

## **BAY SITE DESIGN GUIDELINES, 2006**



**1701 Douglas Street, Victoria, BC**

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*Appendix A – Green Development Strategy, December 2006\**

*Appendix B – Pedestrian Comfort Wind Assessment, December 2006\**

*\*These appendix items are submitted as companion documents*

## 1.0 Development Vision

The block that includes the former Hudson’s Bay Company department store is envisioned to become a mixed use development where people can live, work and play; and that will contribute to revitalizing the north-east quadrant of Downtown. To achieve this vision, rehabilitation of the Bay building is proposed in combination with a variety of building types, uses and heights, and anchored by a mid-block passageway, conceptually termed a “Carriageway”. The Carriageway is proposed as a pedestrian and vehicular mid-block connection that will be a privately-maintained 24-hour accessible extension of the existing public realm. It is intended that the Carriageway will be framed by two distinct yet complimentary forms of development.



figure 1 — The Bay Site massing concept

On the western portion of the block, the historic Bay building is planned to be rehabilitated for adaptive reuse, retaining and restoring three historic façades along Douglas, Herald and Fisgard Streets. Removal of the above-ground parkade will leave a blank wall necessitating creation of a new street-oriented façade. A partial 2 storey addition on the eastern portion of the existing roof is also planned, which will be contemporary, yet traditionally-inspired in its proportion and materials. The main level will offer a range of opportunities for street-oriented commercial tenancies, while residential uses will be introduced on all of the upper floors. The building will be converted into a mixed-use building of substantial heritage value. East of the Carriageway, a cluster of three residential towers integrated with a maximum four storey podium is envisioned. The height and placement of the towers are proposed such that impact on the surrounding neighbourhood of more limited height is mitigated, and to create a counterpoint to the rehabilitated Bay building.

## 2.0 How To Use The Design Guidelines

### 2.1. Introduction

These design guidelines serve as an illustrated document that will guide all phases of development. The criteria described forms the fundamental design framework for the entire block, as well as more specific guidelines for each of the phases.

## 2.2. Companion Documents

This document is further supported by Appendix A: *Green Development Strategy, December 2006*, which outlines in detail the criteria for sustainable design to which each phase must respond, and Appendix B: *Pedestrian Comfort Wind Assessment, December 2006*. The sustainable criteria that can be measured specifically during Development Permit Application processes have been extracted into Section 3.7 of this document. The Green Development Strategy in its entirety in Appendix A is included for information only.

These Guidelines shall also be used alongside the following City of Victoria policy documents:

- ✓ *Official Community Plan*
- ✓ *Downtown Victoria Plan 1990*
- ✓ *Draft Downtown Plan Vision, Principles and Goals*
- ✓ *Crime Prevention Through Environmental Design (CPTED)*

## 2.3. Design Guidelines: General and Specific

The document begins with general guidelines for the entire site, which explain the overall design concept. This provides a frame of reference for the more specific guidelines which apply to the phases, which are organized as follows:

### a) *Phase I Design Guidelines*

Phase I includes rehabilitation of the former Hudson's Bay Company building, removal of the above-ground parkade, development of a new eastern façade and partial two-storey rooftop addition, creation of a lightwell within the centre of the building, and development of a mid-block Carriageway.

### b) *Phases II, III, and IV Design Guidelines*

Phases II, III and IV include three residential towers of varying heights on a podium base proposed east of the Carriageway. While this portion of the development is intended to be developed over phases, the design guidelines have been presented in one section as the towers and podium together form a cohesive development for this portion of the block.

## 2.4. Figures and Illustrations

All graphic materials included within this document are provided to support the description of the guidelines for illustrative purposes only. The final design of buildings and private open space as illustrated will undergo further refinement, yet be consistent with the guidelines defined herein.

## 2.5. Must, Will and Shall

Throughout the design guidelines the terms 'must, will, and shall' are used to describe the fundamental guidelines that are mandatory. These guidelines must be met. Remaining provisions are intended to guide proposals to ensure the overarching design concept is realized, while allowing flexibility and encouraging creativity.

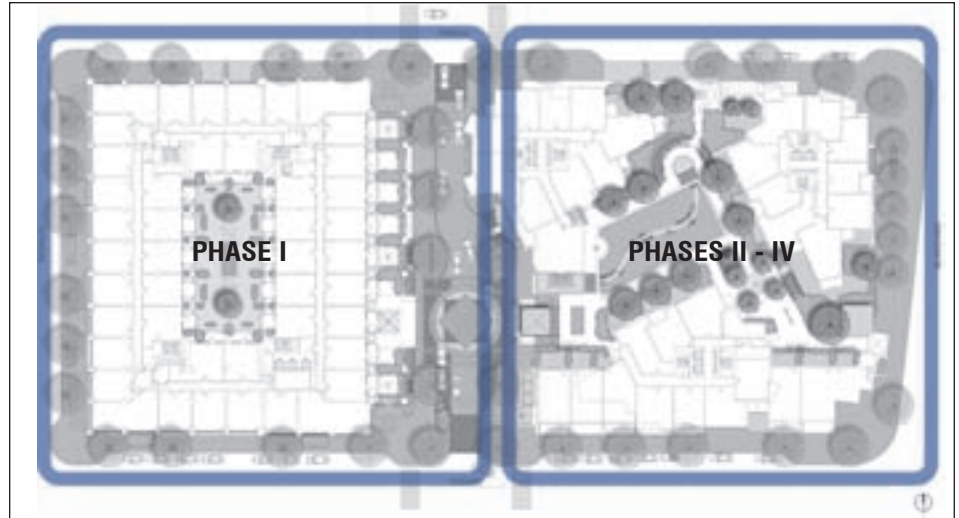


figure 2 — phasing diagram

### 3.0 General Design Guidelines

### 3.1. Introduction

This document is applicable to the block of land bounded by Douglas, Herald, Blanshard and Fisgard Streets, located in the north-east quadrant of Downtown.



figure 3 — site overview

The principal objective for redevelopment of this block centres on preservation and reuse of the historic Hudson’s Bay Company building, together with new residential and commercial development.



figure 4 — existing Bay building at the corner of Douglas and Fisgard

### 3.2. Massing and Street Fronts

Rehabilitation of the Bay building, including additions and alterations, shall be sensitively handled and respect the heritage value of the building and its character defining elements.



figure 5 — existing Bay building façade

The eastern portion of the block will be in the form of a podium base with three towers. This urban design concept is intended to lessen the impact of height and building mass as it is perceived at street level, to utilize height in order to provide more usable public and private open spaces, and to have floor plates that permit configuration of more liveable residential units with dual exposures and cross ventilation. The towers will be clustered with uniquely shaped floor plates and integrated with a maximum four storey mixed-use podium.

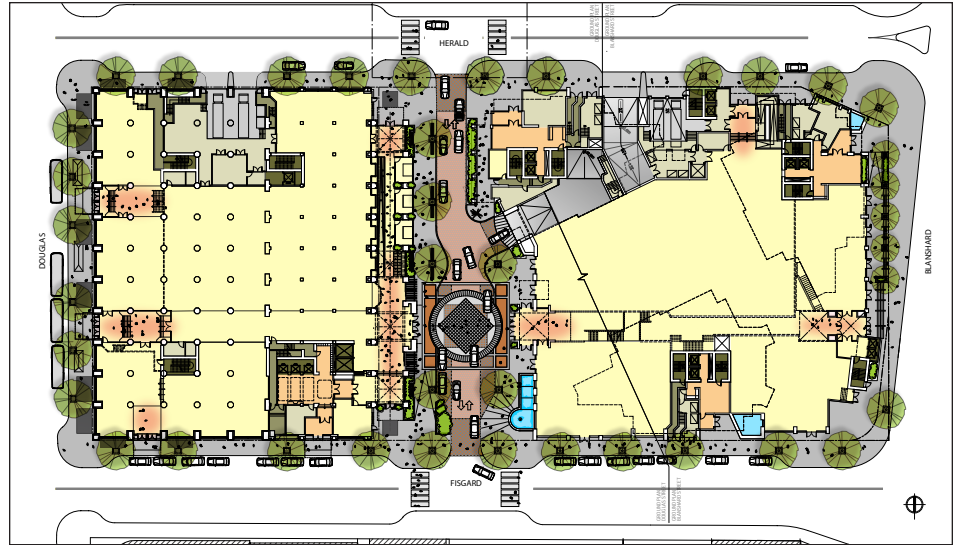


figure 6 — The Bay Site ground plan concept

All street façades may be a combination of street-oriented residential lobbies and commercial entrances, and various façade treatments. Rather than create a continuous and overpowering street-wall, a design that integrates the residential towers and podium structure to provide a varied street experience is the intended goal.



