

# AGENDA

## *COUNCIL WORKSHOP*

**Tuesday, October 23, 2012**

**7:00 p.m.**

**Committee Room, Municipal Hall**

**355 West Queens Road,**

**North Vancouver, BC**

**Council Members:**

Mayor Richard Walton

Councillor Roger Bassam

Councillor Robin Hicks

Councillor Mike Little

Councillor Doug MacKay-Dunn

Councillor Lisa Muri

Councillor Alan Nixon



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## COUNCIL WORKSHOP

7:00 p.m.  
Tuesday, October 23, 2012  
DNV Committee Room, Municipal Hall  
355 West Queens Road, North Vancouver

### AGENDA

**1. Opening by the Mayor**

**2. Solid Waste Management Plan – Draft Executive Summary**

File No. 11.5360.00

Memo: Gavin Joyce, P. Eng., General Manager Engineering, Parks & Facilities

Report: Draft Integrated Solid Waste Management Plan, Prepared by Dillon Consulting Limited

*Additional material to be circulated via Agenda Addendum*

**3. Adjournment**

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## REPORTS

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## Memo

October 12, 2012  
File: 11.5360.00

TO: Mayor & Council

FROM: Gavin Joyce, P.Eng., General Manager Engineering, Parks & Facilities

**SUBJECT:** Solid Waste Management Plan - Draft Executive Summary

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Attached is a draft Executive Summary of the Solid Waste Management Plan completed by Dillon Consulting Ltd. The work undertaken was a comprehensive review of all aspects of Solid Waste Management and Operations for the District of North Vancouver.

The purpose of the October 23, 2012 Council Workshop is to deliver the key findings of the study and focus on one of the key priority areas – Single Family Collection.

Additional topics analyzed in the report (commercial collection, task system, multi family sector, etc.) will be prioritized and the subject of future Council workshops. It is recommended Recycling be reviewed in May 2014 when the regulatory changes around the Packaging and Printed Paper (PPP) Extended Producer Responsibility (EPR) are delivered.

In considering options for the delivery of solid waste services for the single family sector the District fulfils the role as a Regulator and Service Provider. The drivers in providing the service are three fold: achieving the required diversion targets (Environment); providing value and quality service to residents (Customer Service); and optimising operational efficiency (Financial).

The attached scenarios weight these drivers and create three options, apart from the status quo, for Council's consideration.

Based on the feedback received at the workshop, staff will report back on an operational, communication, and financial plan to deliver the recommended options.

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Gavin Joyce, P.Eng., General Manager Engineering, Parks & Facilities

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# Integrated Solid Waste Management Plan

Draft - October 11, 2012



NORTH VANCOUVER  
DISTRICT



## INTEGRATED SOLID WASTE MANAGEMENT PLAN

October 2012

Prepared for:  
District of North Vancouver  
355 West Queens Road  
North Vancouver, BC  
V7N 4N5  
Attention: Len Jensen, Manager,  
Engineering Operations

Prepared by:  
Dillon Consulting Limited  
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Richmond, BC  
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604-278-7847

Dillon Project No.: 12-6312

## KEY PROJECT FINDINGS

- Metro Vancouver's (MV) waste goals and targets are aggressive and will not be achieved by the District with a 'business-as-usual' approach.
- At the municipal level, diversion rates are difficult to calculate, in practice, to any degree of accuracy. The District's single-family (SF) diversion rate can be calculated, based on information available, at between 48% and 64% (not accounting for Extended Producer Responsibility and Take-back programs). Therefore, it is very difficult for any municipality to measure ongoing progress when the 'baseline' is both difficult to calculate and there are questions around data accuracy, particularly in relation to materials brought to North Shore Transfer Station. Other goal options, such as waste disposal per capita, exist and are detailed in this Report. But ultimately, the District will be held accountable to MV's diversion rate targets.
- Multi-Family (MF) will become an increasing generator of waste materials in the District in line with the Official Community Plan (OCP) longer term housing target mix of 55% SF, 45% MF. MV's sector targets to achieve 70% diversion by 2015 are more heavily weighted on the SF sector (65%) than the MF (30%). Historically, the focus of most municipalities, including the District has been on the SF sector because municipalities generally retain responsibility for service provision to this entire sector. In addition, the barriers to recycling and composting are more readily addressed in the SF sector than the MF. In reality, the barriers to recycling in the MF sector are generally consistent across municipal boundaries and this is a challenge that would possibly be more efficiently and effectively dealt with at the regional (MV) level. Essentially the District could:
  - Follow the lead of municipalities like the Cities of Vancouver, New Westminster, Burnaby, Port Moody, and the Township of Langley, and proactively engage the MF sector. This would require additional resources (human and financial) to increase education and outreach to the MF sector, including for example the MF Recycling Ambassador Program. Note that it can be challenging to measure the impact of educational and outreach efforts in terms of diversion achieved per dollar spent.
  - Consider bringing the MF sector back under the Utility Fee and provide garbage collection services in-house, thus driving requirements to divert waste materials. The District would need to purchase additional vehicles and containers to adequately service the MF sector (capital outlays) or services could be provided through a contracted private sector company (no capital outlay but increased operational budget). A likely consequence would also be opposition from the private sector haulers who currently service the majority of the MF sector for garbage and organics collection.
  - Waste leakage is a major issue in terms of meeting both MF and ICI (Industrial, Commercial and Institutional) sector targets. MV is aware of this issue and has approved a methodology to address it which involves licensing of haulers and requiring haulers to use only MV approved facilities. This will ensure all waste collected at the MF and ICI sector is brought to facilities that implement the MV material bans and associated surcharges; however it is not clear how effective these bans and surcharges will be at increasing the diversion rate.
  - Implement Metro Vancouver's draft bylaw specifying requirements on the provision of space for storage and collection of recyclables in MF and commercial buildings. It is recommended that requirements of the Draft bylaw be expanded to include for water and drainage facilities, as these are important features to facilitate maintenance of Source Separated Organics (SSO) containers.

