

CITY OF TACOMA

Puyallup Ave and E 26th Street

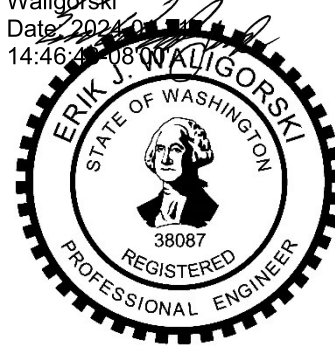
Project No.: 10964A00
Date: January 31, 2024
Prepared By: Keith Rogers, PE
Reviewed By: Erik Waligorski, PE
Subject: Task 8.2 - Basis of AACE Class 4 Cost Estimate for Construction of the Proposed Downstream Storm and Sanitary Piping Improvements, Including Task 7.1 Pipe Rehab Improvements

Digitally signed by Erik J.

Waligorski

Date: 2024.01.31

14:46:47 -0800



1.0 BACKGROUND AND PURPOSE

The D-to-M Streets Track and Signal Project was completed by Sound Transit (ST) as part of a larger expansion of a regional rail line within western Washington. This 19-acre portion of the expansion reconstructed City of Tacoma (City) streets from South 'D' Street to South 'M' Street, installed a new rail bed, and regraded an existing rail bed. The construction efforts relocated over 4,000 linear feet of storm drainage pipe, replacing piping in the area with new pipes having diameters ranging in size from 12 inches to 72 inches. These relocations were performed to allow for the lowering of the roadway grade and the installation of a railway bridge over the roadway. Following construction, multiple storm manholes within the area have surcharged and flooded the lowered roadway during large storm events.

The ST work was located within the Thea Foss Waterway basin (Basin) and therefore was subject to meeting the requirements of the City's 2008 Surface Water Management Manual (TSWMM). Carollo Engineers, Inc. (Carollo) independently completed an alternatives analysis that identified viable solutions that comply with the TSWMM requirements within that area. The initial analysis analyzed eight infrastructure improvement scenarios and developed a cost opinion for the two preferred scenarios:

- The installation of a new parallel trunk main to convey flows in excess of the existing pipe's capacity. This new trunk main would extend from the ST work to just upstream of the existing trunk main outfall (Scenario 2 in Task 7.1 analysis).
- The rehabilitation of an existing abandoned stormwater main to convey the necessary flows. This rehabilitated main would divert flows from upstream of the ST work to just upstream of the existing trunk main outfall (Scenario 3 in Task 7.1 analysis).

Following the analysis, it was determined that Scenario 3, the rehabilitation of the existing trunk main, would be the most viable alternative. This scenario would require additional system modifications downstream of the rehabilitated pipeline that were not included in the initial Scenario 3 opinion of cost.

The purpose of this project memorandum is to summarize the basis of cost opinion for both the Scenario 3 improvements and the required downstream system improvement. The combination of which is now known as the **Puyallup Ave and E 26th Street** Project (Project). These system improvements are further described in the Tasks 7 and Task 8 technical memoranda.

2.0 COST OPINION UPDATE

In late 2023, the Project cost opinion was updated to reflect 1) current (November 2023 dollars) conditions and 2) modified or clarified assumptions based on a similar recent City project. The updates are incorporated throughout this memorandum. Key assumption updates include:

- Adjusting construction duration to span an 18-month period (two dry seasons, one wet season).
- Adjusting excavation quantities and costs to dispose of all soil at LRI. 50-percent of excavated soil is assumed to be contaminated, but not hazardous.
- Adjusting for a 15-month continuous bypass system with 24 hours a day, 7 days per week (24/7) pump watch (less than 20 million gallons per day (mgd) during dry seasons and less than 40 mgd during wet season).
- Adding dewatering costs based on the recent well information from Dock Street.
- Adjusting traffic control factor to retain the same approximate cost for Task 8 subitems. The additional complexities incorporated into the update are not anticipated to impact traffic control costs.
- Adding internal lining to all sanitary sewer piping.
- Adding a retaining wall on south side of Puyallup Bridge.
- Adding pipe supports for all new, conventionally installed gravity piping:
 - » Pile supports utilized instead of pipe sleds, to utilize existing internal costs.
 - » Pile supports assumed to be 30-feet deep, 10-inch square due to low confidence.
 - » Pile supports are omitted for the watermain reroute and force main replacement.

Major components of the required system improvements reflected in this cost opinion include:

- Sanitary reroute:
 - » Three new 84-inch manholes with top and bottom slabs.
 - » Six new 96-inch manholes with top and bottom slabs.
 - » Approximately 900 feet of 48-inch diameter, internally lined and externally wrapped reinforced concrete pipe (RCP) installed via trenching.
 - » Approximately 300 feet of 66-inch diameter RCP installed via trenching.
 - » Re-route of AN3101 Pump Station's downstream force main for approximately 210 feet of 24-inch diameter ductile iron pipe.
 - » Abandonment of existing pipes via filling the interior with controlled low strength material (CLSM).
 - » Re-installation of the existing Dock Street Overflow, approximately 100 feet of 48-inch diameter RCP installed via trenching.
- Storm reroute No. 1:
 - » Four new 96-inch manholes.
 - » Three new 108-inch manholes.
 - » Approximately 910 feet of 72-inch diameter RCP installed via trenching.

- » Approximately 330 feet of 84-inch diameter RCP installed via trenching.
- » Water Main Reroute of approximately 125 feet of 12-inch ductile iron pipe.
- Storm reroute No. 2:
 - » One new 48-inch manhole.
 - » Three new 96-inch manholes.
 - » Three new 108-inch manholes.
 - » Approximately 163 feet of 24-inch diameter RCP installed via trenching.
 - » Approximately 355 feet of 72-inch diameter RCP installed via trenching.
 - » Approximately 284 feet of 96-inch diameter RCP installed via trenching.
- Puyallup Avenue Bridge removal:
 - » Demolition of the Puyallup Street Bridge.
 - » Construction of new retaining walls on the north and south side of Puyallup Avenue in the Project area.
 - » Import of soil and re-grading to replace Puyallup Avenue bridge.
 - » Replacement of Puyallup Avenue roadway surface in Project area.
- Bypass system including 24/7 Pump Watch.
- Dewatering of excavations.
- Stormwater Pipe Rehab:
 - » Approximately 1115 feet of sliplining of existing 60/63-inch trunk sewer with 48-inch CCMFP pipe, including fittings and filling void between new and existing pipe with CLSM between Pacific Avenue and Puyallup Street.
 - Existing sliplining costs were updated based on escalating the costs from the Task 7.1 estimate to reflect current costs, as well as inclusion of time and equipment for the slipline installation.
 - » Central shaft for installation of sliplining in the private parking lot on the Northwest corner of the intersection of "A" Street and East 25th Street (Parcel Number 2074140020).
 - » One new 96-inch manhole.
 - » Replacement of the drop structure and overflow pipe.

3.0 COST BASIS

The expected level of accuracy for this cost estimate follows the Recommended Practice 18R-97 Cost Estimate Classification System for the Process Industries (Association for the Advancement of Cost Engineering [AACE], 1998) designation as a "Class 4" estimate with an expected level of accuracy of -30 percent to +50 percent of the cost presented. Estimated project costs are in November 2023 dollars, consistent with the Engineering News-Record Construction Cost Index (ENR-CCI) for Seattle of 15338. As the project design matures, cost estimates are subject to change, and the cost of labor, materials, and equipment may vary. Because the project timeline is unknown, costs were not adjusted to the mid-point of construction.

Carollo's Costing Model tool was utilized to prepare the cost opinions. This model compiles historical cost data for various project items to produce a unit cost representative of the costs expected to be encountered during the construction bidding process. This planning approach uses both major-item quantity estimates and percentage allowances based on experience with similar projects. Items not contained within Carollo's Costing model were included based on RS Means values brought to the same November 2023 dollars via the ENR-CCI. The following narrative covers the assumptions utilized.

3.1 General

- Costs included in the estimate reflect the best understanding of planning level requirements, as they existed at the time the estimate was prepared. Any modifications to the present scope and/or alignment may have substantial cost impacts.
- Existing civil site conditions including pipe diameter, pipe slopes, and existing ground surface elevation are as reflected in the City's geographic information system (GIS) system.⁽¹⁾
- Construction activities and sequencing are not hampered by constrained site conditions (no reduced productivity). Work can be sequenced to minimize service and community interruptions.
- Pipe installation is completed within approximately 18 months (two dry seasons and one wet season).
- Groundwater table remains generally below the bottom of trenches during the dry season, except at the Dock Street Yard. Existing Washington State Department of Ecology (Ecology) well reports indicate that groundwater levels in this area will necessitate dewatering during excavations below approximately 10-feet in depth. Dewatering costs are addressed via allowance where applicable.⁽⁵⁾
- Geotechnical conditions encountered at the site are adequate for the proposed excavations and pipe installations.
- Shoring and excavation costs were based on actual costs from similar installations on other Project(s).

