metrovancouver
SERVICES AND SOLUTIONS FOR A LIVABLE REGION

Office of the Chair
Tel. 604 432-6215 Fax 604 451-6614

File: CR-12-01
Request ID: 6359
Ref: SD 2016 Jul 29

OCT 18 2016

Honourable Mary Polak
Minister of Environment
PO Box 9047, Stn Prov Govt
Victoria, BC V8W 9E2

SECTION 1 COUNCIL CORRESPONDENCE (2016.11.03)
City Manager
Deputy City Manager
Dir. Engineering
Environment Committee (Nov. 8)

Dear Minister Polak:

Re: Metro Vancouver 2015 Construction and Demolition Waste Composition Monitoring Program

At its July 29, 2016 regular meeting, the Board of Directors of the Greater Vancouver Sewerage and Drainage District (Metro Vancouver) adopted the following resolution:

> *That the GVS&DD Board receive the report titled "Metro Vancouver 2015 Construction and Demolition Waste Composition Monitoring Program", dated July 8, 2016 for information, and send a copy to all member jurisdictions and to the provincial Ministry of Environment.*

Construction and demolition waste is targeted as a key material in Metro Vancouver's *Integrated Solid Waste and Resource Management Plan* to further increase reuse and recycling.

The enclosed report outlines Metro Vancouver municipal progress in implementing mechanisms to encourage construction and demolition waste recycling, and provides an update on construction and demolition waste composition.

If you require more information on these programs, please contact Paul Henderson, General Manager, Solid Waste Services at 604-432-6442 or Paul.Henderson@metrovancouver.org.

Yours truly,

Greg Moore
Chair, Metro Vancouver Board

GM/CM/ph

cc: Metro Vancouver Member Jurisdictions

Encl: Report titled "Metro Vancouver 2015 Construction and Demolition Waste Composition Monitoring Program", dated July 8, 2016 *(Doc #18891067)*

19495366

To: GVS&DD Board of Directors

From: Zero Waste Committee

Date: July 18, 2016 Meeting Date: July 29, 2016

Subject: **Metro Vancouver 2015 Construction and Demolition Waste Composition Monitoring Program**

ZERO WASTE COMMITTEE RECOMMENDATION

That the GVS&DD Board receive the report titled "Metro Vancouver 2015 Construction and Demolition Waste Composition Monitoring Program", dated July 8, 2016 for information, and send a copy to all member jurisdictions and to the provincial Ministry of Environment.

At its July 14, 2016 meeting, the Zero Waste Committee considered the attached report titled "Metro Vancouver 2015 Construction and Demolition Waste Composition Monitoring Program", dated July 8, 2016. The Committee subsequently amended the recommendation as presented above.

Attachment:
"Metro Vancouver 2015 Construction and Demolition Waste Composition Monitoring Program", dated July 8, 2016.

18891067

metrovancouver
SERVICES AND SOLUTIONS FOR A LIVABLE REGION

Attachment

To: Zero Waste Committee

From: Marian Kim, Lead Senior Engineer, Solid Waste Services

Date: July 8, 2016 Meeting Date: July 14, 2016

Subject: **Metro Vancouver 2015 Construction and Demolition Waste Composition Monitoring Program**

RECOMMENDATION

That the GVS&DD Board receive the report titled "Metro Vancouver 2015 Construction and Demolition Waste Composition Monitoring Program", dated July 8, 2016 for information.

PURPOSE

The purpose of this report is to update the Board on the 2015 Construction and Demolition Waste Composition Monitoring Program and to provide a summary of municipal regulatory measures in place to encourage recycling of construction and demolition materials.

BACKGROUND

Metro Vancouver's Integrated Solid Waste and Resource Management Plan (ISWRMP) has set ambitious regional diversion goals that rely on increased diversion in the construction and demolition (C&D) sector. ISWRMP Strategy 2.4 and 2.7 target the C&D sector and specifically wood for increased reuse and recycling. In support of these strategies, Metro Vancouver continues to monitor the region's C&D waste composition to measure progress towards the diversion goals and to better understand opportunities for further recycling in the C&D sector.

On May 19, 2016, the Zero Waste Committee directed staff to provide:

> *a summary of the various approaches taken by member municipalities in addressing the disposal of demolition materials.*

This report provides the results of the 2015 C&D Waste Composition Monitoring Program and a summary of measures implemented by municipalities to encourage C&D recycling.

2015 CONSTRUCTION AND DEMOLITION WASTE COMPOSITION MONITORING PROGRAM

The 2015 C&D Waste Composition Monitoring Study titled "2015 Demolition, Land-clearing, and Construction Waste Composition Monitoring Program", available here, analyzed the composition of C&D material arriving at both the Vancouver and Ecowaste landfills. The Vancouver Landfill receives C&D waste for on-site construction purposes. Ecowaste is a private landfill located in Richmond receiving C&D type wastes. One hundred and three loads were sampled from various sources including residential demolition, commercial demolition, construction, and residual materials from private C&D transfer stations and material recovery facilities. The volume of each material type was visually estimated and converted to a weight to determine an approximate overall regional composition. The field portion of this study was carried out in September and October 2015.

