



RR-1 (b)

ADMINISTRATIVE REPORT

Report Date: June 3, 2014
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Meeting Date: June 10, 2014

TO: Vancouver City Council

FROM: General Manager of Engineering Services

SUBJECT: Heritage Action Plan: Encouraging Reuse and Recycling of Construction Waste from Pre-1940 Homes and Construction and Demolition Waste Diversion Strategy

RECOMMENDATION

- A. THAT the Director of Legal Services be instructed to prepare amendments to the Solid Waste By-law and the Vancouver Building By-law requiring minimum reuse and recycling of 75% of demolition waste from pre-1940 homes, and requiring recycling of 90% of demolition waste from pre-1940's homes where an evaluation has identified a character house.
- B. THAT staff report back in 2015 regarding the effectiveness of the demolition waste recycling requirements for pre-1940's homes, and if appropriate bring forward recommendations for further implementation of construction and demolition waste reuse and recycling requirements.
- C. THAT the Director of Legal Services be instructed to prepare amendments to the Solid Waste By-law that would implement By-law changes approved at Metro Vancouver regarding a disposal ban on clean, unpainted and unglued wood waste, anticipated in 2015.
- D. THAT Council adopt in principle the proposed Construction & Demolition Waste Diversion Strategy to increase reuse and recycling of waste materials from construction and demolition activities in Vancouver, and direct staff to consult with industry and bring back a final strategy for adoption in 2015.

REPORT SUMMARY

The recommendations in this report respond to the Heritage Action Plan, the Zero Waste objectives of the Greenest City 2020 Action Plan and Metro Vancouver's Integrated Solid Waste & Resource Management Plan (ISWMRP). These plans aim to encourage preservation and renewal of character homes in the city, increase reuse and recycling of C&D materials which hold character value, and generally reduce the amount of Construction & Demolition (C&D) waste disposed to landfill and incinerator. The report recommends setting more stringent reuse and recycling requirements for demolition waste from pre-1940's one and two family homes with a view to encouraging reuse of character features as well as reducing waste to the landfill.

The Heritage Action Plan has focused in this first phase on pre-1940's homes across the city which represent a characteristic class of architecture and which contain quality materials and character elements that are associated with the architectural history of the city as well as being desirable for reuse and recycling.

Given the anticipated regulatory change in 2015 in regard to the Metro Vancouver Solid Waste Plan as it relates to construction waste, this report also recommends adoption *in principle* of a Construction & Demolition (C&D) Waste Diversion Strategy. The proposed C&D Waste Diversion Strategy has four main components:

- a) recycling by-law requirements for construction and demolition waste, which include the initial requirements for pre-1940's home as outlined in Recommendation A above,
- b) to explore opportunities for greater C&D recycling at the Vancouver Landfill and Vancouver South Transfer Station,
- c) development of a market to support the scale of C&D material recycling and reuse which will be the result of this report and the regulatory changes associated with the Regional Solid Waste Plan,
- d) gathering data, monitoring and tracking progress.

Separate from the focus on reuse and recycling requirements for pre-1940's homes related to the Heritage Action Plan, the report recommends an amendment to the Solid Waste By-law to support implementation of Metro Vancouver's 2015 disposal ban on clean, unpainted and unglued wood waste. The disposal ban on clean wood waste will only be applied to small loads of wood waste from residents and small contractors, and will not affect the much larger loads of demolition waste disposed at the landfill. These amendments to the City's Solid Waste By-law will be brought before Council in late 2014 in order to ensure our By-law is aligned with Metro Vancouver's proposed regulation.

COUNCIL AUTHORITY/PREVIOUS DECISIONS

December, 2013, **Heritage Action Plan**: Council directed staff to undertake a Heritage Action Plan to enhance preservation of heritage assets in the city. One of the first actions under the Heritage Action Plan has been to put in place a process to enhance retention of pre-1940 character homes in Vancouver. The measures proposed in this report to require reuse and recycling of demolition waste from pre-1940's homes is supportive of this work. Placing more stringent requirements on the demolition of pre-1940's homes is another tool to encourage

retention of character homes, or, if demolition cannot be prevented, ensure salvage of surviving architectural features and valuable character materials.

