

# Overview

## *Engineering*

The Engineering Department consists of the Design group, Water Treatment Plant and Advanced Waste Water Treatment Plant and is responsible for:

- Planning, designing and administering construction on the road and pedestrian network, the water distribution system, the waste water collection system and the drainage system
- Operating, maintaining, planning and administering design and construction projects for the water treatment plant, water reservoirs and water pump stations
- Operating, maintaining, planning and administering design and construction projects for the advanced waste water treatment plant and lift stations
- Keeping record drawings
- Providing comments on development through the Technical Planning Committee
- Providing professional engineering advice to Council and staff



# 2019 Achievements

*Engineering*

- ✓ Approaching completion of the Ellis Creek Master Plan.
- ✓ Approaching completion of the detailed design and permitting for Reach 12 of Penticton Creek,
- ✓ Completed the replacement of Aging and Small water mains.
- ✓ Completed the South Main Sanitary Sewer and Water project.
- ✓ Completed design and construction underway for the Main Street Upgrade Okanagan Avenue to Warren Avenue (2020/05 Comp).
- ✓ Completed the design and installation of Pedestrian Cross Walk Upgrades.
- ✓ Approaching completion of the Phase II Drought Management Plan (2020/02 Comp).
- ✓ Approaching completion of the Chlorine and Sulphur Dioxide Gas Removal from the Water Treatment Process (2020/02 Comp).
- ✓ Approaching completion of the Okanagan Lake Pump Station Electric and Pump Motor Upgrade (2020/03 Comp).



# Challenges & Opportunities

*Engineering*

- **Managing Infrastructure** - The span of responsibility of the Design Supervisor is too wide and items need to be separated added to and given to a new position the Infrastructure Optimization Manager. This will allow for more focused work in the design and contract administration functions and will allow us to better plan and budget for our linear assets.
- **Transportation Engineering** – The number and complexity of Transportation Engineering issues require a budget increase for additional transportation engineering services. This will improve the City’s ability to properly address transportation issues and manage transportation risk.



# Innovations & Cost Savings

*Engineering*

- **Infrastructure Optimization Manager** - Having this position in place will improve the method in which short and long term budgeting and project planning is done.
- **Recycled Material** – The use of recycled asphalt and concrete is being included as an alternate in construction contracts.
- **Geogrid** – Geogrid is being used in road construction to reduce the volume and cost of granular material.
- **In Place Pipe Replacement** – The use of in place pipe replacement in high travel areas is being used to reduce the impact to the public and to reduce cost.
- **Granular Sludge** – The AWWTP continues to work with consultants to pilot a new granular sludge process that could significantly reduce future costs associated with clarifier expansion for the entire wastewater industry.



# 2020 Initiatives

## *Engineering*

- **Lake to Lake Bike Route** – Complete the design of a portion of the Lake-to-Lake Cycling Route.
- **Downtown Revitalization** – Complete detail design for the 400 block of Main Street to the same standard as the 200 and 300 blocks.
- **Source Water Protection** – Complete a plan to determine and mitigate threats to Okanagan Lake source water.
- **Asset Management Renewal** - AWWTP and Lift Stations
- **Emergency Generators** – Install a second power source for the Wilson Street and Marina Way Sanitary Lift Station.



# Staffing

## *Engineering*

<u>2019</u>	<u>2020</u>
25	27



# Operating Budget

*Engineering*

	2019 Budget	2019 Forecast	2020 Budget	Variance
Expense	940,450	940,450	1,432,600	52.3%
Transfer to Capital	(730,000)	(730,000)	(718,000)	
Net Cost Allocations	<u>(210,450)</u>	<u>(210,450)</u>	<u>(714,600)</u>	
<b>Net Expense/(Revenue)</b>	-	-	-	



Note: Variance column represents change between 2019 Forecast and 2020 Budget



# 2020 Capital Budget

*Engineering*

Project description	Budget	General	Water	Sewer
Transportation Master Plan	300,000	300,000		
Riverside Dr, Burnaby Ave, Wylie St - Reconstruction	1,295,025	700,025	585,000	10,000
Industrial Area Fire Flow Upgrades	70,000		70,000	
East Penticton Interceptor - Fairview Ave to Treatment Plant	75,000			75,000





