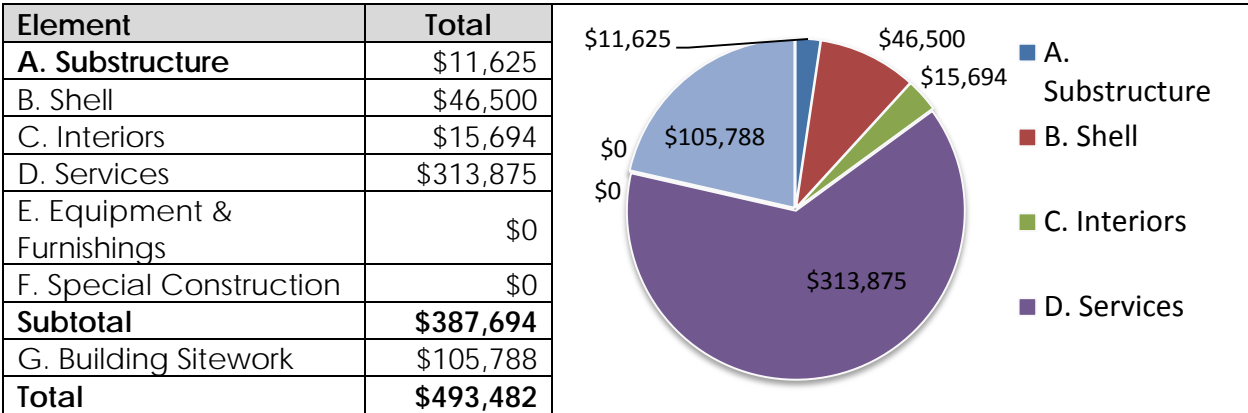
- I. Describing the nature of facility systems per Uniformat II,
- II. Determining the overall condition score of building elements,
- III. Identifying major maintenance deficiencies greater than \$5,000 (direct cost) that are likely to be required for immediate major maintenance repairs (2018), plus the next 5-year period (2019-2023)
- IV. Documenting specific deficiencies of systems with narrative as well as budgetary level cost estimates to repair or replace deficiencies
- V. The survey team also documented specific opportunities for upgrades that will increase facility performance. These items are not required.

### **Observed Deficiencies (ODs), 2018-2023**

Observed Deficiencies are based on known conditions that are witnessed by or disclosed directly to the field surveyors and are generally the best short-term planning tool. The MENG Analysis team uses the Uniformat II system to organize cost estimates for system repairs or replacements. OD estimates include direct costs plus typical construction markups as well as project development markups (design, permitting, management, etc.). ODs are intended as “like” replacements and do not address level-of-service enhancements and/or programmatic building changes or code required upgrades. The following table summarizes the estimated cost for 2018-2023 Observed Deficiencies at each Metro Parks Maintained facility:

Site	Building Systems	Building Sitework	Total
Peoples Community Center	\$267,375	\$11,625	\$279,000
Old Town Dock & Restroom	\$73,819	\$34,875	\$108,694
Chinese Reconciliation Park	\$46,500	\$0	\$46,500
Point Ruston Waterwalk	\$0	\$59,288	\$59,288
<b>Total</b>	<b>\$387,694</b>	<b>\$105,788</b>	<b>\$493,482</b>

The following table and chart summarize the Observed Deficiencies for all Metro Park Facilities by major building element:



- (i) Shell includes floor/roof construction, exterior walls, windows/doors, and roofing.
- (ii) Services includes elevators, plumbing, HVAC, fire protection & electrical.

The following summarizes the general findings of the Metro Park Maintained Facilities based on the Observed Deficiencies:

- **Substructures:** Foundations are in relatively good condition. Seismic standards were not evaluated as part of the survey.
- **Shell:** Peoples community center building shell is in good condition with no issues reported. Chinese Reconciliation Park has graffiti damage and black algae on pedestrian bridge and the park monument sign is missing special roof tiles facing water. Old Town Dock restroom facility shell is in good condition.
- **Interiors:** Old Town Dock restroom interiors are in good condition with no issues reported. Peoples Community Center interiors are in fair condition and are starting to show fatigue but are functional.
- **Services:**
  - **Heating Ventilation & Air Conditioning (HVAC):** Peoples Community Center HVAC generation and distribution are in fair condition. They were last updated in 2000. Pool areas were built in 2016 and operating

efficiently. Old Town Dock is served with electric unit heater and electric exhaust fan and are in good condition.

- **Plumbing:** Old Town Dock interior plumbing systems are in good shape. Fixtures are worn with heavy public use. The service and landscape supply lines out to the dock have minor corrosion. Peoples Community Center received major upgrade in 2010 and is in good condition. There have been minor maintenance issues reported in the kitchen. Pool fixtures and piping are reported in excellent condition.
- **Electrical:** Old Town Dock bollard lights, overhead pole lights and convenience receptacles are fluorescent and multiple fixtures have are not working. Peoples Community Center lighting is primarily outdated T8 fluorescent and should be considered for upgrade. The receptacles in the daycare area should be switched out to tamperproof.  
**Fire protection:** Old Town Dock pier standpipe and associated hangers is heavily corroded from saltwater and should be more closely evaluated for repairs. No issues reported on the sprinkler system at Peoples Community Center and pool.

- **Equipment and Furnishings:** Floating dock system with finger piers require seasonal maintenance and inspection. They are in good condition. People Community Center & pool equipment is in excellent condition.
- **Sitework:** Point Ruston water walk is in good condition. The storm water system is original, but in working order. Site lighting, asphalt, furniture and landscaping were new in 2014 and in working order. It was noted that the seawall is starting to show signs of failure in the keyway. Chinese Reconciliation Park site features are mostly in good condition. The exterior light fixtures have been damaged and some minor parking lot repairs are needed. Old Town Dock site is generally in good condition, but the metal accent band on the dock is corroding, curling and lifting which could be a potential hazard and liability. The site at Peoples Community center was mostly renovated in 2016 and is in good condition.

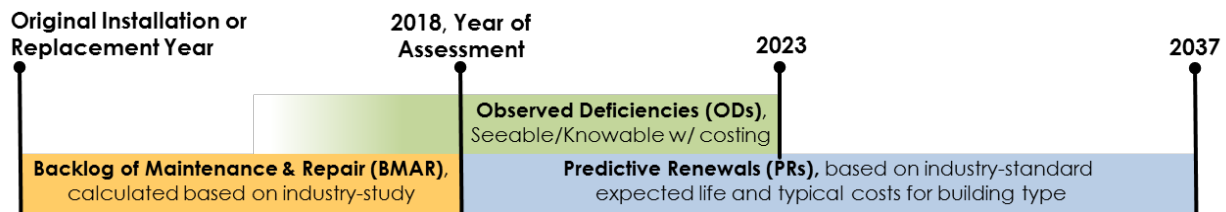
### **Supplemental Cost Models**

In addition to estimated Observed Deficiencies, MENG Analysis has developed two supplemental models summarized below. It is important to clarify that these calculations are independent of the estimated cost calculated for short-term Observed Deficiencies.

- **Backlog of Maintenance and Repair (BMAR):** The BMAR is an estimate from original construction to present day, of what should have been spent to bring the facility up to good condition based on current observed condition by the surveyors. This is a parametric calculation derived from a statistical industry study. The BMAR is generally defined as the amount of work required to adequately maintain facilities and related infrastructure for the current use that should have been accomplished, but for a variety of reasons has not.

- Predicted Renewals (PRs):** PRs predict future capital costs over a 20-year horizon (2018-2037). They are based on predictive models that use industry-standard expected life data, combined with original construction or remodel dates as well as system scores from surveyors to estimate when a system will require renewal. Unit costs in the models are updated on a yearly basis and adjusted to our specific northwest region. Similar projects that have been estimated and managed by the team were also referenced against the modeled costs for additional verification of recent costs if they were available.

The following graphic and table summarize the supplement cost model information:



Site	Backlog of Maintenance & Repair (BMAR)	Predicted Renewal (PRs)	Total
Chinese Reconciliation Park	\$0	\$0	\$0
Old Town Dock & Restroom	\$0	\$0	\$0
Peoples Community Center	\$961,000	\$2,913,000	\$3,874,000
Point Ruston Waterwalk	\$0	\$0	\$0
<b>Total</b>	<b>\$961,000</b>	<b>\$2,913,000</b>	<b>\$3,874,000</b>

### Facility Condition Index (FCI)

A Facility Condition Index (FCI) calculation is an industry standard used for benchmarking and evaluating the relative condition of a portfolio of facility assets over time. There are a number of different methods used by various organizations to calculate the condition index that best fits their particular portfolio. For this reason, using FCIs to compare the City’s facilities to other organizations is not always appropriate, but is a good tool to compare the City’s facilities to each other.

In general, the FCI is a ratio of current repair needs to the Current Replacement Value (CRV). For this report the FCI is based on both the BMAR/CRV and ODs/CRV, providing an average range of the buildings condition.

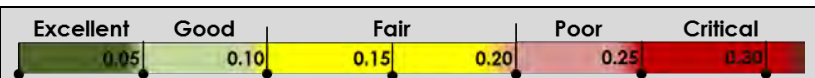
The Current Replacement Value (CRV) is a calculation for reconstructing an asset as it currently exists, without modifications or improvement. The CRV estimate is an approximation of the construction cost based on the cost per square foot of a similar constructed building. The CRV estimate should not be used for any other purpose than

to calculate the FCI. Estimates for the actual replacement of individual facilities and projects must incorporate a higher level of detail and accuracy.

Common industry practice is to create a scale for interpreting FCI as a way to prioritize facility needs. Most organizations adjust their classifications of FCI to relate to their own unique criteria. For the City of Tacoma, MENG Analysis recommends the following FCI breakdown to support decision making.

- Excellent = 0 - 0.05 (5%)
- Good = 0.06 - 0.10 (6%-10%)
- Fair = 0.11 - 0.20 (11%-20%)
- Poor = 0.21 - 0.25 (21% - 25%)
- Critical = 0.26 (26%) or greater

The following table is a summary of the average FCI and relative scaling for each facility:

Site					
	Excellent	Good	Fair	Poor	Critical
Chinese Reconciliation Park	N/A				
Old Town Dock & Restroom	N/A				
Peoples Community Center	◆ 0.08, Good				
Point Ruston Waterwalk	N/A				

**Observed Deficiency Over Time (5 years)**

Site	2018-2020	2021-2022	2023	Total
Chinese Reconciliation Park	\$11,625	\$0	\$34,875	<b>\$46,500</b>
Old Town Dock & Restroom	\$97,069	\$0	\$11,625	<b>\$108,694</b>
Peoples Community Center	\$46,500	\$23,250	\$209,250	<b>\$279,000</b>
Point Ruston Waterwalk	\$11,625	\$24,413	\$23,250	<b>\$59,288</b>
<b>Totals</b>	<b>\$166,819</b>	<b>\$47,663</b>	<b>\$279,000</b>	<b>\$493,482</b>

**Predicted Renewals Over Time (20 years)**

Site	2018-2023	2024-2037	Total
Chinese Reconciliation Park	\$0	\$0	<b>\$0</b>
Old Town Dock & Restroom	\$0	\$0	<b>\$0</b>
Peoples Community Center	\$532,022	\$2,380,960	<b>\$2,912,982</b>
Point Ruston Waterwalk	\$0	\$0	<b>\$0</b>
<b>Totals</b>	<b>\$532,022</b>	<b>\$2,380,960</b>	<b>\$2,912,982</b>

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## Terminology and Abbreviations

**Facility Condition Assessment (FCA):** A structured process to document the conditions of site infrastructure and building systems. FCAs are typically performed by a multi-disciplinary team of architects, engineers, construction, and cost specialists. Facility information and condition data should be maintained in a database for ease of updating and reporting. The data should be renewed over time.

**Facility Condition Index (FCI):** A benchmark used to compare relative condition of facilities within a portfolio of assets; derived by the following formula:

$$\text{FCI} = \frac{\text{Backlog of Maintenance and Repair (BMAR)}}{\text{Current Replacement Value (CRV)}}$$

There are a number of different methods used by various organizations to calculate that backlog. For this reason, using FCIs to compare the City's facilities to other organizations is not always appropriate.

This study uses a parametric method that calculates BMAR based on the assessed condition scores. The statistical basis is a study conducted by NASA on over 10,000 surveyed facilities that evaluated the backlog of repair items relative to qualitative condition scores 1 through 5. The parametric backlog for each system is calculated based on a statistical theoretical percentage of that system that would need repair or replacement for each of the qualitative condition scores. The costs of those systems are the facility use cost models customized for the City of Tacoma.

**Life Cycle Renewal Model:** A theoretical forecast of when building systems will exceed their typical lifespan and funding will be required for renewals.

**Parametric Costs:** Parametric cost estimating is a technique that uses statistical relationships between historical cost data and other program variables such as system condition or age. Historical cost data is typically used at a high level (e.g., cost per square foot) and often represent conceptual, order-of-magnitude costs for initial planning or discussion purposes.

**Remaining Useful Life:** An estimate of the years that a facility system may remain serviceable or in operation before failure; which would then require system renewal or replacement.

**Subsystem:** The term subsystem in this report refers to a Uniformat Level 3 building systems category (e.g., B3010 - Roof Coverings; or B3020 - Roof Opening; or B3030 - Projections).

**System:** The term system in this report refers to a Uniformat Level 2 building system category (e.g., B3000 - Roofing)



The following terms are used in the MENG Analysis FCA Database:  
(See also the database user's manual for more specific definitions.)

**Last Major System Renewal:** The year in which a system was last renewed (substantially repaired or replaced).

**Original System Date:** The year a system was originally constructed/installed.

**Subsystem Assessed Condition Score:** The field surveyors' assessment of condition assigned to each facility subsystem. The rating uses a scale of 1 through 5, where 1=excellent, 2=good, 3=fair, 4=poor, 5=unacceptable. Different subsystem % of CRV's are included in the database for each of the different facility use types (e.g. maintenance shops vs. police station vs. office building, etc.)

**BMAR (backlog of maintenance and repair):** This is an estimated amount that would need to be spent to bring the facility up to good condition. Does not guarantee code compliance.

BMAR is generally defined as the amount of work required to safely maintain facilities and related infrastructure for the current use that should have been accomplished, but for a variety of reasons has not. It includes minor seismic, ADA, and fire protection items necessary to maintain current operations, but it does not include major work in those areas that would normally be accomplished in major building renovation for full code compliance.

The MENG Analysis methodology for calculating BMAR is based on the condition scores (1-5, excellent to unsatisfactory) for each system, with each condition bracket having a BMAR defined as the percentage of that system's replacement value needing repair. Those percentages were derived from a statistical industry study that compared specific system maintenance and repair costs for tens of thousands of buildings relative to the condition scores. Within our FCA process, we calculate condition scores for each subsystem, which are then rolled up to the systems level, and a bracketed lookup table used associate those scores with a percentage of replacement value. Those are totaled for the entire facility, and then divided by the replacement value of the entire facility to get the actual FCI index.

**Subsystem Normal Life:** Industry standard expected subsystem life between renewals or replacement cycles.

**System Coverage:** The amount of area in a facility containing a specific system, expressed as percent of building or site area.

Certain FCA terms are also expressed as formulas in the MENG Analysis FCA Database, as follows:

## List of Commonly Used Abbreviations

AC = Asphalt concrete	HVAC = Heating, ventilating, and air conditioning
ACT = Acoustic ceiling tile	IT = Information technology
A/V = Audio/video	LF = Linear feet (measurable unit)
AHU = Air handling unit	LED = Light emitting diode
ASHRAE = American Society of Heating, Refrigeration, & Air Conditioning Engineers	LS = Lump sum (measurable unit)
BUR = Built-up roofing	MDF = Main distribution frame
CCTV = Closed circuit television	OWS = Oil/water separator
CFH = Cubic feet per hour (of natural gas)	PA = Public address
CFL = Compact fluorescent	P-lam = Plastic laminate
CI = Cast iron	PRV = Pressure regulating valve
CMU = Concrete masonry unit	PTAC = Packaged Terminal Air Conditioning
CO2 = Carbon dioxide	Spig = Pounds per square inch (pressure)
CU = Condensing unit	SS Shelving = Stainless Steel Shelving
C = Commissioning	PVC = Polyvinyl chloride
DDC = Direct digital control	RTU = Roof top unit
DHW = Domestic hot water	RPBP = Reduced pressure backflow preventer
Ds = Direct expansion	SF = Square feet (measurable unit)
EA = Each (measurable unit)	UPS = Uninterruptible power supply
EF = Exhaust fan	VAV = Variable air volume
EFIS = Exterior insulation finishing system	VCT = Vinyl composite tile
FRP = Fiber reinforced plastic	VWC = Vinyl wall covering
GI = Grease interceptor	VOIP = Voice over internet protocol
GSHP = Ground-source heat pump	WAP = Wireless access point
HID = High intensity discharge (lamps)	WD = Wood
HM = Hollow metal	

## Condition Survey Form

### Condition Survey Form Development

Survey forms were developed for the facility condition assessments based on the Uniformat Level 3. All Level 3 subsystems are described with evaluation criteria. The evaluation criteria descriptions clearly explain what elements were included and excluded from each Level 3 subsystem.

Each survey form is accompanied by a deficiency report form that is completed when Observed Deficiencies (ODs) are noted. This Observed Deficiency form notes the problem and the recommended action to correct the deficiency. Raw construction costs (i.e., labor and materials) for facility component replacements or repairs are estimated.

### Sample Condition Scoring Criteria

The following section provides six examples of the condition scoring definitions that were used during the condition surveys.

<p><b>Roof Construction</b></p> <p><b>B1020</b></p>	<p>Roof structural frame, structural interior walls supporting roof, roof decks, slabs and sheathing, canopies. Excludes insulation and roofing.</p> <p><b>1 - Excellent:</b> New; Structure is sound and stable; no evidence of cracking, deflection or separation of framing members. Preventative inspection.</p> <p><b>2 - Good:</b> Structure is sound and stable; no evidence of cracking, deflection or separation of framing members. Minor preventative maintenance: rust proofing and / or sealants and tightening of connections.</p> <p><b>3 - Fair:</b> Minor surface cracking or separation of framing members. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Structural damage evident; Twisting, cracking, or separation of structural members affecting surrounding finishes or moisture intrusion. Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> Structurally deficient or damaged beyond repair; major damage to surrounding finishes; jeopardizing occupancy. Replacement.</p>
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<p><b>Exterior Windows</b></p> <p><b>B2020</b></p>	<p>Screens, storm windows, exterior louvers, frame, trim, sills, caulking, flashing. Excludes window shades and treatments.</p> <p><b>1 -Excellent:</b> New; doors operating smoothly; no finish degradation. Preventative inspection.</p> <p><b>2 - Good:</b> Functioning smoothly; no finish degradation. Secure hardware and emergency exiting. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Worn but functional; requires paint or resealing; glass or hardware damage only in isolated doors. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Damaged or deficient hardware, glass, trim or seals; water intrusion. Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> Extensive damage, deficient beyond repair; Hardware not operating, moisture intrusion. Replacement.</p>
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<p><b>Exterior Wall Finishes</b></p> <p><b>B2040</b></p>	<p>Exterior wall - exterior applied finishes</p> <p><b>1 - Excellent:</b> New; no finish degradation. Preventative inspection.</p> <p><b>2 - Good:</b> no cracking or moisture intrusion. Minor finish degradation. Minor preventative maintenance. Cleaning.</p> <p><b>3 - Fair:</b> Minor undamaged but requires sealing. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> Damaged beyond repair, Replacement.</p>
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<p><b>Plumbing Fixtures</b></p> <p><b>D2010</b></p>	<p>Water closets, urinals, lavatories, sink, showers, bathtubs, drinking fountains. Excludes hot water heaters.</p> <p><b>1 - Excellent:</b> New; All fixtures operating well. Preventative inspection.</p> <p><b>2 - Good:</b> system components operational, free of defect, and of adequate utility service and capacity for intended use. Includes water saving features. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Some components worn, fixtures stained. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Many components damaged; limited parts; leaking valves, rust and corrosion. Operating parts &gt; 30 years old. Restoration repairs.</p> <p><b>5 - Unsatisfactory:</b> Many fixtures not operational. Rust, corrosion, and mineral deposits. Leaks causing damage to other finishes and components. Replacement.</p>
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<p><b>Heat Generating Systems</b></p> <p><b>D3020</b></p>	<p>Boilers, piping and fittings adjacent to boilers, primary pumps, auxiliary equipment, equipment and piping insulation.</p> <p><b>1 - Excellent:</b> New. Preventative inspection.</p> <p><b>2 - Good:</b> System is fully operational, suitable capacity, efficient utility utilization, integrated energy management controls. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Equipment worn but reliable, older energy controls; Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Equipment marginal/hard to obtain parts, insulated ext. ductwork, no energy controls. &gt; 40 years old. Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> System non-functional or seriously deficient, not delivering supply to required spaces. Replacement.</p>
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<p><b>Distribution Systems</b></p> <p><b>D3040</b></p>	<p>Supply &amp; return air systems, ventilation &amp; exhaust systems, steam, hot water &amp; chilled water distribution, terminal devices, heat recovery equipment, auxiliary equipment such as secondary pumps, and heat exchangers, piping, duct &amp; equipment insulation.</p> <p><b>1 - Excellent:</b> New. Preventative inspection.</p> <p><b>2 - Good:</b> System is fully operational, suitable capacity, efficient utility utilization, integrated energy management controls. Good insulation. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Equipment worn but reliable, older energy controls; Insulation. Some joints/ sealants loose. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Equipment marginal/hard to obtain parts, no energy controls; Many grilles missing or loose. Air leaks and unbalance. Restorative repair</p> <p><b>5 - Unsatisfactory:</b> Non-functional or seriously deficient. Grilles corroded, missing. Replacement.</p>
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## Facility Summary

City of Tacoma  
 Chinese Reconciliation Park  
 Chinese Reconciliation Park

1741 N Schuster Parkway  
 Tacoma, WA

Facility Size - Gross S.F.  
 Year Of Original Construction 2006  
 Facility Use Type Multipurpose  
 Construction Type N/A  
 # of Floors N/A  
 Energy Source Other  
 Year Of Last Renovation 2006  
 Historic Register No



Facility Condition Index (FCI)	Predicted Renewal Budget (20 yrs)	
FCI Deficiency	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	Building	\$46,500
BMAR (Backlog of Maintenance and Repair)	Infrastructure	
Beginning Budget Year 2018	Total	
	Opportunity Total Project Cost	

## Facility Condition Summary

The Chinese Reconciliation Park is a 4 acre park that is located along Commencement Bay. The park design is a mixture of traditional Chinese scholar's style gardens and beautiful natural waterfront setting. The park also includes a Fuzhou Ting garden pavilion. The Fuzhou Ting, a 30-foot x 40-foot ornate pavilion, is a donation (including design, materials and construction assistance) from Fuzhou, China, one of Tacoma's Sister Cities, in support of Chinese reconciliation efforts.

# Facility Summary

City of Tacoma  
 Chinese Reconciliation Park  
 Chinese Reconciliation Park

1741 N Schuster Parkway  
 Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>					
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	2006	2006	3	TRB 02/05/18	Graffiti damage and black algae on pedestrian bridge.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	2007	2007	5	TRB 02/05/18	Park monument sign, missing special roof tiles facing water.
<b>D Services</b>					
<b>Electrical</b>					
<b>D5020 Lighting and Branch Wiring</b>	2007	2007	3	DCS 02/05/18	Minimal lighting at Pagoda structure - opportunity for additional lighting.

# Facility Summary

City of Tacoma  
 Chinese Reconciliation Park  
 Infrastructure

1741 N Schuster Parkway  
 Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	2006	2006	3	TRB 02/05/18	Asphalt drive, rough in spots adjacent to train tracks (not clear if the road is park property).
<b>G2020 Parking Lots</b>	2006	2006	2	TRB 02/05/18	Asphalt parking lot.
<b>G2030 Pedestrian Paving</b>	2006	2006	2	TRB 02/05/18	A variety of pedestrian walk surfaces, concrete, stone, and gravel. In good condition.
<b>G2040 Site Development</b>	2006	2006	3	TRB 02/05/18	A variety of park amenities, including: benches, artwork, monuments, stones, boulders, stone statues, and bamboo fencing. Replace bamboo fencing.
<b>G2050 Landscaping</b>	2006	2006	2	TRB 02/05/18	Grass, shrubs, trees, and ornamental plantings.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	2006	2006	2	DCS 02/05/18	City water for irrigation and one shower near parking lot; no issues reported.
<b>G3030 Storm Sewer</b>	2006	2006	2	DCS 02/05/18	Storm water service for parking lot with no observed or reported ponding.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	2006	2006	2	DCS 02/05/18	Tacoma Power meter #140109 to "Commencement Park" appears to supply lighting fixtures attached to road overpass illuminating the parking lot and portions of the site. Separate meter #190216 with 200A capacity appears to serve Pagoda up-lighting. Both services appear to be 120/240V, single-phase and fed underground from nearby poles.



# Facility Summary

City of Tacoma  
 Chinese Reconciliation Park  
 Infrastructure

1741 N Schuster Parkway  
 Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

G4020 Site Lighting

2006 2006 3

DCS 02/05/18

Several wall-pack-type fixtures attached to road over-pass to illuminate parking and limited portions of site; several up-lights at Pagoda and reportedly several other interpretive locations; some up-lighting appears damaged. Opportunity for additional low-voltage pathway lighting.

# Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Chinese Reconcilliaton Park

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Chinese Reconciliation Park	Exterior Closure	\$15,000	\$3,750	\$3,750	\$12,375	\$34,875
	Roofing	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	<b>Facility Total</b>	<b>\$20,000</b>	<b>\$5,000</b>	<b>\$5,000</b>	<b>\$16,500</b>	<b>\$46,500</b>
	<b>Site Total</b>	<b>\$20,000</b>	<b>\$5,000</b>	<b>\$5,000</b>	<b>\$16,500</b>	<b>\$46,500</b>



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Chinese Reconcilliaton Park

Total Observed Deficiency Repair Direct Cost : \$20,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Chinese Reconciliation Park					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$15,000	
System: Exterior Closure					Total System Deficiency Repair Cost (Marked Up):				\$34,875	
<b>Exterior Walls</b>										
CMU	3	5	2018		1	\$15,000.00	LS	\$15,000	\$34,875	

Graffiti damage and black algae. Hairline cracks in railings and wall.

Treat and seal cracks, re-paint. Clean/remove graffiti and stains, treat with penetrating water proofing anti-graffiti coating.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Chinese Reconciliation Park

Total Observed Deficiency Repair Direct Cost : \$20,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				<b>Action</b>					
<b>Facility: Chinese Reconciliation Park</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$5,000</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$11,625</b>
<b>Roof Coverings</b>									
Roof Coverings	5	0	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Park monument sign, missing special roof tiles facing water.

These missing special roofing tiles match the gazebo roof: Ornamental glazed clay or ceramic tile fabricated as a gift from the sister city in China. There are spare crates of these tiles for re-installation stored in the Grounds Maintenance building (lower level). Prior to replacement recommend review of details and identify alternative mortar mix to resist harsh marine climate and freeze/thaw exposure.



## Opportunity Summary By Subsystem

City of Tacoma

Site: Chinese Reconcilliaton Park

Total Site Opportunity Cost: **\$15,000**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
Facility: Infrastructure						
System: Site Electrical utilities	Total Cost: \$15,000					
G4030	Site Communications and Security	No apparent site electronic security with reports of some vandalism at night.	3.00	\$5,000.00	EA	\$15,000
		Install several CCTV cameras and monitor from remote location for suspicious activity.				

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Facility Summary

City of Tacoma  
 Old Town Dock & Restroom  
 Old Town Dock & Restroom

2123 Ruston Way  
 Tacoma, WA

Facility Size - Gross S.F. 200  
 Year Of Original Construction 1970  
 Facility Use Type Unclassified  
 Construction Type Medium  
 # of Floors 1  
 Energy Source Electric  
 Year Of Last Renovation 2013  
 Historic Register No



Facility Condition Index (FCI)	0.04	Predicted Renewal Budget (20 yrs)	\$32
FCI Deficiency	338.62	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$0	Building	\$73,819
BMAR (Backlog of Maintenance and Repair)	\$0	Infrastructure	\$34,875
Beginning Budget Year	2018	Total	\$108,694
		Opportunity Total Project Cost	\$34,875

## Facility Condition Summary

Old Town Dock was originally constructed in 1873 and was restored in 2013. Restoration work to the dock included replacement of 60 piles, installation of new pavilion, deck, handrails, furnishings, lighting, and short-term moorage floats. A new public restroom area was constructed in 2014. MEP includes water, sewer, and power utilities for landscaping, restroom building, and dock. The MEP systems are aging faster than typical facilities due to marine exposure and heavy patron use, but are mostly in good condition. Some maintenance is needed to prevent further deterioration of a few systems such as electric lighting & receptacles, and utility connections under the head of the dock. Seasonal floats were not installed at the time of inspection, but reportedly need repairs to ramps and connections.