Other decisions and authorities of Council in relation to this report include:

- 2011, Council endorsed **Metro Vancouver’s Integrated Solid Waste and Resource Management Plan (ISWRMP)** including the following municipal actions focussed on Construction and Demolition (C&D) waste diversion:
 - Municipalities will work with Metro Vancouver to develop a process to require C&D recycling at construction/demolition sites.
 - Review municipal permitting processes (development, building, & demolition) with a view to requiring waste management plans as a condition of such permits.
 - Review the desirability and feasibility of deposit systems or other financial incentives to increase enforcement of waste management plans for construction and demolition waste.
- 2011, Council adopted the **Greenest City 2020 Action plan**. The plan’s Zero Waste objectives set the target of reducing total waste to landfill or incinerator by 50% (from 2008 levels). Zero Waste Strategy #6 also sets a specific direction to *Reduce, Reuse and Recycle more Construction, Renovation and Demolition Waste*.
- 2011, Council adopted the **Cambie Corridor Plan**. Applications for new development within the plan area are required to provide a Green Building Strategy including a Deconstruction Approach that addresses reuse and recycling of demolition waste.

CITY MANAGER’S/GENERAL MANAGER’S COMMENTS

The General Manager and the City Manager support the recommendations.

REPORT

Background/Context

Heritage Action Plan – pre-1940 Homes

From 2009 to 2013, 40% of the homes demolished in Vancouver were pre-1940’s homes. Many pre-1940 homes are considered to have “character” as they have a number of surviving architectural features such as roof form, massing, front porch, exterior wall materials, window openings and frames, and detailing in addition to mature landscaping features. In pre-1940’s homes, the wood is generally old-growth, which is now quite hard to find and can be valuable for reuse.

Generally, recycling and reuse of demolition waste from one/two family homes has been far less successful (approximately 40% recycling/reuse) than material recycling and reuse from commercial buildings (approximately 85% recycling/reuse). Concrete and metal are the dominant construction materials in commercial buildings and are highly recyclable.

Deconstruction is commonly used to safely demolish commercial buildings, which leads to more effective sorting and separation of materials and higher recycling and reuse outcomes.

Demolition of one/two family homes on the other hand is typically approached in a less systematic way than demolition of commercial buildings. The conventional one/two family home demolition technique is to first remove the hazardous materials and drywall (both are banned from disposal), then to rapidly demolish the house with a track hoe making it more difficult to separate and direct materials to material-specific recycling facilities. This mixed demolition material generally ends up in the landfill.

Wood is the predominant material in single family homes in Vancouver and a 2200 ft² house can contain approximately 100 tons of materials of which more than 50 tonnes is wood (structural framing, flooring, and siding). By using deconstruction techniques, wood and other materials can be separated, sorted, and can be more easily reused and recycled. For example, if 80% of wood from a typical pre-1940's one/two family home is captured for reuse or recycling, an additional 40 tonnes of waste could be diverted from landfill per demolished home.

Metro Vancouver Integrated Solid Waste & Resource Management Plan (ISWRMP)

The Heritage Action Plan changes to support preservation of character homes in the city support the ISWRMP which is targeted at achieving 80% diversion of C&D waste from landfill or incinerator by 2020. This target equals diversion of an additional 155,000 tonnes of C&D waste per year. The priority actions Metro identified to achieve this target include:

1. Mandating waste reduction and recycling on construction and demolition projects
2. Banning clean, unpainted and untreated wood waste from disposal to landfill or incinerator, and taking subsequent actions to reduce all wood from being disposed
3. Providing depots for convenient drop-off of wood for residents.

To help municipalities mandate waste recycling on construction and demolition projects, Metro Vancouver developed a *Sample Municipal By-law for the Management of Waste and Recyclable Materials from Demolition Work*. Developing the Sample By-law included a detailed 3 year consultation program with: demolition contractors, recycling facility operators, industry associations and regional municipalities. Municipalities across the Metro region are at various stages to implement the By-law. The Solid Waste By-law amendments and the C&D Waste Strategy proposed in this report are to be modeled on Metro's recommended by-law and process.