3.2 Sanitary Reroute

- The excavation depth of the pipe is based on the weighted average invert depth along its alignment, using ground surface elevations from GIS and the proposed invert elevations.
- Trenches sized to allow for a sufficient work area within the pit for installation of the pipelines and the additional excavation needed for structures is incorporated in the structure costs.
- Trenches are assumed to be backfilled completely with imported structural backfill, due to their proximity to roadways and/or bridge footings.
- All trench shoring is driven steel sheet piles with internal bracing.
- Poor soil conditions will require additional support beyond bedding to prevent settling. A pile support installed under each bell was included to cover this support.
- The new pipe material is assessed as RCP for costing:
 - » This pipe material remains more readily available and less expensive than other types of pipe that are suitable for an installation of this size and type.
 - » Class III RCP using American Concrete Pipe Association standards⁽²⁾, assuming a fill height of 15 feet and a Type 2 installation type.
 - » RCP will include an anti-corrosion lining for internal corrosion resistance.
 - » RCP will include an anti-corrosion tape wrap for external corrosion resistance.
- Manholes over 84 inches in size are assumed to increase in price linearly, and their estimated costs are derived using extrapolation of smaller manholes.
 - » Manholes over 60 inches in size include a top and base slab consistent with City Manhole Type 2 and Type 3 details.
- A "Major Utility Conflict" allowance is included to address costs associated with the pipes crossing of the existing light rail line on East 25th Street. The allowance value was estimated based on anticipated costs to excavate pits on either side of the rail line, outside of the track's zone of influence, and pipe ram under the rail line.

3.3 Storm Reroute No. 1

- Excavation depth of the pipe is based on the weighted average invert depth along its alignment, using ground surface elevations from GIS and the proposed invert elevations.
- Trenches sized to allow for a sufficient work area within the excavation for installation of the pipelines and additional excavation needed for included structures have been incorporated in the structure costs.
- Trenches are assumed to be backfilled completely with imported structural backfill, due to their proximity to roadways and/or bridge footings.
- All trench shoring for the storm sewer installation is driven steel sheet piles with internal bracing. Shoring for the water main location is aluminum hydraulic trench boxes.
- Poor soil conditions will require additional support beyond bedding to prevent settling. A pile support installed under each bell was included to cover this support.
- The new storm pipe material is RCP:
 - » This pipe material remains more readily available and less expensive than other types of pipe that are suitable for an installation of this size and type.
 - » Class III RCP using American Concrete Pipe Association standards⁽²⁾, assuming a fill height of 15 feet and a Type 2 installation type.
 - » RCP will include an anti-corrosion tape wrap for external corrosion resistance.
- Manholes over 84 inches in size are assumed to increase in price linearly, and their estimated costs are derived using extrapolation of smaller manholes.
 - » Manholes over 60 inches in size include a top and base slab consistent with City Manhole Type 2 and Type 3 details.
- The 12-inch ductile iron water main will need to be relocated to the west to allow for new sewer alignment. It's assumed no bypass will be required for this work.

3.4 Storm Reroute No. 2

- Excavation depth of the pipe is based on the weighted average invert depth along its alignment, using ground surface elevations from GIS and the proposed invert elevations.
- Trenches sized to allow for a sufficient work area within the excavation for installation of the pipelines and additional excavation needed for included structures have been incorporated in the structure costs.
- Trenches are assumed to be backfilled completely with imported structural backfill, due to their proximity to roadways and/or bridge footings.
- All trench shoring is driven steel sheet piles with internal bracing.
- Poor soil conditions will require additional support beyond bedding to prevent settling. A pile support installed under each bell was included to cover this support.
- The new pipe material is RCP:
 - » This pipe material remains more readily available and less expensive than other types of pipe that are suitable for an installation of this size and type.
 - » Class III RCP using American Concrete Pipe Association standards⁽²⁾, assuming a fill height of 15 feet and a Type 2 installation type.
 - » RCP will include an anti-corrosion tape wrap for external corrosion resistance.

- Manholes over 84 inches in size are assumed to increase in price linearly, and their estimated costs are derived using extrapolation of smaller manholes.
 - » Manholes over 60 inches in size include a top and base slab consistent with City Manhole Type 2 and Type 3 details.

3.5 Puyallup Avenue Bridge Removal

- Bridge demolition costs were based on actual costs from similar Projects.
- The backfill needed to complete the regrade was assumed to be 10 percent more than the volume needed to account for compaction during regrade (compaction factor of 1.10).
- The new road replacing the bridge is assumed to have a similar layout as the current roadway crossing the bridge: four lanes, parallel parking on both sides, shared left turn lane, curb and gutters both sides, and sidewalks on both sides.
- A new retaining wall will need to be installed along lengths of the north and south sides of the new road. The new walls were assumed to be a modular block system and actual costs from similar Projects were utilized. details.

3.6 Stormwater Pipe Rehabilitation:

3.6.1 Slipline Rehabilitation Access Shafts

- Excavation shaft shoring consists of secant pile walls and tremie/concrete slabs at the bottom of each excavation.
- Shaft diameter is based upon conversation with contractors/suppliers and typical size needed to accommodate the proposed pipe size and associated equipment.

3.6.2 Slipline Rehabilitation:

- Pipe was assumed to be centrifugally cast fiberglass reinforced polymer mortar pipe, as manufactured by Hobas Pipe USA, Inc.
- The new pipe will have a 48-inch inside diameter and 50-inch outside diameter. This pipe is larger than required for hydraulic needs but is maximized to reduce grouting costs. Flush bell and spigot joints are assumed to ease the grouting.
- The cost for laser profiling of the existing 60/63-inch pipe to confirm its internal diameter and condition has been included as a construction cost. This would be required during the design phase and may not need to be repeated during construction, depending on the initial design inspection findings. Costs for this inspection are based on quotes from RedZone Robotics Inc. for similar Projects.
- Installation will be carried out by the "carry" method where an in-pipe cart system is used to carry each pipe section into place, or a similar equivalent. Costs for installation equipment are incorporated.
- Minimal bends will be required along the alignment (2-22.5-degree bends).
- Grouting of the annular space between the existing pipe and the new pipe will be required.
- Existing manholes will not be replaced or rehabilitated. One new manhole, however, will be installed at the proposed excavation shaft.
- Bypassing of the existing flows within the abandoned main will not be required.

3.7 Miscellaneous

- Traffic Control:
 - » Significant traffic control measures will be necessary as the new sewers will be installed within the traveled right of way.
 - » A major detour will be required at Puyallup Avenue to facilitate the removal of the existing Bridge and replacement of roadway.
 - » Traffic Control was included as a separate cost item to reflect the assumption that the work covered under each cost item will be completed simultaneously.
 - » The Traffic Control cost is assumed to be 10 percent of the sum of all other cost Task 8.1 items (total project direct cost not including traffic control). Traffic Control for Task 7.1 is assumed to be incidental to Task 8.1. This value is constant with other Projects of the type and size.
- Bypass System:
 - » It's anticipated that a bypass system will be required during the construction of the Sanitary Reroute, Storm Reroute No. 1, and Storm Reroute No. 2.
 - » The work will likely be staged such that one bypass system is operating at a time. It is estimated that bypass activities will occur during 15 of the 18-month construction duration.
 - » 24-hour pump watch is included for all bypass activities
 - » Bypass costs for the storm reroutes will include minimal fuel and operation costs as construction is anticipated to be completed in the dry season. The storm system work will also likely be staged to have a transition event where flows are switched from the existing line to the newly constructed line.
 - » The sewer reroute will require bypassing for the duration of the piping installation as the existing piping will need to be removed for the construction of the proposed pipe.
 - » Bypass configuration assumptions:
 - Dry season configuration is for one active and one standby 18-inch pump, with a single pump capacity of up to approximately 20 mgd.
 - Wet season configuration is for 1 active and 2 standby pumps. One standby pump is for surge flow and the other is for backup in case of pump failure. The capacity of the wet season configuration is for up to approximately 40 mgd flow capacity.
 - Each configuration includes passing solids (4.5-inch diameter), high density polyethylene piping, mobilized for each section.
- Dewatering
 - » One dewatering setup shall be active throughout the 15-month duration of construction.
 - » Groundwater removed will require treatment with a carbon filter treatment prior to disposal in sanitary sewer system.
- Restoration:
 - » All trenched piping installations will require pavement replacement along their entire length (assumed to be one full lane width or 12 feet).
 - » Restoration outside of paved or hard-surfaced areas is assumed to be minimal (i.e., no landscaping and gravel/native surfacing).
 - » The costs associated with restoration are included in each individual pipe and/or manhole cost item.

