



City of Richmond

Report to Committee

To: Public Works and Transportation Committee
From: Robert Gonzalez, P.Eng.
General Manager, Engineering and Public Works

Date: October 6, 2009
File: 10-6400-09-01/2009-Vol 01

Re: Integrated Resource Recovery

Staff Recommendation

That Council request that Metro Vancouver commence the Integrated Resource Recovery initiative in 2010.

Robert Gonzalez, P.Eng.
General Manager, Engineering and Public Works
(604-276-4150)

Att. 1

FOR ORIGINATING DEPARTMENT USE ONLY					
ROUTED TO:		CONCURRENCE		CONCURRENCE OF GENERAL MANAGER	
Sustainability Office		Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>		
REVIEWED BY TAG		YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	REVIEWED BY CAO	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>

Staff Report

Origin

On October 5, 2009 Metro Vancouver staff presented their 2010 budget for review and input. The focus of the presentation was on the future of Metro Vancouver's programs and associated utility rate impacts that would be passed on to Richmond in support of the forthcoming infrastructure upgrade programs on regional solid waste, liquid waste, water supply, parks, and housing.

One program briefly mentioned was the development of an Integrated Resource Recovery (IRR) strategy for Richmond commencing in 2012. It is staff's opinion that this body of work should be commenced in 2010. The purpose of this report is to request that Metro Vancouver reconsider the timing for this program and accordingly commence work with Richmond staff in 2010.

Analysis

The City committed to having carbon neutral operations by 2012 when we signed the Climate Change Action Charter in 2008. Over the past few years the City has taken numerous actions in support of having carbon neutral operations. One of the key programs supporting implementation of tangible adaptation strategies has been the City's Energy Management Program. The City has successfully mitigated energy cost increases and green house gas (GHG) emissions through the Energy Management Program as well as received numerous awards and remains the only Power Smart certified municipality. Beyond the current Energy Management Program there are energy based adaptation initiatives that staff are pursuing, including energy utilities through development as well as initiatives that may result in liquid and solid waste being viewed as a valuable resource instead of waste.

Over the past few months staff have worked with Metro Vancouver to develop an initiative that, from an energy recovery perspective, would view liquid waste from the Lulu and Annacis treatment plants as a valuable resource. Last month Metro Vancouver retained two engineering consulting companies to work with Richmond and Metro Vancouver staff to develop a strategy that would quantify the recoverable energy from liquid waste, the associated costs and potential market for the resulting energy. While this energy recovery strategy is intended to be complete towards year end, it is limited in scope to re-use of treatment plant liquid waste energy recovery.

Currently Metro Vancouver's plans (attached) include an Integrated Resource Recovery strategy for Richmond in 2012. Advancing the Integrated Resource Recovery initiative to 2010 will enable a natural extension to the current energy recovery strategy by:

- enabling a more comprehensive and community wide understanding of resource streams that can add to the energy recovery process
- researching energy user groups
- obtaining a more thorough understanding of funding partners and operating arrangements with the private sector

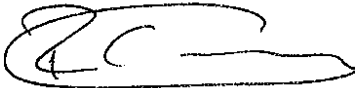
Furthermore, with the City's Official Community Plan (OCP) review commencing shortly, advancing knowledge and understanding of tangible energy recovery adaptation measures will enable more meaningful input into OCP policies.

Financial Impact

Advancing the IRR work to 2010 will require reallocation of some resources within Metro Vancouver and their staff have advised that this will have negligible impact given that Metro Vancouver's year financial plan already includes this work. Richmond staff can accommodate the workload with current staffing levels.

Conclusion

Advancing the Metro Vancouver Integrated Resource Recovery strategy to 2010 will assist in coordinating energy recovery strategies that are currently under way. This will also enable opportunities for the implementation of tangible energy recovery projects in Richmond.




