



December 18, 2008

File: 1025-20

LAND DEVELOPMENT CONSULTANTS

To Whom It May Concern:

**Re: PSAB 3150 - Engineering Infrastructure
Reporting Process & Assumptions – Land Development Projects**

BACKGROUND

As part of the Capital Asset Management Program to comply with Public Sector Accounting Boards (PSAB) Initiative 3150, the Engineering Department needs to report the quantity and value of all Engineering's infrastructure tangible capital assets (TCA's) as they are put in service. The reporting includes not only the TCA's the City adds by its contractors and City crews, but also assets contributed through the land development process.

In addition to reporting assets that are added and contributed, the City must also report the quantity and assumed value of any TCA that is decommissioned.

This document details the reporting processes and assumptions that are to be used for Land Development Projects.

DISCUSSION

Land Development Projects

For all Land Development Projects, the quantity and value of new engineering infrastructure contributed to the City are to be reported at the time that they are put into service. For PSAB reporting purposes, the in-service date for all infrastructure contributed through the land development processes is assumed to be the date at which the Final Construction Inspection is completed.

Through the land development process, the City is aware of the quantity and value of TCA's to be contributed before they are constructed. As a result, as soon as the value and quantity of infrastructure is known, it needs to be reported.

The Land Development Engineering Consultant should base the quantity of each TCA on the constructed units of measure for each TCA as developed.

The value of each TCA represents its total construction cost. Therefore, the construction value should include the actual tendered construction value, and all costs related to its installation. This may include design fees, construction administration fees, utility relocation charges, and construction-tendering costs as estimated and allocated by the Land Development Engineering Consultant.

In many cases we understand that the price for the work provided by a contractor is lump sum. Unfortunately, we do not have the opportunity to accept lump sum prices for all of the TCA's. As a result, we require the Land Development Engineering Consultant to work with contractors to allocate their costs by each TCA.

As summarized in **Table 1**, each TCA can represent a number of operational assets. To assist Land Development Engineering Consultants, an example is provided in **Appendix A** which outlines the level of detail that is required.

RECOMMENDED PRACTICE:

- 1) At the pre-construction meeting, the Land Development Inspector requires the submission of the TCA quantity and cost allocation by Land Development Engineering Consultant based on the methodology detailed in **Appendix A**.
- 2) In addition to the TCA's created, the Land Development Engineering Consultant is to also prepare a second report that details the quantity, diameter (if applicable), and age of assets (if known) that are decommissioned as part of the project.
- 3) For asset ages that are not known in COSMOS, the Land Development Engineering Consultant simply needs to indicate 'Not Available'. The age of the asset will be assumed to be equal to the oldest age within our inventory.

Land Development Projects – Front Ended / Developer Coordinated Works

Although not constructed by contractors retained by the City, or with our own Crews, engineering infrastructure constructed by third parties that are funded or partly funded by City capital funding must be accounted for.

The processes for reporting are similar to those that do not involve frontended or developer coordinated works, but that cost for the TCA's funded by the City needs to be separated and reported through a slightly different process to ensure that the capital expenditure is recognized.

RECOMMENDED PRACTICE:

- 1) At the pre-construction meeting, the Land Development Inspector requires the submission of the TCA quantity and cost allocation by Land Development Engineering Consultant based on the methodology detailed in **Appendix A**. The quantities and costs for TCA's need to be divided by those that are contributed, and those that are funded by the City. Furthermore, for upsizing contributions, the cost estimate shall illustrate the cost for the base size, and the quantity and costs for the TCA to be upsized, as detailed in **Appendix B**.

- 2) In addition to the TCA's created, the Land Development Engineering Consultant is to also prepare a second report that details the quantity, diameter (if applicable), and age of assets (if known) that are decommissioned as part of the project.
- 3) For asset ages that are unknown in COSMOS, the Land Development Engineering Consultant simply needs to indicate 'Not Available'. The age of the asset will be assumed to be equal to the oldest age within our inventory.

CONCLUSION

The processes detailed above seek to minimize as best as possible the impact of implementing Public Sector Accounting Boards (PSAB) Initiative 3150. Should you have any questions or require clarification, please call me at 604-591-4367 or jrarason@surrey.ca.

Yours truly,



Jeff Arason, P.Eng.
Special Projects Manager

JA/brb
Attachment

c.c. - Manager, Development & Customer Services, Engineering Dept.

