



SITING, FORM & CHARACTER

WEST VANCOUVER HOUSING STUDY



OCTOBER 2013

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INTRODUCTION



INTRODUCTION & PURPOSE

The District of West Vancouver commissioned CitySpaces Consulting to review the issue of single detached housing replacement in established neighbourhoods. As existing neighbourhoods transition, older houses are replaced with new homes that are typically larger, and may be sited differently on a property than surrounding homes. This type of redevelopment has caused some friction between neighbours and has raised concern about the environment and viewscales.

This project stems directly from community consultation undertaken as part of the Community Dialogue on Neighbourhood Character and Housing as well as a 2013 Council directive calling for a review of the issue of housing bulk in single detached residential neighbourhoods. In response, this Discussion Paper seeks to:

- Offer new insight and perspective on the District of West Vancouver's experience with the siting, form, and character of single detached housing in existing neighbourhoods; and
- Suggest some new areas of consideration to inform future policy and practice.

The friction often associated with new home construction and neighbourhood integration is not unique to West Vancouver. Many communities in BC have been attempting to address issues of larger home construction, extensive site intervention, integration in existing neighbourhoods, and the challenges of building on sloped sites. For three or more decades, West Vancouver has introduced various policies and regulations to mitigate the impacts of new single family house construction in existing neighbourhoods such that the District's approach and rigor has been referenced by other communities also exploring new ways to address these issues.¹

This paper will therefore take as its launching point the work and research previously undertaken; it will build on the successes of the policies and practices already in place; reflect on their shortcomings; and consider new approaches and tools for implementation.

¹ The terms single detached house and single family house will be used interchangeably throughout this paper. While "single family" is more commonly known and understood by the public, "single detached" is more accurate in the modern-day context, as houses increasingly have secondary suites in them, and, therefore, can accommodate more than one family.

APPROACH & METHODS

Council directed staff to undertake new work related to neighbourhood character and “building bulk”, including a backgrounder report that discusses the concept of “bulk” (actual and perceived), a review of how bulk is regulated in other municipalities, and presenting possible approaches to address the issue in West Vancouver. In fulfillment of that request, CitySpaces Consulting undertook the following research:

- **Local context and regulatory review.** West Vancouver has undertaken a number of actions over the years to address the “large house” issue and associated construction practices. These have included zoning and other bylaw amendments as well as other planning initiatives and community engagement exercises. The team began with a detailed review of local bylaws, policies, and other regulations and initiatives.
- **Stakeholder consultation.** To further assist with the identification of issues, two workshops were conducted — one was held with nine staff from Planning, Land Development, Permits and Inspections, and Engineering departments and a second with ten representatives from the construction and development industry.
- **Promising practices research.** A broad-based research approach was undertaken to identify municipalities with relevant and noteworthy experience. The municipalities of Coquitlam, Delta, and Kelowna were found to have interesting tools and practices at various stages of implementation that were worthy of consideration. Through a review of their bylaws and reports, as well as discussions with staff in each municipality, a case study was prepared that detailed their approach and experience. Tools and approaches from a small selection of additional municipalities were also highlighted.
- **Future considerations.** Having reviewed the context and experience in West Vancouver and selected municipalities, a set of approaches will be identified for future consideration by Council and the community.

As there are a number of regulatory tools and technical terms that are referenced throughout this Paper, a Glossary has been added to the Appendices with detailed definitions or descriptions. There is also a list of documents and sources, including contacts from comparable municipalities.

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CONTEXT & ISSUES



HISTORY AND CONTEXT

POPULATION CHANGE

It is of particular relevance to this research to have an understanding of the pattern of development in West Vancouver over the past few decades. It serves to set the stage and illustrate, to some extent, the reasons for the challenges and friction associated with new single detached home construction.

In the 1960s, significant growth in West Vancouver’s population and demand for housing for young families resulted in a rapid increase in single family housing and apartment construction. By the 1970s, population increases slowed down considerably along with the pace of new construction.

A new Official Community Plan (OCP) was adopted in 1980, incorporating the community’s desire to maintain “slow and controlled growth.” This sentiment was reaffirmed in the 1988 OCP, with a continued emphasis on “preserving the low scale and park-like character of single-family neighbourhoods.”

West Vancouver evolved in a variety of ways since the 1960s, 1970s, and 1980s — changing from a community of largely middle-income family households with children to smaller households, including many empty nesters and older residents. Along with an increasingly aging population, average household size dropped from 3.2 persons in 1966 to 2.5 persons per household in 2011. While there continues to be lower income households living in West Vancouver, since the 1970s, residents have been maintaining median incomes that are above those of the region. Having higher income households move to West Vancouver has implications on house size and the demand for custom-designed houses.



Examples of smaller size and scale of many older houses in Ambleside and Dundarave

EVOLUTION OF HOUSING STOCK

According to Statistics Canada, in 2011, West Vancouver had a population of 42,700 people and over 17,000 dwellings. Single detached houses made up 57% of all private dwellings and over half of West Vancouver's housing stock was built prior to 1970. As this older stock ages, the greater the likelihood that it will be replaced with new housing, resulting in a range of implications for existing neighbourhoods.

That said, West Vancouver continues to experience a relatively slow rate of growth and change. Between 2006 and 2011, there were fewer than 50 net additional dwellings on average per year, the equivalent of a 1.4% annual increase during this period. An active regional market for owner-occupied housing will, however, continue to support and stimulate new house construction. These houses, particularly given a market of high property values, look and feel considerably different than the older housing stock in existing neighbourhoods. It is essentially this "clash" or juxtaposition of housing forms that has prompted this review and research paper.

The pressures felt in existing neighbourhoods, particularly in Ambleside and Dundarave, are a result of the natural evolution of the housing stock, where, for example, existing modest houses (often 1,500 to 2,500 sq.ft. homes) are replaced with much larger ones (3,500 to 6,000 sq.ft.) that may include significant alterations to the surrounding landscape. In the current market context of high land values, it is not surprising that new houses are typically built to the maximum permitted size. They are also built with new features and amenities that reflect the expectations of new home buyers, such as upper storey decks to capture the views, or full walk-out basements.

POLICY CONTEXT

The evolution of the housing stock and the resulting changes to the character, look and feel of existing neighbourhoods is a priority consideration for West Vancouver. These issues have been raised in the Official Community Plan and other recent policy documents such as the 2012 Housing Action Plan, 2012 Coach House Discussion Paper, and the 2008 Community Dialogue Working Group Report.² Key statements, policies and action areas are highlighted in this section as they provide a framework for future planning and decision-making around new single family house construction and its impact on existing neighbourhoods.