# Facility Summary

City of Tacoma  
 Old Town Dock & Restroom  
 Old Town Dock & Restroom

2123 Ruston Way  
 Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.3</b>		
<b>Foundations</b>					
<b>A1020 Special Foundations</b>	1970	2013	4	TRB 02/05/18	The new wharf structure was constructed on top of existing pilings, many of which are detached from the structure, and are in various stages of deterioration from the tidal exposure and marine climate.
<b>A1030 Slab On Grade</b>	1970	2013	2	TRB 02/05/18	Toilet room floors are slab on grade.
<b>B Shell</b>			<b>2.0</b>		
<b>Superstructure</b>					
<b>B1020 Roof Construction</b>	2013	2013	2	TRB 02/05/18	Wood deck on wood joists.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	2013	2013	2	TRB 02/05/18	Cast in place concrete.
<b>B2030 Exterior Doors</b>	2013	2013	2	TRB 02/05/18	Hollow metal doors and frames.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	2013	2013	2	TRB 02/05/18	Membrane roofing.
<b>C Interiors</b>			<b>2.6</b>		
<b>Interior Construction</b>					
<b>C1030 Fittings</b>	2013	2013	2	TRB 02/05/18	ADA hardware.
<b>Interior Finishes</b>					
<b>C3020 Floor Finishes</b>	2013	2013	3	TRB 02/05/18	The center feature of the wharf boardwalk

# Facility Summary

City of Tacoma  
 Old Town Dock & Restroom  
 Old Town Dock & Restroom

2123 Ruston Way  
 Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.6</b>		
<b>Interior Finishes</b>					
<b>C3020 Floor Finishes</b>					
					contains a metal accent band, that is corroding, curling, and lifting exposing rusted edges and pulled screws, presenting a hazard and liability.
<b>C3030 Ceiling Finishes</b>					
	2013	2013	2	TRB 02/05/18	Painted gypsum.
<b>D Services</b>			<b>2.2</b>		
<b>Vertical Transportation</b>					
<b>D1090 Other Conveying Systems</b>					
	1970	2013	3	DCS 02/05/18	Hoist for gangway to floating dock in fair condition, but may need partial renewal to extend life. Articulated smaller gangways from floating dock to finger piers appear to be in somewhat better condition, but still requiring seasonal maintenance.
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					
	1970	2013	2	DCS 02/05/18	Detention-type stainless steel water closets and lavatories at public bathrooms; also drinking fountains and kayak wash; fixtures need frequent maintenance due to heavy public use. Opportunity for drinking fountain(s) at end of pier - may help keep water in line fresh and provide amenity to patrons.
<b>D2020 Domestic Water Distribution</b>					
	1970	2013	2	DCS 02/05/18	Multiple metallic yard hydrants along pier reportedly for maintenance supplied by HDPE piping under pier; minor corrosion on some hydrants and excessive stress on umbilical connection at head of pier.
<b>D2030 Sanitary Waste</b>					
	1970	2013	2	DCS 02/05/18	Sanitary service to plumbing fixtures at restroom; tested fixtures flush & drain well; no issues reported.

# Facility Summary

City of Tacoma  
 Old Town Dock & Restroom  
 Old Town Dock & Restroom

2123 Ruston Way  
 Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.2</b>		
<b>Plumbing</b>					
<b>D2040 Rain Water Drainage</b>	1970	2013	2	DCS 02/05/18	Metal gutter & downspout to rain garden.
<b>D2090 Other Plumbing Systems</b>	1970	2013	3	DCS 02/05/18	Economy PVC piping to planter boxes along length of pier.
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>	1970	2013	2	DCS 02/05/18	Exhaust fan(s) for bathrooms.
<b>D3050 Terminal and Package Units</b>	1970	2013	2	DCS 02/05/18	Electric resistance unit heater for restroom building utility room. Opportunity for radiant heat in toilet rooms.
<b>D3060 Controls and Instrumentation</b>	1970	2013	2	DCS 02/05/18	Local T-stat for unit heater.
<b>Fire Protection</b>					
<b>D4020 Stand-Pipe and Hose Systems</b>	1970	2013	3	DCS 02/05/18	Pier standpipe system with galvanized pipe under pier and hose risers along pier; upland connection at head of pier is heavily corroded from salt-water exposure; pipe hangers and other portions of the system are beginning to rust.
<b>D4030 Fire Protection Specialties</b>	1970	2013	3	DCS 02/05/18	Portable fire extinguishers in plastic cabinets along length of pier; cabinets are beginning to deteriorate due to exposure, but may last 5 to 10 years. Life rings in similar plastic cabinets, aging similarly.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1970	2013	2	DCS 02/05/18	Power from Cooper B-Line pedestal at head of pier, assumed to pier and restroom building; no issues reported. Distribution at pier is via conduit along underside of pier.

## Facility Summary

City of Tacoma  
 Old Town Dock & Restroom  
 Old Town Dock & Restroom

2123 Ruston Way  
 Tacoma, WA

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
D Services			2.2		

#### Electrical

D5010 Electrical Service and Distribution

D5020 Lighting and Branch Wiring

1970 2013 3

DCS 02/05/18

Pole and bollard lamps along length of pier - all appear to be CFL; some failing, especially bollard fixtures. Poles include convenience receptacles, some are failing. Linear fluorescent in sealed fixtures with automatic control in public toilet rooms in good condition.

D5038 Low Voltage Security

1970 2013 2

DCS 02/05/18

Magnetic lock-up of restrooms with escape buttons; see site for CCTV opportunity.

### F Special Construction

#### Special Construction

F1020 Integrated Construction

1970 2013 3

DCS 02/05/18

Floating dock with modular finger piers; all requiring seasonal maintenance. The dock appears listing - investigation suggested.

## Facility Summary

City of Tacoma  
Old Town Dock & Restroom  
Infrastructure

2123 Ruston Way  
Tacoma, WA

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2030 Pedestrian Paving</b>	1970	2013	2	TRB 02/05/18	Paving systems include: concrete, brick pavers, boardwalk, warf grating.
<b>G2040 Site Development</b>	1970	2013	2	TRB 02/05/18	Large stacked boulder sea wall.
<b>G2050 Landscaping</b>	1970	2013	2	TRB 02/05/18	Grass, shrubs, trees, rain garden.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1970	2013	2	DCS 02/05/18	Two-inch city water to restroom and pier; city water to Rain Bird irrigation controls for both upland and pier planter boxes; fire standpipe service to pier from upland FDC; no issues reported.
<b>G3020 Sanitary Sewer</b>	1970	2013	2	DCS 02/05/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1970	2013	2	DCS 02/05/18	Roof drain to rain garden; drain path from downspout to garden needs cleaning (minor maintenance). Other storm direct to Puget Sound, such as from pier deck. Large apparent storm drainage pipe near water line east of pier passing through, but not belonging to park.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1970	2013	2	DCS 02/05/18	Tacoma Power meter #0647593 supplying restroom and pier.
<b>G4020 Site Lighting</b>	1970	2013	2	DCS 02/05/18	Incorporated into pier; otherwise city street lighting near entrance, except both CFL and T5 exterior lighting at restroom building. Opportunity to upgrade all from fluorescent to LED.

# Facility Summary

City of Tacoma  
 Old Town Dock & Restroom  
 Infrastructure

2123 Ruston Way  
 Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Other Site Construction

G9090 Other Site Systems

1970	1970	5	TRB	02/05/18	There are a number of pilings that are not incorporated in the wharf structure, and may represent liability and safety concerns (including one that appears to have broken off, with just the top floating above the surface, another not attached to the wharf, but is leaning with the top against the side of the wharf.
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## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Old Town Dock & Restroom

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Infrastructure	Other Site Construction	\$15,000	\$3,750	\$3,750	\$12,375	\$34,875
	<b>Facility Total</b>	<b>\$15,000</b>	<b>\$3,750</b>	<b>\$3,750</b>	<b>\$12,375</b>	<b>\$34,875</b>
Old Town Dock & Restroom	Foundations	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Interior Finishes	\$6,750	\$1,688	\$1,688	\$5,569	\$15,694
	Fire Protection	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Electrical	\$15,000	\$3,750	\$3,750	\$12,375	\$34,875
	<b>Facility Total</b>	<b>\$31,750</b>	<b>\$7,938</b>	<b>\$7,938</b>	<b>\$26,194</b>	<b>\$73,819</b>
	<b>Site Total</b>	<b>\$46,750</b>	<b>\$11,688</b>	<b>\$11,688</b>	<b>\$38,569</b>	<b>\$108,694</b>





## Detailed Assessment - Observed Deficiencies 2018 - 2023

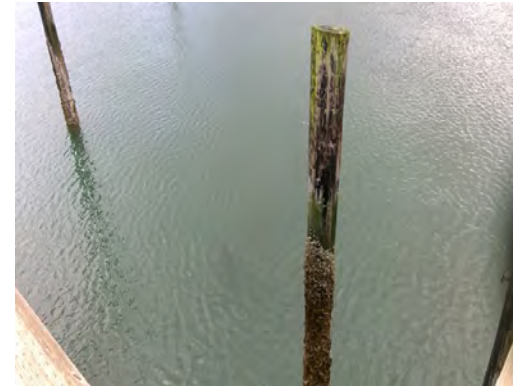
City of Tacoma  
 Site: Old Town Dock & Restroom

Total Observed Deficiency Repair Direct Cost : \$46,750

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$15,000</b>	
<b>System: Other Site Construction</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$34,875</b>	
<b>Other Site Systems</b>										
Other	5	0	2018		10	\$1,500.00	EA	\$15,000	\$34,875	

There are a number of obsolete pilings that are not incorporated in the wharf structure, and may represent liability and safety concerns (including one that appears to have broken off, with just the top now floating above the surface, another not attached to the wharf, but is leaning with the top against the side of the wharf).

Remove old unused pilings.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Old Town Dock & Restroom

Total Observed Deficiency Repair Direct Cost : \$46,750

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Old Town Dock &amp; Restroom</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$5,000</b>
<b>System: Foundations</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$11,625</b>
<b>Special Foundations</b>									
Wood Pile	4	5	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Original wood piling appears to be nearing end of life. It also appears some pile have moved under cross beams (dark circles evident where beams used to bear).

Recommend evaluation by naval structural engineer to assess current conditions, remaining longevity, and if any remediation is recommended. Estimate is for professional evaluation only, not including any remediation or maintenance.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Old Town Dock & Restroom

Total Observed Deficiency Repair Direct Cost : \$46,750

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: Old Town Dock & Restroom				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$6,750	
System: Interior Finishes				Total System Deficiency Repair Cost (Marked Up):					\$15,694	
<b>Floor Finishes</b>										
Flooring	4	1	2018		45	\$150.00	LF	\$6,750	\$15,694	

Sections of steel accent "boards" corroding, curling, and lifting. Screws missing and/or pulling up. Trip, cut, and fall hazard.

Repair or replace with bare foot traffic safe material.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Old Town Dock & Restroom

Total Observed Deficiency Repair Direct Cost : \$46,750

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility:</b> Old Town Dock & Restroom									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
<b>System:</b> Fire Protection									<b>\$5,000</b>	
<b>Stand-Pipe and Hose Systems</b>									<b>Total System Deficiency Repair Cost (Marked Up):</b>	
									<b>\$11,625</b>	
Standpipe	4	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Pipe connection at head of pier is rusted with portions of heavy corrosion.

Replace before complete failure with more corrosion-resistant material.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Old Town Dock & Restroom

Total Observed Deficiency Repair Direct Cost : \$46,750

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Old Town Dock &amp; Restroom</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$15,000</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$34,875</b>
<b>Lighting and Branch Wiring</b>									
Light fixtures	4	2	2018		20	\$750.00	EA	\$15,000	\$34,875

Bollard lighting is failing; bollard light fixtures are corroding and failing prematurely due to marine exposure. Other architectural fixtures show signs of premature failure (discoloration and corrosion).

Replace bollard and other light fixture with marine-grade fixtures.





## Opportunity Summary By Subsystem

City of Tacoma

Site: Old Town Dock & Restroom

Total Site Opportunity Cost: **\$25,000**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Infrastructure</b> <b>System: Site Electrical utilities</b> <span style="float: right;"><b>Total Cost: \$10,000</b></span>						
G4030	Site Communications and Security	No site electronic security.				
		Install several CCTV cameras with remote monitoring.	2.00	\$5,000.00	EA	\$10,000
<b>Facility: Old Town Dock &amp; Restroom</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$15,000</b></span>						
D5020	Lighting and Branch Wiring	All fluorescent lamps				
		Upgrade to LED.	30.00	\$500.00	EA	\$15,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Facility Summary

City of Tacoma  
 Peoples Community Center  
 Peoples Community Center Building

1602 MLK Way  
 Tacoma, WA 98407

Facility Size - Gross S.F. 21,436  
 Year Of Original Construction 1978  
 Facility Use Type Community Center  
 Construction Type Light  
 # of Floors 1  
 Energy Source Gas  
 Year Of Last Renovation 2016  
 Historic Register No



Facility Condition Index (FCI)	0.13	Predicted Renewal Budget (20 yrs)	\$2,912,982
FCI Deficiency	0.05	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$7,617,000	Building	\$232,500
BMAR (Backlog of Maintenance and Repair)	\$961,000	Infrastructure	\$11,625
Beginning Budget Year	2018	<b>Total</b>	<b>\$244,125</b>
		Opportunity Total Project Cost	\$213,895

## Facility Condition Summary

The Peoples Community Center was initially constructed in 1978 as the Malcolm X Center. This facility includes multiple additions and modifications since original construction, most recently improved in 2016. The building is a single-story masonry and wood frame building housing: offices, classrooms and related resource rooms, a gymnasium, locker rooms, and is attached to the new pool building. The building interiors have been improved and are in generally good condition, the roofing consists of t-tab asphalt shingles, showing moss growth, but the majority of the roof area is new membrane roofing in good condition.

The attached pool building was recently demolished and replaced with a newer, larger pool facility dedicated in 2016. – the Pool was Independently surveyed - See Peoples Community Center Pool, for pool building related Facility Condition Assessment Information.

# Facility Summary

City of Tacoma  
 Peoples Community Center  
 Peoples Community Center Building

1602 MLK Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>3.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1978	1978	3	TRB 02/06/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	1978	1978	3	TRB 02/06/18	Concrete slab on grade.
<b>B Shell</b>			<b>2.7</b>		
<b>Superstructure</b>					
<b>B1020 Roof Construction</b>	1978	1978	3	TRB 02/06/18	Gym/stage is steel beam or steel open web joists with steel decking. Gym roof is supported by concrete masonry unit walls. Admin areas are wood framed with plywood sheathing and wood framed stud walls.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1978	1978	3	TRB 02/06/18	locker areas are concrete masonry unit walls. Admin area are wood stud walls with plywood sheathing.
<b>B2020 Exterior Windows</b>	1978	1978	2	TRB 02/06/18	Fixed vinyl sash with insulating glass.
<b>B2030 Exterior Doors</b>	1978	2014	3	TRB 02/06/18	Hollow metal doors and frames. Storefront doors are relites system at main entry.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1978	1978	2	TRB 02/06/18	Composition asphalt shingles over sloped wood framed roofs. (4/12). New EPDM type membrane roofing over low slope area at gym and pool.
<b>B3020 Roof Openings</b>	1978	2017	4	TRB 02/06/18	Single roof hatch access from pool equipment room, (location of hatch fronts against a

# Facility Summary

City of Tacoma  
 Peoples Community Center  
 Peoples Community Center Building

1602 MLK Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			2.7		
<b>Roofing</b>					
B3020	Roof Openings				mechanical curb making for difficult access).  Life Safety: Ladder Safety extension rail is non-functional and needs to be repaired or replaced (spring broken).
<b>C Interiors</b>			2.9		
<b>Interior Construction</b>					
C1010	Partitions	1978	1978	3	TRB 02/06/18 Concrete masonry walls at gym and pool area. Some are currently under contract to be repaired/replaced. Frame partitions with gypsum wallboard typical.
C1020	Interior Doors	1978	1978	3	TRB 02/06/18 Hollow metal frames with solid core wood doors all painted. Some hollow metal doors occur at interior hallways
C1030	Fittings	1978	1978	2	TRB 02/06/18 Athletic lockers at men's and women's locker rooms.
<b>Interior Finishes</b>					
C3010	Wall Finishes	1978	2014	3	TRB 02/06/18 Painted CMU or gypsum, wallboard typical throughout. Fiber - reinforced paneling at restrooms and hallways. Some areas needing patch and paint touch up (paint peeling on exposed ductwork, and chair rail section missing in ballet room). Maintenance touch up and repair costs.
C3020	Floor Finishes	1978	2014	3	TRB 02/06/18 Sheet vinyl in hallways. Carpeting in offices, weight room, conferences.
C3030	Ceiling Finishes	1978	1990	3	TRB 02/06/18 Exposed gypsum wallboard at lockers. 2x4 Lay-

# Facility Summary

City of Tacoma  
 Peoples Community Center  
 Peoples Community Center Building

1602 MLK Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.9</b>		
<b>Interior Finishes</b>					
<b>C3030 Ceiling Finishes</b>					
					in ceilings at restrooms, offices and hallways. 12"x12" Acoustical tile at weight room, dance room, and childcare. Gym is exposed metal deck. Pool area is exposed petrical (like tectum) roof deck. Some lay in tile showing age.
<b>D Services</b>			<b>3.0</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					
	1978	2010	2	JH 02/06/18	Major upgrade in 2010, only serving area off gym is original; plus original shower poles in locker room gang-showers.
<b>D2020 Domestic Water Distribution</b>					
	1978	2010	2	JH 02/06/18	Major upgrade in 2010, all copper piping except serving area off gym is still galvanized. Modern high-efficiency (condensing) gas-fired tank-type DHW heater.
<b>D2030 Sanitary Waste</b>					
	1978	1978	3	JH 02/06/18	Drain, waste and vent piping is galvanized steel and cast iron. Trap to kitchen serving sink appears to be leaking (minor maintenance item).
<b>D2040 Rain Water Drainage</b>					
	1978	2014	3	JH 02/06/18	Mix of roof drains and gutter/downspouts with no issues reported or observed.
<b>D2090 Other Plumbing Systems</b>					
	1978	2000	3	JH 02/06/18	Modern Rain Bird irrigation system controller in riser room.
<b>HVAC</b>					
<b>D3010 Energy Supply</b>					
	1978	1978	3	JH 02/06/18	Building heating system is provided by natural gas piping system; gas-piping is exposed on roof - expect shortened life.

# Facility Summary

City of Tacoma  
 Peoples Community Center  
 Peoples Community Center Building

1602 MLK Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>	1978	1978	3	JH 02/06/18	Ductwork is galvanized steel in fair condition.
<b>D3050 Terminal and Package Units</b>	1978	2000	3	JH 02/06/18	Building is heated with multiple rooftop gas-pack and heat-pump units.
<b>D3060 Controls and Instrumentation</b>	1978	2000	3	JH 02/06/18	Offices and classrooms are controlled by programmable thermostats; no issues reported.
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>	1978	1978	3	JH 02/06/18	Wet pipe sprinkler system with 50 psig riser pressure; pressure is low, but assume acceptable for one-story building.
<b>D4030 Fire Protection Specialties</b>	1978	1978	3	JH 02/06/18	Fire extinguishers on hooks.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1978	1978	4	JH 02/06/18	The service is underground from a utility pad-mounted transformer on the west side. Service panel is Westinghouse 480V, 3-phase, 600A; distribution panels are also original Westinghouse.
<b>D5020 Lighting and Branch Wiring</b>	1978	2000	3	JH 02/06/18	Lighting is fluorescent troffers, pendants and surface wraparounds, typically with T8 ballasts & lamps. Some recessed can-lights with CFL lamps. Receptacles in daycare area should be replaced with tamper proof type.
<b>D5032 Low Voltage Communication</b>	1978	2000	3	JH 02/06/18	Avaya VOIP phone system.
<b>D5037 Low Voltage Fire Alarm</b>	1978	2017	2	JH 02/06/18	Older zoned (loop) system with newer Gamewell

# Facility Summary

City of Tacoma  
 Peoples Community Center  
 Peoples Community Center Building

1602 MLK Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.0</b>		
<b>Electrical</b>					
<b>D5037 Low Voltage Fire Alarm</b>					FACP and new (2017) antenna.
<b>D5038 Low Voltage Security</b>	1978	2000	3	JH 02/06/18	CCTV in some areas for video surveillance. Sonitrol security system.
<b>D5039 Low Voltage Data</b>	1978	2000	3	JH 02/06/18	Fiber-optic data service with Cat 5E distribution cabling.
<b>D5090 Other Electrical Systems</b>	1978	2010	3	JH 02/06/18	Battery egress fixtures with battery packs. Battery-backed exit signs. No standby generator. Electronic reader board near main entry.
<b>E Equipment and Furnishings</b>			<b>2.4</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1978	2000	3	JH 02/06/18	Residential appliances at kitchenette.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	1978	2014	1	TRB 02/06/18	Casework at main entry receptionist area.

## Facility Summary

City of Tacoma  
 Peoples Community Center  
 Peoples Community Center Pool

1602 MLK Way  
 Tacoma, WA 98407

Facility Size - Gross S.F. 5,871  
 Year Of Original Construction 2016  
 Facility Use Type FacilityUse2  
 Construction Type  
 # of Floors 1  
 Energy Source  
 Year Of Last Renovation 2016  
 Historic Register No



Facility Condition Index (FCI)	Predicted Renewal Budget (20 yrs)	
FCI Deficiency	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	Building	\$34,875
BMAR (Backlog of Maintenance and Repair)	Infrastructure	\$11,625
Beginning Budget Year 2018	Total	\$46,500
	Opportunity Total Project Cost	

## Facility Condition Summary

Attached to original 1978 community center/gym. The original smaller pool building was demolished and replaced with the new larger pool facility completed in 2016.



# Facility Summary

City of Tacoma  
 Peoples Community Center  
 Peoples Community Center Pool

1602 MLK Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>					
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	2016	2016	1	AA 01/19/18	Standard concrete foundations.
<b>A1030 Slab On Grade</b>	2016	2016	1	AA 01/19/18	Concrete slab on grade.
<b>B Shell</b>					
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	2016	2016	1	AA 01/19/18	Concrete slab on grade.
<b>B1020 Roof Construction</b>	2016	2016	1	AA 01/19/18	The pool roof construction is comprised of steel decking supported by open web steel joists supported by load-bearing concrete masonry unit walls.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	2016	2016	2	AA 01/19/18	Painted concrete masonry units, infilled with a storefront style window wall facing south "L" street. CMU walls show efflorescence at some areas, remove efflorescence by either of these methods: simple washing, power washing, sand blasting, or diluted muriatic acid in water.
<b>B2020 Exterior Windows</b>	2016	2016	1	AA 01/19/18	Storefront style fixed double glazing framed by aluminum metal.
<b>B2030 Exterior Doors</b>	2016	2016	1	AA 01/19/18	Double glazed doors framed in aluminum metal with panic hardware.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	2016	2016	1	AA 01/19/18	EPDM durable synthetic rubber roofing membrane.

# Facility Summary

City of Tacoma  
 Peoples Community Center  
 Peoples Community Center Pool

1602 MLK Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>					
<b>Roofing</b>					
B3010 Roof Coverings					
B3020 Roof Openings	2016	2016	3	TRB 02/12/18	See Community Center building for discussion (shared single access hatch with issue)
<b>C Interiors</b>					
<b>Interior Construction</b>					
C1010 Partitions	2016	2016	2	AA 01/19/18	Painted CMU (concrete masonry unit) walls. Wall cracks on CMU, investigate why new walls are cracking. Then, fix cracks in CMU with polyurethane caulk.
C1020 Interior Doors	2016	2016	2	AA 02/12/18	Painted metal hollow metal doors and frames, ADA compliant hardware.
C1030 Fittings	2016	2016	1	AA 02/12/18	Lockers, benches, and mins. pool related fixtures and associated pool equipment fixtures.
<b>Interior Finishes</b>					
C3010 Wall Finishes	2016	2016	1	AA 01/19/18	Painted CMU.
C3020 Floor Finishes	2016	2016	1	AA 01/19/18	Poured in place concrete. Floor concrete cracks at the Mechanical Equipment room, fix concrete cracks.
C3030 Ceiling Finishes	2016	2016	1	AA 01/19/18	Exposed open web steel joists at pool area.

## D Services

### Vertical Transportation

# Facility Summary

City of Tacoma  
 Peoples Community Center  
 Peoples Community Center Pool

1602 MLK Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>					
<b>Vertical Transportation</b>					
<b>D1090 Other Conveying Systems</b>	2016	2016	1	DCS 01/19/18	ADA pool lift.
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	2016	2016	1	DCS 01/19/18	Toilet room fixtures in excellent condition.
<b>D2020 Domestic Water Distribution</b>	2016	2016	1	DCS 01/19/18	Copper piping and point of use electric hot water heater(s) like new.
<b>D2030 Sanitary Waste</b>	2016	2016	1	DCS 01/19/18	Hubless double-banded cast iron; tested fixtures flush & drain well.
<b>D2040 Rain Water Drainage</b>	2016	2016	2	DCS 01/19/18	Roof drains to storm and overflow roof drains to high tongues. Roof and especially drain wells need cleaning (routine maintenance). Issue as SE corner needs further investigation and corrective action. Several soft spots under roof membrane may indicate moisture damage to insulation cover-boards - further investigation is suggested.
<b>D2090 Other Plumbing Systems</b>	2016	2016	1	DCS 01/19/18	Plumbing support for pool systems including RPBP for make-up water, hose-bibs, tempered-water eye-wash, deck & floor drains, high-volume drains and other support - all with no issues reported.
<b>HVAC</b>					
<b>D3010 Energy Supply</b>	2016	2016	2	DCS 01/19/18	Black iron natural gas piping to boilers - already beginning to rust in pool mechanical room - opportunity to apply corrosion protection coating.
<b>D3020 Heat Generating Systems</b>	2016	2016	1	DCS 01/19/18	Two Fulton EDR-100 high-efficiency boilers with 1 mimbteh capacity each. Two Armstrong hot

# Facility Summary

City of Tacoma  
 Peoples Community Center  
 Peoples Community Center Pool

1602 MLK Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>					
<b>HVAC</b>					
<b>D3020 Heat Generating Systems</b>					water circulation pumps, One plate & frame heat exchanger. Boiler control panel and piping. Reportedly all start-up issues have been resolved with no current issues.
<b>D3040 HVAC Distribution Systems</b>	2016	2016	1	DCS 01/19/18	Rooftop sheet metal ductwork insulated for exposure to weather with supply air to large fabric duct looped around pool room perimeter with no issues reported, except for condensation issues behind high wall acoustic material during initial year of operation - reportedly optimization of HVAC system controls has all but eliminated the issue - however there are still signs of concern - performance should continue to be closely monitored over the new year or two - the moisture issue at the SW corner should be aggressively solved; there is another sign of possible moisture damage at the NE corner as well, but smaller than at SW.
<b>D3050 Terminal and Package Units</b>	2016	2016	1	DCS 01/19/18	One large SBB pool room HVAC unit with heat recovery, steam heat and two on-board dehumidification refrigerant compressors. Filters requires frequent cleaning. The roof is oil-canned or sloped inward with standing water across almost the entire top.
<b>D3060 Controls and Instrumentation</b>	2016	2016	2	DCS 01/19/18	Pool controls with various start-up issues but reportedly now stable; however there are still signs of minor moisture issues that deserve close continued observation. Pool maintained near 84 deg F with pool room maintained 2 deg F above pool water, or near 86 deg F with 50% relative humidity.
<b>D3090 Other HVAC Systems and Equipment</b>	2016	2016	1	DCS 01/19/18	Pool stilling chamber dedicated exhaust fan; exhaust for pool chemical rooms.

## Fire Protection

# Facility Summary

City of Tacoma  
 Peoples Community Center  
 Peoples Community Center Pool

1602 MLK Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>					
<b>Fire Protection</b>					
<b>D4010 Fire Protection Sprinkler Systems</b>					
	2016	2016	1	DCS 01/19/18	Flre sprinkler for new pool building.
<b>D4030 Fire Protection Specialties</b>					
	2016	2016	1	DCS 01/19/18	Fire extinguishers in cabinets.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	2016	2016	1	DCS 01/19/18	GE 480/277V 600A main distribution panel feeding two 400A panels, 480/208V transformer, in turn supplying two 208/120V 225A panels; all with no issues reported.
<b>D5020 Lighting and Branch Wiring</b>					
	2016	2016	1	DCS 01/19/18	Sealed LED lighting around pool perimeter; lay-in LED lighting in party rooms and support spaces - at least one lens missing; automatic controls including daylight harvesting (dimming); no issues reported.
<b>D5032 Low Voltage Communication</b>					
	2016	2016	1	DCS 01/19/18	Minimal phone system with no issues reported. A/V for group activities.
<b>D5037 Low Voltage Fire Alarm</b>					
	2016	2016	1	DCS 01/19/18	Fire alarm system with no issues reported.
<b>D5038 Low Voltage Security</b>					
	2016	2016	1	DCS 01/19/18	Modest electronic security with no issues reported.
<b>D5090 Other Electrical Systems</b>					
	2016	2016	1	DCS 01/19/18	Emergency lighting with central battery inverter equipment in electrical room with no issues reported.

## E Equipment and Furnishings

### Equipment

# Facility Summary

City of Tacoma  
 Peoples Community Center  
 Peoples Community Center Pool

1602 MLK Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>E Equipment and Furnishings</b>					
<b>Equipment</b>					
<b>E1020 Institutional Equipment</b>	2016	2016	1	DCS 01/19/18	Pool room equipment with no issues reported.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	2016	2016	1	DCS 01/19/18	Limited cabinetry; no issue reported or observed.
<b>F Special Construction</b>					
<b>Special Construction</b>					
<b>F1010 Special Structures</b>	2016	2016	1	DCS 01/19/18	In-ground pool including: 1) Small indoor spray park, 2) Wading, 3) Swirl-pool, and 4) Lap-pool with special play equipment features - all with no issues reported.