Robert Gonzalez, P.Eng.
General Manager, Engineering and Public Works
(604-276-4150)

RG:rg

SUSTAINABLE REGION INITIATIVE . . . TURNING IDEAS INTO ACTION

Metro Vancouver 2010 Budget Municipal Consultation (Richmond Area)

October 5, 2009


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SUSTAINABLE REGION INITIATIVE . . . TURNING IDEAS INTO ACTION

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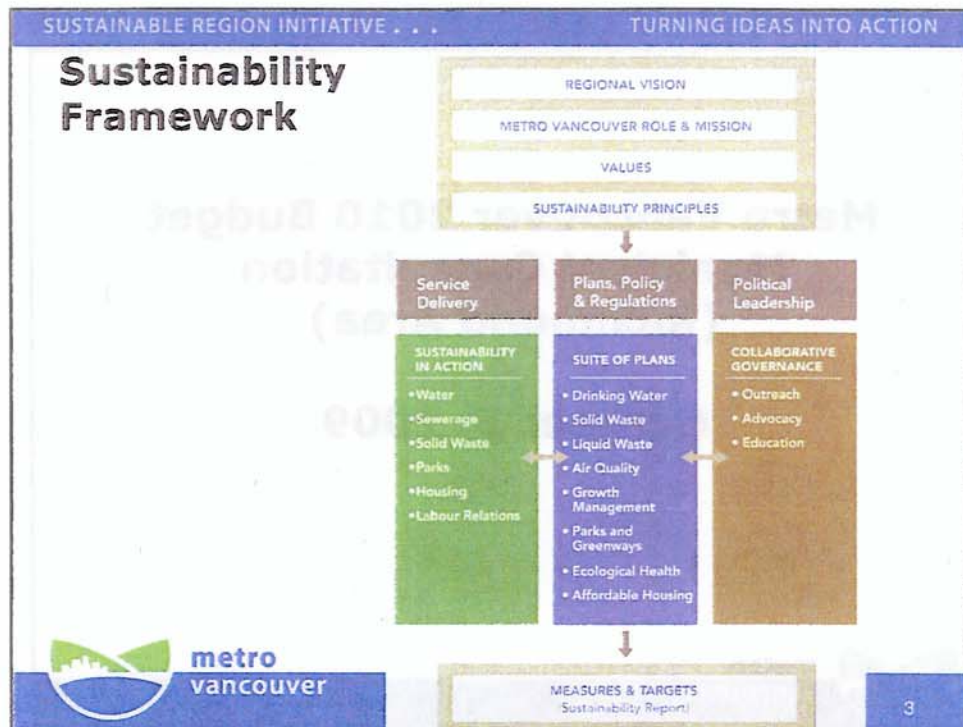
A regional municipal federation, comprising 22 municipalities, one electoral area and one TFN.

- One director per 100,000 residents
- One vote per 20,000 residents




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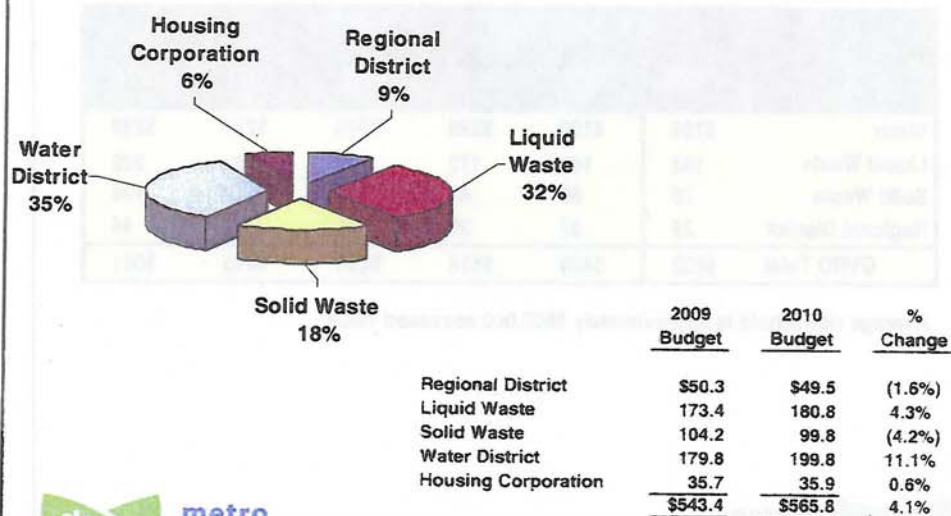
Program Planning & Budgeting (continued)