West Vancouver is a community made up of distinct neighbourhoods. Many of the older established neighbourhoods, those built prior to the 1980s, are located below the Upper Levels Highway. Some of these have large lots of 10,000 to 20,000 sq.ft. (Altamont, Lower Caulfield), while others have much smaller standard lots of 4,000 to 6,000 sq.ft. (Ambleside, Dundarave).

² A complete list of sources and references is included in the Appendices section.

OFFICIAL COMMUNITY PLAN

The current Official Community Plan (2004) recognizes that the demand for single detached housing is expected to continue in new neighbourhoods above the Upper Levels Highway and through redevelopment within existing neighbourhoods.

Notwithstanding a growing need for alternative forms, the demand for single family homes is expected to remain, both in new neighbourhoods above the Upper Levels and through redevelopment within existing neighbourhoods. The older homes will continue to be gradually renovated or replaced, typically with larger, more expensive dwellings." - OCP, Housing Policy, p.45

The *Housing Policy* section recognizes that West Vancouver is made up of distinct neighbourhoods and includes a number of relevant objectives:

- To develop in harmony with the landscape, surrounding uses and desired neighbourhood character of residential neighbourhoods;
- To preserve and enhance the character of residential neighbourhoods; and
- Where required, to provide sensitive transitions in form and density between existing and new development.

The *Built Form and Neighbourhood Character* section of the OCP begins with acknowledgment of how aesthetics contribute to the overall character of a community and highlights the distinctiveness of West Vancouver's neighbourhoods, "many with narrow winding roads flanked by gardens and houses that fit into their surroundings." The section includes policies to "Preserve and enhance neighbourhood character and the character of supporting streetscapes" (BF-B1):

- Review regulations to support the replacement of existing buildings with new construction that is compatible with the terrain, site, streetscape and neighbourhood characteristics and that minimizes neighbourhood disruption and the production of waste material.
- Require contextual review of streetscapes and evaluate the contribution of boulevards to neighbourhood character before proceeding with street improvements such as widening roads or installing curbs and sidewalks.

Policy BF-B2 looks to "Preserve and enhance the valued qualities of existing neighbourhoods," particularly:

- Retain and enhance the overall character of neighbourhoods, particularly in relation to boulevards, general lot sizes, building form and size, public and natural amenities and street forms.
- Ensure that new development recognizes and is compatible with the character of existing neighbourhoods.



Ambleside, West Vancouver



Construction impacts to neighbouring properties



Grade and scale differential between old and new housing



Example of a Neighbourhood Character Statement

COMMUNITY DIALOGUE ON NEIGHBOURHOOD CHARACTER & HOUSING

This study recognizes the considerable work undertaken as part of the 2008 Community Dialogue on Neighbourhood Character and Housing. Along with the OCP and other Corporate reports, the “Dialogue” served to set the tone and vision for future development and change in West Vancouver’s single family neighbourhoods. Notwithstanding any further community engagement that will take place to clarify the community’s objectives and interests with regard to housing bulk, the Community Dialogue confirmed public support for the following objectives:

- To facilitate the growth of a socially, environmentally, and economically sustainable community;
- To protect the character of West Vancouver’s distinctive neighbourhoods;
- To protect the integrity of the natural environment and encourage “design with nature” practices; and
- To ensure that new development “fits” with the established physical and social fabric of existing neighbourhoods.

A number of policy recommendations that resulted from the Community Dialogue are of particular relevance to this research. They include:

- **Articulating “Neighbourhood Character”** – Prepare character statements for individual neighbourhoods to help articulate their character-defining elements and the community values around these.
- **Integrating New Houses in Established Neighbourhoods** – Address community concerns over the integration of new houses into established neighbourhoods in terms of the size of houses through floor area, siting, height, and massing.
- **Making the Construction Process More Neighbourly** – Address resident concerns over the negative impacts of new construction, such as truck traffic, parking, noise, vibrations, construction debris, blasting, hours of work, etc.
- **Protecting Boulevard and Streetscape Character** – Address resident concerns over loss of established neighbourhood character through the introduction of fences, gates, and other ‘hard’ edge treatments, which are not in keeping with the semi-rural character of many West Vancouver neighbourhoods; and the ‘privatization’ of public space through encroachments onto boulevards, and unopened lane and road rights-of-way.
- **Minimizing Site Alteration & Learning How to ‘Design with Nature’** – Encourage designs that are more sympathetic to a site’s natural features, and that minimize site alteration, and loss of trees and vegetation during site preparation for construction; and consider how a site’s natural features can be retained in new development through a ‘design with nature’ approach.

TOOLS IN USE IN WEST VANCOUVER

HOW THE REGULATIONS HAVE EVOLVED

The Zoning Bylaw is the principal means by which West Vancouver, and most communities, regulate development patterns and characteristics. Over the years, West Vancouver's single family zoning districts have been continually updated with additions and amendments to address the issues of housing bulk and character. While not specific to replacement housing in existing neighbourhoods, there are additional regulations, such as noise bylaws or soil removal restrictions, that are also worth noting. A glance at how the regulations have evolved over recent decades is useful, showing the rationale behind some of the current requirements.

Prior to the 1980s, few homes were built to the allowable maximum size in single family neighbourhoods. In the 1980s, larger houses were becoming more common, increasingly changing the character and feel of existing neighbourhoods. Since 1981, the District introduced regulations that limit maximum house size and site coverage; reduce the impact of artificial grade on building height and retaining walls; restrict the use of "square box" and other designs; and place limits on rock removal. These changes included the introduction of floor area ratio (FAR) regulations to limit the total floor space in new houses and height regulations to limit the visual impact of new houses.³



³ Regulatory terms such as Floor Area Ratio, Building Height, etc., are described in the Glossary Section in the Appendices.

Each set of new regulations were based on the experience of the earlier phase and its implementation and they were intended to address new issues that arose over time. A summary of the key bylaw amendments since the 1980s is provided in Table 2.1. These amendments were made in an effort to address issues related to the size and visual bulk of new single detached houses and related site works.