figure 7 — The Bay Site character sketch - corner of Figgard and Carriageway

### 3.3. Building Heights

The heights of the towers are intended to provide a contrast to the historic Hudson’s Bay building. Higher, slender towers and their strategic placement are intended to offer sunlight penetration to the adjacent properties to the north, which will be most affected by full development of the site. With construction of the Carriageway, a swath of south-to-north sunlight will be available during high use times on the mid-block area to the north. Furthermore, the configuration of the rooftop addition to The Hudson will not significantly increase afternoon shadows already cast by the existing Bay building.

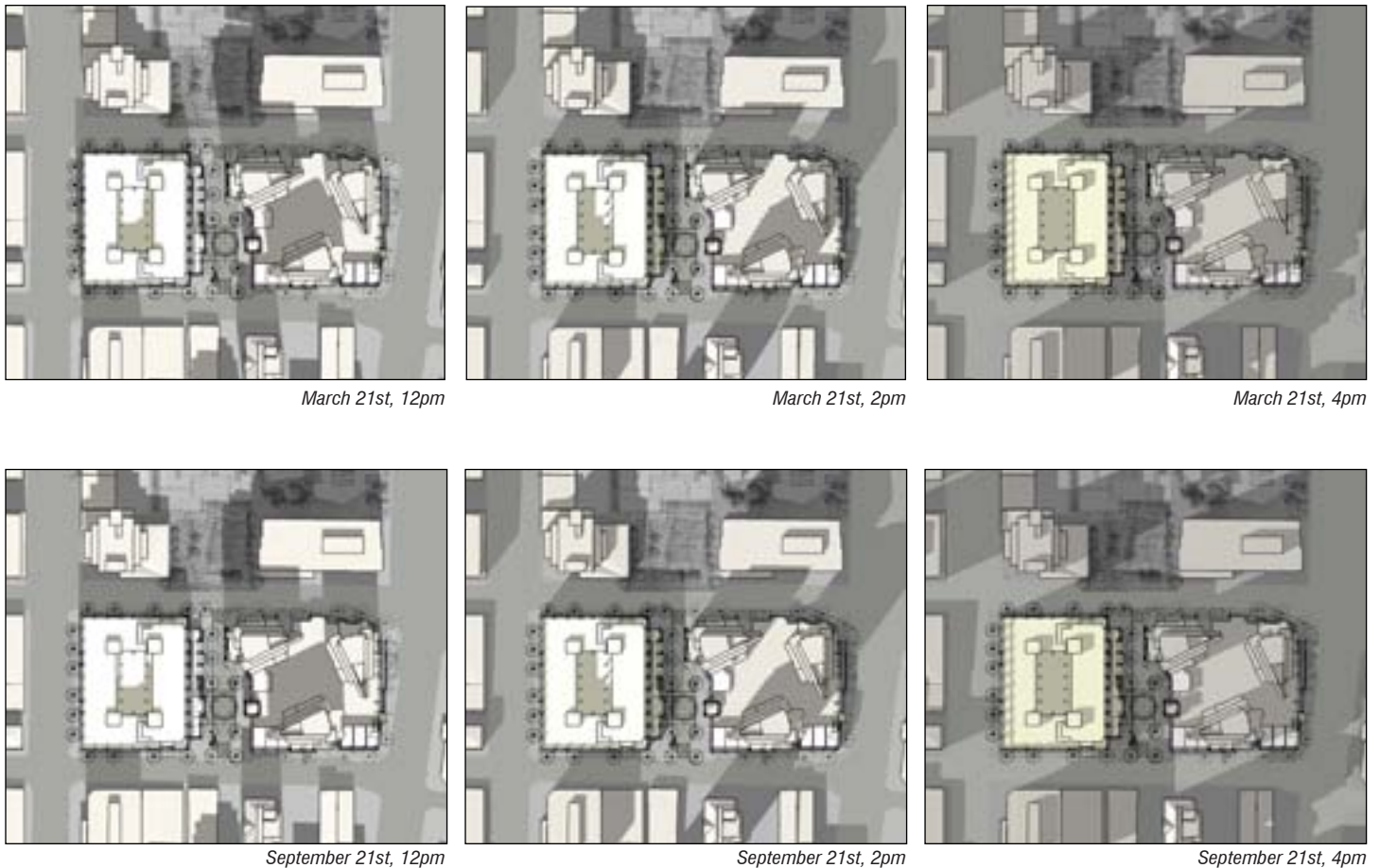


figure 8 — schematic shadow studies

As illustrated in Figure 8, the arrangement, form, height and position of the proposed towers on the east half of the site shall:

- Between March 21st and September 21st, permit sunlight to fall directly on the proposed mid-block open space on the north side of Herald Street, during mid day.
- Between March 21st and September 21st, permit some sunlight to fall directly at the southeast base of the Jack Davis Building (the entry plaza area), in the late afternoon.
- Permit sunlight to pass between towers (from the southwest), thereby preventing a solid shadowing effect on Blanshard Street, east of the Jack Davis Building in the afternoon, year round.
- Permit early morning sunlight (from the southeast), and late afternoon sunlight (from the southwest), to fall on portions of the podium rooftop garden year round.
- Offer skyline interest by providing an ever-changing play of light and shadow on, through and across all portions of the site.

All towers will be of different heights and each will have at least one face parallel to the street. The lowest tower may be oriented towards Fisgard Street, the mid-height tower at the northeast corner of Blanshard Street, and the tallest tower positioned at mid-block along Herald Street. Repositioning the tower heights may be considered, however, such consideration will require further shadow studies to determine impacts on adjacent properties.



With respect to design of the towers, applicants should consider the objective of achieving a sense of place in Downtown Victoria, and as such, design solutions should respond to the Victoria context. All three towers may have similar designs as one cohesive grouping, or extra design emphasis could be considered for one of the towers to create a focus within the group and strengthen the gateway feature to Downtown. Visual links between the towers and the podium are important so that both components visually belong to the same development yet are distinctive.

### 3.4. Wind Assessment

Consideration for climatic factors has guided the general design concept for the site. An independent report prepared by Gradient Microclimate Engineering Inc. (attached as Appendix B) concludes that in general terms the project as proposed will not require significant mitigation for resultant wind effects, based on the anticipated use of public spaces. However, as the phases are refined at Development Permit stages, sun orientation and potential wind impacts must be further explored.

Wind studies will be required at Phases II, III and IV as evidence that the proposed development will not result in a net increase of wind at street level. If further analysis determines that mitigation measures are required in localized areas, these shall be provided by introducing architectural elements such as rigid canopies or vertical wind break features. These elements shall be integrated with the architectural design, and must be comprised of materials drawn from those listed in Section 4.2.4.

### 3.5. Circulation

#### 3.5.1. Vehicular

An access to the underground parking will be provided within the Carriageway along the western elevation of the podium. The design of this access must consider and be sympathetic to pedestrian activity within the Carriageway. CPTED principles must be applied.

Discreet access to on-site loading and service areas will be provided for all uses, appropriately shielded and protected from the street front and pedestrian realm. All loading/service/garbage areas shall be enclosed and roofed, complete with overhead doors integrated with the architectural treatment of the elevations. The accompanying concept plan illustrates loading areas, recessed within the buildings served, and visually shielded from the sidewalk by the surrounding structure, with overhead doors in line with the street façade to enable closure when not in use.

