

Metro Vancouver

Sample Regulatory Mechanism for Mandatory Recycling on Construction and Demolition Worksites

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A NOTE TO MUNICIPALITIES ABOUT THESE DOCUMENTS

Metro Vancouver has set ambitious waste reduction targets as part of their draft Integrated Solid Waste and Resource Management Plan (the Plan) by aspiring to reach a 70% regional solid waste diversion rate by 2015. One strategy for achieving this target is to increase the diversion rate of recyclables in the construction and demolition sector.

Construction and demolition (C&D) materials form a significant part of Metro Vancouver's solid waste stream. The challenges associated with increasing recycling in the construction and demolition sector are:

1. the lack of space for on-site sorting of recyclable materials;
2. the voluntary approach to recycling; and
3. the absence of recycling facilities in some municipalities or in proximity to work sites.

To address this, Metro Vancouver retained AECOM to work with member municipalities, waste management service providers (Urban Wood Waste Recyclers, Ecowaste Industries Ltd., Urban Impact Recyclers *et al.*), construction firms (Scott Construction *et al.*) and industry associations to develop a regulatory approach for implementing mandatory recycling of construction and demolition waste. The recommended approach called for construction and demolition projects of a certain size or value to develop and comply with a site-specific recycling plan to attain a targeted level of diversion, as part of building or demolition permit requirements.

The recommended approach draws from similar guidelines and processes used successfully by local and outside jurisdictions, including Vancouver, City of North Vancouver, Port Moody and Langley, as well as Halifax (Nova Scotia), Sidney (British Columbia), Santa Monica, Dublin and San Diego (California), Metro Portland (Oregon), Chicago (Illinois) and Boulder (Colorado). Many of these jurisdictions have implemented mandatory construction and demolition waste recycling requirements and have experienced high diversion rates.

The recommended approach is composed of six documents that are available to municipalities to use as an example, should they choose to commence mandatory C&D recycling. The sample documents are written in a generic manner that allows municipalities to tailor the documents to their needs. The six documents are:

1. A sample **Guide for Municipalities (Appendix B-1a)** which provides implementation guidance and background information to support the use of a Draft Municipal Bylaw. The primary focus of this Guide is to provide municipalities with a possible pathway or approach that they can consider if implementing mandatory job-site recycling in their communities.
2. A sample **Draft Municipal Bylaw (Appendix B-1b)** which identifies applicable projects and provides information about mandatory procedures for construction and demolition recycling. The sample bylaw aims to provide a starting point for municipalities in developing similar regulatory tools, if desired.
3. Four (4) **Sample Forms (Appendix B-1c-1f)** which will be referenced by the Draft Municipal Bylaw and that are suggested to be required for construction or demolition permits.

In its current form, the recommended municipal approach represents a starting point for municipalities to customize, should they wish to use the sample documents as a resource for municipal staff and the development community.

Appendix B-1a: Guide for Municipalities

This Guide is intended to assist municipalities who aim to adopt the recommended Bylaw (appendix B-1b) regulating and imposing requirements with respect to the recyclable materials resulting from construction and demolition activities.

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1. Introduction

Metro Vancouver has targeted a 70% regional solid waste diversion rate by 2015. Construction and demolition waste make up a large part of the waste disposed in Metro Vancouver. Waste composition studies indicate that most construction and demolition debris can be recycled. The draft Integrated Solid Waste and Resource Management Plan (the “Plan”) stipulates that Metro Vancouver, municipalities, and industry groups will collaborate to develop a policy to mandate recycling on demolition, land clearing, and construction job sites.

Some municipalities in Metro Vancouver have begun implementing mandatory job site recycling. Port Moody and the City of North Vancouver have implemented policies or developed bylaws requiring recycling for construction or demolition projects, while the City of Vancouver and City of Langley require hazardous materials reporting. Other municipalities are considering whether to pass bylaws mandating recycling and salvage for reuse of recyclable materials generated from construction and demolition projects.

Mandatory recycling of construction and demolition (C&D) waste is more established in jurisdictions outside Metro Vancouver. Communities with the most advanced programs include most Californian counties and cities, Chicago, IL and Boulder, CO.

This guidance document explains a regulatory-based approach to mandating job-site recycling, and supports a set of tools that municipalities can use when developing policies. This document reflects the collective efforts of municipal and regional permitting and solid waste staff, WorkSafe BC staff, construction, demolition, and development industries, and members of the waste management industry that were instrumental in developing and assessing the proposed approach. The guidance document also provides municipalities with an understanding of recommended modifications to building and demolition permitting processes as well as financial incentives that can be used to enforce construction and demolition waste management requirements.

2. Overview of Proposed Approach

The proposed approach described in this guidance document is based on alteration of existing regulatory processes. It hinges on the development and adoption of bylaws as the means for implementation and enforcement. This approach was chosen as it builds on current processes used by some municipalities in the region, as well as other communities outside Metro Vancouver that have successfully increased construction and demolition job-site recycling. It is also recognized that municipalities are the most suitable government body that can directly influence waste management practices on every construction and demolition project targeted by the permitting process.

The proposed approach uses a bylaw to create the necessary authority to place recycling requirements on all projects, as this is a regulatory tool that is effective and readily implemented at the municipal level. The bylaw approach incorporates the following elements:

- a permit application process for those persons or agencies carrying out projects that could result in recyclable materials being generated at construction, demolition and/or renovation job-sites
- the documentation and verification of appropriate recycling and/or disposal practices for target materials
- a set of roles and authorities for municipal staff in reviewing and approving applications
- the ability to assess fees during the permit application process
- integration with other regulatory instruments of the municipality and other organizations, such as WorkSafe BC

- provisions for excluding projects from consideration

An example Bylaw is included in Appendix B-1b.

The application of a regulatory approach is driven by the size and cost of the project being considered and the type of project (construction, renovation or demolition) that is proposed. Using this approach is intended to:

- encourage contractors to plan for diversion at the start of their projects;
- confirm that hazardous materials are removed and properly disposed of prior to demolition, for the protection of the surrounding community and of building inspection staff;
- encourage recyclable materials to be diverted to proper re-use or recycling facilities; and
- allow for effective tracking of waste materials.

Administration of this regulatory approach is document-driven, requiring those proposing a project to submit evidence of compliance with the bylaw requirements.

2.1 Document Overview

The primary focus of this guidance document is to introduce municipalities to an approach that can be considered if there are plans to implement mandatory job-site recycling in their communities. Municipalities are encouraged to collaborate on the customization of the possible approach, as the construction and demolition industry would adapt more readily to a regionally consistent approach.

The proposed steps for developing a regulatory approach are framed in the format of questions, to guide municipalities to consider various components. The key questions are as follows:

- When would the recycling requirements apply?
- How would municipalities apply the requirements?
- What would a relevant bylaw include?
- What supporting tools would be needed?

Where appropriate, sample forms and checklists have been provided as examples of how information could be gathered or evaluated during the permitting processes. The samples may be found in Appendix B-4.

The key questions are addressed in Sections 3 to 6 of this document.

3. When Would The Recycling Requirements Apply?

This section is intended to provide guidance on the types of materials and projects to which the proposed approach should be applied, when reviewing potential projects.

3.1 Target Materials

3.1.1 Recyclable Materials

Construction materials that can be readily recycled in the region and that are banned or prohibited from disposal should be subjected to a proposed recycling target of **100%**. At present, these materials include:

- Asphalt
- Cardboard
- Cement and concrete
- Clean fill and soil
- Gypsum / Drywall
- Green waste

For **all other non-hazardous waste materials** generated on a job site, an overall recycling target is proposed as follows:

- **80%** diversion target for construction projects; and
- **60%** diversion target for demolition and renovations projects.

These suggested diversion targets are within the range of recycling performance currently achieved in the region, and align with the 70% waste diversion goal set by Metro Vancouver in the draft Plan. Hazardous materials that are required to be removed and disposed of appropriately should be excluded from the diversion target calculation.

Other options or approaches that municipalities may wish to consider include:

- Identifying different targets for particular materials, depending on the availability of recycling services in or near the municipality;
- Setting different targets for certain types of projects (such as re-roofing); and
- Providing additional information on specific materials for municipalities with established local recycling services.

Municipalities are also encouraged to consider targets that have been established by neighbouring jurisdictions, to avoid inconsistencies between municipalities and to establish a level playing field in the construction and demolition industry.

3.1.2 Hazardous Materials

The proposed approach for hazardous materials is to create a notification or reporting process so that municipalities can confirm for their staff and communities that contractors have complied with the screening, reporting, and handling requirements for hazardous materials governed by federal and provincial regulatory tools, including:

- Occupational Health & Safety (OH&S) Regulation

- Environmental Management Act – Hazardous Waste Regulation
- Hazardous Products Act
- Workers' Compensation Act

For the purposes of this approach, the hazardous materials of concern are noted below:

- Asbestos
- Freon
- Lead
- Mercury
- Other heavy metals
- PCBs
- Underground Storage Tanks
- Other toxic, flammable or explosive materials

This list is not necessarily exhaustive. Municipalities considering this approach should also consider whether additional specific materials should be listed, and whether concordance with other local regulations may be necessary.

Further details on the reporting procedures and alignment with the regulations discussed above are provided in Section 4.3.

3.2 Eligible Projects

These requirements would apply to those projects requiring a building or demolition permit, except where noted in Section 3.3 below. Table 1 summarizes potential eligible project categories, and the requirements for each.

Table 1. Potential Eligible Project Categories

Permit Type	Eligible projects	Waste management requirements
Building Permit – Construction	All projects requiring a building permit	<ul style="list-style-type: none"> • Mandatory recycling of waste
Demolition Permit	All projects requiring a demolition or deconstruction permit	<ul style="list-style-type: none"> • Mandatory recycling of waste • Hazardous waste reporting
Building Permit – Renovation	All renovation projects that have a project value over \$50,000	<ul style="list-style-type: none"> • Mandatory recycling of waste • Hazardous waste reporting for major renovations to be phased-in later

Depending on the nature and scope of projects submitted, municipalities could also elect to identify additional eligible project categories and/or requirements.