Table 1 - Engineering's TCA Allocation

Transportation

Item	Quantity	Unit	Value	Furniture Included in Sub-Type Item
Street Lights		each		Street light, base, ducting/wiring, and other related furniture.
Sidewalks		linear metre		Sidewalk, base materials, and other related furniture.
Signals		each		Traffic Signals, pedestrian signals, fire signals, control cabinets, ducting/wiring, and other related furniture.
Bridges		each		Bride structure, deck, piers, approaches, and other related furniture.
Access Road		linear metre		Surface material, base materials, gates, fencing, and other related furniture.
Local - Structure		lane metre		Base materials, curb and gutter, and other related furniture.
Local - Pavement		lane metre		Pavement, markings, signs, and other related furniture.
Collector - Structure		lane metre		Base materials, curb and gutter, and other related furniture.
Collector - Pavement		lane metre		Pavement, markings, signs, and other related furniture.
Arterial - Structure		lane metre		Base materials, curb and gutter, and other related furniture.
Arterial - Pavement		lane metre		Pavement, markings, signs, and other related furniture.
Medians		linear metre		Base and surface materials, curb and gutter, landscaping, and other related furniture.
Multi-Use Pathways		linear metre		Surface material, base materials, gates, fencing, and other related furniture.
Signs - Overhead		each		Sign, masting, lighting, and other related furniture.

Water

Item	Quantity	Unit	Value	Furniture Included in Sub-Type Item
Distribution (AC, CU, GI, GS and CAS)		linear metre		Main, valves, meters, fittings, service laterals, corporation stops, hydrants, and other related furniture.
Distribution (CC, and CO)		linear metre		Main, valves, meters, fittings, service laterals, corporation stops, hydrants, and other related furniture.
Distribution (PE, PVC, SC, and SP)		linear metre		Main, valves, meters, fittings, service laterals, corporation stops, hydrants, and other related furniture.
Distribution (DC, and DIP)		linear metre		Main, valves, meters, fittings, service laterals, corporation stops, hydrants, and other related furniture.
Wells		each		Well, liner, pump, pump house, screens, and other related furniture.
Pump Stations - Structural & Piping		each		Building, and internal piping, and other related furniture.
Pump Stations - Electrical & Mechanical		each		Electrical systems (MCC, PLC, SCADA), mechanical systems, and other related furniture.
Pressure Reducing Valves		each		Valve, chamber, electrical and mechanical components, and other related furniture.

Table 1 - Engineering's TCA Allocation

Sewer

Item	Quantity	Unit	Value	Furniture Included in Sub-Type Item
Collection - Gravity (AC, and VCP)		linear metre		Main, manholes, valves, fittings, service laterals, inspection chambers, and other related furniture.
Collection - Gravity (RCP, CP, PE, PVC, SP, DIP, and CAS)		linear metre		Main, manholes, valves, fittings, service laterals, inspection chambers, and other related furniture.
Collection - Forcemain		linear metre		Main, valves, fittings, and other related furniture.
Collection - Vacuum		linear metre		Main, valves, fittings, service laterals, inspection chambers, and other related furniture.
Pump Stations - Structural & Piping		each		Building, and internal piping, and other related furniture.
Pump Stations - Electrical & Mechanical		each		Electrical systems (MCC, PLC, SCADA), mechanical systems, and other related furniture.

Drainage

Item	Quantity	Unit	Value	Furniture Included in Sub-Type Item
Main - Gravity (AC, CSP, CMP, VI)		linear metre		Main, manholes, service laterals, inspection chambers, lawn basins, and other related furniture.
Main - Gravity (CO, PVC, PE)		linear metre		Main, manholes, service laterals, inspection chambers, lawn basins, and other related furniture.
Main - Misc		linear metre		Main, manholes, service laterals, inspection chambers, lawn basins, and other related furniture.
Floodbox		each		Pipe, headwall, flap gate, sluice gate, and other related furniture.
Culvert - Watercourse		each		Pipe, headwall, trash rack, and other related furniture.
Dyke - Earth		linear metre		Earth dyke, fencing, gates, signs, and other related furniture.
Dyke - Sea Dam		each		Sea dam, and other related furniture.
Dyke - Concrete		linear metre		Concrete dyke, fencing, gates, signs, and other related furniture.
Dyke - Stoplog Structure		each		Stop log structure, stop lots, water proof sealings, shoring, and other related furniture.
Pump Stations - Structural & Piping		each		Building, and internal piping, and other related furniture.
Pump Stations - Electrical & Mechanical		each		Electrical systems (MCC, PLC, SCADA), mechanical systems, and other related furniture.
Detention Ponds - Above Ground		each		Pond, flow control structures, landscaping, fencing, gates, and other related furniture.
Detention Ponds - Below Ground		each		Pipe, flow control structures, access chambers, manholes, and other related furniture.
Channelized Watercourse		linear metre		Watercourse, erosion protection, riparian planting, gates, fencing, signs, and other related furniture.

Methodology for Determining the Quantity and Value of Engineering's Tangible Capital Assets (TCA's).

As illustrated in **Table 1**, the allocation of TCA's is not a direct link to Engineering's operational assets. Many of the TCA's are comprised of a number of operational assets.

In addition to components (related furniture such as valves and fittings on water mains) that are to be included in the valuation of each TCA, design costs, construction administration costs, and any other related costs are to be incorporated and reported.