# ISWMP – EXECUTIVE SUMMARY

- It must be acknowledged that, in terms of diversion, a point of 'diminishing returns' will be reached with the SF sector whereby additional efforts to increase the diversion rate will become prohibitively expensive. The conclusion is that the MF sector must 'pull its weight' in terms of diversion in favour of excess responsibility being placed on the SF sector.
- In order to drive diversion of organic material from the garbage container, and meet MV's diversion targets; a reduction in the weekly limit and/or a move to biweekly garbage collection is recommended.
- Bi-weekly collection of garbage has the potential to improve SF diversion rates (collected curbside only) from 53% to 72%, thus exceeding MV's 2015 sector target of 65%. Biweekly collection is controversial, with 18% of District residents refusing to answer a question in the phone survey relating to reduced garbage limits and biweekly collection. 47% of residents would prefer a reduced limit of one bag collected weekly, with 16% stating a preference for a two bag limit collected every other week. As organic material is moved from the garbage to organics stream, disposal costs savings will result; from approximately \$55,000 if 20% of organic material can be moved to \$146,000 if 40% of material can be moved from the garbage container to the 'Green Can'. Operational savings resulting from a move to biweekly collection are somewhat difficult to quantify and are dependent on generation patterns and route optimisation measures. District operational staff estimate that savings of approximately \$250,000 could be achieved through a move to bi-weekly garbage collection.
- Many of the operational choices available to District Operations (weekly versus biweekly collection, four versus five day workweeks, automated versus semi-automated collection, collection timing etc.) are dependent on container type and the flexibility provided to the resident in terms of container choice. Customers have a preference for wheeled carts for garbage (72%) and mixed food and yard waste (54%). A regular plastic can with no wheels (e.g. Rubbermaid) was also a popular choice (37%) for mixed food and yard waste. For the District, the decision comes down to a choice between providing carts to residents (high capital costs but operational efficiency and community aesthetics gains) and allowing customers to choose whatever container suits their particular needs (high customer service but operational efficiency losses and increased animal attractant issues). Note that in the majority of cases where municipalities have provided carts to residents, the provision of carts was driven by a move to automated collection, not a requirement to standardise containers.
  - The provision of a wheeled cart for organics could be justified on operational efficiency grounds as the collection operators express concerns over the weight and type (bundles, Kraft bags) of containers being used for the 'Green Can' program at present.
  - Though the majority of residents expressed a preference for carts for garbage as opposed to mixed food and yard waste; this preference is likely to change as the (heavier) food waste material is moved from the garbage container to the 'Green Can'.
  - Should carts be provided by the District, animal resistant models fitted with RFID (Radio Frequency Identification) technology are recommended for both organics and garbage.
  - The provision of carts by the District requires a significant capital outlay, but has several advantages relating to consistency in containers, which in turn facilitates operational efficiencies, and also facilitates a mechanism whereby residents can pay for the cart over time as part of their annual Utility Fee.
- Animal resistant containers are somewhat of a 'false security' and measures to require responsible storage of waste during the week are required regardless. Increased enforcement, in line with an updated Solid Waste Bylaw, is strongly recommended.

## ISWMP – EXECUTIVE SUMMARY

- A detailed business case would be required to support a move to automated collection in the District. High level findings in this Report are that a business case for automated collection does not appear strong in the District at present as:
  - WCB / sick days are low;
  - Tip rates using the semi-automated system are high; and
  - Topography and road layout of certain District areas (<10%) would limit the feasibility of automated collection for safety and/or operational efficiency reasons.



# ISWMP – EXECUTIVE SUMMARY

## EXECUTIVE SUMMARY

### INTRODUCTION

Dillon Consulting Limited (Dillon) was retained by the District of North Vancouver (DNV) to conduct a review of Solid Waste Operations at the District with the overall objective of producing an Integrated Solid Waste Management Plan (ISWMP) that supports waste management policies in section 10.3 of the Official Community Plan and balances the financial, environmental and social impacts of these community services over the next 20 years. The Request for Proposals (RFP.013.12) contained 36 questions / issues that needed to be specifically addressed, the majority of which related to the collection of garbage and organics from single family residents. While this report is presented in a format consistent with an ISWMP, the bulk of effort was directed towards analyzing the issues specifically stated in the RFP, with the aim of providing the District with the information required to make key decisions in relation to the provision of waste management services in the short to medium term.

### STUDY AREA

DNV has a population density of 525 people/km<sup>2</sup> (Statistics Canada, 2011) and an average number of three persons per household. The current household type split is approximately 83% single-family (SF), 17% multi-family (MF) (Statistics Canada, 2006); however, 2011 DNV Official Community Plan (OCP) long term target is to have a housing mix of 55% SF and 45% MF units.

### STAKEHOLDER CONSULTATION

The project methodology was designed to maximize stakeholder input, within budget restraints. A Dillon team member (Linda Parkinson) was based at DNV Operations centre at least one day a week over a three month period, and met with Operations Staff, District Hall Staff other key stakeholders including the North Shore Black Bear Society (NSBBS) and North Shore Recycling Program (NSRP). A phone survey of single family residents in the District was conducted by a specialist sub consultant, NRG Research, during mid-August and their report on the survey is included as an Appendix.

### LEGISLATIVE REQUIREMENTS

Provincial (Ministry of Environment), Regional (Metro Vancouver) and Municipal (DNV Solid Waste Removal Bylaw 7631) requirements apply to waste management in the District. Metro Vancouver's Integrated Solid Waste Management and Resource Plan (ISWMP) identifies waste management goals and targets. The District is required by Metro Vancouver to bring all waste materials to designated 'Regional Facilities', including the North Shore Transfer Station, and to comply with Metro's material bans which include blue box recyclables, mattresses, yard trimmings and white goods. The ISWMP provides for a ban on organic waste material beginning in 2015.