# 2020 Capital Budget – Con't

*Engineering*

Project description	Budget	General	Water	Sewer
North Penticton Interceptor - Fairway Road to Treatment Plant	75,000			75,000
Small Sanitary Sewer Upsizing	40,000			40,000
Pavement Management: Rehabilitation	500,000	500,000		
Downtown Revitalization	110,000	70,000	40,000	



# 2020 Capital Budget – Con't

*Engineering*

Project description	Budget	General	Water	Sewer
Woodstock Road Reconstruction	252,000	200,000	52,000	
Penticton Creek Revitalization	1,340,000	1,340,000		
Intersection and Road Marking Improvements	170,000	170,000		
100mm Water Main Replacement Program	919,400		919,400	



# 2020 Capital Budget – Con't

*Engineering*

Project description	Budget	General	Water	Sewer
Aging Water Main Replacement Program	928,100		803,100	<u>125,000</u>
Irrigation System - Infrastructure Renewals	540,000		<u>540,000</u>	
Bike Network Plan	80,000	80,000		
Sidewalks, Curbs and Gutter Projects	165,000	165,000		
Traffic Calming Program	<u>259,000</u>	<u>259,000</u>		
<b>TOTAL</b>	<b>7,118,525</b>	<b>3,784,025</b>	<b>3,009,500</b>	<b>325,000</b>



# Operating Budget

*AWWTP*

	2019 Budget	2019 Forecast	2020 Budget	Variance
Revenue	(7,112,680)	(6,708,199)	(7,710,559)	14.9%
Expense	2,208,818	2,128,048	2,683,766	26.1%
Net Cost Allocations	<u>(38,985)</u>	<u>(38,985)</u>	<u>(35,000)</u>	
<b>Net Expense/(Revenue)</b>	<b>(4,942,847)</b>	<b>(4,619,136)</b>	<b>(5,061,793)</b>	



Note: Variance column represents change between 2019 Forecast and 2020 Budget



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# Capital Overview

*Sewer*

Project description	Budget
Sewer - Engineering Design	325,000
Sewer Collection	10,000
Advanced Waste Water Treatment Plant	675,000
CIS Software Upgrades - Sewer Portion	<u>5,000</u>
<b>Total</b>	<b>1,015,000</b>



# Capital

*AWWTP*

Project description	Budget
Wonderware efficiencies	35,000
AWWTP - PLC Upgrade	75,000
AWWTP - PME expand to older MCC's	25,000
AWWTP - Asset Management Renewal	50,000
Replace Two Sludge Pumps	50,000
1990 HVAC Replacement	75,000
Sludge Hauling Roll Off Bins (2)	75,000
Wilson & Marina Way Generators and Flow Meters	250,000
Asset Management Renewal - Lift Stations	40,000
<b>Total</b>	<b>675,000</b>



# Operating Budget

*WTP*

	2019 Budget	2019 Forecast	2020 Budget	Variance
Revenue	(8,812,920)	(8,820,449)	(8,984,753)	1.9%
Expense	1,731,790	1,583,036	1,775,946	12.2%
Net Cost Allocations	<u>(37,693)</u>	<u>(37,693)</u>	<u>(39,954)</u>	
<b>Net Expense/(Revenue)</b>	<b>(7,118,823)</b>	<b>(7,275,106)</b>	<b>(7,248,761)</b>	



Note: Variance column represents change between 2019 Forecast and 2020 Budget



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# Capital Overview

*Water*

Project description	Budget
Water - Engineering Design	3,009,500
Water Distribution	500,000
Water Treatment Plant	820,000
CIS Software Upgrades - Water Portion	<u>5,000</u>
<b>Total</b>	<b>4,334,500</b>