Table 2.1: Summary of Key Bylaw Amendments	
Date	Bylaw Notes
1981	FAR introduced with a maximum of 0.45, including basements, but excluding garages/ exterior accessory buildings
1984	Natural grade definition and retaining wall regulations
1987	Definitions of basement and height amended
1989	FAR decreased to 0.35 and percentage of basement was excluded. Site coverage decreased to 30%; front yard paving restricted; and combined side yard setback increased.
1990	Minimum building site conditions established, requiring newly-created lots to have a building envelope capable of allowing a building footprint of 2,000 sq.ft. or 20% of lot area, whichever is less.
1992	New definitions and changes to Highest Building Face, Highest Building Face Envelope, FAR, Grade, Side yard, Retaining Wall, etc.
1992	Soil and Foundation Excavation bylaw to limit rock removal to ~50% of basement volume up to a max of 600m ³ .
1996	<p>Changes to form and siting of buildings and structures:</p> <ul style="list-style-type: none"> • Increased side yard setbacks for two storey buildings • Increased allowed site coverage for medium sized lots • FAR exemption for parts of basements not projecting more than 2 ft. above grade • Reduced the parking area exemption from max. 592 ft² to 440 ft² • Reduced the grade line angle for retaining walls from the front or flanking sides of property lines from 45° to 36 7/8°
2008	Size of accessory buildings located close to principal dwelling reduced to 50 sq.ft. (4.6 sq.m.); FAR to include covered balconies on the second floor.

AREAS OF COMMUNITY CONCERN

Over the years, residents have continued to express concern over changing neighbourhood character resulting from:

- The difference in size and scale of older versus newer houses;
- Differences in landscape treatment, and;
- Privacy and view impacts for existing residents.

A survey undertaken as part of the 2008 Community Dialogue highlights some of the key areas of concern. (See Box#1).

For the purposes of this study, a number of major issues related to new single detached home construction will be considered. These areas were identified through the stakeholder consultation undertaken as part of this research study and are presented in this section.



BOX #1: 2008 Community Dialogue Survey Findings

- 63% of West Vancouver residents feel the new houses being built in their neighbourhoods are too big. Within this group, there is majority support for reducing the size of new houses in terms of site coverage (84%) and allowable floor area (69%).
- 66% of West Vancouver residents are concerned about disruptions from lengthy periods of house construction in their neighbourhoods.
- 79% of residents support regulations or incentives for designing buildings to fit within a site's natural features or which require minimal site modification.
- 70% of residents believe that pilot projects should be considered to allow for variances to regulatory bylaws, to encourage a 'design with nature' solution – to avoid excessive site blasting, retaining walls, and 'clear-cutting' of trees.
- 65% support pilot projects to demonstrate environmentally sustainable building and landscape design, construction, and operation systems.

WHAT TOOLS ARE CURRENTLY IN USE IN WEST VANCOUVER:

The issues of bulk, scale and compatibility are regulated by:

- Floor Area Ratio (FAR) — 0.45 FAR introduced in 1981 and subsequently reduced to 0.35, with exclusions permitted for garages, decks, accessory buildings, and percentage of the basement.
- Covered Decks — Originally excluded from FAR, but later included because of their excessive use on upper floors to extend the living space.
- Accessory Buildings — As of 2008, accessory buildings that are connected to the main house or close to the main house are no longer excluded outright in the bylaws.
- Site Coverage — Typically coverage is set at 30% of site area for large lots, 40% of site area for smaller lots (7,164 sq.ft., 664 sq.m.)
- Building height restrictions — Height limits are measured from the lower of average natural grade or finished grade. Maximum height is measured to the midpoint of a pitched roof to 25 ft. (7.6m) maximum for most zones. Calculations are considered by applicants to be complicated and difficult to implement.
- Highest building face envelope — Applies to the one facade with the greatest exposed height, and involves a series of calculations to reduce the appearance of bulk.

“Covered verandas on the “ground” floor are an accepted and traditional form of house amenity in existing neighborhoods but the more recent introduction of such weather protected areas on the top floors, with the extended roofs, have been a concern, creating increased neighbour impact on views, light and apparent mass.”
- S.J. Nicholls, Report to Council, 2008

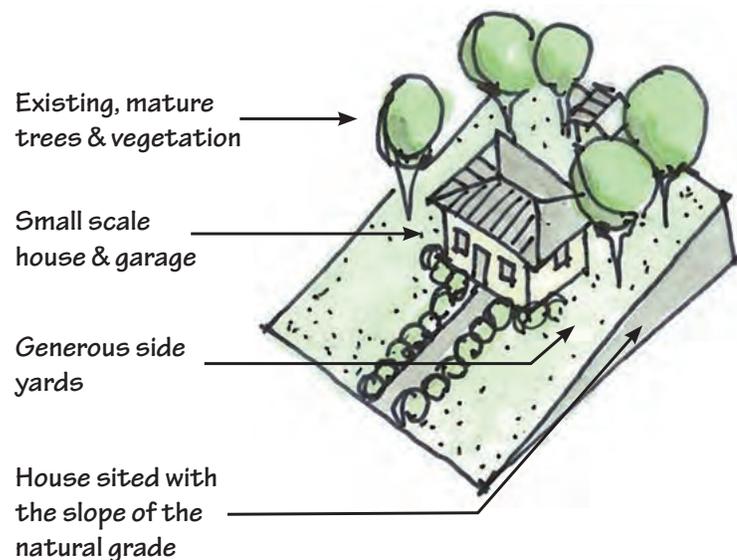
1. BULK, SCALE & COMPATIBILITY

The increasing size and perceived bulk of new houses has been a concern since the late 1970s, but this issue has intensified in recent years as building envelope and height are increasingly being maximized. New or renovated homes are often much taller, wider and larger than existing ones, and some are seen to overwhelm neighbouring houses. The dramatic variation in look, feel, and character, between existing houses and newer ones is reported by local residents to have had a negative impact on neighbourhoods.

Neighbourhood context and compatibility is a value-based concern that has arisen as a result of this influx of new houses. Contemporary homes look different than older homes and seem out of scale with traditional houses. From some residents’ perspectives, they appear to dominate the landscape rather than complement it. Bulky houses are seen to infringe upon the privacy of surrounding properties through the placement of windows, decks and loss of landscape screening. Walls of new houses can overshadow adjacent rear yards and sometimes block the views from neighbouring houses.