A comparison of the 2015 C&D waste composition monitoring results to that of the previous study in 2011 is provided in the table below.

Table 1: Comparison of Overall Regional C&D Waste by Material Type: 2011 and 2015

Material Category by Type	% by Weight		Annual Weight (Tonnes)	
	2011	2015	2011	2015
Wood	54%	57%	150,823	217,943
Asphalt	8%	9%	22,519	34,597
Misc. Building Materials	3%	7%	9,488	28,441
Rubble	19%	7%	52,289	27,814
Plastic	4%	6%	10,871	24,380
Metal	2%	2%	4,377	7,785
Bulky Items	<1%	2%	411	7,487
Textiles	<1%	2%	638	7,067
Miscellaneous/Black Bags	2%	2%	4,518	6,227
Land-clearing	<1%	2%	2,601	6,236
Paper	<1%	2%	341	5,868
Household Garbage	<1%	1%	1,438	5,419
Glass and Ceramics	<1%	1%	2,063	2,601
Rubber	<1%	1%	409	2,257
Masonry/Brick	1%	<1%	3,081	1,052
Concrete	5%	<1%	12,906	486
Total	100%	100%	279,000	386,000

Sources of C&D loads

C&D loads being received at the Vancouver and Ecowaste landfills were sampled for composition audit as they arrived. Of the 103 loads sampled, more than half (53) were reported to have originated from residential demolition. Of the remaining loads, roofing (12 samples), transfer station residuals (12 samples), and commercial demolition (9 samples) were the next most common sources. Other less common sources included construction, land-clearing, manufacturing, and commercial demolition. The distribution of samples is representative of the sources of loads typically received at Vancouver Landfill and Ecowaste Landfill combined.

Both Vancouver and Ecowaste Landfills receive demolition loads from across the region with Vancouver Landfill receiving primarily residential demolition loads and Ecowaste Landfill receiving a mixture of all types of loads, which is reflected in the landfill-specific composition analysis. At Vancouver Landfill, wood, a large part of which was composite, painted or treated and challenging to recycle, represented 90% of the total demolition material observed during the study. The City of Vancouver specifies the characteristics of the C&D waste received at that facility to meet its requirements for use of the material for construction purposes. At Ecowaste Landfill, wood was 41% of the material observed, with asphalt being the next highest at 13%, followed by miscellaneous materials such as carpet, underlay, insulation at 10% and rubble at 9%. Both sites accept separated loads of clean wood for recycling.

Wood

Wood continues to represent the largest portion of C&D waste in the region at an estimated 218,000 tonnes (57% by weight) disposed in 2015. The primary category of wood was further separated into clean dimensional lumber, treated dimension lumber, composite wood (including plywood), shredded wood, wood flooring, and wood shakes and shingles. The majority of the wood identified was composite (20% by weight of all materials), clean dimensional lumber (14%), and painted/treated dimensional lumber (13%). Limited opportunities exist for recycling composite and painted/treated lumber, whereas clean dimensional lumber is highly recyclable. Metro Vancouver is working with the University of British Columbia on research projects that are intended to support additional options for recycling of C&D wood materials.

Metro Vancouver's Clean Wood Disposal Ban was implemented in January 2015. The ban applies to loads delivered to Metro Vancouver and City of Vancouver facilities. Large C&D loads delivered to the Vancouver Landfill used for construction purposes are not currently included in the ban. The ban has helped to raise awareness of the need to separate clean wood waste from disposal. The percentage of clean dimensional lumber in the C&D waste stream has dropped from 71,000 tonnes in 2011 to 55,000 tonnes in 2015.

The overall increase in the amount of wood in C&D waste in 2015 compared to 2011 can in part be attributed to the inclusion of out-of-region disposal tonnage in the 2015 report, which increased the total annual tonnes of wood in C&D waste by 28,000 tonnes in 2015. The remainder of the increase in wood is likely due to the increase in development activity in the region and accelerated pace of demolition of single family homes. According to the Canada Mortgage and Housing Corporation, new housing starts increased by 17% between 2011 and 2015. According to field observations, the majority of demolition wood in samples came from single family homes, especially at the Vancouver Landfill.

Other C&D materials

Of the remaining material types, only asphalt (9%), miscellaneous building material such as carpet, underlay, dry, insulation, and stucco (7%), rubble (7%), and plastic (6%) were found in proportions greater than 2%. Metal, bulky items, textiles, land-clearing material, paper, household garbage, glass and ceramics, rubber, masonry and concrete collectively represented less than 15% of C&D material.