To illustrate the TCA process, a fictional example has been developed.

The following TCA's have been developed for this project:

Tangible Capital Asset	Quantity
Water - Distribution (PE, PVC, SC, and SP)	800m of 300mm diameter
Sewer - Collection - Gravity (RCP, VCP, CP, PE, PVC, SP, DIP, and CAS)	785m of 200mm diameter
Drainage - Main - Gravity (CO, PVC, PE)	750m of 300mm diameter
Local Road - Structure	1500 lane metres
Local Road - Pavement	1500 lane metres

The full costs for this project are as follows:

Activity	Quantity	Cost
Water - Distribution (PE, PVC, SC, and SP)	800m	\$526,000 (\$710/m for 500m, \$570/m for 300m)
Sewer - Collection - Gravity (RCP, VCP, CP, PE, PVC, SP, DIP, and CAS)	785m	\$785,000
Drainage - Main - Gravity (CO, PVC, PE)	750m	\$450,000
Local Road - Structure	1500 lane metres	\$300,000
Local Road - Pavement	1500 lane metres	\$60,000
Design Services by Land Development Consultant	-	\$150,000 (to be allocated)
Construction Services by Land Development Consultant	-	\$105,000 (to be allocated)
TOTAL	-	\$2,398,500

As discussed, all costs related to the installation of the asset(s) are to be allocated to a TCA. As a rule of thumb, design and construction administration costs are general overhead to the project and can be distributed across the value of each TCA based on weighting of the value (i.e., should a project have a design and construction administration cost of \$50,000 and produce one TCA with a value of \$600,000 and a second TCA of \$400,000, the design and construction administration costs of \$50,000 should be allocated to each asset based on 60% and 40%). In this example there are \$255,000 of general overhead costs that need to be allocated.

Activity	% of Cost
Water - Distribution (PE, PVC, SC, and SP)	24.80%
Sewer - Collection - Gravity (RCP, VCP, CP, PE, PVC, SP, DIP, and CAS)	37.01%
Drainage - Main - Gravity (CO, PVC, PE)	21.22%
Local Road - Structure	14.14%
Local Road – Pavement	2.83%
TOTAL	100.00%

Activity	Quantity	Cost w/ Allocations
Water - Distribution (PE, PVC, SC, and SP)	800m	= \$526,000 + (24.8%)(\$255,000) = \$589,239.04
Sewer - Collection - Gravity (RCP, VCP, CP, PE, PVC, SP, DIP, and CAS)	785m	= \$785,000 + (37.0%)(\$255,000) = \$879,377.65
Drainage - Main - Gravity (CO, PVC, PE)	750m	= \$450,000 + (21.2%)(\$255,000) = \$504,101.84
Local Road - Structure	1500 lane metres	= \$300,000 + (14.1%)(\$255,000) = \$336,067.89
Local Road - Pavement	1500 lane metres	= \$ 60,000 + (2.8%)(\$255,000) = \$ 67,213.58
TOTAL	-	\$2,376,000

Appendix A - Engineering's TCA Allocation

Project 7809-0998-00
PM Jeff Arason
Allocation Contributed

Transportation

Item	Quantity	Unit	Value	Furniture Included in Sub-Type Item
Street Lights		each		Street light, base, ducting/wiring, and other related furniture.
Sidewalks		linear metre		Sidewalk, base materials, and other related furniture.
Signals		each		Traffic Signals, pedestrian signals, fire signals, control cabinets, ducting/wiring, and other related furniture.
Bridges		each		Bride structure, deck, piers, approaches, and other related furniture.
Access Road		linear metre		Surface material, base materials, gates, fencing, and other related furniture.
Local - Structure	1500	lane metre	\$336,067.89	Base materials, curb and gutter, and other related furniture.
Local - Pavement	1500	lane metre	\$67,213.58	Pavement, markings, signs, and other related furniture.
Collector - Structure		lane metre		Base materials, curb and gutter, and other related furniture.
Collector - Pavement		lane metre		Pavement, markings, signs, and other related furniture.
Arterial - Structure		lane metre		Base materials, curb and gutter, and other related furniture.
Arterial - Pavement		lane metre		Pavement, markings, signs, and other related furniture.
Medians		linear metre		Base and surface materials, curb and gutter, landscaping, and other related furniture.
Multi-Use Pathways		linear metre		Surface material, base materials, gates, fencing, and other related furniture.
Signs - Overhead		each		Sign, masting, lighting, and other related furniture.
Sub-Total			\$403,281.47	