- July – August: Program Plans and Budget Development
- August: Administrative Review
- September – October:
 - Municipal/Public Consultations
 - Committee Review of Programs
 - RFAC Meeting – September 16th
 - RAAC/REAC Meeting – September 23rd
 - Finance Committee – October 15th
 - Board Budget Workshop – October 21st
- October 30th: Board Sets Budget



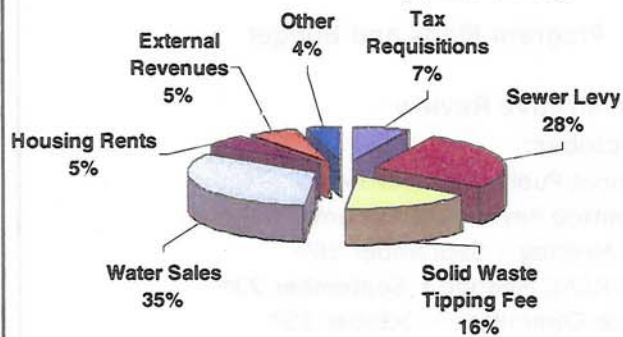
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Where the Money Goes (\$ Millions)



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Where the Money Comes From (\$ Millions)



	2009 Budget	2010 Budget	% Change
Tax Requisitions	\$ 39.6	\$ 41.7	5.3%
Sewer Levy	151.4	157.5	4.0%
Solid Waste Tipping Fee	89.4	89.2	(0.2%)
Water Sales	176.2	196.3	11.4%
Housing Rents	29.6	30.3	2.4%
External Revenues	32.6	30.3	(7.1%)
Other (includes Reserves, BOD/TSS, DCC)	24.6	20.5	(16.7%)
Total	\$ 543.4	\$ 565.8	4.1%



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Per Household Cost - Board Endorsed Projections

	2009	Projections				
		2010	2011	2012	2013	2014
Water	\$169	\$190	\$223	\$245	\$271	\$289
Liquid Waste	158	162	172	182	192	202
Solid Waste	70	80	84	95	110	126
Regional District	35	37	39	41	42	44
GVRD Total	\$432	\$469	\$518	\$563	\$615	\$661

Average Household is approximately \$600,000 assessed value



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2010 Proposed Budget \$ Impact per Household

<i>Function</i>	<i>Projection</i>	<i>Proposed</i>
Water	\$190	\$190
Liquid Waste	162	162
Solid Waste	80	80
Regional	37	37
TOTAL	\$469	\$469

2010 Proposed Budget Water District

	<u>2009</u>	<u>2010</u>	<u>Change</u>	<u>%</u>
Total Expenditures	\$ 179,778,869	\$ 199,745,855	\$ 19,966,986	11.1%
Revenues:				
Water Sales	\$ 176,189,922	\$ 196,326,592	\$ 20,136,670	11.4%
Other External Revenues	1,243,867	1,406,634	162,967	13.1%
Reserve Applications	2,345,280	2,012,629	(332,651)	(14.2)%
	<u>\$ 179,778,869</u>	<u>\$ 199,745,855</u>	<u>\$ 19,966,986</u>	<u>11.1%</u>
Water Rate	\$ 0.4428	\$ 0.4955	\$ 0.0527	11.9%
Consumption	<u>396,786,602</u>	<u>395,069,585</u>	<u>(1,717,017)</u>	<u>(0.4)%</u>

Water District

	2009	2010	2011	2012	2013	2014
Projected Water Rate	.4428	.4972	.5839	.6407	.7093	.7556
	15.8%	12.3%	17.4%	9.7%	9.5%	6.6%

- Seymour/Capilano Filtration Project
 - Tunnel Construction
- Construction of the new Coquitlam UV Disinfection facility
- Construction of Port Mann Main No. 2 Fraser River Crossing
- Pursue additional energy recovery opportunities at Cleveland and Seymour Falls Dams.
- Asset Management
- Total Capital \$2.3 billion to 2019



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Seymour Capilano Filtration Plant



Water District Sustainability Initiatives

- Energy Recovery Opportunities
 - Capilano
 - Seymour
- Water Conservation
 - Tap Water Campaign
- Water Treatment
 - Award Winning
 - LEED's Standard



