
To: Zero Waste Committee

From: Maria Lo, Assistant Project Engineer, Solid Waste Services

Date: October 30, 2020 Meeting Date: November 6, 2020

Subject: **Recycling and Solid Waste Management 2019 Report**

RECOMMENDATION

That the Zero Waste Committee receive for information the report dated October 30, 2020, titled "Recycling and Solid Waste Management 2019 Report".

EXECUTIVE SUMMARY

Metro Vancouver produces an annual report on progress towards the waste reduction and recycling goals outlined in the *Integrated Solid Waste and Resource Management Plan* (ISWRMP). In 2019 the region's recycling rate dropped 1% from 64% to 63%, while the per capita disposal rate stayed constant at 0.48 tonnes. The recycling rate drop was primarily due to reduced recycling in the construction and demolition and commercial/institutional sectors. Construction and demolition recycling quantities dropped by approximately 65,000 tonnes, largely due to the closure of two large construction and demolition recycling facilities in the region at the end of 2018. Both facilities have reopened. Metro Vancouver continues to be among the most successful communities in North America with respect to waste reduction and recycling. An update to the region's solid waste management plan has been initiated with the goals of accelerating waste reduction and recycling, reducing greenhouse gases and promoting a circular economy maximizing local benefit.

PURPOSE

The purpose of this report is to update the Zero Waste Committee on progress towards the waste reduction and recycling goals outlined in the *Integrated Solid Waste and Resource Management Plan* for the calendar year 2019.

BACKGROUND

Metro Vancouver is responsible for waste reduction, recycling planning, and the operation of a series of solid waste facilities in the region. Planning for less waste, improving reuse and recycling systems, and managing the remaining waste reflects the public's expectations of high environmental stewardship and affordable and accessible waste management. Municipal solid waste includes waste generated by residents, commercial/institutional businesses, and construction and demolition activity. It excludes industrial and agricultural waste. Annual reporting allows Metro Vancouver to track progress towards its waste reduction and recycling goals. The report is typically provided at the end of the year for the previous year's performance because data sources are not available until late in the next year.

ANNUAL SUMMARY

The primary objectives of the *Integrated Solid Waste and Resource Management Plan* are avoiding waste through waste reduction campaigns, programs and policies, and recovering materials and energy from waste that remains. The target for waste reduction is reducing the per capita waste

generation rate to 90% or less of 2010 levels by 2020. The diversion (recycling) rate target is 80% by 2020, calculated as the portion of waste recycled as a fraction of the total waste generated. In 2019, the per capita waste generation rate was 89% of 2010 levels, exceeding targets. The recycling rate in 2019 was 63%, a 1% drop from 2018. Metro Vancouver continues to be one of the most successful regions in North America in reducing waste and increasing recycling rate with a recycling rate approximately twice the Canadian average, and a per capita disposal rate of approximately two thirds of the Canadian average.

The table below provides a summary of waste disposed, recycled and generated by sector. The full report will be posted on Metro Vancouver's website at:

<http://www.metrovancouver.org/services/solid-waste/about/reports-resources/Pages/default.aspx>

WASTE SECTOR		DISPOSED (tonnes)		RECYCLED (tonnes)		GENERATED (tonnes)		RECYCLING RATE (%)	
		2018	2019	2018	2019	2018	2019	2018	2019
Residential	tonnes	494,048	488,218	585,565	571,961	1,079,613	1,060,179	54%	54%
	tonnes/capita	0.19	0.18	0.22	0.21	0.41	0.40		
Single-Family	tonnes	256,824	254,516	447,639	439,730	704,462	694,246	64%	63%
Multi-Family	tonnes	237,224	233,702	137,926	132,231	375,150	365,933	37%	36%
Commercial/ Institutional	tonnes	397,021	385,073	337,283	289,764	734,304	674,837	46%	43%
	tonnes/capita	0.15	0.14	0.13	0.11	0.28	0.25		
Construction & Demolition	tonnes	391,683	425,713	1,394,202	1,329,696	1,785,885	1,755,409	78%	76%
	tonnes/capita	0.15	0.16	0.53	0.50	0.67	0.65		
Total	tonnes	1,282,752	1,299,005	2,317,050	2,191,421	3,599,801	3,490,425	64%	63%
	tonnes/capita	0.48	0.48	0.87	0.82	1.36	1.30		
	tonnes/ household	1.28	1.27	2.32	2.15	3.60	3.42		

Waste Reduction

The *Integrated Solid Waste and Resource Management Plan* quantifies waste reduction by estimating the change in waste generation over time. Waste generated is the total of the waste disposed and recycled in the region. The total waste generated in 2019 was approximately 3.5 million tonnes or 1.3 tonnes per capita, a 4% drop in per capita generation from 2018. While all sectors generated less waste in 2019 than 2018, the largest decrease was in the commercial/institutional sector. The commercial/institutional per capita generation rate dropped by approximately 9%, which was primarily attributed to reduced use of paper/paper products. Paper/paper products have generally seen reduced generation, particularly easily recyclable paper such as newsprint and office paper.

Reuse

In 2017, Metro Vancouver added the reuse metric, which estimates the amount of material reused rather than recycled or disposed. The data used to estimate reuse include registered charities' financial statements, extended producer responsibility program annual reports, statistical information, reuse program web pages, and communication with key organizations in the second-hand clothing industry, hospitality sector, food rescue organizations, online marketplace, etc. Reuse quantities remained approximately constant, with an estimated 87,500 tonnes of material reused in 2019 compared to 88,100 tonnes in 2018. Clothing and fashion accessories make up the majority of reuse. Reuse tonnage is reported separately from the generation rate and recycling rate calculations.

Recycling

Materials with the highest recycling quantities are concrete, yard and food, and paper/paper products. In 2019, the region recycled approximately 2.2 million tonnes (0.82 tonnes per capita), compared to 2.3 million tonnes (0.87 tonnes per capita) in 2018. The table below summarizes the recycled material quantities. Additional materials and quantities are included in the detailed report, which will be posted on Metro Vancouver's website.

MATERIAL TYPE RECYCLED	2018 (tonnes)	2019 (tonnes)
Asphalt	207,000	239,711
Concrete	833,229	825,896
Paper/Paper Products	283,884	255,263
Wood	230,155	161,420
Yard & Food	429,690	412,556
All Other Materials	333,092	296,575
TOTAL	2,317,050	2,191,421

While all sectors experienced a drop in recycling, the construction and demolition, multi-family, and commercial/institutional sectors experienced more pronounced declines. Wood and paper/paper products experienced the largest declines. Wood recycling decreased by 69,000 tonnes in 2019 compared to 2018, primarily due to the closure of the two largest construction and demolition recycling facilities in the region at the end of 2018. As a result, the region's capacity for wood recycling reduced significantly. Metro Vancouver responded by relaxing the clean wood disposal ban between December 24, 2018 to September 24, 2019, due to limited recycling options for wood. The two facilities reopened under new operators in late 2019 and early 2020. Paper/paper products decreased by 29,000 tonnes in 2019 compared to 2018.

Disposal

The Vancouver Landfill, the Metro Vancouver Waste-to-Energy Facility, and two remote landfills under contract to Metro Vancouver accept municipal solid waste from residential and commercial/institutional sources. Construction and demolition waste is disposed of at the Vancouver Landfill and licensed private facilities. In 2019, Metro Vancouver disposed of an estimated 1.3 million tonnes of waste or 0.48 tonnes per capita, which is the same per capita disposal rate as 2018.

SOLID WASTE MANAGEMENT PLAN UPDATE

Metro Vancouver has initiated a multi-year process to update the solid waste management plan to accelerate waste reduction and recycling, while reducing greenhouse gases and promoting a circular economy that maximizes local benefit. This annual report will provide a benchmark of current performance and inform the two foundational studies of the regional system currently underway.

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

Metro Vancouver's waste reduction and recycling initiatives are implemented within the annual budget for the Solid Waste Services department.

CONCLUSION

In 2019, the waste generation rate was 1.3 tonnes per capita, while the recycling rate was 63%. Residents, commercial/institutional businesses, and construction and demolition activity generated approximately 3.5 million tonnes of waste. 2.2 million tonnes went to recycling, and the remaining 1.3 million tonnes went to disposal. Metro Vancouver has initiated the process of updating the solid waste management plan, which will provide an opportunity to explore new programs to further advance waste reduction and recycling in our region.