- » Pavement restoration will require two lane widths of replacement.
 - A Street is identified as a non-classified arterial and pavement replacement will be with 5-inch hot mix asphalt (HMA) on 10-inches of base courses per Tacoma standards.
 - Puyallup Street is identified as a Primary Transit Street and pavement replacement will be with 8-inch HMA on 18-inches of base courses per Tacoma standards.
- Soil Conditions:
 - » Under LRI's current guidelines, 50 percent of existing soil is assumed to be clean and will not require specialty disposal. The remainder is assumed to be contaminated, but not hazardous and will require specialty disposal.
- Seismic Conditions:
 - » Pipelines and structures do not need specialty seismic designs.
- The "General Conditions" direct cost component addresses general Contractor incurred costs that are not directly linked to time and material costs associated with individual cost items including, but not limited to contractor's temporary facilities, major construction equipment that cannot be distributed to a specific item of work, testing, project site supervision, and bonds/insurance.

4.0 EXCLUSIONS

All potential items of cost that might be associated with the project but for which no costs have been included are listed below:

- Costs for unusual site conditions not currently identified within this memorandum.
- Costs for general community impacts (e.g., disruption to surrounding businesses).
- Estimate includes a temporary construction sliplining shaft/pit to be required in the parking lot of a specific private parcel. There is limited flexibility to shifting the location of this shaft/pit. Conversations with the parcel owner should begin as soon as practical. Costs associated with shifting to an alternative location for the sliplining installation and/or compensation for use of this parcel are excluded at this time. Potential alternatives may require additional costs due to utility conflicts, paving restoration, land acquisition, and/or additional traffic control measures.
- Costs for temporary staging easements beyond the City's existing easements.
- Estimating allowances for City's indirect costs not specifically listed, including bid market, construction management and inspection, permitting, operations support, community outreach, environmental impacts, real estate acquisition and easements, and mitigation.
- Costs for any potential construction delays due to external interferences such as weather conditions, union strikes, pandemics, or emergency services.
- Costs for unknown or changing site conditions including, but not limited to, soil conditions, ground improvements and site developments beyond existing site conditions reflected in the City's GIS records.⁽¹⁾ Soil contamination that would require specialty disposal may be encountered beyond the estimated 50 percent. The costs for disposal of additional contaminated soil could reach up to an additional \$4 million in construction cost. *Environmental testing during design is recommended to mitigate the risk of better understanding this potential cost to the Project.*
- Costs for additional scope beyond that as detailed in the current scope of work.

5.0 REFERENCES

1. tacomaMAP, <https://tmap.cityoftacoma.org/>, City of Tacoma GIS, March 2020.
2. American Concrete Pipe Association – LRFD Fill Height Tables for Concrete Pipe:
<https://www.concretepipe.org/wp-content/uploads/FillHeightTables-1.pdf>
3. [Carollo Cost Estimating Manual.](#)
4. [Carollo Conceptual Cost.](#)
5. [Department of Ecology, Resource Protection Well Reports, Various Locations in Project Vicinity.](#)
[https://apps.ecology.wa.gov/wellconstruction/map/WCLSWebMap/default.aspx.](https://apps.ecology.wa.gov/wellconstruction/map/WCLSWebMap/default.aspx)
6. City of Tacoma CCTV Records.

ATTACHMENT A **COST ESTIMATE**

PROJECT SUMMARY

Project: Puyallup Ave and E 26th Street (formerly D-to-M)
 Client: City of Tacoma
 Location: Tacoma, WA
 Zip Code: 98402

Estimate Class: 4
 PIC: B. Matson
 PM: S. Leung
 Date: January 31, 2024
 By: T. Shepherd

Carollo Job # 10964A00

Reviewed: K. Rogers

NO.	DESCRIPTION	QTY	UNIT	\$/UNIT	TOTAL
Task 8,1					
1	Traffic Control (10% of other items)	1	LS	\$2,090,000	\$2,090,000
2	Sanitary Reroute 48-inch Pipe	900	LF	\$3,444	\$3,100,000
3	Sanitary Reroute 66-inch Pipe	300	LF	\$3,467	\$1,040,000
4	Sanitary Reroute 84-inch Manholes	3	EA	\$38,333	\$115,000
5	Sanitary Reroute 96-inch Manholes	6	EA	\$38,333	\$230,000
7	Storm Reroute #1 72-inch Pipe	910	LF	\$3,429	\$3,120,000
8	Storm Reroute #1 84-inch Pipe	330	LF	\$2,561	\$845,000
9	Storm Reroute #1 96-inch Manholes	4	EA	\$30,000	\$120,000
10	Storm Reroute #1 108-inch Manholes	3	EA	\$45,000	\$135,000
11	Storm Reroute #2 24-inch Pipe	163	LF	\$1,288	\$210,000
12	Storm Reroute #2 72-inch Pipe	355	LF	\$3,986	\$1,415,000
13	Storm Reroute #2 96-inch Pipe	284	LF	\$3,222	\$915,000
14	Storm Reroute #2 48-inch Manholes	1	EA	\$10,000	\$10,000
15	Storm Reroute #2 96-inch Manholes	3	EA	\$38,000	\$114,000
16	Storm Reroute #2 108-inch Manholes	3	EA	\$38,333	\$115,000
17	Bypass System incl. Pump Watch	1	LS	\$2,550,000	\$2,550,000
18	Puyallup Ave Bridge Removal and Re-Grade	1	LS	\$3,935,000	\$3,935,000
19	Watermain Reroute 12" Pipe	125	LF	\$440	\$55,000
20	Forcemain Replacement 24"	210	LF	\$2,024	\$425,000
21	New Dock Street Overflow	1	LS	\$135,000	\$135,000
22	Dewatering	1	LS	\$1,950,000	\$1,950,000
23	Pile Supports for Storm and Sewer Pipe	1	LS	\$350,000	\$350,000
Task 7,1					
24	Slipline of 60/63-Inch Pipe w/ 48-Inch Pipe	1115	LF	\$1,500	\$1,672,500
25	Slipline Access Excavation Shafts	1	LS	\$1,400,000	\$1,400,000
26	New 96-inch Manhole	1	EA	\$50,000	\$50,000
27	Drop Structure & Overflow Pipe	1	LS	\$800,000	\$800,000
TOTAL DIRECT COST					\$26,896,500
General Conditions				7%	\$1,882,755
Subtotal					\$28,779,255
Mobilization/Demobilization				8%	\$2,302,340
Subtotal					\$31,081,595
Design Contingency				30.0%	\$9,324,479
Subtotal					\$36,220,979
General Contractor Overhead, Profit & Risk				15.0%	\$5,433,147
Subtotal					\$41,654,125
Sales Tax (Based on Tacoma, WA)				10.3%	\$4,290,375
Subtotal					\$45,944,500
TOTAL ESTIMATED CONSTRUCTION COST					\$45,900,000
Engineering				15.0%	\$6,885,000
Legal & Administration Fees				7.0%	\$3,213,000
Owner's Reserve for Change Orders				20.0%	\$9,180,000
TOTAL ESTIMATED PROJECT COST					\$65,200,000
November 2023 ENR-CCI (Seattle) 15338					
ACE Class 4 Accuracy Range					
		-30%	50%	Cost (2023 \$'s)	
		\$32,200,000	\$68,900,000	Construction	
		\$45,700,000	\$97,800,000	Project	
<p><small>The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our professional opinion of accurate costs at this time and is subject to change as the project design matures. Carollo Engineers have no control over variances in the cost of labor, materials, equipment, nor services provided by others, contractor's means and methods of executing the work or of determining prices, competitive bidding or market conditions, practices or bidding strategies. Carollo Engineers cannot and does not warrant or guarantee that proposals, bids or actual construction costs will not vary from the costs presented as shown.</small></p>					

DETAILED COST ESTIMATE

Project: Puyallup Ave and E 26th Street (formerly
Client: City of Tacoma
Location: Tacoma, WA
Element: 02 Sanitary Reroute 48-in Pipe

Format: MASTER FORMAT 50
Date : January 31, 2024
By : T. Shepherd
Reviewed: K. Rogers