# ISWMP – EXECUTIVE SUMMARY

## Metro Vancouver ISWMP Waste Goals and Targets

Goal	Target
1. Minimize waste generation	<ul style="list-style-type: none"> <li>Reduce per capita waste generated within the region, calculated on a rolling 5-year average, to 90% or less of 2010 volumes by 2020.</li> </ul>
2. Maximize reuse, recycling and material recovery	<ul style="list-style-type: none"> <li>Increase average diversion rate from 55% (by weight) to a minimum of 70% by 2015, 80% by 2020. Track diversion rate and waste disposed per-capita each year.</li> <li>Diversion rate targets by sector (to achieve 70% by 2015):               <ul style="list-style-type: none"> <li>MF 30%</li> <li>SF 65%</li> <li>ICI 70%</li> <li>DLC (C&amp;D) 80%</li> </ul> </li> </ul>
3. Recover energy from the waste after recycling	<ul style="list-style-type: none"> <li>Continue to improve performance of WTE facility.</li> <li>Recover metals and other residue for beneficial use.</li> <li>Expand use of WTE (from 285k tpy to 500k tpy).</li> <li>Maximize energy recovery, incorporating into District heating, industrial applications and production of alternative fuels.</li> </ul>
4. Dispose remaining waste in landfill	<ul style="list-style-type: none"> <li>Committed to reduce the quantity of waste going to Vancouver Landfill to a maximum of 100,000 tonnes per year by 2020.</li> </ul>

## THE DISTRICT'S ROLE IN RELATION TO WASTE MANAGEMENT

For each waste sector (SF, MF, ICI, C&D), the District currently fulfills a role as a Regulator and/or Service Provider as summarized in the table overleaf.

## WHERE ARE WE NOW?

Based on figures provided for curbside collection services, the current SF diversion rate (collected curbside only) was 53% in 2011. When quantities of garbage and green waste taken to the North Shore Transfer Station (NSTS), recyclables to the NSRP Depot and backyard composting are taken into account the SF diversion rate is 49%. It is noted that there are accuracy issues surrounding the methodology used to attribute garbage quantities to DNV residents at the NSTS. The diversion rate can be calculated using the curbside collection figures and green waste brought to NSTS only at 64%. It is not possible to accurately calculate an accurate overall diversion rate as real data on waste (garbage, organics and recyclables) for the MF and Industrial Commercial and Institutional (ICI) sectors is not readily available to the District.

A waste generation model was developed which uses a series of assumptions-based waste composition studies and industry reports to calculate the current diversion rates for each sector. Diversion rates are calculated at 10% for MF and 47% for ICI. Adjustments to participation and capture rates are applied to illustrate where the District needs to direct efforts to meet Metro's sector targets in 2015 and overall targets in 2020.

# ISWMP – EXECUTIVE SUMMARY

## DNV's Current Role in Relation to Solid Waste Management

Sector	DNV as Service Provider	DNV as Regulator
Single-Family (SF) Residential	<p>DNV provides a weekly garbage and organics collection service to 20,560 SF homes in the District.</p> <p>A weekly three-stream recycling service is provided through NSRP (currently contracted to Waste Management of Canada Corporation).</p> <p>Education and outreach services are provided through NSRP.</p>	<p>DNV Solid Waste Removal Bylaw (7631) specifies requirements on container types, weekly weight and volume limits, removal times, acceptable materials etc. Enforcement of requirements is provided through non-compliance stickers, issued by garbage collectors and fines, issued by DNV Bylaw Enforcement Officers.</p> <p>DNV has committed to achieve a SF sector diversion target of 65% by 2015.</p>
Multi-Family (MF) Residential	<p>A weekly three stream recycling service is provided through NSRP (currently contracted to Waste Management of Canada Corporation).</p> <p>The DNV provides a garbage and cardboard collection service to 106 MF buildings which is approximately 61% of the total MF market. The DNV does not currently provide organics collection to MF buildings (but is conducting a pilot study into how to provide this service).</p> <p>The remaining MF buildings in the District are serviced by private sector waste contractors for garbage and/or organics collection.</p> <p>NSRP has provided education and outreach services to the MF sector since 1998. It is understood that NSRP have recently assigned a staff member to focus on this sector.</p>	<p>DNV Solid Waste Removal Bylaw (7631) specifies requirements.</p> <p>DNV Bylaw Enforcement Officers are not actively enforcing requirements on the MF sector.</p> <p>DNV has committed to achieve a MF sector diversion target of 30% by 2015.</p> <p>Not implemented in DNV to date (but recommended): Metro Vancouver Sample Bylaw for the purpose of allocating sufficient recycling space that is accessible in Multi-Family and Commercial Buildings and Complexes.</p>
ICI	<p>The DNV provides a garbage and cardboard collection service to 255 ICI premises which is approximately 14% of the total ICI market. The DNV does not currently provide organics collection to ICI buildings.</p> <p>DNV provides litter collection at select on-street locations.</p> <p>NSRP provides Recycling Drop-off Depot.</p> <p>Education and outreach services have not been targeted at the ICI sector to date.</p> <p>Metro Vancouver provides advice to the ICI sector through its sustainable business resources such as SmartSteps, BuildSmart and Metro Vancouver Recycles for Business.</p>	<p>DNV Solid Waste Removal Bylaw (7631) specifies requirements on container types, weekly weight and volume limits, removal times etc. for SF properties.</p> <p>DNV Bylaw Enforcement Officers are not actively enforcing requirements on the ICI sector</p> <p>DNV has committed to achieve an ICI sector diversion target of 30% by 2015.</p>