41876025

To: Liquid Waste Committee

From: Colin Meldrum, Director, Engineering, Design & Construction, Liquid Waste Services

Date: October 30, 2020 Meeting Date: November 12, 2020

Subject: **Liquid Waste Services Capital Program Expenditure Update as at August 31, 2020**

RECOMMENDATION

That the Liquid Waste Committee receive for information the report dated October 30, 2020, titled "Liquid Waste Services Capital Program Expenditure Update as at August 31, 2020".

EXECUTIVE SUMMARY

The capital expenditure reporting process as approved by the Board provides for regular status reports on capital expenditures 3 times per year. This is the second report for 2020 which includes the overall capital program for Liquid Waste Services with a multi-year view of capital projects, and the actual capital spending for the 2020 fiscal year to August 31, 2020 in comparison to the prorated annual budget. As of August 31, the 2020 capital expenditures for Liquid Waste Services are \$270.7 million, compared to a prorated annual capital budget of \$588.9 million.

Forecasted expenditures for the current Liquid Waste Services capital program remain within the approved budgets. Expenditures for the year are expected to be about \$657.2 million, which represents approximately 74% of the approved capital budget. This is partially due to delays in some projects earlier in the year due to Covid-19.

PURPOSE

To report on the status of the Liquid Waste Services' capital program and financial performance for the 2020 fiscal year to August 31, 2020.

BACKGROUND

The capital expenditure reporting process as approved by the Board provides for regular status reports on capital expenditures with interim reports sent to the Water, Liquid Waste, Zero Waste, and Performance and Audit Committees, in July and October, with a final year-end report to the Committees and the Boards in April of the following year.

This is the second in a series of three reports for 2020 and looks at both the overall capital program for Liquid Waste Services with a multi-year view of capital projects and the actual capital spending for the 2020 fiscal year to August 31, 2020 in comparison to the prorated annual budget.

2020 CAPITAL EXPENDITURES

Capital Program Funding

The capital spending for Liquid Waste Services is funded through the Liquid Waste Operating Budget by a combination of contribution to capital (pay-as-you-go funding) and debt service costs (principal

and interest payments) which is generated annually from the regional ratepayers. As a result, the annual impact on the ratepayers is significantly less than the level of budgeted capital expenditures.

Overall Capital Program

The overall capital program for Liquid Waste Services includes capital projects which require multiple years to complete. These projects are broken down into various phases such as project definition, pre-design, detailed design and construction. With the completion of each phase more information is learned for the appropriate costing of subsequent phases.

Table 1 in Attachment 1 provides a summary of Liquid Waste capital expenditures for both ongoing and completed projects. Completed Projects include a summary of actual spending compared to the Board approved spending limits while the Ongoing Projects include a summary of projected spending to completion compared to Board approved spending limits. With the rare exception, projects tend to complete with actual spending below the approved limits.

Attachment 2 provides the details behind the summary information including specific capital projects, summary financial information and notes as required. Attachment 3 provides additional project status information for some of the key projects included in Attachment 1 – Table 1.

2020 Capital Program Progress

The Metro Vancouver financial planning process includes Board approval of both an annual Operating Budget (operations, contribution to capital and debt service) and an annual Capital Budget for the planned capital infrastructure projects. The annual Capital Budget comprises the projected spending for a list of capital projects either continuing or to be started within the calendar year.

As of August 31, 2020 capital expenditures for Liquid Waste Services were \$270.7 million compared to the prorated annual capital budget of \$588.9 million. The total annual capital budget for 2020 is \$883.4 million. The projected expenditures at the end of the year for the capital program are \$647.2 million, which represents 74.4% of the 2020 capital budget.

The underspend is due to a variety of factors, including Covid-19 induced delays and permitting delays, although projects under construction will see the majority of their expenditures materialize later in the year. Additionally, invoicing by contractors lags financial reporting by at least one month, resulting in an apparent underspend, whereas in reality work has been completed but not paid.

Several projects have been delayed in tendering due to Covid-19, in part to ensure that work would not be adversely affected by the pandemic once under contract. Some additional delays are due to delays in permitting and protracted property negotiations.

Table 2 in Attachment 1 provides a summary of the 2020 actual capital spending compared to the Board approved Capital Budget.

Capital Program Impacts from COVID-19

During these unprecedented times of health and economic uncertainty, all departments are monitoring the impacts of the pandemic on their operations. This includes capital program expenditures.

Overall, the impact to the Liquid Waste Service's capital program has largely been schedule related, with few notable impacts to project expenditures confirmed to date. Staff are monitoring impacts on their projects regularly. Any impacts to project schedules or expenditures are included under the respective project section of Attachment 3.

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

Capital expenditures are funded internally (pay as you go) and through debt financing. As capital expenditures are incurred, short term financing is secured and converted twice per year to long term debt through the Municipal Finance Authority. If capital expenditures are less than budgeted for the year, this surplus, per policy, will be used in future years to fund capital and avoid debt.

CONCLUSION

This is the second in a series of three reports on capital expenditures for 2020. Although the 2020 Liquid Waste Services Capital expenditures lag the pro-rated budget, the variance is a result of cash flow timing, with a number of projects expected to see the bulk of the expenditures in the second half of the year. Any surplus resulting from a 2020 underspend will be used to directly fund capital in 2021 and avoid future borrowing.

Attachments

1. Liquid Waste Services Capital Expenditure Summary as at August 31, 2020
2. Detailed Capital Expenditure Summary – Liquid Waste Services
3. Liquid Waste Services Capital Project Status Information

41088371

ATTACHMENT 1

Metro Vancouver

Capital Expenditure Summary

Liquid Waste Services

As at August 31, 2020

Table 1 – Ongoing and Completed Project Summary

	Total Projected to Completion	Total Budget	Projected Variance
Liquid Waste Services			
Ongoing	\$ 6,782,178,000	\$ 6,793,934,000	\$ 11,756,000
Completed	5,649,000	5,780,000	131,000
Not Started	292,705,000	292,705,000	-
Cancelled	-	-	-
	\$ 7,080,532,000	\$ 7,092,419,000	\$ 11,887,000

Table 2 – August 2020 Capital Spending Summary

	2020 Budget	Prorated Budget to August 2020	Actual Expenditures
Liquid Waste Services			
Infrastructure Growth Capital	\$ 294,550,000	\$ 196,368,000	\$ 91,771,825
Infrastructure Maintenance Capital	150,250,000	100,163,000	37,043,730
Infrastructure Resilience Capital	24,700,000	16,467,000	11,450,622
Infrastructure Upgrade – Waste Treatment Capital	352,870,000	235,246,000	111,631,492
Infrastructure Upgrade Capital	49,200,000	32,800,000	15,026,791
Opportunity Capital	11,850,000	7,900,000	3,730,344
	\$ 883,420,000	\$ 588,944,000	\$ 270,654,804

Metro Vancouver
Liquid Waste Services Capital Expenditures Summary
As of August 31, 2020