SPEC. NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL	TOTAL	COMMENTS
Division 02 – Existing Conditions							
02 41 00 / 02220	Remove 4"-6" Asphalt Pavement	21360	SF	\$.71	\$15,208		
02 41 00 / 02220	Asphalt Pavement Cutting	10680	INFT	\$.67	\$7,136		
Total						\$22,344	
Division 31 – Earthwork							
31 00 00 / 02300	10 Cy Dump Truck, 60 Miles/Round Trip - Contaminated Soil	5076.3	CY	\$99.57	\$505,443		
31 00 00 / 02300	Imported Pipe Bed & Zone/Confined Structure Backfill, Class B Material	4662.07	CY	\$61.38	\$286,142		
31 00 00 / 02300	Cat 235 Trackhoe 1.5CY Bucket, Class B (Medium Digging), 0-24' D	5,076.30	CY	\$5.14	\$26,080		
31 50 00 / 02260	Sheet Piling, 38#/Sf To 25' Deep, Drive, Pull & Salvage (Trenches Only)	39,160.00	SF	\$29.07	\$1,138,343		
31 63 32 / 02468	Add For Pile Driver Mobilization/Demobilization (Up To 100 Miles)	1.00	LS	\$36,854.50	\$36,854		
31 63 32 / 02468	10" Square X 30' Long Precast Prestressed Conc. Piling, In Class A,B,C, Mat'L	0.00	LF	\$27.39	\$		
Total						\$1,992,863	
Division 32 – Exterior Improvements							
32 12 15 / 02742	5" Ac Paving on 10" ABC	2373.33	SY	\$70.00	\$166,133		Non-Inventory Item
Total						\$166,133	
Division 33 – Utilities							
33 00 00	EXISTING PIPE - ABANDON IN PLACE WITH CLSM FILL	535.24	CY	\$215.00	\$115,077		
33 31 20	48" RCP - CM LINING	890	LF	\$44.47	\$39,575		Non-Inventory Item
33 31 20 / 15261	48" Astm C-76 Class Iii Rcp In Open Trench	890	LF	\$296.44	\$263,831		
Total						\$418,482	
Division							
99 99 99	Allowance - Utility Conflict (Major)	1.00	LS	\$500,000.00	\$500,000		Non-Inventory Item
Total						\$500,000	
Grand Total						\$3,099,822	
						\$/LF	\$3,444.25

DETAILED COST ESTIMATE

Project: Puyallup Ave and E 26th Street (formerly
Client: City of Tacoma
Location: Tacoma, WA
Element: 03 Sanitary Reroute 66-in Pipe

Format: MASTER FORMAT 50
Date : January 31, 2024
By : T. Shepherd
Reviewed: K. Rogers

MF50 / SPEC NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL	TOTAL	COMMENTS
Division 02 – Existing Conditions							
02 41 00 / 02220	Remove 4"-6" Asphalt Pavement	6960	SF	\$.71	\$4,956		
02 41 00 / 02220	Asphalt Pavement Cutting	3480	INFT	\$.67	\$2,325		
	Total					\$7,281	
Division 31 – Earthwork							
31 00 00 / 02300	Cat 235 Trackhoe 1.50Cy Bucket, Class B (Medium Digging), 0-20' D	0	CY	\$3.23	\$		
31 00 00 / 02300	10 Cy Dump Truck, 60 Miles/Round Trip - Contaminated Soil	2373.7	CY	\$99.57	\$236,347		
31 00 00 / 02300	Imported Pipe Bed & Zone/Confined Structure Backfill, Class B Material	2118.52	CY	\$61.38	\$130,028		
31 00 31	Cat 235 Trackhoe 1.5CY Bucket, Class B (Medium Digging), 0-24' D	2,373.70	CY	\$5.14	\$12,195		Non-Inventory Item
31 50 00 / 02260	Sheet Piling, 38#/Sf To 25' Deep, Drive, Pull & Salvage (Trenches Only)	15080	SF	\$29.07	\$438,361		
31 50 00 / 02260	Sheet Piling, 38#/Sf To 40' Deep, Driven, Pulled & Salvaged (Pits Only)	0.00	SF	\$37.10	\$		
31 63 32 / 02468	10" Square X 30' Long Precast Prestressed Conc. Piling, In Class A,B,C, Mat'L	0	LF	\$27.39	\$		
	Total					\$816,931	
Division 32 – Exterior Improvements							
32 12 15 / 02742	8" Ac Paving on 18" Abc	773.33	SY	\$117.00	\$90,480		
	Total					\$90,480	
Division 33 – Utilities							
33 00 33	EXISTING PIPE - ABANDON IN PLACE WITH CLSM FILL	255.18	CY	\$215.00	\$54,864		Non-Inventory Item
33 31 20	66" ASTM C-76 Class III RCP in Open Trench	290	LF	\$206.52	\$59,891		Non-Inventory Item
33 31 20	66" RCP - CM LINING	290	LF	\$30.98	\$8,984		
	Total					\$123,739	
	Grand Total					\$1,038,430	
						\$3,461.43	

DETAILED COST ESTIMATE

Project: Puyallup Ave and E 26th Street (formerly
Client: City of Tacoma
Location: Tacoma, WA
Element: 04 Sanitary Reroute 84" Manholes

Format: MASTER FORMAT 50
Date : January 31, 2024
By : T. Shepherd
Reviewed: K. Rogers

MF50 / SPEC NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL	TOTAL	COMMENTS
	Division 31 – Earthwork						
31_00_00 / 02300	Imported Pipe Bed & Zone/Confined Structure Backfill, Class B Material	141.62	CY	\$61.38	\$8,692		
31_00_00 / 02300	Cat 235 Trackhoe 1.50Cy Bucket, Class B (Medium Digging), 0-20' D	0	CY	\$3.23	\$		
31_00_00 / 02300	10 Cy Dump Truck, 60 Miles/Round Trip - Contaminated Soil	339.21	CY	\$99.57	\$33,775		
31_00_31	Cat 235 Trackhoe 1.5CY Bucket, Class B (Medium Digging), 0-24' D	339.21	CY	\$5.14	\$1,743		Non-Inventory Item
	Total					\$44,210	
	Division 33 – Utilities						
33_05_13 / 02580	36" Dia. X 1150 Lb Heavy Traffic Manhole Frame & Cover	3	EA	\$1,438.72	\$4,316		
33_05_13 / 02580	84" Precast Manhole, Xtra Depth Over 8'	45	VLF	\$843.49	\$37,957		
33_05_13 / 02580	84" X 8' Deep Precast Manhole, No Ring, Cover, Earthwork, Top Or Bottom Slab	3	EA	\$6,477.24	\$19,432		
33_05_13 / 02580	84" Manhole Precast Slab Top Or Bottom, 12" Thick	6	EA	\$1,017.23	\$6,103		
	Total					\$67,808	
	Grand Total					\$112,018	

DETAILED COST ESTIMATE

Project: Puyallup Ave and E 26th Street (formerly
Client: City of Tacoma
Location: Tacoma, WA
Element: 05 Sanitary Reroute 96"Manholes

Format: MASTER FORMAT 50
Date : January 31, 2024
By : T. Shepherd
Reviewed: K. Rogers

MF50 / SPEC NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL	TOTAL	COMMENTS
Division 03 – Concrete							
03_30_00 / 03300	12" Edge Forms, Slab On Grade, Add	576	LF	\$3.85	\$2,220		
03_30_00 / 03300	12" Flat Non-Formed S.O.G.	21.12	CY	\$513.55	\$10,846		
	Total					\$13,067	
Division 31 – Earthwork							
31_00_00 / 02300	10 Cy Dump Truck, 60 Miles/Round Trip - Contaminated Soil	307.88	CY	\$99.57	\$30,655		
31_00_00 / 02300	Imported Pipe Bed & Zone/Confined Structure Backfill, Class B Material	207.74	CY	\$61.38	\$12,750		
31_00_00 / 02300	Cat 235 Trackhoe 1.50Cy Bucket, Class B (Medium Digging), 0-20' D	0	CY	\$3.23	\$		
31_00_31	Cat 235 Trackhoe 1.5CY Bucket, Class B (Medium Digging), 0-24' D	307.88	CY	\$5.14	\$1,582		Non-Inventory Item
	Total					\$44,987	
Division 33 – Utilities							
33_05_13	96" X 8' Deep Precast Manhole, No Ring, Cover, Earthwork, Top or Bottom Slab	6	EA	\$13,630.00	\$81,780		Non-Inventory Item
33_05_13	96" Precast Manhole, Xtra Depth Over 8'	94	VLF	\$791.32	\$74,384		Non-Inventory Item
33_05_13	96" Manhole Precast Slab Top or Bottom, 12" Thick	6	EA	\$1,162.55	\$6,975		Non-Inventory Item
33_05_13 / 02580	36" Dia. X 1150 Lb Heavy Traffic Manhole Frame & Cover	6	EA	\$1,438.72	\$8,632		
	Total					\$171,772	
	Grand Total					\$229,826	

DETAILED COST ESTIMATE

Project: Puyallup Ave and E 26th Street (formerly
Client: City of Tacoma
Location: Tacoma, WA
Element: 06 Storm Reroute #1 72-in Pipe

Format: MASTER FORMAT 50
Date : January 31, 2024
By : T. Shepherd
Reviewed: K. Rogers