# ISWMP – EXECUTIVE SUMMARY

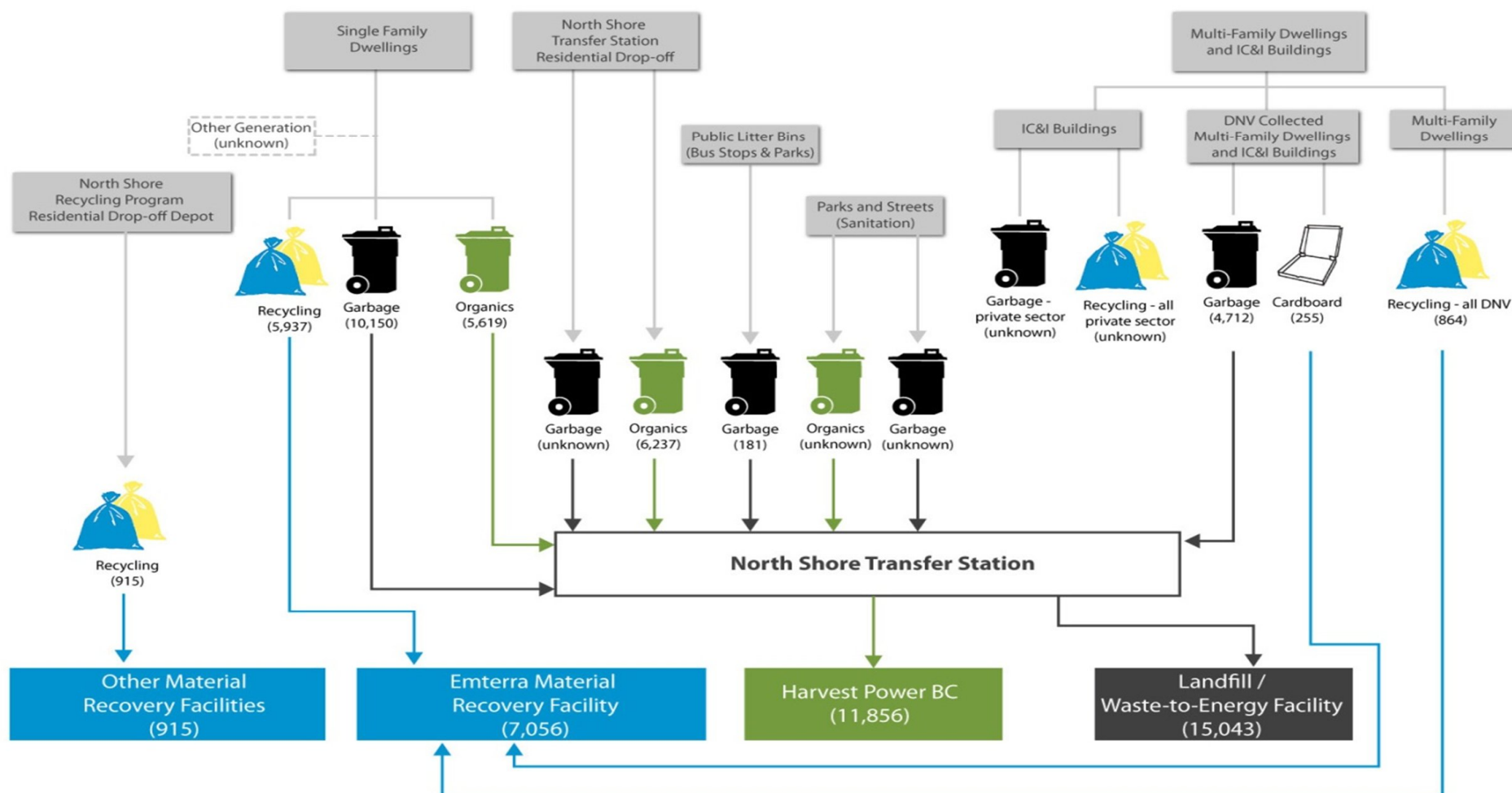
Sector	DNV as Service Provider	DNV as Regulator
	Recycling Council of British Columbia (RCBC) also provides information and guidance to this sector.	
Demolition and Land Clearing (DLC); also known as Construction and Demolition (C&D)	<p>DNV Operations currently reuse and recycle a substantial portion of their generated construction waste materials (soils, concrete, asphalt, etc.) at the Beach Yard facility. Records on the quantities reused and recycled are currently not maintained.</p> <p>NSRP does not currently provide targeted advice on DLC management to SF, MF or ICI sectors.</p> <p>Resources are provided through the BuildSmart program and include a DLC Waste Management Toolkit.</p>	<p>Metro Vancouver DLC diversion target is 80% by 2015.</p> <p>The District's Green Building Strategy requires the incorporation of a range of green building measures for the MF and ICI Sectors to achieve a building performance equivalent to the 'Gold' standard under either the LEED Canada™ (2009) New Construction or Core and Shell checklists or the Built Green™ MS + RT checklist.</p> <p>Not implemented in DNV to date (but recommended): Metro Vancouver Sample Regulatory Mechanism for Mandatory Recycling on Construction and Demolition Worksites (July, 2011).</p>

# ISWMP – EXECUTIVE SUMMARY

## WASTE FLOWS IN THE DISTRICT

The quantities of waste managed through DNV and the North Shore Recycling Program (NSRP) in 2011 and the interim and final destinations of garbage, recyclables and organics are presented schematically in the figure below.

*2011 Waste Movements  
District of North Vancouver*



\*Note: All quantities are in tonnes

Sources of 2011 Waste Quantities: District of North Vancouver, North Shore Transfer Station (Metro Vancouver), North Shore Recycling Program

## WASTE MANAGEMENT POLICIES

In terms of policy, the District will:

- Support the waste management hierarchy; although it is acknowledged the District's influence on certain hierarchical options is limited in practice.
- Support the OCP.
- Support Metro Vancouver's diversion goals - the goals and targets outlined in Metro Vancouver's ISWRMP were adopted by DNV Council at a regular meeting on June 21, 2010.
- Support Metro Vancouver's disposal bans.
- Support the 'polluter pays' principle in the adoption of user-pay systems.

## POSSIBLE ADDITIONAL POLICIES MIGHT INCLUDE:

- Lobby Metro Vancouver for differential tipping fees for garbage (\$107/tonne in 2012) and green/organic waste (\$71/tonne in 2012) to drive ongoing diversion particularly in the ICI sector.
- 'Proximity Principle': waste should be managed as close as practicable to the point at which it is generated.
- Bear Protection Policy, whereby the DNV would undertake all reasonable measures to protect the Black Bear population on the North Shore.