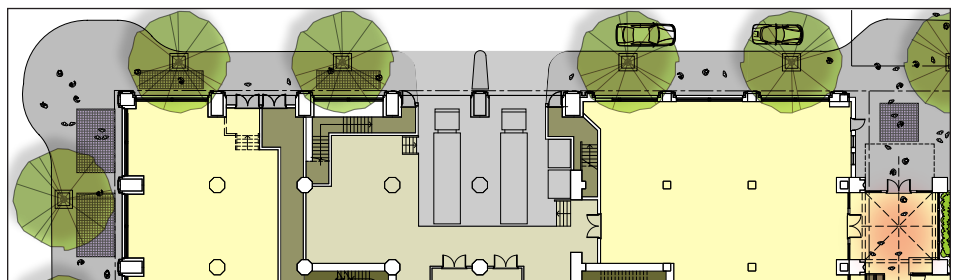


figure 9 — concept plan illustrating recessed loading areas

The entire site must not be serviced by a single loading and service area. Each resultant block formed by the dividing Carriageway shall have a main loading and service area located approximately mid-block, as illustrated in the plan shown in Figure 9. These areas shall be flanked by pedestrian-friendly street facades and uses.

Loading and service vehicle access bays will not be permitted off Douglas, Fisgard or Blanshard Street frontages. If service doors of other types are required at any location along the Blanshard or Figsard Street frontages, they shall be of limited size and in scale with all surrounding architectural elements.

### 3.5.2. *Pedestrian*

A high quality the pedestrian environment should be provided along public sidewalks and within the central Carriageway where the podium meets the sidewalk and at intersection corners.



figure 10 — suggested streetfront animation along Blanshard Street

The Downtown Plan envisions open space at the corner of Blanshard and Figsard Streets to mark an important Downtown gateway. CPTED principles should also be applied to ensure the development is less prone to security and safety challenges.

### **3.6. Public Art**

Public art will be incorporated into the overall development of the site. The applicant will work with City staff to determine the scope and location of public art. Options for potential art installation locations may be considered in all areas of the public realm, including the publicly accessible but privately-owned Carriageway. Public art location(s) should be indicated as part of a development permit application, however, details of the artwork are to be coordinated and submitted with final building plans to the satisfaction of the City.

### **3.7. Measurable Sustainability Criteria**

All phases of development of the site will reference sustainable design criteria and principles. Wherever possible, materials, methods and technologies that mitigate

the negative impacts associated with energy and resource use will be considered. Sustainable criteria which are measurable at the Development Permit Application stage have been included within the following table. A more extensive document outlining the applicant's intentions has been provided in Appendix A for information purposes.

Sustainable Materials or Practices	Measurable Target
1. Green Roof: to reduce peak stormwater flows, filter runoff, reduce heat island effect, provide urban habitat.	50% of the roofed areas will have extensive green roof technology
2. High-Albedo Roofing: where green roof is not used or appropriate, this material is highly reflective to mitigate summer heat absorption into the building.	75% of roof area (of the remaining 50% area that will not have green roof design).
3. Hard and soft landscaping: to reduce runoff, mitigate heat island effects, provide shade, reflect light.	90% or more of parking underground.
4. Heritage Building Reuse: preservation of majority of original department store structure, shell and decorative elements to reduce construction waste.	Applicant must provide description and estimated percentage of building to be re-used at Development Permit for Phase I only.

### 3.8. Phased Development

The site will be developed in phases, described generally in the diagram provided in Figure 2 and by the following:

1. Phase I will be comprised of the rehabilitated Bay building, the new Carriageway, and a portion of the underground parking. As a minimum, Phase I must include:
  - a. Restored heritage facades of the Bay building.
  - b. Adaptive reuse to accommodate ground floor commercial/retail use, and residential use on levels 2, 3 and 4.
  - c. Reconstruction of the lower level to accommodate underground parking for the residential units.
  - d. Completion of the new Carriageway, including an access route to the underground parking.

Phase I may also include:

  - e. Construction of 2 new partial floors on the reconstructed roof deck of the Bay building.
  - f. Underground parking to serve ground floor commercial use(s) in the Bay building, and a portion of uses proposed for subsequent phases. As such, the below grade parking may extend horizontally beneath some or all of the subsequent proposed phases of development.
  
2. Subsequent Phases may be completed in their entirety at once, or construction may be staged in several phases. Ultimately, the full build-out shall complete the following:
  - a. A commercial/retail podium of a maximum of four storeys.
  - b. Three residential towers of varying height.
  - c. Underground parking to serve the completed site in its entirety, in combination with any parking constructed in Phase I.

3. Phase I may involve more components than defined in item 1 above, and may include all or a portion of the podium, all of the underground parking, and one of the three proposed towers. Any combination thereof, to be constructed to form part of Phase I, will be defined in finite detail prior to the release of the Phase I Development Permit.
4. The accompanying schematic plan describes a potential delineation of up to three phases beyond Phase I.

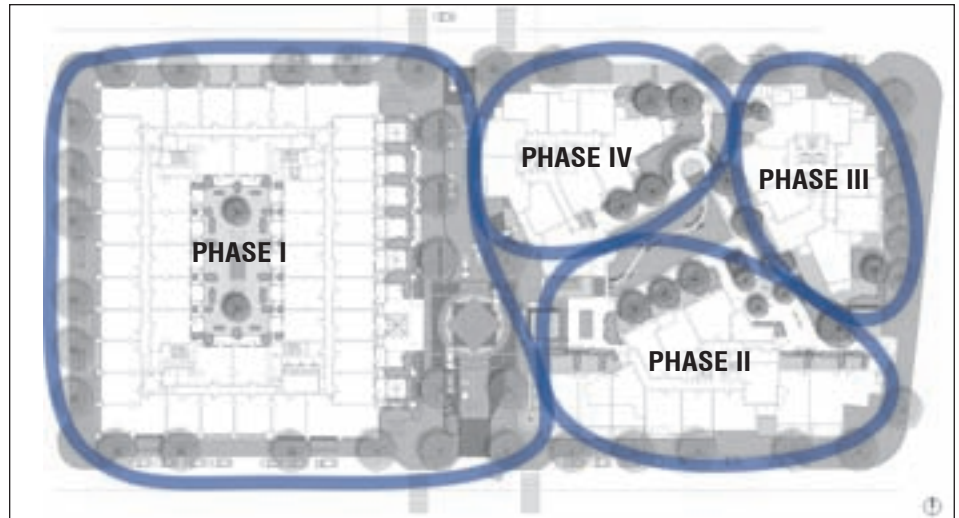


figure 11 — phasing diagram - proposed sequence subject to change

5. The podium may be constructed in its entirety prior to the construction of any towers, or may be constructed in sections, each of which must be designed to integrate with subsequent phases.
6. If Development Permit Applications are submitted proposing early phases that would result in partially completed areas or structures, plans for the remainder of the site must also be submitted. Such plans must detail temporary solutions for incomplete portions, including uses, site planning, finishes, materials and landscaping in order to mitigate potential impact on residents and passersby, e.g. visual appeal and nuisance.

## 4.0 Specific Design Guidelines

### 4.1. Phase I Design Guidelines

#### 4.1.1. Massing and Street Fronts

- The majority of the existing structure shall be retained and seismically upgraded. The three existing heritage facades shall be restored.
- Central portions of Levels 2, 3 and 4 will be removed to create a lightwell for interior-facing units.
- The existing rooftop balustrade/parapet shall be retained and restored.



figure 12 — “The Hudson” north-south section/courtyard elevation

- The existing blank eastern façade will be reconstructed in response to new ground-floor retail/commercial uses, main level residential access and upper-level residential units. Rhythm and proportioning of the new east façade must reference the historic rhythm and proportion of the heritage façades, yet avoid literal replication.



figure 13 — new east elevation concept for “The Hudson”

- Two partial floors to accommodate residential units may be added above the existing east roof area. These shall be integrated with the design of the new eastern façade. The north and south façades of the two storey addition will be stepped back from the original heritage rooftop balustrades. This addition will be stepped back from the Heritage façades as viewed from the opposite sidewalks on the immediately adjacent streets. Figures 14 and 15 indicate sight lines from a pedestrian perspective when positioned on the west side of Douglas Street, and the north and south sides of Herald and Fisgard Streets respectively.