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Water Capital Projects

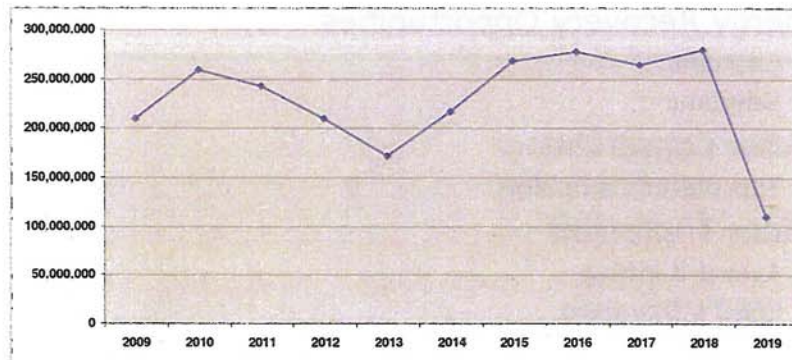
Project Type	2010-2019 Total Cost
Maintenance	\$ 89.3
Growth	1,057.9
Upgrade	562.9
Risk Management	506.2
Opportunity	82.9
	\$2,299.2



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Water Capital Projects (2009-2019)



Richmond Area

Water

- Examples of projects (Region Wide):
 - Coquitlam UV Disinfection Facility (2010-11)
 - Seymour / Capilano Filtration Project (2010-13)
 - Port Mann Main No. 2 - Fraser River Crossing (2010-13)
 - Capilano Power (2010-14)
 - Second Narrows Crossing (2010-16)
 - System Seismic Upgrades (2010-16)
 - Coquitlam Intake No. 2 (2012-18)

Richmond Area

Water

- Examples of projects (Area Specific):
 - Angus Drive Main (2013-15)

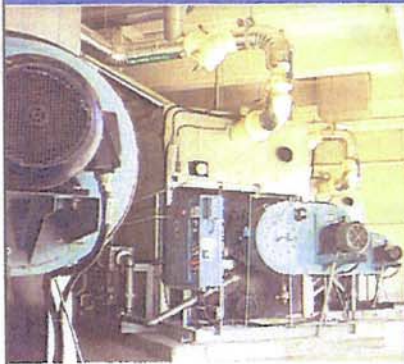


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Lulu Island Wastewater Treatment Plant



Cogeneration Equipment



2010 Proposed Budget Liquid Waste

	2009	2010	Change	%
Total Expenditures	\$ 173,342,693	\$ 180,780,305	\$ 7,437,612	4.3%
Revenues:				
GVS&DD Levy	\$ 151,431,254	\$ 155,217,035	\$ 3,785,781	2.5%
Growth Factor		2,271,469	2,271,469	1.5%
	<u>\$ 151,431,254</u>	<u>\$ 157,488,504</u>	<u>\$ 6,057,250</u>	<u>4.0%</u>
Permit / User Fees	1,887,502	2,059,387	171,885	9.1%
DCC's	6,839,758	8,309,868	1,470,110	21.5%
Industrial Charges	7,184,949	7,403,696	218,747	3.0%
Other External Revenues	541,984	893,872	351,888	64.9%
Reserve Applications	5,457,246	4,624,978	(832,268)	(15.3)%
	<u>\$ 173,342,693</u>	<u>\$ 180,780,305</u>	<u>\$ 7,437,612</u>	<u>4.3%</u>



Liquid Waste

	2009	2010	2011	2012	2013	2014
Projection	3.6%	2.5%	6.0%	6.0%	5.5%	5.0%

- Liquid Waste Management Plan
- Biosolids Management Plan Implementation
- Utility Relocations for Provincial Road Improvement Projects
- Asset Management Initiatives
- Maintain aging infrastructure
- Upgrade to Secondary Treatment
- Total Capital \$2.3 billion to 2019



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Liquid Waste Sustainability Initiatives

- Biosolids for Green Energy
- District Heating Opportunities
- Microsludge
- Enhanced Source Control



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Liquid Waste Capital Projects

Project Type	2010-2019 Total Cost
Maintenance	\$220.2
Growth	190.1
Upgrade	1,453.2
Risk Management	334.1
Opportunity	68.4
	\$2,266.0



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Richmond Area

Liquid Waste

- Total Capital Works – LSA (\$126.7 million)