# Facility Summary

City of Tacoma  
Peoples Community Center  
Infrastructure

1602 MLK Way  
Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2020 Parking Lots</b>	2017	2017	1	AA 01/19/18	Asphalt pavement with concrete curbs.
<b>G2030 Pedestrian Paving</b>	1978	2016	3	AA 01/19/18	Concrete sidewalks and steps and pipe rails.
<b>G2040 Site Development</b>	1978	2016	3	TRB 02/06/18	Chain link fencing, CMU walls at steps, children's play structure surrounded by wood chips. Metal and wood benches. CMU Base Monument sign.
<b>G2050 Landscaping</b>	1978	2016	2	AA 01/19/18	Grass, shrubs and trees.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1978	1978	3	DCS 01/19/18	City water with no issues reported.
<b>G3020 Sanitary Sewer</b>	1978	1978	3	DCS 01/19/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1978	2016	2	DCS 01/19/16	On-site storm water collection and detention in large pipe under parking lot north of pool, then to City storm with no issues reported. What appears to be an infiltration area at NE portion of site, but unclear current purpose. Regardless, no issues reported.
<b>G3060 Fuel Distribution</b>	1978	2016	2	DCS 01/19/18	Natural gas to rotary meter at pool Bldg service yard to NW including seismic shut-off valve; no issues reported.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1978	2016	2	DCS 01/19/18	Power from Tacoma Power to pad-mounted transformer at service yard NW of new pool building. Other transformer(s) and service(s) may be on-site.

# Facility Summary

City of Tacoma  
 Peoples Community Center  
 Infrastructure

1602 MLK Way  
 Tacoma, WA 98407

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

**G4010 Electrical Distribution**

**G4020 Site Lighting**

1978 1978 3

DCS 01/19/18 Exterior pole lights (shoeboxes) and surface mounted scones.

**G4030 Site Communications and Security**

1978 2010 2

DCS 01/19/18 Telecom services from local purveyors with no issues reported.





## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: Peoples Community Center

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Infrastructure	Site Improvements	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	<b>Facility Total</b>	<b>\$5,000</b>	<b>\$1,250</b>	<b>\$1,250</b>	<b>\$4,125</b>	<b>\$11,625</b>
Peoples Community Center Building	Plumbing	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	HVAC	\$90,000	\$22,500	\$22,500	\$74,250	\$209,250
	<b>Facility Total</b>	<b>\$100,000</b>	<b>\$25,000</b>	<b>\$25,000</b>	<b>\$82,500</b>	<b>\$232,500</b>
Peoples Community Center Pool	Plumbing	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	HVAC	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	<b>Facility Total</b>	<b>\$15,000</b>	<b>\$3,750</b>	<b>\$3,750</b>	<b>\$12,375</b>	<b>\$34,875</b>
	<b>Site Total</b>	<b>\$120,000</b>	<b>\$30,000</b>	<b>\$30,000</b>	<b>\$99,000</b>	<b>\$279,000</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Peoples Community Center

Total Observed Deficiency Repair Direct Cost : \$120,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				<b>Action</b>					
<b>Deficiency</b>									
<b>Facility: Infrastructure</b>									
<b>System: Site Improvements</b>									
<b>Site Development</b>									
Other	4	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625
								<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$5,000</b>	
								<b>Total System Deficiency Repair Cost (Marked Up): \$11,625</b>	

CMU Monument Sign Base appears to be experiencing paint rejection at joints (possibly caused by efflorescence chemical incompatibility with paint?).

Strip paint, clean efflorescence, coordinate with paint representatives on correct application of block sealer, primer and new finish paint.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Peoples Community Center

Total Observed Deficiency Repair Direct Cost : \$120,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				<b>Action</b>					
<b>Facility: Peoples Community Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$10,000</b>
<b>System: Plumbing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$23,250</b>
<b>Domestic Water Distribution</b>									
Galvanized steel piping	4	3	2018		1	\$10,000.00	LS	\$10,000	\$23,250

Run out to serving area off gym was not upgraded in 2010 and is at end of life.

Replace with new piping, recommend overhead run. Copper or PEX.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: Peoples Community Center

Total Observed Deficiency Repair Direct Cost : \$120,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Peoples Community Center Building</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$90,000</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$209,250</b>
<b>Terminal and Package Units</b>									
Rooftop Units	4	5	2018		6	\$15,000.00	EA	\$90,000	\$209,250
				Units beginning to approach end of life.					Replace with new.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Peoples Community Center

Total Observed Deficiency Repair Direct Cost : \$120,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility:</b> Peoples Community Center Pool									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
<b>System:</b> Plumbing									\$5,000	
<b>Rain Water Drainage</b>									Total System Deficiency Repair Cost (Marked Up):	
									\$11,625	
Rain Water Drainage										
Roof Drain Piping	4	1	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Moisture present at SE corner wall and roof drain.

Investigate and repair ASAP before further damage occurs.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Peoples Community Center

Total Observed Deficiency Repair Direct Cost : \$120,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Peoples Community Center Pool</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$10,000</b>	
<b>System: HVAC</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$23,250</b>	
<b>Terminal and Package Units</b>										
Air Handling Unit (AHU)	4	1	2018		1	\$10,000.00	LS	\$10,000	\$23,250	

Standing water on pool de-humidification unit.

Install room above unit to prevent standing water for damaging unit.







## Opportunity Summary By Subsystem

City of Tacoma

Site: Peoples Community Center

Total Site Opportunity Cost: **\$91,998**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Peoples Community Center Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$30,666</b></span>						
D3060	Controls and Instrumentation					
	No DDC.	Upgrade to City standard DDC.	15,333.00	\$2.00	SF	\$30,666
<b>Facility: Peoples Community Center Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$61,332</b></span>						
D5020	Lighting and Branch Wiring					
	Fluorescent lighting with manual control.	LED lighting with automatic control.	15,333.00	\$4.00	SF	\$61,332

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 09/27/18

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Page 1 of 1



# Facility Summary

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City of Tacoma  
Waterwalk  
Infrastructure

4891 Ruston Way  
Tacoma, WA

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## Facility Condition Summary

The Waterwalk is a linear 6.6 acre waterfront park, including a seawall, and paved asphalt fire lane along the waterfront (in front of a mixed use development) that acts as a pedestrian walk. The park includes artwork, benches, lighting and a scuba diving access cove.

# Facility Summary

City of Tacoma  
Waterwalk  
Infrastructure

4891 Ruston Way  
Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2010 Roadways</b>	2014	2014	2	TRB 02/06/18	20' to 22' wide asphalt fire lane ("Waterwalk") running the length of the waterfront park, linked to intermediate emergency access cross lanes.
<b>G2030 Pedestrian Paving</b>	2014	2014	2	TRB 02/06/18	Other surfaces include: gravel pathways, painted and tile special features at intersection nodes. [See G2010 Driveways for fire lane/(Waterwalk)].
<b>G2040 Site Development</b>	2014	2014	2	TRB 02/06/18	Site amenities include large stone rip-rap seawall in good condition, concrete platform viewing stairs, precast concrete and metal benches, trash containers, dog waste bag dispenser stations. Keystone retaining wall at the plaza is experiencing erosion at the sea wall and is in danger of being undermined.
<b>G2050 Landscaping</b>	2014	2014	2	TRB 02/06/18	Lawn, seagrass, and shrubs in very good shape and well maintained.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	2014	2014	2	TRB 02/06/18	Automatic controlled in ground, spray head, and drip irrigation system. In-ground irrigation control and calve boxes roughly every 500 feet.
<b>G3030 Storm Sewer</b>	1970	1970	3	TRB 02/06/18	Existing region high capacity storm outfall stations.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	2014	2014	2	TRB 02/06/18	Underground service supplying pedestrian lighting with receptacles mounted to poles.
<b>G4020 Site Lighting</b>	2014	2014	2	TRB 02/06/18	Pedestrian LED light standards occurring roughly every 100 feet.

# Facility Summary

City of Tacoma  
 Waterwalk  
 Infrastructure

4891 Ruston Way  
 Tacoma, WA

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

G4020 Site Lighting

G4030 Site Communications and Security

2014 2014 2

TRB 02/06/18 Single plastic pull station observed, assumed to be telecommunication (for future?). No security systems or CVT noted.



**Deficiency Repair Cost Markups By System**

**2018 - 2023**

**City of Tacoma**

**Site: Waterwalk**

<b>Facility</b>	<b>System</b>	<b>Direct Construction Cost</b>	<b>Contingency 25%</b>	<b>Contractor's OH &amp; P 20%</b>	<b>Project Soft Cost 55%</b>	<b>Total Project Cost</b>
Infrastructure	Site Improvements	\$15,500	\$3,875	\$3,875	\$12,788	\$36,038
	Site Civil / Mechanical Utilities	\$10,000	\$2,500	\$2,500	\$8,250	\$23,250
	<b>Facility Total</b>	<b>\$25,500</b>	<b>\$6,375</b>	<b>\$6,375</b>	<b>\$21,038</b>	<b>\$59,288</b>
	<b>Site Total</b>	<b>\$25,500</b>	<b>\$6,375</b>	<b>\$6,375</b>	<b>\$21,038</b>	<b>\$59,288</b>





# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Waterwalk

Total Observed Deficiency Repair Direct Cost : \$25,500

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$15,500</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$36,038</b>	
<b>Pedestrian Paving</b>										
Pedestrian Paving	3	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Water intrusion, broken and loose art tiles, and grout at the central ("rockfish" node). Other nodes experiencing perimeter curb separation and weed growth at joints; south feature curb cracking occurring.

Repair and re-adhere tiles at "rockfish" node, cut out and add elastomeric sealant at curb edge perimeters. Selective demo and re-pour broken curb areas.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Waterwalk

Total Observed Deficiency Repair Direct Cost : \$25,500

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$15,500</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$36,038</b>	
<b>Site Development</b>										
Retaining Walls	4	4	2018		150	\$70.00	LF	\$10,500	\$24,413	

Sand base erosion occurring at plaza keystone wall (appears to be emanating from plaza base filter fabric layer).

Investigate source, provide perimeter sub drainage, and bolster edge with rip-rap backfill to support wall, and thwart further erosion.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: Waterwalk

Total Observed Deficiency Repair Direct Cost : \$25,500

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$10,000</b>	
<b>System: Site Civil / Mechanical Utilities</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$23,250</b>	
<b>Storm Sewer</b>										
Storm Water Vault Top Slab	4	5	2018		1	\$10,000.00	LS	\$10,000	\$23,250	

South storm outfall vault, concrete settlement failure occurring. Large cracks developing in side of containment structure.

Shore up foundation, epoxy pressure grout, or replace outfall vault.









City of Tacoma  
2018 Facility Condition Assessment  
*Tacoma Public Libraries Facilities Report*

Prepared By:



September 28, 2018







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## Overview of Condition Assessment

### Background

The City's assets are the foundation of the valuable services the City provides to residents and they represent a significant investment. Effective asset management is required to maintain service levels and for long-term fiscal sustainability. Effective asset management is also a good investment in itself, as proper management and stewardship can slow the deterioration of assets, resulting in cost savings.

Effective Asset management generally includes a number of components.

- Assets need to be continually assessed so there is up to date information on their status.
- The information is used to determine needed maintenance and to mitigate issues.
- Each asset should have a plan that addresses its needs for its entire life, including its replacement, inspections, and maintenance.
- There should be a system in place to prioritize asset care and the allocation of limited resources.

To support the City of Tacoma in asset management, capital planning & budgeting efforts, MENG Analysis was contracted to complete a thorough Facility Condition Assessment (FCA) of City-owned General Government (non-enterprise/ non-utility) facilities and sites. The MENG Analysis team reviewed existing operation and maintenance information, conducted field investigations to identify Observed Deficiencies (ODs), developed cost estimates for ODs, and used customized cost models to predict future capital costs over a 20-year horizon (Predicted Renewals or PRs). The team also made note of "Opportunities" to improve the user experience, save energy, and increase system and building longevity.

The following lists the Tacoma Public Library (TPL) facilities surveyed during this project:

Site	Address	Square Feet	Year Constructed / Last Renovation
TPL Fern Hill Branch	765 S 84th St	7,996	1989
TPL Kobetich Branch Library	212 Browns Point Blvd NE	5,000	1979
TPL Main	1102 Tacoma Ave South	95,727	1902 / 1988
TPL Moore Branch Library	215 South 56 <sup>th</sup> Ave	15,487	1989
TPL Mottet Branch Library	3523 E G St	5,025	1930/2011
TPL South Tacoma Branch Library	3411 S 56th St	7,475	1955/1989
TPL Swasey Branch Library	7001 6th Ave	9,686	1960/1989
TPL Wheelock Branch Library	3722 N 26th St	16,932	1927/1996

The projected costs identified in this report are budgetary in nature and portray a rough order of magnitude for the work based on information available. Information at this budgetary level is often not complete and would require design level investigation to

fully realize accurate scope and cost. Identified costs are intended to provide a consistent overview of the needs of City-owned facilities to be compared across the subject portfolio.

### **Facility Survey Methodology**

The methodology for the City of Tacoma FCA started with an initial review of previous records and drawings. An operations and maintenance questionnaire was completed by city staff. Additional information was gathered from City staff followed by an O&M workshop to gather additional information.

This preparation stage was followed by eight weeks of on-site field surveys conducted by technical experts who reviewed civil, structural, architectural, mechanical, electrical, plumbing, and site infrastructure systems to a Uniformat II, level 3 detail. The facility surveys were facilitated by an FCA Team Leader to maintain consistency in evaluation, survey forms, condition ratings and system categorization.

Each team member used survey forms to document the apparent facility conditions including:

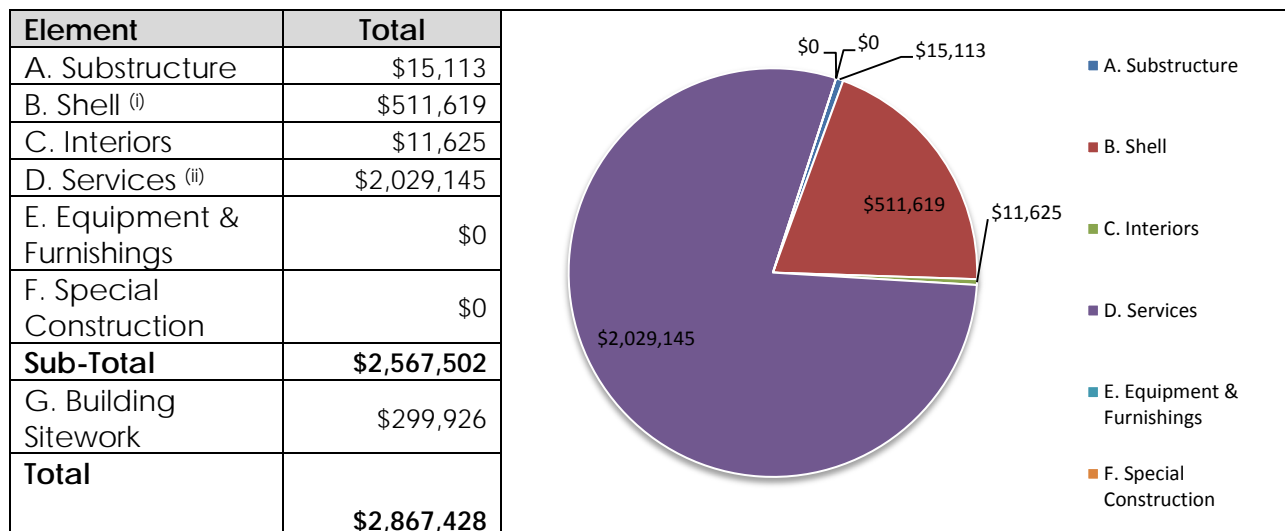
- I. Describing the nature of facility systems per Uniformat II,
- II. Determining the overall condition score of building elements,
- III. Identifying major maintenance deficiencies greater than \$5,000 (direct cost) that are likely to be required for immediate major maintenance repairs (2018), plus the next 5-year period (2019-2023)
- IV. Documenting specific deficiencies of systems with narrative as well as budgetary level cost estimates to repair or replace deficiencies
- V. The survey team also documented specific opportunities for upgrades that will increase facility performance. These items are not required.

**Observed Deficiencies (ODs), 2018-2023**

Observed Deficiencies are based on known conditions that are witnessed by or disclosed directly to the field surveyors and are generally the best short-term planning tool. The MENG Analysis team uses the Uniformat II system to organize cost estimates for system repairs or replacements. OD estimates include direct costs plus typical construction markups as well as project development markups (design, permitting, management, etc.). ODs are intended as “like” replacements and do not address level-of-service enhancements and/or programmatic building changes or code required upgrades. The following table summarizes the estimated cost for (2018-2023) Observed Deficiencies at each TPL facility:

Site	Building Systems	Building Sitework	Total
TPL Fern Hill Branch	\$278,964	\$11,625	<b>\$290,589</b>
TPL Kobetich Branch Library	\$103,464	\$0	<b>\$103,464</b>
TPL Main	\$1,434,578	\$69,750	<b>\$1,504,328</b>
TPL Moore Branch Library	\$98,217	\$84,863	<b>\$183,080</b>
TPL Mottet Branch Library	\$0	\$17,438	<b>\$17,438</b>
TPL South Tacoma Branch Library	\$81,375	\$0	<b>\$81,375</b>
TPL Swasey Branch Library	\$303,529	\$116,250	<b>\$419,779</b>
TPL Wheelock Branch Library	\$267,375	\$0	<b>\$267,375</b>
<b>Total</b>	<b>\$2,567,502</b>	<b>\$299,926</b>	<b>\$2,867,428</b>

The following table and chart summarize the Observed Deficiencies for all TPL facilities by major building element:



(i) Shell includes floor/roof construction, exterior walls, windows/doors, and roofing.  
(ii) Services includes elevators, plumbing, HVAC, fire protection & electrical.

The following summarizes the general findings of the Tacoma Public Library Facilities based on the Observed Deficiencies:

- **Substructures:** Foundations are in good shape with no deficiencies reported. Seismic standards were not evaluated as part of the survey.
- **Shell:** The roofing, siding and windows are aging but functional at most buildings. Fern Hill, Kobetich and Swasey should be scheduled for new roof. Multiple facilities have inefficient windows showing signs of deterioration. Gutters, roof drains and eave conditions have been reported to be failing and causing drainage problems with other systems. Weatherization maintenance should be performed throughout all buildings.
- **Interiors:** The interior finishes are in relatively good shape with no issues reported. TPL South Branch has areas of interior finish work that has been started, but has not been completed.

#### Services:

- **Heating Ventilation & Air Conditioning (HVAC):** Of all building components the HVAC systems need the most attention. The heating component in all buildings, except Kobetich and Moore, are past useful life cycles and should be scheduled for replacement.
  - **Plumbing:** The plumbing systems were generally in good condition. Fern Hill has reported low water pressure which has caused complaints, likely in toilet flushing.
  - **Electrical:** Power and lighting is functional but in most cases inefficient or lacking as compared to current technology. Lighting controls are insufficient at Fern Hill and TPL Main. Security systems are insufficient or non-existent and should be schedule for work.
  - **Fire protection:** TPL main is the only TPL building with partial sprinkler coverage. It has not been evaluated if sprinklers are a code required item. Most buildings have a modern fire alarm system.
- **Equipment and Furnishings:** No failures reported
  - **Sitework:** Most sites and infrastructure are in good condition. Parking, sidewalks and asphalt have minor deficiencies reported. Landscaping varies across the facilities but is generally in fair condition and receiving ongoing maintenance.

#### Supplemental Cost Models

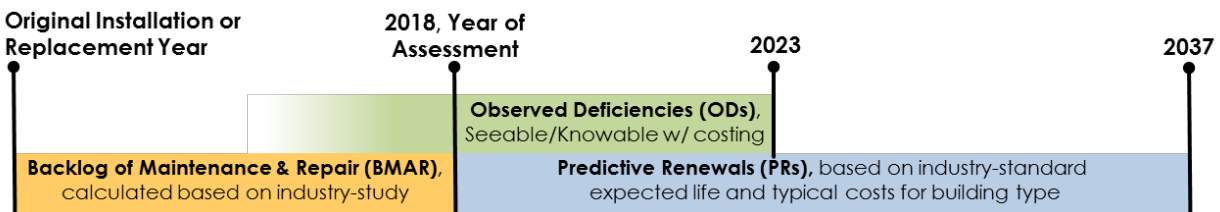
In addition to estimated Observed Deficiencies, MENG Analysis has developed two supplemental models summarized below. It is important to clarify that these calculations are independent of the estimated cost calculated for short-term Observed Deficiencies.

- **Backlog of Maintenance and Repair (BMAR):** The BMAR is an estimate from original construction to present day, of what should have been spent to bring

the facility up to good condition based on current observed condition by the surveyors. This is a parametric calculation derived from a statistical industry study. The BMAR is generally defined as the amount of work required to adequately maintain facilities and related infrastructure for the current use that should have been accomplished, but for a variety of reasons has not.

- Predicted Renewals (PRs):** PRs predict future capital costs over a 20-year horizon (2018-2037). They are based on predictive models that use industry-standard expected life data, combined with original construction or remodel dates as well as system scores from surveyors to estimate when a system will require renewal. Unit costs in the models are updated on a yearly basis and adjusted to our specific northwest region. Similar projects that have been estimated and managed by the team were also referenced against the modeled costs for additional verification of recent costs if they were available.

The following graphic and table summarize the supplement cost model information:



Site	Backlog of Maintenance & Repair (BMAR)	Predicted Renewal (PRs)	Total
TPL Fern Hill Branch	\$262,000	\$1,040,000	\$1,302,000
TPL Kobetich Branch Library	\$105,000	\$631,000	\$736,000
TPL Main	\$3,184,000	\$15,368,000	\$18,552,000
TPL Moore Branch Library	\$301,000	\$1,782,000	\$2,083,000
TPL Mottet Branch Library	\$82,000	\$538,000	\$620,000
TPL South Tacoma Branch	\$276,000	\$850,000	\$1,126,000
TPL Swasey Branch Library	\$317,000	\$1,220,000	\$1,537,000
TPL Wheelock Branch	\$442,000	\$2,150,000	\$2,592,000
<b>Total</b>	<b>\$4,969,000</b>	<b>\$23,579,000</b>	<b>\$28,548,000</b>

### Facility Condition Index (FCI)

A Facility Condition Index (FCI) calculation is an industry standard used for benchmarking and evaluating the relative condition of a portfolio of facility assets over time. There are a number of different methods used by various organizations to calculate the condition index that best fits their particular portfolio. For this reason, using

FCIs to compare the City’s facilities to other organizations is not always appropriate, but is a good tool to compare the City’s facilities to each other.


In general, the FCI is a ratio of current repair needs to the Current Replacement Value (CRV). For this report the FCI is based on both the BMAR/CRV and ODS/CRV, providing an average range of the buildings condition.

The Current Replacement Value (CRV) is a calculation for reconstructing an asset as it currently exists, without modifications or improvement. The CRV estimate is an approximation of the construction cost based on the cost per square foot of a similar constructed building. The CRV estimate should not be used for any other purpose than to calculate the FCI. Estimates for the actual replacement of individual facilities and projects must incorporate a higher level of detail and accuracy.

Common industry practice is to create a scale for interpreting FCI as a way to prioritize facility needs. Most organizations adjust their classifications of FCI to relate to their own unique criteria. For the City of Tacoma, MENG Analysis recommends the following FCI breakdown to support decision making.

- Excellent = 0 - 0.05 (5%)
- Good = 0.06 - 0.10 (6%-10%)
- Fair = 0.11- 0.20 (11%-20%)
- Poor = 0.21 – 0.25 (21% - 25%)
- Critical = 0.26 (26%) or greater

The following table is a summary of the average FCI and relative scaling for each facility:

Site	
TPL Fern Hill Branch	◆0.11, Fair
TPL Kobetich Branch Library	◆0.07, Good
TPL Main	◆0.10, Good
TPL Moore Branch Library	◆0.06, Good
TPL Mottet Branch Library	◆0.05, Excellent
TPL South Tacoma Branch Library	◆0.12, Fair
TPL Swasey Branch Library	◆0.11, Fair
TPL Wheelock Branch Library	◆0.08, Good



**Observed Deficiency Over Time (5 years)**

<b>Site</b>	<b>2018-2020</b>	<b>2021 - 2022</b>	<b>2023</b>	<b>Total</b>
TPL Fern Hill Branch	\$54,629	\$235,960	\$0	\$290,589
TPL Kobetich Branch Library	\$17,438	\$74,401	\$11,625	\$103,464
TPL Main	\$775,071	\$253,266	\$475,991	\$1,504,328
TPL Moore Branch Library	\$90,080	\$93,000	\$27,203	\$210,283
TPL Mottet Branch Library	\$43,594	\$43,013	\$0	\$86,607
TPL South Tacoma Branch Library	\$0	\$81,375	\$0	\$81,375
TPL Swasey Branch Library	\$273,304	\$146,475	\$0	\$419,779
TPL Wheelock Branch Library	\$11,625	\$0	\$255,750	\$267,375
<b>Totals</b>	<b>\$1,265,741</b>	<b>\$927,490</b>	<b>\$770,569</b>	<b>\$2,963,800</b>

**Predicted Renewals Over Time (20 years)**

<b>Site</b>	<b>2018-2023</b>	<b>2024-2037</b>	<b>Total</b>
TPL Fern Hill Branch	\$290,589	\$1,040,000	<b>\$1,330,589</b>
TPL Kobetich Branch Library	\$103,464	\$631,000	<b>\$734,464</b>
TPL Main	\$1,504,328	\$15,368,000	<b>\$16,872,328</b>
TPL Moore Branch Library	\$210,283	\$1,782,000	<b>\$1,992,283</b>
TPL Mottet Branch Library	\$86,607	\$538,000	<b>\$624,607</b>
TPL South Tacoma Branch Library	\$81,375	\$850,000	<b>\$931,375</b>
TPL Swasey Branch Library	\$419,779	\$1,220,000	<b>\$1,639,779</b>
TPL Wheelock Branch Library	\$267,375	\$2,150,000	<b>\$2,417,375</b>
<b>Totals</b>	<b>\$2,195,271</b>	<b>\$23,579,000</b>	<b>\$26,542,800</b>

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## Terminology and Abbreviations

**Facility Condition Assessment (FCA):** A structured process to document the conditions of site infrastructure and building systems. FCAs are typically performed by a multi-disciplinary team of architects, engineers, construction, and cost specialists. Facility information and condition data should be maintained in a database for ease of updating and reporting. The data should be renewed over time.

**Facility Condition Index (FCI):** A benchmark used to compare relative condition of facilities within a portfolio of assets; derived by the following formula:

$$\text{FCI} = \frac{\text{Backlog of Maintenance and Repair (BMAR)}}{\text{Current Replacement Value (CRV)}}$$

There are a number of different methods used by various organizations to calculate that backlog. For this reason, using FCIs to compare the City's facilities to other organizations is not always appropriate.

This study uses a parametric method that calculates BMAR based on the assessed condition scores. The statistical basis is a study conducted by NASA on over 10,000 surveyed facilities that evaluated the backlog of repair items relative to qualitative condition scores 1 through 5. The parametric backlog for each system is calculated based on a statistical theoretical percentage of that system that would need repair or replacement for each of the qualitative condition scores. The costs of those systems are the facility use cost models customized for the City of Tacoma.

**Life Cycle Renewal Model:** A theoretical forecast of when building systems will exceed their typical lifespan and funding will be required for renewals.

**Parametric Costs:** Parametric cost estimating is a technique that uses statistical relationships between historical cost data and other program variables such as system condition or age. Historical cost data is typically used at a high level (e.g., cost per square foot) and often represent conceptual, order-of-magnitude costs for initial planning or discussion purposes.

**Remaining Useful Life:** An estimate of the years that a facility system may remain serviceable or in operation before failure; which would then require system renewal or replacement.

**Subsystem:** The term subsystem in this report refers to a Uniformat Level 3 building systems category (e.g., B3010 - Roof Coverings; or B3020 – Roof Opening; or B3030 – Projections).

**System:** The term system in this report refers to a Uniformat Level 2 building system category (e.g., B3000 – Roofing)

The following terms are used in the MENG Analysis FCA Database:  
(See also the database user's manual for more specific definitions.)

**Last Major System Renewal:** The year in which a system was last renewed (substantially repaired or replaced).

**Original System Date:** The year a system was originally constructed/installed.

**Subsystem Assessed Condition Score:** The field surveyors' assessment of condition assigned to each facility subsystem. The rating uses a scale of 1 through 5, where 1=excellent, 2=good, 3=fair, 4=poor, 5=unacceptable. Different subsystem % of CRV's are included in the database for each of the different facility use types (e.g. maintenance shops vs. police station vs. office building, etc.)

**BMAR (backlog of maintenance and repair):** This is an estimated amount that would need to be spent to bring the facility up to good condition. Does not guarantee code compliance.

BMAR is generally defined as the amount of work required to safely maintain facilities and related infrastructure for the current use that should have been accomplished, but for a variety of reasons has not. It includes minor seismic, ADA, and fire protection items necessary to maintain current operations, but it does not include major work in those areas that would normally be accomplished in major building renovation for full code compliance.

The MENG Analysis methodology for calculating BMAR is based on the condition scores (1-5, excellent to unsatisfactory) for each system, with each condition bracket having a BMAR defined as the percentage of that system's replacement value needing repair. Those percentages were derived from a statistical industry study that compared specific system maintenance and repair costs for tens of thousands of buildings relative to the condition scores. Within our FCA process, we calculate condition scores for each subsystem, which are then rolled up to the systems level, and a bracketed lookup table used associate those scores with a percentage of replacement value. Those are totaled for the entire facility, and then divided by the replacement value of the entire facility to get the actual FCI index.

**Subsystem Normal Life:** Industry standard expected subsystem life between renewals or replacement cycles.

**System Coverage:** The amount of area in a facility containing a specific system, expressed as percent of building or site area.