## WASTE MANAGEMENT GOALS

Diversion based goals are difficult to measure in practice and require complex calculations, assumptions and the coalition of information from a range of public and private facilities. In North America and the EU, many jurisdictions are beginning to measure waste diversion progress by tracking per capita disposal rates (e.g., kg/person/year) as opposed to the traditional diversion rate (e.g., percentage of waste stream recycled or composted) approach.

Recommended DNV metrics for the SF sector include the monitoring of the SF curbside disposal rate per household, which can be readily benchmarked against other Metro municipalities. Methods to manage waste "leakage" and thus improve the accuracy of information on recycling and disposal in the MF and ICI Sectors are being addressed by Metro Vancouver.

## USER PAY SYSTEMS

Various types of user pay structures exist, from simple "extra garbage tag" type systems to full user pay systems where the garbage container is weighed each week on the collection truck and a weight specific invoice is generated for each household. In general, the vast majority of schemes use a combination of *flat rate fees or taxes* and a *variable element*. The flat rate element would be considered necessary to give certainty to the District over the level of revenue generated, which is a requirement to ensure costs are fully covered. It is also considered reasonable that each resident should pay for a 'baseline service' i.e. for the fact that a collection truck passes down their street every week.

Volume based user pay systems (usually associated with cart size) are found to be the least effective in incentivising waste reduction; partly because once a specific size bin has been purchased, or subscribed to, by the resident; they will likely fill it. In the case of cities such as Vancouver, Port Coquitlam and Port Moody, the smallest cart has the lowest annual cost, however, the increasing increments are not prohibitive, and in fact the actual cost per unit weight (\$ per kg) decreases with increasing cart size.

The District's current 'extra garbage' tag method is considered an effective user pay option as it has a low administrative overhead, and provides the resident with an option to manage fluctuations in waste quantities.

A weight-based user pay system is very effective in terms of diversion potential but is expensive to implement (weighing mechanism on rear of each collection vehicle) and administer (unique bill issued for each SF customer on a weekly or monthly basis). On-board weighing systems for semi- and fully-automated collection vehicles are currently not commercially available in Canada for reasons pertaining to their legality in meeting the requirements of the Canadian (federal) Weights and Measures Act and Regulations. However, technology is constantly improving and it is recommended that the District install RFID tags on any carts provided to the public (budget cost of \$1.25 per cart) to facilitate the development of a database and a system that is capable of issuing unique bills to each resident, should a move to weight based user pay be considered in the future.

### LIMITS AND FEES

Achieving waste targets for the SF sector are dependent on moving organic waste materials (which composition studies have shown to be 40-45% of the garbage stream) from the garbage container to the "Green Can" container. Best practices research indicates that this is best achieved in conjunction with a reduction in weekly garbage limits and /or a move to bi-weekly collection of garbage. Calculations show that the average DNV resident currently produces 20 kg or less per week and should be readily capable of meeting a reduction in limit or a move to bi-weekly collection.

Bi-weekly collection of garbage has the potential to improve SF diversion rates (collected curbside only) from 53% to 72%, thus exceeding Metro Vancouver's 2015 sector target of 65%. Biweekly collection is controversial, with 18% of District residents refusing to answer a question in the phone survey relating to reduced garbage limits and biweekly collection. Of the responses received, 47% of District residents would prefer a reduced limit of one bag collected weekly, with 16% stating a preference for a two bag limit collected every other week.

## REVIEW CONCLUSIONS AND RECOMMENDATIONS

Conclusions and recommendations are presented here in headings consistent with RFP.0163.12 but note the main report presents findings in a format more consistent with a typical ISWMP. For each topic, the analysis is presented in a format that provides detail on the current approach, challenges and best practices with detailed discussion of the impacts (positive and negative) in terms of Diversion Potential, Customer Service and Operational Efficiency. Conclusions and recommendations only are presented below.

### SINGLE FAMILY GARBAGE AND ORGANICS

- Promote use of backyard composting and organics as the most sustainable method of managing the majority of Source Separate Organics (SSO), although it is not suitable for materials such as meat, bones and dairy products.
- Discourage use of garburators and consider an outright ban, particularly for new Town Centre developments.
- Residents should be encouraged to place any excess SSO in the 'Green Can' container for weekly collection. Additional, and more focused, education on the 'Green Can' program is recommended.
- Decrease the garbage limit to one container (77 L, 20 kg) per week and consider a move to bi-weekly collection of garbage (154 L, 40 kg) to encourage residents to utilize the 'Green Can' program. The District garbage limit reduction in 2007 resulted in a reduction of 15% in the

quantity of garbage collected curbside. It can be calculated that (holding recycling quantities and overall generation rates constant):

- If 15% of the SF garbage stream could be moved to the SSO container, consistent with the last DNV limit reduction; the SF diversion rate (collected curbside only) would increase from 53% to 60%, and savings in disposal costs at the NSTS of \$54,810 on 2011 costs could be achieved.
- If 40% of the garbage stream could be moved to the SSO container, consistent with what was achieved in Port Moody with bi-weekly collection and what is achievable based on waste composition studies in Metro Vancouver and CNV; the SF diversion rate (collected curbside only) would increase from 53% to 72%, and savings in disposal costs at the NSTS of \$146,160 on 2011 costs could be achieved.
- Operational savings resulting from biweekly collection are somewhat difficult to quantify and are dependent on generation patterns and route optimisation measures. District Operational staff estimate that approximately \$250,000 in operational savings could be achieved with bi-weekly garbage collection.
- Track number of non-compliance notices issued and the households concerned to enable targeted education and outreach efforts. Note that carts with RFID tags would increase efficiency in identifying and targeting households in need of increased education efforts.
- Increase education efforts and target defined resources at those residents most in need of assistance.
- Increase enforcement efforts including the issuance of non-compliance notices.
- Provision of containers (see below) provides an important contact (touch) point with customers and should be utilized to provide one-on-one information and guidance on the new 'Green Can' program.
- The majority of 'garbage' disposed at NSTS, and attributed to the SF sector, comprises C&D wastes and compostable organics (wood). It is assumed that this material is generated primarily through annual 'clean out' and renovation activities. Programs need to be established to address these materials. Reducing the quantity of garbage material brought directly to the transfer station will be key in achieving Metro's diversion targets.