2010-2014 \$15.2 million

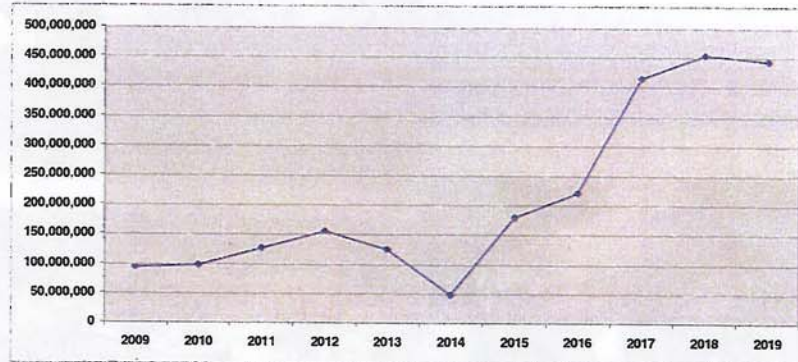
2015-2019 \$111.5 million



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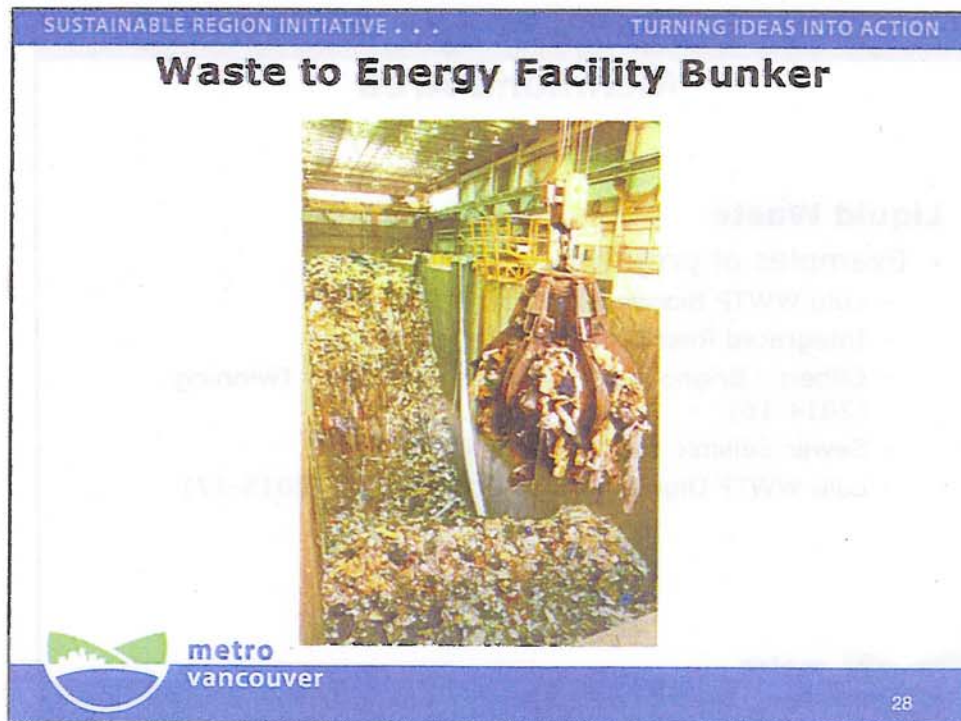
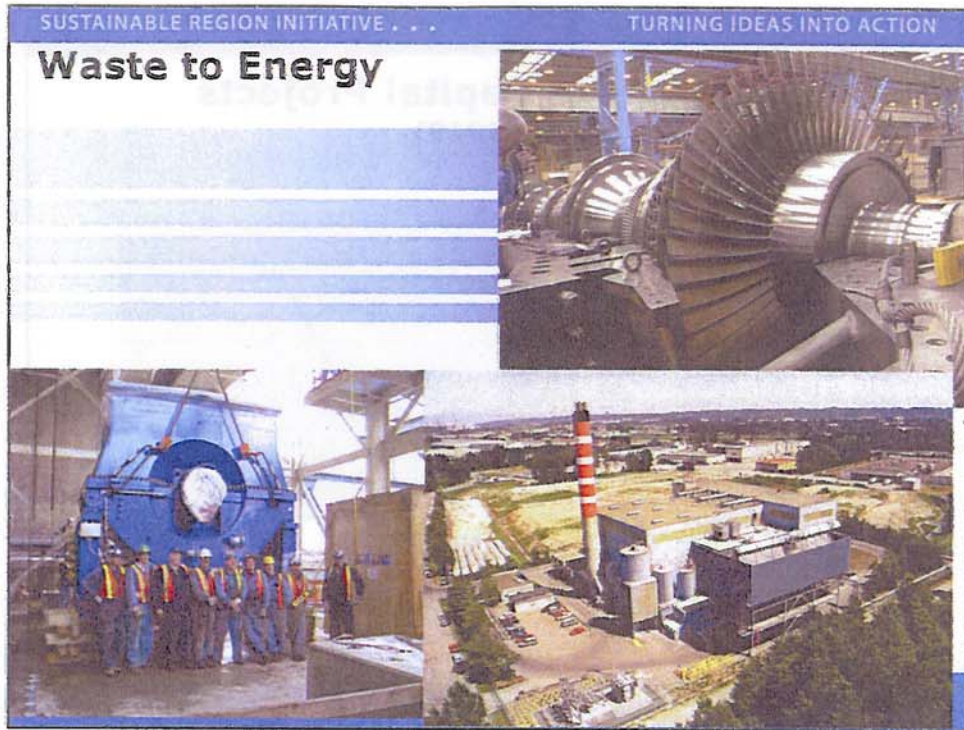
Liquid Waste Capital Projects (2009-2019)