Many cities across North America are taking action on C&D waste recycling. Some of the best examples come from the US where well established programs have requirements for waste management plans, minimum recycling targets, performance deposits, and mandatory reporting.

Cook County, IL

Require minimum 65% materials diverted; 5% reuse of materials.

Seattle, WA

Require waste diversion plans, salvage assessment, compliance reports.

Oakland, CA

Require 100% concrete recycling, 65% of remaining materials recycled.

Boulder, CO

Require minimum 65% diversion

San Francisco, CA

Requirements on new construction, renovation and demolitions.

Demolition projects must submit a plan demonstrating 65% diversion.

Regional municipalities also taking action on C&D waste recycling:

City of North Vancouver

Require C&D recycling checklist and waste management plans.

City of Port Moody

Require 70% recycling or reuse of C&D waste.

Require waste management plan for new construction, renovation, and demolition.

Targets must be met to obtain refund of deposit.

Greenest City Action Plan

The Greenest City Action Plan Zero Waste target aims to reduce Vancouver's solid waste disposal to landfill or incinerator by 50% (240,000 tonnes) from 2008 levels. For actions underway in regard to diversion of construction and demolition waste please refer to Appendix A.

Strategic Analysis

Heritage Action Plan: Initial Actions

Supporting Character Home Retention through Reuse & Recycling Policies

As a first step under the Heritage Action Plan, more stringent reuse and recycling requirements are proposed for all pre-1940's homes to encourage their retention, or if that is not possible, ensure surviving character materials are salvaged.

Pre-1940's homes are an appropriate initial age class of home to focus on because this vintage of home contains materials and character elements desirable for salvage and reuse. Loss of homes in pre-1940's neighbourhoods has also been a focus of public interest.

Under these requirements, applicants will have to deconstruct any pre-1940's home which is not being preserved and demonstrate reuse or recycling of at least 75% of the waste material. Pre-1940's homes that are identified as *character* buildings in accordance with procedures set out by Planning and Development Services will be required to achieve 90% reuse or recycling and/or reuse of waste materials. The rationale for this additional recycling requirement is to recognise that *character* homes often have more character elements and material features that can be salvaged, reused, recycled, and kept out of the landfill. These requirements will be administered through the development and building/demolition permit application process. Waste tracking reports and a deposit and refund system will ensure compliance.

Beyond waste diversion, these policies are expected to result in salvage and reuse of old-growth lumber, solid wooden doors and window casings, historic iron railings, and architectural features like roof brackets and porch columns.

In order to meet the reuse and recycling requirements noted above, demolition contractors will have to use more systematic deconstruction techniques. The City's deconstruction pilot projects in 2011 and the recycling rates from projects going through the City's *Voluntary Deconstruction Permit Process* both demonstrated the proposed recycling requirements for pre-1940's homes are achievable.

Overview of Construction Waste Diversion:

C&D waste is one of the largest components of regional waste. It includes: concrete, wood, drywall, metals, plastics, carpet, glass, rock and dirt. In 2013 roughly 1,400,000 tonnes were generated regionally. Vancouver's share of regional C&D waste has generally been in the range of 30% of regional totals. This proportion is similar to our share of the regional population.

The regional recycling rate for C&D material is about 75% (by weight). This high recycling rate is because materials like concrete, metal, and drywall achieve very high recycling (over 95%) and bring up the overall average. Concrete and metal, have very strong resale values that ensure recycling while drywall is banned from disposal at regional landfills, which ensures it gets taken to the appropriate recycling facility.

The City's strategies will focus on ensuring materials with lower recycling rates such as wood and other reusable building materials are not disposed to landfill or incinerator. Metro Vancouver estimates less than 50% of the wood waste generated in the region is recycled. A variety of businesses and facilities are available to recycle wood and other used building materials (windows, doors, floors etc.). These facilities range in scale and capacity from small scale wood refinishers and reused building materials stores to automated material recovery facilities where thousands of tonnes of wood is sorted and processed into wood based fuel. The policy approaches presented in this report will ensure these businesses and facilities receive more material for reuse and recycling.