		Lifetime									
		Total Project Budget	Total Expenditures to Date	Remaining Budget	Projected Expenditures	Projected Remaining Budget	Percent Complete	Status	Project on Schedule?	Note	
Project Name	Project Location										Comments
Infrastructure Growth Capital											
AIWWTP Site Construction Layout	Delta	600,000	149,420	450,580	600,000	-	25%	Ongoing	Y		
Albert Street Trunk Sewer	Port Moody	5,550,000	3,491,365	2,058,635	8,050,000	(2,500,000)	63%	Ongoing	Y	(6)	Higher costs are expected due to challenging ground conditions, a switch to tunnelling, and a longer length of sewer.
Annacis Outfall System	Delta	378,000,000	90,577,224	287,422,776	378,000,000	-	24%	Ongoing	N		Substantial completion extended by 6 weeks to June 6, 2024 due to TBM factory closure in Europe due to Covid-19
Annacis Stage 5 Expansion Phase 1 T1 & T2	Delta	243,500,000	234,997,967	8,502,033	243,500,000	-	97%	Ongoing	Y		
Annacis Stage 5 Expansion Phase 2	Delta	22,000,000	16,592,768	5,407,232	22,000,000	-	75%	Ongoing	Y		
Annacis Stage 5 Expansion Phase 2a	Delta	180,000,000	151,174,235	28,825,765	180,000,000	-	84%	Ongoing	Y		
Annacis Stage 5 Expansion Phase 2b	Delta	150,000,000	5,110,465	144,889,535	150,000,000	-	3%	Ongoing	Y	(6)	Project budget increased due to amalgamation of future Phase 2c project and the addition of future Trickling Filter works
Annacis Stage 5 Expansion Phase 2c	Delta	90,000,000	-	90,000,000	90,000,000	-	0%	Not Started	Y		Project will be rolled into Phase 2b, and will be dropped as a separate project.
Burnaby Lake North Interceptor Cariboo Section	Burnaby	41,000,000	-	41,000,000	41,000,000	-	0%	Not Started	N		Delayed to prioritize the Winston (upstream) section.
Burnaby Lake North Interceptor Winston Section	Burnaby	116,950,000	4,959,947	111,990,053	116,950,000	-	4%	Ongoing	Y		
Burnaby South Slope Interceptor West Branch Extension	Burnaby	13,200,000	-	13,200,000	13,200,000	-	0%	Not Started	Y		Scheduled to start in 2021
Cloverdale Pump Station Capacity Upgrade	Surrey	36,400,000	268,170	36,131,830	36,400,000	-	1%	Ongoing	N		Slight delay to determine scope of upgrades
Cloverdale Trunk Sewer Capacity Upgrade	Surrey	29,000,000	-	29,000,000	29,000,000	-	0%	Not Started	Y		Scheduled to start in 2022
Glenbrook Combined Trunk Kingsway Sanitary Section	Burnaby	4,500,000	230,510	4,269,490	4,500,000	-	5%	Ongoing	Y	(6)	Project budget increased due to better defined scope.
Golden Ears Forcemain and River Crossing	Maple Ridge	86,000,000	5,181,832	80,818,168	86,000,000	-	6%	Ongoing	Y		
Golden Ears Pump Station	Maple Ridge	50,200,000	7,370,478	42,829,522	47,200,000	3,000,000	15%	Ongoing	Y	(1)	
Golden Ears SSO Storage	Maple Ridge	51,500,000	9,363,697	42,136,303	48,500,000	3,000,000	18%	Ongoing	Y	(1)(2)	Property acquisition remaining
Hastings Sanitary Trunk Sewer	Burnaby	15,031,000	12,988,675	2,042,325	13,177,000	1,854,000	86%	Ongoing	Y	(1)(2)	
Hastings Sanitary Trunk Sewer No. 2	Burnaby	20,000,000	7,204,598	12,795,402	8,524,000	11,476,000	36%	Ongoing	Y	(1)(2)	
Hastings-Cassiar Intake Connection	Vancouver	2,350,000	79,503	2,270,497	2,350,000	-	3%	Ongoing	N		Project delayed by one year to accommodate expanded scope (remotely operated gate) to improve functionality.
Lulu Island WWTP Digester No 3	Richmond	53,300,000	1,393,607	51,906,393	53,300,000	-	3%	Ongoing	N	(4)	Waiting for results of Regional Digester Servicing Plan, which may repurpose this project .
Marshend Pump Station Capacity Upgrade	Burnaby	13,775,000	536,008	13,238,992	13,775,000	-	4%	Ongoing	Y		
NLWWTP Ground Improvements	Langley Township	83,000,000	34,424,611	48,575,389	83,000,000	-	41%	Ongoing	Y	(6)	Updated to reflect increases in construction pricing for Phase 3 using savings from Outfall
NLWWTP Outfall	Langley Township	159,000,000	311,397	158,688,603	159,000,000	-	1%	Ongoing	Y	(6)	More cost effective design being investigated
NLWWTP Property Purchase	Langley Township	12,000,000	-	12,000,000	12,000,000	-	0%	Not Started	Y	(6)	Purchase to occur 2022 - updated to reflect increases to industrial real estate, funded by saving from Outfall.
NLWWTP Stage 1	Langley Township	889,000,000	12,956,115	876,043,885	889,000,000	-	1%	Ongoing	Y	(6)	Construction to start 2022 - Updated to reflect 30% design estimate using savings from Outfall
North Road Trunk Sewer	Coquitlam	11,675,000	6,074,337	5,600,663	11,675,000	-	52%	Ongoing	Y		
North Road Trunk Sewer Phase 2	Coquitlam	8,438,000	783,417	7,654,583	8,438,000	-	9%	Ongoing	Y		Project construction deferred until 2022-2023.
North Vancouver Interceptor - Lynn Branch Pre-build	Dist of North Van	3,950,000	294,804	3,655,196	3,950,000	-	95%	Ongoing	Y		Work is done, Waiting for Properties to negotiate an acceptable Highway Permit prior to paying
NSI 104th Ave Extension	Surrey	6,800,000	4,938,694	1,861,306	6,800,000	-	73%	Ongoing	Y	(6)	Project had been on hold for several years, and is being rescoped.
NSI Flow Management	Surrey	63,200,000	4,422,870	58,777,130	63,200,000	-	7%	Ongoing	N	(6)	Project delayed to improve scope definition and delivery method. Budget increased to reflect a potential threefold increase in tank size.
Port Moody Pump Station Capacity Upgrade	Port Moody	10,550,000	487,899	10,062,101	10,550,000	-	5%	Ongoing	N		Project delayed to confirm scope.
Port Moody South Interceptor Capacity Upgrade	Port Moody	3,450,000	-	3,450,000	3,450,000	-	0%	Not Started	Y		Scheduled to start in 2021
Rosemary Heights Pressure Sewer Capacity Upgrade	Surrey	10,750,000	-	10,750,000	10,750,000	-	0%	Not Started	Y		Scheduled to start in 2021

Metro Vancouver
Liquid Waste Services Capital Expenditures Summary
As of August 31, 2020