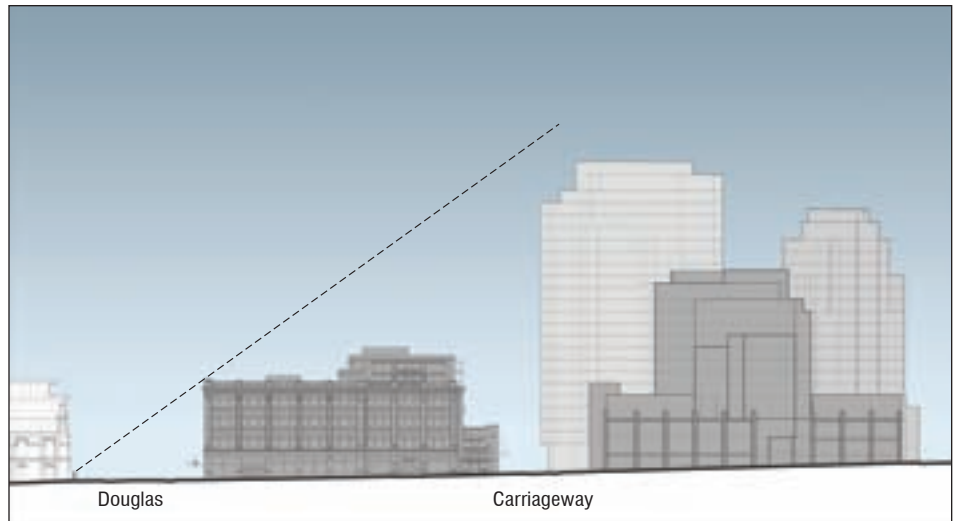


figure 14 — eye-level view analysis of proposed massing for “The Hudson” - opposite sidewalk Douglas Street

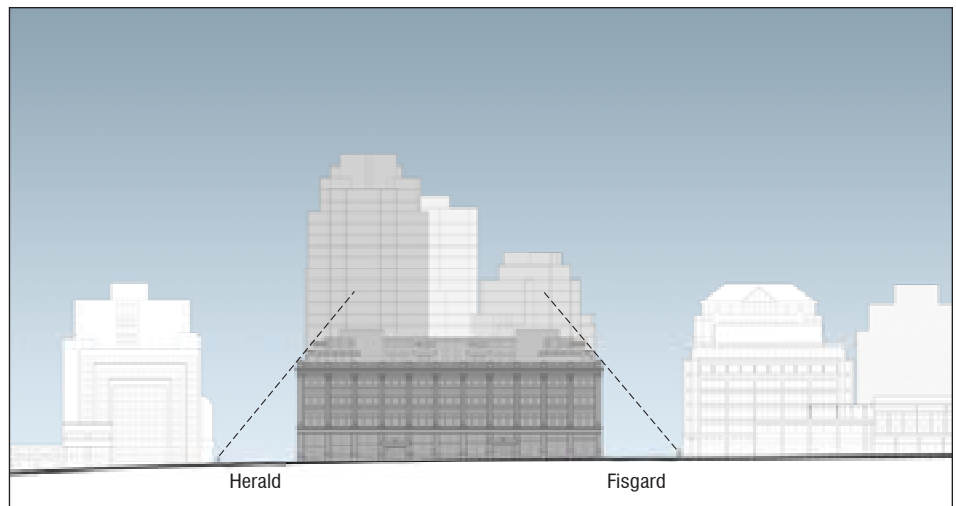


figure 15 — eye-level view analysis of proposed massing for “The Hudson” - opposite sidewalk adjacent streets

- Renewal of The Hudson’s ground floor shall be a combination of restoration and adaptive re-use of the heritage storefronts. Non-intrusive modifications may be considered to accommodate entrances at grade level. The two main Douglas Street entrances shall be retained as part of the façade composition.
- Creation of small retail tenancies on the main level fronting the Carriageway is encouraged and must be considered. All main level tenancies fronting the Carriageway must have grade-level fully-accessible entrances. The resulting street-level experience must reference a traditional shop-front façade in form and scale. Awnings or other weather protective canopies may be considered, and are encouraged at points of entry.

#### 4.1.2. Building Setbacks

The new east façade addition to The Hudson must engage with the plane of the existing wall to create ‘notched’ corners at Herald Street (north) and Fisgard Street (south). These corner ‘mini-plazas’ may also be considered as possible feature areas for public art and/or ‘display-friendly’ sustainable design features (refer to Figure 16: mid-block Carriageway detail).

#### 4.1.3. Carriageway

The mid-block Carriageway will be the major pedestrian zone within the development and will also permit vehicular passageway. Ownership of the Carriageway will remain private, however, 24-hour public access will be secured through a permanent statutory right of way.

The design of the Carriageway will include the following:

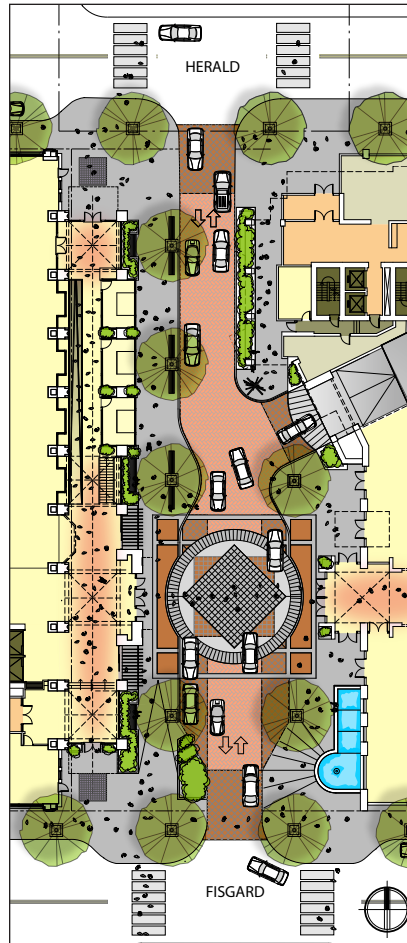


figure 16 — mid-block Carriageway detail

- Increased daylight and pedestrian access for The Hudson and for the west side of the podium structure framing the passageway.
- Generously-scaled pedestrian thoroughfares flanking a 2-lane vehicular zone.
- Vehicular drop-off zones shall be provided in the wider portion of the Carriageway.
- The Carriageway will provide vehicular access to and from the underground parking, to service both the Phase I parking and a portion of the parking for future phases. The parking access point(s) shall be located on the west face of the podium fronting the Carriageway, and integrated safely and with sensitivity to the newly created pedestrian environment.
- Traffic calming measures will be introduced to ensure a pedestrian and bicycle-friendly zone.
- Areas are encouraged to be configured in such a way to allow outdoor seating, café tables or other outdoor publicly-oriented functions such as public art shows or craft fairs.

- Wherever possible or practical, the ground plane will be ‘curb-less’ with safe separation of activity to be provided by street furniture, bollards, landscaped islands, lamp standards, and other techniques or elements.
- Design of the Carriageway must be consistent with CPTED principles.

#### 4.1.4. Landscaping

The roof deck of The Hudson will be reconstructed to support the added weight that would be associated with the sustainability requirements related to green roofs and landscaping in Section 3.8.

On site landscaping is encouraged to demark passage into the Carriageway, and to help mediate seasonal temperatures by permitting low-angle sunlight penetration in winter, and by reducing heat island effects in summer.