Proposed Construction & Demolition Waste Diversion Strategy

The initial actions noted above form part of the proposed *Construction & Demolition Waste Diversion Strategy* attached as *Appendix "B"*. The Strategy proposes other future actions including:

- Phasing in waste recycling requirements for *all* one/two family home demolitions. It is anticipated that the requirements to divert 75% of material from home demolitions will be expanded all home demolitions over a multi-year period based on the experience of the pre-1940's homes,
- Explore expanded C&D waste recycling activities at the City operated landfill and transfer station,
- Implementing recycling requirements for waste generated from new construction and renovation,
- Supporting markets for reused and recycled C&D material.

The next step following adoption in principle of the Proposed Construction & Demolition Waste Diversion Strategy will be to consult with the demolition contracting industry, the waste recycling industry, and other industry partners regarding the strategy's further refinement and enhancement leading to finalization of the Strategy in 2015.

Metro Vancouver Disposal Ban on Clean Wood Waste

Separate from the main focus of this report which relates to the Heritage Action Plan and the policy goal to retain pre-1940 homes or if not possible to require deconstruction with retention of character materials, the City is working closely to support Metro Vancouver's proposed disposal ban on clean wood waste planned for 2015. This is the first step in regulating the diversion of construction waste in the Regional Integrated Solid Waste and Resource Management Plan (ISWRMP).

Clean wood waste is defined as solid wood, lumber, and pallets that are unpainted, unstained, free of glue, and untreated. Clean wood may be pierced with nails or other metal fasteners, such as screws and staples. Metro's ban on disposal of clean wood will be phased and in 2015 the regulation will focus on small loads of construction waste delivered to regional waste facilities (including the Vancouver South Transfer Station and the Vancouver Landfill). These small loads containing clean wood are generally from small construction and small home renovation projects, and not from demolition of whole houses. The materials from small renovations and home construction projects are much easier to separate at source for recycling. The challenge with large mixed loads that result from larger demolition projects is the difficulty in separating the materials to recover the clean recyclable portion once mixed together. The approach proposed in this report of specifying a recycling target will result in a movement towards increased source separation of materials to ensure recycling.

This report recommends that Council instruct the Director of Legal Service to ensure Amendments to the Solid Waste By-law are made to reflect Metro's proposed first phase 2015 disposal ban on clean wood waste. These amendments will need to be prepared and approved by Council by late 2014 in order to ensure the City's Solid Waste By-law is aligned with Metro Vancouver's regulation once approved by the Greater Vancouver Regional Drainage and Sewerage District (GVS&DD) Board.

Implications/Related Issues/Risk (if applicable)

Financial

Additional resources may be required to implement certain aspects of the proposed *C&D Waste Diversion Strategy*; however, any near term expenses will be covered through re-prioritization of existing budgets. Any financial implications not noted will be identified and proposed as part of the 2015 operating budget process.

Personnel Implications

Near term resources to support the Strategy and actions proposed in this report will be accommodated through reprioritization of existing staff resources. Implementing the full program envisioned in the proposed Construction & Demolition Waste Diversion Strategy will require additional staff resources. The Director of Waste Management and Resource Recovery (Engineering), the Director of Development Services, and the Director of Licensing and Inspections will collaborate to determine the optimal approach to manage any incremental staff needs. These recommendations will be presented to Council with the finalized Strategy in 2015, and be considered in future operating budget planning processes.

Environmental

The strategies in this report support the zero waste objectives of the Greenest City Plan.

Legal

Vancouver Charter (Section 303) grants the City of Vancouver broad authority over solid waste including: collection, removal, transfer, disposal, and recycling.

CONCLUSION

This report recommends taking immediate action under the Heritage Action Plan to enable and support retention of pre-1940 character homes and if retention is not possible, to ensure reuse and recycling of construction materials. The strategy proposed will provide: a) another tool to encourage retention of these homes; and, b) result in more historic building materials being salvaged for reuse in home renovations or new home construction in Vancouver.