Certain FCA terms are also expressed as formulas in the MENG Analysis FCA Database, as follows:

## List of Commonly Used Abbreviations

AC = Asphalt concrete	HVAC = Heating, ventilating, and air conditioning
ACT = Acoustic ceiling tile	IT = Information technology
A/V = Audio/video	LF = Linear feet (measurable unit)
AHU = Air handling unit	LED = Light emitting diode
ASHRAE = American Society of Heating, Refrigeration, & Air Conditioning Engineers	LS = Lump sum (measurable unit)
BUR = Built-up roofing	MDF = Main distribution frame
CCTV = Closed circuit television	OWS = Oil/water separator
CFH = Cubic feet per hour (of natural gas)	PA = Public address
CFL = Compact fluorescent	P-lam = Plastic laminate
CI = Cast iron	PRV = Pressure regulating valve
CMU = Concrete masonry unit	PTAC = Packaged Terminal Air Conditioning
CO <sub>2</sub> = Carbon dioxide	Spig = Pounds per square inch (pressure)
CU = Condensing unit	SS Shelving = Stainless Steel Shelving
C = Commissioning	PVC = Polyvinyl chloride
DDC = Direct digital control	RTU = Roof top unit
DHW = Domestic hot water	RPBP = Reduced pressure backflow preventer
Ds = Direct expansion	SF = Square feet (measurable unit)
EA = Each (measurable unit)	UPS = Uninterruptible power supply
EF = Exhaust fan	VAV = Variable air volume
EFIS = Exterior insulation finishing system	VCT = Vinyl composite tile
FRP = Fiber reinforced plastic	VWC = Vinyl wall covering
GI = Grease interceptor	VOIP = Voice over internet protocol
GSHP = Ground-source heat pump	WAP = Wireless access point
HID = High intensity discharge (lamps)	WD = Wood
HM = Hollow metal	

## Condition Survey Form

### Condition Survey Form Development

Survey forms were developed for the facility condition assessments based on the Uniformat Level 3. All Level 3 subsystems are described with evaluation criteria. The evaluation criteria descriptions clearly explain what elements were included and excluded from each Level 3 subsystem.

Each survey form is accompanied by a deficiency report form that is completed when Observed Deficiencies (ODs) are noted. This Observed Deficiency form notes the problem and the recommended action to correct the deficiency. Raw construction costs (i.e., labor and materials) for facility component replacements or repairs are estimated.

### Sample Condition Scoring Criteria

The following section provides six examples of the condition scoring definitions that were used during the condition surveys.

<p><b>Roof Construction</b></p> <p><b>B1020</b></p>	<p>Roof structural frame, structural interior walls supporting roof, roof decks, slabs and sheathing, canopies. Excludes insulation and roofing.</p> <p><b>1 - Excellent:</b> New; Structure is sound and stable; no evidence of cracking, deflection or separation of framing members. Preventative inspection.</p> <p><b>2 - Good:</b> Structure is sound and stable; no evidence of cracking, deflection or separation of framing members. Minor preventative maintenance: rust proofing and / or sealants and tightening of connections.</p> <p><b>3 - Fair:</b> Minor surface cracking or separation of framing members. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Structural damage evident; Twisting, cracking, or separation of structural members affecting surrounding finishes or moisture intrusion. Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> Structurally deficient or damaged beyond repair; major damage to surrounding finishes; jeopardizing occupancy. Replacement.</p>
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<p><b>Exterior Windows</b></p> <p><b>B2020</b></p>	<p>Screens, storm windows, exterior louvers, frame, trim, sills, caulking, flashing. Excludes window shades and treatments.</p> <p><b>1 -Excellent:</b> New; doors operating smoothly; no finish degradation. Preventative inspection.</p> <p><b>2 - Good:</b> Functioning smoothly; no finish degradation. Secure hardware and emergency exiting. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Worn but functional; requires paint or resealing; glass or hardware damage only in isolated doors. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Damaged or deficient hardware, glass, trim or seals; water intrusion. Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> Extensive damage, deficient beyond repair; Hardware not operating, moisture intrusion. Replacement.</p>
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<p><b>Exterior Wall Finishes</b></p> <p><b>B2040</b></p>	<p>Exterior wall - exterior applied finishes</p> <p><b>1 - Excellent:</b> New; no finish degradation. Preventative inspection.</p> <p><b>2 - Good:</b> no cracking or moisture intrusion. Minor finish degradation. Minor preventative maintenance. Cleaning.</p> <p><b>3 - Fair:</b> Minor undamaged but requires sealing. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> Damaged beyond repair, Replacement.</p>
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<p><b>Plumbing Fixtures</b></p> <p><b>D2010</b></p>	<p>Water closets, urinals, lavatories, sink, showers, bathtubs, drinking fountains. Excludes hot water heaters.</p> <p><b>1 - Excellent:</b> New; All fixtures operating well. Preventative inspection.</p> <p><b>2 - Good:</b> system components operational, free of defect, and of adequate utility service and capacity for intended use. Includes water saving features. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Some components worn, fixtures stained. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Many components damaged; limited parts; leaking valves, rust and corrosion. Operating parts &gt; 30 years old. Restoration repairs.</p> <p><b>5 - Unsatisfactory:</b> Many fixtures not operational. Rust, corrosion, and mineral deposits. Leaks causing damage to other finishes and components. Replacement.</p>
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<p><b>Heat Generating Systems</b></p> <p><b>D3020</b></p>	<p>Boilers, piping and fittings adjacent to boilers, primary pumps, auxiliary equipment, equipment and piping insulation.</p> <p><b>1 - Excellent:</b> New. Preventative inspection.</p> <p><b>2 - Good:</b> System is fully operational, suitable capacity, efficient utility utilization, integrated energy management controls. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Equipment worn but reliable, older energy controls; Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Equipment marginal/hard to obtain parts, insulated ext. ductwork, no energy controls. &gt; 40 years old. Restorative repairs.</p> <p><b>5 - Unsatisfactory:</b> System non-functional or seriously deficient, not delivering supply to required spaces. Replacement.</p>
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<p><b>Distribution Systems</b></p> <p><b>D3040</b></p>	<p>Supply &amp; return air systems, ventilation &amp; exhaust systems, steam, hot water &amp; chilled water distribution, terminal devices, heat recovery equipment, auxiliary equipment such as secondary pumps, and heat exchangers, piping, duct &amp; equipment insulation.</p> <p><b>1 - Excellent:</b> New. Preventative inspection.</p> <p><b>2 - Good:</b> System is fully operational, suitable capacity, efficient utility utilization, integrated energy management controls. Good insulation. Minor preventative maintenance.</p> <p><b>3 - Fair:</b> Equipment worn but reliable, older energy controls; Insulation. Some joints/ sealants loose. Preventative maintenance and minor restorative repairs of isolated items.</p> <p><b>4 - Poor:</b> Equipment marginal/hard to obtain parts, no energy controls; Many grilles missing or loose. Air leaks and unbalance. Restorative repair</p> <p><b>5 - Unsatisfactory:</b> Non-functional or seriously deficient. Grilles corroded, missing. Replacement.</p>
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## Facility Summary

City of Tacoma  
 TPL Fern Hill Branch  
 TPL Fern Hill Branch

765 S 84th St  
 Tacoma, WA 98444

Facility Size - Gross S.F. 7,996  
 Year Of Original Construction 1989  
 Facility Use Type Library  
 Construction Type Light  
 # of Floors 1  
 Energy Source Electric  
 Year Of Last Renovation 1989  
 Historic Register No



FCI (BMAR/CRV)	0.11	Predicted Renewal Budget (20 yrs)	\$1,040,426
FCI (Bldg OD/CRV)	0.11	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$2,432,000	<b>Building</b>	\$278,964
BMAR (Backlog of Maintenance and Repair)	\$262,000	<b>Infrastructure</b>	\$11,625
Beginning Budget Year	2018	<b>Total</b>	\$290,589
		<b>Opportunity Total Project Cost</b>	\$167,317

## Facility Condition Summary

Significant concerns include cracked, damaged and loose concrete peaked roof tiles, improperly vented membrane roof, roof drainage spilling down perimeter high wall, failing soffit material, HVAC equipment nearing end of life, and site security issues. Newer interior finishes, fire alarm and HVAC control system are nice.

# Facility Summary

City of Tacoma  
 TPL Fern Hill Branch  
 TPL Fern Hill Branch

765 S 84th St  
 Tacoma, WA 98444

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.0</b>		
<b>Foundations</b>					
<b>A1030 Slab On Grade</b>	1989	1989	2	MAL 03/28/18	Slab on grade. No issues.
<b>B Shell</b>			<b>2.4</b>		
<b>Superstructure</b>					
<b>B1020 Roof Construction</b>	1989	1989	2	MAL 03/28/18	Wood trusses with wood sheathing. Insulation below roof deck. Signs of inadequate ventilation.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1989	1989	3	MAL 03/28/18	Wood framing with wood sheathing, punched windows, and stucco facade. Cracking present at stucco facade and at posts. Repair recommended.
<b>B2020 Exterior Windows</b>	1989	1989	3	MAL 03/28/18	Aluminum windows with aluminum exterior sill and gypsum wrapped interior jambs. Exterior require cleaning.
<b>B2030 Exterior Doors</b>	1989	1989	2	MAL 03/28/18	Painted hollow metal frames with hollow metal doors. No issues Aluminum storefront with auto doors at entry. No issues.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1989	1989	3	MAL 03/28/18	Membrane roofing at low slope areas. Near end of life. Concrete "shake" shingles at sloped areas with integral gutters. Gutters require maintenance at metal laps. Seals failing. Ventilation at sloped area inadequate. Contributing to soffit damage and roof insulation damage. Painted gypsum soffits. Significant damage from water and improper ventilation.

## Facility Summary

City of Tacoma  
 TPL Fern Hill Branch  
 TPL Fern Hill Branch

765 S 84th St  
 Tacoma, WA 98444

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.0</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1989	1989	2	MAL 03/28/18	Wood framing with gypsum wall board. Nail pops at corners below windows.
<b>C1020 Interior Doors</b>	1989	1989	2	MAL 03/28/18	Painted hollow metal frames with wood slabs. Lever hardware. No issues.
<b>C1030 Fittings</b>	1989	1989	2	MAL 03/28/18	Metal/PLam toilet partitions with stainless steel accessories. Laminate counters. No issues. Laminate casework at reference desk, staff work areas, and kitchen. Wood and laminate tops. No issues.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1989	1989	2	MAL 03/28/18	Painted gypsum wallboard in main area with fabric panels and adjustable shelving system. Tile walls in public restrooms. FRP in employee restroom. Some minor cracking at exposed roof trusses.
<b>C3020 Floor Finishes</b>	1989	1989	2	MAL 03/28/18	Carpet/tile combination in entry. Tile in restrooms. Capet in main library. Vinyl in employee kitchen. No issues.
<b>C3030 Ceiling Finishes</b>	1989	1989	2	MAL 03/28/18	Tile and grid, painted gypsum, and exposed beam trusses. No issues.
<b>D Services</b>			<b>3.3</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1989	1989	3	DCS 03/28/18	Public and staff toilet rooms with porcelain fixtures and manual trim; dual-height (ADA) drinking fountain at entry; many fixtures are slow to drain and some trim needs work; low building water pressure results in marginal performance of some fixtures.

# Facility Summary

City of Tacoma  
 TPL Fern Hill Branch  
 TPL Fern Hill Branch

765 S 84th St  
 Tacoma, WA 98444

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.3</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					
<b>D2020 Domestic Water Distribution</b>	1989	1989	3	DCS 03/28/18	Approximately 2-inch domestic service with copper piping; 10-gal Bradford-White electric DHW heater new in 2017, but no expansion tank or recirc pump (not necessary for this small building); hose bibs in ground boxes, some damaged; low water pressure throughout.
<b>D2030 Sanitary Waste</b>	1989	1989	3	DCS 03/28/18	Cast iron DW&V; many fixtures are slow to flush or drain, but assume this is due to low water pressure and/or need for fixture service.
<b>D2040 Rain Water Drainage</b>	1989	1989	3	DCS 03/28/18	Roof drains at flat roof piped to storm; overflow roof drains down through soffit; stainless steel gutters at bottom of perimeter mansard roof, with concealed downspouts reportedly piped to storm - gutters need cleaning. See roof covering for more issues regarding roof drainage.
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>	1989	1989	3	DCS 03/28/18	Five constant volume split-Dx heat pump systems with galvanized sheet metal and flex duct supply and return air in ceiling space, and ceiling supply air slot diffusers; economizer outside air and reliefs are through the deteriorating perimeter soffits; several bathroom exhaust fans also exhausting through soffits. Ductwork in fair to good condition, but need cleaning, Re-TAB, and cleaning or repair of soffit grills.
<b>D3050 Terminal and Package Units</b>	1989	1989	4	DCS 03/28/18	Five Trane split-Dx heat pump systems: HP-1 inside & outside 4-ton units were replaced in 2015, but HP-2 to 5 are original (1989) with 2-ton, 4-ton, 2.5-ton and 2-ton capacity sequentially for each of these constant volume systems. Several electric resistance ceiling or wall heaters with 5 to 10 years remaining life.

## Facility Summary

City of Tacoma  
 TPL Fern Hill Branch  
 TPL Fern Hill Branch

765 S 84th St  
 Tacoma, WA 98444

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.3</b>		
<b>HVAC</b>					
<b>D3050 Terminal and Package Units</b>					Consider full security cage enclosure around the outside condensing units, rather than the current lock & chain approach.
<b>D3060 Controls and Instrumentation</b>	1989	2008	3	DCS 03/28/18	Newer (2008) Library standard Alerton DDC controls with no issues reported.
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>	1989	1989	3	DCS 03/28/18	Fire extinguishers in cabinets; no AED or first aid kits observed.
<b>D4090 Other Fire Protection Systems</b>	1989	1989	3	DCS 03/28/18	Halon system in book return closet.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1989	1989	3	DCS 03/28/18	Residential-style 120/240V single-phase service with no MDP, just three panels: Panel P is 400A for HVAC, Panel R is 225A for lighting & receptacles, with additional 100A sub-panel sub-fed from Panel R for life/safety and security, but with no back-up power source. Opportunity to provide portable power connection. Consider upgrade to 208V, three-phase during future modernization.
<b>D5020 Lighting and Branch Wiring</b>	1989	1989	3	DCS 03/28/18	Most lighting is lay-in 2x2 T8 fluorescent, with some T8 uplights in peaked-roof ceiling; controls are via breaker. Branch wiring to limited number of receptacles and pig-tails to power patron computer areas.
<b>D5032 Low Voltage Communication</b>	1989	1989	3	DCS 03/28/18	Newer telephone and older PA, no issues reported.
<b>D5037 Low Voltage Fire Alarm</b>					

## Facility Summary

City of Tacoma  
 TPL Fern Hill Branch  
 TPL Fern Hill Branch

765 S 84th St  
 Tacoma, WA 98444

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.3</b>		
<b>Electrical</b>					
<b>D5037 Low Voltage Fire Alarm</b>	1989	1989	2	DCS 03/28/18	New 20120 Gamewell FACP with modern detection, pull-stations and alarm.
<b>D5038 Low Voltage Security</b>	1989	1989	3	DCS 03/28/18	Door monitoring and intrusion detection but little or no CCTV. Opportunity to selectively upgrade. Bosch and Radionics panels and devices.
<b>D5039 Low Voltage Data</b>	1989	1989	3	DCS 03/28/18	Equipment in data room, with some drops, and newer WiFi; no issues reported. Click high-speed fiber-optic service.
<b>D5090 Other Electrical Systems</b>	1989	1989	3	DCS 03/28/18	Battery ballast egress lighting (renew batteries); and self-luminous exit signs. No standby power.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1989	1989	3	DCS 04/01/18	Kitchenette appliances aging but functional; except need exhaust.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	1989	1989	3	DCS 04/01/18	Aging but functional.

## Facility Summary

City of Tacoma  
TPL Fern Hill Branch  
Infrastructure

765 S 84th St  
Tacoma, WA 98444

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2020 Parking Lots</b>	1989	1989	2	MAL 03/28/18	Asphalt parking lot with concrete curbs. No issues.
<b>G2030 Pedestrian Paving</b>	1989	1989	2	MAL 03/28/18	Concrete sidewalks. No issues.
<b>G2040 Site Development</b>	1989	1989	3	MAL 03/28/18	Retaining wall at parking lot/public sidewalk. Some blocks missing. Concrete stairs with concrete walls, steel handrail, and step lighting from parking lot to public sidewalk. Organic growth on stairs and walls. Handrail painting required. Concrete at lights cracked allowing water into concrete.
<b>G2050 Landscaping</b>	1989	1989	3	MAL 03/28/18	Mature trees, shrubs, ground cover, and grass. Landscaping in contact with exterior facade. Ground cover and shrubs require maintenance.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1989	1989	3	DCS 03/28/18	City water with 1.5-inch water meter; pressure is low. Irrigation system present; no fire service.
<b>G3020 Sanitary Sewer</b>	1989	1989	3	DCS 03/28/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1989	1989	3	DCS 03/28/18	Roof drains piped to storm; several landscape area drains piped to storm; one catch basin at SW corner of parking lot at low-end of site draining to City storm system. Landscape area drains need cleaning.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1989	1989	3	DCS 03/28/18	Power from pole across alley to east, underground to electrical closet at 120/240V, 1-

## Facility Summary

City of Tacoma  
 TPL Fern Hill Branch  
 Infrastructure

765 S 84th St  
 Tacoma, WA 98444

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>					
					phase with Tacoma Power meter #304510 (133-469-709) with capacity estimated at 600A. Consider upgrade to 208V, 3-phase power at next modernization.
<b>G4020 Site Lighting</b>					
	1989	1989	3	DCS 03/28/18	Two shoe-box HID fixtures on metal poles at parking lot; several HID wall-packs; two recessed fixtures at exterior stair at SE corner of building. Consider upgrading lamps to LED.
<b>G4030 Site Communications and Security</b>					
	1989	1989	3	DCS 03/28/18	Overhead telecom services from pole to east across alley; includes high-speed data from Click Network fiber-optic service; no issues reported. Minimal site security with opportunity to upgrade to Library standard reportedly under development.
<b>Other Site Construction</b>					
<b>G9090 Other Site Systems</b>					
	1989	1989	3	DCS 03/28/18	WWII Fern Hill Boys war memorial, Chambers Creek grist mill stone and historical directional sign along south landscaped portion of site.



## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: TPL Fern Hill Branch

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Infrastructure	Site Improvements	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	<b>Facility Total</b>	<b>\$5,000</b>	<b>\$1,250</b>	<b>\$1,250</b>	<b>\$4,125</b>	<b>\$11,625</b>
TPL Fern Hill Branch	Roofing	\$43,000	\$10,750	\$10,750	\$35,475	\$99,975
	Plumbing	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	HVAC	\$47,996	\$11,999	\$11,999	\$39,597	\$111,591
	Electrical	\$23,988	\$5,997	\$5,997	\$19,790	\$55,772
	<b>Facility Total</b>	<b>\$119,984</b>	<b>\$29,996</b>	<b>\$29,996</b>	<b>\$98,987</b>	<b>\$278,963</b>
	<b>Site Total</b>	<b>\$124,984</b>	<b>\$31,246</b>	<b>\$31,246</b>	<b>\$103,112</b>	<b>\$290,588</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: TPL Fern Hill Branch

Total Observed Deficiency Repair Direct Cost : \$124,984

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Infrastructure</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>					<b>\$5,000</b>	
<b>System: Site Improvements</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>					<b>\$11,625</b>	
<b>Site Development</b>										
Concrete site walls	4	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625	
<b>Concrete at light box cracked and deteriorating.</b>				<b>Remove light, patch and paint concrete, reinstall light.</b>						



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Fern Hill Branch

Total Observed Deficiency Repair Direct Cost : \$124,984

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: TPL Fern Hill Branch</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$43,000</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$99,976</b>
<b>Roof Coverings</b>									
Insulation	4	3	2018		1	\$5,000.00	EA	\$5,000	\$11,625

Insulation in sloped areas shows signs of moisture (black spots)

Replace as required. Increase ventilation in sloped roof area and install proper vents between insulation and roof sheathing.



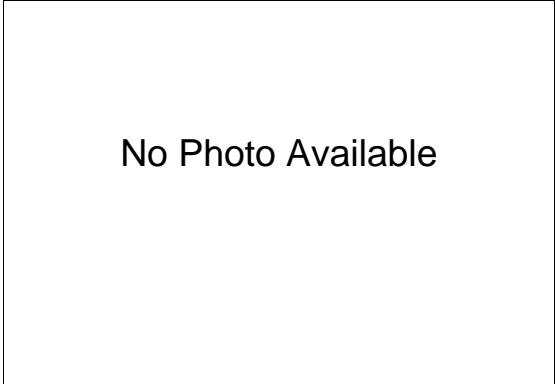
**Detailed Assessment - Observed Deficiencies 2018 - 2023**

City of Tacoma  
 Site: TPL Fern Hill Branch

Total Observed Deficiency Repair Direct Cost : \$124,984

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPL Fern Hill Branch					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$43,000
System: Roofing					Total System Deficiency Repair Cost (Marked Up):				\$99,976
<b>Roof Coverings</b>									
Membrane Roof	4	3	2018		5,000	\$6.50	SF	\$32,500	\$75,563

Membrane roofing near end of life      Replace as required



**Detailed Assessment - Observed Deficiencies 2018 - 2023**

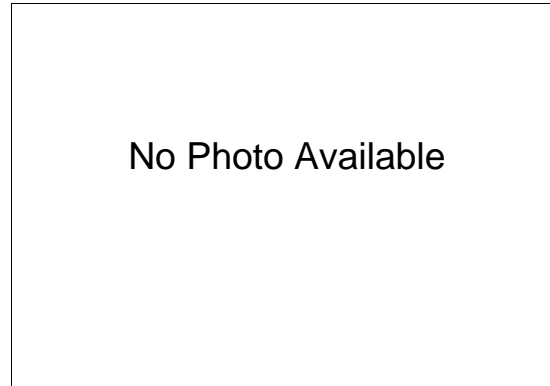
City of Tacoma  
 Site: TPL Fern Hill Branch

Total Observed Deficiency Repair Direct Cost : \$124,984

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: TPL Fern Hill Branch</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$43,000</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$99,976</b>
<b>Roof Coverings</b>									
Soffits	4	1	2018		1	\$5,500.00	LS	\$5,500	\$12,788

Integral metal gutters sealant failed.  
 Inadequate venting at soffits

Clean joints in metal gutters and seal with flexible flashing.  
 Increase soffit strip vents. Consider adding active ventilation.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Fern Hill Branch

Total Observed Deficiency Repair Direct Cost : \$124,984

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: TPL Fern Hill Branch</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>					<b>\$5,000</b>	
<b>System: Plumbing</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>					<b>\$11,625</b>	
<b>Domestic Water Distribution</b>										
Domestic water	4	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Low water pressure throughout building resulting in poor plumbing fixture performance.

Investigate and eliminate any flow restriction; coordinate with water utility to increase service pressure.



**Detailed Assessment - Observed Deficiencies 2018 - 2023**

City of Tacoma  
Site: TPL Fern Hill Branch

Total Observed Deficiency Repair Direct Cost : \$124,984

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: TPL Fern Hill Branch</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$47,996</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$111,591</b>
<b>HVAC Distribution Systems</b>									
HVAC system	4	2	2018		7,996	\$1.00	SF	\$7,996	\$18,591

Somewhat dirty grills, registers and diffusers; possible minor duct leakage; dirty or damaged grills at outside perimeter soffits.

Clean, test, repair and Re-TAB ductwork.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Fern Hill Branch

Total Observed Deficiency Repair Direct Cost : \$124,984

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility:</b> TPL Fern Hill Branch									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>	
<b>System:</b> HVAC									\$47,996	
<b>Terminal and Package Units</b>									<b>Total System Deficiency Repair Cost (Marked Up):</b>	
Heat pumps	4	3	2018		4	\$10,000.00	EA	\$40,000	\$93,000	

Heat pumps HP-2 to 5 near end of life.

Budget for replacement of both inside and outside units prior to failure.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Fern Hill Branch

Total Observed Deficiency Repair Direct Cost : \$124,984

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: TPL Fern Hill Branch									Total System Deficiency Repair Cost (Undiscounted/Unescalated):	
System: Electrical									\$23,988	
<b>Lighting and Branch Wiring</b>										
Lighting Controls	4	3	2018		7,996	\$3.00	LF	\$23,988	\$55,772	

Little or no lighting control; mostly controlled manually at breaker panel.

Install modern lighting control panels.



## Opportunity Summary By Subsystem

City of Tacoma

Site: TPL Fern Hill Branch

Total Site Opportunity Cost: **\$71,964**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: TPL Fern Hill Branch</b> <b>System: Fire Protection</b> <span style="float: right;"><b>Total Cost: \$31,984</b></span>						
D4010	Fire Protection Sprinkler Systems					
	No fire sprinkler.	Install fire sprinkler per code.	7,996.00	\$4.00	SF	\$31,984
<b>Facility: TPL Fern Hill Branch</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$39,980</b></span>						
D5020	Lighting and Branch Wiring					
	Fluorescent lighting with manual breaker control.	Upgrade to LED with automatic low voltage control.	7,996.00	\$5.00	SF	\$39,980

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 02/08/19

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## Facility Summary

City of Tacoma  
 TPL Kobetich Branch Library  
 TPL Kobetich Branch Library

212 Browns Pt Blvd NE  
 Tacoma, WA 98422

Facility Size - Gross S.F. 5,000  
 Year Of Original Construction 1979  
 Facility Use Type Library  
 Construction Type Light  
 # of Floors 1  
 Energy Source Electric  
 Year Of Last Renovation 1979  
 Historic Register No



FCI (BMAR/CRV)	0.07	Predicted Renewal Budget (20 yrs)	\$630,511
FCI (Bldg OD/CRV)	0.07	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$1,521,000	Building	\$103,464
BMAR (Backlog of Maintenance and Repair)	\$105,000	Infrastructure	
Beginning Budget Year	2018	Total	
		Opportunity Total Project Cost	\$116,250

## Facility Condition Summary

The smallest branch library in the Tacoma Library System with simple rectangular shape, peculiar half-bermed outside walls with sloped metal roof above, and flat roof section between the two sloped portions, plus small roof well the two rooftop packaged HVAC heat pump units. Overall in fair to good condition, with some systems aging but functional. Kobetich Library staff report the main issue is lack of space for frequent event with over 100 attendees and no public meeting space - hence opportunity for 2 to 3 ksf addition, potentially including restroom facilities for immediately adjacent Alderwood Park; there is also minimal reading area; and staff requests fresh paint.

# Facility Summary

City of Tacoma  
 TPL Kobetich Branch Library  
 TPL Kobetich Branch Library

212 Browns Pt Blvd NE  
 Tacoma, WA 98422

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1979	1979	2	MAL 03/29/18	Concrete footings. No issues noted.
<b>A1030 Slab On Grade</b>	1979	1979	2	MAL 03/29/18	Slab on grade. No issues noted.
<b>B Shell</b>			<b>2.2</b>		
<b>Superstructure</b>					
<b>B1020 Roof Construction</b>	1979	1979	2	MAL 03/29/18	Appears to be a combination of steel beam with open web trusses and wood sheathing. No issues noted.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1979	1979	2	MAL 03/29/18	Concrete stem walls with wood framing and sheathing. No issues noted. Stucco, brick, and wood lap facade. Brick at building corners requires cleaning of organic growth. Mortar will deteriorate if not maintained.
<b>B2020 Exterior Windows</b>	1979	1979	2	MAL 03/29/18	Aluminum double glazed windows. No issues.
<b>B2030 Exterior Doors</b>	1979	1979	2	MAL 03/29/18	Painted hollow metal doors and frames with aluminum sills. No issues. Aluminum single glazed storefront with auto doors and aluminum threshold. No airlock present at building. Recommend installing double glazed glass for better thermal performance.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1979	1979	4	MAL 03/29/18	Membrane roofing at low slope area. Metal standing seam at sloped area. Membrane at end of life. Metal requires painting and debris guards at gutters.

## Facility Summary

City of Tacoma  
 TPL Kobetich Branch Library  
 TPL Kobetich Branch Library

212 Browns Pt Blvd NE  
 Tacoma, WA 98422

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>2.2</b>		
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					
<b>B3020 Roof Openings</b>	1979	1979	2	MAL 03/29/18	Roof hatch at mechanical roof well. No issues.
<b>C Interiors</b>			<b>2.1</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1979	1979	2	MAL 03/29/18	Wood framed partitions with gypsum board wall covering. No issues
<b>C1020 Interior Doors</b>	1979	1979	3	MAL 03/29/18	Wood slab doors with hollow metal frames. Signs of normal wear. Doors and hardware function as required. Wood doors with wood frames at closets. No issues.
<b>C1030 Fittings</b>	1979	1979	2	MAL 03/29/18	PLam toilet enclosures. Stainless steel grab bars and toilet/sink accessories. No issues.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1979	1979	2	MAL 03/29/18	Painted gypsum wall board in main area and offices. Tile in public bathrooms. Normal signs of wear. Some scratches and gouges. Caulking cracked in bathroom corners.
<b>C3020 Floor Finishes</b>	1979	1979	2	MAL 03/29/18	Tile with tile base in public and employee bathrooms, entry, and employee kitchen. Carpet in main area and offices. No issues.
<b>C3030 Ceiling Finishes</b>	1979	1979	2	MAL 03/29/18	Painted gypsum ceilings and tile ceiling in main area. Acoustic ceiling tile with grid in offices. No issues.