3.3 Excused and Exempt Projects

It is recognized that any application of requirements should be reasonable and balanced. This balance is required to avoid placing overly onerous requirements on those applying for construction or demolition permits, or on municipal staff who review permit applications and enforce requirements.

3.3.1 Exempt Projects

The proposed approach suggests that projects not requiring a building or demolition permit under the municipal building bylaw would not need to comply with the recycling requirements. Municipalities would not need to expand their role in such projects.

In addition, municipalities may wish to consider the following suggested thresholds in determining the categories or sizes of projects that could be **exempted** from the proposed requirements:

- Renovations below \$50,000 in value;
- Emergency demolition or durable construction works required to protect public health or safety, or to respond to a state of emergency, as determined by the Chief Building Official; and
- Any other projects specifically exempted at the discretion of the appropriate municipal authority, e.g. Chief Building Official, Development Services Director or Manager.

Such projects may not be required to recycle any materials nor to comply with the other requirements of the bylaw.

3.3.2 Excused Projects

From time to time, it is expected that some projects will not be able to conform to the recycling requirements due to the nature of the project. It is anticipated that these projects will be demolition or renovation projects. These projects would be required to recycle but may not be able to achieve the recycling target. In such a case, it is suggested that “**excused**” projects of this type be defined as those projects that have any of the following issues:

- Excessive contamination of recyclable materials by hazardous materials (e.g., drywall contaminated with asbestos);
- Low potential to recycle waste materials generated (e.g. where waste materials are generated as a result of flood and fire damage); and
- Qualified for a variance through an established variance process, at the discretion of the appropriate municipal authority, e.g. Chief Building Official, Development Services Director or Manager.

3.3.2.1 Hazardous Materials Contamination

Projects excused as a result of excessive contamination of recyclables by hazardous materials would require proof from the Permit Applicant, in the form of a hazardous materials survey indicating the extent of contamination as well as waste transport and disposal manifests. Such a survey would be completed by a qualified person, as defined in WorkSafe BC guideline 6.6(4).

These projects would have to dispose of hazardous wastes (as defined in the BC Environmental Management Act - Hazardous Waste Regulation) in accordance with the regulation, instead of recycling the material. Disposal of some contaminated waste anywhere other than at a secure disposal facility may not be appropriate.

3.3.2.2 *Low Recycling Potential*

Projects that are excused due to low recycling potential as a result of unfortunate events (flood, fire, earthquake, etc.) would require the following proof, where applicable:

- Photographs showing the extent of waste materials that cannot be readily recycled:
- A copy of the insurance claim for damage resulting from the unfortunate event; and
- Documentation from experienced construction and demolition waste recycling processors or deconstruction professionals stating that the waste materials that would be generated are not suitable for recycling and cannot be expected to meet the recycling targets. Documentation demonstrating the relevant experience of the recycling processor or deconstruction professional would be required.

3.3.2.3 *Variations*

Although the likely reasons to reduce or waive the recycling requirements for a project are identified in Sections 3.3.2.1 and 3.3.2.2, in some cases a Permit Applicant might elect to seek a variance from the recycling requirements due the nature of their project (for example, the demolition of a pier where the majority of the waste debris will be creosote-treated wood that is not recyclable currently). Permit Applicants would need to document the reasons for the variance request, and outline how they propose to handle materials generated as a result of their project.

It is not recommended that municipalities incorporate variations for hazardous materials reporting requirements. However, any variations granted should be documented and the Permit Applicants should still comply with the requirements of other agencies, whether or not the Permit Applicant reports this to the municipality.

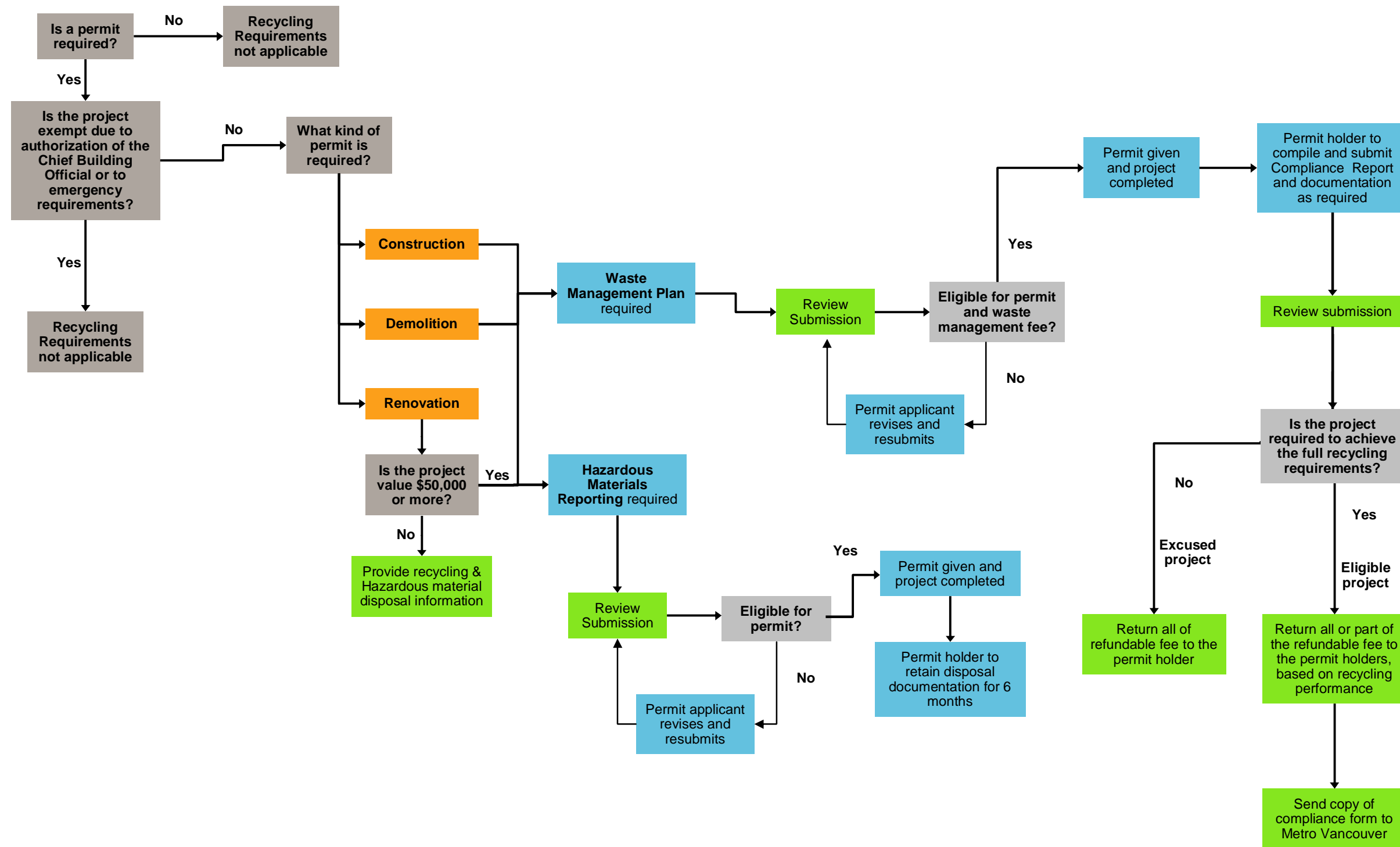
4. How Would Municipalities Apply the Requirements?

4.1 Application Review and Approval Process

The mandatory recycling requirements for construction, demolition and renovation projects would be applied when a contractor or property owner applies for a building, renovation or demolition permit. For the purposes of this document, the person or business that applies for the permit is considered the "Permit Applicant".

The flow chart (Figure 1) below shows an example of a typical review and approval process for the waste management requirements. The steps involved are discussed in the remainder of Section 4.

Figure 1: Application and Approvals Process Flow Diagram



- Permit classification
- Municipal responsibility
- Applicant responsibility
- Key decision point

4.2 Key Municipal Staff Roles

The jurisdictions that have the most effective C&D recycling programs are those with staff that enforce the recycling requirements directly after reviewing and approving the permit applications. Consequently, municipalities envision implementing mandatory recycling requirements within the framework for reviewing and approving building, renovation and demolition permit applications. Under those circumstances, staff members that are most suited for these duties are:

- Building official or building permit officer (the person who is responsible for the administration and enforcement of building regulations); and
- Plan reviewer or checker (the person who is responsible for reviewing building plans to determine compliance with building regulations).

This role could also be filled by municipal staff who is assigned to review waste management requirements in the permitting process. In addition, for unusual or complex projects, it may be desirable to obtain input from Solid Waste Management personnel.

When determining how to integrate these responsibilities into an existing permit review process, municipalities should consider the following issues:

- Staffing levels,
- Time to process applications and documentation. When the requirements are initially implemented, municipalities such as Port Moody report that the time to review applications increases marginally due to program explanations and the quick review of the inventory of recyclable materials on site. The review of documentation after project completion can add up to *two hours* of time allocated to each project that gets audited.
- Percentage of documented projects that would be reviewed in detail, and
- Impacts on staffing requirements as a function of the number of permits processed annually.

4.3 Assessing Information from Applicants

4.3.1 Determining Project Eligibility

As shown in Figure 1, the first step for the municipality is to assess basic project information to determine whether the project is subject to the proposed approach. This information about project type and value, public emergency, or exemption by the Chief Building Official is routinely provided or available during the permit application process. Thus, additional effort that would be required for this step should be minimal.