		Lifetime									
		Total Project Budget	Total Expenditures to Date	Remaining Budget	Projected Expenditures	Projected Remaining Budget	Percent Complete	Status	Project on Schedule?	Note	
Project Name	Project Location										Comments
Sapperton Pump Station	New Westminster	82,003,000	67,045,066	14,957,934	77,887,000	4,116,000	82%	Ongoing	N	(1)	Project experiencing minor delays due to construction issues. Commissioning expected in Q4 2020.
South Surrey Interceptor Johnston Section	Surrey	84,026,000	47,987,788	36,038,212	84,026,000	-	57%	Ongoing	N		Final section delayed due to protracted property and permitting issues.
Sperling PS Increase Pump Capacity	Burnaby	3,150,000	2,529,453	620,547	2,800,000	350,000	80%	Ongoing	Y	(2)	
SSI - King George Section - Odor Control Facility (OCF) and Grit Chamber	Surrey	19,500,000	13,214,905	6,285,095	19,500,000	-	68%	Ongoing	N		Project is proceeding at a slower pace than expected due to construction issues.
		3,053,348,000	747,141,825	2,306,206,175	3,032,052,000	21,296,000					
Infrastructure Maintenance Capital											
AIWWTP Cogen Building Refurbishment	Delta	1,500,000	-	1,500,000	1,500,000	-	0%	Not Started	N	(4)	Project on hold pending completion of the Cogen Backup Power Project.
AIWWTP Fibre Optic Infrastructure	Delta	1,500,000	600,335	899,665	1,500,000	-	40%	Ongoing	Y		
AIWWTP ICS Replacement Program	Delta	14,350,000	-	14,350,000	14,350,000	-	0%	Not Started	N		Late start to give way to Stage V Activities.
AIWWTP Influent System Remediation	Delta	82,600,000	272,001	82,327,999	84,000,000	(1,400,000)	1%	Ongoing	Y	(6)	
AIWWTP IPS Pump Building Roof Replacement Phase 2	Delta	830,000	-	830,000	830,000	-	0%	Not Started	N	(4)	Deferred to 2024 based on results of detailed condition assessment.
AIWWTP Outfall Repair	Delta	1,800,000	-	1,800,000	1,800,000	-	0%	Not Started	N	(4)	Scope review underway to account for new inspection information.
AIWWTP Replacement of ICS Equipment in Galleries	Delta	2,895,000	1,548,866	1,346,134	2,895,000	-	54%	Ongoing	Y		
AIWWTP Scheduled 64kV Potential & Current Transformer Replacements	Delta	800,000	-	800,000	800,000	-	0%	Ongoing	N		Anticipated to start in Q4 2020 after cogen completed
AIWWTP SCL Flow Balancing	Delta	2,450,000	913,895	1,536,105	2,450,000	-	37%	Ongoing	Y		
AIWWTP SCL Flow Control	Delta	31,500,000	11,445,013	20,054,987	31,500,000	-	36%	Ongoing	Y		
AIWWTP Scum Pump Replacement	Delta	1,350,000	-	1,350,000	1,350,000	-	0%	Not Started	N	(4)	Project on hold pending completion of the primary sedimentation tank portion of Annacis Stage 5
AIWWTP Secondary Effluent Discharge Flowmeter Replacement	Delta	400,000	38,795	361,205	54,000	346,000	99%	Ongoing	Y	(2)	Project under expenditure due to partial construction cost covered by O&M budget during emergency equipment replacement.
AIWWTP Spare Trickling Filter Pump & Motor Purchase	Delta	1,950,000	-	1,950,000	1,950,000	-	0%	Not Started	N	(4)	
AIWWTP Station Battery Replacement - PHASE 2	Delta	400,000	110,936	289,064	232,000	168,000	28%	Ongoing	Y	(2)	
AIWWTP Trickling Filter Media & Distributor Arms & Ducting Replacement	Delta	90,700,000	14,175,469	76,524,531	90,700,000	-	16%	Ongoing	Y		
Annacis MCC 80 051, 80 070, 80 071 Replacement	Delta	2,844,000	1,790,886	1,053,114	2,844,000	-	63%	Ongoing	Y		
Annacis Secondary Clarifier Corrosion Repair and Leveling Phase 2	Delta	22,000,000	8,028,986	13,971,014	22,000,000	-	36%	Ongoing	Y		
Big Bend Forcemain - Gate Replacement	Richmond	2,680,000	70,209	2,609,791	2,680,000	-	3%	Ongoing	N		Implementation Phase deferred to 2024
Cambie Trunk Sewer Relocation for Broadway Subway Project	Vancouver	4,500,000	-	4,500,000	4,500,000	-	0%	Ongoing	N		Project scope to be further defined after design/build team selected.
Combined Sewer Overflow Sampling Station Enhancements	Regional	1,900,000	150,570	1,749,430	1,900,000	-	8%	Ongoing	Y		
Cost Allocation Billing Network (Combined 96 F4)	Regional	5,230,000	5,098,591	131,409	5,099,000	131,000	100%	Completed	Y	(2)	
Crescent Beach FM - Replacement	Surrey	25,570,000	2,735,371	22,834,629	25,570,000	-	11%	Ongoing	Y	(6)	Revised cost estimate for works.
English Bay/Balaclava Outfalls Improvement	Vancouver	900,000	-	900,000	900,000	-	0%	Not Started	Y		Scheduled to start in 2021.
FSA Flow Metering Program	Regional	3,500,000	939,018	2,560,982	3,500,000	-	27%	Ongoing	Y		
Gilbert/Brighthouse Trunk Pressure Sewer Rehab Phase 5	Richmond	23,200,000	-	23,200,000	23,200,000	-	0%	Not Started	Y		Scheduled to start in 2023.
Gilbert/Brighthouse Trunk Pressure Sewer Twinning Phase 2	Richmond	50,501,000	31,932,729	18,568,271	50,501,000	-	63%	Ongoing	Y		
Gilbert/Brighthouse Trunk Pressure Sewer Twinning Phase 3	Richmond	44,400,000	14,455,652	29,944,348	44,400,000	-	33%	Ongoing	Y		
Gilbert/Brighthouse Trunk Pressure Sewer Twinning Phase 4	Richmond	41,400,000	1,013,303	40,386,697	41,400,000	-	2%	Ongoing	Y		
Glen Eagles Forcemains Replacement Phase 2	West Vancouver	7,750,000	284,033	7,465,967	7,750,000	-	4%	Ongoing	Y		
Glen Eagles Pump Stations Phase 1	West Vancouver	22,500,000	671,169	21,828,831	22,500,000	-	3%	Ongoing	Y		
Glen Eagles Pump Stations Phase 2	West Vancouver	5,000,000	-	5,000,000	5,000,000	-	0%	Not Started	Y		Scheduled to start in 2022
Harbour West & East Interceptors Reloc & Protect	Vancouver	19,500,000	23,037	19,476,963	19,500,000	-	1%	Ongoing	Y		
IIWWTP Digester 4 Roof Replacement & Mixing Replacement	Richmond	24,800,000	16,321,918	8,478,082	19,308,000	5,492,000	90%	Ongoing	Y	(2)	
IIWWTP Grit System Refurbishment	Richmond	8,100,000	7,492,699	607,301	8,100,000	-	93%	Ongoing	Y		
IIWWTP ICS IPS Control Replacement	Richmond	1,750,000	385	1,749,615	1,750,000	-	1%	Ongoing	Y		
IIWWTP ICS Replacement Program	Richmond	750,000	-	750,000	750,000	-	0%	Ongoing	Y		
IIWWTP Influent Gate Refurbishment	Richmond	1,350,000	269,496	1,080,504	1,350,000	-	20%	Ongoing	Y		
IIWWTP IPS Drive Remediation	Richmond	800,000	-	800,000	800,000	-	0%	Not Started	N	(4)	Awaiting completion of Options Analysis study.
IIWWTP MCC/Power Distribution Assess/Replace - Phase 2	Richmond	1,000,000	598,164	401,836	638,000	362,000	99%	Ongoing	Y	(2)	
IIWWTP PA-Sed Tank & Gallery Wall Refurbishment	Richmond	1,375,000	-	1,375,000	1,375,000	-	0%	Not Started	N		Work delayed to confirm scope of repair.

Metro Vancouver
Liquid Waste Services Capital Expenditures Summary
As of August 31, 2020