The report also recommends that Council adopt in principle a *Construction & Demolition Waste Diversion Strategy* (Appendix B) providing a comprehensive framework of strategies and actions that will lead to greater reuse and recycling of C&D waste material. The proposed Strategy will continue to be refined through industry consultation and subsequently presented to Council in 2015 for final adoption. A separate amendment to the Solid Waste By-law is also proposed in order to support Metro Vancouver's implementation of a disposal ban on disposal of clean wood waste (anticipated 2015).

While the focus on reuse and recycling requirements for pre-1940's homes complements the objectives of the Heritage Action Plan, reusing and recycling more demolition waste will move Vancouver closer to achieving the Zero Waste Goals of the Greenest City Action Plan. Actions to support reuse and recycling of demolition waste also help the City of Vancouver meet our commitments under Metro Vancouver's Integrated Solid Waste and Resource Management Plan.

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Greenest City 2020 Action Plan

Activities identified to increase C&D waste reuse and recycling:

- a) **Develop a policy and incentives to encourage deconstruction for renovation and demolition projects.**

CoV Action - Voluntary Deconstruction Permit Process launched in 2011 providing advanced permitting for projects committing to deconstruction (75% recycling)

Heritage Action Plan - pre-1940 Homes deconstruction requirement (pending Council approval)

- b) **Pursue options for mandating waste reduction and recycling at construction and demolition job sites, with financial incentives to meet diversion targets, such as deposits refunded with proof of recycling.**

CoV Action - Cambie Corridor rezoning projects must achieve 75% demolition waste recycling (deconstruction). Projects must produce waste management plans and demonstrate performance through reporting.

- c) **Collect clean wood at the Vancouver Transfer Station and Vancouver Landfill. Work with Metro Vancouver, private recycling centres and building retailers to provide additional drop off locations throughout the city.**

CoV Action - Bins are in place for residents to recycle clean wood (voluntarily) at both the Vancouver South Transfer Station (VSTS) and Vancouver Landfill (VLF). Bins have also been provided for residents to recycle drywall, and green waste. CoV is collaborating with Metro Vancouver to facilitate implementation at VLF and VSTS of the Metro Vancouver proposed Clean Wood Disposal ban in 2015.

- d) **Join Metro Vancouver in advocating that the Provincial Government revise the BC Building Code to allow the use of salvaged lumber, and explore options for doing so in the City's building policies.**

CoV Action - Early planning underway. New provincial code expected in 2018.

- e) **Develop strategies to address barriers to reusing salvaged building materials in construction and renovation projects.**

CoV Action - CoV Kent Construction recycled over 200,000 tonnes of aggregates (concrete and asphalt) in 2013. Efforts are underway to expand the use of recycled aggregate and other C&D materials.

Construction & Demolition Waste Diversion Strategy

1. Overview

This strategy aims to meet the recycling and waste diversion targets for Construction and Demolition (C&D) waste identified in the Greenest City Action Plan. The plan's Zero Waste objectives set the target of reducing total waste to landfill or incinerator by 50% (from 2008 levels), or 240,000 tonnes.

The Strategy also aims to build on the City of Vancouver's success in recycling and materials processing through City operations and at the City's Solid Waste Management Facilities - the Vancouver Landfill and the Vancouver South Transfer Station (VSTS).

The Construction & Demolition Waste Diversion Strategy has several key components:

- a) C&D waste recycling by-law requirements
- b) Explore opportunities to increase C&D material recycling at Vancouver Landfill & VSTS
- c) Market development and support for C&D material recycling and reuse.
- d) Data, tracking progress, and reporting.

Initial Focus - Demolition Waste

Though the initial focus of this Strategy is to increase recycling of waste from demolition activities, new construction and renovation activities will be addressed in subsequent phases of Strategy implementation.