4.3.2 Providing Information to Permit Applicants

For non-exempt projects, the municipality would require a **Project Site Recycling Plan** and **Hazardous Materials Reporting Plan** as a condition of obtaining a building, renovation or demolition permit. The municipal staff person reviewing the application would provide a Project Site Waste Management Package, if needed by the Permit Applicant, which contains the required forms and instructions. For the purposes of outlining this proposed approach, three sample forms were prepared and included as examples of bylaw schedules in Appendix B:

- Sample Form 1 – Project Site Recycling Plan
- Sample Form 2 – Hazardous Materials Reporting.
- Sample Form 3 – Compliance Report.

Additional information in the Recycling Package could include a list of Construction and Demolition Waste Recycling Facilities or licensed solid waste management facilities in the Metro Vancouver region, and educational materials that are supported by the municipality. For projects that are exempted from the mandatory recycling requirements (e.g. a renovation project with a project value less than \$50,000), the permit application package could still include a list of recycling opportunities for construction and demolition waste materials and WorkSafe BC information on safe handling of hazardous materials for the Permit Applicant's consideration.

4.3.3 Project Site Recycling Plans

Project Site Recycling Plans ("Recycling Plans") are intended to assist Permit Applicants in achieving their waste management requirements. This should document all recyclable materials that can be generated from the project and identify the facilities that can process the recyclables.

A sample Recycling Plan is shown in Appendix B-1c. Municipalities may wish to consider incorporating this sample Recycling Plan, or an adapted version, into their standard building or demolition permit application documents, both at municipal offices and online.

4.3.4 Hazardous Material Reporting

The focus for hazardous materials reporting is to require Permit Applications to demonstrate that they have surveyed the project site for hazardous materials and have notified WorkSafe BC if these materials are present. To achieve this, Permit Applicants would be required to provide the following information:

- The types of hazardous waste materials that will be generated as a result of the proposed project;
- A Hazardous Materials Survey prepared by a qualified professional describing the extent of the areas of concern; and
- Documentation of the survey, removal, and disposal of hazardous materials in a manner that complies with WorkSafe BC and BC Ministry of Environment requirements. This documentation is only submitted for review upon municipal request or in the case where a project applies to be excused from the recycling requirements on the basis of excessive contamination by hazardous materials.

Recognizing that the potential for hazardous materials to be generated on a job site is more likely for demolition or renovation permits, a phased approach could be used to implement hazardous materials reporting. The proposed approach would start with all projects requiring demolition permits and, at a later stage, extend to major renovation projects that would require a building permit. Municipalities wishing to assess how these additional requirements affect staff work load may also wish to consider phasing in the hazardous materials reporting requirements.

A sample Hazardous Materials Reporting form is shown in Appendix B-1d. The form could be included in the Waste Management Package and be provided at the same time as the other permit application documents.

4.4 Administering Fees and Charges

Security deposits are administered in other jurisdictions as a means to the following:

- Provide a financial incentive to comply with the recycling requirements;
- Provide a more positive enforcement tool that is less labour-intensive than giving warnings and fines for non-compliance; and
- Enable municipalities to utilize unclaimed or retained deposits to support programs that encourage C&D recycling (additional legal review is needed to confirm acceptable uses of these funds).

Municipalities may wish to align the suggested fee structure below with their building permit fee schedule, and any other fee structures of relevance. Alignment between municipal approaches for assessing recycling fees may also make it easier to present the fee structure to the construction industry.

For the purposes of the proposed approach, fees would be established for the following eligible project categories:

- **Construction or Renovation Projects** – It is recommended that the recycling fee for construction or renovation projects be based on building permit values, because these are based on floor space and cost of construction. Each municipality would determine its recycling fee as a function of costs associated with program elements, such as administration, enforcement, and educational support. The recycling fee would be assessed as a percentage of the building permit value.
- **Demolition Projects** – Demolition permit fees vary more significantly between municipalities. A recycling fee for demolition projects is assessed based on floor space and should ensure that the fee is sufficient to encourage action, while not creating excessive costs for contractors.

The following provides an example of fees that could be levied. Additional legal review of the proposed fee structure is required.

REFUNDABLE RECYCLING FEES	
•	Construction or Renovation Project Fee equal to building permit value , up to a maximum of \$50,000
•	Demolition Project Fee based on \$0.50 per square foot of floor space (\$5.38/m ²), up to a maximum of \$50,000
NON-REFUNDABLE FEES	
\$50 Administrative Fee (could potentially be covered by unclaimed or retained fees)	

To see how the various fees might be assessed for a sample permit application, consider the following example:

Example 1: Construction Fee Only

Project: Construction of a new single-family home (2,500 ft²) with a construction value of \$200,000 on a new lot with no pre-existing structures.

Permit Value: Assume \$2000. Permit values for such a project range from about \$1000 to \$2200, depending on the municipality.

REFUNDABLE RECYCLING FEES	
•	Construction or Renovation Project Fee equal to building permit value , up to a maximum of \$ 50,000
○	Building Permit Value for \$200,000 project = \$2,000
○	Construction Project fee = Building Permit Value
	\$2,000
NON-REFUNDABLE FEES	
Administrative Fee (may be covered by unclaimed or retained fees)	
	\$50
Total fee to be charged to Permit Applicant	
	\$2,050

Example 2: Demolition Project

Project: Demolition of a 2,500 square foot (232 m²) building.

REFUNDABLE RECYCLING FEES	
<ul style="list-style-type: none"> • Demolition Project Fee based on \$0.50 per square foot of floor space (\$5.38/m²), up to a maximum of \$ 50,000 <ul style="list-style-type: none"> ○ Building area = 2,500 sq. ft. (232 m²) ○ Project fee = 2,500 sq. ft. x \$0.50/sq.ft or 232 m² x \$5.38/m² 	\$1,250
NON-REFUNDABLE FEES	
Administrative Fee (may be covered by unclaimed or retained fees)	\$50
Total fee to be charged to Permit Applicant	\$1,300

Once the fee is paid, the Permit Applicant would be eligible to receive a permit, thereby becoming the **Permit Holder**.

Municipalities may wish to adapt the proposed approach to other scenarios encountered in the permitting process. These include projects for building and demolition permits that are issued simultaneously when the construction of a new building follows the demolition of an existing one. Possible adaptations of the approach include:

- Issuing the building and demolition permits separately, following completion of the recycling requirements in each phase, which would encourage building deconstruction and material salvage activities to be considered; and
- Allowing the Permit Holder to combine recycling activities for construction and demolition waste. The Permit Holder would consequently aim for an **average** diversion target of 100% recycling of construction materials banned or prohibited from disposal and **70%** recycling of other non-hazardous materials (instead of 80% recycling in construction activities and 60% recycling in demolition activities).

4.5 Determining Compliance

The information submitted with the permit application is intended to identify the types and likely quantities of materials to be recycled or appropriately disposed by the future Permit Holder. The burden of demonstrating compliance would be placed on the Permit Holder, who would document the management of the target materials identified at the time of submission of the Recycling Plan.

4.5.1 Recycling Compliance

During the course of the construction, demolition, or renovation project, the Permit Holder is expected to track the quantity and destination of the waste materials leaving the project site. Suggested types of acceptable documentation that could be used to evaluate compliance are described below.

- **Recycled materials with a tipping fee** – Receipts or invoices would need to show the permit number (or project address), the type of waste material, the quantity of material and whether the material was recycled, salvaged/reused or disposed.
- **Recycled materials taken to a free drop-off site** – Receipts would need to show the permit number (or project address), the type of waste material, and whether the material was recycled, salvaged/reused, or disposed

- **Donated materials** – Documentation could include a written description detailing which scrap building materials were donated, to whom, and for what purpose. Some registered charities have the ability to generate donation receipts which could be considered suitable documentation of the donation. Supporting photographs of the salvaged materials could also be appropriate.

For the municipality, the ability to determine and record compliance would form the basis for approving the refund of recycling fees. An example of a Compliance Report is included in Appendix B-1e. This Compliance Report would include all documentation of re-use and recycling activities or proof of excused status.

4.5.2 Hazardous Materials Reporting Compliance

After project completion, the Permit Holder would bring in a completed Compliance Report, indicating whether any hazardous materials present were removed and what documentation is available. The Permit Holder would submit this documentation for review to the municipality upon request only, unlike the documentation for recycling compliance. Appropriate hazardous materials documentation could include receipts, inspection reports, Work Safe BC Notice of Project, sampling reports, and BC Ministry of Environment waste transport and disposal manifests.

Because the Province has the authority to enforce proper management of hazardous waste materials, there is no refundable fee associated with compliance of Hazardous Materials Reporting. A fine could be levied for contravening the bylaw, if appropriate documentation is not provided upon request to indicate that the hazardous materials were properly removed and disposed.

4.5.3 Time Limit for Submission of Compliance Reports

Under the proposed approach, municipalities would require Permit Holders to submit a completed Compliance Report of recycling performance and hazardous materials management within **90 days** of project completion, unless the Permit Holder obtains a written extension from the municipality. Project completion would mean the date when an occupancy permit is issued for construction projects that are eligible to receive such permits; for all other projects, it would mean the date of final inspection. However, the Permit Holder would keep appropriate hazardous materials documentation for the amount of time prescribed in the OH&S regulation and the BC Hazardous Waste Regulation, or where none specified, for a period of **six months** following completion of the project. The Permit Holder would submit the documentation to the municipality upon request.

Failure to submit a Compliance Report and appropriate documentation on time could result in the Permit Holder forfeiting the refundable portion of the recycling fees.

Municipalities may choose to issue a warning when the time limit is approaching.

4.5.4 Refund Calculation

Under the proposed approach, the recycling fee paid at the time of the permit application would be refundable, if the applicant successfully met the waste diversion targets set for their project **and** provided completed forms and documentation to the satisfaction of the municipality. The amount refunded would be proportional to the amount of waste recycled, relative to the mandated recycling targets. Municipalities should also consider charging a non-refundable administrative fee, if the unclaimed or withheld recycling fees are not expected to cover the cost of administering the program.