Water

Item	Quantity	Unit	Value	Furniture Included in Sub-Type Item
Distribution (AC, CU, GI, GS and CAS)		linear metre		Main, valves, meters, fittings, service laterals, corporation stops, hydrants, and other related furniture.
Distribution (CC, and CO)		linear metre		Main, valves, meters, fittings, service laterals, corporation stops, hydrants, and other related furniture.
Distribution (PE, PVC, SC, and SP)	800	linear metre	\$589,239.04	Main, valves, meters, fittings, service laterals, corporation stops, hydrants, and other related furniture.
Distribution (DC, and DIP)		linear metre		Main, valves, meters, fittings, service laterals, corporation stops, hydrants, and other related furniture.
Wells		each		Well, liner, pump, pump house, screens, and other related furniture.
Pump Stations - Structural & Piping		each		Building, and internal piping, and other related furniture.
Pump Stations - Electrical & Mechanical		each		Electrical systems (MCC, PLC, SCADA), mechanical systems, and other related furniture.
Pressure Reducing Valves		each		Valve, chamber, electrical and mechanical components, and other related furniture.
Sub-Total			\$589,239.04	

Appendix A - Engineering's TCA Allocation

Project 7809-0998-00
PM Jeff Arason
Allocation Contributed

Sewer

Item	Quantity	Unit	Value	Furniture Included in Sub-Type Item
Collection - Gravity (AC, and VCP)		linear metre		Main, manholes, valves, fittings, service laterals, inspection chambers, and other related furniture.
Collection - Gravity (RCP, CP, PE, PVC, SP, DIP, and CAS)	785	linear metre	\$879,377.65	Main, manholes, valves, fittings, service laterals, inspection chambers, and other related furniture.
Collection - Forcemain		linear metre		Main, valves, fittings, and other related furniture.
Collection - Vacuum		linear metre		Main, valves, fittings, service laterals, inspection chambers, and other related furniture.
Pump Stations - Structural & Piping		each		Building, and internal piping, and other related furniture.
Pump Stations - Electrical & Mechanical		each		Electrical systems (MCC, PLC, SCADA), mechanical systems, and other related furniture.
		Sub-Total	\$879,377.65	

Drainage

Item	Quantity	Unit	Value	Furniture Included in Sub-Type Item
Main - Gravity (AC, CSP, CMP, VI)		linear metre		Main, manholes, service laterals, inspection chambers, lawn basins, and other related furniture.
Main - Gravity (CO, PVC, PE)	750	linear metre	\$504,101.84	Main, manholes, service laterals, inspection chambers, lawn basins, and other related furniture.
Main - Misc		linear metre		Main, manholes, service laterals, inspection chambers, lawn basins, and other related furniture.
Floodbox		each		Pipe, headwall, flap gate, sluice gate, and other related furniture.
Culvert - Watercourse		each		Pipe, headwall, trash rack, and other related furniture.
Dyke - Earth		linear metre		Earth dyke, fencing, gates, signs, and other related furniture.
Dyke - Sea Dam		each		Sea dam, and other related furniture.
Dyke - Concrete		linear metre		Concrete dyke, fencing, gates, signs, and other related furniture.
Dyke - Stoplog Structure		each		Stop log structure, stop lots, water proof sealings, shoring, and other related furniture.
Pump Stations - Structural & Piping		each		Building, and internal piping, and other related furniture.
Pump Stations - Electrical & Mechanical		each		Electrical systems (MCC, PLC, SCADA), mechanical systems, and other related furniture.
Detention Ponds - Above Ground		each		Pond, flow control structures, landscaping, fencing, gates, and other related furniture.
Detention Ponds - Below Ground		each		Pipe, flow control structures, access chambers, manholes, and other related furniture.
Channelized Watercourse		linear metre		Watercourse, erosion protection, riparian planting, gates, fencing, signs, and other related furniture.
		Sub-Total	\$504,101.84	
		Project TOTAL	\$2,376,000.00	

**Contributed Asset Cost Allocation
(for Projects with Upsizing or DCW Funding)**

To illustrate the TCA process, a fictional example has been developed that includes an upsizing contribution, and a TCA funded through a Developer Coordinated Works agreement.

The following TCA's have been developed for this project:

Tangible Capital Asset	Quantity
Water - Distribution (PE, PVC, SC, and SP)	800m of 300mm diameter
Sewer - Collection - Gravity (RCP, VCP, CP, PE, PVC, SP, DIP, and CAS)	785m of 200mm diameter
Drainage - Main - Gravity (CO, PVC, PE)	750m of 300mm diameter
Local Road - Structure	1500 lane metres
Local Road - Pavement	1500 lane metres
Curb & Gutter	750m

Of these TCA's:

- the Water - Distribution (PE, PVC, SC, and SP) is 300mm water main that was upsized from 200mm to 300mm at the request of the City.
- 185m of the 785m of Sewer - Collection - Gravity (RCP, VCP, CP, PE, PVC, SP, DIP, and CAS) is being constructed, and funded, at the request of the City through a DCW agreement.