Consultation and Industry Engagement

This Strategy has integrated key lessons from consultation conducted over a two year period by Metro Vancouver regarding construction and demolition waste diversion initiatives. Noting industry concerns about C&D recycling facility capacity to process additional material, and concerns about potential administrative complexity to comply with new regulations, a phased approach to implementation of the regulatory program is being taken. This will ensure adequate capacity of recycling facilities to manage additional demand for processing, and allow staff to ensure administrative processes are straightforward and applicants are well supported through new process.

This Strategy will be the subject of further engagement with industry, leading to additional refinements and its final adoption in 2015.

2. Strategy

a) C&D Waste Recycling Requirements

Best practice research has shown regulations are part of any successful approach for cities to achieve more recycling and to reduce disposal of C&D materials to landfill. Regulations are one part of a comprehensive approach to C&D waste management that also includes collaboration with processing facilities and recycled material market development.

This regulatory approach to increase recycling and reuse of C&D waste is built on the following:

- Recycling targets (minimum percentage of material recycled),
- Requirement for waste management plans,
- Mandatory reporting requirements.

Compliance and enforcement approaches will also be carefully tailored to ensure effectiveness of regulation and achievement of recycling targets.

This regulatory approach focusses initially on recycling more demolition waste. Far more of this waste is disposed directly to landfill than from renovations or new construction. Future phases of implementation will focus on recycling waste from renovation and new construction projects.

Phased Regulatory Approach

Recycling requirements will be phased to correspond with:

- Increased regional C&D recycling facility capacity,
- Delivery of additional training initiatives for the contracting industry, and
- Market development and expanded use of recycled C&D materials.

Phase 1 - (2014/15)

Establish demolition waste recycling requirements for all pre-1940's homes. Under these requirements, homes built earlier than 1940 would have to demonstrate recycling of at least 75% of demolition material. This is expected to affect about 300-350 one/two family home demolitions per year, of the approximate 900 total annual demolitions of one/two family homes.

Pre-1940's homes that have been identified as Potential Heritage or Character buildings in accordance with procedures set out by Planning & Development Services will be required to achieve 90% recycling and/or reuse of waste materials. The intent of this requirement is to recognise that character homes often have a great number of character elements that can be salvaged and diverted from disposal to landfill or incinerator.

Phase 2 - (2015/16)

Bring forward requirements for demolition waste recycling for one/two family homes in later age classes (post-1940's) based on progress monitoring and consultation with the demolition contracting and recycling industry regarding industry capacity. Phase 2 will also consider the introduction of additional special requirement for certain material types (eg. asphalt shingles), and minimum salvage requirements for all projects.

Phase 3 - (2016/17)

Consider minimum waste recycling requirements for new construction and renovation projects.

Additional special requirement for certain waste material types (eg. asphalt shingles), and minimum salvage requirements for all projects will continue to be considered in Phase 3.

Mechanism

This regulatory approach will be generally implemented through the authority and provisions of the Solid Waste By-law and the Vancouver Building By-law.

Actions:

- Work with Legal Services to bring forward amendments the Solid Waste By-law and the Vancouver Building By-law in order to require at least 75% recycling and/or reuse of demolition waste from pre-1940's one/two family homes, and require 90% recycling and/or reuse of waste materials from pre-1940's homes that have been identified as Potential Heritage or Character buildings in accordance with procedures set out by Planning & Development Services.
- Develop and launch implementation program, monitor results, and consult with C&D recycling facilities and demolition industry regarding implementation of recycling requirements with a view to expanding these minimum recycling requirements to newer homes.
- Continue to implement policies of the Cambie Corridor Plan requiring recycling of demolition waste material for rezoning applications (i.e. requirement for Deconstruction Plan), and advance opportunities for C&D waste recycling requirements to be implemented for all other rezoning involving demolition of one/two family homes.
- Continue to strive for high-levels of materials recycling and reuse in all demolition of City of owned facilities.
- Report to Council in 2015 regarding the results of above noted actions.

b) Explore Opportunities for Greater C&D Recycling at the Vancouver Landfill and South Vancouver Transfer Station

The Vancouver Landfill (VLF) is one of the two main disposal facilities for C&D waste in the region. It receives materials directly from construction and demolition sites, and also the un-recyclable residuals from facilities that recycle C&D material throughout the region.