		Lifetime									
		Total Project Budget	Total Expenditures to Date	Remaining Budget	Projected Expenditures	Projected Remaining Budget	Percent Complete	Status	Project on Schedule?	Note	Comments
Project Name	Project Location										
IWWTP Replacement of CoGen Control System	Richmond	2,470,000	961,988	1,508,012	2,470,000	-	39%	Ongoing	Y		
IWWTP Siphon Chamber Refurbishment	Richmond	2,200,000	-	2,200,000	2,200,000	-	0%	Not Started	N		Project delayed to allow improved coordination of other related works and improve safe operating conditions for work site.
IWWTP Solids Handling Refurbishment	Richmond	30,500,000	30,079,205	420,795	30,350,000	150,000	99%	Ongoing	Y	(2)	
Iona Island Control & Instrumentation Replacement 2011	Richmond	2,750,000	1,947,620	802,380	2,750,000	-	71%	Ongoing	Y		
LIWWTP CCT Isolation Gates	Richmond	2,050,000	383,850	1,666,150	2,050,000	-	19%	Ongoing	Y		
LIWWTP High Efficiency Boiler	Richmond	1,330,000	90,367	1,239,633	1,330,000	-	7%	Ongoing	N	(4)	Rescheduled to after Biogas Cleanup Project is completed and in operation.
LIWWTP ICS Replacement Program	Richmond	6,750,000	17,847	6,732,153	6,750,000	-	1%	Ongoing	Y		
LIWWTP PA-Sed Tank Refurbishment	Richmond	4,115,000	21,212	4,093,788	4,115,000	-	1%	Ongoing	Y		
LSA Flow Metering Program	Richmond	300,000	76,399	223,601	300,000	-	25%	Ongoing	Y		
Marshend PS Rehab	Burnaby	7,000,000	897,316	6,102,684	7,000,000	-	13%	Ongoing	N		Project delayed to confirm scope.
New West Interceptor Grit Chamber	New Westminster	8,250,000	214,125	8,035,875	8,250,000	-	3%	Ongoing	Y	(6)	Change in concept and integration with new Sapperton PS resulted in additional costs.
New Westminster Interceptor Repair Columbia St. Section	New Westminster	10,882,000	1,140,251	9,741,749	26,207,000	(15,325,000)	10%	Ongoing	Y	(6)	Project length increased substantially (300%) due to additional investigations. Project budget update proposal for 2021.
NLWWTP Screw Pump Replacement	Langley City	1,550,000	185,480	1,364,520	1,550,000	-	12%	Ongoing	Y		
NSA Flow Metering Program	West Vancouver	900,000	131,168	768,832	900,000	-	15%	Ongoing	Y		
NSI Rehab or Replacement	Surrey	46,950,000	1,282,526	45,667,474	46,950,000	-	3%	Ongoing	N		Project delayed to improve scope definition, and coordination with other works.
NWI - Annacis Section 2 Improvement	Delta	45,000,000	348,674	44,651,326	45,000,000	-	1%	Ongoing	N		Project delayed to improve scope definition, and coordination with other works.
NWL WWTP 25 kV Substation Replacement	Langley Township	10,025,000	4,703,007	5,321,993	8,666,000	1,359,000	47%	Ongoing	Y	(1)	
Ocean Park Trunk Crescent Section (OPC) Pipe Rehabilitation/Replacement	Surrey	4,953,000	286,208	4,666,792	3,463,000	1,490,000	6%	Ongoing	N	(1)	Property acquisition delays.
Ocean Park Trunk Manholes Lining	Surrey	550,000	-	550,000	550,000	-	0%	Not Started	N		Scheduled to start in 2021
Port Coquitlam Pump Station Refurbishment	Port Coquitlam	9,250,000	-	9,250,000	9,250,000	-	0%	Not Started	N		Scheduled to start in 2021
Royal Ave PS Rehabilitation	New Westminster	7,238,000	1,092,791	6,145,209	7,238,000	-	15%	Ongoing	N		Scope to be reviewed pending final result of hydraulic study.
Sewer Relocations and Protections at Fraser Surrey Docks	Surrey	25,800,000	-	25,800,000	25,800,000	-	0%	Not Started	N		Scheduled to start in Fall 2020.
Sewer Relocations and Protections for Pattullo Bridge Replacement Project	New Westminster	7,000,000	6,300	6,993,700	7,000,000	-	1%	Ongoing	N		Project start based on 3rd party bridge contractor.
SSI Influent Control Chamber Repair and Replace Gates	Delta	1,305,000	13,554	1,291,446	1,305,000	-	1%	Ongoing	Y		
Surrey Corrosion Control Facility Replacement	Surrey	2,900,000	190,547	2,709,453	2,647,000	253,000	7%	Ongoing	N	(2)	Project delayed to resolve siting issues.
VSA Flow Metering Program	Regional	5,800,000	517,826	5,282,174	5,800,000	-	9%	Ongoing	Y		
Westridge FM Replacement	Burnaby	3,650,000	400,476	3,249,524	3,529,000	121,000	11%	Ongoing	Y	(3)	
Westridge Pump Stations 1 & 2 Refurbishment	Burnaby	16,250,000	357,508	15,892,492	16,250,000	-	2%	Ongoing	Y		
Works Yard	Burnaby	32,000,000	-	32,000,000	32,000,000	-	0%	Ongoing	Y		
		858,043,000	166,327,772	691,715,228	864,896,000	(6,853,000)					
Infrastructure Resilience Capital											
AIWWTP 69 kV Substation Modifications	Delta	8,500,000	1,508,033	6,991,967	2,313,000	6,187,000	18%	Ongoing	Y	(1)(2)	Project under expenditure as BC Hydro requirements less than anticipated.
AIWWTP Cogeneration Backup Power	Delta	75,003,000	65,375,260	9,627,740	75,003,000	-	87%	Ongoing	Y		
AIWWTP PST Area Walkway & Column Remediation	Delta	3,100,000	1,357,424	1,742,577	1,463,000	1,637,000	95%	Ongoing	Y	(1)(2)	Under budget due to efficient design, competitive market pricing and less tank defects than anticipated.
AIWWTP UPS Condition Monitoring System	Delta	550,000	-	550,000	550,000	-	0%	Not Started	N	(4)	Construction on hold until resolution of design issues.
IWWTP - Biogas Lines Relocation	Richmond	5,780,000	3,392,720	2,387,280	5,780,000	-	75%	Ongoing	N		Delay caused by contractor’s inability to secure approvals, materials, and resources in an efficient manner to meet stated schedule.
IWWTP Standby Diesel Generators	Richmond	5,000,000	2,431	4,997,569	5,000,000	-	1%	Ongoing	Y		
LIWWTP Power Reliability	Richmond	8,202,000	1,094,224	7,107,776	8,202,000	-	13%	Ongoing	Y		
SSI Sulfide Odour and Corrosion Control	Delta	7,700,000	941,448	6,758,552	7,700,000	-	12%	Ongoing	N	(6)	Project delayed due to permitting challenges.
VSA Emergency Backup Power	Vancouver	24,310,000	8,288,833	16,021,167	24,310,000	-	34%	Ongoing	Y		
		138,145,000	81,960,372	56,184,628	130,321,000	7,824,000					
Infrastructure Upgrade - WasteTreatment Capital											

Metro Vancouver
Liquid Waste Services Capital Expenditures Summary
As of August 31, 2020

		Lifetime									
Project Name	Project Location	Total Project Budget	Total Expenditures to Date	Remaining Budget	Projected Expenditures	Projected Remaining Budget	Percent Complete	Status	Project on Schedule?	Note	Comments
Iona Secondary Treatment Upgrade	Richmond	1,904,500,000	13,603,591	1,890,896,409	1,904,500,000	-	1%	Ongoing	Y	(5)	A budget update will be provided in early 2021, following completion of the Indicative Design. A project review is being completed to assess cost, risk and schedule, and further updates will be provided at a later date.
North Shore WWTP Secondary Upgrade and Conveyance	Dist of North Van	881,900,000	253,765,779	628,134,221	881,900,000	-	29%	Ongoing	Y	(5)	
		2,786,400,000	267,369,370	2,519,030,630	2,786,400,000	-					
Infrastructure Upgrade Capital											
AIWWTP Ammonia Removal – Sidestream	Delta	125,900,000	733,551	125,166,449	125,900,000	-	1%	Ongoing	Y	(4)	Continuing with data collection with more analyses in 2022 to confirm study results.
AIWWTP DAF Polymer Building Replacement	Regional	550,000	546,098	3,902	550,000	-	100%	Completed	Y		
AIWWTP Electrical Distribution System Protection Control and Monitoring	Delta	2,650,000	29,990	2,620,010	2,650,000	-	1%	Ongoing	Y		
AIWWTP Replacement of Protective Relays	Delta	3,258,000	1,993,945	1,264,055	3,258,000	-	61%	Ongoing	Y		Property purchase delayed.
All WWTPs Power Quality Monitoring & Outage Alarming Network	Regional	2,870,000	1,752,118	1,117,882	2,870,000	-	61%	Ongoing	Y		
Biosolids Dryer	Langley City	14,700,000	73,480	14,626,520	14,700,000	-	0%	Ongoing	N		
IIWWTP Biosolids Dewatering Facility	Richmond	61,300,000	29,035,058	32,264,942	61,300,000	-	47%	Ongoing	Y		
IIWWTP Sludge Lagoons Dewatering Facility	Richmond	2,850,000	44,556	2,805,444	2,850,000	-	2%	Ongoing	Y		
New CSO Management Gates for New Westminster Interceptor	New Westminster	5,925,000	103,894	5,821,106	5,925,000	-	2%	Ongoing	Y		(4) Awaiting completion of AI Stage 5 Ph1 and AI Cogen projects studies.
WWTPs Electrical System Studies & Upgrades	Regional	1,900,000	-	1,900,000	1,900,000	-	0%	Not Started	N		
		221,903,000	34,312,688	187,590,312	221,903,000	-					
Opportunity Capital											
AIWWTP Hydrothermal Processing Pilot	Delta	8,980,000	498,208	8,481,792	19,360,000	(10,380,000)	6%	Ongoing	Y	(6)	Project definition resulted in additional complexity and costs.
Fraser Sewerage Area Integrated Resource Recovery (IRR) Study	Regional	1,200,000	-	1,200,000	1,200,000	-	0%	Ongoing	N		Contract signed in Aug 2020. Project start anticipated Sept with completion by end of 2021.
LIWWTP Biogas Clean-up Project	Richmond	13,800,000	7,555,182	6,244,818	13,800,000	-	55%	Ongoing	Y		
LIWWTP Pilot Digestion Optimization Facility	Richmond	3,100,000	860,757	2,239,243	3,100,000	-	28%	Ongoing	Y		
North Surrey Interceptor - Port Mann Section - Odour Control	Surrey	7,500,000	98,647	7,401,353	7,500,000	-	1%	Ongoing	Y		
		34,580,000	9,012,794	25,567,206	44,960,000	(10,380,000)					
		7,092,419,000	1,278,472,988	5,813,946,012	7,080,532,000	11,887,000					
Total Liquid Waste Services		7,092,419,000	1,278,472,988	5,813,946,012	7,080,532,000	11,887,000					
Grand Total Liquid Waste Services		7,092,419,000	1,306,124,822	5,786,294,178	7,080,532,000	11,887,000					

Notes:

- (1) Project will be completed under budget - savings due to competitive pricing.
- (2) Full contingency not required.
- (3) Design work done in house resulting in lower cost.
- (4) Project on hold.
- (5) Separate status reports are being provided to the Liquid Waste Committee and Board.
- (6) Additional budget included in 2021 Capital Plan.