BULK, SCALE & COMPATIBILITY

EXISTING CONDITION



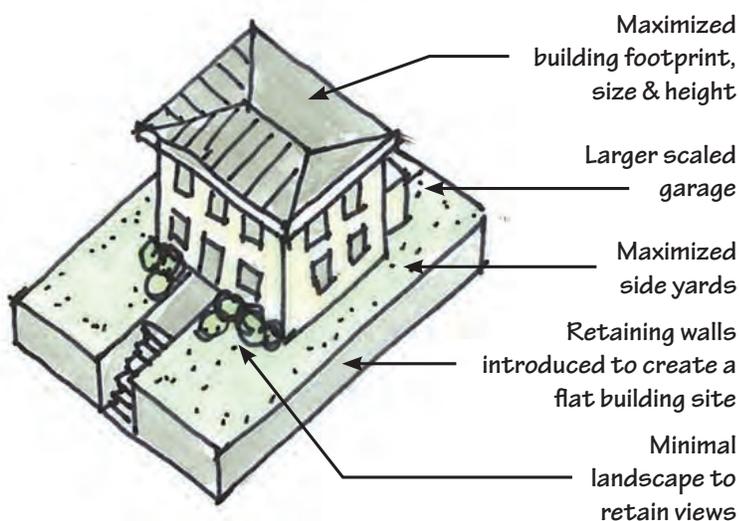
2. LENGTHY AND DISRUPTIVE CONSTRUCTION PROCESS

Construction of new single detached houses in established neighbourhoods can be very disruptive to existing residents, particularly if the construction spans a long period of time, or if a number of homes are being built at the same time. Large homes that involve considerable site intervention such as blasting, fill, rock removal, or other types of grade changes, will inevitably take a long time to build. The construction time can be even longer as a result of the size and complexity of most projects, the shortage of high-quality tradesmen, and delays in obtaining high-end fixtures and finishes. As a result, the typical construction process can last up to two years, with possible negative impacts on neighbours.

The District has responded to noise complaints by restricting permitted hours for construction and blasting activities. However, this action has also extended the construction period in some cases. In 2012, the District implemented the requirement for traffic management plans in order to reduce construction traffic impacts in neighbourhoods, which can be particularly acute when there are multiple construction sites on a single street.

BULK, SCALE & COMPATIBILITY

REPLACEMENT CONDITION



WHAT TOOLS ARE CURRENTLY IN USE IN WEST VANCOUVER

To minimize construction site impacts, the following bylaws are in place:

- Noise Bylaw — Noise from construction is limited to 7:30 am to 5:30 pm on weekdays and 8:00 am to 5:00 pm on Saturdays. Construction noise is not permitted on Sundays.
- Blasting Bylaw — Noise from blasting or related works is restricted to weekdays only, within the noise bylaw limits.
- Good Neighbour Bylaw — Prohibits the accumulation of rubbish or discarded materials on a property that are visible from a public place; the running of a motor vehicle engine for more than five minutes at a time; or the use of outdoor lights that may be a nuisance to others.
- Building Bylaw — Establishes minimum construction site maintenance requirements and the requirement for traffic management plans.



WHAT TOOLS ARE CURRENTLY IN USE IN WEST VANCOUVER

To manage or control the extent of site intervention, the following tools are currently in use by the District of West Vancouver:

- Rock and Soil Removal — Limits were introduced in 1992 to the volume of rock that could be removed in order to build the house or driveway. The maximum allowable volume of rock that can be removed was reduced from 600 m³ to 200 m³ in 2008.
- Retaining Walls — Height restrictions were introduced in the early 1980s to limit high walls from being constructed at the property line. Wall height is limited to 4 ft. (1.2m) if located within 4 ft. (1.2m) of another wall, or up to a maximum of 8 ft. (2.4m).
- Grade Line — Grade line cannot be built up above an imaginary grade line rising 4 ft. (1.2m) above the property line and inward at an angle over the property. The angle or slope of the permitted grade line was reduced in 2008, to 75% (3 ft. in each 4 ft.) for front yards, but remains at 100% (4 ft. in each 4 ft.) for all other yards.
- Steep Terrain DPA — A development permit process and guidelines for new subdivision is applied to sites with difficult terrain, i.e. where construction is to occur on slopes exceeding 35% and/or where driveway grades cannot be provided at less than 20%.



New retaining walls can create significant changes in grade between older and new houses. *Photo Credit: Karl Gustavson*

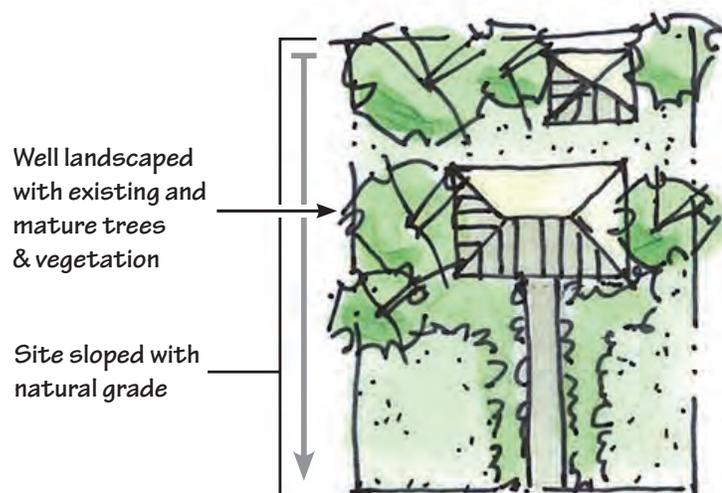
3. SITE INTERVENTION

One of the critical areas that has been identified by the engagement process to date is how the land is altered as part of the construction process. This is often related to the desire to maximize square footage of a new house, take advantage of views, achieve flat backyards, and reduce the inconvenience of steep driveways or other sloped site features. The interventions may involve tree removal, rock removal through blasting, or introduction of retaining walls. Such interventions often impact site drainage patterns, with direct implications for downslope neighbours.

Staff report that accommodating a basement as part of a new house is often one of the reasons that owners are requesting blasting permits. With basements excluded from the total floor area maximums, and given land costs in West Vancouver, it can be anticipated that rock removal will be undertaken by new owners expecting to have a basement in their new home as well as for other reasons related to siting and orientation. Some local builders and developers would consider it unreasonable to eliminate the blasting option for new owners who had not anticipated the presence of bedrock on their property.