Demolition material delivered to the Vancouver Landfill (VLF) is used beneficially and in place of other construction materials, for road building and cell contouring and closure. Over time, the operational need for demolition material at the VLF will decline. This will create an opportunity to develop new approaches to recycling and beneficially using demolition material at the VLF. Exploring these opportunities will ensure the Vancouver Landfill is positioned to continue to be at the forefront of innovative solid waste management facilities.

In addition to receiving municipal solid waste for transfer to disposal facilities, the Vancouver South Transfer Station (VSTS) receives small residential loads containing clean, unpainted and unglued, wood generally from small construction and small home renovation projects, (and not from demolition activities). In order to support Metro Vancouver led initiatives such as a ban on disposal to landfill or incinerator of clean wood (planned for 2015), the City is assisting Metro with communications and outreach activities, and making adjustments to the residential drop-off areas of the VSTS and VLF to accommodate the additional volumes of clean wood collection expected in 2015.

Actions:

- Continue to forecast and plan the operational need for C&D materials at the Vancouver Landfill, and in such a way as to continue to enable waste diversion policy objectives.
- Review and optimize tipping fees at the Vancouver Landfill to encourage recycling and diversion, while recognizing the operational needs of the landfill for C&D materials.
- Conduct studies to determine the opportunity and feasibility for processing and recycling of construction and demolition materials at the Vancouver Landfill.
- Make operational adjustments at the Vancouver Landfill and Vancouver South Transfer Station to assist Metro Vancouver to successfully implement a regional disposal ban on clean wood waste, forecast for 2015.

c) Market Development and Support for C&D Material Recycling and Reuse

Successful recycling of construction and demolition materials depends on a variety of supporting factors being in place:

- Effective source separation of materials,
- Facilities with capacity and expertise to further process or aggregate materials, and
- Healthy end markets demonstrating demand for the recycled material.

As a local government, the City of Vancouver has roles as: a public policy maker, a regulator, and as a service provider with significant operational capacity. As a function of these roles, opportunities exist to influence market development and demand for recycled and reused C&D materials.

Actions:

- Assess commonly disposed construction and demolition materials and identify regulatory barriers governing their recycling and/or reuse, and address barriers.
- Leverage CoV Kent Construction operational expertise in materials reuse and recycling to broaden and increase the use and of recycled C&D products.

- Collaborate with green enterprises and other organizations (like the Vancouver Heritage Foundation) to increase the amount of recycling and reuse of building materials in Vancouver.
- Continue to explore the opportunities and needs for a re-use centre to deliver services which may include: sorting, storing, distribution of salvaged building materials.
- Explore legal mechanisms available to the City to encourage or mandate the re-use of certain recycled products.
- Work with partners to support and deliver capacity building & training programs to disseminate best practices of C&D material recycling and deconstruction techniques, targeting the demolition industry and not-for profit sector. These efforts will support development of green jobs in Vancouver and will focus on: training in deconstruction approaches to demolition, best practices of material salvage and reuse, small business best management practices for resale of salvaged materials.

d) Data, Monitoring and Tracking Progress

The Greenest City 2020 Plan identified some data gaps regarding Vancouver's waste generation and flow. Information regarding waste generation for Vancouver is calculated based on estimated percentages of regional jobs, population and demolition permit data (all compiled by Metro Vancouver). More accurate approaches are required to effectively track C&D waste generation and better understand the impact of recycling policies and regulation, and to track the city's progress toward Zero Waste objectives.

Waste tracking software and database tools widely used in the United States are available to provide comprehensive tracking of C&D waste generation along with recycling and reuse out-comes. These software tools are also able to prepare clear and verifiable C&D waste plans for applicants, which are administratively straightforward and encourage waste management best practices.

Actions:

- Pilot the use of waste tracking software tools to validate recycling performance of demolition projects.
- Enhance data gathering approaches to track overall C&D waste generation and recycling performance in Vancouver.
- Work with Metro Vancouver on strategies to make C&D recycling facilities recycling rates more publicly available.