Richmond Area

Liquid Waste

- Examples of projects:
 - Lulu WWTP Biogas Bicrosludge (2010-11)
 - Integrated Resource Management (2012)
 - Gilbert / Brighthouse Trunk Pressure Sewer Twinning (2014-16)
 - Sewer Seismic Upgrades (2011-2019)
 - Lulu WWTP Digester No. 3 Construction (2015-17)



Maple Ridge Transfer Station



2010 Proposed Budget Solid Waste

	2009	2010	Change	%
Total Expenditures	\$ 104,169,895	\$ 99,810,665	\$ (4,359,230)	(4.2)%
Revenues:				
Tipping Fees	\$ 89,435,467	\$ 89,223,604	\$ (211,863)	(0.2)%
Other External Revenues	14,343,912	13,491,123	(852,789)	(5.9)%
Reserve Applications	390,216	1,017,323	627,107	160.7%
Fund 2009 Deficit	-	(3,921,385)	(3,921,385)	
	\$ 104,169,595	\$ 99,810,665	\$ (4,358,930)	(4.2)%
 Tipping Fee	 \$ 71	 \$ 82	 \$ 11	 15.5%
 General Tonnage	 1,193,970	 1,064,704	 (129,266)	 (10.8)%

Solid Waste

	2008	2010	2011	2012	2013	2014
Projected Tipping Fee	\$71	\$82	\$87	\$98	\$113	\$130

- Implement Zero Waste Challenge initiatives
- Waste Diversion
- Organics
- District Heating Opportunities
- Find an alternative to landfilling in the Interior of BC
- Solid Waste Management Plan
- Total Capital Works \$758 million to 2019



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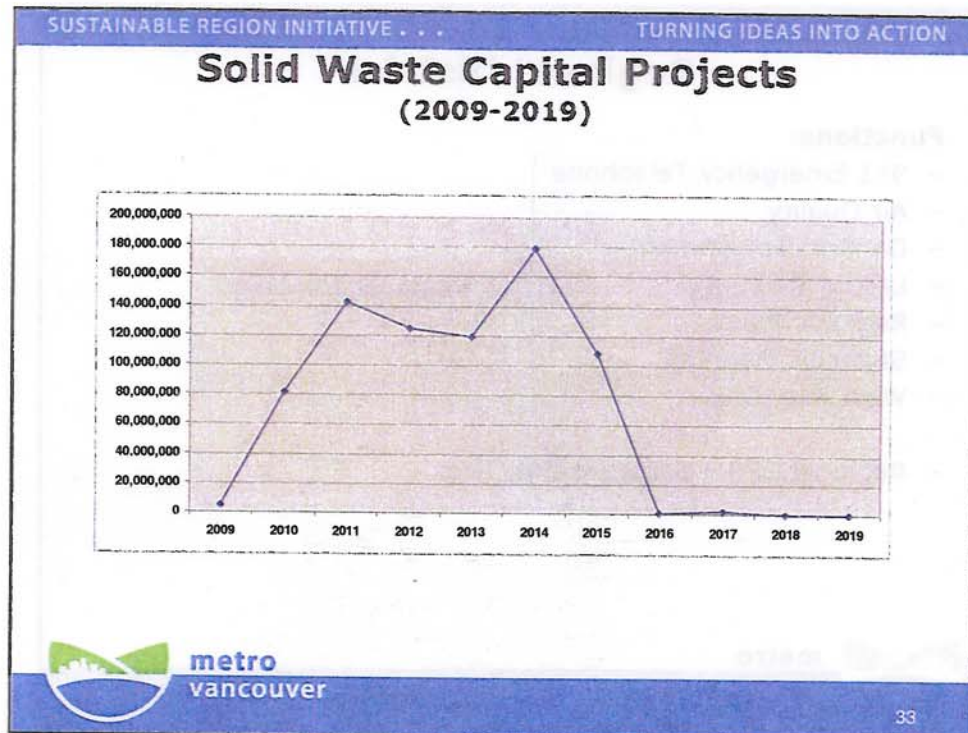
Solid Waste Capital Projects