As part of the Compliance Report, the Permit Holder would calculate and report their actual recycling rate and their anticipated refund of the recycling fee, based on the documentation they had collected and submitted, which would be a process similar to that for filing an income tax return. This has the benefit of reducing the municipal staff time

required to review documentation and to calculate refunds. The self-reporting approach means that municipalities would still retain some control by checking and signing off on submissions.

Upon submission, the Building Official, or other municipal staff person, would check the Compliance Report form, the reported recycling rate, and the expected refund claimed by the Permit Holder. Occasional in-depth review would extend to a review of the submitted documentation to confirm the level of waste diversion achieved by the project. Municipal sign-off on the Compliance Report would be the final step in approving the applicable refund. Municipalities may consider the following when determining how to conduct in-depth audits of submissions:

- Procedure for in-depth review by municipal staff, and level of effort associated with in-depth reviews
- Frequency of in-depth review, e.g. based on percentage of permits processed
- Methods to flag submissions for in-depth review, e.g. if contractor has a record of previous non-compliance

4.5.4.1 *Distribution of the Refund between Material Categories with Different Diversion Targets*

When a Permit Holder pays the appropriate refundable fees, the total refundable component should cover both categories of target materials, i.e. those for which the recycling target is 100%, and those for which a lower recycling target of 60% - 80% has been set. One way to distribute the refund between these two material categories is to assume that the total refund paid is evenly committed between them. This approach is shown in Table 2 below, and is applied to the example project refund calculation in Section 4.4.

Table 2. Proposed Commitment of Refundable Fees between Categories of Target Materials

	Refund for Achievement of Diversion Target for Construction Materials Banned from Disposal	Refund for Achievement of Diversion Target for Other Recyclable Materials	Achievement of Proper Hazardous Materials Disposal
Construction Projects	Up to half of refundable fees paid	Up to half of refundable fees paid	Reporting not required
Renovation Projects over \$50,000	Up to half of refundable fees paid	Up to half of refundable fees paid	No fees = No refund
Demolition Projects	Up to half of refundable fees paid	Up to half of refundable fees paid	No fees = No refund

Example 1: Construction Fee Only

Project	Construction of a new single-family home with a construction value of \$200,000 on a new lot with no pre-existing structures
Refundable Fee Paid	\$2,000
Recycling Achieved	90% for materials with 100% recycling target 60% of all other non-hazardous materials (80% recycling target)
Refund calculation for materials with 100% recycling target	Maximum Refund = \$2000/2 = \$1000 Actual Refund = 90%/100% x (\$2,000/2) = \$900
Refund calculation for all other non-hazardous materials with 80% recycling target	Maximum Refund = \$2000/2 = \$1000 Actual Refund = 60%/80% x (\$2,000/2) = \$750
Total Refund	\$900 + \$750 = \$1,650 (\$350 withheld for partial non-compliance)

This is one proposed way that the refundable fee could be allocated to the set of diversion targets that each project will be required to meet. The even allocation of the refundable fee is the simplest way for municipalities to evaluate

the amount to be refunded. However, municipalities applying a similar regulatory approach may prefer other refund mechanisms, such as one that splits the refund according to the proportion of project waste falling under each material category. This alternative approach is shown in Table 3.

Table 3. Alternative Commitment of Refundable Fees between Categories of Target Materials

	Refund for Achievement of Diversion Target for Construction Materials Banned from Disposal	Refund for Achievement of Diversion Target for Other Recyclable Materials	Achievement of Proper Hazardous Materials Disposal
Example of project waste composition	90%	10%	Not quantified
Construction Projects	Up to 90% of refundable fees paid	Up to 10% of refundable fees paid	Not required
Renovation Projects over \$50,000	Up to 90% of refundable fees paid	Up to 10% of refundable fees paid	No fees = No refund
Demolition Projects	Up to 90% of refundable fees paid	Up to 10% of refundable fees paid	No fees = No refund

4.5.5 Refund Delivery

To complete the process, a copy of the first page of each Compliance Report could be sent to the Finance Department so that a refund could be sent to the Permit Holder. A copy of the whole report should be kept on file.

5. What Would A Relevant Bylaw Include?

The suggested regulatory approach uses a bylaw as the primary regulatory tool to create the necessary authority for a municipality to mandate recycling on construction and demolition job sites. This section describes the main components of such a bylaw, as a means of providing a potential approach or starting point for municipalities to consider. For each major component, sample text is shown in *italics* for easy identification. A fully compiled sample bylaw is also provided in Appendix B-1b. Municipalities would need to obtain legal counsel approval prior to adopting any of the sample bylaw text or suggested approaches.

5.1.1 Acknowledgement of Regulatory Authority

This section would outline the basis under which the bylaw will be enacted. Key factors to be considered when drafting such a section include:

- What bylaw-making powers provincial legislation, such as the Community Charter, vest in municipalities;
- What other compelling premises allow the bylaw to be used as a tool; and
- What other bylaws, policies or key resolutions have been adopted by Council, that support the direction of the proposed bylaw. For example, if a municipality has adopted a specific waste diversion target or sustainability goal at the Council level, reference to that resolution, bylaw or policy might be included.

Sample component text has been developed as shown below:

Whereas Part 2, Division 1, Section 8 [Fundamental Powers] of the Community Charter confers authority on Council to, by bylaw, regulate, prohibit and impose requirements in relation to the protection and enhancement of the well-being of

its community with respect to refuse, garbage, or other material that is noxious, offensive, or unwholesome and in relation to the use of waste disposal and recycling services;

Whereas Part 7, Division 2, Section 194 [Municipal Fees] of the Community Charter authorizes Council to impose a fee in the exercise of authority to regulate, prohibit or impose requirements, and to provide for the refund of a fee; and

Whereas Metro Vancouver and the members of the Greater Vancouver Regional District have set a target of 70% diversion of solid waste from disposal by 2015 in their Integrated Solid Waste Resource Management Plan and, in order to achieve this goal, the Council wishes to impose regulations for the protection of the environment by encouraging the use of waste recycling services;

Now therefore, the Municipal Council of _____ in an open session assembled enacts as follows:

5.1.2 Title and Purpose

This section would outline the title of the bylaw, its formal name for citation, and the explanation of the purpose. The following sample text provides a guide:

Title

This Bylaw may be cited as “Management of Recyclable Materials from Construction, Demolition, and Renovation Sites Bylaw No. _____”.

Purpose

The purpose of this Bylaw is to regulate, prohibit and impose requirements with respect to the management of the recyclable materials generated by construction or demolition of buildings and structures in order to reduce the amount of recyclable materials that are disposed.

Municipalities may also wish to consider whether the purpose of the bylaw needs to be more specific, for example to better align with the suite of existing bylaws that the municipality may already have in place.

5.1.3 Definitions

The need to identify key roles and circumstances, and their particular interpretation in the context of a bylaw, is typically addressed via a set of definitions presented in a bylaw. The sample definitions outlined below provide suggestions that can be added to or customized as needed. In many cases, these terms may already be well defined in existing municipal building or development bylaws. Concurrence of definitions is encouraged.

*The following words have the meanings set out in <Municipal Building Bylaw Citation> as amended from time to time: **construction, demolition, demolition permit, permit, renovation, and structure.***

In this bylaw:

Applicant means the person applying for a building, demolition or renovation permit.

Building Inspector means a person who is responsible for the enforcement of building regulations.

Building Official means a person who is responsible for the administration and enforcement of building regulations, and includes a Building Inspector and a Plan Reviewer, as defined in the bylaw of the Building Officials' Association of BC.

City means <Full Municipality Name>

Chief Building Official means a person who supervises the work of Building Officials and is the senior staff member responsible for the overall administration and enforcement of building regulations.

Compliance Report means the form attached and forming part of this bylaw as <Schedule Name>.

Dispose or **Disposal** means to discard waste in a landfill or at a waste-to-energy facility accepting unsorted waste.

Divert or **Diversion** means the salvage, reuse, composting, recycling or recovery of energy from **sorted** construction and demolition recyclable materials to avoid disposal.

Hazardous Material means the materials, chemicals and substances that are listed as a “Controlled Product” or a “Hazardous Waste” as those terms are respectively defined or described in the provincial Workers Compensation (Occupational Health and Safety) Amendment Act, Occupational Health and Safety Regulation, B.C. Reg. 296/97 and the provincial Environmental Management Act, Hazardous Waste Regulation, B.C. Reg. 63/88, as may be amended from time to time.

Hazardous Materials Reporting means the form attached and forming part of this bylaw as <Schedule Name>.

Plan Reviewer means a person who has the responsibility for reviewing building plans to determine compliance with building regulations.

Project Completion means the date when an occupancy permit is issued for construction projects that are eligible to receive such permits. For all other projects, it means the date of final inspection.

Recyclable Material means a product or substance that has been diverted from disposal, and satisfies at least one of the following criteria:

(a) is organic material and is capable of being composted or digested, or is being composted or digested, at a site;

(b) is managed as a marketable commodity with an established market by the owner or operator of a site;

(c) is being used in the manufacture of a new product that has an established market or is being processed as an intermediate stage of an existing manufacturing process.

Recycling Fee means the fee paid upon issuance of a building or demolition permit as prescribed in <Schedule Name>, as amended from time to time.

Recycling Plan means the form attached and forming part of this bylaw as <Schedule Name>.

A municipality that already lists all of its fees in a Municipal Fees Bylaws might opt to include the Recycling Fee in its Fees Bylaw instead.