The full costs for this project are as follows:

Tangible Capital Asset	Cost
Water - Distribution (PE, PVC, SC, and SP)	\$456,000 (base size of 200mm)
Water - Distribution (PE, PVC, SC, and SP)	\$112,000 (upsizing cost from 200mm to 300mm)
Sewer - Collection - Gravity (RCP, VCP, CP, PE, PVC, SP, DIP, and CAS)	\$600,000 (non DCW – 600m)
Sewer - Collection - Gravity (RCP, VCP, CP, PE, PVC, SP, DIP, and CAS)	\$185,000 (DCW – 185m)
Drainage - Main - Gravity (CO, PVC, PE)	\$450,000
Local Road - Structure	\$300,000
Local Road - Pavement	\$60,000
Design Services by Land Development Consultant	\$150,000 (to be allocated)
Construction Services by Land Development Consultant	\$105,000 (to be allocated)
TOTAL	\$2,418,000

As discussed, all costs related to the installation of the asset(s) are to be allocated to a TCA. As a rule of thumb, design and construction administration costs are general overhead to the project and can be distributed across the value of each TCA based on weighting of the value (i.e., should a project have a design and construction administration cost of \$50,000 and produce one TCA with a value of \$600,000 and a second TCA of \$400,000, the design and construction administration costs of \$50,000 should be allocated to each asset based on 60% and 40%).

Tangible Capital Asset	% of Cost
Water - Distribution (PE, PVC, SC, and SP)	21.08%
Water - Distribution (PE, PVC, SC, and SP)	5.18%
Sewer - Collection - Gravity (RCP, VCP, CP, PE, PVC, SP, DIP, and CAS)	27.74%
Sewer - Collection - Gravity (RCP, VCP, CP, PE, PVC, SP, DIP, and CAS)	8.55%
Drainage - Main - Gravity (CO, PVC, PE)	20.80%
Local Road - Structure	13.87%
Local Road - Pavement	2.77%
TOTAL	100.00%

Activity	Quantity	Cost w/ Allocations
Water - Distribution (PE, PVC, SC, and SP)	800m	= \$456,000 + (21.08%)(255,000) = \$509,758.67
Water - Distribution (PE, PVC, SC, and SP)	800m	= \$112,000 + (5.18%)(255,000) = \$125,203.88 (upsizing)
Sewer - Collection - Gravity (RCP, VCP, CP, PE, PVC, SP, DIP, and CAS)	600m	= \$600,000 + (27.74%)(255,000) = \$670,735.09
Sewer - Collection - Gravity (RCP, VCP, CP, PE, PVC, SP, DIP, and CAS)	185m	= \$185,000 + (8.55%)(255,000) = \$206,809.99 (DCW)
Drainage - Main - Gravity (CO, PVC, PE)	750m	= \$450,000 + (20.80%)(255,000) = \$503,051.32
Local Road - Structure	1500 lane metres	= \$300,000 + (13.87%)(255,000) = \$335,367.55
Local Road - Pavement	1500 lane metres	= \$ 60,000 + (2.77%)(255,000) = \$ 67,073.51
TOTAL	-	\$2,418,000.00

Contributed Through Land Development	\$2,085,986.13
DCW	\$ 206,809.99
Upsizing	\$ 125,203.88
TOTAL	\$2,418,000.00

Appendix B - Engineering's TCA Allocation

Project 7809-0998-00
PM Jeff Arason
Allocation Contributed

Transportation

Item	Quantity	Unit	Value	Furniture Included in Sub-Type Item
Street Lights		each		Street light, base, ducting/wiring, and other related furniture.
Sidewalks		linear metre		Sidewalk, base materials, and other related furniture.
Signals		each		Traffic Signals, pedestrian signals, fire signals, control cabinets, ducting/wiring, and other related furniture.
Bridges		each		Bride structure, deck, piers, approaches, and other related furniture.
Access Road		linear metre		Surface material, base materials, gates, fencing, and other related furniture.
Local - Structure	1500	lane metre	\$335,367.55	Base materials, curb and gutter, and other related furniture.
Local - Pavement	1500	lane metre	\$67,073.51	Pavement, markings, signs, and other related furniture.
Collector - Structure		lane metre		Base materials, curb and gutter, and other related furniture.
Collector - Pavement		lane metre		Pavement, markings, signs, and other related furniture.
Arterial - Structure		lane metre		Base materials, curb and gutter, and other related furniture.
Arterial - Pavement		lane metre		Pavement, markings, signs, and other related furniture.
Medians		linear metre		Base and surface materials, curb and gutter, landscaping, and other related furniture.
Multi-Use Pathways		linear metre		Surface material, base materials, gates, fencing, and other related furniture.
Signs - Overhead		each		Sign, masting, lighting, and other related furniture.
		Sub-Total	\$402,441.06	