Compared to 2011, the composition of rubble showed the most dramatic decrease, from 19% in 2011 to 7% in 2015. Concrete also decreased from 5% in 2011 to <1% in 2015, a reduction of approximately 12,000 tonnes. This indicates that concrete, asphalt and rubble continue to be readily recyclable, contributing to the increase in total C&D waste recycled from 1.04 million tonnes in 2011 to 1.19 million tonnes in 2014.

The highest recycling potential exists in residential demolition projects, especially single family homes, and current regulatory measures to encourage recycling through municipal demolition permitting processes by separating recyclable materials at source play an important role in maximizing recycling.

Summary of Municipal Construction and Demolition Material Recycling Requirements

The Board approved a proposed municipal permit approach to encouraging demolition material recycling in October 2012 and referred a sample municipal bylaw to member municipalities for consideration. The objective of the sample municipal bylaw is to encourage recyclable materials from

demolition sites to be reused, sorted on site, or taken as mixed loads to private transfer stations and processing facilities for recovery.

Six municipalities have adopted regulatory measures that establish recycling requirements for demolition material and others are considering adopting a regulatory program. The demolition material recycling requirements are implemented through the demolition permitting process and are based on the sample municipal bylaw, although the requirements are appropriately customized to each municipality's needs and available resources. Here is a summary of current municipal requirements related to demolition material recycling:

Table 2: Summary of Municipal Regulatory Measures to Encourage Demolition Material Recycling

Municipality	Year Bylaw Effective	Diversion requirement	Reporting requirements	Fees associated with Demolition Material Recycling Services
Metro Vancouver Sample Bylaw	2012 – Board referred sample bylaw to municipalities	• Direct recyclable materials to a recycling facility	• Waste Disposal and Recycling Services Plan • Compliance Report • Receipts submitted	Percent diversion used to calculate percent of Waste Disposal and Recycling Services Fee refunded
City of New Westminster	2016	• 70% of demolition waste	• Recycling Plan and Compliance Report • Receipts submitted	Waste Disposal and Recycling Services Fee includes a non-refundable administration fee, and a fully refundable Recycling Incentive Deposit of $0.87/square foot
City of North Vancouver	2007	• Recycling of specified demolition materials	• Demolition Waste Checklist	No new fees or deposits introduced
City of Port Moody	2011	• 70% of recyclable material	• Compliance report • Receipts submitted	Waste Management Fee includes a fully refundable portion of $1,800 for a typical house (varies based on square footage).
City of Richmond	2016	• 70% of demolition waste	• Recycling plan and compliance report • Receipts submitted	Non-refundable administration fee and fully refundable Waste Disposal and Recycling Service Fee of $2/square foot
City of Vancouver	2014	• 90% from pre-1940 character homes • 75% from pre-1940 homes	• Recycling plan and compliance report • Receipts submitted	Non-refundable Demolition Waste Compliance Fee plus refundable Green Demolition Deposit of $14,650

		• Plans to transition to all one- and two-family homes by 2018		
District of West Vancouver	2014	• Direct recyclable materials to a recycling facility	• Notarized statutory declaration that C&D waste has been recycled	No new fees or deposits introduced

Metro Vancouver continues to track regional progress in implementing measures to encourage recycling in demolition projects and develop resources such as cost benefit analysis of recycling demolition materials that can support existing and future regulatory programs.

A range of other initiatives are also being pursued around the region, for instance, the City of Vancouver is investigating the potential to develop a C&D recycling facility at the Vancouver Landfill to maximize recovery of the material delivered to that facility.

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

Ongoing work in developing resources to support regulatory measures to encourage recycling of demolition materials can be accommodated within the annual operation budget.

SUMMARY / CONCLUSION

Metro Vancouver continues to monitor the composition of the region's C&D waste to measure progress in achieving the region's diversion goals and to better understand opportunities for further recycling in the C&D sector. Wood continues to represent the largest portion of C&D waste in the region at an estimated annual 218,000 tonnes (57% by weight). The majority of the wood identified was composite and painted/treated dimensional lumber which are difficult to reuse and recycle. Clean dimensional lumber make up approximately 14% of the C&D waste stream, and the estimated tonnes disposed has decreased from 71,000 tonnes in 2011 to 55,000 tonnes in 2015 possibly due to raised awareness on separating clean wood waste from disposal through Metro Vancouver's Clean Wood Disposal Ban. Concrete, asphalt and rubble continue to be readily recyclable, with significant reductions in the quantity disposed since 2011. Municipal measures are important tools to increase reuse and recycling of C&D materials. A number of municipalities around the region have implemented new regulatory tools to encourage reuse and recycling of C&D materials.