5.1.4 Applicability

The applicability section of a bylaw identifies the types of projects, activities or circumstances to which the bylaw applies. In the case of the establishment of mandatory recycling on construction and demolition worksites, this section of the bylaw could also be used to define the recycling targets that will apply to various types of projects. The following sample text can be customized as required:

Applicability

- 1) *Except for projects listed in Section 2 of this bylaw, the Applicant for any building or demolition permit is required to divert all project-related construction and demolition recyclable material in accordance with the following Diversion targets:*
 - a) *For construction projects*
 - (i) *100% of construction materials banned or prohibited from disposal, listed in <Schedule Name>, except hazardous materials*
 - (ii) *80% of all other materials and substances, except hazardous materials*
 - b) *For renovation and demolition projects:*
 - (i) *100% of construction materials banned or prohibited from disposal, listed above in 1 (a) (i), except hazardous materials*
 - (ii) *60% of all other materials and substances, except hazardous materials*

Hazardous materials that are required to be removed from the work site and disposed of appropriately can be excluded from the calculation of Diversion targets.
- 2) *The following construction, demolition or renovation projects are **excused** from the Diversion targets, but will be required to demonstrate that some of the viable material from the work sites was diverted:*
 - (a) *Projects for which acceptable documentation indicates that the generated materials were contaminated with hazardous materials to such an extent that the relevant Diversion targets specified in section 1 (a) or (b) were unattainable, i.e.:*
 - (i) *If hazardous materials represent more than 60% of the total material diverted and disposed from the work site,*
 - (b) *Projects for which acceptable documentation indicates that the generated materials have a low potential to be diverted as a result of an accidental event, such as flood or fire damage*
 - (c) *Projects that have sought and qualified for a variance to the Diversion targets due to other obstacles to diversion, at the discretion of the Chief Building Official or other appropriate municipal authority*
 - (d) *For all projects described in Section 2 (a), (b) or (c), acceptable documentation shall consist of the following, where applicable:*
 - (i) *photographs,*
 - (ii) *documentation from construction and demolition materials recycling facilities or deconstruction professionals,*
 - (iii) *insurance claims, and*
 - (iv) *hazardous materials surveys completed by a qualified professional, as defined in WorkSafe BC Guideline 6.6, as well as waste transport and disposal manifests.*
- 3) *This bylaw does not apply to:*
 - (a) *Renovations below \$50,000 in value*

- (b) *Emergency demolition or durable construction works required to protect public health or safety, or to respond to a state of emergency, as determined by the Chief Building Official.*
- (c) *Any other projects specifically exempted at the discretion of the Chief Building Official or other appropriate municipal authority.*

In developing the applicability section, municipalities may wish to consider how their thresholds for applicability and the recycling targets embedded in this section align with those of other municipalities that may be taking steps to implement a similar process. If required, the bylaw development process may also incorporate provisions for variances and exemptions if these are not captured elsewhere.

5.1.5 Requirement to Submit Forms and Documentation

The next section of the bylaw would address the requirements that permit applicants would need to meet in order to comply with the bylaw. These requirements relate to the submission of the Recycling Plan, the Hazardous Materials Reporting, and the Compliance Report and supporting documentation. Sample text to address each of these components is provided below:

Recycling Plan

For all construction and demolition projects requiring a building permit or demolition permit but not listed in Section 4 [Applicability] of this bylaw, the Applicant must complete and submit a Recycling Plan prior to issuance of a permit.

The form of the Recycling Plan shall be as provided in <Schedule Name>

The Building Official must approve the Recycling Plan prior to issuance of a permit.

Hazardous Materials Reporting

For all demolition projects requiring a demolition permit but not listed in Section 4 [Applicability] of this bylaw, the Applicant must complete and submit the Hazardous Materials Reporting prior to issuance of a permit.

The form of the Hazardous Materials Reporting shall be as provided in <Schedule Name>.

The requirement to submit the Hazardous Materials Reporting does not preclude the Applicant from complying with any and all requirements regarding hazardous materials management, including the requirements of WorkSafe BC and the BC Ministry of Environment. .

*The Building Official must approve the Hazardous Materials Reporting prior to issuance of a permit.
The Applicant shall keep all receipts, records or other documentation of hazardous materials surveying, removal, handling, and disposal, such as inspection reports, clearance letters, sampling reports, waste manifests, etc., for the amount of time prescribed in the BC Occupational Health and Safety Regulation and the BC Hazardous Waste Regulation, or, where none is specified, for a period of six months, during which the Applicant must submit these to the City upon request.*

Compliance Report

The Applicant must submit a Compliance Report within 90 days of Project Completion.

The form of the Compliance Report shall be as provided in <Schedule Name>.

The Applicant shall submit all required receipts, records or other documentation as evidence in support of the refund calculation submitted as part of the Compliance Report.

5.1.6 Provision to Collect Fees

The incorporation of a refundable fee structure into the bylaw can create an additional incentive to encourage the desired objective of diverting construction and demolition waste from disposal. This section of the bylaw would explain the intent to collect and refund fees as necessary. Municipalities will need to incorporate additional language concerning the way that they would handle funds paid to them under the terms of this bylaw and any ability of the municipality to use unclaimed funds. For example, the non-refundable administrative fee might not be necessary if a municipality chooses to pay administrative costs by using unclaimed or withheld Recycling Fees. This aspect would particularly require municipal legal review.

Sample text regarding the assessment of fees and charges is provided below:

Fees and Charges

A Recycling Fee is payable to the City for every Recycling Plan submitted to the City. Such fees are to assist with approving the Recycling Plan, Hazardous Materials Report and Compliance Report and to encourage Applicants to divert targeted rates of construction and demolition materials from disposal.

The amount of the Recycling Fee shall be determined according to <Schedule Name> to this bylaw.

All or a portion of the Recycling Fee will be returned to the Applicant upon submission of an acceptable Compliance Report form and required documentation. The refund will be proportional to the level of waste diversion achieved relative to the required diversion targets.

A non-refundable administrative fee is also payable for each Recycling Plan submitted, as set out in <Schedule Name> to this bylaw.

Fees unclaimed after 90 days of Project Completion are forfeited to the City, unless the Applicant obtains an extension in writing from the City.

Municipalities may choose to issue a warning when the time limit is approaching.

5.1.7 Enforcement

Some municipalities have an overarching enforcement bylaw that designates authority for enforcement to specific roles within the municipality. Such bylaws may also identify penalties and other measures the municipality can apply in the event its bylaws are contravened. In the absence of such an overarching bylaw, each municipal bylaw includes specific enforcement clauses as necessary. The sample text below could be used in the latter case, where no overarching enforcement authority is in place.

Any Applicant who contravenes any provision of this Bylaw, or knowingly provides false or misleading information, commits an offence and is liable on summary conviction of a fine not exceeding \$2,000.00 plus the costs of prosecution.

Municipalities electing to incorporate such a clause into a bylaw may wish to evaluate similar enforcement and/or penalty provisions in existing bylaws, to check for consistency in policy and application of enforcement. Other options may include provisions for an applicant to receive a warning, or to have a time period imposed for corrective action.

5.1.8 Bylaw Administration

The final section of the bylaw would address how the municipality would administer the bylaw. Municipalities electing to implement such a bylaw may wish to make the administrative responsibility for it consistent with related bylaws already in existence, such as the municipality's building or development bylaw. In the sample text below, a specific staff role is identified for administrative responsibility, and a proposed approach to conflict resolution is outlined.

The Building Official is responsible for interpreting and administering this Bylaw.

The Applicant may appeal any decision of the Building Official in relation to this Bylaw to the Chief Building Official, provided such appeal is made in writing to the City within 30 days of issuance of the Building Official's decision.

The decision of the Chief Building Official shall be final and binding.

As with other sections of a bylaw, municipalities electing to adopt a similar approach should consider undertaking legal review of the administrative components and clauses, to ensure the overall enforceability of the bylaw.

5.2 Bylaw Example

A fully compiled sample bylaw, that incorporates the features of the preceding sections, is attached as Appendix B-1b to this document. The Appendix includes the following items:

- The fully compiled sample bylaw text
- Sample Appendix B-1c – Recycling Plan Form
- Sample Appendix B-1d – Hazardous Materials Reporting Form
- Sample Appendix B-1e – Compliance Report
- Sample Appendix B-1f – Schedule of Fees

Municipalities may wish to review these components as a starting point to formulating their own regulatory approaches for encouraging recycling at construction and demolition job sites.

5.3 Options for Phased Enforcement

The implementation of a bylaw process such as the one outlined in this document could represent a significant change for Permit Applicants, as well as municipal staff in several departments. One option for mitigating the impacts of this change would be to adopt a phased approach to implementation and enforcement.

Some jurisdictions may phase-in their construction and demolition waste management requirements to ensure that fair notice is received by all affected parties and that no undue hardship is brought upon the construction and demolition industry. Phasing-in would also provide time for the recycling industry to expand its capacity to meet increased demand for processing and marketing.

Some options for phasing-in the requirements include:

- Gradual enforcement of the requirements
- Application to a sub-set of projects or sectors initially, as recommended for Hazardous Materials Reporting
- Step-wise increase of recycling targets over time

A 2.5-year phasing cycle is proposed in Table 3 below. The timeline can be shortened, if necessary.