Water

Item	Quantity	Unit	Value	Furniture Included in Sub-Type Item
Distribution (AC, CU, GI, GS and CAS)		linear metre		Main, valves, meters, fittings, service laterals, corporation stops, hydrants, and other related furniture.
Distribution (CC, and CO)		linear metre		Main, valves, meters, fittings, service laterals, corporation stops, hydrants, and other related furniture.
Distribution (PE, PVC, SC, and SP)	800	linear metre	\$509,758.67	Main, valves, meters, fittings, service laterals, corporation stops, hydrants, and other related furniture.
Distribution (DC, and DIP)		linear metre		Main, valves, meters, fittings, service laterals, corporation stops, hydrants, and other related furniture.
Wells		each		Well, liner, pump, pump house, screens, and other related furniture.
Pump Stations - Structural & Piping		each		Building, and internal piping, and other related furniture.
Pump Stations - Electrical & Mechanical		each		Electrical systems (MCC, PLC, SCADA), mechanical systems, and other related furniture.
Pressure Reducing Valves		each		Valve, chamber, electrical and mechanical components, and other related furniture.
		Sub-Total	\$509,758.67	

Appendix B - Engineering's TCA Allocation

Project 7809-0998-00
PM Jeff Arason
Allocation Contributed

Sewer

Item	Quantity	Unit	Value	Furniture Included in Sub-Type Item
Collection - Gravity (AC, and VCP)		linear metre		Main, manholes, valves, fittings, service laterals, inspection chambers, and other related furniture.
Collection - Gravity (RCP, CP, PE, PVC, SP, DIP, and CAS)	600	linear metre	\$670,735.09	Main, manholes, valves, fittings, service laterals, inspection chambers, and other related furniture.
Collection - Forcemain		linear metre		Main, valves, fittings, and other related furniture.
Collection - Vacuum		linear metre		Main, valves, fittings, service laterals, inspection chambers, and other related furniture.
Pump Stations - Structural & Piping		each		Building, and internal piping, and other related furniture.
Pump Stations - Electrical & Mechanical		each		Electrical systems (MCC, PLC, SCADA), mechanical systems, and other related furniture.
		Sub-Total	\$670,735.09	

Drainage

Item	Quantity	Unit	Value	Furniture Included in Sub-Type Item
Main - Gravity (AC, CSP, CMP, VI)		linear metre		Main, manholes, service laterals, inspection chambers, lawn basins, and other related furniture.
Main - Gravity (CO, PVC, PE)	750	linear metre	\$503,051.32	Main, manholes, service laterals, inspection chambers, lawn basins, and other related furniture.
Main - Misc		linear metre		Main, manholes, service laterals, inspection chambers, lawn basins, and other related furniture.
Floodbox		each		Pipe, headwall, flap gate, sluice gate, and other related furniture.
Culvert - Watercourse		each		Pipe, headwall, trash rack, and other related furniture.
Dyke - Earth		linear metre		Earth dyke, fencing, gates, signs, and other related furniture.
Dyke - Sea Dam		each		Sea dam, and other related furniture.
Dyke - Concrete		linear metre		Concrete dyke, fencing, gates, signs, and other related furniture.
Dyke - Stoplog Structure		each		Stop log structure, stop lots, water proof sealings, shoring, and other related furniture.
Pump Stations - Structural & Piping		each		Building, and internal piping, and other related furniture.
Pump Stations - Electrical & Mechanical		each		Electrical systems (MCC, PLC, SCADA), mechanical systems, and other related furniture.
Detention Ponds - Above Ground		each		Pond, flow control structures, landscaping, fencing, gates, and other related furniture.
Detention Ponds - Below Ground		each		Pipe, flow control structures, access chambers, manholes, and other related furniture.
Channelized Watercourse		linear metre		Watercourse, erosion protection, riparian planting, gates, fencing, signs, and other related furniture.
		Sub-Total	\$503,051.32	
		Project TOTAL	\$2,085,986.14	

Appendix B - Engineering's TCA Allocation

Project 7809-0998-00
PM Jeff Arason
Allocation DCW

Transportation

Item	Quantity	Unit	Value	Furniture Included in Sub-Type Item
Street Lights		each		Street light, base, ducting/wiring, and other related furniture.
Sidewalks		linear metre		Sidewalk, base materials, and other related furniture.
Signals		each		Traffic Signals, pedestrian signals, fire signals, control cabinets, ducting/wiring, and other related furniture.
Bridges		each		Bride structure, deck, piers, approaches, and other related furniture.
Access Road		linear metre		Surface material, base materials, gates, fencing, and other related furniture.
Local - Structure		lane metre		Base materials, curb and gutter, and other related furniture.
Local - Pavement		lane metre		Pavement, markings, signs, and other related furniture.
Collector - Structure		lane metre		Base materials, curb and gutter, and other related furniture.
Collector - Pavement		lane metre		Pavement, markings, signs, and other related furniture.
Arterial - Structure		lane metre		Base materials, curb and gutter, and other related furniture.
Arterial - Pavement		lane metre		Pavement, markings, signs, and other related furniture.
Medians		linear metre		Base and surface materials, curb and gutter, landscaping, and other related furniture.
Multi-Use Pathways		linear metre		Surface material, base materials, gates, fencing, and other related furniture.
Signs - Overhead		each		Sign, masting, lighting, and other related furniture.
		Sub-Total	\$0.00	