### YARD TRIMMINGS

- Yard trimmings / SSO limit of 120 kg (six items) per week is considered more than reasonable for the average resident. Residents with large quantities of yard trimmings should be encouraged to use the drop off facilities at the North Shore Transfer Station (\$71/tonne).
- Promote grasscycling and/or backyard composting as the most sustainable options for managing grass; but a ban on grass from curbside collection is not recommended at this time.
- Providing residents with an option for separating food and yard waste is recommended on customer service grounds, however it has important implications in terms of operational efficiency (see 'containers' below).

### CONTAINERS

- Container choice is an essential issue and a decision in this regard should be prioritised. In any municipality, the standardization of containers is a difficult issue as there is no "one size fits all" solution. Customers can have their personal preferences as well as space limitations that may affect their container preference.
- Customer preference, based on the results of the phone survey, was for a 'wheeled cart' for garbage (72%) and mixed food and yard waste (54%). A regular plastic can with no wheels








(e.g., Rubbermaid) was also a popular choice for mixed food and yard waste (37%) and garbage (22%). It should be noted that once the (heavier) food waste material is moved from the garbage container to the 'Green Can', these customer preferences may change; i.e. it is likely that the wheeled cart would become more desirable for organic waste than garbage.

- For the District, the decision essentially comes down to a choice between providing carts to residents (high capital costs but operational efficiency and community aesthetics gains) and allowing customers to choose whatever container suits their particular needs (high customer service but operational efficiency losses and increased animal attractant issues).
- Two scenarios are considered (below); one with a high level of customer choice and one with District provided carts.
- The use of 360 L carts for garbage should be prohibited, irrespective of scenario one and two, in order to drive diversion rates.
- For those 4,270 residents who purchased a 360 L between 1994-2006 the District can consider:
  - A targeted promotional campaign to encourage residents to use them for storing 'Green Can' materials as opposed to garbage.
  - A rebate to encourage the 4,270 residents with 360 L carts to return them to DNV or place curbside on a specified date for collection by Operations staff.
  - Prohibit the use of 360 L carts and do not offer a rebate as the majority of carts sold are now past their useful life (considered to be ten years). 2,447 residents have purchased 140 L District carts to date; 442 of those are the animal resistant model.
- If the garbage limit is reduced to 77 L (20 kg) per week, this would translate to a weekly limit of a half-full 140 L cart. In practice, this limit is very difficult to enforce. The 140 L cart is considered practical only in combination with a move to bi-weekly collection (limit of 40 kg every two weeks).
- Although there are questions surrounding the effectiveness of the animal resistant clasps, and the priority should be responsible storage of containers during the week by residents (through appropriate amendment of the Solid Waste Bylaw); the provision of animal resistant containers would send a strong message that the protection of bears is a priority for the District and the clasps will offer some level of protection over the regular carts. For operational reasons, the clasps would have to be opened by the resident prior to placing the cart curbside; therefore the timing requirement (between the hours of 5.30 and 7.30am) would remain.
- An "ideal" container would be one that allows the animal resistant clasps to be easily opened by collection operators (i.e. do not cause repetitive strain injury) or an automated collection arm; but that cannot be opened by animals. At the time of writing and within the remit of this Report, such containers are not currently in use in Canada.
- Note that in the majority of cases where municipalities have provided carts to residents, the provision of carts was driven by a move to automated collection, not a requirement to standardise containers. The capital investment in the carts is typically offset by the labour and WCB savings achieved through a move to automated collection.
- High level cost implications for three scenarios relating to the provision of containers are as follows:
  1. Provision of an animal resistant 240 L SSO cart and "Norseman" type 46 L container to residents. Capital cost of \$3.6m, with an average increase of \$23 (8%) on SF solid waste utility fee.
  2. Provision of an animal resistant 140 L garbage and 240 L SSO cart to all SF residents. Capital cost of \$5.8m, with an average increase of \$36 (13%) on SF solid waste utility fee.

3. Provision of an animal resistant 140 L garbage and 240 L SSO cart and a 360 L recycling cart to all SF residents (i.e. consistent with a move to automated collection and single-stream recycling). Capital cost of \$7.5m, with an average increase of \$46 (16%) on SF solid waste utility fee.
- Provision of a dedicated kitchen container not considered necessary.
  - From a Customer Service perspective, it is considered reasonable to offer residents an option to manage peak volumes of yard trimmings through the curbside collection service, but this can have consequential negative impacts on operational efficiency.
  - The storage of carts during the week (166 hours per week) is a more pressing issue than the hours the carts are presented curbside for collection (2 hours per week, for those in compliance with the Bylaw). The Solid Waste Bylaw should be amended to require residents to store all waste containers indoors or in suitable enclosure.
  - Plastic and bio-degradable bags should be discouraged, in accordance with requirements of Harvest Power – education efforts must reinforce this as it is easy for residents to confuse 'biodegradable' and 'compostable' bags.