Table 4. Example of Phased Enforcement

Phase	Main Activities	Considerations
Pre-Enactment Notification (6 months)	Contractors could be given 6 months notice prior to the enactment of the mandatory recycling requirements. This timeframe would ensure adequate time for contractors and other potential Permit Applicants to learn about the requirements and to identify how to change their work practices, if necessary, in order to comply.	Contractors could be encouraged to participate in seminars and other educational opportunities provided by the municipality and Metro Vancouver. Municipalities could invite Permit Applicants to voluntarily complete the forms in the <i>Project Site Recycling Package</i> and provide documentation of waste management.
Bylaw Adoption	Municipality adopts bylaw	Municipality may opt to specify future enforcement dates, prior to which it would be more lenient with the requirements
Post-Adoption Enforcement (Year 1)	<p>In the first year following adoption, the municipality would require Permit Applicants for eligible projects to complete the forms in the <i>Project Site Recycling Package</i> and submit the refundable Recycling Fee.</p> <p>However, for the first year of the mandatory requirements, eligible projects would receive a full refund of the Recycling Fee for completing Compliance Reports and providing appropriate documentation. They would not be required to achieve the diversion targets for their project.</p> <p>The use of a separate non-refundable administrative fee to cover the cost of administering the program would be evaluated during this phase.</p>	<p>In the first year, municipal staff would have the opportunity to review how they were coping with the administration of the requirements.</p> <p>Based on a review of the calculations of the anticipated refunds in the Compliance Reports, municipal staff could determine whether administrative costs could eventually be covered by unclaimed or retained fees, or whether a separate non-refundable administrative fee would be needed.</p>
Post-Adoption Enforcement (Year 2)	In Year 2 following adoption, municipalities would enforce all aspects of the mandatory requirements, including the need to achieve the diversion targets , in order for Permit Applicants to obtain a refund on the Recycling Fee.	Municipal staff may wish to set procedures for routinely screening all submissions and for auditing some submissions in detail.

6. What Supporting Tools Would Be Required?

6.1 Education and Outreach

Everyone involved with permits, including municipal staff, contractors, and property owners, would need to become familiar with the mandatory waste management requirements for construction and demolition work sites. Educational opportunities at the start-up of this program could include staff training opportunities to learn about the new requirements and how they would be implemented, as well as training opportunities for contractors who would be responsible for complying with the waste management requirements. Education would be on-going, so that information on the requirements would always be available and up-to-date. Start-up and on-going education and communication efforts could be conducted by the municipality with support from Metro Vancouver, non-profit organizations, and academic institutions.

6.1.1 Municipal Staff

Training and education would be primarily focused on municipal staff members that interact with contractors and permit applicants. These could include staff who distribute the *Project Site Recycling Package* to contractors, staff who review and approve permit applications, as well as staff responsible for reviewing recycling performance reports as part of the permitting process. This could involve permitting department staff and solid waste management staff, as determined by each municipality. Staff in the Finance Department that would handle refundable fees should also be trained on this new program.

6.1.2 Permit Applicants & External Stakeholders

Developers, builders, construction/demolition/renovation companies, homeowners, recycling companies, landfill operators, and waste haulers would also be targeted for education at both the start-up of this program and on an on-going basis. Educational activities would support external stakeholders in understanding and meeting the mandatory requirements and could include:

- On-line and hard copy list of facilities that accept targeted materials. Links to a regional list of licensed waste management facilities and their accepted materials, as well as other recycling databases, could also be available at <http://www.metrovancouver.org/BuildSmart/Pages/default.aspx>
- DLC Recycling Toolkit from Metro Vancouver: Copies of the toolkit are available online at <http://www.metrovancouver.org/BuildSmart/Pages/default.aspx>
- Training programs:
 - For preparing plans and associated documentation
 - For deconstructing structures and maximizing diversion

Training programs may be offered through Metro Vancouver, industry associations, NGOs, or academic institutions. Each municipality could play a role in promoting these training programs.

6.2 Data Tracking and Reporting

While the process proposed in this document was developed to attain regional recycling targets, the measurement of the achievement of these targets would likely be iterative in the early stages, as actual projects move through the regulatory cycle and the level of reporting in the phasing-in period becomes more refined. Municipalities intending to adopt this or another approach to mandatory recycling of construction and demolition waste may wish to create specific procedures for data tracking and reporting on aggregate performance of the program. Such data tracking and reporting could be done in order to:

- Determine the level of success associated with the mandatory requirements, including diversion achieved
- Track where and how diverted materials are being handled
- Identify and better understand trends as they evolve

Metro Vancouver would likely consider tracking construction and demolition waste diversion across the Region. In such a case, municipalities participating in the implementation of this proposed approach would need to provide their compliance report data to Metro Vancouver, so as to facilitate development of regional reporting.

7. Suggestions for Additional Discussion

The following issues were touched on during consultation with the public and private stakeholders. Additional discussion about these issues is recommended with representatives from the sectors above:

- Exemptions for market conditions, such as recycling market crashes or for unjustified escalation of recycling tipping fees
- Access to recycling transfer and sorting facilities for all recyclable materials in or near each participating municipality
- Limitation of the frequency of discretionary assessments made by building officials to reduce administrative costs
- Fee schedule for each municipality
- Length of time each municipality will take to refund fees
- Threshold of hazardous material contamination that would justify excusing projects from diversion targets
- WorkSafe BC's role in facilitating the identification of qualified persons for hazardous material surveys

Appendix B-1b: Draft Municipal Bylaw

EXAMPLE OF A BYLAW FOR THE PURPOSE OF DIVERTING RECYCLABLE MATERIALS FROM CONSTRUCTION AND DEMOLITION WORK SITES

This sample bylaw provides an example of a possible approach to regulating and imposing requirements with respect to the recyclable materials resulting from construction and demolition activities. Each municipality is invited to review the proposed approach and to adapt it as needed when developing a related municipal policy. The reader will therefore note generic references, such as *<Schedule Name>*, in this sample bylaw. Each municipality can modify these when developing its own relevant bylaw.

WHEREAS Part 2, Division 1, Section 8 [Fundamental Powers] of the Community Charter confers authority on Council to, by bylaw, regulate, prohibit and impose requirements in relation to the protection and enhancement of the well-being of its community with respect to refuse, garbage, or other material that is noxious, offensive, or unwholesome and in relation to the use of waste disposal and recycling services;

WHEREAS Part 7, Division 2, Section 194 [Municipal Fees] of the Community Charter authorizes Council to impose a fee in the exercise of the authority to regulate, prohibit or impose requirements, and to provide for the refund of a fee; and

WHEREAS Metro Vancouver and the members of the Greater Vancouver Regional District have set a target of 70% diversion of solid waste from disposal by 2015 in their Integrated Solid Waste Resource Management Plan and, in order to achieve this goal, the Council wishes to impose regulations for the protection of the environment by encouraging the use of waste recycling services;

NOW THEREFORE, the Municipal Council of *<Municipality Name>* in an open session assembled enacts as follows:

1. Title

This Bylaw may be cited as "Management of Recyclable Materials from Construction, Demolition, and Renovation Sites Bylaw No. ____".

2. Purpose

The purpose of this Bylaw is to regulate and impose requirements with respect to the management of the recyclable materials generated by construction or demolition of buildings and structures in order to reduce the amount of recyclable materials that are disposed.

3. Definitions

- 1) The following words have the meanings set out in <Municipal Building Bylaw Citation> as amended from time to time: construction, demolition, demolition permit, permit, renovation, and structure.
- 2) In this bylaw:
 - a) Applicant means the person applying for a building, demolition or renovation permit.
 - b) Building Inspector means a person who is responsible for the enforcement of building regulations.
 - c) Building Official means a person who is responsible for the administration and enforcement of building regulations, and includes a Building Inspector and a Plan Reviewer, as defined in the bylaw of the Building Officials' Association of BC.
 - d) City means <Full Municipality Name>
 - e) Chief Building Official means a person who supervises the work of Building Officials and is the senior staff member responsible for the overall administration and enforcement of building regulations.
 - f) Compliance Report means the form attached and forming part of this bylaw as <Schedule Name>.
 - g) Dispose or Disposal means to discard waste in a landfill or at a waste-to-energy facility accepting unsorted waste.
 - h) Divert or Diversion means the salvage, reuse, composting, recycling, or recovery of energy from sorted construction and demolition recyclable materials to avoid disposal.
 - i) Hazardous Material means the materials, chemicals and substances that are listed as a "Controlled Product" or a "Hazardous Waste" as those terms are respectively defined or described in the provincial *Workers Compensation (Occupational Health and Safety) Amendment Act, Occupational Health and Safety Regulation*, B.C. Reg. 296/97 and the provincial *Environmental Management Act, Hazardous Waste Regulation*, B.C. Reg. 63/88, as may be amended from time to time.
 - j) Hazardous Materials Reporting means the form attached and forming part of this bylaw as <Schedule Name>.
 - k) Plan Reviewer means a person who has the responsibility for reviewing building plans to determine compliance with building regulations.

- l) Project Completion means the date when an occupancy permit is issued for construction projects that are eligible to receive such permits. For all other projects, it means the date of final inspection.
- m) Recyclable Material means a product or substance that has been diverted from disposal, and satisfies at least one of the following criteria:
 - (a) is organic material and is capable of being composted or digested, or is being composted or digested, at a site;
 - (b) is managed as a marketable commodity with an established market by the owner or operator of a site;
 - (c) is being used in the manufacture of a new product that has an established market or is being processed as an intermediate stage of an existing manufacturing process.
- n) Recycling Fee means the fee paid upon issuance of a building or demolition permit as prescribed in <Schedule Name>, as amended from time to time.
- o) Recycling Plan means the form attached and forming part of this bylaw as <Schedule Name>.

4. Applicability

- 1) Except for projects listed in Section 4 (2) of this bylaw, the Applicant for any building or demolition permit is required to divert all project-related construction and demolition Recyclable Material in accordance with the following Diversion targets:
 - a) *For construction projects*
 - (i) *100% of construction materials banned or prohibited from disposal, listed in <Schedule Name>, except hazardous materials*
 - (ii) *80% of all other materials and substances, except hazardous materials*
 - b) *For renovation and demolition projects:*
 - (i) *100% of construction materials banned or prohibited from disposal, listed above in 1 (a) (i), except hazardous materials*
 - (ii) *60% of all other materials and substances, except hazardous materials*

Hazardous materials that are required to be removed from the work site and disposed of appropriately can be excluded from the calculation of Diversion targets.