Water

Item	Quantity	Unit	Value	Furniture Included in Sub-Type Item
Distribution (AC, CU, GI, GS and CAS)		linear metre		Main, valves, meters, fittings, service laterals, corporation stops, hydrants, and other related furniture.
Distribution (CC, and CO)		linear metre		Main, valves, meters, fittings, service laterals, corporation stops, hydrants, and other related furniture.
Distribution (PE, PVC, SC, and SP)		linear metre		Main, valves, meters, fittings, service laterals, corporation stops, hydrants, and other related furniture.
Distribution (DC, and DIP)		linear metre		Main, valves, meters, fittings, service laterals, corporation stops, hydrants, and other related furniture.
Wells		each		Well, liner, pump, pump house, screens, and other related furniture.
Pump Stations - Structural & Piping		each		Building, and internal piping, and other related furniture.
Pump Stations - Electrical & Mechanical		each		Electrical systems (MCC, PLC, SCADA), mechanical systems, and other related furniture.
Pressure Reducing Valves		each		Valve, chamber, electrical and mechanical components, and other related furniture.
		Sub-Total	\$0.00	

Appendix B - Engineering's TCA Allocation

Project 7809-0998-00
PM Jeff Arason
Allocation DCW

Sewer

Item	Quantity	Unit	Value	Furniture Included in Sub-Type Item
Collection - Gravity (AC, and VCP)		linear metre		Main, manholes, valves, fittings, service laterals, inspection chambers, and other related furniture.
Collection - Gravity (RCP, CP, PE, PVC, SP, DIP, and CAS)	185	linear metre	\$206,809.99	Main, manholes, valves, fittings, service laterals, inspection chambers, and other related furniture.
Collection - Forcemain		linear metre		Main, valves, fittings, and other related furniture.
Collection - Vacuum		linear metre		Main, valves, fittings, service laterals, inspection chambers, and other related furniture.
Pump Stations - Structural & Piping		each		Building, and internal piping, and other related furniture.
Pump Stations - Electrical & Mechanical		each		Electrical systems (MCC, PLC, SCADA), mechanical systems, and other related furniture.
		Sub-Total	\$206,809.99	

Drainage

Item	Quantity	Unit	Value	Furniture Included in Sub-Type Item
Main - Gravity (AC, CSP, CMP, VI)		linear metre		Main, manholes, service laterals, inspection chambers, lawn basins, and other related furniture.
Main - Gravity (CO, PVC, PE)		linear metre		Main, manholes, service laterals, inspection chambers, lawn basins, and other related furniture.
Main - Misc		linear metre		Main, manholes, service laterals, inspection chambers, lawn basins, and other related furniture.
Floodbox		each		Pipe, headwall, flap gate, sluice gate, and other related furniture.
Culvert - Watercourse		each		Pipe, headwall, trash rack, and other related furniture.
Dyke - Earth		linear metre		Earth dyke, fencing, gates, signs, and other related furniture.
Dyke - Sea Dam		each		Sea dam, and other related furniture.
Dyke - Concrete		linear metre		Concrete dyke, fencing, gates, signs, and other related furniture.
Dyke - Stoplog Structure		each		Stop log structure, stop lots, water proof sealings, shoring, and other related furniture.
Pump Stations - Structural & Piping		each		Building, and internal piping, and other related furniture.
Pump Stations - Electrical & Mechanical		each		Electrical systems (MCC, PLC, SCADA), mechanical systems, and other related furniture.
Detention Ponds - Above Ground		each		Pond, flow control structures, landscaping, fencing, gates, and other related furniture.
Detention Ponds - Below Ground		each		Pipe, flow control structures, access chambers, manholes, and other related furniture.
Channelized Watercourse		linear metre		Watercourse, erosion protection, riparian planting, gates, fencing, signs, and other related furniture.
		Sub-Total	\$0.00	
		Project TOTAL	\$206,809.99	