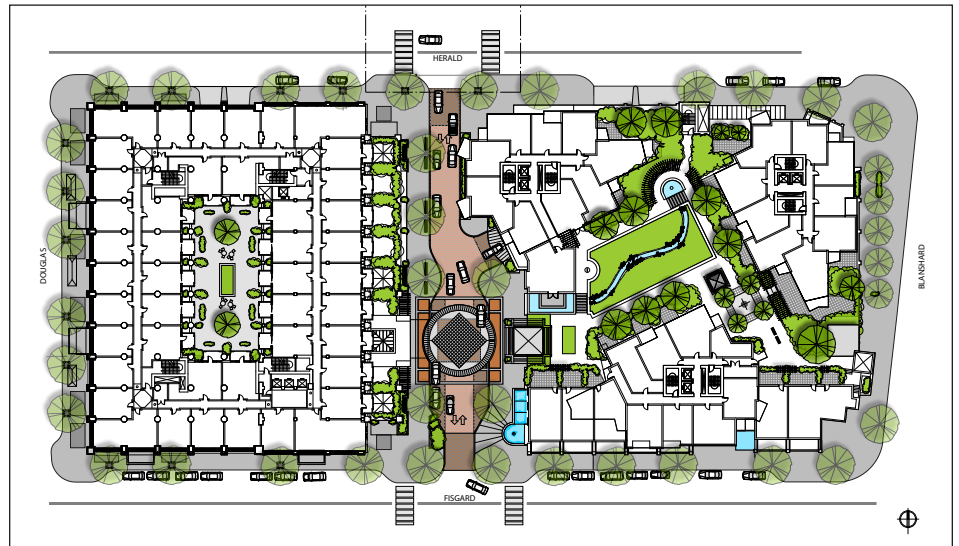


figure 17 — The Bay Site landscape concept

#### 4.1.5. Materials

- a) Building Materials (new eastern façade):
  - Concrete;
  - Stone or masonry cladding;
  - Glass and metal elements;
  - Other contemporary or modular cladding materials may be considered;
  - Colours must blend with or complement the colours of the historic façades, to the extent that the entire building is perceived as a contiguous whole;
  - Stucco must not be used.
  
- b) Carriageway Materials:
  - Sidewalk spaces within the Carriageway shall be enhanced with variation in paving materials, landscaping, and street furniture.
  - Hard-surfacing of a variety of materials and textures with some limited use of stone paving or glazing blocks may be considered.
  - Asphalt paving within the property lines shall not be permitted.



## 4.2. Phases II, III and IV Design Guidelines

### 4.2.1. Massing and Street Fronts

The massing concept for Phases II, III, and IV is a podium with towers to varying heights, as a means to provide variety to the skyline, provide less building mass and more open space, and mitigate shadowing on adjacent properties.

#### The Podium

- A street-oriented podium having a maximum height of four storeys shall be configured to permit opportunity for a variety and range of uses and tenancies.
- Large, blank windowless and featureless walls shall not be permitted.
- Portions of the towers shall be integrated into the podium to ensure a cohesive design.



figure 18 — suggested streetfront animation looking down Fisgard Street

- There is a change in grade throughout this block, which slopes from Blanshard Street down to Douglas Street. As a result, the podium will appear to be two to three storeys high at Blanshard Street and three to four storeys high at the Carriageway. All entrances into the podium must address the sloping grade of the block to ensure appropriate accessibility. The primary access into the podium will be off the Carriageway, thus the main level of the podium is encouraged to be at approximately the same elevation as the Carriageway. Access to the second level of the podium will be off Blanshard Street.
- If podium designs feature a fourth level, this level will be stepped back to create a parapet line at the upper portion of level three fronting the public streets.

#### The Towers

The tower forms in Phases II to IV are intended for residential use and designed to provide maximum liveability for residents. During the rezoning process, triangular (or wedge shaped) floor plates were proposed, however, alternative floor plate design may also be considered if the following liveability criteria are provided:

- a minimum of 50% (or more where practical or possible) of units per floor must have a minimum of two exposures to maximize natural light and views, and provide cross-ventilation.
- The minimum separation distance between the three towers at their closest points shall be 12 metres to protect privacy of units.
- Design and orientation of balconies must consider protection from wind and rain and be oriented for maximum sun exposure, as balcony enclosures will not be permitted.

All three towers shall differ in height from each other to create variety on the skyline. The lowest tower may be no more than 14 storeys, the mid-rise tower no more than 18 storeys, and the highest tower no more than 24 storeys.

#### 4.2.2. *Building Setbacks*

The zoning for this block requires that buildings be setback above 10 metres. This regulation is intended to reduce building massing at street level, mitigate down drafts and permit sunlight onto the north side of street blocks. Variances to this regulation may be considered during Development Permit applications if designs can demonstrate that the intent of the massing setback regulation can still be achieved. Tower designs which integrate with the podium as specified in Section 4.2.1 (Podium Design) may require such a variance.

The Downtown Victoria Plan identifies the corner of Blanshard and Fisgard Streets as an important downtown gateway, and that open space be provided. The ground floor level of buildings should be carefully designed at intersection points to provide adequate space and sightlines for pedestrians.

#### 4.2.3. *Landscaping*

The rooftop of the podium will include landscaping for use by residents and to provide attractive outlook from the neighbouring taller buildings. The green roof may also reduce potential heat island effects and provide urban habitat.

#### 4.2.4. *Exterior Building Materials*

- a) Podium Materials:
  - Masonry;
  - Tile;
  - Exposed or painted concrete;
  - Stone;
  - Metal or composite architectural panel systems;
  - Exposed painted steel components;
  - Wood accents;
  - Stone accents;
  - Large areas of clear, textured or frosted glass.

The application, colour and texture of all podium materials are encouraged to reference the historic context of Victoria, relating to or complementing adjacent Old Town. Accent colours for any featured architectural components on the podium are encouraged to be drawn from a range of deep, subdued hues selected to contrast and flatter the cream terra-cotta façades of The Hudson.

Where awnings or glass and metal weather-protective canopies are proposed, they will be encouraged to coordinate with other architectural elements.

b) Tower Materials:

- Glass curtain-wall and window-wall;
- Metal frame or mullion-less window systems;
- Metal framed individual window units;
- Exposed or painted concrete;
- Steel, metal or composite architectural panel systems;
- Masonry or tile cladding;
- Stone;
- Frosted/ textured glass elements;
- Decorative metal screens.

Tower colours and materials are encouraged to provide a complementary contrast to the historically-inspired podium, yet integrate with the podium to provide an overall cohesive design. The tower colour palette may be more subdued and monochromatic than the podium. All materials should integrate with or recall selected elements of the podium's façade.

## 5.0 List of Companion Documents

Appendix A: *Green Development Strategy, December 2006*

Appendix B: *Pedestrian Comfort Wind Assessment, December 2006*



# Green Development Strategy

## The Bay Site



Townline Homes

December 11, 2006

## Statement of Sustainable Development Rationale

### Overview

The redevelopment of the Hudson's Bay site is energizing this area of the downtown of Victoria, bringing a wide range of residents and shoppers to this neighbourhood. The project includes redeveloping a brownfield site and locating important density close to transit lines and to downtown commercial shopping areas. This project is based on the creation a vibrant mixed-use development, enhancing the density of the city to support transit viability and economic vitality. Its provision of urban housing decreases pressures on outlying natural land areas around Victoria. It is also establishing a foundation for a sustainable community through creating a centre that offers residents and visitors a wide variety of facilities, decreasing the frequency and necessity of travel to off-site locations.

The Bay redevelopment project will employ a wide range of green building initiatives and enhance the ecosystem value of a high density neighbourhood. High efficiency systems will be sought for energy, water and solid waste management. It will offer community amenity value and increase the economic vitality of the community. In all aspects of this project, it will address the core issues of sustainability, thereby supporting Victoria's ongoing leadership toward becoming a more sustainable city.

### LEED

Townline is using the LEED (Leadership in Energy and Environmental Design) rating system from the Canadian Green Building Council as a reference point for its Green Building Strategy. LEED is continually gaining recognition in the marketplace and is frequently reassessed to reflect the expansion of new green building research and technology. At this time, Townline does not intend to pursue a full LEED certification. However, many LEED-related green building initiatives will be pursued throughout all levels of the project. The LEED rating system provides a solid framework for reference within The Bay site's Green Building Strategy.