2) The following construction, demolition or renovation projects are excused from the Diversion targets, but will be required to demonstrate that some of the viable material from the work site was diverted:

(a) Projects for which acceptable documentation indicates that the generated materials were contaminated with hazardous materials to such an extent that the relevant Diversion targets specified in section 1 (a) or (b) were unattainable, i.e.:

(i) If hazardous materials represent more than 60% of the total material diverted and disposed from the work site.

(b) Projects for which acceptable documentation indicates that the generated materials have a low potential to be diverted as a result of an accidental event, such as flood or fire damage

(c) Projects that have sought and qualified for a variance to the Diversion targets due to other obstacles to diversion, at the discretion of the Chief Building Official or other appropriate municipal authority

(d) For all projects described in Section 2 (a), (b) or (c), acceptable documentation shall consist of the following, where applicable:

(i) photographs,

(ii) documentation from construction and demolition materials recycling facilities or deconstruction professionals,

(iii) insurance claims, and

(iv) hazardous materials surveys completed by a qualified professional, as defined in WorkSafe BC Guideline 6.6, as well as waste transport and disposal manifests

3) This bylaw does not apply to:

(a) Renovations below \$50,000 in value

(b) Emergency demolition or durable construction works required to protect public health or safety, or to respond to a state of emergency, as determined by the Chief Building Official.

(c) Any other projects specifically exempted at the discretion of the Chief Building Official or other appropriate municipal authority.

5. Recycling Plan

- 1) For all construction and demolition projects requiring a building permit or demolition permit but not listed in Section 4 of this bylaw, the Applicant must complete and submit a Recycling Plan prior to issuance of a permit.
- 2) The form of the Recycling Plan shall be as provided in <Schedule Name>
- 3) The Building Official must approve the Recycling Plan prior to issuance of a permit.

6. Hazardous Materials Reporting

- 1) For all demolition projects requiring a demolition permit but not listed in Section 4 of this bylaw, the Applicant must complete and submit the Hazardous Materials Reporting prior to issuance of a permit.
- 2) The form of the Hazardous Materials Reporting shall be as provided in <Schedule Name>.
- 3) The requirement to submit the Hazardous Materials Reporting does not preclude the Applicant from complying with any and all requirements regarding hazardous materials management, including the requirements of WorkSafe BC and the BC Ministry of Environment. .
- 4) The Building Official must approve the Hazardous Materials Reporting prior to issuance of a permit.
- 5) The Applicant shall keep all receipts, records or other documentation of hazardous materials surveying, removal, handling, and disposal, such as inspection reports, clearance letters, sampling reports, waste manifests, etc., for a period of six months, for the purpose of this bylaw, and submit these to the City upon request.

7. Compliance Report

- 1) The Applicant must submit a Compliance Report within 90 days of Project Completion.
- 2) The form of the Compliance Report shall be as provided in <Schedule Name>.
- 3) The Applicant shall submit all required receipts, records or other documentation as evidence in support of the refund calculation submitted as part of the Compliance Report.

8. Fees and Charges

- 1) A Recycling Fee is payable to the City for every Recycling Plan submitted to the City. Such fees are to assist with approving the Recycling Plan, Hazardous Materials Reporting and Compliance Report and to encourage Applicants to divert targeted rates of construction and demolition materials from disposal.
- 2) The amount of the Recycling Fee shall be determined according to **<Schedule Name>** to this bylaw.
- 3) All or a portion of the Recycling Fee will be returned to the Applicant upon submission of an acceptable Compliance Report form and required documentation. The refund will be proportional to the level of diversion achieved relative to the required diversion targets.
- 4) A non-refundable administrative fee is also payable for each Recycling Plan submitted, as set out in **<Schedule Name>** to this bylaw.
- 5) Fees unclaimed after 90 days of Project Completion are forfeited to the City, unless the Applicant obtains an extension in writing from the City.

9. Enforcement

- 1) Any Applicant who contravenes any provision of this Bylaw, or knowingly provides false or misleading information, commits an offence and is liable on summary conviction of a fine not exceeding \$2,000.00 plus the costs of prosecution.

10. Bylaw Administration

- 1) The Building Official is responsible for interpreting and administering this Bylaw.
- 2) The Applicant may appeal any decision of the Building Official in relation to this Bylaw to the Chief Building Official, provided such appeal is made in writing to the City within 30 days of issuance of the Building Official's decision.
- 3) The decision of the Chief Building Official shall be final and binding.

Sample Form 1 – Recycling Plan

Date _____

Project Site Address _____

Project Type Demolition New Construction Structural Alteration

Building Type Residential Commercial Other _____

Project Square Footage _____ Project Valuation \$ _____

Type of Construction (Wood frame, Concrete, Steel, etc) _____

Project Start Date (DD/MM/YYYY) ____/____/____ Project Completion Date (DD/MM/YYYY) ____/____/____

Name of Permit Applicant: _____ (please print)

Signature of Permit Applicant _____ Date _____

NOTE TO APPLICANT: Please complete the other side of the form

STAFF USE ONLY			
Building Permit No. _____			
Recycling Package	<input type="checkbox"/> Package provided to applicant	<input type="checkbox"/> Form 1 – Project information and checklist received from permit applicant	<input type="checkbox"/> Form 2 – Completed Form 2 and Hazardous Materials Survey received from permit applicant
<input type="checkbox"/> Fee Received			
Administration Fee		\$ _____	
Refundable Fee		\$ _____	
Total Recycling Fee		\$ _____	
<p>Refundable Fee Calculation</p> <ul style="list-style-type: none"> Construction or Renovation Project Fee equal to building permit value to a maximum of \$ 50,000 Demolition Project Fee based on \$0.50 per square foot of floor space to a maximum of \$ 50,000 			<p>Fees range from \$200 - \$50,000 in other jurisdictions, depending on project</p>
Permit No _____			
<p>Diversion that will be required:</p> <input type="checkbox"/> 100% of materials banned or prohibited from disposal (all projects) <input type="checkbox"/> 80% of all other materials (construction projects) <input type="checkbox"/> 60% of all other materials (demolition or renovations)			
Signature of Application Reviewer: _____			
<i>Keep a copy of this page and Form 2 in file</i>			

Planning how you will manage the recyclable materials generated at your site will help you meet the recycling requirements. **Please complete the following checklist of the types of recyclable materials that your project is expected to generate and submit as part of Form 1.** Use this checklist for discussion with waste collection, recycling and disposal companies. A list of recycling facilities is available from the Permits Department or <http://www.metrovancouver.org/BuildSmart/Pages/default.aspx>.

You must keep track of ALL of the materials generated over the duration of the project by keeping receipts from all recycling and disposal facilities or signed forms from all salvagers (See Form 3 –Compliance Report).

Materials	Y/N	Notes
100% RECYCLING TARGET – Banned or prohibited from disposal		
Asphalt		All must be recycled
Cardboard		All must be recycled.
Cement and concrete		All must be recycled
Clean fill and soil		All must be recycled
Drywall		All must be recycled.
Green waste (shrubs, lawn, small trees)		Reusable or Compostable (considered as part of recycling)
OTHER RECYCLABLES – TARGETS APPLY		
Appliances		Reusable or recyclable
Cabinetry		Reusable or recyclable
Bricks, blocks and ceramic tile		Reusable or recyclable
Doors		Reusable or may be recyclable (check with recycler)
Fixers (lighting and plumbing etc)		Reusable or may be recyclable (check with recycler)
Windows in frames		Reusable or recyclable
Asphalt roofing shingles		Recyclable
Cable and wiring		May need to be cut up prior to recycling
Metals – steel, aluminum, copper, brass, etc.		Recyclable
Metal – cable and wiring		Recyclable, may need to be cut up prior to recycling
Metal - window frames		Recyclable
Paper		Recyclable
Plastic - rigid buckets, pails, etc		Recyclable
Plastic - wrapping and bags		Recyclable
Plywood, particle board, OSB		Recyclable
Wood – structural (incl pallets)		Recyclable
Wood – plywood, particle board, OSB		Recyclable
Glass		May be recyclable (check with recycler)
NON-RECYCLABLE in the Metro Vancouver region		
Carpeting and underlay		Not recyclable
Fibreglass (including. Insulation)		Not recyclable
Plastic - PVC piping		Not recyclable
Plastic – foam packing and insulation		Not recyclable
Plastic – vinyl window frames insulation		Not recyclable
Wood – creosote-treated		Not recyclable
Hazardous Materials (Refer to Form 2)		All hazardous wastes must be disposed of according to applicable laws and regulations, including Work Safe BC and BC Ministry of Environment requirements, and any additional requirements imposed by the disposal facility.

Sample Form 2 – Hazardous Materials Reporting

Project Site Address _____

Please indicate all hazardous materials present or suspected in the work area on your project site, as indicated on the BC

Hazardous Materials Survey (see Conditions below)

	PRESENT	NOT PRESENT or REMOVED	TYPE AND LOCATION
ASBESTOS	<input type="checkbox"/>	<input type="checkbox"/>	
LEAD OR OTHER HEAVY METALS	<input type="checkbox"/>	<input type="checkbox"/>	
UNDERGROUND TANKS	<input type="checkbox"/>	<input type="checkbox"/>	
PCBs	<input type="checkbox"/>	<input type="checkbox"/>	
ABANDONED CHEMICALS	<input type="checkbox"/>	<input type="checkbox"/>	
OTHER (may include Freon, mercury, toxic, flammable or explosive materials)	<input type="checkbox"/>	<input type="checkbox"/>	
THERE ARE NO HAZARDOUS MATERIALS PRESENT OR SUSPECTED IN THE WORK AREA ON THE PROJECT SITE			<input type="checkbox"/>

CONDITIONS

1. A **Hazardous Materials Survey** completed by a **qualified person**, as defined in WorkSafe BC Guideline 6.6(4), **must** be submitted with this form. Refer to latest version of the WorkSafe BC Guideline at <http://www2.worksafebc.com/publications/OHSRegulation/Part6.asp> for information on qualified persons and to Part 20 for information on the types of projects requiring a WorkSafe BC Notice of Project.
2. The **Hazardous Materials Survey** applies to the work area of the project defined in the application. For demolition projects, this corresponds to the entire site.
3. All Hazardous materials identified above and/or in the attached survey shall be handled and disposed of in accordance with all applicable rules and regulations. In the event that the hazardous materials are found during the demolition process, work must cease until they are removed.
4. A copy of the documentation from the survey, removal and disposal of hazardous materials (i.e., WorkSafe BC Notice of Projects, receipts, inspection reports, clearance letters, sampling reports, waste manifests, etc.) **must** be kept for the amount of time required in the BC Occupational Health and Safety regulation and the BC Hazardous Waste Regulation or, where not specified, for up to 6 months after project completion and submitted for inspection upon request.