Appendix B - Engineering's TCA Allocation

Project 7809-0998-00
PM Jeff Arason
Allocation Upsizing

Transportation

Item	Quantity	Unit	Value	Furniture Included in Sub-Type Item
Street Lights		each		Street light, base, ducting/wiring, and other related furniture.
Sidewalks		linear metre		Sidewalk, base materials, and other related furniture.
Signals		each		Traffic Signals, pedestrian signals, fire signals, control cabinets, ducting/wiring, and other related furniture.
Bridges		each		Bride structure, deck, piers, approaches, and other related furniture.
Access Road		linear metre		Surface material, base materials, gates, fencing, and other related furniture.
Local - Structure		lane metre		Base materials, curb and gutter, and other related furniture.
Local - Pavement		lane metre		Pavement, markings, signs, and other related furniture.
Collector - Structure		lane metre		Base materials, curb and gutter, and other related furniture.
Collector - Pavement		lane metre		Pavement, markings, signs, and other related furniture.
Arterial - Structure		lane metre		Base materials, curb and gutter, and other related furniture.
Arterial - Pavement		lane metre		Pavement, markings, signs, and other related furniture.
Medians		linear metre		Base and surface materials, curb and gutter, landscaping, and other related furniture.
Multi-Use Pathways		linear metre		Surface material, base materials, gates, fencing, and other related furniture.
Signs - Overhead		each		Sign, masting, lighting, and other related furniture.
Sub-Total			\$0.00	

Water

Item	Quantity	Unit	Value	Furniture Included in Sub-Type Item
Distribution (AC, CU, GI, GS and CAS)		linear metre		Main, valves, meters, fittings, service laterals, corporation stops, hydrants, and other related furniture.
Distribution (CC, and CO)		linear metre		Main, valves, meters, fittings, service laterals, corporation stops, hydrants, and other related furniture.
Distribution (PE, PVC, SC, and SP)	800	linear metre	\$125,203.88	Main, valves, meters, fittings, service laterals, corporation stops, hydrants, and other related furniture.
Distribution (DC, and DIP)		linear metre		Main, valves, meters, fittings, service laterals, corporation stops, hydrants, and other related furniture.
Wells		each		Well, liner, pump, pump house, screens, and other related furniture.
Pump Stations - Structural & Piping		each		Building, and internal piping, and other related furniture.
Pump Stations - Electrical & Mechanical		each		Electrical systems (MCC, PLC, SCADA), mechanical systems, and other related furniture.
Pressure Reducing Valves		each		Valve, chamber, electrical and mechanical components, and other related furniture.
Sub-Total			\$125,203.88	

Appendix B - Engineering's TCA Allocation

Project 7809-0998-00
PM Jeff Arason
Allocation Upsizing

Sewer

Item	Quantity	Unit	Value	Furniture Included in Sub-Type Item
Collection - Gravity (AC, and VCP)		linear metre		Main, manholes, valves, fittings, service laterals, inspection chambers, and other related furniture.
Collection - Gravity (RCP, CP, PE, PVC, SP, DIP, and CAS)		linear metre		Main, manholes, valves, fittings, service laterals, inspection chambers, and other related furniture.
Collection - Forcemain		linear metre		Main, valves, fittings, and other related furniture.
Collection - Vacuum		linear metre		Main, valves, fittings, service laterals, inspection chambers, and other related furniture.
Pump Stations - Structural & Piping		each		Building, and internal piping, and other related furniture.
Pump Stations - Electrical & Mechanical		each		Electrical systems (MCC, PLC, SCADA), mechanical systems, and other related furniture.
		Sub-Total	\$0.00	

Drainage

Item	Quantity	Unit	Value	Furniture Included in Sub-Type Item
Main - Gravity (AC, CSP, CMP, VI)		linear metre		Main, manholes, service laterals, inspection chambers, lawn basins, and other related furniture.
Main - Gravity (CO, PVC, PE)		linear metre		Main, manholes, service laterals, inspection chambers, lawn basins, and other related furniture.
Main - Misc		linear metre		Main, manholes, service laterals, inspection chambers, lawn basins, and other related furniture.
Floodbox		each		Pipe, headwall, flap gate, sluice gate, and other related furniture.
Culvert - Watercourse		each		Pipe, headwall, trash rack, and other related furniture.
Dyke - Earth		linear metre		Earth dyke, fencing, gates, signs, and other related furniture.
Dyke - Sea Dam		each		Sea dam, and other related furniture.
Dyke - Concrete		linear metre		Concrete dyke, fencing, gates, signs, and other related furniture.
Dyke - Stoplog Structure		each		Stop log structure, stop lots, water proof sealings, shoring, and other related furniture.
Pump Stations - Structural & Piping		each		Building, and internal piping, and other related furniture.
Pump Stations - Electrical & Mechanical		each		Electrical systems (MCC, PLC, SCADA), mechanical systems, and other related furniture.
Detention Ponds - Above Ground		each		Pond, flow control structures, landscaping, fencing, gates, and other related furniture.
Detention Ponds - Below Ground		each		Pipe, flow control structures, access chambers, manholes, and other related furniture.
Channelized Watercourse		linear metre		Watercourse, erosion protection, riparian planting, gates, fencing, signs, and other related furniture.
		Sub-Total	\$0.00	
		Project TOTAL	\$125,203.88	