## Facility Summary

City of Tacoma  
 TPL Kobetich Branch Library  
 TPL Kobetich Branch Library

212 Browns Pt Blvd NE  
 Tacoma, WA 98422

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.8</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1979	1979	3	DCS 03/29/18	Aging but functional, with additional wear & tear from adjacent Alderwood Park use. Dual-height (ADA) stainless steel drinking fountains. Janitor deep sink. Flushing fixtures have automatic (infrared) flushometers.
<b>D2020 Domestic Water Distribution</b>	1979	1979	3	DCS 03/29/18	City water service from 1.5-inch meter; two small Titan electric DHW tanks, one for public bathrooms and one for staff bathroom and kitchenette.
<b>D2030 Sanitary Waste</b>	1979	1979	3	DCS 03/29/18	Cast iron DW&V with no issues reported, despite no floor drains at toilet rooms.
<b>D2040 Rain Water Drainage</b>	1979	1979	3	DCS 03/29/18	High flat roof has roof drains piped to storm; slopped metal roof has metal gutters and downspouts to storm. The gutters are too narrow, especially above main entry. The flat roof and drains need frequent service due to heavily treed site - some roof drains are almost complete blocked by small plants and trees growing in their protective screens. High flat room overflow appears simply over short 2- to 3-inch lip to metal roof; several overflow roof drains can be added for better protection.
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>	1979	1979	3	DCS 03/29/18	Forced air heating & cooling with overhead supply and ducted return air; only two zones - appears to be main library and support areas. Full economizer is provided by the two packaged heat pump RTUs. The original 1979 construction included still present double-glazed operable windows for natural ventilation and cross-flow passive cooling, but the operable windows are now screwed shut - opportunity to restore their operability (minor maintenance item). Main library return air path is partially blocked by copier in front of main return air grill (minor maintenance to relocate).



# Facility Summary

City of Tacoma  
 TPL Kobetich Branch Library  
 TPL Kobetich Branch Library

212 Browns Pt Blvd NE  
 Tacoma, WA 98422

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.8</b>		
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>					
<b>D3050 Terminal and Package Units</b>	1979	2006	3	DCS 03/29/18	Two somewhat newer (2006) Trane rooftop packaged heat pump units with on-board economizer: 1) West unit is 5-ton, and 2) East unit is 7.5-ton capacity. No issues reported; these units should have 5 to 10 years remaining life. Additionally there are several overhead electric resistance radiant ceiling panels and at least one electric wall heater in the utility room; all aging but functional.
<b>D3060 Controls and Instrumentation</b>	1979	2008	3	DCS 03/29/18	Somewhat newer (2008) Alterton DDC control system with no issues reported, other than minimal zoning, especially for staff work and break room area.
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>	1979	1979	3	DCS 03/29/18	Fire extinguishers in cabinets; but no AED and/or first aid kit.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1979	1979	3	DCS 03/29/18	Main switchboard is GE 208V, 3-phase with 600A capacity supplying the two rooftop heat pumps units, Panel LA for lighting & receptacles and LB for miscellaneous loads, both with 225A capacity. All aging, but good quality original equipment and construction, hence 5 to 10 years remaining life. maybe 15 if well maintained. Infrared themography inspection suggested.
<b>D5020 Lighting and Branch Wiring</b>	1979	2010	2	DCS 03/29/18	Lighting upgrade to T5 in 2010, but still with mostly manual controls; underfloor walker-duct wiring to floor receptacles; no issues reported. Opportunity to upgrade to LED and automatic controls in 5 to 10 years as fluorescent ballast begin to fail.

## Facility Summary

City of Tacoma  
 TPL Kobetich Branch Library  
 TPL Kobetich Branch Library

212 Browns Pt Blvd NE  
 Tacoma, WA 98422

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.8</b>		
<b>Electrical</b>					
<b>D5032 Low Voltage Communication</b>	1979	1979	3	DCS 03/29/18	Telephone but no PA in this small library - a hand-held megaphone is used.
<b>D5037 Low Voltage Fire Alarm</b>	1979	2012	2	DCS 03/29/18	New (2012) Gamewell E3 fire alarm system.
<b>D5038 Low Voltage Security</b>	1979	2005	3	DCS 03/29/18	Door position and motion detection system, aging but functional; older CCTV cameras appear non-operable.
<b>D5039 Low Voltage Data</b>	1979	2005	3	DCS 03/29/18	Somewhat newer data with no issues reported; assume adequate for need. Server location in utility room with outside-only access.
<b>D5090 Other Electrical Systems</b>	1979	1979	3	DCS 03/29/18	Battery egress lighting - tested fixtures work Ok; luminescent exit signs expire in 2023.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1979	1979	3	DCS 03/29/18	Kitchenette appliances in fair condition; no issues reported.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>	1979	1979	3	DCS 03/29/18	Aging but functional casework - recommend touch-up.

## Facility Summary

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City of Tacoma

TPL Kobetich Branch Library

Infrastructure

212 Browns Pt Blvd NE  
Tacoma, WA 98422

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## Facility Condition Summary

Small one-story library with earth-bermed walls, double-glazed windows, flat high-room with sloped standing-seam metal roofs to east & west; small roof well for two mechanical HVAC rooftop heat pump units supplying ductwork in ceiling space. Opportunity to add a public meeting room on this relatively large site; potentially including public bathrooms for use by adjacent Alderwood Park users.

# Facility Summary

City of Tacoma  
 TPL Kobetich Branch Library  
 Infrastructure

212 Browns Pt Blvd NE  
 Tacoma, WA 98422

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2020</b>	<b>Parking Lots</b>		2	MAL 03/29/18	Asphalt parking lot with concrete curbs shared with parks. Striping and arrows in fair condition. Some staining and organic growth present. Cleaning recommended.
<b>G2030</b>	<b>Pedestrian Paving</b>		3	MAL 03/29/18	Concrete sidewalks. Fair condition with minimal cracking. Pressure washing recommended.
<b>G2050</b>	<b>Landscaping</b>		2	MAL 03/29/18	Site surrounded by forested area. site landscaping includes smaller trees, shrubs, and ground cover. Landscaping at building in contact with facade. Recommend trimming back to maintain minimum 6" separation between plants and building. Elevated planters at two sides of building. Maintain soil level below building waterproofing to prevent water intrusion.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010</b>	<b>Water Supply</b>	1979	1979	3	DCS 03/29/18 City water with good pressure; no irrigation or fire; 1.5-inch meter.
<b>G3020</b>	<b>Sanitary Sewer</b>	1979	1979	2	DCS 03/29/18 City sewer (confirm not septic).
<b>G3030</b>	<b>Storm Sewer</b>	1979	1979	3	DCS 03/29/18 Roof drains and parking lot collected with piping and catch basins and assumed conveyed to Alderwood Park down hill.
<b>Site Electrical utilities</b>					
<b>G4010</b>	<b>Electrical Distribution</b>	1979	1979	3	DCS 03/29/18 Power assumed underground from pad-mounted transformer at adjacent Fire Station; with Tacoma Power meter #303196.
<b>G4020</b>	<b>Site Lighting</b>	1979	1979	3	DCS 03/29/18 Four concrete pole-mounted HID fixtures; about

# Facility Summary

City of Tacoma  
 TPL Kobetich Branch Library  
 Infrastructure

212 Browns Pt Blvd NE  
 Tacoma, WA 98422

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

**G4020 Site Lighting**

six building perimeter soffit-mounted HID wall-packs; all time clock and/or photo-cell controlled with no issues reported.

**G4030 Site Communications and Security**

1979 1979 3

DCS 03/29/18

Telecom from local purveyors including Click Network high-speed fiber-optic data service; two older CCTV cameras at NW corner appear abandoned in place; opportunity for CPTED analysis and security improvement per Library security improvement program reportedly underway in 2018.



## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: TPL Kobetich Branch Library

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
TPL Kobetich Branch Library	Exterior Closure	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Roofing	\$32,000	\$8,000	\$8,000	\$26,400	\$74,400
	Plumbing	\$7,500	\$1,875	\$1,875	\$6,188	\$17,438
	<b>Facility Total</b>	<b>\$44,500</b>	<b>\$11,125</b>	<b>\$11,125</b>	<b>\$36,713</b>	<b>\$103,463</b>
	<b>Site Total</b>	<b>\$44,500</b>	<b>\$11,125</b>	<b>\$11,125</b>	<b>\$36,713</b>	<b>\$103,463</b>





# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: TPL Kobetich Branch Library

Total Observed Deficiency Repair Direct Cost : \$44,500

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: TPL Kobetich Branch Library				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$5,000	
System: Exterior Closure				Total System Deficiency Repair Cost (Marked Up):					\$11,625	
<b>Exterior Walls</b>										
Exterior Brick	4	5	2018		1	\$5,000.00	EA	\$5,000	\$11,625	

Organic growth on brick at corners of building.  
 Soil in contact with brick at corners

Clean brick facade. Remove dirt from brick, install waterproofing to protect brick facade



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: TPL Kobetich Branch Library

Total Observed Deficiency Repair Direct Cost : \$44,500

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPL Kobetich Branch Library					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$32,000
System: Roofing					Total System Deficiency Repair Cost (Marked Up):				\$74,401
<b>Roof Coverings</b>									
Membrane Roof	4	3	2018		3,000	\$6.50	SF	\$19,500	\$45,338

Membrane roof near end of life

Replace roof and associated flashings



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: TPL Kobetich Branch Library

Total Observed Deficiency Repair Direct Cost : \$44,500

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPL Kobetich Branch Library					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$32,000
System: Roofing					Total System Deficiency Repair Cost (Marked Up):				\$74,401
<b>Roof Coverings</b>									
Metal Gutters and Roof	4	3	2018		1	\$12,500.00	LS	\$12,500	\$29,063

Metal roofing requires painting. Gutters are leaking at downspout connections and collecting organic debris

Paint metal roof. Repair gutters and install debris protection to prevent clogs. Repair soffit underneath gutters where downspouts have leaked.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: TPL Kobetich Branch Library

Total Observed Deficiency Repair Direct Cost : \$44,500

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: TPL Kobetich Branch Library				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$7,500	
System: Plumbing				Total System Deficiency Repair Cost (Marked Up):					\$17,438	
<b>Rain Water Drainage</b>										
Roof drains	4	2	2018		3	\$2,500.00	EA	\$7,500	\$17,438	

No overflow roof drains.

Install overflow roof drains.



## Opportunity Summary By Subsystem

City of Tacoma

Site: TPL Kobetich Branch Library

Total Site Opportunity Cost: **\$860,000**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Infrastructure</b> <b>System: Site Civil / Mechanical Utilities</b> <b>Total Cost: \$10,000</b>						
G3060	Fuel Distribution	Assume natural gas is in vicinity; building is currently all electric heat with two rooftop heat pump units.				
		Prior to next rooftop unit replacement about 2026; instsall natural gas service and upgrade to rooftop gas-pack units with gas-furnace heat.	1.00	\$10,000.00	LS	\$10,000
<b>Facility: Infrastructure</b> <b>System: Other Site Construction</b> <b>Total Cost: \$800,000</b>						
G9090	Other Site Systems	This small library (only 5 ksf) is the only public library in the NE Tacoma neighborhood, reportedly with increasing use, including meetings with over 100 attendees, but no public meeting room other than the main stack and reading area. Large site with room for library expansion.				
		Design and construct say 2 ksf addition to comfortably accomodate meeting of up to 100 attendees, complete with additional toilet rooms.	2,000.00	\$400.00	SF	\$800,000
<b>Facility: TPL Kobetich Branch Library</b> <b>System: Plumbing</b> <b>Total Cost: \$30,000</b>						
D2010	Plumbing Fixtures	Use and abuse of Library public bathrooms by adjacent Alderwood Park users.				
		Expand and/or ruggedize the public bathrooms so support adjacent Alderwood Park users.	2.00	\$15,000.00	LS	\$30,000
<b>Facility: TPL Kobetich Branch Library</b> <b>System: Fire Protection</b> <b>Total Cost: \$20,000</b>						
D4010	Fire Protection Sprinkler Systems	No fire sprinkler.				
		Install fire sprinkler per code.	5,000.00	\$4.00	SF	\$20,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 02/08/19

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## Facility Summary

City of Tacoma  
 TPL Main  
 TPL Main Library

1102 Tacoma Ave S  
 Tacoma, WA 98402

Facility Size - Gross S.F. 95,727  
 Year Of Original Construction 1902  
 Facility Use Type Library  
 Construction Type Heavy  
 # of Floors 1  
 Energy Source Gas  
 Year Of Last Renovation 1988  
 Historic Register No



FCI (BMAR/CRV)	0.10	Predicted Renewal Budget (20 yrs)	\$15,368,365
FCI (Bldg OD/CRV)	0.04	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$32,094,000	Building	\$1,434,578
BMAR (Backlog of Maintenance and Repair)	\$3,184,000	Infrastructure	\$69,750
Beginning Budget Year	2018	Total	\$1,504,328
		Opportunity Total Project Cost	\$4,327,032

## Facility Condition Summary

The 1902 Carnegie library is two-story round-shape with beautiful open rotunda and grand marble stair from lower main entry to upper level, including special collections room. The north 1956 Main addition is three-story with full basement. The two buildings were joined in the 1988 full modernization which included seismic upgrade, new utilities, and shared MEP systems. Between the two fully interconnected buildings, one stepped six-level facility was formed, with central plant located in the Main addition serving all spaces. Construction is historic masonry at Carnegie and cast-in-place concrete at Main, which was upgraded to EFIS and stucco exterior in the 1988 modernization; most windows are double-glazed. HVAC is four-pipe with boiler & chiller, central station VAV with hot water reheat coils, supplemented by perimeter hot water convector units at Main, all controlled by a modern DDC system. Plumbing is modern with copper piping and electric hot water. Only the basement storage area is fire sprinkled but modern fire alarm is provide throughout. Electric power is 208V with limited 2,500A capacity and no standby power. Lighting is a older T8 fluorescent at Main and MH at Carnegie; mostly manual control. Low voltage systems are a mix of older and newer. Few issues are reported, but many systems are soon needing at least partial renewal.

# Facility Summary

City of Tacoma  
 TPL Main  
 TPL Main Library

1102 Tacoma Ave S  
 Tacoma, WA 98402

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1903	1956	2	MAL 03/27/18	Original 1903 building and 1956 addition have concrete footings. 1903 building built on Limestone walls at grade. 1956 addition built on concrete foundation walls. Water intrusion apparent at level 2 at South elevation of addition adjacent to chimney stack. Signs of water on interior wall of level 1. Appears to be entering the building at the elevated sidewalk on South elevation. Recommend cleaning area of organic growth, removing failed sealant, and installing metal flashing with kerf cut and sealant at wall to sidewalk interface.
<b>A1030 Slab On Grade</b>	1903	1956	2	MAL 03/27/18	Slab in good condition. No signs of structural degradation or significant cracking. Bottom floor of addition has cracks that appear to be expansion cracks from original pour. No expansion joints were noticed. No sign of water working through cracks.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1956	1956	2	MAL 03/27/18	South elevation of addition at level one showing signs of water intrusion from South elevated sidewalk/wall interface. Repair as necessary.
<b>B Shell</b>			<b>2.0</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1903	1956	2	MAL 03/27/18	Steel trusses with pan deck and concrete topping slab. Structural concrete deck. No issues.
<b>B1020 Roof Construction</b>	1903	1988	2	MAL 03/27/18	Steel trusses with pan deck and topping slab. 1903 building roof structure upgraded in 1988 with wall seismic retrofit. No issues.



# Facility Summary

City of Tacoma  
 TPL Main  
 TPL Main Library

1102 Tacoma Ave S  
 Tacoma, WA 98402

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>2.0</b>		
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>					
	1903	1988	2	MAL 03/27/18	Limestone and full brick at 1903 structure. Metal framed walls with stucco/EIFS at 1956 addition. Horizontal sections of EIFS require metal flashing. Signs of water intrusion present Seismic retrofit done in 1988.
<b>B2020 Exterior Windows</b>					
	1903	2007	2	MAL 03/27/18	Wood windows with double glazing in 1903 section. Aluminum windows with double glazing in addition. Lower levels have tempered glass. Exterior of wood windows in good condition. Sill caulking at level 1 of 1903 building needs repair. Condensation occurring at high windows in 1903 section. Windows may require venting to prevent further damage to wood windows and wall finish.
<b>B2030 Exterior Doors</b>					
	1903	1988	2	MAL 03/27/18	Man doors wood frames with wood 4 panel slabs in Carnegie building. Recommend changing to similar door with higher thermal performance. Man doors in newer section HM w/HM frames painted. Storefront at NW corner
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					
	1956	2006	2	MAL 03/27/18	Membrane roofing. Some areas of standing water on lower roof sections. Sealant at metal coping joints showing signs of failure. Cleaning of roof recommended.
<b>B3030 Projections</b>					
	1956	2006	3	MAL 03/27/18	Painted parapet coping metal. EIFS cladding extends past the extent of the coping metal except at East elevation of high roof. Recommend extending parapet coping at all parapets to eliminate water/dirt stains at high walls from runoff of horizontal detail.

## C Interiors

2.2

### Interior Construction

#### C1010 Partitions

## Facility Summary

City of Tacoma  
 TPL Main  
 TPL Main Library

1102 Tacoma Ave S  
 Tacoma, WA 98402

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.2</b>		
<b>Interior Construction</b>					
	1956	1988	2	MAL 03/27/18	Metal/Wood framing with painted gyp board. Minor cracks from settling.
<b>C1020 Interior Doors</b>	1902	1988	3	MAL 03/27/18	Hollow metal frames with wood doors. Wood frames with wood doors. No issues.
<b>C1030 Fittings</b>	1902	1988	3	MAL 03/27/18	Metal toilet partitions with stainless steel accessories. Laminate counters in restrooms. Laminate casework and counters in kitchens and work areas. Wood reference desks. No issues.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>	1902	1988	2	MAL 03/27/18	Original stone stairs with marble walls. No issues. Steel stairs with steel handrails in stair towers. No issues.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1902	1988	2	MAL 03/27/18	Painted gypsum/plaster. Tile in bathrooms. FRP in kitchen and restrooms. Minor cracking. Paint cracking in 1903 section from prior water leak. Repair as needed.
<b>C3020 Floor Finishes</b>	1902	1988	2	MAL 03/27/18	Tile in bathrooms. Carpet in most areas. Sheet vinyl in some bathrooms. Cool floor in server room. Normal signs of wear in carpet offices.
<b>C3030 Ceiling Finishes</b>	1902	1988	2	MAL 03/27/18	Painted gypsum/plaster. Ceiling tile and grid system. No issues.
<b>D Services</b>			<b>2.9</b>		
<b>Vertical Transportation</b>					
<b>D1010 Elevators and Lifts</b>					

# Facility Summary

City of Tacoma  
 TPL Main  
 TPL Main Library

1102 Tacoma Ave S  
 Tacoma, WA 98402

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.9</b>		
<b>Vertical Transportation</b>					
<b>D1010 Elevators and Lifts</b>					
	1902	1988	3	DCS 03/27/18	Elevator No. 1 is 1956 Otis four-stop bottom traction-type with 7.5-hp motor modernized in 2005. No. 2 is 1988 Dover six-stop hydraulic with 40-hp motor and due for modernization in 2018. Additionally a Matot two-stop motorized 500 lb capacity dumb-waiter serves the first floor circulation desk and basement below.
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					
	1902	1988	3	DCS 03/27/18	Porcelain plumbing fixtures with manual trim in toilet rooms; stainless steel sinks with chrome trim at kitchen and kitchenettes; composite mop sinks at janitor closets; stainless steel single and dual-height (ADA) drinking fountains; all with no issues reported, but some fixtures need adjustment and/or trap cleaning.
<b>D2020 Domestic Water Distribution</b>					
	1902	1988	3	DCS 03/27/18	Three-inch service with PRV reducing 90 psig supply to 80 psig distribution pressure; backflow preventer; several outside hose bibs without security boxes - at least one is damaged to west (minor maintenance to repair); at least four electric DHW tank-type heaters mostly newer, but at least one older in basement, some without expansion tanks, and no recirc pumps. Opportunity to upgrade to centralized gas-fired DHW.
<b>D2030 Sanitary Waste</b>					
	1902	1988	2	DCS 03/27/18	Cast iron DW&V piping in fair to good condition; some tested fixtures flush or drain somewhat slowly but assume due to fixtures and/or side sewer, not DW&V system inside building.
<b>D2040 Rain Water Drainage</b>					
	1902	1988	3	DCS 03/27/18	Flat roof serviced by combination of internal roof drains, overflow roof drains, overflow scuppers, and parapet scupper boxes with metal downspouts to cast iron storm piping at grade. Portions of roof have standing water, but assume due to poor roof slope, not roof drainage issues; however a few small areas are missing overflow

# Facility Summary

City of Tacoma  
 TPL Main  
 TPL Main Library

1102 Tacoma Ave S  
 Tacoma, WA 98402

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			2.9		
<b>Plumbing</b>					
D2040 Rain Water Drainage					drains or scuppers.
<b>HVAC</b>					
D3010 Energy Supply	1902	1988	3	DCS 03/27/18	Black iron natural gas piping to boilers in basement boiler room; also copper tubing from underground fuel oil storage tank to basement boilers - fuel oil return lines have been capped-off and return lines abandoned in place. Appears a metal shield covers these pipes passing from near the SW corner of the loading dock to the boiler room, which might be related to water intrusion at the first floor SE wall.
D3020 Heat Generating Systems	1902	1988	3	DCS 03/27/18	Two standard-efficiency (80%) dual fuel (gas and oil) heating hot water boilers; No. 1 is older 1988 Burnham, and No. 2 is newer 1997 Buderus, both with Power Flame dual-fuel burners with 1.2 mmbtuh maximum input capacity; the older boiler is approaching end of life. Six heating hot water pumps including two serving the main air handling system and two rooftop air handling units (AHUs) and terminal reheat coils, and four serving hydronic hot water cabinet unit heaters (CUHs); smaller pumps are 1-hp each, large pump is 7.5-hp.
D3030 Cooling Generating Systems	1902	2015	3	DCS 03/27/18	New (2015) York 120-ton rooftop air cooled chiller with four compressors - reportedly sharply reducing cooling load energy use from previous chiller and operating well; one newer (2015) 5-hp chilled water pump, constant speed - opportunity to upgrade to VFD. Main cooling coil frame is rusting and needs service.
D3040 HVAC Distribution Systems	1902	1988	3	DCS 03/27/18	Main air handling system for most spaces is from penthouse system with two return air shafts, 20-hp constant-speed return/relief Trane original (1956) fan, 40-hp original (1956) Trane supply air fan with VFD, heating coil, cooling coil and economizer. Two rooftop hydronic AHUs - with

# Facility Summary

City of Tacoma  
 TPL Main  
 TPL Main Library

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 Tacoma, WA 98402

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.9</b>		
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>					
					AHU-1 serving the Main library 3rd floor open office area and AHU-2 serving Carnegie 2nd floor area. Mix of mostly sheet metal and some flex duct distribution to overhead supply air slot diffusers via VAV terminal units, with open ceiling plenum return to shafts via fire dampers.
<b>D3050 Terminal and Package Units</b>					
	1902	1988	3	DCS 03/27/18	Aging (1998) VAV terminal units and cabinet unit heaters.
<b>D3060 Controls and Instrumentation</b>					
	1902	2008	3	DCS 03/27/18	Alerton DDC control throughout; tune-up suggested.
<b>D3090 Other HVAC Systems and Equipment</b>					
	1902	1988	3	DCS 03/27/18	Data center original (1988) underfloor computer room air conditioning (CRAC) unit - Data Aire with rooftop dry cooler in fair condition, plus supplemental newer (2003) Mitsubishi ductless split-Dx system.
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>					
	1902	1988	3	DCS 03/27/18	Fire extinguishers in cabinets and on hooks with current inspections; did not observe AEDs and/or first air kits.
<b>D4090 Other Fire Protection Systems</b>					
	1902	1988	3	DCS 03/27/18	Halon gaseous fire suppression systems at data center on third floor and at both book returns; no issues reported, but systems are aging.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					
	1902	1988	3	DCS 03/27/18	Power from basement TP vault direct to Square D (1988) 208V, 3-phase main distribution panel (MDP) with five breakers supplying: 1) Chiller, 2) Distribution Board D1 with 1,000A capacity, 3) D2 with 400A, and 4) D3 with 800A, and 5) Computer (data) Center. No issues reported but

# Facility Summary

City of Tacoma  
 TPL Main  
 TPL Main Library

1102 Tacoma Ave S  
 Tacoma, WA 98402

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.9</b>		
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>					there appears to be little spare capacity and there is no TVSS. Large flat roof provides opportunity for renewable PV power system. All distribution boards are in the basement mechanical room, except one in the mechanical penthouse; there are multiple circuit, lighting and miscellaneous load distribution panels located in hallways and core walls throughout the building. See G-series for opportunity to upgrade to 480V service. Infrared thermography scanning of the MDP and SDPs is recommended.
<b>D5020 Lighting and Branch Wiring</b>	1902	1988	3	DCS 03/27/18	Mostly T8 fluorescent direct/indirect pendant on upper floors and surface-mount in basement in Main addition with mostly manual control reportedly via breaker; mostly HID indirect pendants in Carnegie library, plus many recessed and track lights. Mix of wall and floor receptacles, with extensive power strip use in computer areas, but no issues reported. Much of the stack lighting runs perpendicular to the stacks in the Main addition; indirect lighting is weak in the Carnegie library.
<b>D5032 Low Voltage Communication</b>	1902	1988	3	DCS 03/27/18	Telephone and PA aging, but functional with no issues reported. A/V in several meeting rooms.
<b>D5037 Low Voltage Fire Alarm</b>	1902	2012	2	DCS 03/27/18	New (2012) Gamewell fire alarm system.
<b>D5038 Low Voltage Security</b>	1902	1988	3	DCS 03/27/18	Aging intruder detection system; no card-key access; and minimal CCTV.
<b>D5039 Low Voltage Data</b>	1902	1988	3	DCS 03/27/18	Aging data distribution to limited number of drops, but newer WiFi throughout.
<b>D5090 Other Electrical Systems</b>	1902	1988	3	DCS 03/27/18	Two 7 kW portable Honda gas-fired generators for use where or when needed throughout the

## Facility Summary

City of Tacoma  
 TPL Main  
 TPL Main Library

1102 Tacoma Ave S  
 Tacoma, WA 98402

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.9</b>		
<b>Electrical</b>					
<b>D5090 Other Electrical Systems</b>					
					library system stored in the roof access hallway. Egress lighting in battery-backed light fixture ballasts. Self-illuminating Exit signs. Opportunity for standby generator.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>					
	1902	1988	3	DCS 03/27/18	Aging but functional appliances as kitchen and kitchenettes; need exhaust fan in staff break kitchen.
<b>E1020 Institutional Equipment</b>					
	1902	1988	3	DCS 03/27/18	High-density storage racks at Main addition basement north with no issues reported, but there are significant floor cracks in the supporting concrete slab-on-grade (see A-series). Microfilm readers and other specialized library equipment scattered throughout - mix of older and newer with older aging, but functional - assume adequate for need; all with no issues reported.
<b>E1030 Vehicular Equipment</b>					
	1902	1988	3	DCS 03/27/18	Minimal loading dock equipment, limited mostly to motorized garage door opener and metal ramp at shallow dock.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>					
	1902	1988	3	DCS 03/27/18	Service desks in various locations in fair to good condition; aging but functional, with only minor repair work needed.

## Facility Summary

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City of Tacoma  
TPL Main  
Infrastructure

1102 Tacoma Ave S  
Tacoma, WA 98402

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## Facility Condition Summary

The original 1902 Carnegie library and Main 1956 addition were both modernized in 1988, with only minor improvements since. Many 1988 systems are beginning to show their age including exterior finishes, interior finishes, HVAC, and low voltage systems. Except for the basement, the facility is not fire sprinkler protected, but does have a modern fire alarm system. With Main Library parking recently sold by the City, library patrons now have little or no parking. Additionally some storage functions previously provided by the parking lot have moved to branch libraries, complicating their function. The Library might consider collaborating with neighboring facilities to develop structured parking and storage in conjunction with a Library system facilities master plan.



## Facility Summary

City of Tacoma  
 TPL Main  
 Infrastructure

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### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2030 Pedestrian Paving</b>	1902	1988	3	MAL 03/27/18	Concrete sidewalks and steps. Sidewalk cracking at metal railings. Repair required.
<b>G2040 Site Development</b>	1902	1988	3	MAL 03/27/18	Original site retaining wall has excessive organic growth. Wall shows signs of damage. Cleaning and restoration recommended.
<b>G2050 Landscaping</b>	1902	1988	2	MAL 03/27/18	Mature trees, hedges, shrubs, and grass. Soils and shrubs in contact with building facade. Soil should be removed to below facade. Vegetation trimmed back to maintain 6" separation.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1902	1988	2	DCS 03/27/18	City water including domestic, fire and irrigation, all with service from street to east with vaults in sidewalk and landscape strip; water pressure is good at 90 psig; FDC at east wall with no apparent PIV or exterior shut-off valve; no issues reported.
<b>G3020 Sanitary Sewer</b>	1902	1988	3	DCS 03/27/18	City sewer with increasing issues.
<b>G3030 Storm Sewer</b>	1902	1988	3	DCS 03/27/18	Roof drains to storm piping; Carnegie SW foundation french drain reportedly to pit or foundation drainage, then to storm. Storm water reportedly backs-up at SE corner of site and floods street during heavy rain.
<b>G3060 Fuel Distribution</b>	1902	1988	3	DCS 03/27/18	Natural gas with PSE meter #918539, 3,000 cfh capacity, with seismic shut-off valve in locked enclosure; appears to supply only two basement heating hot water boilers; with opportunity to supply domestic hot water and/or fire place in Carnegie library special collections room. Underground fuel oil storage tank at SE corner of loading dock, uphill from gas meter - provides

# Facility Summary

City of Tacoma  
 TPL Main  
 Infrastructure

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## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Civil / Mechanical Utilities</b>					
<b>G3060 Fuel Distribution</b>					
					back-up fuel to the two dual-fuel boilers. No issues reported, but key should be more readily available to open locked gas meter enclosure and fuel oil tank should be serviced.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>					
	1902	1988	3	DCS 03/27/18	Electrical power from overhead power lines and pole in alley to west, underground to Tacoma Power vault at basement level; Meter # 58232872 with service at 208V/3-phase delivered to main distribution panel (MDP) in basement boiler room, upper level. No issues reported but 208V volt service is increasingly obsolete for large fully air-conditioned buildings; opportunity to upgrade to 480V at next modernization.
<b>G4020 Site Lighting</b>					
	1902	1988	3	DCS 03/27/18	Old-fashioned lamps at Carnegie landscape area with LED lamps; HID wall packs at several locations; wall packs are aging but functional - some lenses are dirty, most exterior lights are on during morning hours (minor maintenance to clean, replace any failed lamps, and optimize lighting control).
<b>G4030 Site Communications and Security</b>					
	1902	1988	3	DCS 03/27/18	Overhead telecom services from poles at alley to west, including high-speed fiber-optic data from Tacoma Power Click network; no issues reported, but opportunity to coordinate with purveyors to underground telecom services.
<b>Other Site Construction</b>					
<b>G9010 Service and Pedestrian Tunnels</b>					
	1902	1988	3	DCS 03/27/18	Large manhole near SW corner of loading dock with unclear function, but appears to provide access to a deeper pit or tunnel; no issues reported.

## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: TPL Main

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Infrastructure	Site Improvements	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Site Civil / Mechanical Utilities	\$25,000	\$6,250	\$6,250	\$20,625	\$58,125
	<b>Facility Total</b>	<b>\$30,000</b>	<b>\$7,500</b>	<b>\$7,500</b>	<b>\$24,750</b>	<b>\$69,750</b>
TPL Main Library	Basements	\$6,500	\$1,625	\$1,625	\$5,363	\$15,113
	Exterior Closure	\$18,000	\$4,500	\$4,500	\$14,850	\$41,850
	Vertical Transportation	\$170,000	\$42,500	\$42,500	\$140,250	\$395,250
	HVAC	\$203,932	\$50,983	\$50,983	\$168,244	\$474,141
	Electrical	\$218,591	\$54,648	\$54,648	\$180,337	\$508,223
	<b>Facility Total</b>	<b>\$617,022</b>	<b>\$154,256</b>	<b>\$154,256</b>	<b>\$509,043</b>	<b>\$1,434,577</b>
	<b>Site Total</b>	<b>\$647,022</b>	<b>\$161,756</b>	<b>\$161,756</b>	<b>\$533,793</b>	<b>\$1,504,327</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Main

Total Observed Deficiency Repair Direct Cost : \$647,022

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Infrastructure</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$5,000</b>
<b>System: Site Improvements</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$11,625</b>
<b>Pedestrian Paving</b>									
Concrete Sidewalk	4	1	2018		1	\$5,000.00	LS	\$5,000	\$11,625
<b>Sidewalk cracked at railing insertion point.</b>				<b>Repair as required</b>					



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Main

Total Observed Deficiency Repair Direct Cost : \$647,022

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Sanitary Sewer</b>									
Side sewer	4	3	2018		1	\$15,000.00	LS	\$15,000	\$34,875

Side sewer failing with increasing blockages reportedly from tree roots in recent years.

Replace side sewer and protect from future tree root growth.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Main

Total Observed Deficiency Repair Direct Cost : \$647,022

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Infrastructure</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$25,000</b>
<b>System: Site Civil / Mechanical Utilities</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$58,125</b>
<b>Storm Sewer</b>									
Storm Service	4	2	2018		1	\$10,000.00	LS	\$10,000	\$23,250

Reportedly storm backs-up at SE corner of site flooding street.

Coordinate with City Public Works to improve site storm drain service, especially at SE corner of site.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Main

Total Observed Deficiency Repair Direct Cost : \$647,022

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: TPL Main Library</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$6,500</b>
<b>System: Basements</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$15,113</b>
<b>Basement Walls</b>									
Basement Wall	4	5	2018		1	\$6,500.00	EA	\$6,500	\$15,113

Water intrusion at South elevation at elevated walkway.  
Interior wall finish bubbling and peeling at level 1 library.

Install proper flashing at elevated sidewalk.  
Repair interior finish





# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Main

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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPL Main Library					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$18,000
System: Exterior Closure					Total System Deficiency Repair Cost (Marked Up):				\$41,850
<b>Exterior Walls</b>									
EIFS	4	1	2018		1	\$18,000.00	LS	\$18,000	\$41,850

Water intrusion at horizontal areas of EIFS

Install integrated metal flashing and repair damage as required.



**Detailed Assessment - Observed Deficiencies 2018 - 2023**

City of Tacoma  
Site: TPL Main

Total Observed Deficiency Repair Direct Cost : \$647,022

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: TPL Main Library				Total System Deficiency Repair Cost (Undiscounted/Unescalated):						\$170,000
System: Vertical Transportation				Total System Deficiency Repair Cost (Marked Up):						\$395,250
<b>Elevators and Lifts</b>										
Elevator	4	2	2018		1	\$170,000.00	LS	\$170,000	\$395,250	

Elevator No. 2 is due for modernization.

Modernize Elevator No. 2.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Main

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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPL Main Library					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$203,932
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$474,142
<b>Heat Generating Systems</b>									
Boiler	4	5	2018		1	\$35,000.00	LS	\$35,000	\$81,375

Boiler No. 1 is soon approaching end of life.

Budget for replacement prior to failure.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Main

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Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPL Main Library					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$203,932
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$474,142
<b>Cooling Generating Systems</b>									
Cooling	4	2	2018		1	\$7,500.00	LS	\$7,500	\$17,438

Cooling coil frame is rusting, with signs of poor condensate drainage.

Clean and service condensate drainage path and corrosion protect cooling coil frame.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Main

Total Observed Deficiency Repair Direct Cost : \$647,022

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: TPL Main Library</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$203,932</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$474,142</b>
<b>HVAC Distribution Systems</b>									
Air handling equipment and ductwork	4	3	2018		1	\$50,000.00	LS	\$50,000	\$116,250

Main air handling system is aged and dirty with loose doors, handles, dirt plenums and unclear air flow through some shaft areas.

Clean and renew main air handing system shafts, supply air trunks, motor-operated louvers, doors including seals and latches and ceiling plenum where needed.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Main

Total Observed Deficiency Repair Direct Cost : \$647,022

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: TPL Main Library</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$203,932</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$474,142</b>
<b>HVAC Distribution Systems</b>									
Air Handling Units	4	3	2018		2	\$10,000.00	EA	\$20,000	\$46,500

Rooftop air handling unit housings are rusting and approaching end of life.

Renew or replace rooftop AHU's; assume renewal at this time.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Main

Total Observed Deficiency Repair Direct Cost : \$647,022

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: TPL Main Library</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>					<b>\$203,932</b>	
<b>System: HVAC</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>					<b>\$474,142</b>	
<b>Terminal and Package Units</b>										
Convectors	4	5	2018		50	\$250.00	EA	\$12,500	\$29,063	

Unclear function of some convectors; some may be damaged convention adjustment.

Clean, inspect and renew.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Main

Total Observed Deficiency Repair Direct Cost : \$647,022

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: TPL Main Library</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$203,932</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$474,142</b>
<b>Terminal and Package Units</b>									
Fan coil units	4	5	2018		50	\$500.00	EA	\$25,000	\$58,125

Aging fan coil units.

Clean, test, inspect and repair VAV terminal unit components as needed to renew.





## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Main

Total Observed Deficiency Repair Direct Cost : \$647,022

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: TPL Main Library</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$203,932</b>
<b>System: HVAC</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$474,142</b>
<b>Controls and Instrumentation</b>									
DDC controls	4	3	2018		95,727	\$0.25	SF	\$23,932	\$55,641

Unclear optimization of DDC controls.

Conduct building tune-up for optimal performance.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Main

Total Observed Deficiency Repair Direct Cost : \$647,022

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: TPL Main Library				Total System Deficiency Repair Cost (Undiscounted/Unescalated):						\$203,932
System: HVAC				Total System Deficiency Repair Cost (Marked Up):						\$474,142
<b>Other HVAC Systems and Equipment</b>										
Dedicated HVAC	4	5	2018		2	\$15,000.00	LS	\$30,000	\$69,750	

Aging data center cooling.

Budget for replacement prior to failure.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Main

Total Observed Deficiency Repair Direct Cost : \$647,022

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: TPL Main Library</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$218,591</b>
<b>System: Electrical</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$508,223</b>
<b>Lighting and Branch Wiring</b>									
Lighting Controls	4	2	2018		75,000	\$1.00	SF	\$75,000	\$174,375

Reportedly most large area lighting is controlled by staff turning circuit breakers on/off at the lighting distribution panels for most public areas and other large spaces.

Install basic lighting controls panels to allow switch-type basic lighting on/off control.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Main

Total Observed Deficiency Repair Direct Cost : \$647,022

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPL Main Library					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$218,591
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$508,223
<b>Low Voltage Security</b>									
Security	4	2	2018		95,727	\$0.50	SF	\$47,864	\$111,283
Aging and limited electronic security system.				Upgrade to City standard for downtown area.					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Main

Total Observed Deficiency Repair Direct Cost : \$647,022

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPL Main Library					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$218,591
System: Electrical					Total System Deficiency Repair Cost (Marked Up):				\$508,223
<b>Low Voltage Data</b>									
Data System	4	5	2018		95,727	\$1.00	SF	\$95,727	\$222,565

Aging data system.

Upgrade to Library standard.





## Opportunity Summary By Subsystem

City of Tacoma

Site: TPL Main

Total Site Opportunity Cost: \$2,258,997

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Infrastructure</b> <b>System: Site Electrical utilities</b> <span style="float: right;"><b>Total Cost: \$397,908</b></span>						
G4010	Electrical Distribution	Increasingly obsolete 208V service for large building, with little capacity for future loads.	Upgrade to 480V service at next modernization, say in 10 years.	95,727.00	\$4.00	SF \$382,908
G4020	Site Lighting	HID wall packs.	Upgrade to LED.	10.00	\$500.00	EA \$5,000
G4030	Site Communications and Security	Overhead telecom services.	Coordinate with utilities to underground telecom services.	1.00	\$10,000.00	LS \$10,000
<b>Facility: TPL Main Library</b> <b>System: Plumbing</b> <span style="float: right;"><b>Total Cost: \$51,000</b></span>						
D2010	Plumbing Fixtures	All manual plumbing trim.	Upgrade to automatic trim to improve infection control.	32.00	\$500.00	EA \$16,000
D2020	Domestic Water Distribution	At least four separate electric tank-type DHW heaters.	Upon system renewal, say in 10 years, upgrade to modern centralized gas-fired tankless DHW heat with recirc pump.	1.00	\$35,000.00	LS \$35,000
<b>Facility: TPL Main Library</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$390,000</b></span>						
D3020	Heat Generating Systems	Heating hot water pumps appear to be constant speed.	Upgrade larger pumps to variable speed VFD to reduce energy use.	2.00	\$5,000.00	EA \$10,000
		Standard efficiency (80%) boilers.	Upon replacement upgrade to high-efficiency (90%) boilers.	2.00	\$40,000.00	EA \$80,000
D3040	HVAC Distribution Systems	Original supply and return fans with VFD on supply only.	Upgrade to fan-wall technology for supply and return fans, adding VFD control to return air.	1.00	\$300,000.00	LS \$300,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 02/08/19

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## Opportunity Summary By Subsystem

City of Tacoma

Site: TPL Main

Total Site Opportunity Cost: \$2,258,997

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: TPL Main Library</b> <b>System: Fire Protection</b>						
<b>Total Cost: \$300,000</b>						
D4010	Fire Protection Sprinkler Systems					
	No fire sprinkler for most public areas.	Install fire sprinkler per code.	75,000.00	\$4.00	SF	\$300,000
<b>Facility: TPL Main Library</b> <b>System: Electrical</b>						
<b>Total Cost: \$1,120,089</b>						
D5010	Electrical Service and Distribution					
	Flat roof.	Install modest PV system, say 50 kW.	50.00	\$5,000.00	EA	\$250,000
D5020	Lighting and Branch Wiring					
	Fluorescent T8 with manual control.	Upgrade to LED with automatic control.	95,727.00	\$7.00	SF	\$670,089
D5090	Other Electrical Systems					
	No permanent standby or emergency power.	Install 300 kW standby generator to provide essential functions during prolonged power outage.	1.00	\$200,000.00	LS	\$200,000

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Facility Summary

City of Tacoma  
 TPL Moore Branch Library  
 TPL Moore Branch Library

215 S 56th St  
 Tacoma, WA 98408

Facility Size - Gross S.F. 15,487  
 Year Of Original Construction 1989  
 Facility Use Type Library  
 Construction Type Medium  
 # of Floors 1  
 Energy Source Electric  
 Year Of Last Renovation 1989  
 Historic Register No



FCI (BMAR/CRV)	0.06	Predicted Renewal Budget (20 yrs)	\$1,781,769
FCI (Bldg OD/CRV)	0.02	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$5,185,000	Building	\$98,217
BMAR (Backlog of Maintenance and Repair)	\$301,000	Infrastructure	\$84,863
Beginning Budget Year	2018	Total	\$183,080
		Opportunity Total Project Cost	\$319,536

## Facility Condition Summary

Overall good condition at this well designed, heavily used, larger branch library. Main entry air lock integrity is lost from removal on the inner sliding door to the main library area. Recent (2014) updates include selected landscape, interior finishes & furniture, new HVAC heat pumps, and other minor improvements, collectively keeping the Moore Branch Library relatively up-to-date.

# Facility Summary

City of Tacoma  
 TPL Moore Branch Library  
 TPL Moore Branch Library

215 S 56th St  
 Tacoma, WA 98408

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1989	1989	2	MAL 03/28/18	Partial basement with footings and concrete walls. No issues.
<b>A1030 Slab On Grade</b>	1989	1989	2	MAL 03/28/18	Slab on grade in basement and at main level. No issues observed.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1989	1989	2	MAL 03/28/18	Concrete walls in partial basement. No issues.
<b>B Shell</b>			<b>2.1</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1989	1989	2	MAL 03/28/18	Steel framed with pan deck and topping above basement. Slab on grade. No issues.
<b>B1020 Roof Construction</b>	1989	1989	2	MAL 03/28/18	Appears to consist of steel beams with open web trusses, deck with topping slab and roof top insulation. No issues.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1989	1989	2	MAL 03/28/18	Appears to consist of steel structure with metal framing infill, sheathing, brick facade, and punched windows. Some minor cracking at brick facade.
<b>B2020 Exterior Windows</b>	1989	1989	2	MAL 03/28/18	Aluminum windows with double glazing. Translucent coating on 50% of windows. Clerestory in main library. Brick sills on exterior with organic growth present. Laminate interior sills. South facade windows show signs of repair on exterior with white caulking. Type of sealant may not be appropriate type or method of repair.

# Facility Summary

City of Tacoma  
 TPL Moore Branch Library  
 TPL Moore Branch Library

215 S 56th St  
 Tacoma, WA 98408

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>2.1</b>		
<b>Exterior Closure</b>					
<b>B2020 Exterior Windows</b>					
					Water damage present at South windows interior gypsum jambs.
<b>B2030 Exterior Doors</b>					
	1989	1989	2	MAL 03/28/18	Hollow metal frames with hollow metal doors painted. Aluminum storefront with auto doors. No issues.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>					
	1989	1989	3	MAL 03/28/18	Membrane roofing at low slope roof. Standing seam metal roof at perimeter sloped area and clerestory. Integral gutters at metal roof sealant failing allowing water into soffits below. Maintenance required. Membrane roofing requires cleaning and further assessment. Inadequate venting at soffits.
<b>B3030 Projections</b>					
	1989	1989	3	MAL 03/28/18	Metal parapet cap flashing. No issues. Aluminum access ladder. Recommend adding wall flashing at ladder platform. Current condition causing excessive organic growth below platform which will damage brick facade.
<b>C Interiors</b>			<b>2.1</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>					
	1989	1989	2	MAL 03/28/18	Consists of metal framing and gypsum wall covering. No issues.
<b>C1020 Interior Doors</b>					
	1989	1989	2	MAL 03/28/18	Hollow metal frames with wood/hollow metal doors and lever hardware. No issues.
<b>C1030 Fittings</b>					
	1989	1989	2	MAL 03/28/18	PLam toilet partitions with stainless steel hardware and accessories. Laminate counters and back splash in restrooms. Damage at back

# Facility Summary

City of Tacoma  
 TPL Moore Branch Library  
 TPL Moore Branch Library

215 S 56th St  
 Tacoma, WA 98408

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.1</b>		
<b>Interior Construction</b>					
<b>C1030 Fittings</b>					
					splash and wall from soap dispenser. Minor chips at laminate toilet partitions. Laminate casework and counters in kitchen. No issues. Laminate built-ins and counters at office work area. No issues.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>					
	1989	1989	3	MAL 03/28/18	Concrete stairs with metal rail at exterior side of fire egress. Significant garbage accumulation at bottom of stairs. Steel pan treads with concrete in fill at basement stairs. No issue with stairs. Signs of water damage from past leak at top of stairs.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>					
	1989	1989	2	MAL 03/28/18	Painted gypsum at most walls. Tile at restroom stalls with tile base. Signs of water intrusion at South windows. Repair as required.
<b>C3020 Floor Finishes</b>					
	1989	1989	2	MAL 03/28/18	Carpet in entry and library and offices. Tile in restrooms. Vinyl in office kitchen/work area. No issues.
<b>C3030 Ceiling Finishes</b>					
	1989	1989	2	MAL 03/28/18	Painted gypsum. Grid tile system. Suspended wood ceiling. No issues.
<b>D Services</b>			<b>2.3</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>					
	1989	1989	3	DCS 03/28/18	Original plumbing fixtures with only minor work needed. Non-ADA drinking fountain. Stainless steel sink in break room. Economy deep sink in janitor closet.

# Facility Summary

City of Tacoma  
 TPL Moore Branch Library  
 TPL Moore Branch Library

215 S 56th St  
 Tacoma, WA 98408

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.3</b>		
<b>Plumbing</b>					
<b>D2020 Domestic Water Distribution</b>	1989	1989	2	DCS 03/28/18	Copper piping; A.O. Smith 50-gal electric DHW heater missing insulation base, seismic straps, expansion tank and recirc pump. Good pressure.
<b>D2030 Sanitary Waste</b>	1989	1989	2	DCS 03/28/18	Cast iron DW&V pipe with tested fixtures flushing & draining well; no issues reported.
<b>D2040 Rain Water Drainage</b>	1989	1989	2	DCS 04/01/18	Metal gutter & downspout to storm at metal roof; some from high to low roof; interior roof drains at flat roof with perimeter scupper overflow. Mostly in good condition, but more frequent cleaning of dirt and leaves is needed (minor maintenance). Square tube-steel downspouts may be difficult to clean if the become plugged-up.
<b>D2090 Other Plumbing Systems</b>	1989	1989	3	DCS 03/28/18	Basement sump pumps - one large storm drain, one small sanitary; both of somewhat unclear function, but appear operable; no issues reported.
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>	1989	1989	2	DCS 03/28/18	Forced air heat pump HVAC system with three apparent zones: 1) Main, 2) Meeting, and 3) Staff. Sheet metal and flex duct supply air and mostly open return air; all three systems have economizer and electric resistance back-up heat. Exhaust fan(s) for bathroom.
<b>D3050 Terminal and Package Units</b>	1989	2014	2	DCS 03/28/18	Trane split-Dx heat pumps replaced in 2014 including two 10-ton and one 7.5-ton systems. Outside condensing units need improved cleaning inside their fenced enclosure (minor maintenance). Due to vandalism in this neighborhood, all three CUs are protected from theft by an anchored and locked steel frame in addition to fenced security enclosure.
<b>D3060 Controls and Instrumentation</b>					

## Facility Summary

City of Tacoma  
 TPL Moore Branch Library  
 TPL Moore Branch Library

215 S 56th St  
 Tacoma, WA 98408

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.3</b>		
<b>HVAC</b>					
<b>D3060 Controls and Instrumentation</b>	1989	2008	2	DCS 03/28/18	Newer (2008) Alerton DDC control system with no issues reported.
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>	1989	1989	3	DCS 03/28/18	Fire extinguishers in cabinets, but no AEDs or first aid kits observed.
<b>D4090 Other Fire Protection Systems</b>	1989	1989	3	DCS 04/01/18	Small Halon system in book drop closet.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1989	1989	2	DCS 03/28/18	Siemen's 208V MDP with 600A capacity supplying SDP A1 for lighting and SDP A2 for Receptacles, at 225A and 100A capacity respectively. Panels are mostly full, with little or no space for additional loads. HVAC loads are served from the MDP.
<b>D5020 Lighting and Branch Wiring</b>	1989	1989	3	DCS 03/28/18	Most inside lighting is T8 or CFL and manual control through low-voltage control panel in workroom. Wiring and devices are original.
<b>D5032 Low Voltage Communication</b>	1989	1989	3	DCS 03/28/18	PA and telephone with no issues reported.
<b>D5037 Low Voltage Fire Alarm</b>	1989	2012	2	DCS 04/01/18	Newer (2012) Gamewell fire alarm system.
<b>D5038 Low Voltage Security</b>	1989	1989	3	DCS 03/28/18	Door and intruder detection system with Bosch control panel; multiple CCTV cameras, but system reportedly failed; but no issues reported, except outside (see Infrastructure).
<b>D5039 Low Voltage Data</b>	1989	1989	2	DCS 03/28/18	High-speed data including newer WiFi reportedly

# Facility Summary

City of Tacoma  
 TPL Moore Branch Library  
 TPL Moore Branch Library

215 S 56th St  
 Tacoma, WA 98408

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.3</b>		
<b>Electrical</b>					
<b>D5039 Low Voltage Data</b>					
					throughout with no issues. Fiber-optic service from Click Network.
<b>D5090 Other Electrical Systems</b>					
	1989	1989	3	DCS 03/28/18	Luminous exit signs good through 2030; battery egress lighting ballast - some may be weak.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>					
	1989	1989	2	DCS 03/28/18	Newer (2014) staff break-room kitchenette appliances.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>					
	1989	1989	3	DCS 03/28/18	Cabinetry in fair to good condition.

# Facility Summary

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City of Tacoma  
TPL Moore Branch Library  
Infrastructure

215 S 56th St  
Tacoma, WA 98408

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## Facility Condition Summary

Overall good condition at this well designed, heavily used, larger branch library. Main entry air lock integrity is lost from removal on the inner sliding door to the main library area. Recent (2014) updates include selected landscape, interior finishes & furniture, new HVAC heat pumps, and other minor improvements, collectively keeping the Moore Branch Library relatively up-to-date.



## Facility Summary

City of Tacoma  
 TPL Moore Branch Library  
 Infrastructure

215 S 56th St  
 Tacoma, WA 98408

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2020 Parking Lots</b>	1989	1989	3	MAL 03/28/18	Asphalt parking lot with concrete curbs. Curbs spalling, cracking, and broken. Some cracking in asphalt. Organic growth present at curb line.
<b>G2030 Pedestrian Paving</b>	1989	1989	3	MAL 03/28/18	Concrete sidewalks and ramps. Cracks and deterioration present from settling. Some area require replacement.
<b>G2040 Site Development</b>	1989	1989	3	MAL 03/28/18	Chain link fence at perimeter. Concrete pier with span steel site feature. Landscaping overgrown along fencing at parking lot.
<b>G2050 Landscaping</b>	1989	1989	2	MAL 03/28/18	Mature trees, shrubs, hedges, ground cover, and grass. Some shrubs in contact with building facade. Trim back to maintain 6' clearance. Landscaping overgrown and neglected along parking lot fence line and at exterior stairs.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1989	1989	2	DCS 03/28/18	City water with 2-inch meter; irrigation with Rain Bird control (panel in basement); no fire service; good pressure; small fire sprinkler in lobby is a branch line off the domestic water service.
<b>G3020 Sanitary Sewer</b>	1989	1989	2	DCS 03/28/18	City side sewer connection to alley at north; no issues reported.
<b>G3030 Storm Sewer</b>	1989	1989	3	DCS 03/30/18	Roof drains piped to storm; catch basin at SE corner of parking lot is nearly full with standing water; assume site storm conveyed to City storm at street; several landscape area catch basins; problematic area a deep recess to west.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>					

## Facility Summary

City of Tacoma  
 TPL Moore Branch Library  
 Infrastructure

215 S 56th St  
 Tacoma, WA 98408

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Electrical utilities</b>					
	1989	1989	2	DCS 03/30/18	Power underground from pole at alley to basement electrical panels; meter at back 208V service entry with Tacoma Power meter #000430 (81-211-989).
<b>G4020 Site Lighting</b>	1989	1989	3	DCS 03/28/18	Two HID head on poles in parking lot to east; lighted bollards are pedestrian paving to main entry; newer (about 2016) LED fixtures under soffit and canopy at main entry; uplight at flag pole; opportunity to upgrade HID to LED. Several fixtures reportedly stolen from wall at front of building.
<b>G4030 Site Communications and Security</b>	1989	1989	2	DCS 03/30/18	Telecom services underground to basement, including Click Network high-speed fiber-optic data; no issues reported. Little or no site security, with unclear function of any CCTV.

## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: TPL Moore Branch Library

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Infrastructure	Site Improvements	\$11,500	\$2,875	\$2,875	\$9,488	\$26,738
	Site Civil / Mechanical Utilities	\$25,000	\$6,250	\$6,250	\$20,625	\$58,125
	<b>Facility Total</b>	<b>\$36,500</b>	<b>\$9,125</b>	<b>\$9,125</b>	<b>\$30,113</b>	<b>\$84,863</b>
TPL Moore Branch Library	Exterior Closure	\$15,000	\$3,750	\$3,750	\$12,375	\$34,875
	Roofing	\$19,500	\$4,875	\$4,875	\$16,088	\$45,338
	Electrical	\$7,744	\$1,936	\$1,936	\$6,388	\$18,004
	<b>Facility Total</b>	<b>\$42,244</b>	<b>\$10,561</b>	<b>\$10,561</b>	<b>\$34,851</b>	<b>\$98,216</b>
	<b>Site Total</b>	<b>\$78,744</b>	<b>\$19,686</b>	<b>\$19,686</b>	<b>\$64,963</b>	<b>\$183,079</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: TPL Moore Branch Library

Total Observed Deficiency Repair Direct Cost : \$78,744

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: Infrastructure					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$11,500
System: Site Improvements					Total System Deficiency Repair Cost (Marked Up):				\$26,738
<b>Parking Lots</b>									
Concrete Curb	4	1	2018		1	\$6,500.00	LS	\$6,500	\$15,113
Parking curbs broken and deteriorating.				Replace as required					



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: TPL Moore Branch Library

Total Observed Deficiency Repair Direct Cost : \$78,744

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$11,500</b>	
<b>System: Site Improvements</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$26,738</b>	
<b>Pedestrian Paving</b>										
Concrete Sidewalk	4	2	2018		1	\$5,000.00	LS	\$5,000	\$11,625	

Concrete sidewalk cracking and deteriorating from settling

Replace as required.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: TPL Moore Branch Library

Total Observed Deficiency Repair Direct Cost : \$78,744

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
				Action					
<b>Facility: Infrastructure</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$25,000</b>
<b>System: Site Civil / Mechanical Utilities</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$58,125</b>
<b>Storm Sewer</b>									
Storm Drain	4	3	2018		1	\$25,000.00	LS	\$25,000	\$58,125

Problematic storm drain at deep site cut to west.

Install more robust french drain system partially uphill from buiding.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Moore Branch Library

Total Observed Deficiency Repair Direct Cost : \$78,744

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Deficiency</b>										
Facility: TPL Moore Branch Library				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$15,000	
System: Exterior Closure				Total System Deficiency Repair Cost (Marked Up):					\$34,875	
<b>Exterior Windows</b>										
Exterior Windows	4	3	2018		1	\$15,000.00	LS	\$15,000	\$34,875	

South facade windows show signs of water intrusion. Issue appears to be entering brick facade at facade indent above windows in brick. The lower sill of the indent is not flashed and is allowing water to migrate behind the brick. This water stops at the window brick lintel and runs sideways to the window jambs. Water appears to be entering the inside of the building at this point.

Flash brick indentation, remove rust from lintel, and repair interior gypsum.





# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: TPL Moore Branch Library

Total Observed Deficiency Repair Direct Cost : \$78,744

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: TPL Moore Branch Library</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$19,500</b>
<b>System: Roofing</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$45,338</b>
<b>Roof Coverings</b>									
Metal Gutters and Roof	4	1	2018		1	\$7,500.00	LS	\$7,500	\$17,438

Joint sealant at metal gutters failed allowing water intrusion.

Clean old sealant from metal joints and repair with flexible sealant. Remove rust from underside of gutters and paint as needed.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Moore Branch Library

Total Observed Deficiency Repair Direct Cost : \$78,744

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPL Moore Branch Library					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$19,500
System: Roofing					Total System Deficiency Repair Cost (Marked Up):				\$45,338
<b>Roof Coverings</b>									
Soffits	4	1	2018		1	\$12,000.00	LS	\$12,000	\$27,900

Signs of water intrusion from metal gutters, inadequate venting, and improper soffit material.

Repair metal gutters as recommended. Recommend installing additional strip vents to increase cross ventilation. Soffits should be repaired with Dens Glass material rated for exterior use.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Moore Branch Library

Total Observed Deficiency Repair Direct Cost : \$78,744

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: TPL Moore Branch Library				Total System Deficiency Repair Cost (Undiscounted/Unescalated):					\$7,744	
System: Electrical				Total System Deficiency Repair Cost (Marked Up):					\$18,004	
<b>Low Voltage Security</b>										
Security	4	1	2018		15,487	\$0.50	SF	\$7,744	\$18,004	

Older CCTV cameras installed, but reportedly system is failed and inoperable.