# ISWMP – EXECUTIVE SUMMARY



Scenario 1						
Waste Stream	Container	Weekly Limit	Extra	Cost to DNV	Cost to SF Resident	
Garbage	 77 L	20 kg	 \$3 per tag	Rebate to customers who purchased 360 L or 140 L carts (6,717 since 1995)	\$14+ for regular garbage can \$3 per additional 20kg	Average increase of \$23 (8%) on annual Utility Fee (currently \$199.50 annually for weekly collection service)
SSO	Yard Trimmings	 240 L	120 kg (6 item max)	 Only when cart is FULL	\$3.6 million	Optional: \$25 for 50 large <i>Bag to Earth</i> Yard Waste Bags
	Food Waste	 46 L 'Norseman' style container – animal resistant if possible, selected in consultation with collection staff	60 kg (20 kg per container)	Additional containers	~\$700,000 to provide one container to each SF home	Optional: ~\$30 per additional container Optional: \$24 for 50 small <i>Bag to Earth</i> Food Waste Bags

## OPERATIONAL IMPLICATIONS:

- Semi-Automated collection – not compatible with a move to automated collection.
- Compatible with a reduction in weekly garbage limit and/or a move to biweekly collection.
- Garbage container is not animal resistant – and remains an attractant (e.g., diapers and pet waste).
- Tag system has a low administrative overhead and a relatively effective user pay system.
- Many residents will likely not want both a 240 L cart and a 46 L Norseman so budget costs are high-end.
- This scenario would take out of service the 360L carts purchased from 1988-2006 and still in use by certain residents.



# ISWMP – EXECUTIVE SUMMARY

Scenario 2						
Waste Stream		Container	Weekly Limit	Extra	Cost to DNV	Cost to SF Resident
Garbage		 Animal Resistant 140 L cart	20 kg	None. In the interests of customer service, residents could be provided with the choice of a 240 L cart, for an additional annual fee.	~ \$6 million (dependant on size choices provided and subsequently chosen by residents) + Rebate to customers who purchased 360 L or 140 L carts (6,717 since 1995)	Optional: \$25 for 50 large <i>Bag to Earth</i> Yard Waste Bags  Average increase of \$36 (13%) on annual Utility Fee (currently \$199.50 annually for weekly collection service)
SSO	Yard Trimmings and Food Waste	 Animal Resistant 140 L or 240 L cart	120 kg	Residents can have option of receiving an additional 240 L cart for an additional fee.		

## OPERATIONAL IMPLICATIONS:

- Collection system can remain semi-automated; however, if the carts are provided to all residents, this would strengthen a business case to support a move to automated collection.
- This system would be implemented in conjunction with a move to biweekly collection of garbage.
- While the 140 L cart size is recommended to achieve the diversion targets; in the interests of customer service, an option of a larger (240 L) cart for garbage can be provided to residents. This would take out of service the 360L carts purchased from 1988-2006 and still in use by certain residents.
- For SSO, the 240 L cart is recommended. However, for those residents with no or low quantities of yard trimmings, the 140 L choice can be provided. Note, that from an operational perspective, the narrow design of the 140 L cart can cause clogging of the wetter, organic material.

# ISWMP – EXECUTIVE SUMMARY

## OPERATIONS

- The question of in-house municipal versus private sector collection of residential garbage and organics is an area of significant debate throughout North America. Comparative analyses on “which approach is best” are often founded on an underlying bias that compromises the assessment and thus brings into question the value of the findings. Dillon’s position on the issue of public versus private collection services is that “it depends”; each municipality tends to have its own unique set of attributes or policies (including local political considerations) that makes the default selection of a preferred collection approach inappropriate. The relative merits and drawbacks of each approach are provided in the Report.
- A detailed business case assessment would be required to comprehensively analyse a move to automated collection. At a high level, it is concluded that the cost savings used to support a move to automated collection in other municipalities would not apply to the same extent in the District as:
  - Approximately 10% of the District could not be safely and efficiently serviced using an automated collection system, meaning that at least one semi-automated vehicle (and a spare) would need to be maintained by Operations.
  - WCB and sick leave days claimed by solid waste collection staff in the District are very low at present.
  - Tip rates (number of properties serviced per hour or day) in the District are higher than industry average at present.
- Collection timing should be adjusted to prioritize the collection of the SSO as this container will hold the majority of potential attractants to bears or other wildlife. As both garbage and SSO organics are transported to NSTS, this should not cause an impact on operational efficiency.
- Given odour and wildlife attraction potential, it is recommended that SSO continue to be collected weekly.
- Even with the provision of an animal resistant cart, the District would need to maintain current requirements to place containers curbside between 5:30 to 7:30 a.m.
- It is recommended that the District conduct an internal audit / review of the ‘Task’ system and give consideration to abandoning the system and engaging collection operators further in education and outreach and, where necessary, enforcement activities.
- It is recommended that a decision on a four versus five day per week scheduling is made subject to the results of the Task system audit and a decision on containers and automated collection. However, it is recommended that if a move to biweekly collection is made, a consistent collection day is maintained throughout the year for residents to minimise confusion. This can be achieved through a four day scheduling or an alternative five day schedule whereby operators work on Saturdays for those weeks with a statutory holiday.

## RECYCLING

- The implementation of the PPP EPR program could have a significant effect on curbside recycling collection programs and it is recommended that the District postpone any decision relating to capital investment in the curbside recycling collection program, such as that required to bring recycling collection in-house, until after 2015.
- An increase in SF recycling rates will be required to meet Metro’s 2015 diversion targets. The public phone survey indicated that 50% of District residents admit they could recycle more than they currently do. Non-recyclable items (e.g., Styrofoam, certain plastics, cartons and bottles), followed by convenience/time/effort and wildlife were cited as the key factors that limit residents from recycling more of their household waste.

## ISWMP – EXECUTIVE SUMMARY

- To achieve the goal of improved program performance, the District could consider expanding materials accepted for recycling and a move to single-stream recycling. Enhanced education and outreach efforts are essential.
- Expanding the materials collected in the current 'blue box' program in 2013 and/or enhancing education and outreach efforts should be considered. While there may be cost implications of program expansion within the current contract with Waste Management, the benefits of expanding the plastics accepted for recycling include increasing convenience for the resident, increasing the diversion rate and moving up the waste hierarchy in terms of management options.
- Single-stream recycling would likely address the convenience barriers, but a capital investment in carts for single-stream recycling prior to the implementation of the PPP EPR is not considered prudent.