MF50 / SPEC NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL	TOTAL	COMMENTS
Division 02 – Existing Conditions							
02_41_00 / 02220	Remove 4"-6" Asphalt Pavement	21840	SF	\$.71	\$15,550		
02_41_00 / 02220	Asphalt Pavement Cutting	10920	INFT	\$.67	\$7,296		
	Total					\$22,847	
Division 31 – Earthwork							
31_00_00 / 02300	10 Cy Dump Truck, 60 Miles/Round Trip - Contaminated Soil	6218.33	CY	\$99.57	\$619,154		
31_00_00 / 02300	Imported Pipe Bed & Zone/Confined Structure Backfill, Class B Material	5265.38	CY	\$61.38	\$323,171		
31_00_00 / 02300	Cat 235 Trackhoe 1.50Cy Bucket, Class B (Medium Digging), 0-20' D	0	CY	\$3.23	\$		
31_00_31	Cat 235 Trackhoe 1.5CY Bucket, Class B (Medium Digging), 0-24' D	6218.33	CY	\$5.14	\$31,947		Non-Inventory Item
31_50_00 / 02260	Sheet Piling, 38#/Sf To 25' Deep, Drive, Pull & Salvage (Trenches Only)	37310	SF	\$29.07	\$1,084,566		
31_63_32 / 02468	10" Square X 30' Long Precast Prestressed Conc. Piling, In Class A,B,C, Mat'L	0	LF	\$27.39	\$		
	Total					\$2,058,838	
Division 32 – Exterior Improvements							
32_12_15 / 02742	5" Ac Paving On 10" Abc	800	SY	\$57.21	\$45,769		
32_12_32	8" Ac Paving on 18" Abc	1626.67	SY	\$117.00	\$190,320		Non-Inventory Item
	Total					\$236,089	
Division 33 – Utilities							
33_00_33	EXISTING PIPE - ABANDON IN PLACE WITH CLSM FILL	952.95	CY	\$215.00	\$204,884		Non-Inventory Item
33_31_20 / 15261	72" Astm C-76 Class Iii Rcp In Open Trench	910	LF	\$652.92	\$594,153		
	Total					\$799,038	
	Grand Total					\$3,116,811	

DETAILED COST ESTIMATE

Project: Puyallup Ave and E 26th Street (formerly
Client: City of Tacoma
Location: Tacoma, WA
Element: 07 Storm Reroute #1 84-in Pipe

Format: MASTER FORMAT 50
Date : January 31, 2024
By : T. Shepherd
Reviewed: K. Rogers

MF50 / SPEC NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL	TOTAL	COMMENTS
Division 02 – Existing Conditions							
02_41_00 / 02220	Remove 4"-6" Asphalt Pavement	7920	SF	\$.71	\$5,639		
02_41_00 / 02220	Asphalt Pavement Cutting	3960	INFT	\$.67	\$2,646		
33_00_33	EXISTING PIPE - ABANDON IN PLACE WITH CLSM FILL	470.37	CY	\$215.00	\$101,130		Non-Inventory Item
Total						\$109,415	
Division 31 – Earthwork							
31_00_00 / 02300	10 Cy Dump Truck, 60 Miles/Round Trip - Contaminated Soil	1650	CY	\$99.57	\$164,289		
31_00_00 / 02300	Imported Pipe Bed & Zone/Confined Structure Backfill, Class B Material	1179.63	CY	\$61.38	\$72,402		
31_00_00 / 02300	Cat 225 Trackhoe, 1-1/2Cy Bucket, Class B (Medium Digging), 0-16' D	1650	CY	\$3.19	\$5,258		
31_50_00 / 02260	Sheet Piling, 22#/Sf To 15' Deep, Drive, Pull & Salvage (Trenches Only)	8910	SF	\$16.83	\$149,943		
31_63_32 / 02468	10" Square X 30' Long Precast Prestressed Conc. Piling, In Class A,B,C, Mat'L	0.00	LF	\$27.39	\$		
Total						\$391,892	
Division 32 – Exterior Improvements							
32_12_15 / 02742	4" Ac Paving On 8" Abc	880	SY	\$57.21	\$50,346		
Total						\$50,346	
Division 33 – Utilities							
33_31_20 / 15261	84" Astm C-76 Class Iii Rcp In Open Trench	330	LF	\$876.89	\$289,374		
Total						\$289,374	
Allowances							
None							
Total						\$0	
Grand Total						\$841,027	
					\$/LF	\$2,548.57	

DETAILED COST ESTIMATE

Project: Puyallup Ave and E 26th Street (formerly
Client: City of Tacoma
Location: Tacoma, WA
Element: 08 Storm Reroute 96" Manholes

Format: MASTER FORMAT 50
Date : January 31, 2024
By : T. Shepherd
Reviewed: K. Rogers

MF50 / SPEC NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL	TOTAL	COMMENTS
Division 03 – Concrete							
03_30_00 / 03300	12" Edge Forms, Slab On Grade, Add	384	LF	\$3.85	\$1,480		
03_30_00 / 03300	12" Flat Non-Formed S.O.G.	14.08	CY	\$513.55	\$7,231		
	Total					\$8,711	
Division 31 – Earthwork							
31_00_00 / 02300	10 Cy Dump Truck, 60 Miles/Round Trip - Contaminated Soil	90.67	CY	\$99.57	\$9,028		
31_00_00 / 02300	Imported Pipe Bed & Zone/Confined Structure Backfill, Class B Material	90.67	CY	\$61.38	\$5,565		
31_00_00 / 02300	Cat 235 Trackhoe 1.50Cy Bucket, Class B (Medium Digging), 0-20' D	0	CY	\$3.23	\$		
31_00_31	Cat 235 Trackhoe 1.5CY Bucket, Class B (Medium Digging), 0-24' D	90.67	CY	\$5.14	\$466		Non-Inventory Item
	Total					\$15,059	
Division 33 – Utilities							
33_05_13 / 02580	36" Dia. X 1150 Lb Heavy Traffic Manhole Frame & Cover	4	EA	\$1,438.72	\$5,755		
33_05_33	96" Precast Manhole, Xtra Depth Over 8'	38	VLF	\$791.32	\$30,070		Non-Inventory Item
33_05_33	96" X 8' Deep Precast Manhole, No Ring, Cover, Earthwork, Top or Bottom Slab	4	EA	\$13,630.00	\$54,520		Non-Inventory Item
33_05_33	96" Manhole Precast Slab Top or Bottom, 12" Thick	4	EA	\$1,162.55	\$4,650		Non-Inventory Item
	Total					\$94,995	
	Grand Total					\$118,765	

DETAILED COST ESTIMATE

Project: Puyallup Ave and E 26th Street (formerly
Client: City of Tacoma
Location: Tacoma, WA
Element: 09 Storm Reroute 108" Manholes

Format: MASTER FORMAT 50
Date : January 31, 2024
By : T. Shepherd
Reviewed: K. Rogers

MF50 / SPEC NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL	TOTAL	COMMENTS
Division 03 – Concrete							
03_30_00 / 03300	12" Edge Forms, Slab On Grade, Add	399	LF	\$3.85	\$1,538		
03_30_00 / 03300	12" Flat Non-Formed S.O.G.	14.75	CY	\$513.55	\$7,575		
	Total					\$9,113	
Division 31 – Earthwork							
31_00_00 / 02300	10 Cy Dump Truck, 60 Miles/Round Trip - Contaminated Soil	87.11	CY	\$99.57	\$8,673		
31_00_00 / 02300	Imported Pipe Bed & Zone/Confined Structure Backfill, Class B Material	87.11	CY	\$61.38	\$5,347		
31_00_00 / 02300	Cat 235 Trackhoe 1.50Cy Bucket, Class B (Medium Digging), 0-20' D	0	CY	\$3.23	\$		
31_00_31	Cat 235 Trackhoe 1.5CY Bucket, Class B (Medium Digging), 0-24' D	87.11	CY	\$5.14	\$448		Non-Inventory Item
	Total					\$14,468	
Division 33 – Utilities							
33_05_13	108" X 8' Deep Precast Manhole, No Ring, Cover, Earthwork, Top or Bottom Slab	3	EA	\$22,258.61	\$66,776		Non-Inventory Item
33_05_13	108" Precast Manhole, Xtra Depth Over 8'	24	VLF	\$1,347.91	\$32,350		Non-Inventory Item
33_05_13	108" Manhole Precast Slab Top or Bottom, 12" Thick	3	EA	\$1,307.87	\$3,924		Non-Inventory Item
33_05_13 / 02580	36" Dia. X 1150 Lb Heavy Traffic Manhole Frame & Cover	3	EA	\$1,438.72	\$4,316		
	Total					\$107,365	
	Grand Total					\$130,946	

DETAILED COST ESTIMATE

Project: Puyallup Ave and E 26th Street (formerly
Client: City of Tacoma
Location: Tacoma, WA
Element: 10 Storm Reroute #2 72-in Pipe

Format: MASTER FORMAT 50
Date : January 31, 2024
By : T. Shepherd
Reviewed: K. Rogers