SITE INTERVENTION & LANDSCAPE CHARACTER

EXISTING CONDITION



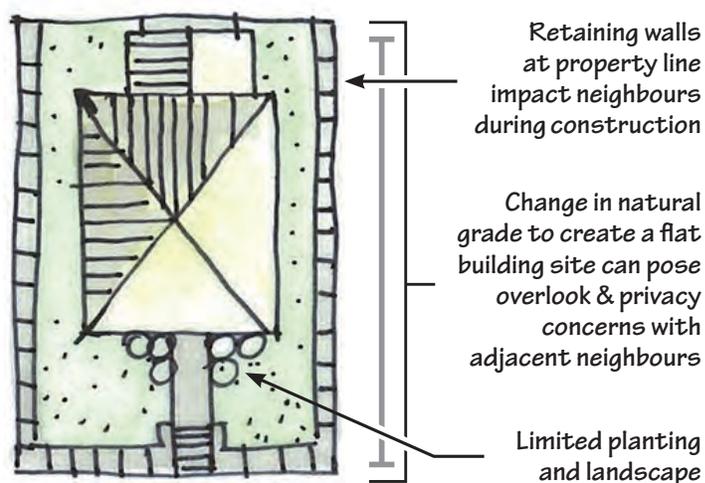
4. LANDSCAPE CHARACTER - PRESERVATION OF TREES AND NATURAL VEGETATION

As houses are redeveloped with greater site coverage on a lot, this may also be accompanied by a loss of trees and vegetation, the introduction of significant hard surface paving, and the construction of extensive retaining structures.

The “park-like setting” that is appreciated by West Vancouver residents is considered to be at risk as a result of redevelopment, particularly as an increasing share of the pervious surfaces are replaced by hard surfaces.

The established landscape character of West Vancouver neighbourhoods is impacted by developments that involve extensive site intervention. In response, there has been considerable discussion and support for the notion of “design with nature,” whereby new houses are sited/constructed in a way that respects the terrain and existing land form. This notion is thought to be more sensitive to the natural environment, by protecting existing site features and requiring a variety of design solutions to reflect the differences across sites and neighbourhoods.

SITE INTERVENTION & LANDSCAPE CHARACTER REPLACEMENT CONDITION



WHAT TOOLS ARE CURRENTLY IN USE IN WEST VANCOUVER

The District does not currently have any tools in place to directly intervene with landscape character or the protection of trees/natural vegetation on an existing single family lot where a rezoning, variance, or subdivision is not required.

“Tree removal increases available sunlight, and opens up views. But, tree removal also eliminates protective wind-breaks, reduces air quality, increases erosion, and hastens run-off. These impacts may be alleviated somewhat over time as new trees and groundcovers mature, but on steep slopes with shallow or no soils, the opportunities for regeneration are limited.” - D. Barcham, 1988, “The Large House Syndrome...”



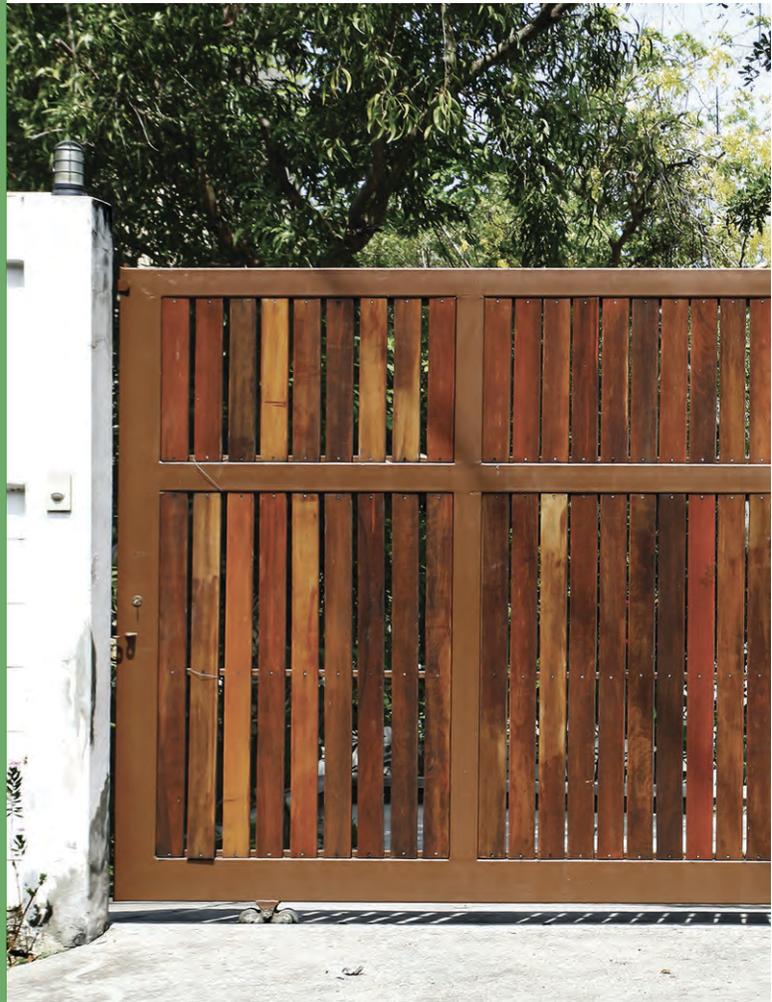
Use of retaining walls to create a flat site

WHAT TOOLS ARE CURRENTLY IN USE IN WEST VANCOUVER

- The District has boulevard and encroachment bylaws that require a permit for the placement of parking spaces, retaining walls, driveway heating coils, gates and fencing within certain conditions.
- A set of boulevard and encroachment guidelines address the design and character of those areas where a residential property abuts a public boulevard or walkway.
- A tree cutting permit is required before any tree work can be done on public land, including boulevards.

5. PUBLIC REALM CHARACTER

The concern related to public realm character is a reference to the boulevards and public rights of way that are affected by redevelopment. Private encroachments onto existing boulevards — grassy strips or unpaved portion of public roadways — for driveways or parking areas and/or other hard edge boulevard treatments have generated concern among residents that historically enjoyed the “naturalized” feel of these areas and their accessibility as walkways or trail connections through neighbourhoods. As new luxury, custom-built homes are introduced into existing neighbourhoods, residents have vocalized that the transition has brought along with it a loss of “neighbourliness” that can be attributed in part to the introduction of large gates, hedges, and retaining walls.