Capital Project Status Information

August 31, 2020

GREATER VANCOUVER SEWERAGE & DRAINAGE DISTRICT (Liquid Waste Services)

Major GVS&DD liquid waste capital projects are generally proceeding on schedule and within budget. The following capital program items and exceptions are highlighted:

Infrastructure Growth Program

- **FSA – Albert Street Trunk Sewer** – The construction contract for Phase 1 involved 700 m of new sewer along Seaforth Drive in Port Moody and is complete. Phase 2, which involves 200 m from Spring Street to Vintner Street, is being designed as a tunneled section to mitigate traffic impacts and geotechnical concerns. Staff are targeting a Q4 2020 construction start and Q1 2021 completion.
- **FSA – Burnaby Lake North Interceptor (also known as the Winston Street Sewer)** – Phase 1 of the sewer twinning along Lougheed Highway west of Sperling Street is complete. Phase 2 and 3, with diameters of 1050 mm to 1800 mm, involves 1.2 km of open cut and 2 km of tunneled sewer respectively, and will be located along Winston Street from Sperling to east of Piper Street on the north side of Burnaby Lake. The open cut portion of the work was awarded to JJM Construction Ltd. in February 2020 and the construction is now underway. The tunneling portion of the work is aimed to be tendered in Q4 of 2020. Construction is scheduled to be complete in 2022. Phase 4, which continues to Cariboo Street, will be completed at a later date.
- **FSA – North Road Trunk Sewer** – This project will provide additional sewer capacity to the growing area near Lougheed Mall and Burquitlam in the Cities of Burnaby and Coquitlam. The construction contract for Phase 1 of this project involves 800 m of new sewer along North Road from Brunette River to north of the Lougheed Highway. The construction contract was awarded to Clearway Construction Ltd., in June 2019. As of the end of August, the contractor is 99% complete and is projected to be fully completed later in 2020. Following the completion of the open cut sewer works, a second contract to build a pipe bridge spanning the BNSF Railway will be issued subject to resolving property and permitting requirements. Phase 2, which involves extending the sewer north of Lougheed Highway to Clarke Road is scheduled for construction in 2022.
- **FSA – South Surrey Interceptor Twinning Johnston Road Section** – This project involves construction of approximately 2.2 km of 3 m diameter sewer, to provide additional capacity to service Surrey and Langley. Construction started in 2015, and is being completed in 5 separate construction contracts. The first two contracts consisted of 1.1 km of open cut sewer from King George Boulevard to Panorama Drive and are totally complete. The third contract involved 820 m of tunnel and was awarded in April 2018 and was substantially completed in December, 2019, with one connection to the City of Surrey sewer remaining to be completed. The last two contracts, involving 220 m of open cut and a large junction chamber, are scheduled to be tendered in 2021 and 2022 respectively. Total project completion is anticipated to be reached in 2023.

- **FSA – South Surrey Interceptor – King George Section Odour Control Facility (OCF) and Grit Chamber.** This project involves three separate installations: two odour control facilities (at King George Boulevard near 56 Ave in Surrey and at Highway 10 and Highway 91 in Delta) and a grit chamber at the King George location. The grit chamber portion of this project is complete and in service. Trittech Group Ltd., the contractor for the odour control facilities, is working on both facilities. The Highway 91 facility is currently being commissioned, with the King George facility scheduled to be commissioned in the spring of 2021.
- **FSA – Sapperton Pump Station** – The construction contract was awarded to NAC Constructors in September 2016 and is expected to be substantially complete in 2020. Construction is currently 95% complete, with the pump station building almost finished and landscaping work underway. Final electrical work is nearing completion with BC Hydro energization now complete and pump commissioning currently underway.
- **FSA – Annacis Island WWTP Stage 5 Expansion Phase 1** – This work involves expansion of treatment process units including primary sedimentation tanks, secondary clarifiers, solid contact tanks and odour control facilities. This construction contract was awarded to Graham and AECON Joint Venture in April 2017. The contract value is \$265 million and the construction of the Phase 1 main contract is 96% completed and the anticipated substantial completion date is September 2021.
- **FSA – Annacis Island WWTP Outfall** – This project involves the construction of a new outfall with increased capacity to support population growth. The 4.2 m diameter outfall will be tunneled at a depth of approximately 40 m, and convey treated effluent approximately 1 km from the Plant to the Fraser River where it will discharge from a 2.5 m diameter, 250 m long diffuser manifold buried in the river bed. The construction contract was awarded in May 2019 to Pomerleau-Bessac General Partnership. The contractor has completed the excavation of the two vertical shafts. In-river construction started in June 2020. Construction is scheduled to be complete by Spring 2024.
- **FSA – Northwest Langley Treatment Projects** – This work involves expansion of the treatment plant from serving 30,000 people to 230,000 people. It also includes a new river crossing, new pump station, SSO storage tank and outfall. The estimated construction cost is \$1.3 billion and is scheduled to be complete by the end of 2026.

Detailed design of the new treatment plant is currently underway and is 30% complete. Multiple equipment preselection tenders continue to be issued to help inform the design. The pump station and storage tank construction is underway with sheet piling and excavation currently occurring. The river crossing design is 85% complete, and a RFQ has been completed to shortlist 3 contractors. The RFP will be issued later this year. Phase 1 ground improvements have been completed and phase 2 ground improvements are 35% complete. The overall project is currently on schedule.

- **VSA – Hastings Trunk Sewer – The Hastings Trunk sewer (also known as the Douglas Trunk Sewer)** will provide additional capacity to support rapid development and population growth in the Brentwood Mall and Gilmour areas in Burnaby. The project involves construction of 1.8 km of sewer ranging from 750 mm to 1200 mm in diameter. The construction of a 1.25 km of tunneled section and the remaining 550 m of open cut works is substantially complete.

Infrastructure Maintenance Program

- **LSA – Gilbert Trunk Sewer Twinning** - Construction of the 3.5 km long Phase 1 is complete. The remaining 3 Phases have a total length of 6.5 km consisting of 1.5 m and 1.8 m diameter sewers. Phase 2 construction from Blundell to north of Westminster Highway is 98% complete, with completion projected for early fall of 2020. Phase 4, from Steveston Highway to the Lulu Island WWTP, will be tendered in July of 2020 and is expected to be awarded in the fall. Phase 3, which extends from Blundell Road south to the Steveston Highway will be completed last, with construction scheduled to start in 2021.
- **VSA – Iona Island WWTP Solids Handling Upgrade** – This project involves upgrades to the existing grit removal and sludge screening systems, increasing sludge thickening capacity, and improving the digester sludge mixing systems. Construction to refurbish the existing sludge thickener was completed in April 2016 and is back in full operation. The construction of the new screening, dewatering and thickening facility was completed and in operation since August 2017. The Digester Mixing Upgrade contract started in November 2015 and, of the four digesters, Digesters No. 2, No. 3 and No. 4 upgrades are complete and back in service. Work on the last digester, Digester No. 1, started in July 2019 and is scheduled to be complete by December 2020.
- **FSA – Annacis Island WWTP Secondary Clarifier Corrosion Repair** – This project involves replacing 12 secondary clarifier mechanisms that have been damaged by corrosion and are at the end of their service life. The construction contract for this project is combined with the Secondary Clarifier Flow Control project, which involves the addition of 12 new influent flow balancing gates and the replacement of 12 effluent launders and weirs. To date 7 mechanisms and 3 flow balancing gates have been replaced. A tender for the remaining 5 mechanism units, the addition of 9 flow balancing gates and the replacement of the 12 existing effluent launders and weirs was awarded in March 2019 in the amount of \$18M. Construction started in May 2020 and is scheduled to be complete by end of 2022.
- **FSA – Annacis Island WWTP Trickling Filter Media, Distributor and FOA Duct Replacement** – This project replaces the rotary distributors, plastic media and foul air ducting for the four Trickling Filters at the AIWWTP. These components have been in service for over 20 years and are reaching the end of their service life. The distributors and ducting have experienced significant corrosion, resulting in recent equipment failures requiring emergency maintenance in the past few years.. The construction will be completed in two contracts, with the first contract for two TFs and the second contract for the remaining two TFs. This work is to be done over four years, one TF per year during the low flow season. The first contract was awarded at \$32.8M. The refurbishment for the first TF started in April 2020 and is nearing completion. It is on schedule to be completed in October before wet weather season starts. All four TF are anticipated to be refurbished by the end of 2023.