Replace older cameras; replace recording equipment; modernized cabling; return CCTV system to operable condition.





## Opportunity Summary By Subsystem

City of Tacoma

Site: TPL Moore Branch Library

Total Site Opportunity Cost: \$147,435

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Infrastructure</b> <b>System: Site Civil / Mechanical Utilities</b> <b>Total Cost: \$10,000</b>						
G3060	Fuel Distribution	All electric heat; assume gas available in vicinity.				
		Upgrade to natural gas service for primary heat source when HVAC system is next modernized.	1.00	\$10,000.00	LS	\$10,000
<b>Facility: TPL Moore Branch Library</b> <b>System: Fire Protection</b> <b>Total Cost: \$60,000</b>						
D4010	Fire Protection Sprinkler Systems	No fire sprinkler for occupied spaces.				
		Install fire sprinkler.	15,000.00	\$4.00	SF	\$60,000
<b>Facility: TPL Moore Branch Library</b> <b>System: Electrical</b> <b>Total Cost: \$77,435</b>						
D5020	Lighting and Branch Wiring	Fluorescent lighting with manual control.				
		LED lighting with automatic control.	15,487.00	\$5.00	SF	\$77,435

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Facility Summary

City of Tacoma  
 TPL Mottet Branch Library  
 TPL Mottet Branch Library Building

3523 East G St  
 Tacoma, WA 98404

Facility Size - Gross S.F. 5,025  
 Year Of Original Construction 1930  
 Facility Use Type Library  
 Construction Type Medium  
 # of Floors 1  
 Energy Source Electric  
 Year Of Last Renovation 2011  
 Historic Register No



FCI (BMAR/CRV)	0.05	Predicted Renewal Budget (20 yrs)	\$538,081
FCI (Bldg OD/CRV)		Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$1,698,000	<b>Building</b>	
BMAR (Backlog of Maintenance and Repair)	\$82,000	Infrastructure	\$17,438
Beginning Budget Year	2018	<b>Total</b>	
		<b>Opportunity Total Project Cost</b>	\$46,733

## Facility Condition Summary

Small one-story neighborhood library with partial basement; originally constructed in 1930 with addition and first modernization in 1988, with second modernization in 2011; mostly in good condition, excepting parking lot to east which is mostly occupied by temporary fencing and multiple shipping containers powered from the library building to maintain environmental conditions for reportedly historic microfilm records; additionally the basement is overly packed with storage materials reportedly overflowing from the downtown Main library.

# Facility Summary

City of Tacoma  
 TPL Mottet Branch Library  
 TPL Mottet Branch Library Building

3523 East G St  
 Tacoma, WA 98404

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1930	2011	2	MAL 03/27/18	Appears to consist of standard footings at original section and footings/basement walls at new section. No issues.
<b>A1030 Slab On Grade</b>	1930	2011	2	MAL 03/27/18	Slab on grade. No issues.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1930	2011	2	MAL 03/27/18	Concrete basement walls. No issues.
<b>B Shell</b>			<b>1.9</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1930	2011	2	MAL 03/27/18	Wood joists with wood sheathing. No issues
<b>B1020 Roof Construction</b>	1930	2011	2	MAL 03/27/18	Modified exposed beam trusses with car decking. No issues.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1930	2011	2	MAL 03/27/18	Wood framed with brick facade. No issues.
<b>B2020 Exterior Windows</b>	1930	2011	2	MAL 03/27/18	Wood windows. Double glazed. No issues.
<b>B2030 Exterior Doors</b>	1930	2011	2	MAL 03/27/18	Painted hollow metal with metal doors. No issues. Aluminum storefront with auto doors. No issues.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1930	2011	1	MAL 03/27/18	Built-up shingle roof. No issues.



## Facility Summary

City of Tacoma  
 TPL Mottet Branch Library  
 TPL Mottet Branch Library Building

3523 East G St  
 Tacoma, WA 98404

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.0</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1930	2011	2	MAL 03/27/18	Wood framed with gypsum wall board. No issues.
<b>C1020 Interior Doors</b>	1930	2011	2	MAL 03/27/18	Hollow metal frames with wood doors. Lever hardware. No issues.
<b>C1030 Fittings</b>	1930	2011	2	MAL 03/27/18	Stainless steel bathroom accessories. Wood reference desk. No issues.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1930	2011	2	MAL 03/27/18	Painted gypsum, wood paneling, and tile in restrooms. No issues.
<b>C3020 Floor Finishes</b>	1930	2011	2	MAL 03/27/18	Carpet in main area. Vinyl in restroom. No issues.
<b>C3030 Ceiling Finishes</b>	1930	2011	2	MAL 03/27/18	Painted gypsum and exposed car decking. No issues.
<b>D Services</b>			<b>2.2</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1930	2011	2	DCS 03/28/18	Modern porcelain bathroom fixtures with manual trim; dual-height (ADA) stainless steel drinking fountain; stainless steel sink at kitchenette.
<b>D2020 Domestic Water Distribution</b>	1930	2011	2	DCS 03/28/18	Copper piping; Bradford White (2011) 50-gal electric DHW heater with expansion tank but no recirc pump (not needed for this small facility). Hose bibs in boxes at exterior.
<b>D2030 Sanitary Waste</b>	1930	1988	2	DCS 03/28/18	Mostly 1988 modernization cast iron DW&V

# Facility Summary

City of Tacoma  
 TPL Mottet Branch Library  
 TPL Mottet Branch Library Building

3523 East G St  
 Tacoma, WA 98404

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			2.2		
<b>Plumbing</b>					
<b>D2030 Sanitary Waste</b>					pipng, but some newer (2011) ABS tied-into CI; tested fixtures flush & drain well with no issues reported.
<b>D2040 Rain Water Drainage</b>	1930	2011	2	DCS 03/28/18	Metal gutter & downspout piped to storm to west and to grade via transfer pipe through landscape retaining wall to east.
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>	1930	2011	2	DCS 03/28/18	All new HVAC system in 2011 with fully ducted galvanized sheet metal supply and return, including economizer; two systems - larger 7.5-ton in attic mezzanine with overhead supply & return, with supplemental 4-ton in basement with floor-level supply and return. No issues reported, but lack of zoning may result in unbalanced thermal comfort at times. Both systems appear to include economizer. No apparent exhaust for kitchenette.
<b>D3050 Terminal and Package Units</b>	1930	2011	2	DCS 03/28/18	Modern Trane split-Dx heat pumps with 7.5-ton air-side unit at attic mezzanine and 4-ton at basement; both with outside condensing units to east in fenced yard in need of cleaning. Older unit heater at entry, reportedly functional.
<b>D3060 Controls and Instrumentation</b>	1930	2011	2	DCS 03/28/18	Library standard Altreron DDC control system with no issues reported, noting no zoning - smaller spaces may not be comfortable during extreme weather.
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>	1930	2011	3	DCS 03/28/18	Fire extinguishers on hooks; no AED and/or first aid kit.
<b>D4090 Other Fire Protection Systems</b>					

# Facility Summary

City of Tacoma  
 TPL Mottet Branch Library  
 TPL Mottet Branch Library Building

3523 East G St  
 Tacoma, WA 98404

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.2</b>		
<b>Fire Protection</b>					
<b>D4090 Other Fire Protection Systems</b>	1930	2011	2	DCS 03/28/18	Halon system at book return closet.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1930	2011	3	DCS 03/28/18	Newer (2011) Square D main distribution panel (MDP) 120/240V, single-phase, with 600A capacity in basement in electrical closet, with five breakers to: 1) Panel 1 at 225A marked serving "addition", 2) Panel 2 at 200A marked serving "old library", 3) A 110A breaker marked for AHU-2, 4) A 100A breaker marked for phase converter No. 2, and 50 A 100A breaker marked for phase converter No. 1. Phase converted No. 3 appears to service the 7.5-ton condensing unit. The service is complicated primarily by the newer converters serving the conditioned temporary shipping containers in the parking lot (see G-series).
<b>D5020 Lighting and Branch Wiring</b>	1930	2011	3	DCS 03/28/18	Newer (2011) T5 fluorescent pendant and surface mount fixtures with mix of Watt-stopper lighting control panel for common areas and local occupancy sensors for smaller spaces. Branch wiring may be mostly 1988; some is surface-mounted, but reportedly adequate for service. Consider upgrade to LED lighting in 5 to 10 years.
<b>D5032 Low Voltage Communication</b>	1930	2011	2	DCS 03/28/18	Newer (2011) telephone with no issues reported.
<b>D5037 Low Voltage Fire Alarm</b>	1930	2011	2	DCS 03/28/18	Newer (2011) Gamewell E3 FACP with newer detection, pull-stations and notification devices.
<b>D5038 Low Voltage Security</b>	1930	2011	2	DCS 03/28/18	Door monitoring and intrusion detection; no CCTV; no issues reported. Book monitor at main door.
<b>D5039 Low Voltage Data</b>					

## Facility Summary

City of Tacoma  
 TPL Mottet Branch Library  
 TPL Mottet Branch Library Building

3523 East G St  
 Tacoma, WA 98404

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.2</b>		
<b>Electrical</b>					
<b>D5039 Low Voltage Data</b>	1930	2011	2	DCS 03/28/18	High-speed data from Click Network with building data drops and WiFi; no issues reported.
<b>D5090 Other Electrical Systems</b>	1930	2011	2	DCS 03/28/18	Battery ballast egress lighting and aging luminescent exit signs good to 2022. No standby or emergency power system.
<b>E Equipment and Furnishings</b>					
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>	1930	2011	2	DCS 03/27/18	Kitchenette appliances in good condition; but vent fan needed to exhaust cooking odors to outside.

## Facility Summary

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City of Tacoma  
TPL Mottet Branch Library  
Infrastructure

3523 East G St  
Tacoma, WA 98404

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## Facility Condition Summary

Small one-story neighborhood library with partial basement; originally constructed in 1930 with addition and first modernization in 1988, with second modernization in 2011; mostly in good condition, excepting parking lot to east which is mostly occupied by temporary fencing and multiple shipping containers powered from the library building to maintain environmental conditions for reportedly historic microfilm records; additionally the basement is overly packed with storage materials reportedly overflowing from the downtown Main library.

## Facility Summary

City of Tacoma  
 TPL Mottet Branch Library  
 Infrastructure

3523 East G St  
 Tacoma, WA 98404

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2020 Parking Lots</b>	1930	2011	3	MAL 03/27/18	Asphalt parking with concrete curbs. Some cracking present. Curbs have extensive organic growth. Cleaning recommended.
<b>G2030 Pedestrian Paving</b>	1930	2011	2	MAL 03/27/18	Concrete sidewalks, stairs, and ramp. Some organic growth. cleaning recommended.
<b>G2040 Site Development</b>	1930	2011	3	MAL 03/27/18	Site walls and exterior steps to basement. Metal railings at stairs and ramp. Exposed concrete walls have extensive organic growth which will damage concrete surfaces. Cleaning recommended. Site walls cracking in parking lot.
<b>G2050 Landscaping</b>	1930	2011	2	MAL 03/27/18	Mature trees, hedges, and grass. Recommend trimming trees and hedges back to prevent contact or overhang of structure.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1930	1988	3	DCS 03/28/18	City water to domestic and irrigation; no fire protection.
<b>G3020 Sanitary Sewer</b>	1930	1988	3	DCS 03/28/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1930	1988	3	DCS 03/28/18	Most site storm sheet flows to street and alley. Roof drains west piped to storm to City storm; roof drains east discharge indirectly to parking area curb at short retaining wall, then sheet flow to alley. Marginal storm drain at basement access pad.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1930	1988	3	DCS 03/28/18	Power from pole to NE in alley underground short distance to basement electrical closet with

## Facility Summary

City of Tacoma  
 TPL Mottet Branch Library  
 Infrastructure

3523 East G St  
 Tacoma, WA 98404

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>					
					Tacoma Power meter #34445 (39048719) at 120/240V, single phase. Power service is poor for temporary microfilm storage containers requiring single to three-phase power converters; this survey assumes this is a temporary situation to be eliminated in the near future; if not a new three-phase electrical service should be considered.
<b>G4020 Site Lighting</b>					
	1930	1988	3	DCS 03/28/18	HID heads on two aging, but fully functional aluminum poles at parking lot. Two newer LED wall sconces at main entry; and two historic lamp replicas in landscaped area near entry with LED lamps.
<b>G4030 Site Communications and Security</b>					
	1930	2011	2	DCS 03/28/18	Modern telecom services underground to basement back-panel mounted equipment, including high-speed fiber-optic data. Minimal site security. No issues reported.





# Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: TPL Mottet Branch Library

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Infrastructure	Site Civil / Mechanical Utilities	\$7,500	\$1,875	\$1,875	\$6,188	\$17,438
	<b>Facility Total</b>	<b>\$7,500</b>	<b>\$1,875</b>	<b>\$1,875</b>	<b>\$6,188</b>	<b>\$17,438</b>
	<b>Site Total</b>	<b>\$7,500</b>	<b>\$1,875</b>	<b>\$1,875</b>	<b>\$6,188</b>	<b>\$17,438</b>



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: TPL Mottet Branch Library

Total Observed Deficiency Repair Direct Cost : \$7,500

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$7,500</b>	
<b>System: Site Civil / Mechanical Utilities</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$17,438</b>	
<b>Storm Sewer</b>										
Storm Drain	4	2	2018		1	\$7,500.00	LS	\$7,500	\$17,438	

Roof drains to east are piped through landscape planter retaining wall discharging onto parking lot pavement creating eyesore, slipping hazard and eroding parking lot paving.

Construct proper roof drain water conveyance to storm drain.





## Opportunity Summary By Subsystem

City of Tacoma

Site: TPL Mottet Branch Library

Total Site Opportunity Cost: **\$20,100**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: TPL Mottet Branch Library Building</b> <b>System: Fire Protection</b>						
		<b>Total Cost: \$20,100</b>				
D4010	Fire Protection Sprinkler Systems	No fire sprinkler.				
		Install fire sprinkler.	5,025.00	\$4.00	SF	\$20,100

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Facility Summary

City of Tacoma  
 TPL South Tacoma Branch Library  
 TPL South Tacoma Branch Library Building

3411 S 56th St  
 Tacoma, WA 98409

Facility Size - Gross S.F. 7,475  
 Year Of Original Construction 1955  
 Facility Use Type Library  
 Construction Type Light  
 # of Floors 1  
 Energy Source Electric  
 Year Of Last Renovation 1989  
 Historic Register No



FCI (BMAR/CRV)	0.12	Predicted Renewal Budget (20 yrs)	\$849,692
FCI (Bldg OD/CRV)	0.04	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$2,273,000	<b>Building</b>	\$81,375
BMAR (Backlog of Maintenance and Repair)	\$276,000	<b>Infrastructure</b>	
Beginning Budget Year	2018	<b>Total</b>	
		<b>Opportunity Total Project Cost</b>	\$191,290

## Facility Condition Summary

Small, well-used one-story branch library with main library, staff area, small public meeting room, lobby with bathrooms, small basement, and small equipment service yard with basement access stairwell to south. Building in fair to good condition, with aged and worn finishes and HVAC equipment near end of life. Significant lobby and meeting room modification construction was underway at time of site visit (March 2018), with an interior finish face-lift planned for later 2018. New membrane roof covering and exterior wall siding was installed in 2017; however some 1988 double-glazed windows are damaged with seals failed and/or pellet-gun damage.

# Facility Summary

City of Tacoma

TPL South Tacoma Branch Library

TPL South Tacoma Branch Library Building

3411 S 56th St  
Tacoma, WA 98409

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1955	1989	2	MAL 03/28/18	Partial basement and partial crawlspace with concrete walls. No issues.
<b>A1030 Slab On Grade</b>	1955	1989	2	MAL 03/28/18	Slab on grade in basement area. Dirt floor with vapor barrier in crawlspace. No issues.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1955	1989	2	MAL 03/28/18	Concrete walls and stem walls. No issues.
<b>B Shell</b>			<b>2.0</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1955	1989	2	MAL 03/28/18	Wood framing with post/beam/floor joists and sheathing. No issues.
<b>B1020 Roof Construction</b>	1955	1989	2	MAL 03/28/18	Wood framed with post/beam construction and wood joists/sheathing. Appears to be a built-up framed roof on top of existing with 2X sleepers and sheathing. Assume installed with new roof for slope/crickets. No issues. Recommend providing attic space venting during future remodel. No venting of roof structure observed.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1955	1989	2	MAL 03/28/18	Wood framed with exterior sheathing. Brick and LP lap siding. Some minor cracking at brick corners. Recommend investigation during future remodel.
<b>B2020 Exterior Windows</b>	1955	1989	2	MAL 03/28/18	Aluminum windows. No issues.



# Facility Summary

City of Tacoma  
 TPL South Tacoma Branch Library  
 TPL South Tacoma Branch Library Building

3411 S 56th St  
 Tacoma, WA 98409

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>2.0</b>		
<b>Exterior Closure</b>					
<b>B2030 Exterior Doors</b>	1955	1989	3	MAL 03/28/18	Painted hollow metal doors and frames. Some doors missing sealant at brick/jamb interface. Aluminum storefront with auto door. Single glazed door. Recommend upgrading glass to double glazed.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1955	2015	1	MAL 03/28/18	Membrane roof. Excellent condition.
<b>B3030 Projections</b>	1955	1989	2	MAL 03/28/18	Parapet cap metal. No issues.
<b>C Interiors</b>			<b>2.8</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1955	1989	2	MAL 03/28/18	Wood framed with gypsum wall board. Areas of gypsum have been removed and replaced. Visible signs of work in progress on the library.
<b>C1020 Interior Doors</b>	1955	1989	3	MAL 03/28/18	Hollow metal frames with wood doors and lever hardware. Functioning properly. No issues.
<b>C1030 Fittings</b>	1955	1989	3	MAL 03/28/18	PLam toilet partitions and laminate counters in restrooms. Stainless steel grab bars and accessories. Laminate casework and counters in kitchen. Some chips visible. Function properly.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>	1955	1989	3	MAL 03/28/18	Exterior concrete steps in mechanical enclosure to basement. Cleaning recommended.
<b>Interior Finishes</b>					

## Facility Summary

City of Tacoma  
 TPL South Tacoma Branch Library  
 TPL South Tacoma Branch Library Building

3411 S 56th St  
 Tacoma, WA 98409

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.8</b>		
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1955	1989	3	MAL 03/28/18	Brick facade at entry. Tile walls in bathrooms. Painted gypsum in main area and office. Visible signs of work in process.
<b>C3020 Floor Finishes</b>	1955	1989	3	MAL 03/28/18	Tile in bathrooms and part of entry. Carpet in entry, library, and offices. Cracks in bathroom floor near floor drain. Carpet tiles missing in library along interior walls. Replace as required.
<b>C3030 Ceiling Finishes</b>	1955	1989	3	MAL 03/28/18	Grid and tile, glue on tiles, painted gypsum. Missing and stained tiles in main library. Replace as required.
<b>D Services</b>			<b>3.2</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1955	1989	3	DCS 03/28/18	Porcelain fixtures with manual trim in bathrooms. Dual-height (ADA) stainless steel drinking fountain. Stainless steel sink in staff break room. All aging but functional, with minor maintenance work needed for trim (faucets and flush valves).
<b>D2020 Domestic Water Distribution</b>	1955	1989	3	DCS	Copper piping with electric DHW.
<b>D2030 Sanitary Waste</b>	1955	1989	2	DCS 03/28/18	Cast iron DW&V with no issues reported.
<b>D2040 Rain Water Drainage</b>	1955	1989	2	DCS 03/28/18	Internal roof drains and overflow roof drains to north, and scuppers with downspouts conveyed to street to south; additional roof maintenance is needed to keep roof clean and especially roof drains clear of dirt, debris and leaves (minor maintenance cost).
<b>D2090 Other Plumbing Systems</b>					

# Facility Summary

City of Tacoma  
 TPL South Tacoma Branch Library  
 TPL South Tacoma Branch Library Building

3411 S 56th St  
 Tacoma, WA 98409

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.2</b>		
<b>Plumbing</b>					
<b>D2090 Other Plumbing Systems</b>	1955	1989	3	DCS 03/28/18	Basement sump and piping from 1955 construction, but newer (1989) sump or ejector pump with unclear function - minor maintenance needed to clean, service and test operability.
<b>HVAC</b>					
<b>D3040 HVAC Distribution Systems</b>	1955	1989	3	DCS 03/28/18	Force air heating & cooling system with sheet metal overhead supply air ductwork, and floor return air via crawl-space ductwork - return air ductwork needs cleaning; consider cleaning supply air ductwork at same time. Four heat pump furnaces; one large and three small - the large unit has economizer.
<b>D3050 Terminal and Package Units</b>	1955	1989	4	DCS 03/28/18	Four Trane heat pumps: 1) HP-1 is 7.5-ton, 2) HP-2 is 2-ton, 3) HP-3 is 2-ton, and 4) HP-4 is 2.5-ton; HP-1, 2 & 3 are dated 1988, 1987 & 1987 respectively, assumed installed for 1989 modernization; HP-4 is higher-efficiency XR13 installed in 2008 - both inside and outside units were replaced.
<b>D3060 Controls and Instrumentation</b>	1955	2008	2	DCS 03/28/18	Newer (2008) Alterton DDC control system; may need upgrade when HP-1, 2 & 3 are replaced; and further upgrade if economizer is added to the three smaller heat pump systems.
<b>Fire Protection</b>					
<b>D4030 Fire Protection Specialties</b>	1955	1989	3	DCS 03/28/18	Fire extinguishers; but no AED or first aid kit.
<b>D4090 Other Fire Protection Systems</b>	1955	1989	3	DCS 03/28/18	Halon system at book drop closet.
<b>Electrical</b>					
<b>D5010 Electrical Service and Distribution</b>	1955	1989	2	DCS 03/28/18	GE 208V with three panels: 1) Panel R with

## Facility Summary

City of Tacoma

TPL South Tacoma Branch Library

TPL South Tacoma Branch Library Building

3411 S 56th St  
Tacoma, WA 98409

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.2</b>		
<b>Electrical</b>					
<b>D5010</b>	<b>Electrical Service and Distribution</b>				225A serving lights & receptacles, 2) Panel P with 225A serving HVAC, and 3) Panel S with 125A serving safety and security; no issues reported.
<b>D5020</b>	<b>Lighting and Branch Wiring</b>	1955	1989	3	DCS 03/28/18 Fluorescent lighting with manual control.
<b>D5032</b>	<b>Low Voltage Communication</b>	1955	1989	3	DCS 03/28/18 Phone system; unclear PA; assume A/V will be added to modernized meeting room; no issues reported.
<b>D5037</b>	<b>Low Voltage Fire Alarm</b>	1955	1989	2	DCS 03/28/18 New (2012) Gamewell E3 fire alarm system in good condition.
<b>D5038</b>	<b>Low Voltage Security</b>	1955	1989	3	DCS 03/28/18 Door monitoring and intrusion detection but little or no CCTV.
<b>D5039</b>	<b>Low Voltage Data</b>	1955	1989	3	DCS 03/28/18 Server area in make-shift closet; but no issues reported.
<b>D5090</b>	<b>Other Electrical Systems</b>	1955	1989	3	DCS 03/28/18 Luminescent exit signs; battery egress lighting.

### E Equipment and Furnishings

#### Equipment

**E1010 Commercial Equipment**

1955 1989 3 DCS 03/28/18 Kitchenette appliances.

**Facility Summary**

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City of Tacoma  
TPL South Tacoma Branch Library  
Infrastructure

3411 S 56th St  
Tacoma, WA 98409

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**Facility Condition Summary**

# Facility Summary

City of Tacoma  
 TPL South Tacoma Branch Library  
 Infrastructure

3411 S 56th St  
 Tacoma, WA 98409

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2020 Parking Lots</b>	1955	1989	2	MAL 03/28/18	Asphalt parking lot with concrete curbs. Some staining present. Minimal cracking.
<b>G2030 Pedestrian Paving</b>	1955	1989	2	MAL 03/28/18	Concrete sidewalks and ramps. No issues.
<b>G2040 Site Development</b>	1955	1989	3	MAL 03/28/18	Mechanical equipment enclosure. Requires cleaning.
<b>G2050 Landscaping</b>	1955	1989	3	MAL 03/28/18	Minimal landscaping. Two small trees and light ground cover. No issues.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1955	1989	3	DCS 03/28/18	City water from meter at NW corner of building; irrigation present, may be a branch off domestic line; no fire service.
<b>G3020 Sanitary Sewer</b>	1955	1989	3	DCS 03/28/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1955	1989	3	DCS 03/28/18	Roof drains and parking area to City storm at street; no issues reported; noting discharge of south roof drains directly to street gutter via shallow conveyance pipe, but appeared working at time of survey.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1955	1989	2	DCS 03/28/18	Modern three-phase 208V power service from Tacoma Power with meter #303110 (10-343-020).
<b>G4030 Site Communications and Security</b>	1955	1989	3	DCS 04/02/18	Telecom from local purveyors including Click Network high-speed fiber-optic data. Little or no site electronic security.

## Facility Summary

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City of Tacoma  
TPL South Tacoma Branch Library  
Infrastructure

3411 S 56th St  
Tacoma, WA 98409

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### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

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#### Site Electrical utilities

G4030 Site Communications and Security





# Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: TPL South Tacoma Branch Library

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
TPL South Tacoma Branch Library Building	Interior Finishes	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	HVAC	\$30,000	\$7,500	\$7,500	\$24,750	\$69,750
	<b>Facility Total</b>	<b>\$35,000</b>	<b>\$8,750</b>	<b>\$8,750</b>	<b>\$28,875</b>	<b>\$81,375</b>
	<b>Site Total</b>	<b>\$35,000</b>	<b>\$8,750</b>	<b>\$8,750</b>	<b>\$28,875</b>	<b>\$81,375</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: TPL South Tacoma Branch Library

Total Observed Deficiency Repair Direct Cost : \$35,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPL South Tacoma Branch Library Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$5,000
System: Interior Finishes					Total System Deficiency Repair Cost (Marked Up):				\$11,625
<b>Wall Finishes</b>									
Gypsum Wall Board and Paint	4	3	2018		1	\$5,000.00	LS	\$5,000	\$11,625

Visible signs of work at walls/ceilings.

Finish work to bring to completion



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: TPL South Tacoma Branch Library

Total Observed Deficiency Repair Direct Cost : \$35,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPL South Tacoma Branch Library Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$30,000
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$69,750
<b>Terminal and Package Units</b>									
Heat pumps	4	3	2018		3	\$10,000.00	EA	\$30,000	\$69,750

Heat pumps HP-1, 2 & 3 near end of life.

Budget replacement prior to failure.



## Opportunity Summary By Subsystem

City of Tacoma

Site: TPL South Tacoma Branch Library

Total Site Opportunity Cost: \$87,525

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Infrastructure</b> <b>System: Site Electrical utilities</b> <span style="float: right;"><b>Total Cost: \$5,250</b></span>						
G4020	Site Lighting	No site lighting other than City street lights.				
		Install several LED sconces or wall-packs on south side to illuminate parking lot at night.	3.00	\$1,750.00	EA	\$5,250
<b>Facility: TPL South Tacoma Branch Library Building</b> <b>System: HVAC</b> <span style="float: right;"><b>Total Cost: \$15,000</b></span>						
D3040	HVAC Distribution Systems	No economizer for three smaller heat pump force air systems.				
		Upgrade to full economizer upon replacement of smaller heat pumps.	3.00	\$5,000.00	EA	\$15,000
<b>Facility: TPL South Tacoma Branch Library Building</b> <b>System: Fire Protection</b> <span style="float: right;"><b>Total Cost: \$29,900</b></span>						
D4010	Fire Protection Sprinkler Systems	No fire sprinkler.				
		Install fire sprinkler per code.	7,475.00	\$4.00	SF	\$29,900
<b>Facility: TPL South Tacoma Branch Library Building</b> <b>System: Electrical</b> <span style="float: right;"><b>Total Cost: \$37,375</b></span>						
D5020	Lighting and Branch Wiring	Fluorescent lighting with manual control.				
		LED lighting with automatic control.	7,475.00	\$5.00	SF	\$37,375

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

Print Date: 02/08/19

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## Facility Summary

City of Tacoma  
 TPL Swasey Branch Library  
 TPL Swasey Branch Library Building

7001 6th Ave  
 Tacoma, WA 98406

Facility Size - Gross S.F. 9,686  
 Year Of Original Construction 1960  
 Facility Use Type Library  
 Construction Type Light  
 # of Floors 1  
 Energy Source Electric  
 Year Of Last Renovation 1989  
 Historic Register No



FCI (BMAR/CRV)	0.11	Predicted Renewal Budget (20 yrs)	\$1,219,784
FCI (Bldg OD/CRV)	0.10	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$2,946,000	<b>Building</b>	\$303,529
BMAR (Backlog of Maintenance and Repair)	\$317,000	<b>Infrastructure</b>	\$116,250
Beginning Budget Year	2018	<b>Total</b>	\$419,779
		<b>Opportunity Total Project Cost</b>	\$90,080

## Facility Condition Summary

One-story steel framed building with wood in-fill, stucco exterior walls and flat roof, with double-glazed windows; portions of wall and windows facing east and south need permanent repair; roof needs replacement. MEP systems are aged, with all four heat pumps needing complete replacement in the near future.