3

WHAT OTHER MUNICIPALITIES ARE DOING



CITY OF KELOWNA HILLSIDE DEVELOPMENT

HISTORY & CONTEXT

Most of the City of Kelowna’s hillside developments are situated in new areas that have been constructed since the 1990s. For Kelowna, the issues of quality development on steep slopes is related to newer subdivisions and their impact on the natural environment, the physical terrain, and viewscales. There has been less experience with replacement of older housing in these areas, although there are many lessons from the policy and regulatory process that Kelowna has been undertaking.

The City of Kelowna has attempted to mitigate possible impacts of hillside developments by introducing a series of policies, standards, procedures and other regulations. Similar to West Vancouver, Kelowna’s response to hillside development has been iterative, with new tools and bylaws building on the earlier rules and regulations. A brief timeline of hillside development is included in Table 3.1 below.

TABLE 3.1: HILLSIDE DEVELOPMENT TIMELINE

1995	OCP adopted with policies for new hillside development
2001	A DP process and first set of Hillside Development Guidelines adopted
2001	Subdivision and Development Servicing Bylaw updated design & engineering standards
2006	UMA Engineering was commissioned to undertake a comprehensive audit
2006 - 2009	Non-bylaw improvements implemented including checklists, terms of reference for consultants, and DPs to be completed in advance of subdivision approvals
2009	New Hillside Development Guidelines adopted to encourage greater flexibility, innovation and variation in design
2010	Consultation on bylaw amendments with public and development/builder community
2011	New OCP adopted, with updated policies and hillside standards
2013	New hillside-specific residential zones introduced

2011 KELOWNA OCP - POLICIES

- Support development in appropriate hillside locations which respects and protects the natural topography
- Protect the natural characteristics of the hillsides
- Maintain and enhance the quality of hillside flora and fauna habitat
- Encourage cluster housing options which respond to the natural environment on appropriate sites where grading and site disturbance is reduced
- Encourage the creation of private and public green spaces between development nodes
- Minimize site disturbance by allowing the sharing of driveways, parking, and open space amenities
- Flexibility and innovation on the part of both the City and developer is encouraged to permit projects which result in a reduced impact on the natural environment

CURRENT LIST OF TOOLS IN USE IN KELOWNA

- OCP Designation (20%-30% H Zone)
- Hillside development areas to follow hillside standards, with exemptions
- Subdivision development servicing bylaw
- New development permit guidelines
- Procedures bylaw requires involvement of coordinating professional to apply the guidelines
- Retaining wall standards
- Hillside development guidelines

Kelowna's 1995 OCP outlined hillside development objectives and policies for subdivision development and building on hillside lands. By the early 2000s, there was increasing concern that hillside development was not achieving the community's objectives of sensitive hillside development and environmental protection. Kelowna was seeing numerous developments being constructed that resulted in considerable site disturbance, grade changes, large retaining walls, and removal of vegetation. These changes were having an impact on drainage, particularly for downslope properties; affecting privacy and view considerations; and dramatically affecting the landscape.

As the need for more specific regulations and standards became apparent, the City began using Natural Environment and Hazardous Conditions Development Permit Guidelines to further support the objectives of the 1995 OCP. While the use of hillside development guidelines was considered innovative at the time, subsequent development continued to generate dissatisfaction and concern by Council and the broader community. This led to an audit being commissioned in 2006 that would consider the effectiveness and appropriateness of past practices and regulations. The completed audit was considered to be very comprehensive and included specific recommendations which were subsequently adopted.

Between 2006 and 2013, City staff implemented most of the process and regulatory changes proposed in the audit report to improve hillside development. The objectives of this set of tools were that: a) development would have less visual impact when viewed from afar; b) development would create less impact on the environment and existing terrain; and c) road utility works would minimize visual impact, while creating a pleasant streetscape for hillside residents; and d) building sites would be safe.

The policies and bylaws were also supported by a set of non-bylaw tools including technical guidelines for retaining walls, lot grading, visual assessment, wildfire, geotechnical, and storm water management; and checklists by which consultants and staff can report on and review development.

POLICY & REGULATORY TOOLS TO HIGHLIGHT

- The 2011 **Official Community Plan** defines “hillsides” as lands with a slope of 20% or greater for a minimum horizontal distance of 33 ft. (10 m).
- Hillside areas are required to follow the development standards, including **development permit guidelines**, unless there are no alterations to the site grade. A coordinating professional that is reviewing the design work is expected to apply the hillside guidelines that best suit a particular hillside location. Not every guideline is to be met with every project. Guidelines apply to new areas only and cannot be applied to infill development in existing neighbourhoods.
- The **Development Application Procedures Bylaw** requires that an application for any intensive residential development (three lots or more) be put forward by a coordinating professional. At subdivision, a lot grading plan has to be submitted and registered. Historically, development permits that were put forward after a subdivision had been approved is where shortfalls occurred.
- **Hillside standards** require a covenant on title for any areas with a slope of 30% or greater, areas now considered to be un-developable.
- **Subdivision, Development and Servicing Bylaw** introduces more flexible standards that aim to reduce the impact of hillside development from a servicing perspective. Standards create opportunities for smaller roads and less impact during construction.

TABLE 3.2: KELOWNA - RH1 & RH2 ZONES

Site Coverage	<ul style="list-style-type: none"> • 33% and 40% if elevation is more than 25 ft. (7.5m) or 2 storeys. Otherwise, site coverage is 40% and 50%.
Front-yard Setbacks	<ul style="list-style-type: none"> • 10 ft. (3.0m) and 20 ft. (6.0m)
Rear-yard Setbacks	<ul style="list-style-type: none"> • 25 ft. (7.5m)
Side-yard Setbacks	<ul style="list-style-type: none"> • Establish building covenants that combine side yards to open spaces • 5 ft. (1.5m) side-yard with a sum of 13 ft. (4.0m), where no vertical wall element exceeds 25 ft. (7.5m) or 2 storeys. All other cases, 6.6 ft. (2.0m) with a sum of 16.4 ft. (5.0m) • 5 ft (1.5m) side yard when 5% of total road frontage is dedicated as naturalized corridor
Maximum height	<ul style="list-style-type: none"> • 31 ft. (9.5m) -- Facing front, rear or flanking street any vertical wall shall not exceed 25 ft. (7.5m) or 2 storeys above which the building must be stepped back 6.9 ft. (2.1m) • 30% elevation length may exceed 24 ft. (7.5m) provided a deck/roof projects a minimum of 10 ft. (3.0m) from the face and no wall face above the projection exceeds 16.4 ft. (5.0m)
Decks	<ul style="list-style-type: none"> • Decks are not to exceed 17 ft. (4.5m) or 1 storey in height.
Horizontal wall face	<ul style="list-style-type: none"> • Horizontal wall face - not to exceed 25 ft. (7.5m) after which building face is to be staggered or offset.