### Accountability

Townline will be accountable for all commitments made in this document by reporting on how it is meeting its sustainable development goals and commitments at each of the following stages of development:

- Development permit
- Building permit
- Occupancy permit

### The 30% rule

While this project is still in its early stages from a design point of view, Townline is targeting a 30% reduction from conventional development of a similar type in Victoria in key areas including:

- Energy use reduced by approximately 30% (for whole project averaged)
- Climate change emissions reduced by 30%
- Heat island impacts reduced by over 30%
- Water use in suites reduced by 30%
- Irrigation reduced by over 30%
- Waste water production reduced by 30%
- Stormwater runoff reduced by 30%
- Solid waste flows designed to be reduced by 30% (by weight)
- Construction waste reduced by over 30% (50% targeted)

The following outlines a range of commitments Townline is making for sustainable development performance for the redevelopment of the Bay site.

## 1.0 - Alternative and Low impact Transportation

Transportation is a key sustainability issue and the goal is to shift transportation choices and options away from the automobile. The Bay site is ideally situated to promote more sustainable transportation modes for its residents and tenants due to its location on multiple transit lines and additional measures to be pursued.

Guideline	Discussion	Target
<b>Locating at a transit centre</b>	<ul style="list-style-type: none"> <li>▪ The Bay site is located on a key stop for many transit routes throughout the City. Townline will support the City in its design to support a safe and comfortable transit stop.</li> <li>▪ Townline intends to encourage transit-use in the marketing literature and in the design of the site plan helps to further promote sustainable transportation within the community.</li> <li>▪ Townline also intends to approach BC Transit about the possibility of providing every resident with a transit pass through a U-Pass program.</li> </ul>	<p>A modal share of transit use for residents of the Bay site that is 2x the average Victoria use rates.</p> <p>(A transit use survey will be undertaken of building residents and employees after the final phase of the development is complete – results will be compared to Victoria's average overall modal share and reported to the City)</p>
<b>Convenient bicycle facilities</b>	<ul style="list-style-type: none"> <li>▪ The Bay site will provide bicycle facilities for residential and commercial spaces. These facilities will be designed to be safe, clean, and accessible. Bicycle facilities will be highly valuable for the Bay site, as Victoria is a prominent cycling region in Canada.</li> </ul>	<p>One bicycle parking space per residential unit</p> <p>Bicycle spaces for 15% of commercial space users</p>
<b>Priority parking for innovations</b>	<ul style="list-style-type: none"> <li>▪ The Bay site will provide space for vehicles powered by alternative fuels (electric), car pools and shared cars in the most convenient parking spaces in the building.</li> </ul>	<p>3 spaces with electric car fuelling plug ins</p> <p>3 car pool spaces</p>
<b>Promotion of shared cars / auto co-ops</b>	<ul style="list-style-type: none"> <li>▪ Townline is exploring offering a shared-car amenity in the project, where automobiles would be provided to the Strata for owners to use on a rental basis.</li> </ul>	<p>2 shared cars purchased by the end of the final phase with preferred parking spaces provided</p>

## 2.0 - Roof Design: Rainwater Management and Mitigating Heat Island Impacts

The Bay site intends to address rainwater or stormwater in an innovative manner, looking on it as a resource rather than merely something to be disposed of. This approach reduces loading on city infrastructure and the release of stormwater-borne pollutants into the ecosystem.

The heat island effect is where urban “hard” surfaces absorb and store heat from the sun and over time, raise the summer temperature of a city by several degrees, making it more difficult and expensive to cool, less livable and more prone to smog. This impact can be mitigated through roof design and the use of vegetation.

Guideline	Discussion	Target
<b>Rainwater management and reuse</b>	<ul style="list-style-type: none"> <li>▪ Townline intends to develop an integrated rainwater or stormwater management strategy that addresses flows, storage and reuse. The management plan will include exploring opportunities to capture and re-use rainwater to reduce the need for potable water and to provide interest and public amenity.</li> </ul>	<p>To reduce rain water runoff from current levels by 30%</p> <p>(Runoff will be estimated from the current site (95% impermeable) and post development runoff will be modelled based on permeability %s and other stormwater management initiatives)</p>
<b>Green roofs</b>	<ul style="list-style-type: none"> <li>▪ The Bay site will have a significant area dedicated to a green roof. This green roof will reduce peak stormwater flows, filter runoff to make it cleaner and add ecosystem value to the area. It will also reduce the heat island effect and provide urban habitat for insects and birds.</li> </ul>	<p>50% of the Bay site as a green roof – extensive &amp; intensive</p>
<b>Integrate rainwater management into public art opportunities</b>	<ul style="list-style-type: none"> <li>▪ Townline intends to explore opportunities for integrating rainwater management systems into a public art opportunity. This could “foreground” the ecosystem (rain) and offer informal education about infrastructure to residents and visitors.</li> </ul>	<p>No specific target</p> <p>(A written description of initiatives in this regard will be submitted to City)</p>
<b>High-albedo roofing</b>	<ul style="list-style-type: none"> <li>▪ Where a green roof is not appropriate, Townline intends to use highly reflective (high-abledo) roofing to mitigate summer heat absorption into the building.</li> </ul>	<p>High albedo roofing on 75% of roof area where not including a green roof.</p>
<b>Vegetation and non-roof area design for reducing heat</b>	<ul style="list-style-type: none"> <li>▪ The Bay site will employ several strategies for reducing runoff and mitigating the heat island effect in non-roof areas, including: <ul style="list-style-type: none"> <li>○ Providing vegetation, street trees and shade;</li> </ul> </li> </ul>	<p>Reflectivity of minimum “0.3” for paving.</p> <p>Over 90% of parking</p>



- island effects
- Using light coloured paving materials to reflect light; and
  - Locating parking underground.
- underground

### 3.0 - Landscape Design

The Bay site has limited landscape space, but it will address the sustainability agenda in the space it has, within its urban context.

Guideline	Discussion	Target
Energy efficient landscape lighting	<ul style="list-style-type: none"> <li>▪ The Bay site will have to have lighting on the building and the landscape both for heritage and safety reasons. The most energy efficiency lighting appropriate will be selected for this purpose.</li> </ul>	<p>High energy efficiency rating for exterior lighting</p> <p>(40-120 Lumens/Watt fixtures will be specified)</p>
Water efficient landscaping	<ul style="list-style-type: none"> <li>▪ The Bay site will employ water-efficient practices in its landscaping, through plant choice and irrigation strategies. Some irrigation will be required for the first 2-3 years to ensure plants mature and are established to survive summer droughts. Exceptions to this will also include where urban agriculture may be pursued and hose bibs are required.</li> </ul>	<p>Reduce irrigation water by 50% of average Victoria baseline for ornamental gardens</p> <p>(Average landscaping water use #s for the CRD / Victoria will be compared with projected water use for landscape areas in this project based on design)</p>
Urban habitat supportive design	<ul style="list-style-type: none"> <li>▪ The Bay site will have little landscape space because of its high density urban context, but limited garden areas will be provided for amenity. Townline will investigate a plant palette that can support butterflies and songbirds for its ornamental garden areas.</li> </ul>	<p>30% of plants selected have habitat value.</p> <p>(Annotated plant list will be provided to the City)</p>
A productive landscape with urban agriculture opportunity	<ul style="list-style-type: none"> <li>▪ Many residents of urban environments have limited space to engage a productive landscape or grow some herbs or vegetables. Most urbanites don't need very much space but some can be valued and can be integrated into the ornamental design strategy. Townline will investigate opportunities to provide some space for residents to grow herbs or vegetables in the Bay site and subsequent phases.</li> </ul>	<p>No specific target</p> <p>(Written description of UA initiatives will be submitted to City)</p>

#### 4.0 - Water Efficiency

Potable water supplies are increasingly under stress as populations grow in the Victoria and other regions. Reduction in the use of water requires both technology changes and behaviour changes.