MF50 / SPEC NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL	TOTAL	COMMENTS
Division 02 – Existing Conditions							
02_41_00 / 02220	Remove 4"-6" Asphalt Pavement	8520	SF	\$.71	\$6,066		
02_41_00 / 02220	Asphalt Pavement Cutting	4260	INFT	\$.67	\$2,846		
33_00_33	EXISTING PIPE - ABANDON IN PLACE WITH CLSM FILL	371.76	CY	\$215.00	\$79,928		Non-Inventory Item
Total						\$88,841	
Division 31 – Earthwork							
31_00_00 / 02300	10 Cy Dump Truck, 60 Miles/Round Trip - Contaminated Soil	2958.33	CY	\$99.57	\$294,559		
31_00_00 / 02300	Imported Pipe Bed & Zone/Confined Structure Backfill, Class B Material	2586.58	CY	\$61.38	\$158,756		
31_00_00 / 02300	Cat 235 Trackhoe 1.50Cy Bucket, Class B (Medium Digging), 0-20' D	2958.33	CY	\$3.23	\$9,545		
31_50_00 / 02260	Sheet Piling, 38#/Sf To 25' Deep, Drive, Pull & Salvage (Trenches Only)	17750	SF	\$29.07	\$515,975		
31_63_32 / 02468	10" Square X 30' Long Precast Prestressed Conc. Piling, In Class A,B,C, Mat'L	0	LF	\$27.39	\$		
Total						\$978,834	
Division 32 – Exterior Improvements							
32_12_15 / 02742	8" Ac Paving on 18" Abc	946.67	SY	\$117.00	\$110,760		Non-Inventory Item
Total						\$110,760	
Division 33 – Utilities							
33_31_20 / 15261	72" Astm C-76 Class Iii Rcp In Open Trench	355	LF	\$652.92	\$231,785		
Total						\$231,785	
Allowances							
None							
Total						\$0	
Grand Total						\$1,410,221	
					\$/LF	\$3,972.45	

DETAILED COST ESTIMATE

Project: Puyallup Ave and E 26th Street (formerly
Client: City of Tacoma
Location: Tacoma, WA
Element: 11 Storm Reroute #2 96-in Pipe

Format: MASTER FORMAT 50
Date : January 31, 2024
By : T. Shepherd
Reviewed: K. Rogers

MF50 / SPEC NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL	TOTAL	COMMENTS
Division 02 – Existing Conditions							
02_41_00 / 02220	Remove 4"-6" Asphalt Pavement	6816	SF	\$.71	\$4,853		
02_41_00 / 02220	Asphalt Pavement Cutting	3408	INFT	\$.67	\$2,277		
33_00_33	EXISTING PIPE - ABANDON IN PLACE WITH CLSM FILL	528.72	CY	\$215.00	\$113,675		Non-Inventory Item
Total						\$120,805	
Division 31 – Earthwork							
31_00_00 / 02300	10 Cy Dump Truck, 60 Miles/Round Trip - Contaminated Soil	1504.15	CY	\$99.57	\$149,767		
31_00_00 / 02300	Imported Pipe Bed & Zone/Confined Structure Backfill, Class B Material	975.43	CY	\$61.38	\$59,869		
31_00_00 / 02300	Cat 225 Trackhoe, 1-1/2Cy Bucket, Class B (Medium Digging), 0-16' D	1504.15	CY	\$3.19	\$4,793		
31_50_00 / 02260	Sheet Piling, 22#/Sf To 15' Deep, Drive, Pull & Salvage (Trenches Only)	7384	SF	\$16.83	\$124,263		
31_63_32 / 02468	10" Square X 30' Long Precast Prestressed Conc. Piling, In Class A,B,C, Mat'L	0	LF	\$27.39	\$		
Total						\$338,691	
Division 32 – Exterior Improvements							
32_12_15 / 02742	8" Ac Paving on 18" Abc	757.33	SY	\$117.00	\$88,608		Non-Inventory Item
Total						\$88,608	
Division 33 – Utilities							
33_31_20 / 15261	96" Astm C-76 Class Iii Rcp In Open Trench	284	LF	\$1,290.43	\$366,483		
Total						\$366,483	
Allowances							
None							
Total						\$0	
Grand Total						\$914,587	
					\$/LF	\$5,081.04	

DETAILED COST ESTIMATE

Project: Puyallup Ave and E 26th Street (formerly
Client: City of Tacoma
Location: Tacoma, WA
Element: 12 Storm Reroute #2 96"Manholes

Format: MASTER FORMAT 50
Date : January 31, 2024
By : T. Shepherd
Reviewed: K. Rogers

MF50 / SPEC NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL	TOTAL	COMMENTS
Division 03 – Concrete							
03_30_00 / 03300	12" Edge Forms, Slab On Grade, Add	342	LF	\$3.85	\$1,318		
03_30_00 / 03300	12" Flat Non-Formed S.O.G.	12.57	CY	\$513.55	\$6,455		
	Total					\$7,774	
Division 31 – Earthwork							
31_00_00 / 02300	10 Cy Dump Truck, 60 Miles/Round Trip - Contaminated Soil	117.06	CY	\$99.57	\$11,656		
31_00_00 / 02300	Imported Pipe Bed & Zone/Confined Structure Backfill, Class B Material	117.06	CY	\$61.38	\$7,185		
31_00_00 / 02300	Cat 235 Trackhoe 1.50Cy Bucket, Class B (Medium Digging), 0-20' D	0	CY	\$3.23	\$		
31_00_31	Cat 235 Trackhoe 1.5CY Bucket, Class B (Medium Digging), 0-24' D	117.06	CY	\$5.14	\$601		Non-Inventory Item
	Total					\$19,442	
Division 33 – Utilities							
33_05_13 / 02580	36" Dia. X 1150 Lb Heavy Traffic Manhole Frame & Cover	3	EA	\$1,438.72	\$4,316		
33_05_33	96" Precast Manhole, Xtra Depth Over 8'	42	VLF	\$791.32	\$33,235		Non-Inventory Item
33_05_33	96" X 8' Deep Precast Manhole, No Ring, Cover, Earthwork, Top or Bottom Slab	3	EA	\$13,630.00	\$40,890		Non-Inventory Item
33_05_33	96" Manhole Precast Slab Top or Bottom, 12" Thick	3	EA	\$1,162.55	\$3,488		Non-Inventory Item
	Total					\$81,929	
	Grand Total					\$109,145	

DETAILED COST ESTIMATE

Project: Puyallup Ave and E 26th Street (formerly
Client: City of Tacoma
Location: Tacoma, WA
Element: 13 Storm Reroute#2 108"Manholes

Format: MASTER FORMAT 50
Date : January 31, 2024
By : T. Shepherd
Reviewed: K. Rogers

MF50 / SPEC NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL	TOTAL	COMMENTS
Division 03 – Concrete							
03_30_00 / 03300	12" Edge Forms, Slab On Grade, Add	399	LF	\$3.85	\$1,538		
03_30_00 / 03300	12" Flat Non-Formed S.O.G.	14.75	CY	\$513.55	\$7,575		
	Total					\$9,113	
Division 31 – Earthwork							
31_00_00 / 02300	10 Cy Dump Truck, 60 Miles/Round Trip - Contaminated Soil	78.22	CY	\$99.57	\$7,788		
31_00_00 / 02300	Imported Pipe Bed & Zone/Confined Structure Backfill, Class B Material	78.22	CY	\$61.38	\$4,801		
31_00_00 / 02300	Cat 235 Trackhoe 1.50Cy Bucket, Class B (Medium Digging), 0-20' D	0	CY	\$3.23	\$		
31_00_31	Cat 235 Trackhoe 1.5CY Bucket, Class B (Medium Digging), 0-24' D	78.22	CY	\$5.14	\$402		Non-Inventory Item
	Total					\$12,991	
Division 33 – Utilities							
33_05_13 / 02580	36" Dia. X 1150 Lb Heavy Traffic Manhole Frame & Cover	3	EA	\$1,438.72	\$4,316		
33_05_33	108" Precast Manhole, Xtra Depth Over 8'	12	VLF	\$1,347.91	\$16,175		Non-Inventory Item
33_05_33	108" X 8' Deep Precast Manhole, No Ring, Cover, Earthwork, Top or Bottom Slab	3	EA	\$22,258.61	\$66,776		Non-Inventory Item
33_05_33	108" Manhole Precast Slab Top or Bottom, 12" Thick	3	EA	\$1,307.87	\$3,924		Non-Inventory Item
	Total					\$91,191	
	Grand Total					\$113,295	

DETAILED COST ESTIMATE

Project: Puyallup Ave and E 26th Street (formerly
Client: City of Tacoma
Location: Tacoma, WA
Element: 14 Puyallup Ave Bridge Removal

Format: MASTER FORMAT 50
Date : January 31, 2024
By : T. Shepherd
Reviewed: K. Rogers