Signature of Permit Applicant _____ **Date** _____

CERTIFICATION

To be completed by the licensed contractor, demolition contractor or environmental consultant.

I, _____, certify that the information provided on this form is consistent with the findings of the attached Hazardous Materials Survey, and that all hazardous materials identified here or found during demolition will be removed in accordance with all applicable regulations.

Signature _____ Date _____

Company _____ Position _____

STAFF USE ONLY			
Form 2 – Hazardous Materials Plan	<input type="checkbox"/> Complete	<input type="checkbox"/> No hazardous materials suspected/present	<input type="checkbox"/> Haz Mat Survey
Permit # _____ Signature of Application Reviewer _____			
<i>Keep a copy of Form 2 and Hazardous Materials Survey on file.</i>			

Sample Form 3 – Compliance Report

Submit this form following the completion of project and attach documentation (copies of receipts, weigh scale tags etc.)

Project Type	<input type="checkbox"/> Demolition	<input type="checkbox"/> New Construction	<input type="checkbox"/> Renovation
Building Use	<input type="checkbox"/> Residential	<input type="checkbox"/> Commercial	<input type="checkbox"/> Other _____
Building Type	<input type="checkbox"/> Wood frame	<input type="checkbox"/> Concrete	<input type="checkbox"/> Other _____
Project Site Address _____			
Permit No. _____	Name on permit: _____		
Project Square Footage _____	Project Valuation \$ _____		
Project Start Date (DD/MM/YYYY) ___/___/___	Project Completion Date (DD/MM/YYYY) ___/___/___		

Hazardous Materials Plan Compliance

Were any hazardous materials removed and disposed? Y N

<input type="checkbox"/> asbestos	<input type="checkbox"/> lead or heavy metals
<input type="checkbox"/> underground tanks	<input type="checkbox"/> other _____
<input type="checkbox"/> none present or suspected on site	<input type="checkbox"/> other _____

Documentation of removal and disposal of hazardous materials (check those obtained). Please keep for the amount of time required in the BC Occupational Health and Safety regulation and the BC Hazardous Waste Regulation or, where not specified, for a period of 6 months. Submit to the City for inspection, if requested.

Receipts
 Inspection Reports
 WorkSafe BC Notice of Project
 Other _____
 Transport Manifest
 Waste Disposal Manifest

Percentage (%) of Hazardous Materials in Total Waste = _____% (see page 2 for calculation)

Recycling Plan Compliance

Diversion Form and documentation (i.e., receipts and weigh tags) attached

Diversion of materials banned or prohibited from disposal Achieved: ___/100% (100% target diversion)	Diversion of All Other Materials Achieved: ___/100% (80% target diversion for construction) (60% target diversion for demolition and renovations)
--	--

Refund Calculation

Refundable fee paid (from Form 1) \$ _____ "A" (use for refund calculation)

B Refund for materials banned or prohibited from disposal

Calculated as follows: Diversion achieved/100% x (refundable fee "A"/2)
 ___% / 100% x (\$ _____ /2) = "B"

C. Refund for other materials

Calculated as follows: Diversion achieved/target x ("A" /2)
 ___% / target% x (\$ _____ /2) = "C"

Amount of refund "B" _____ + "C" _____ = \$ _____

CITY STAFF USE ONLY

Compliance Form <input type="checkbox"/> Complete <input type="checkbox"/> Excused <input type="checkbox"/> Approved Project	<input type="checkbox"/> Fee Refund Applicable Amount of fee refunded= \$ _____	<input type="checkbox"/> Excused (all refundable fee returned) <input type="checkbox"/> Qualified for a variance <input type="checkbox"/> High haz.mat. contamination <input type="checkbox"/> Accidental damage (fire, flood, etc)
Diversion Targets Achieved	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Hazardous Materials Compliance Information Entered on this Form	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Signature of Permit Holder

DATE: _____

Signature of Compliance Report Reviewer

DATE: _____

Diversion Form Example

Project Site Address _____		Permit #. _____		
Calculate your achieved recycling rate as described below. Use recycling and disposal facility receipts to fill out the information below. Ask your hauler, recycler or site cleanup vendor to assist you. A volume to weight conversion table, if required, is on the next page.		<input type="checkbox"/> Proof of submitted LEED™ Scorecard, including Materials & Resources credit for 75% waste diversion		
COMPLETE AND RETURN WITH RECEIPTS WITHIN 90 DAYS OF PROJECT COMPLETION Note: Each receipt must show the type and quantity of materials received and permit #				
Material Type	C		D	
	Actual Tonnes Reused or Recycled	Reuse or Recycling Facility Used (name, location)	Actual Tonnes to Landfill	Landfill Used (name, location)
Asphalt				
Cardboard				
Cement and concrete				
Clean soil and fill				
Drywall / Gypsum				
Green waste				
TOTAL (excluding hazardous materials) - Recycling target is 100%		SAMPLE		
Column Totals C____/(C____+D____) X 100= _____% Actual Recycling Rate for "Materials Banned or Prohibited from Disposal"				

Glass				
Metal - Scrap metals				
Metal - Cable and wiring				
Paper				
Plastic – rigid (no PVC)				
Plastic wrapping and bags				
Roofing – asphalt shingles				
Wood - Clean				
Wood - Roofing				
Salvaged fixtures, windows, doors				
Other recycled/reused materials (LIST)				
Mixed C&D (sent to recycling facility)				
Garbage and non-recyclable waste (excluding hazardous materials)				
TOTAL OTHER MATERIAL (Recycling/reuse target is 80% for construction, and 60% for demolition and renovations)				
Column Totals C____/(C____+D____) X 100= _____% Actual Recycling Rate for "Other materials"				

TOTAL Recycling target is 100%	C1		D1	
TOTAL OTHER MATERIAL Other recyclables and garbage	C2		D2	
TOTAL HAZARDOUS MATERIAL Excused if over 60%, based on calculation below and on waste transport and disposal manifests			D Haz	
Column Totals (D Haz____)/(C1____+C2____+D1____+ D2____+ D Haz____) X 100				
= _____% of Hazardous Materials				

ESTIMATING WASTE GENERATION

Material type	Quantity	Lbs	Kg
New Construction			
New Structure (with foundation)	1 sq ft	8	3.6
New Structure	1 sq ft	4	1.8
New Deck/Similar (wood)	1 sq ft	2	0.9
Demolition			
Complete Wood-frame Demolition	1 sq ft	40	18.2
Demolition - per linear foot of wall	1 sq ft	20	9.1
Concrete slab	1 lin ft	50	22.7
Asphalt	1 sq ft	50	22.7
Brick/masonry	1 sq ft	50	22.7
Spread footing	1 sq ft	150	68.2
Remodel			
Mixed Debris (interior remodel)	1 sq ft	20	9.1
Remodel	2 sq ft	10	4.5
Carpeting	3 sq ft	0.5	0.2
Ceiling Tiles	4 sq ft	1.1	0.5
Sheetrock/Drywall	1 cu yd	394	179.1
Tile Flooring	1 sq ft	3	1.4

VOLUME TO WEIGHT CONVERSION

Mixed C&D	Quantity	Lbs	Kg
Mixed C&D (structural)	1 cu yd	500	227.3
Mixed inerts (concrete, brick, dirt, asphalt)	1 cu yd	2000	909.1
Separated inerts	1 cu yd	2000	909.1
Wood	1 cu yd	375	170.5
Metals	1 cu yd	906	411.8
Roofing Materials			
Asphalt shingles/Composition	1 cu yd	419	190.5
Asphalt shingles/Composition	1 sq ft	3	1.4
Asphalt Tar Roofing	1 cu yd	2919	1326.8
Wood Shake/Shingle Roofing	1 cu yd	435	197.7
Wood Shake/Shingle Roofing	1 sq ft	2	0.9
Tiles (concrete roofing)	1 cu yd	10	4.5
Tiles (concrete roofing)	1 sq ft	2900	1318.2
Yard Waste			
Green waste (shrubs, turf, etc.)	1 cu yd	500	227.3
Yard trimmings	1 cu yd	108	49.1

source: City of Santa Monica and Foster City Building Inspection Division (CA)

Sample Form 4 – Fees and Charges

1. The following non-refundable fees will be applied to projects that must comply with *<Management of Recyclable Materials from Construction, Demolition, and Renovation Sites Bylaw Citation>*
 - a. A \$50 non-refundable administration fee

2. The following refundable fees will be applied to the specified projects that must comply with *<Management of Recyclable Materials from Construction, Demolition, and Renovation Sites Bylaw Citation>*
 - a. A Construction or Renovation Project Recycling Fee equal to building permit value, up to a maximum of \$ 50,000

 - b. A Demolition Project Recycling Fee based on \$0.50 per square foot of floor space (\$5.38/m²), up to a maximum of \$ 50,000