Guideline	Discussion	Target
Water efficient fixtures and appliances	<ul style="list-style-type: none"> <li>The Bay site will take measures to reduce the consumption of potable water and production of waste water, primarily through specifying ultra low flow fixtures including toilets (dual-flush), urinals, faucets, showers, dishwashers and clothes-washers, where possible.</li> </ul>	<p>30% reduction in water use overall from projected baseline of conventional development</p> <p>(BC regulatory standards for water use / appliances will be compared with those specified for this project.)</p>
Water Reuse	<ul style="list-style-type: none"> <li>There are many challenges to re-using water, including regulatory issues and plumbing code. However, there may be opportunities for re-use of rainwater or greywater in the Bay site, and these will be explored .</li> </ul>	<p>Some re-use of rainwater</p> <p>(Places where rainwater is re-used will be identified and amount to be reused will be estimated)</p>
Water use metering	<ul style="list-style-type: none"> <li>Water metering has been proven as an effective way to reduce water use. Metering may offer some challenges in terms of cost and plumbing, but its potential will be explored for the Bay site.</li> </ul>	No specific target

#### Recommendations for Water Efficient Fixtures and Appliances (Reference Code W-1)

Based on the discussions in the workshop, the following specific strategies and technology options are recommended, subject to support by the design and engineering team for the Bay site.

*Water Use      Target Performance*

The Hudson Bay Redevelopment Project  
Sustainable Development Strategy

- |                        |   |
|------------------------|---|
| <b>Toilet</b>          | <ul style="list-style-type: none"><li>▪ Minimum requirement: ultra-low flow toilet (6 litre max flush vol.)</li><li>▪ Recommended: dual flush toilet (6/3 litre )</li></ul>   |
| <b>Shower</b>          | <ul style="list-style-type: none"><li>▪ Minimum requirement: low-flow fixture (9.5 litres/min max flow)</li><li>▪ Recommended: ultra-low flow fixture (5.7 litres/min max flow) and/or manual flow control for user</li></ul> |
| <b>Kitchen faucet</b>  | <ul style="list-style-type: none"><li>▪ Minimum requirement: low-flow fixture (8.3 litres/min max flow)</li><li>▪ Recommended: ultra-low flow (5.7 litres/min max flow) fixtures</li></ul>                                    |
| <b>Bathroom faucet</b> | <ul style="list-style-type: none"><li>▪ Minimum requirement: low-flow fixture (8.3 litres/min max flow)</li><li>▪ Recommended: ultra-low (3.8 – 5.7 litres/min) fixtures</li></ul>  |
| <b>Clothes washer</b>  | <ul style="list-style-type: none"><li>▪ Recommended: front loading, efficient or ultra-efficient clothes washer (22 – 100 litres/load)</li></ul>  |
| <b>Dishwasher</b>      | <ul style="list-style-type: none"><li>▪ Recommended: efficient dishwashers (17 litres/load), plus energy efficient</li></ul>  |

## 5.0 - Energy management

The project will aim to achieve increased levels of energy performance to reduce environmental impacts associated with excessive energy use.

Guideline	Discussion	Target
<b>Energy efficient building design and technology</b>	<ul style="list-style-type: none"> <li>▪ The Bay site first phase is a heritage building redevelopment, posing challenges including reduced insulative capacity and heritage windows. To mitigate these, other energy efficiency measures will be considered and implemented where practical, including:               <ul style="list-style-type: none"> <li>○ Interior daylighting</li> <li>○ Hydronic heating</li> <li>○ Envelope performance enhancement within heritage constraints</li> <li>○ Ventilation</li> <li>○ Thermal resistance</li> <li>○ Energy efficient technologies</li> </ul> </li> </ul>	<p>Approx 30% reduction in overall energy consumption (averaged across all phases) from conventional development in building code for 2006.</p> <p>(Energy modelling results will be submitted)</p>
<b>Commissioning plan</b>	<ul style="list-style-type: none"> <li>▪ The Bay site project will conduct a commissioning plan for the development to ensure all building elements and efficiency measures are operating as intended after construction.</li> <li>▪ Townline sees commissioning as a beneficial process for this developments. It is estimated that commissioning results in 30% better building performance and it facilitates better control of commissioning process and outcomes.</li> </ul>	<p>Plan to be completed.</p> <p>(plan will be shown to City)</p>

## 6.0 - Solid Waste Management

Through incorporating design features, reusing building components, and implementing construction waste recycling, the project will significantly reduce the amount of solid waste for disposal. Associated benefits include reduced impacts from waste hauling, emissions and other environmental impacts.

Guideline	Discussion	Target
<b>Heritage building reuse</b>	<ul style="list-style-type: none"> <li>▪ The Bay site will incorporate much of the original heritage building into the project, including the majority of the structure, shell and some non-shell elements, the amount of construction waste generated will be greatly reduced.</li> </ul>	<p>75% of the existing building to be reused</p> <p>(Area of building to be re-used will be described and overall % estimated)</p>
<b>Waste stream separation design</b>	<ul style="list-style-type: none"> <li>▪ The Bay site will be designed to support 3 stream solid waste separation: paper/containers, organics, and garbage, by selecting the most appropriate features such as unique kitchen design as well as garbage room design to support 3 stream separation.</li> </ul>	<p>All kitchens designed to support 3 stream separation.</p> <p>(Kitchen design elements will be described –</p>

		photos provided if needed)
<b>Share shelf</b>	<ul style="list-style-type: none"> <li>▪ The project will include a “share shelf” or space in its recycling room to encourage the diversion of appliances, household goods and furniture from the landfill, so residents can make these objects available to others in the building. The goods may be donated to charity if they are not reused in the building.</li> </ul>	No specific target
<b>Construction waste recycling</b>	<ul style="list-style-type: none"> <li>▪ The project intends to implement a construction waste recycling program to divert a major portion of its construction waste away from landfill disposal.</li> </ul>	<p>At least 50% of construction waste recycled or reused (by weight)</p> <p>(Construction waste recycling plan will be shown to City outlining projected results)</p>

## 7.0 - Building Materials

Building materials have many sustainable development considerations including associated energy use, emissions, transportation distances, renewability of materials, re-usability of materials and others.

<b>Guideline</b>	<b>Discussion</b>	<b>Target</b>
<b>Recycled materials</b>	<ul style="list-style-type: none"> <li>▪ The Bay site project will explore opportunities to use construction materials with recycled content including concrete, flooring and others. The project team will pursue the use of recycled materials where possible with consideration to durability and marketability.</li> </ul>	<p>No specific target</p> <p>(A description of what recycled materials have been used will be submitted to the city)</p>
<b>Local materials</b>	<ul style="list-style-type: none"> <li>▪ The Bay site will explore ways to use materials that are sourced locally to support local industries and employment, and to reduce the embodied energy and emissions involved in transporting materials long distances. For the Bay site project, located in Victoria, it may be challenging to locate an abundance of local materials, especially those extracted within the region.</li> </ul>	<p>No specific target</p> <p>(A description of what local materials have been used will be submitted to the City)</p>
<b>Certified wood</b>	<ul style="list-style-type: none"> <li>▪ The Bay site will use wood certified in accordance with FSC (Forest Stewardship Council) guidelines where affordable.</li> </ul>	<p>No specific target</p> <p>(A description of where FSC wood is used will be submitted to the City)</p>
<b>Healthy materials</b>	<ul style="list-style-type: none"> <li>▪ The Bay site project will include healthy materials that minimize Volatile Organic Compounds (VOCs) and urea-</li> </ul>	<p>Low VOC standards used for all materials.</p>

formaldehyde (UF). Reducing or eliminating these from units is an important concern for indoor air quality for all residents and will be achieved by selecting low-VOC:

- Adhesives
- Sealants
- Paints and coatings
- Carpets
- Composite wood products, door cores
- Agrifiber products

(Specification standards in construction / trade documents will be shown to the City).

## 8.0 - Healthy Indoor Air Quality

Most of us spend over 85% of our lives in buildings and therefore building performance can have many impacts on our health. Key issues include ventilation, quality of indoor lighting and working environment, and the presence of chemicals in building materials and cleaning solutions that can have negative impacts on our health.