### MF AND ICI GARBAGE AND ORGANICS

- The District's commercial collection service is running a surplus (\$26,853 in profit and \$111,895 in contributions to Solid Waste Department and General Overheads) and has a total of 361 customers despite the fact that the service does not actively compete in the market through advertising or other marketing initiatives. In addition, the service operates at a competitive disadvantage in that its rates are made public and it is required to transport materials to designated Metro Vancouver Regional facilities. This would suggest a 'boutique' type market of customers willing to pay for the District's higher 'customer service' style collection service. The Jitney service also appears to be a differentiator as the District can provide this service more cost effectively than the large private sector operators (who, it is understood, need to bring a Jitney vehicle across one of the bridges to service the North Shore). However, the commercial collection service is highly vulnerable to increased competition from the private sector in the form of lower costs and expanded service provision. Both labour and administrative costs are high and the District cannot respond quickly and aggressively to price cuts. Opportunities to service the expanding market in the development of the New Town centres exist but the Jitney will no longer be a differentiator if the Bylaw on mandatory recycling space is implemented and the District would need to invest in a marketing plan and advertising to attract and retain new customers. Ultimately the decision is one of policy and the impacts of both continuation and discontinuation of service provision to the ICI and MF sector are presented in the full Report.
- In the interests of a more equitable payment structure and to fund required education and outreach programs to the ICI sector, the implementation of an eco-levy is recommended.
- The option of organics collection must be provided to MF and ICI customers in accordance with the Metro Vancouver ban on organics (2015) and proposed new surcharges on the garbage tipping fee for ICI and MF garbage that contains excessive amounts of organics.
- Collecting ICI and MF organics containers on the same route as SF Residential would offer operational efficiencies to the District as routes could be devised to ensure efficient movement of vehicles to maximize the number of trips per day but would mean that the District would no longer be in a position to distinguish between organics tonnages diverted from the SF and MF & ICI sectors and thus limiting the District's ability to measure progress against Metro's 2015 diversion targets by sector.

# ISWMP – EXECUTIVE SUMMARY

## RECYCLING

- The implementation of the PPP EPR program could have a significant effect on curbside recycling collection programs, as detailed in the Report, and it is recommended that the District postpone any decision relating to capital investment in the curbside recycling collection program, such as the purchasing of collection vehicles for recycling, until after 2015.
- Recycling rates have declined in recent years and given experience of Port Moody and other cities, single-stream recycling could provide a “boost” to quantities in addition to making recycling more convenient for the resident. However, as discussed in the report, challenges arise relating to the quality of end market recyclables and financial implications can vary considerably with changing economic conditions. A move to single-stream recycling in advance of the PPP EPR program is not recommended.
- Bringing recycling in house and moving to single-stream would require the District to invest in new collection vehicles and carts and is considered risky until the full implications of PPP EPR program are determined.
- A Materials Recovery Facility (MRF) of between 10-50,000 square feet would be required to process the 56 tonnes per day (14460 tonnes per year) of recyclables produced by all three North Shore municipalities in 2011. The capital investment in such a facility is estimated at around \$5 million and is considered risky for a number of reasons, again particularly in relation to the implications of the PPP EPR program.
- The provision of public recycling and organics bins at high volume locations is recommended. Funding through the implementation of an eco-levy as well as the SF solid waste utility fee is recommended on payment equity grounds. Consideration should also be given to a bylaw requiring high volume litter businesses such as fast food chains, coffee shops to provide and maintain a litter and/or recyclables container within a defined perimeter distance of their premises.

## TOWN CENTRES

In relation to the Town Centres, the main areas of focus need to be MF recycling and organics diversion, and the management of C&D (DLC) wastes arising from construction activities.

- The District should implement the requirements on the provision of space for storage and collection of recyclables in MF and ICI buildings as provided in Metro Vancouver's Draft Bylaw (July 2011). In addition it is recommended that, as required in Halifax Regional Municipality, water and drainage facilities are also required to facilitate ongoing maintenance of organics containers.
- LEED “Gold” requirements are not sufficient to meet diversion targets in relation to C&D wastes. It is recommended that the District implement Metro Vancouver's Sample Regulatory Mechanism for Mandatory Recycling on Construction and Demolition Worksites (July 2011) which requires C&D projects of a certain size or value to develop site specific recycling plan to attain a targeted level of diversion, as part of building or demolition permit requirements.
- It is recommended that a process be put in place immediately to ensure the District tracks the quantity and destination (reuse, recovery, disposal) of C&D materials generated through construction and demolition activities in developing the new Town Centres.
- Examples of on-site options for managing SSO are limited, generally specialised in nature and specific to a building, its developer and the ongoing maintenance requirements.

# ISWMP – EXECUTIVE SUMMARY

## OTHER

- Hiring new staff to implement programs addressed at the MF and ICI sectors is recommended, the latter sector being funded through a possible eco-levy. Additional staff will also be required to administer and monitoring ongoing compliance with implementation of the two recommended Metro Vancouver draft Bylaws.
- Street sweepings are currently disposed at the old Inter River landfill. While quantities could not be established, they are considered significant. A long term solution for managing street sweepings would need to be considered and/or budgets amended to manage this waste through the NSTS (at \$107/tonne).
- It is recommended that the District establish a methodology to track the quantity of C&D wastes reused and recycled through internal operations at the Beach Yard facility.
- It is recommended that the District continue to track and monitor illegal dumping quantities, particularly in conjunction with a reduction in weekly garbage limit (and/or a move to bi-weekly collection of garbage).
- There are no programs specifically targeted at 'Reuse' of waste in the District. Reuse is the second of the waste hierarchy options and it is important to encourage residents to reuse waste materials where feasible. Reuse options would be highly suited to items such as Furniture, Large Appliances, Textiles and certain C&D waste materials.
- Targeted educational programs at C&D reduction/reuse/recycling is currently not in the remit of NSRP. A targeted educational campaign is recommended at both the SF and ICI (funded through eco-levy) sectors.
- To improve customer service, the District could consider organizing annual collection days for Household Hazardous Waste (HHW). While these types of programs are expensive in terms of actual tonnes diverted, they do support Metro Vancouver's disposal bans and increase convenience for the resident to dispose of materials that can cause pollution if disposed of through the regular garbage stream.

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