# Facility Summary

City of Tacoma  
 TPL Swasey Branch Library  
 TPL Swasey Branch Library Building

7001 6th Ave  
 Tacoma, WA 98406

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.0</b>		
<b>Foundations</b>					
<b>A1030 Slab On Grade</b>	1960	1989	2	MAL 03/29/18	Slab on grade. No issues.
<b>B Shell</b>			<b>2.3</b>		
<b>Superstructure</b>					
<b>B1020 Roof Construction</b>	1960	1989	2	MAL 03/29/18	Steel post/beam construction, open web steel trusses with car decking and insulated roof system.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1960	1989	2	MAL 03/29/18	Steel post to beam construction with metal framing infill. Stucco facade. Minor cracks/chips in stucco. Organic growth along bottom of stucco from drip line splash from fascia detail. Recommend lowering level of soil at wall surface or continuing river rock around building.
<b>B2020 Exterior Windows</b>	1960	1989	4	MAL 03/29/18	Steel framed window with double glazed tempered glass. Steel frames in poor condition from long term water intrusion.
<b>B2030 Exterior Doors</b>	1960	1989	2	MAL 03/29/18	Hollow metal doors/frames. Aluminum storefront with auto doors. No issues.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1960	1989	4	MAL 03/29/18	Membrane roofing at end of life. Recommend replacing.
<b>B3030 Projections</b>	1960	1989	3	MAL 03/29/18	Parapet cap brake metal. Recommend painting.
<b>C Interiors</b>			<b>2.1</b>		



## Facility Summary

City of Tacoma  
 TPL Swasey Branch Library  
 TPL Swasey Branch Library Building

7001 6th Ave  
 Tacoma, WA 98406

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.1</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1960	1989	2	MAL 03/29/18	Appears to be metal framing with gypsum wallboard. Punched windows in the "Books for Sale" area.
<b>C1020 Interior Doors</b>	1960	1989	2	MAL 03/29/18	Painted hollow metal frames with painted metal slabs or clear wood slabs. Lever hardware and kick plates. Functioning properly.
<b>C1030 Fittings</b>	1960	1989	3	MAL 03/29/18	PLam bathroom stall partitions. PLam bathroom countertops. Some chips and signs of wear. Stainless steel toilet accessories and grab bars. No issues. PLam lockers in employee area.
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1960	1989	2	MAL 03/29/18	Painted gypsum wallboard in main area and offices. Tile wall covering in restrooms. No issues.
<b>C3020 Floor Finishes</b>	1960	1989	2	MAL 03/29/18	Carpet in main area, offices, and meeting room. Tile in bathrooms VCT tile in service corridor.
<b>C3030 Ceiling Finishes</b>	1960	1989	2	MAL 03/29/18	Painted gypsum and ACT ceiling tile system. No issues.
<b>D Services</b>			<b>3.2</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1960	1989	3	DCS 03/29/18	
<b>D2020 Domestic Water Distribution</b>	1960	1989	3	DCS 03/29/18	

## Facility Summary

City of Tacoma  
 TPL Swasey Branch Library  
 TPL Swasey Branch Library Building

7001 6th Ave  
 Tacoma, WA 98406

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.2</b>		
<b>Plumbing</b>					
<b>D2020</b>	<b>Domestic Water Distribution</b>				
<b>D2030</b>	<b>Sanitary Waste</b>				
	1960	1989	3	DCS 03/29/18	
<b>D2040</b>	<b>Rain Water Drainage</b>				
	1960	1989	3	DCS 03/29/18	
<b>HVAC</b>					
<b>D3040</b>	<b>HVAC Distribution Systems</b>				
	1960	1989	3	DCS 03/29/18	
<b>D3050</b>	<b>Terminal and Package Units</b>				
	1960	1989	4	DCS 03/29/18	Trane split-Dx heat pumps twinned CU-1A & B are 7.5-ton each half serving main library area; CU-2 is 5-ton serving public meeting and lobby areas; CU-3 is 2-ton serving staff area; all with economizer, back-up electric resistance auxiliary heat, and all near end of life.
<b>D3060</b>	<b>Controls and Instrumentation</b>				
	1960	2008	2	DCS 03/29/18	Newer (2008) Alarterton control system.
<b>Fire Protection</b>					
<b>D4030</b>	<b>Fire Protection Specialties</b>				
	1960	1989	3	DCS 03/29/18	Flre extinguishers in cabinets and on hooks with current inspections; but no AED or first aid kits.
<b>D4090</b>	<b>Other Fire Protection Systems</b>				
	1960	1989	3	DCS 03/29/18	Halon for book return closet.
<b>Electrical</b>					
<b>D5010</b>	<b>Electrical Service and Distribution</b>				
	1960	1989	3	DCS 03/29/18	Original MDP is obsolete; distribution panels are newer (1989).
<b>D5020</b>	<b>Lighting and Branch Wiring</b>				
	1960	1989	3	DCS 03/29/18	

## Facility Summary

City of Tacoma  
 TPL Swasey Branch Library  
 TPL Swasey Branch Library Building

7001 6th Ave  
 Tacoma, WA 98406

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>3.2</b>		
<b>Electrical</b>					
<b>D5020</b>	<b>Lighting and Branch Wiring</b>				
<b>D5032</b>	<b>Low Voltage Communication</b>				
	1960	1989	3	DCS 03/29/18	
<b>D5037</b>	<b>Low Voltage Fire Alarm</b>				
	1960	2012	2	DCS 03/29/18	Newer (2012) Gamewell system.
<b>D5038</b>	<b>Low Voltage Security</b>				
	1960	1989	3	DCS 03/29/18	
<b>D5039</b>	<b>Low Voltage Data</b>				
	1960	1989	3	DCS 03/29/18	
<b>D5090</b>	<b>Other Electrical Systems</b>				
	1960	1989	3	DCS 03/29/18	
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010</b>	<b>Commercial Equipment</b>				
	1960	1989	3	DCS 03/29/18	
<b>Furnishings</b>					
<b>E2010</b>	<b>Fixed Furnishings</b>				
	1960	1989	3	DCS 03/29/18	

**Facility Summary**

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City of Tacoma  
TPL Swasey Branch Library  
Infrastructure

7001 6th Ave  
Tacoma, WA 98406

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**Facility Condition Summary**

## Facility Summary

City of Tacoma  
 TPL Swasey Branch Library  
 Infrastructure

7001 6th Ave  
 Tacoma, WA 98406

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2020 Parking Lots</b>	1960	1989	2	MAL 03/29/18	Asphalt paving with concrete curbs. Some cracking and alligating near storm drains. Appears to have sufficient drainage with no standing water. Organic growth present on asphalt and curbs. Cleaning recommended. Concrete curbs broken and/or missing at a number of areas. Repair as need.
<b>G2030 Pedestrian Paving</b>	1960	1989	2	MAL 03/29/18	Concrete sidewalks. Cleaning recommended.
<b>G2040 Site Development</b>	1960	1989	3	MAL 03/29/18	Heat pump enclosure with chain link fence and concrete equipment pad. Grass inside enclosure overgrown. Significant organic debris around mechanical units. Cleaning of area recommended.
<b>G2050 Landscaping</b>	1960	1989	3	MAL 03/29/18	Mature trees, shrubs, ground cover, and grass. Moss present in most areas. Soils and moss in contact with exterior finish. Recommend treating moss growth and removing soil as needed.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1960	1989	3	DCS 03/29/18	City water with 1.5-inch meter, with apparent branch to 1-inch RPBP to irrigation; no fire service.
<b>G3020 Sanitary Sewer</b>	1960	1989	3	DCS 04/02/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1960	1989	3	DCS 03/29/18	Roof drains to storm; site storm to City; periodic flooding at north side of site.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1960	1960	4	DCS 03/29/18	Original site electrical service past useful life with

# Facility Summary

City of Tacoma  
 TPL Swasey Branch Library  
 Infrastructure

7001 6th Ave  
 Tacoma, WA 98406

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

##### G4010 Electrical Distribution

obsolete metering from two Tacoma Power meters: 1) "Power" meter #304649 for HVAC equipment and 2) "Lighting" for lighting and receptacles; somewhat unclear but both may be 208V, 3-phase.

##### G4020 Site Lighting

1960 1989 3

DCS 03/29/18

Two HID fixtures on metal poles; several HID wall-packs.

##### G4030 Site Communications and Security

1960 1989 3

DCS 03/29/18

Telecom services from purveyors including Click Network fiber-optic high-speed data. Little or no site electronic security.

## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: TPL Swasey Branch Library

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
Infrastructure	Site Improvements	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	Site Civil / Mechanical Utilities	\$30,000	\$7,500	\$7,500	\$24,750	\$69,750
	Site Electrical utilities	\$15,000	\$3,750	\$3,750	\$12,375	\$34,875
	<b>Facility Total</b>	<b>\$50,000</b>	<b>\$12,500</b>	<b>\$12,500</b>	<b>\$41,250</b>	<b>\$116,250</b>
TPL Swasey Branch Library Building	Exterior Closure	\$19,500	\$4,875	\$4,875	\$16,088	\$45,338
	Roofing	\$63,050	\$15,763	\$15,763	\$52,016	\$146,591
	HVAC	\$48,000	\$12,000	\$12,000	\$39,600	\$111,600
	<b>Facility Total</b>	<b>\$130,550</b>	<b>\$32,638</b>	<b>\$32,638</b>	<b>\$107,704</b>	<b>\$303,529</b>
	<b>Site Total</b>	<b>\$180,550</b>	<b>\$45,138</b>	<b>\$45,138</b>	<b>\$148,954</b>	<b>\$419,779</b>





**Detailed Assessment - Observed Deficiencies 2018 - 2023**

City of Tacoma  
 Site: TPL Swasey Branch Library

Total Observed Deficiency Repair Direct Cost : \$180,550

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
<b>Facility: Infrastructure</b>				<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>					<b>\$5,000</b>	
<b>System: Site Improvements</b>				<b>Total System Deficiency Repair Cost (Marked Up):</b>					<b>\$11,625</b>	
<b>Landscaping</b>										
Landscaping	4	1	2018		1	\$5,000.00	LS	\$5,000	\$11,625	
<b>Moss and soil in contact with building facade.</b>				<b>Remove moss and soil as needed.</b>						



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: TPL Swasey Branch Library

Total Observed Deficiency Repair Direct Cost : \$180,550

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
				Action						
<b>Facility: Infrastructure</b>									<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated): \$30,000</b>	
<b>System: Site Civil / Mechanical Utilities</b>									<b>Total System Deficiency Repair Cost (Marked Up): \$69,750</b>	
<b>Storm Sewer</b>										
Storm Drain	4	2	2018		1	\$30,000.00	LS	\$30,000	\$69,750	

Flooding at north side of site.

Install new perimeter storm drain system.



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
Site: TPL Swasey Branch Library

Total Observed Deficiency Repair Direct Cost : \$180,550

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: Infrastructure</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$15,000</b>
<b>System: Site Electrical utilities</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$34,875</b>
<b>Electrical Distribution</b>									
Electrical service	4	3	2018		1	\$15,000.00	LS	\$15,000	\$34,875

Original 1960 electrical service with separate meters for Power and Lighting.

Replace with newer feeders and one meter to reduce metering charges and simplify service. Requires companion work to replace main switchboard (see D-series).



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: TPL Swasey Branch Library

Total Observed Deficiency Repair Direct Cost : \$180,550

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPL Swasey Branch Library Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$19,500
System: Exterior Closure					Total System Deficiency Repair Cost (Marked Up):				\$45,338
<b>Exterior Windows</b>									
Exterior Windows	4	1	2018		1	\$19,500.00	LS	\$19,500	\$45,338

Steel windows rusting on exterior and interior of building. Replace window system with weather resistant system



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: TPL Swasey Branch Library

Total Observed Deficiency Repair Direct Cost : \$180,550

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPL Swasey Branch Library Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$63,050
System: Roofing					Total System Deficiency Repair Cost (Marked Up):				\$146,591
<b>Roof Coverings</b>									
Membrane Roofing	4	1	2018		9,700	\$6.50	SF	\$63,050	\$146,591

Membrane roof at end of life.

Replace with associated flashings.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: TPL Swasey Branch Library

Total Observed Deficiency Repair Direct Cost : \$180,550

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost	
<b>Deficiency</b>				<b>Action</b>						
Facility: TPL Swasey Branch Library Building					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$48,000	
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$111,600	
<b>Terminal and Package Units</b>										
Heat pumps	4	3	2018		4	\$12,000.00	EA	\$48,000	\$111,600	

Heat pumps approaching end of life.

Budget for replacement prior to failure.



## Opportunity Summary By Subsystem

City of Tacoma

Site: TPL Swasey Branch Library

Total Site Opportunity Cost: **\$38,744**

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: TPL Swasey Branch Library Building</b> <b>System: Fire Protection</b>						
		<b>Total Cost: \$38,744</b>				
D4010	Fire Protection Sprinkler Systems	No fire sprinkler.				
		Install fire sprinkler per code.	9,686.00	\$4.00	SF	\$38,744

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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## Facility Summary

City of Tacoma  
 TPL Wheelock Branch Library  
 TPL Wheelock Branch Library

3722 N 26th St  
 Tacoma, WA 98406

Facility Size - Gross S.F. 16,932  
 Year Of Original Construction 1927  
 Facility Use Type Library  
 Construction Type Medium  
 # of Floors 1  
 Energy Source Electric  
 Year Of Last Renovation 1996  
 Historic Register No



FCI (BMAR/CRV)	0.08	Predicted Renewal Budget (20 yrs)	\$2,150,071
FCI (Bldg OD/CRV)	0.05	Observed Deficiencies (6 yrs)	
Current Replacement Value (CRV)	\$5,669,000	Building	\$267,375
BMAR (Backlog of Maintenance and Repair)	\$442,000	Infrastructure	
Beginning Budget Year	2018	Total	
		Opportunity Total Project Cost	\$412,428

## Facility Condition Summary

Original smaller 1927 McCormick Library to south with partial basement, fully modernized in 1996. Larger one-story 1988 Wheelock addition to north, with updated finishes and other improvements in 1996. Mostly in good condition, but some 1996 finishes are wearing, and HVAC water-source heat pumps need replacement soon.

# Facility Summary

City of Tacoma  
 TPL Wheelock Branch Library  
 TPL Wheelock Branch Library

3722 N 26th St  
 Tacoma, WA 98406

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>A Substructure</b>			<b>2.0</b>		
<b>Foundations</b>					
<b>A1010 Standard Foundations</b>	1927	1986	2	MAL 03/29/18	Original structure has a basement with concrete walls, footings, and slab on grade. Addition foundation has footings, stem walls, and slab on grade. No issues.
<b>A1030 Slab On Grade</b>	1927	1986	2	MAL 03/29/18	Slab on grade in addition. No issues.
<b>Basements</b>					
<b>A2020 Basement Walls</b>	1927	1986	2	MAL 03/29/18	Basement walls at original section of library. No issues.
<b>B Shell</b>			<b>2.0</b>		
<b>Superstructure</b>					
<b>B1010 Floor Construction</b>	1927	1986	2	MAL 03/29/18	Slab on grade on newer section. Wood framed with sheathing at original. No issues.
<b>B1020 Roof Construction</b>	1927	1986	2	MAL 03/29/18	Wood framed w/wood sheathing. Open web trusses. Modified exposed beam trusses. No issues.
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>	1927	1986	2	MAL 03/29/18	Wood framed/insulation/plywood. No issues. Brick and stucco facade. No issues. Some cleaning required at bottom of stucco area.
<b>B2020 Exterior Windows</b>	1927	1986	3	MAL 03/29/18	Aluminum frames with double glazed glass in new area Wood windows with double glazed glass in original area. 4 units have failed seals. Requires replacement.
<b>B2030 Exterior Doors</b>					

# Facility Summary

City of Tacoma  
 TPL Wheelock Branch Library  
 TPL Wheelock Branch Library

3722 N 26th St  
 Tacoma, WA 98406

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>B Shell</b>			<b>2.0</b>		
<b>Exterior Closure</b>					
<b>B2030 Exterior Doors</b>	1927	1986	2	MAL 03/29/18	Painted hollow metal frames with hollow metal slabs. Wood frames with wood slabs at original building. Aluminum storefront with auto doors at main entry. No issues.
<b>Roofing</b>					
<b>B3010 Roof Coverings</b>	1927	2016	1	MAL 03/29/18	Membrane roofing. New condition. No issues.
<b>B3030 Projections</b>	1927	1996	1	MAL 03/29/18	Metal parapet cap. No issues
<b>C Interiors</b>			<b>2.0</b>		
<b>Interior Construction</b>					
<b>C1010 Partitions</b>	1927	1996	2	MAL 03/29/18	Wood framed partitions with gypsum wall board. Minor cracking in newer area. Larger cracks present in older section of building. Appear to be from prior water leaks. Repair recommended.
<b>C1020 Interior Doors</b>	1927	1996	2	MAL 03/29/18	Hollow metal frames with wood slabs and lever hardware. No issues.
<b>C1030 Fittings</b>	1927	1996	2	MAL 03/29/18	PLam enclosures in bathrooms. Stainless steel grab bars and toilet accessories. Laminate counter tops in bathrooms. Electric hand dryers and towel dispensers. No issues. Laminate casework and counter top in kitchen. No issues.
<b>Staircases</b>					
<b>C2010 Stair Construction</b>	1927	1996	2	MAL 03/29/18	Concrete stairs and ramp at exterior. Wood stairs to basement level (used by staff only)

# Facility Summary

City of Tacoma  
 TPL Wheelock Branch Library  
 TPL Wheelock Branch Library

3722 N 26th St  
 Tacoma, WA 98406

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>C Interiors</b>			<b>2.0</b>		
<b>Interior Finishes</b>					
<b>C3010 Wall Finishes</b>	1927	1996	2	MAL 03/29/18	Painted gypsum. Fabric wall coverings. Walls show marks and minor damage from use. Normal maintenance recommended. Exterior walls at windows and corners show signs of minor settling. Repair recommended.
<b>C3020 Floor Finishes</b>	1927	1996	2	MAL 03/29/18	Carpet in main areas. Tile in bathrooms. Vinyl in staff areas. No issues.
<b>C3030 Ceiling Finishes</b>	1927	1996	2	MAL 03/29/18	Painted gypsum. T-grid ceiling tile. No issues.
<b>D Services</b>			<b>2.7</b>		
<b>Plumbing</b>					
<b>D2010 Plumbing Fixtures</b>	1927	1996	3	DCS 03/29/18	Porcelain and stainless steel with manual trim; no issues reported.
<b>D2020 Domestic Water Distribution</b>	1927	1996	2	DCS 03/29/18	Copper piping with GE 50-gal electric DHW heater with recirc pump, but missing expansion tank (minor maintenance to add); no issues reported.
<b>D2030 Sanitary Waste</b>	1927	1996	2	DCS 03/29/18	Cast iron DW&V with no issues reported; most tested fixtures flush & drain well.
<b>D2040 Rain Water Drainage</b>	1927	1996	2	DCS 03/29/18	Roof drains to storm with no issues reported; mix of interior roof drains to west, scupper & downspout to east, and metal gutter & downspout to south (at historic portion). Caps are missing at downspout connections to grade (minor maintenance to replace).
<b>D2090 Other Plumbing Systems</b>	1927	1996	4	DCS 03/29/18	Sump pump needs service and/or replacement.

# Facility Summary

City of Tacoma  
 TPL Wheelock Branch Library  
 TPL Wheelock Branch Library

3722 N 26th St  
 Tacoma, WA 98406

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			2.7		
<b>Plumbing</b>					
D2090 Other Plumbing Systems					
<b>HVAC</b>					
D3020 Heat Generating Systems					
	1927	1996	3	DCS 03/29/18	CAM-brand 108 kW electric boiler supplying heat to condenser water loop; loop includes two pumps, one 3-hp and one 5-hp, constant speed with opportunity to upgrade to variable speed.
D3030 Cooling Generating Systems					
	1927	1996	3	DCS 03/29/18	BAC closed-loop fluid cooler for WSHP condenser water loop in fair condition, with recently replaced fan motor and basin re-circulation pump; blow-down sump appears to pump down to basement mechanical room sump, depositing sludge there.
D3040 HVAC Distribution Systems					
	1927	1996	2	DCS 03/29/18	Forced air heating & cooling system with four ducted WSHPs with economizer for north Wheelock building; five WSHP unit ventilators for south McCormick building. All WSHPs approaching end of life. Larger WSHPs are all Enercon brand: HP-1 is 10-ton, HP-2 is 2-ton, HP-3 is 8.5-ton, and HP-4 is 8.5-ton. Unit ventilator WSHPs include three larger about 2.5-ton each, and two smaller, about 1-ton each.
D3050 Terminal and Package Units					
	1927	1996	3	DCS 03/29/18	Miscellaneous electric heaters.
D3060 Controls and Instrumentation					
	1927	2008	2	DCS 03/29/18	Newer (2008) Alertton DDC control system.
<b>Fire Protection</b>					
D4030 Fire Protection Specialties					
	1927	1996	3	DCS 03/29/18	Fire extinguishers in cabinets; no AED or fire aid kits.
D4090 Other Fire Protection Systems					
	1927	1996	3	DCS 03/29/18	Halon in book return closet.

# Facility Summary

City of Tacoma  
 TPL Wheelock Branch Library  
 TPL Wheelock Branch Library

3722 N 26th St  
 Tacoma, WA 98406

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>D Services</b>			<b>2.7</b>		
<b>Fire Protection</b>					
D4090 Other Fire Protection Systems					
<b>Electrical</b>					
D5010 Electrical Service and Distribution					
	1927	1988	3	DCS 03/29/18	Westinghouse 1988 main distribution panel at 208V, 3-phase, 4-wire with 1,200A capacity and six breakers: Electric Boiler at 400A, P1 @ 400A, P2 @ 200A, P3 @ 300A, P4 @ 100A, and L @ 100A; aging but fully functional with no issues reported - however due to age infrared thermography is suggested.
D5020	1927	1996	3	DCS 03/29/18	T8 fluorescent with aging low voltage controls, but no issues reported.
D5032	1927	1996	2	DCS 03/29/18	Telephone and PA with no issues reported.
D5037	1927	2012	2	DCS 03/29/18	New (2012) Gamewell fire alarm system.
D5038	1927	1996	3	DCS 03/29/18	Intrusion detection and door monitoring; little or no CCTV; no card-key access.
D5039	1927	2005	2	DCS 03/29/18	High-speed data to computer terminals in multiple locations via cable through in floor walker-duct; WiFi throughout.
D5090	1927	1996	3	DCS 03/29/18	Battery ballast or packs in ceilings - service needed; luminescent exit signs; no standby power.
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
E1010 Commercial Equipment					

## Facility Summary

City of Tacoma  
 TPL Wheelock Branch Library  
 TPL Wheelock Branch Library

3722 N 26th St  
 Tacoma, WA 98406

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>E Equipment and Furnishings</b>			<b>3.0</b>		
<b>Equipment</b>					
<b>E1010 Commercial Equipment</b>					
	1927	1996	3	DCS 03/29/18	One staff kitchenette with wearing appliances; one event catering kitchen with older, but all but un-used appliances.
<b>Furnishings</b>					
<b>E2010 Fixed Furnishings</b>					
	1927	1996	3	DCS 03/29/18	Minor wear & tear.

**Facility Summary**

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City of Tacoma  
TPL Wheelock Branch Library  
Infrastructure

3722 N 26th St  
Tacoma, WA 98406

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**Facility Condition Summary**



## Facility Summary

City of Tacoma  
 TPL Wheelock Branch Library  
 Infrastructure

3722 N 26th St  
 Tacoma, WA 98406

### Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
<b>G Sitework</b>					
<b>Site Improvements</b>					
<b>G2020 Parking Lots</b>	1927	1988	2	MAL 03/29/18	Asphalt parking lot with concrete curbs. Minimal wear. Striping in good condition. No signs of standing water. No issues.
<b>G2030 Pedestrian Paving</b>	1927	1988	2	MAL 03/29/18	Concrete sidewalks. Some cleaning required.
<b>G2040 Site Development</b>	1927	1988	2	MAL 03/29/18	Site walls and entry feature of concrete/brick. Brick in good condition but requires cleaning.
<b>G2050 Landscaping</b>	1927	1988	2	MAL 03/29/18	Mature trees, hedges, shrubs, and ground cover in good condition. Some areas have hedges and shrubs in contact with building facade. Recommend trimming back to maintain a 6" gap.
<b>Site Civil / Mechanical Utilities</b>					
<b>G3010 Water Supply</b>	1927	1988	3	DCS 03/29/18	City water service with 1.5-inch meter - good pressure; with irrigation but no fire service.
<b>G3020 Sanitary Sewer</b>	1927	1988	2	DCS 03/29/18	City sewer with no issues reported.
<b>G3030 Storm Sewer</b>	1927	1988	2	DCS 03/29/18	Downspouts to storm; parking lot and some landscape areas with catch basins piped to City storm at street.
<b>Site Electrical utilities</b>					
<b>G4010 Electrical Distribution</b>	1927	1988	2	DCS 03/29/18	Tacoma Power meter #002754 at 208V underground from pole to pad-mounted transformer outside main electrical room on east side.
<b>G4020 Site Lighting</b>	1927	1988	3	DCS 03/29/18	Parking lot HID fixtures on metal poles - some

# Facility Summary

City of Tacoma  
 TPL Wheelock Branch Library  
 Infrastructure

3722 N 26th St  
 Tacoma, WA 98406

## Facility Components

Systems	Original System Date	Last Major System Renew.	Cond. Scores	Surveyor/ Survey Date	Comments
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### G Sitework

#### Site Electrical utilities

**G4020 Site Lighting**

damaged. Some wall packs and decorative lighting in fair to good condition; opportunity to upgrade to LED lamps or fixtures.

**G4030 Site Communications and Security**

1927 1988 2

DCS 03/29/18

Telecom services from purveyors to demarks at main electrical room, including high-speed Click fiber-optic data service. Minimal site security with opportunity to upgrade to new Library standard.

## Deficiency Repair Cost Markups By System

2018 - 2023

City of Tacoma

Site: TPL Wheelock Branch Library

Facility	System	Direct Construction Cost	Contingency 25%	Contractor's OH & P 20%	Project Soft Cost 55%	Total Project Cost
TPL Wheelock Branch Library	Exterior Closure	\$5,000	\$1,250	\$1,250	\$4,125	\$11,625
	HVAC	\$110,000	\$27,500	\$27,500	\$90,750	\$255,750
	<b>Facility Total</b>	<b>\$115,000</b>	<b>\$28,750</b>	<b>\$28,750</b>	<b>\$94,875</b>	<b>\$267,375</b>
	<b>Site Total</b>	<b>\$115,000</b>	<b>\$28,750</b>	<b>\$28,750</b>	<b>\$94,875</b>	<b>\$267,375</b>



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: TPL Wheelock Branch Library

Total Observed Deficiency Repair Direct Cost : \$115,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
<b>Facility: TPL Wheelock Branch Library</b>					<b>Total System Deficiency Repair Cost (Undiscounted/Unescalated):</b>				<b>\$5,000</b>
<b>System: Exterior Closure</b>					<b>Total System Deficiency Repair Cost (Marked Up):</b>				<b>\$11,625</b>
<b>Exterior Windows</b>									
Wood Windows	4	1	2018		1	\$5,000.00	EA	\$5,000	\$11,625

Failed glazing units Replace glazing.



# Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: TPL Wheelock Branch Library

Total Observed Deficiency Repair Direct Cost : \$115,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPL Wheelock Branch Library					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$110,000
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$255,750
<b>HVAC Distribution Systems</b>									
Water Source Heat Pumps	4	5	2018		5	\$10,000.00	EA	\$50,000	\$116,250
WSHP unit ventilators near end of life.				Replace with new.					



## Detailed Assessment - Observed Deficiencies 2018 - 2023

City of Tacoma  
 Site: TPL Wheelock Branch Library

Total Observed Deficiency Repair Direct Cost : \$115,000

Material	Cond.	Material Useful Life	Survey Year	Condition Notes	Qty	Unit Cost	Unit	Direct Constr. Cost	Marked Up Cost
<b>Deficiency</b>				<b>Action</b>					
Facility: TPL Wheelock Branch Library					Total System Deficiency Repair Cost (Undiscounted/Unescalated):				\$110,000
System: HVAC					Total System Deficiency Repair Cost (Marked Up):				\$255,750
<b>HVAC Distribution Systems</b>									
Water Source Heat Pumps	4	5	2018		4	\$15,000.00	EA	\$60,000	\$139,500

Ducted WSHPs approaching end of life. Replace with new.







## Opportunity Summary By Subsystem

City of Tacoma

Site: TPL Wheelock Branch Library

Total Site Opportunity Cost: \$187,388

Subsystem	Opportunity	Action	Qty	Unit Cost	Unit	Cost
<b>Facility: Infrastructure</b> <b>System: Site Civil / Mechanical Utilities</b> <b>Total Cost: \$10,000</b>						
G3060	Fuel Distribution	All electric facility with natural gas in vicinity.				
		Upgrade to lower cost natural gas heat for boiler.	1.00	\$10,000.00	LS	\$10,000
<b>Facility: TPL Wheelock Branch Library</b> <b>System: HVAC</b> <b>Total Cost: \$25,000</b>						
D3010	Energy Supply	Electric boiler.				
		Upgrade to natural gas upon replacement.	1.00	\$25,000.00	LS	\$25,000
<b>Facility: TPL Wheelock Branch Library</b> <b>System: Fire Protection</b> <b>Total Cost: \$67,728</b>						
D4010	Fire Protection Sprinkler Systems	No fire sprinkler.				
		Install fire sprinkler per code.	16,932.00	\$4.00	SF	\$67,728
<b>Facility: TPL Wheelock Branch Library</b> <b>System: Electrical</b> <b>Total Cost: \$84,660</b>						
D5020	Lighting and Branch Wiring	Fluorescent lighting with manual control via low voltage relay panel.				
		LED lighting with automatic control.	16,932.00	\$5.00	SF	\$84,660

Note: Cost estimates shown are raw construction costs and do not include any mark-ups or escalation.

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