Infrastructure Resilience Program

- **FSA – Annacis Island WWTP Cogeneration System** – This \$75 million resiliency project involves the installation of four new larger capacity cogeneration engines (2000 kW each) complemented by two new emergency stand-by diesel generators (3000 kW each) in order to: 1) provide rapid response emergency back-up power in case of BC Hydro utility outages, 2) optimize the use of digester gas produced at the plant, 3) increase the cogeneration capacity, 4) minimize the amount and cost of electricity imported from BC Hydro costs, and 5) minimize digester gas flaring.

Construction started in October 2017 and was substantially completed as of September 2019. The new cogeneration engines and diesel gen-sets have been functionally tested, commissioned and put into service as of March 2020. The final phase of commissioning is planned for November 2020 in order to avoid testing risks during the summer disinfection season from April to October.

- **VSA – Highbury Interceptor Air Treatment Facilities** – Construction of this odour control station located in Musqueam Park in Vancouver started in February 2018. The facility construction is 99% complete and is in service with minor deficiencies being currently addressed. The air jumper component, which is a separate facility to allow the free movement of air in the sewer and extend odour control south to the Fraser River, was completed in September 2019.
- **VSA – Emergency Backup Power** - This project involves design, supply and installation of standby emergency backup generators at the Chilco, Columbia, Harbour, Hudson, Jervis, Kent and Willingdon pump stations to allow the stations to remain operational during power failure events and reduce the risk of a spill. Three separate tenders for the Columbia, Harbour, Hudson, Kent and Willingdon upgrades were issued in Q4 2019. The equipment has been procured, and construction is underway, with three of them (Hudson, Kent and Willingdon) having been commissioned. Harbour and Columbia are scheduled to be commissioned later this year. The Vancouver Parks Board approved the Jervis Genset concept in the fall of 2019, and the design and permitting of the Jervis facility is advancing. Construction is scheduled to start in September 2021. The Chilco facility concept is currently being reviewed with the Vancouver Parks Board, prior to starting the detailed design.

Infrastructure Upgrade Program

- **VSA – Iona Island WWTP Biosolids Dewatering Facility** – This project involves the construction of a mechanical dewatering facility to dewater on-going plant production of biosolids so that they can be transported for beneficial reuse or disposal. This facility will permit the decommissioning of the four existing digested sludge lagoons and the sludge drying area to make space for the construction of the new treatment plant. The \$55 million design-build contract was awarded to NAC Constructors in April 2019. The design phase is 99% complete as of August 2020. Ground improvement and civil works including excavation, structural fill, and underground piping are complete. As of August 2020, concrete works are also substantially completed. The digested sludge storage tanks and processing building are presently being assembled and erected for completion in December 2020. The project is scheduled to be complete in June 2021.

Opportunity Program

- **FSA – Annacis Island WWTP Hydrothermal Liquefaction** – This work involves design and construction of a demonstration scale plant to convert wastewater biomass to biocrude as a low carbon fuel. The objective of the demonstration scale is to assess the technology performance and feasibility for full-scale implementation at the future Iona WWTP. Six contracts are anticipated as part of this project. The estimated construction cost is \$19.4 million. Preliminary design for the HTL system was prepared in Q2 2020, and an RFQ was issued to shortlist design-builders. An RFP for facility construction will be issued in January 2021. The HTL facility is scheduled to be completed in 2023 and in operation from 2023 to 2024.

To: Liquid Waste Committee

From: Larina Lopez, Division Manager, Corporate Communications, External Relations
Carol Nicolls, Communications Specialist, Corporate Communications, External Relations

Date: October 28, 2020 Meeting Date: November 12, 2020

Subject: **2020 Regional Unflushables Campaign Results**

RECOMMENDATION

That the Liquid Waste Committee receive for information the report dated October 28, 2020, titled "2020 Regional Unflushables Campaign Results."

EXECUTIVE SUMMARY

The flushing of wipes and other items is an ongoing issue for the wastewater system, leading to clogs, damaged equipment and sewer overflows. The Regional Unflushables Campaign addresses seven problematic items for the wastewater system: wipes, paper towels, hair, dental floss, tampons and applicators, condoms, and medications. The campaign started March 16, earlier than its originally planned May launch date, in response to the increased demand for wipes and paper towels because of COVID-19. The campaign ran in two phases between March and November. Campaign tactics were adjusted to focus mainly on channels that reach people at home, including social media, television, a Daily Hive article and quiz, and Google Search, with some out-of-home messaging in hair salons, medical offices, and elevators later in the campaign. The campaign delivered over 30 million impressions and reached over 651,000 residents through social media, showing solid levels of engagement on those platforms.

PURPOSE

To update the Liquid Waste Committee on the 2020 Regional Unflushables Campaign to reduce the flushing of wipes, medications and other materials, which took place in various phases between March and November of 2020.

BACKGROUND

The flushing of wipes, medications and other materials is an ongoing issue for the region's wastewater system, contributing to clogs, damaged equipment, sewer overflows and impacts on the aquatic environment. Since 2016, Metro Vancouver has conducted regional campaigns to educate the public about what can and cannot be flushed. This messaging has become even more relevant during COVID-19, as many residents have increased their use of wipes and paper towels.

This report provides a summary of the 2020 Regional Unflushables Campaign results, as identified in the 2020 Liquid Waste Committee Work Plan.

2020 REGIONAL UNFLUSHABLES CAMPAIGN

The 2020 Regional Unflushables Campaign focused on seven items that should not be flushed: wipes, paper towels, dental floss, hair, tampons and applicators, condoms and medications. The campaign had an emphasis on wipes.

Campaign Timing Strategy

The campaign was originally scheduled to start on May 4, but was launched earlier to respond to increased consumer use (and likely flushing) of wipes and paper towels at the start of COVID-19. The first phase of the campaign took place from March 16 to August 9. A second phase was then added from October 12 to November 22 to keep this messaging top of mind during the anticipated second wave of COVID-19 in the fall.

Campaign Elements and Approach

The campaign continued to use the light-hearted approach and creative materials proven effective in previous campaigns. While the campaign covered all seven priority items, extra focus was given to wipes and paper towels to reflect increased use during the early period of COVID-19. The campaign targeted both men and women, with tactics skewed slightly to women, as they are the main purchasers of many of these products.

The campaign included a media buy that was adjusted to reflect residents' changing habits during COVID-19:

- The campaign initially focused on tactics that would reach people in their homes, including social media (Facebook, Instagram, Twitter, YouTube), digital (Google Search, Daily Hive content, banner ads), and a television PSA.
- In the summer, out-of-home tactics were added, to reflect the shift to residents being more active outside of their homes. Screen-based advertising was targeted to key locations, appearing in elevators, medical offices and hair salons. Hair salons were added as an effective way to reach women, a key audience for this campaign as the main purchasers of most of the campaign's unflushable products. Hair salons had just opened up, people were doing more out-of-home activities, and many women were using these facilities for long overdue haircuts.
- Due to the potential second wave of COVID-19 and possible lockdown, the campaign's second phase consists primarily of digital options.

Since it was not possible to use the campaign mascots at events, the outreach budget was redirected into additional media that could help carry the message for a longer period of time throughout the year.

Engagement with Members

Campaign details and creative materials were shared with members' communication staff prior to the campaign's launch. All materials are made available for download on the Metro Vancouver website, and custom, co-branded materials were created upon request. The media buy included all Member jurisdictions, ensuring that the campaign ads appeared across the region. Some members shared the campaign on their social media platforms and other channels. Materials were also used

by three multi-unit buildings within the region. Seven municipalities outside of the region, and one other regional district also used the campaign materials.

Results

Results are available for the first phase of the campaign, when the start of COVID-19 made it most relevant to residents. The second phase of the campaign is currently underway and results will not be available until late November.

Digital Media Performance

The campaign had a significant online component. The post-campaign report on media promotion shows that the digital and social media elements of the campaign generally performed well.

- The campaign reached an estimated 651,000 residents via Facebook and Instagram.
- The digital components delivered 16.9 million impressions, the majority of which came from Facebook and Instagram.
- Social media channels (Facebook, Instagram and Twitter) had over 22,615 engagements (likes, shares, saves, comments). The strong engagement on social media points to the relevancy of the content during increased use of certain products, like wipes and paper towels, particularly during the first phase of the campaign.
- Google Search terms related to wipes and other unflushables generated 1,699 clicks for more information.
- Video ads received 2.2 million video views.
- Daily Hive native content generated 1,934 reads, 17,884 video views, and 7,461 engagements.

Out-of-Home Placements

Electronic advertising in hair salons, elevators, and medical offices delivered over 12 million impressions between June 15 and August 9.