Guideline	Discussion	Target
<b>Healthy indoor air</b>	<ul style="list-style-type: none"> <li>▪ Attention to healthy indoor air quality and ventilation are especially important for this project due to the depth of the units in the Bay site heritage building. The project intends to offer the highest quality of healthy indoor air to the residents through healthy materials choice, design, and ventilation.</li> </ul>	<p>Meet minimum requirements of ASHRAE 62-2001, Ventilation for Acceptable Indoor Air Quality and approved Addenda</p> <p>(Design approach will be described in document submitted to the city that demonstrates concurrence with this standard)</p>
<b>Natural light</b>	<ul style="list-style-type: none"> <li>▪ Innovative design for the Bay site will ensure that building occupants have access to natural light, in addition to views where possible. Townline has structured the redevelopment of the Bay site building with a significant courtyard added to its interior to provide as many units possible with natural light.</li> </ul>	No specific target

## Conclusion

The Bay site project will pursue a wide range of green building strategies as outlined in this document to meet the goals of sustainable development.

Townline is also committed to being accountable for all of its commitments, including reporting out on all of the above commitments at each stage of this project, including:

- Development permit
- Building permit

The Hudson Bay Redevelopment Project  
Sustainable Development Strategy

- Occupancy permit.

The Bay site as a renovated heritage building offers challenges in a number of areas, but also offers advantages. Townline is committed to upholding a high standard of sustainable building practices on this project as a commitment to the health of the community and the planet.







December 20, 2006

Ms. Wendy Hershberg  
Development Manager  
Townline  
120 – 13575 Commerce Parkway  
Richmond, B.C., V6V 2L1

Dear Ms. Hershberg:

**Re: The Bay Site Development, Victoria, B.C.  
Pedestrian Comfort Wind Assessment  
GmE File Ref.: 06-023**

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In support of a development application, Gradient Microclimate Engineering Inc. (*GmE*) has undertaken a qualitative analysis of pedestrian wind conditions over The Bay Site development in Victoria, British Columbia. The site occupies approximately a three acre parcel of land bounded by Fisgard Street on the south, Blanshard Street on the east, Herald Street on the north and Douglas Street on the west. The project comprises four phases, with Phase 1 being the restoration of the existing Bay Building located along Douglas Street, followed by Phases 2, 3 and 4 creating a group of three towers on a central podium rising fourteen to twenty-four storeys in height above grade. The towers are separated from the Bay Building by a carriageway intended for general pedestrian traffic and vehicle access to the site. Relevant background information and results of our analysis are provided in this summary letter.

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## 1. BACKGROUND

The essential aspects of a wind analysis include: (i) consideration of the massing of the site, along with shape and orientation of the buildings; (ii) consideration of the statistical properties of the local wind climate, and (iii) comparison of expected wind speeds at grade with industry standard pedestrian comfort guidelines. Integration of the first two elements provides site specific data for comparison to the pedestrian comfort guidelines.

Regarding wind statistics, common winds for Victoria occur from the southwest quadrant with wind strength typical of other west coast cities. Also typical of most cities, wind conditions are expected to be strongest during the spring and winter and calmest during the summer and autumn.

Physical features of the site which influence the wind environment include: the density of surroundings; the massing of the study site, as well as the shape and configuration of the study buildings themselves. Urban development typically increases the density of buildings which provides greater shielding to wind and calmer wind conditions at grade. The south side of the site currently provides moderate shielding, which is expected to increase with planned development in the foreseeable future.

Massing of the study site itself can be described as being generally open, with three non-regular plan form towers, grouped in a staggered arrangement onto a common podium. Variability in the height, shape, and orientation of the towers is expected to discourage organized winds and mitigate strong winds at pedestrian level. The mixed use of set-backs in some elevations provides additional opportunity for mitigating winds. The influence of street walls in a few areas, such as at the base of residential tower 1 on the north and west elevations, is minimized by the presence of protruding balconies along the building height.

The wind criteria used by *GmE*, and representative of industry norms, ensure that pedestrian conditions are comfortable...

- (i) for sitting, when the gust wind speed is less than or equal to 14 kilometers per hour (km/h) for 70% of the time or more;
- (ii) for standing and strolling, when the gust wind speed is less than or equal to 22 km/h for 80% or more of the time;
- (iii) for walking, when the gust wind speed is less than or equal to 30 km/h for 80% or more of the time.

Gust winds speeds are used in the criteria because people are most sensitive to wind gusts instead of average wind speeds. It should be noted that these criteria are applied according to the intended use of the outdoor area. For example, an entrance to a building need only be suited for standing, strolling or walking, but need not be suitable for sitting.

## **2. PEDESTRIAN WIND COMFORT PREDICTIONS**

Having considered the foregoing information, specifically for the carriageway between the Bay Building and the new towers, we find that:

- (i) The carriageway is sheltered for common winds from the southwest quadrant;
- (ii) The staggered orientation of the three towers on the site promotes wind dispersion and avoids strong wind concentration for a range of wind directions;
- (iii) The street wall forming the west elevation of residential tower 1 (Phase 2) has a relatively narrow profile which moderates concentrated downdrafts along the face of the building. The presence of balconies also creates obstructions to strong and organizes wind effects;
- (iv) Foreseeable future development along the south side of the site will tend to mitigate the influence of wind for the statistically important southwest quadrant.

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For the sidewalks around the site, we find that:

- (v) The sidewalk along Douglas Street will see no change from current conditions as the Bay Building will not experience any significant change in its massing. As well, the towers will have no noticeable impact on the Douglas Street elevation;
- (vi) The Fisgard Street elevation is partly sheltered from southerly winds by existing buildings south of the street which will increase with time, thereby promoting calmer pedestrian conditions along the sidewalk. The influence of westerly winds is not significantly different from current conditions;
- (vii) In addition, the lower height of residential tower 3 overlooking Fisgard Street, combined with protruding balconies and floor setbacks at higher elevations, will minimize significant downdrafts for southerly winds to create generally comfortable pedestrian wind conditions;
- (viii) The sidewalk along Blanshard Street will not experience dramatic changes in wind conditions due to the combined influence of the infrequent occurrence of easterly winds and the same façade articulation of residential tower 2;
- (ix) In a similar way, the sidewalk along Herald Street will not experience adverse wind conditions on a regular basis due to the mitigating influence of infrequent northerly winds and façade articulation.

As a result, it is our view that the majority of the interior carriageway will experience comfortable pedestrian wind conditions suited to standing and strolling or walking much of the time during all seasons. Furthermore, the windiest area along the carriageway is predicted to occur at the north end, where conditions will nonetheless remain suited for the intended function of walking or more sedentary activities for an acceptable proportion of the time on an annual and seasonal basis. For the sidewalks along the perimeter of the site, wind conditions are expected to be suitable for standing and strolling much of the time during the spring, summer and autumn and suitable for walking during the winter period. No consistently strong or dangerous wind conditions are expected to exist anywhere on site.

### 3. CONCLUSIONS

Based on a qualitative analysis of site plans, building forms and local climate, we conclude that the pedestrian wind conditions along the full length of the carriageway are expected to suit the intended use of the space, which is expected to be standing and strolling or walking, much of the time on an annual and seasonal basis without the need for wind mitigation. Similarly, wind conditions along the sidewalks will also be suitable for standing and strolling much of the time during the spring, summer and autumn and suitable for walking during the winter period without mitigation. However, should localized areas be too windy for the intended uses, wind mitigation can be achieved by introducing architectural treatments such as canopies and vertical wind breaks.

The foregoing analysis and statements are based on experience and knowledge of wind flow patterns. While statements of the general conditions are expected to be reliable for the site as a whole, localized conditions, being dependent on detailed features of the buildings, landscaping, and actual outdoor uses of the areas, are more difficult to predict. As a result, this assessment is intended to provide general guidance, but is not a substitute for wind tunnel testing.

This completes our assessment. Please advise us of any questions or clarifications required.

Yours truly,

***Gradient Microclimate Engineering Inc.***



Vincent Ferraro, M.Eng, P.Eng.  
GmE 06-023A