MF50 / SPEC NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL	TOTAL	COMMENTS
Division 02 – Existing Conditions							
02 00 00	Bridge & Ex. Retaining Wall Demolition	22,525.00	SF	\$52.20	\$1,175,805		Non-Inventory Item
Total						\$1,175,805	
Division 31 – Earthwork							
31 00 00 / 02300	10 Cy Dump Truck, 60 Miles/Round Trip - Contaminated Soil	8985.07	CY	\$99.57	\$894,636		
31 00 00 / 02300	Tractor/Backhoe, 30" Bucket Class B (Medium Digging), 0-5' D	107.85	CY	\$10.91	\$1,176		
31 00 00 / 02300	D6 Dozer, Class B (Medium Dig), Grade, Cut, Fill & Compact, 250' Haul	8877.89	CY	\$6.17	\$54,783		
31 00 00 / 02300	Imported Pipe Bed & Zone/Confined Structure Backfill, Class A Material	1814.81	CY	\$63.21	\$114,705		
31 00 00 / 02300	Native Trench Backfill/Unconfined Struct. Bf, Class A Material	8877.89	CY	\$13.97	\$124,000		
Total						\$1,189,301	
Division 32 – Exterior Improvements							
32 00 00	Keystone Retaining Wall	24500	SF	\$52.20	\$1,278,900		Non-Inventory Item
32 12 15 / 02742	8" Ac Paving on 18" Abc	2178.89	SY	\$117.00	\$254,930		Non-Inventory Item
32 13 13 / 02750	Turn Arrow Or Letter Painting	10	EA	\$250.00	\$2,500		
32 13 13 / 02750	4" Thermoplastic Line Painting	1590	LF	\$.85	\$1,345		
32 16 14 / 02772	24" Curved Conc Curb And Gutter, Machine Formed	530	LF	\$13.57	\$7,193		
32 16 14 / 02772	4" Thick Concrete Sidewalk,	3710	SF	\$5.69	\$21,109		
Total						\$1,565,977	
Allowances							
None							
Total						\$0	
Grand Total						\$3,931,083	

DETAILED COST ESTIMATE

Project: Puyallup Ave and E 26th Street (formerly
Client: City of Tacoma
Location: Tacoma, WA
Element: 15 Watermain reroute 12" Pipe

Format: MASTER FORMAT 50
Date : January 31, 2024
By : T. Shepherd
Reviewed: K. Rogers

MF50 / SPEC NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL	TOTAL	COMMENTS
Division 02 – Existing Conditions							
02_41_00 / 02220	Demo D.I. Pipe From An Open Trench, 4" - 18" Incl. Fittings	135	LF	\$8.92	\$1,205		
Total						\$1,205	
Division 31 – Earthwork							
31_00_00 / 02300	Cat 225 Trackhoe, 1Cy Bucket, Class B (Medium Digging), 0-16' D	83.33	CY	\$4.84	\$403		
31_00_00 / 02300	Cat 225 Trackhoe, 1Cy Bucket, Class B (Medium Digging), 0-16' D	75	CY	\$4.84	\$363		
31_00_00 / 02300	Imported Pipe Bed & Zone/Confined Structure Backfill, Class B Material	79.7	CY	\$61.38	\$4,892		
31_00_00 / 02300	Imported Pipe Bed & Zone/Confined Structure Backfill, Class B Material	75	CY	\$61.38	\$4,603		
31_00_00 / 02300	10 Cy Dump Truck, 60 Miles/Round Trip - Contaminated Soil	83.33	CY	\$99.57	\$8,297		
31_00_00 / 02300	10 Cy Dump Truck, 60 Miles/Round Trip - Contaminated Soil	75	CY	\$99.57	\$7,468		
31_50_00 / 02260	Trench Bracing, 3' W X 10' D Alum. Hyd. Shores	125	LF	\$63.68	\$7,961		
31_50_00 / 02260	Trench Bracing, 3' W X 5' D Alum. Hyd. Shores	135	LF	\$57.42	\$7,752		
Total						\$41,738	
Division 40 – Process Integration							
40_05_33.51 / 15251	12" 22-1/2° Cldi Push-On Joint Bend (C153)	2	EA	\$605.35	\$1,211		
40_05_33.51 / 15251	12" CI52 Cldi Push-On Jt Pipe In Open Trench	125	LF	\$49.11	\$6,138		
Total						\$7,349	
Allowances							
None							
Total						\$0	
Grand Total						\$50,292	
						\$/LF	\$402.33

DETAILED COST ESTIMATE

Project: Puyallup Ave and E 26th Street (formerly
Client: City of Tacoma
Location: Tacoma, WA
Element: 16 Forcemain Replacement 24" Pipe

Format: MASTER FORMAT 50
Date : January 31, 2024
By : T. Shepherd
Reviewed: K. Rogers

MF50 / SPEC NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL	TOTAL	COMMENTS
Division 02 – Existing Conditions							
02 41 00 / 02220	Demo D.I. Pipe From An Open Trench, 20" - 36" Incl Fittings	190.00	LF	\$22.31	\$4,239		
Total						\$4,239	
Division 31 – Earthwork							
31 00 00 / 02300	10 Cy Dump Truck, 60 Miles/Round Trip - Contaminated Soil	528.89	CY	\$99.57	\$52,661		
31 00 00 / 02300	Imported Pipe Bed & Zone/Confined Structure Backfill, Class B Material	504.45	CY	\$61.38	\$30,961		
31 00 00 / 02300	Cat 235 Trackhoe 1.50Cy Bucket, Class B (Medium Digging), 0-20' D	528.89	CY	\$3.23	\$1,706		
31 00 00 / 02300	10 Cy Dump Truck, 60 Miles/Round Trip - Contaminated Soil	422.22	CY	\$99.57	\$42,040		
31 00 00 / 02300	Imported Pipe Bed & Zone/Confined Structure Backfill, Class B Material	422.22	CY	\$61.38	\$25,914		
31 00 00 / 02300	Cat 235 Trackhoe 1.50Cy Bucket, Class B (Medium Digging), 0-20' D	422.22	CY	\$3.23	\$1,362		
31 50 00 / 02260	Sheet Piling, 27#/Sf To 20' Deep, Drive, Pull & Salvage (Trenches Only)	7140	SF	\$19.91	\$142,185		
31 50 00 / 02260	Sheet Piling, 27#/Sf To 20' Deep, Drive, Pull & Salvage (Trenches Only)	5,700.00	SF	\$19.91	\$113,509		
Total						\$410,340	
Division 40 – Process Integration							
40 05 33.51 / 15251	24" 22-1/2° Cldi Push-On Joint Bend (C110)	1	EA	\$3,058.49	\$3,058		
40 05 33.51 / 15251	24" 45° Cldi Push-On Joint Bend (C110)	1	EA	\$3,336.19	\$3,336		
40 05 33.51 / 15251	24" Cl50 Cldi Push-On Jt Pipe In Open Trench	210	LF	\$9.03	\$1,897		
Total						\$8,292	
Allowances							
None							
Total						\$0	
Grand Total						\$422,871	
					\$/LF	\$2,013.67	

DETAILED COST ESTIMATE

Project: Puyallup Ave and E 26th Street (formerly
Client: City of Tacoma
Location: Tacoma, WA
Element: 17 New Dock Street Overflow

Format: MASTER FORMAT 50
Date : January 31, 2024
By : T. Shepherd
Reviewed: K. Rogers

MF50 / SPEC NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL	TOTAL	COMMENTS
Division 02 – Existing Conditions							
02 41 00 / 02220	Remove 4"-6" Asphalt Pavement	2160	SF	\$.71	\$1,538		
02 41 00 / 02220	Asphalt Pavement Cutting	1080	INFT	\$.67	\$722		
Total						\$2,260	
Division 03 – Concrete							
03 30 00 / 03300	8" Straight Wall, To 8' High	0.87	CY	\$1,100.35	\$957		
Total						\$957	
Division 31 – Earthwork							
31 00 00 / 02300	10 Cy Dump Truck, 60 Miles/Round Trip - Contaminated Soil	240	CY	\$99.57	\$23,897		
31 00 00 / 02300	Imported Pipe Bed & Zone/Confined Structure Backfill, Class B Material	198.11	CY	\$61.38	\$12,159		
31 00 00 / 02300	Cat 225 Trackhoe, 1-1/2Cy Bucket, Class B (Medium Digging), 0-16' D	280	CY	\$3.19	\$892		
31 50 00 / 02260	Sheet Piling, 22#/Sf To 15' Deep, Drive, Pull & Salvage (Trenches Only)	2160	SF	\$16.83	\$36,350		
Total						\$73,298	
Division 32 – Exterior Improvements							
32 12 15 / 02742	4" Ac Paving On 8" Abc	240	SY	\$57.21	\$13,731		
Total						\$13,731	
Division 33 – Utilities							
33 05 13 / 02580	84" Precast Manhole, Xtra Depth Over 8'	4	VLF	\$843.49	\$3,374		
33 05 13 / 02580	84" X 8' Deep Precast Manhole, No Ring, Cover, Earthwork, Top Or Bottom Slab	1	EA	\$6,477.24	\$6,477		
33 05 13 / 02580	36" Dia. X 1150 Lb Heavy Traffic Manhole Frame & Cover	1	EA	\$1,438.72	\$1,439		
33 31 20 / 15261	48" Astm C-76 Class Iii Rcp In Open Trench	90	LF	\$296.44	\$26,679		
03 30 00 / 03300	12" Edge Forms, Slab On Grade, Add	79	LF	\$3.85	\$305		
03 30 00 / 03300	12" Flat Non-Formed S.O.G.	2.91	CY	\$513.55	\$1,494		
Total						\$39,768	
Allowances							
None							
Total						\$0	
Grand Total						\$130,013.95	