Website Traffic

The campaign webpage had 19,385 page views from March 16 to August 9, with visitors spending almost five minutes on the page. The time spent on the page is quite high, especially for a single webpage, and indicates that people spent enough time to read everything on the page.

Earned Media

The campaign generated 16 media stories, producing the equivalent of \$269,995 of coverage, if it were paid advertising.

Impacts of Wipes and other Unflushable Items on the Wastewater System

The impacts of wipes and other unflushable items on Metro Vancouver's wastewater system is tracked mainly through operational work logs that document clogs at pump stations that require de-ragging. As fats, oils, and grease can cause wipes and other material to bind together, it can be difficult to measure the direct impacts of unflushable items on the wastewater system.

Records show that 34 to 121 de-ragging events occur each year at Metro Vancouver wastewater pump stations, with data from 2016 onwards showing a slight decline in the number of events since the launch of the Regional Unflushables Campaign.

Table 1. De-ragging events in Metro Vancouver pump stations

Year	Events
2016	53
2017	121
2018	58
2019	34
2020	31 (to October 1, with 41 projected to year end)

However, clogs and other impacts due to unflushable items may be more pronounced at smaller pump stations and local collection networks. The wastewater collection systems of member jurisdictions, acting as the first point of collection, may bear the brunt of impacts within the region.

Within the Metro Vancouver wastewater system there is a slight increase in pump de-ragging incidents this year that may be associated with COVID-19. In addition, information provided by member jurisdictions shows an increase in wipes and other unflushable items, especially at existing hotspot locations such as pump stations located beside public parks.

Metro Vancouver staff continue to work with member jurisdictions to track the collective impacts of unflushable items on the region's wastewater systems, including other impacts such as additional costs of damaged equipment and impacts of sewer overflows. There are also ongoing efforts to collaborate through the Canadian Water and Wastewater Association to develop a Canadian flushability standard to further prevent improper disposal of unflushable items into wastewater systems.

Plans for 2021 Regional Campaign

The campaign is scheduled to run again in 2021. After five years in market, the campaign has achieved a solid level of public awareness of unflushables issues. In 2021 the campaign will continue to address the seven priority unflushable items, but will also give extra focus to certain items. Specific topics are still being determined, based on focus groups and other research, but will likely include new issues like compounds of environmental concern (such as pharmaceuticals, microfibres, soaps and personal care products). The Unflushables campaign will continue as a digital campaign (with outreach once events become possible), as a flexible and cost-effective way to maintain public awareness.

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

The budget for the Regional Unflushables Campaign is \$190,000. These costs are included in the 2020 Liquid Waste Communications Program Budget managed by the External Relations Department.

CONCLUSION

The 2020 Regional Unflushables Campaign was successfully adjusted to address a change in consumer needs as a result of COVID-19. By advancing the campaign's start date, focusing on reaching people at home through TV, social media and digital channels, and highlighting wipes/paper towel messaging, the campaign reached residents with relevant messaging at the right time. Due to COVID-19 restrictions, the campaign was not able to use certain tactics, like its mascots, which were a highly successful part of the campaign in 2019. As COVID-19 restrictions continue, it will be important to keep searching for new and original ways to reach people at home and engage them with fresh content and tactics. The campaign will continue in 2021 as a largely digital campaign and will likely include extra focus on certain items that have lower public awareness, such as compounds of compounds of environmental concern.

Attachments:

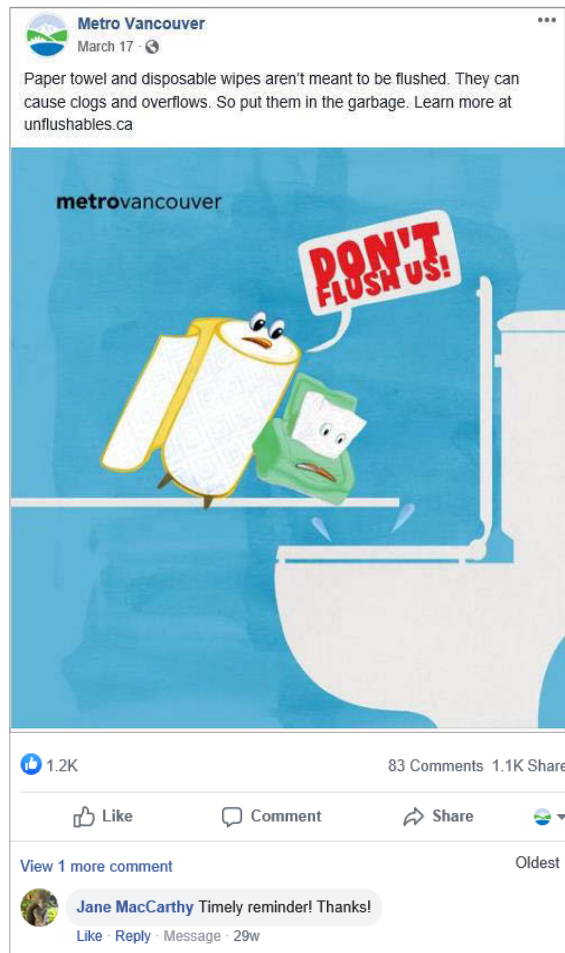
1. Sample of Unflushables Campaign Materials
2. Sample of Media Coverage

References

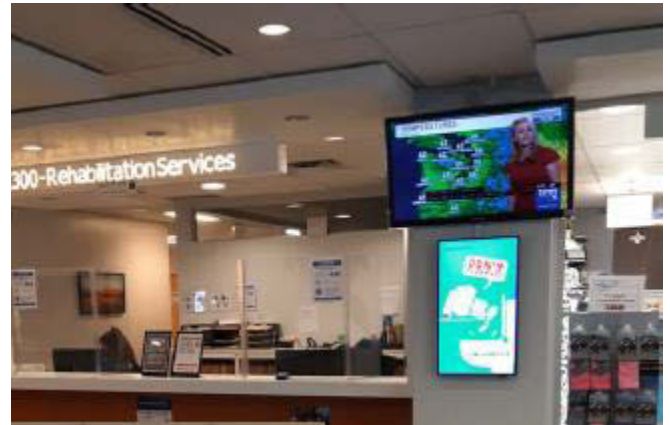
1. [Unflushables Campaign Website](#)

41795498

Sample of Unflushables Campaign Materials



Social media post.



Electronic posters in medical buildings.



Daily Hive quiz.




Campaign messaging on elevator screens.

Sample of Media Coverage

VANCOUVER

'Don't flush that!' Pandemic leads to concern over masks and more in local toilets



David Molko Senior Reporter, CTV News Vancouver
@molkoreports | Contact

Published Tuesday, June 16, 2020 5:26PM PDT
Last Updated Tuesday, June 16, 2020 7:22PM PDT

#CBC MENU

COVID-19 Local updates Live video COVID-19 tracker Subscribe to newsletter

NEWS Top Stories Local The National Opinion World Canada

Technology & Science

Those COVID-19 masks, gloves and wipes we're all using are polluting land and sea

Canadian researchers at work on replacements for what's clogging sewage plants

 Greg Rasmussen · CBC News · Posted: Jun 09, 2020 4:00 AM ET | Last Updated: June 9



Divers have collected discarded personal protective equipment like this off the coast of France. All those disposable gloves, masks and wipes that people are using to protect themselves against COVID-19 are creating a waste problem. Scientists in Canada are working on a made-in-Canada solution. (Opération Mer Propre)

The Province

News / Local News

COVID-19: Personal protective equipment clogging Metro Vancouver sewage plant

The region is urging folks not to flush disposable PPE, including masks, gloves and antibacterial wipes, which are damaging the pumps and putting workers at risk.

Tiffany Crawford
Jun 10, 2020 · Last Updated 4 months ago · 3 minute read



SEAFOOD news.com

Those COVID-19 Masks, Gloves and Wipes We're All Using are Polluting Land and Sea

Waste from more than a million toilets flows out of giant sewage pipes, creating a swirling stinky river that has to be processed at the Annacis Island Wastewater Treatment Plant which serves a large section of Metro Vancouver.

It's just one of many facilities across Canada and around the world seeing an uptick in discarded masks, gloves and wet wipes being flushed down the toilet and causing treatment problems since the advent of COVID-19...



NEWS 1130 CityNews LOCAL TRAFFIC VIDEO NEWS TIPS LISTEN LIVE

Ad closed by



COVID-19 PANDEMIC DISPOSABLE WIPES ARE CLOGGING UP PIPES TUE 18° 6:15 pm