# Capital

Project description	Budget
WTP building modifications	200,000
Asset Management Equipment Replacement	50,000
WTP Pressure Reducing Station Equipment	250,000
PLC Equipment Replacement	80,000
WTP Rotork Valve Replacement	60,000
WTP Filter Gallery Valve Replacement	30,000
Source Protection Plan & Assessment	100,000
Air unit replacement program	<u>50,000</u>
<b>Total</b>	<b>820,000</b>

*WTP*



# Deferred Capital Projects

*Engineering*

Project description	\$ Amount
Campbell Drainage	216,000
Carmi Drainage	256,000
Ellis Creek Pre- Design – Cantex / City Lands	368,000
Main St. - 200 Blk Breeze Way Upgrade	100,000
SS Sicamous Revitalization – Society Assistance – Design	100,000
Dewdney Crescent Storm Upgrades	75,000
Storm Water Management – Stormseptors	84,000



# Notice of Motion 447/2019 – 400 Block Main Street Revitalization

## Staff Recommendation

- Proceed with design and construction to revitalize downtown 400 block to the same standard as the 200 and 300 blocks over the 2020-2021 period.
  - \$110,000 contained in proposed 2020 budget for detailed design work.
  - \$1.4 million included in 2021 for construction

## Alternate Options

- The Revit Light (\$1.18m) would involve restoring a 3-lane road, saving as much curb as possible, saving existing trees other than those in poor health, new streetlights and new paver sidewalks.
- The Water Main Only (\$515k) would involve replacing the water main and services from the water main to the building with minimal removals and replacements of curb, sidewalk and asphalt and would result in numerous sections of new curb, restored areas of sidewalk and asphalt.



# Notice of Motion 453/2019 – Financing Lake-to-Lake Bike Access

## Staff Recommendation

- Include detail design and construction in the 2020-2024 budget.
  - \$80,000 included in the proposed 2020 budget for design with an estimated \$300,000 per year required for 2021 to 2024 for construction
  - It is likely that the City will obtain some level of grant funding from the Province of BC for this project. Any funding required beyond that obtained through grants will have to come from debt, reserve draws or general capital funding allocated during the budget process.



# Notice of Motion 454/2019 – Pave City Hall Parking Lot

## Staff Recommendation

- Defer any construction until the completion of the Asset & Amenity Management project.
  - Nothing included in the proposed 2020 budget.
  - Would require \$644,000 capital budget plus \$75,000 to \$200,000 for environmental studies if Council were to direct staff to proceed on this motion. Plus any required environmental work.

## Alternate Options

- Estimated cost to construct the Parking Lot behind City hall to a Zoning Bylaw compliant standard complete with asphalt surface, concrete curbing, street lighting, landscaping and irrigation, bike racks, bike storage and fast EV charge stations is \$644,000.
  - In addition, costs for further environmental assessment consultant work would run \$75,000 to \$200,000.
  - The costs to implement a remediation plan are not known at this time.
- As only parking lot construction is being contemplated at this time, it may be possible to work with the ministry and put in place a plan to build the parking lot and address the contamination during future development phases. This has not been explored, therefore it is unknown if it is possible or what the costs would be until further environmental consulting work and discussions with the ministry are completed.



# Proposed Increase

## *Engineering*

Budget Request	Benefit	Operating Budget Request
<b>Transportation Engineering Functions</b>	Ability to address the backlog of Transportation Safety Policy Issues. Transportation Engineering input into Special Event Road Closure Permits. Reduced liability. Participation in the Transportation Master Plan.	\$40,000
<b>Infrastructure Optimization Manager</b>	Better management of the City's Assets Improved capital budgeting in the Engineering Department. Improved functioning of the Design Area of the Engineering Department Improved GIS oversight	\$121,600
<b>Water and Wastewater Plant Instrumentation Integrator</b>	Bring the task of integrating our SCADA and PLC work in house. Retain and Maintain the knowledge of and expertise in the operation of our SCADA and PLC equipment within the City. Increased opportunity to advance consistency in our approach to SCADA and PLC integration at both plants. This will lead to a severe reduction in SCADA consulting costs in 2021 and should be cost neutral.	\$110,000



# Questions



**THAT Council approve in principle the Engineering business plan initiatives and proposed budget, subject to final review.**