Project Type	2010-2019 Total Cost
New Initiatives	\$480.0
Upgrade	276.7
Opportunity	1.3
	\$758.0



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Solid Waste

- Examples of projects:
 - Solid Waste Management Plan Initiatives (2010-15)
 - Waste-to-Energy Facility Upgrades (2010-17)

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Regional District

Functions:

- 911 Emergency Telephone
 - Air Quality
 - General Government
 - Labour Relations
 - Regional Parks
 - Strategic Planning
 - West Nile Virus
- } Regional Tax Levy
- Regional GPS - Separate User Fee



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2010 Proposed Budget Regional District

	2009	2010	Change	%
Total Expenditures	\$ 50,318,774	\$ 49,522,324	\$ (796,450)	(1.6)%
Revenues:				
Tax Requisitions	\$ 39,633,543	\$ 41,140,953	\$ 1,507,410	3.8%
Growth Factor		594,503	594,503	1.5%
	\$ 39,633,543	\$ 41,735,456	\$ 2,101,913	5.3%
Electoral Area Levy	225,576	261,581	36,005	16.0%
GPS User Fees	543,919	548,505	4,586	0.8%
Permit / User Fees	3,438,803	2,696,298	(742,505)	(21.6)%
Other External Revenues	4,228,690	3,085,276	(1,143,414)	(27.0)%
Reserve Applications	2,248,243	1,195,208	(1,053,035)	(46.8)%
	\$ 50,318,774	\$ 49,522,324	\$ (796,450)	(1.6)%



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Regional District

	2009	2010	2011	2012	2013	2014
Projection	0.7%	4.0%	5.5%	5.5%	3.5%	3.5%

- Implement the Regional Parks and Greenways Plan
- Air Quality Regulation (Pollution, Climate Change)
- Develop New Regional Growth Strategies (Co-ordinate with TransLink)

Parks

- Region-Wide Initiatives
 - Continue recreation and conservation planning of Lower Fraser River corridor with FVRD ("Experience the Fraser")
 - Complete the Ecological Health Plan
 - Complete inventory of endangered wetlands
 - Develop habitat sensitivity classification system for park land
 - Implement Bylaw Notice and Adjudication system
 - Expand use of new and emerging media-blogs, podcasts, social networking
 - Complete installation of new park entrance signs
 - Update Emergency Response & Fire Risk maps
 - Develop an improved waste-management system for Parks

Richmond Area

Parks

- Area Specific Initiatives
 - Iona Beach:
 - Complete Realignment of Road and Agreements to North Arm Fibre Recovery Operation



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Richmond Area

Housing – not for profit

- 3,500 Affordable Housing Units
- Regional Affordable Housing Strategy
 - Board has agreed to waive DCC's
- Water Ingress
 - Stimulus package financing applied for
- Aging wood frame structures



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Next Steps

- Standing Committee
Program Review: Sept. 16-Oct. 15
- Municipal/Public
Consultations: Sept. 17-Oct. 9
- Finance Committee: October 15
- Board Workshop: October 21
- Board Approval: October 30



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