- The zoning bylaw was updated to introduce new **hillside-specific residential zones** (H Zones). All lots in hillside areas are expected to rezone to one of the H zones. While not yet tested, the new H zones are expected to reduce visual impact, by way of building articulation, siting and density. They are also more “flexible”, providing options for coordinating setbacks through lot averages for larger subdivision approvals and include incentives for two-storey dwellings.
- **Building envelope covenant** — Building heights and setbacks are registered by a building envelope covenant as a requirements of the new zones.
- **Retaining walls** in existing areas cannot exceed 4 ft. (1.2m), then a 4-foot step back is required, before another 4 ft. of retaining wall can be built. The step-back is seen to provide enough space to introduce landscaping and soften the look of a large retaining wall. The 4-foot maximum can be exceeded upon subdivision if natural stone is used. Note: the City is in the process of updating these regulations to allow an 8 ft. (2.4 m) wall to be built if only one tier is installed.

COMMENTARY ON NEW ZONES

The new zones are expected to be adopted before the end of 2013. They will be piloted over a two-year period, with a full review to be conducted at the end of two years. To develop them, the City implemented a multi-year review process with the development/building community and sought input from local building designers and industry best practices. Staff training and the development of communications materials is planned. Highlights from the new zones:

- **A new approach to height** — The zones include a new way to measure height using four-corner geodetic elevation, where the four corners of a building envelope are surveyed; then the average of the front line and average of the rear line are calculated; and a straight line is drawn in between the two to find a mean. A vertical line drawn along this line to the midpoint of the roof establishes the height maximum for the building.
- **Building massing** — The downslope faces and sides of buildings are expected to be stepped back as they rise to reduce overall building massing. Downslope faces of buildings are also expected to feature greater articulation, which serves to break up massing.
- **Make lots wider** — Minimum lot sizes are only marginally larger for the new hillside zones, but lot widths are significantly increased. Wider lots mean lower density.
- **Side yards are grouped** — An average side yard setback approach results in staggered side yards that help preserve view corridors for residents and reduces visual impact from the valley bottom.



City of Kelowna New Hillside Zones - Downslope and Sideyard Building Articulation

LESSONS & TRANSFERABLE ELEMENTS

- **A clear set of achievable objectives** — The City of Kelowna identified a clear set of community objectives against which the policies and practices around hillside development were tested. The objectives were to achieve hillside development that is aesthetically pleasing, functionally appropriate, and environmentally sensitive. The 2006 audit considered the effectiveness and appropriateness of past practices and regulations to determine if hillside projects were attaining these objectives.
- **Council support for review and implementation process** — Council support facilitated the implementation of strong actions that may receive mixed reception by the public or development community.
- **Internal support and joint vision** — A variety of City Departments were involved in the creation of the new hillside guidelines. It is critical that all departments support the vision, including building department, planning department, engineering and others.
- **Recognition of cost and density realities** — Densities on hillsides will not be as high as those on flat lands if good hillside development is to be achieved. Of equal importance is recognition that servicing hillside development, site grading, and buildings with less visual impact will result in higher costs than developments on flat land.
- **Innovation and flexibility are key** — Recognition that “each development will have site-specific opportunities and constraints to be dealt with through the development permit process”, and that flexibility and willingness to consider unique circumstances will be needed to achieve successful hillside projects.
- **Grading approval at subdivision stage** — A new process requirement is that the subdivision layout and lot size determination is undertaken in conjunction with the development permit process. The site grading plan is a requirement of the development permit. Previously, changes to site grade that occurred after subdivision approval were not monitored. The new regulations require that changes to the grading plan require staff approval.
- **Experience with site intervention controls** — Prior to the more recent changes, retaining wall construction guidelines and limits on blasting were used to control the extent of grading (cuts and fills). The audit found this approach to be only marginally successful.
- **DPA guidelines for landscaping** — The Development Permit Areas enable the City to provide guidelines for landscaping. This is an important consideration as it can take ten years for the initial impact of development to be greened in the arid climate of the region.



WHAT IS INTENSIVE RESIDENTIAL DEVELOPMENT?

In the North Delta context, intensive residential development refers to all new single detached homes, duplexes, or additions, with the exception of:

- Rezoning or subdivisions where a building scheme has been, or will be, registered.
- Developments that have a lesser floor area than the house that is being replaced (i.e. where density is being reduced).
- Additions that are not more than 25% of the floor area of the existing building or 538 sq.ft. (50 sq.m.), whichever is less.

CORPORATION OF DELTA DEVELOPMENT PERMIT AREA

HISTORY & CONTEXT

The existing neighbourhoods in North Delta are made up of homes that were built as far back as the 1960s, and many of these older homes have been coming up for redevelopment. While not a hillside community context, the experience in Delta is similar to West Vancouver in that smaller houses are gradually being demolished and replaced by larger homes and larger lots are being subdivided to provide higher density housing.

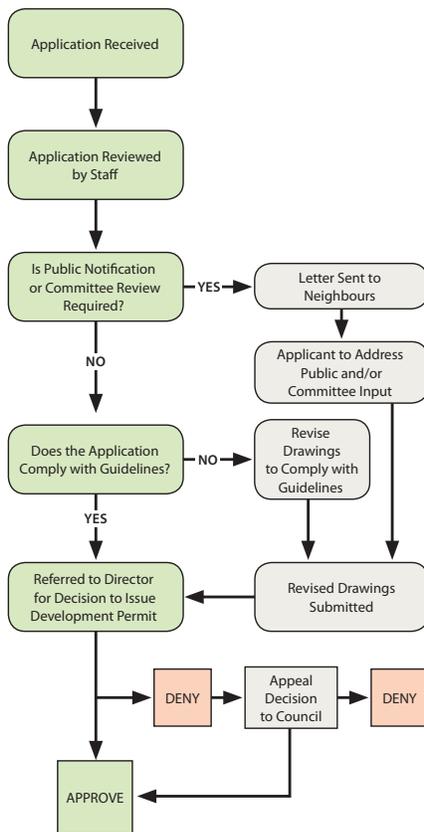
Prior to 2004, this type of redevelopment was causing considerable community concern due to the perceived bulk and design quality attributed to the new houses. In particular, Council and the public were concerned about excessive massing, box like structures, dominant front entranceways, lack of accent materials, lack of building articulation, blank walls, as well as privacy and daylight impacts on adjacent properties.