DETAILED COST ESTIMATE

Project: Puyallup Ave and E 26th Street (formerly
Client: City of Tacoma
Location: Tacoma, WA
Element: 18 Storm Reroute #2 24-In Pipe

Format: MASTER FORMAT 50
Date : January 31, 2024
By : T. Shepherd
Reviewed: K. Rogers

MF50 / SPEC NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL	TOTAL	COMMENTS
Division 02 - Existing Conditions							
02 41 00 / 02220	Remove 4"-6" Asphalt Pavement	3912	SF	\$.71	\$2,785		
02 41 00 / 02220	Asphalt Pavement Cutting	1956	INFT	\$.67	\$1,307		
Total						\$4,092	
Division 31 - Earthwork							
31 50 00 / 02260	Sheet Piling, 38#/Sf To 25' Deep, Drive, Pull & Salvage (Trenches Only)	3586	SF	\$29.07	\$104,242		
31 00 00 / 02300	Imported Pipe Bed & Zone/Confined Structure Backfill, Class B Material	332.04	CY	\$61.38	\$20,380		
31 00 00 / 02300	Cat 235 Trackhoe 1.50Cy Bucket, Class B (Medium Digging), 0-20' D	332.04	CY	\$3.23	\$1,071		
31 00 00 / 02300	10 Cy Dump Truck, 60 Miles/Round Trip - Contaminated Soil	332.04	CY	\$99.57	\$33,061		
31 63 32 / 02468	10" Square X 30' Long Precast Prestressed Conc. Piling, In Class A,B,C, Mat'L	0	LF	\$27.39	\$		
Total						\$158,753	
Division 32 - Exterior Improvements							
32 12 15 / 02742	4" Ac Paving On 8" Abc	434.67	SY	\$57.21	\$24,868		
Total						\$24,868	
Division 33 - Utilities							
33 31 20 / 15261	24" Astm C-76 Class Iii Rcp In Open Trench	163	LF	\$90.63	\$14,773		
33 00 33	EXISTING PIPE - ABANDON IN PLACE WITH CLSM FILL	18.97	CY	\$215.00	\$4,079		Non-Inventory Item
Total						\$18,851	
Allowances							
None							
Total							
Grand Total						\$206,565	
					\$/LF	\$1,267.27	

DETAILED COST ESTIMATE

Project: Puyallup Ave and E 26th Street (formerly
Client: City of Tacoma
Location: Tacoma, WA
Element: 19 Storm Reroute #2 48" Manhole

Format: MASTER FORMAT 50
Date : January 31, 2024
By : T. Shepherd
Reviewed: K. Rogers

MF50 / SPEC NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL	TOTAL	COMMENTS
Division 03 – Concrete							
03 30 00 / 03300	12" Edge Forms, Slab On Grade, Add	29	LF	\$3.85	\$112		
03 30 00 / 03300	12" Flat Non-Formed S.O.G.	0	CY	\$513.55	\$		
	Total					\$112	
Division 31 – Earthwork							
31 00 00 / 02300	10 Cy Dump Truck, 60 Miles/Round Trip - Contaminated Soil	1.19	CY	\$99.57	\$118		
31 00 00 / 02300	Imported Pipe Bed & Zone/Confined Structure Backfill, Class B Material	1.19	CY	\$61.38	\$73		
31 00 00 / 02300	Cat 235 Trackhoe 1.50Cy Bucket, Class B (Medium Digging), 0-20' D	1.19	CY	\$3.23	\$4		
	Total					\$195	
Division 33 – Utilities							
33 05 13 / 02580	48" X 8' Deep Precast Manhole, No Ring, Cover, Earthwork, Top Or Bottom Slab	1	EA	\$2,992.79	\$2,993		
33 05 13 / 02580	36" Dia. X 1150 Lb Heavy Traffic Manhole Frame & Cover	1	EA	\$1,438.72	\$1,439		
33 05 13 / 02580	48" Manhole Precast Slab Top Or Bottom, 8" Thick	2	EA	\$439.95	\$880		
	Total					\$5,311	
	Grand Total					\$5,619	



DETAILED COST ESTIMATE

Project: D-to-M Streets Track & Signal
 Project Surface Water
 Hydraulic Analysis - Task 8.1: -
 Task 7.1 Items

Format: MASTER FORMAT 50

Client: City of Tacoma
Location: Tacoma, WA
Element: 24 thru 27

Date : January 31, 2024
By : T Shepherd
Reviewed: K Rogers

SPEC. NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL	TOTAL	COMMENTS
33_05_13 / 02580	84" Precast Manhole, Xtra Depth Over 8'	22.00	VLF	\$1,832.00	\$40,304		Excavation included in shaft LS.
33_05_13 / 02580	84" X 8' Deep Precast Manhole, No Ring, Cover, Earthwork, Top Or Bottom Slab	1.00	EA	\$7,164.17	\$7,164		
33_05_13 / 02580	36" Dia. X 1150 Lb Heavy Traffic Manhole Frame & Cover	1.00	EA	\$1,591.30	\$1,591		
				Total	\$49,059		
				\$/Each	\$49,059	\$ 50,000.00	96-Inch Manholes (Downstream)
40_05_36.01 / 15269	48" Fwc 22.5 Deg Elbow	2.00	EA	\$6,214.60	\$12,429		
40_05_36.01 / 15269	48" Reinforced Polymer Mortar Pipe, Sn 46 Psi	1,115.00	LF	\$251.57	\$314,159		
31_00_00 / 02300	Controlled Density Fill (Cdf)	991.11	CY	\$103.92	\$115,361		
	Service Reinstatement	10.00	EA	\$8,400.00	\$84,000		
	Laser Profiling of Carrier Pipe	1.00	LS	\$67,200.00	\$67,200		Based on quote for similar project from Redzone Robotics.
	Installation Time and Materials	1,115.00	LF	\$950.00	\$1,059,250		
				Total	\$1,652,400		
				\$/LF	\$1,482	\$ 1,500.00	Slipline of 60/63-Inch Pipe w/ 48-Inch Pipe
31_00_00 / 02300	Imported Trench Backfill/Unconfined Struct. BF, Class B Material	1,309.00	CY	\$122.50	\$160,347		x2 Unit cost for depths and complexity
	Excavation	1.00	LS	\$224,000.00	\$224,000		Based on similar 2015 Project
	30-foot Diameter Secant Pile Wall, 50 foot Depth	1.00	LS	\$ 300,000.00	\$300,000		Based on similar 2015 Project
	Tremie Slab Bottom	1.00	LS	\$ 140,000.00	\$140,000		Based on similar 2015 Project
	Site Prep and Layout	1.00	LS	\$ 140,000.00	\$140,000		Based on similar 2015 Project
	Site Restoration	1.00	LS	\$8,960	\$8,960		
31_00_00 / 02300	Imported Trench Backfill/Unconfined Struct. BF, Class B Material	407.24	CY	\$77.76	\$31,667		x2 Unit cost for depths and complexity
	Excavation	1.00	LS	\$112,000	\$112,000		Based on similar 2015 Project
	20-foot Diameter Secant Pile Wall, 35 foot Depth	1.00	LS	\$140,000	\$120,000		Based on similar 2015 Project
	Tremie Slab Bottom	1.00	LS	\$84,000	\$60,000		Based on similar 2015 Project
	Site Prep and Layout	1.00	LS	\$84,000	\$60,000		Based on similar 2015 Project
	Site Restoration	1.00	LS	\$11,200	\$11,200		
	Traffic Control	1.00	LS	\$11,200	\$11,200		
				Total	\$1,379,374	\$ 1,400,000.00	Slipline Access Excavation Shaft
	Precast 12' Diameter, Manhole Top, 30 Inch Deep	1.00	EA	\$ 44,800.00	\$ 44,800.00		Costs from similar Project.
	Precast, 12' Diameter Manhole Sections, 96 Inch Deep	6.00	EA	\$ 33,600.00	\$201,600.00		Excavation costs included in shaft LS.
	Structure Foundation	1.00	EA	\$ 56,000.00	\$ 56,000.00		
	Vortex Drop Insert	1.00	EA	\$ 268,800.00	\$268,800.00		
	Vortex Drop Insert Structural Supports	1.00	LS	\$ 112,000.00	\$112,000.00		
	Manhole Access Cover	1.00	EA	\$ 2,800.00	\$ 2,800.00		
	Piping Tie-Ins	1.00	LS	\$ 22,400.00	\$ 22,400.00		
40_05_36.01 / 15269	48" Reinforced Polymer Mortar Pipe, Sn 46 Psi	30.00	LF	\$251.57	\$ 7,547.07		
	Excavation for Overflow Pipe	1.00	LS	\$72,800.00	\$ 72,800.00		
				Total	\$788,747.07	\$ 800,000.00	Drop Structure & Overflow Pipe