In response, the Corporation of Delta introduced a number of zoning bylaw amendments to address the issues of scale and massing. First, Delta introduced a cap on house size of a maximum of 3,552 sq.ft.(330 sq.m.) irrespective of the size of the lot. Following that, the entire North Delta area was designated as an intensive residential Development Permit Area (DPA) in 2004. Most recently, basements, which are not seen to affect building bulk and massing issues to a large extent, were excluded from the density cap.

Using the Intensive Residential Development criteria, the new DPA was introduced with the objective of encouraging single detached house design that fits in with or enhances the existing character of the houses in the neighbourhood. A DPA allows a municipality to regulate form and character through a development permit process. The new DPA provides guidance on aesthetics and landscaping, and guidelines for backyards.

The development permit and design review process was delegated to staff. Between 2004 and 2012, staff processed approximately 264 development permit applications — an average of 33 applications per year.

North Delta DP Review Process



POLICY & REGULATORY TOOLS TO HIGHLIGHT

- In order to introduce the North Delta Development Permit Area (DPA), an Official Community Plan amendment was required. The North Delta DPA for Intensive Residential Development was created in Spring 2004. The DPA's objective was to encourage single family residential development that fits in with existing houses and complements or enhances the existing neighbourhood character.
- The new DPA area is accompanied by Guidelines for new housing and larger additions. The guidelines address aspects of building design; massing and setbacks; and landscaping to ensure the developments fit the criteria of intensive residential development and to promote higher quality house designs which are sensitive to the neighbourhood context.
- The guidelines are specifically designed to promote reduced massing, better building proportions, better building articulation, more balanced use of finish and accent materials, more tree protection, higher quality landscaping, better contextual design, and enhanced streetscapes. They provide direction on front and side elevations; front entranceways; garages; materials; rooflines; windows; back yard privacy; second-storey setbacks; landscape treatments in yards; tree retention and new tree planting.

TABLE 3.3: DELTA - RS1 ZONE & General Regulations	
Site Coverage	<ul style="list-style-type: none"> • 45% building site coverage
Maximum Floor Area	<ul style="list-style-type: none"> • Maximum floor area of all buildings cannot exceed 3,552 sq.ft. (330 sq.m.) or the maximum floor space ratio
Floor Space Ratio	<ul style="list-style-type: none"> • 0.3 plus 1,001 sq.ft. (93 sq.m.)
Accessory Structures	<ul style="list-style-type: none"> • 5ft. (1.5m) minimum separation required between principal and accessory structures
Front Yard Landscaping	<ul style="list-style-type: none"> • At least 50% of area extending full width of lot will be landscaped • A maximum 20ft. (6m) driveway is permitted • Vehicles, trailers, boats, campers, and tents are not to occupy any portion of front yard landscaping
Retaining Walls	<ul style="list-style-type: none"> • Cannot exceed 1.2m measured from the base of a wall, and spaced to provide at least 1.2m horizontal separation between them. Retaining walls may be higher where natural grade of property is lower than the affected property.
Impermeable Area	<ul style="list-style-type: none"> • Not more than 60% of the total area of a lot may be covered by impermeable material
Secondary Suites	<ul style="list-style-type: none"> • Suites are less than 40% of the total floor area of the principal dwelling (but not less than 355 sq.ft. (33 sq.m.); with a maximum floor area of 967 sq.ft. (90 sq.m.)

DP APPLICATION REQUIREMENTS

A development permit application for a new single detached house or major addition should be accompanied by:

- A description and outline of the proposed project, its purpose and how it addresses each of the guidelines.
- Colour photos of the lot and neighbouring lots as viewed from the street.
- Set of standard building plans, including building elevations and site profile plan (to be prepared by BC Land Surveyor).
- Building plans to indicate whether the storm and/or sanitary connection requires pumping if a basement is proposed. Plus a covenant preparation fee.
- Colour scheme and materials for building exteriors and roof to be indicated on the plan.
- Generalized landscaping plan for front and side yard on flanking street, including location of existing and proposed trees, shrubs, groundcover, lawn and impermeable surfaces.
- Arborist's Report if there are any trees on or adjacent to the site that may be affected by the proposed development. If any trees are to be removed, a tree replacement plan will be required.

- Basements are defined as being an area of the house that is 50% more in the ground than out of the ground. The municipality requires a restrictive covenant be registered on title to show that there will not be more than one secondary suite on the lot.
- The decision regarding neighbourhood notification is made by the Director of Community Planning and Development. Neighbourhood notification is typically required if staff anticipate concerns regarding the proposal. In such cases, the Community Planning and Development Department delivers a letter to immediate and/or nearby neighbours informing them of the proposal and providing them with an opportunity to comment. The notification process typically adds approximately two weeks to the Development Permit review process.



LESSONS & TRANSFERABLE ELEMENTS

- The municipality's experience has been positive and staff report that the community's objectives are being achieved. There are not as many "monster houses" with dominant frontages as before the DPA was established. There has been improvement in how new houses fit with the character of existing neighbourhoods.
- The requirements and guidelines do not allow for much flexibility, although there is some discretion in terms of how the guidelines are interpreted by planners.
- With only a few designers/builders working in the area, staff have noted that there are a lot of the same types of designs and projects being built. Staff have been trying to work with and educate builders to encourage a greater variety of forms and less repetitive product types.
- The application process is not considered to be too onerous by staff since applicants would have been otherwise required to provide most of the information as part of a building permit process. There are, however, a number of unrelated requirements that may extend the time involved with finalizing an application. These include a covenant (registered on title) for basements (ensuring there is only one suite per property) and a covenant for pump systems to ensure they meet the proper standards. The development permit and design review process usually takes about 4 to 6 weeks.
- For the first six years of the DPA, owners/developers were required to notify the neighbours, but this resulted in a significant amount of staff time dedicated to dealing with neighbourhood complaints, responding to questions by member of Council, and attempts to address concerns through the design review process. This requirement has since been removed and the decision to notify neighbours is left to staff's discretion. This has significantly reduced the duration of the process.



Example of House Design Before North Delta Guidelines

(Photo Credit: Corporation of Delta)



Example of House Design After North Delta Guidelines - A variety of roof levels, gables and dormers break up roof areas.

(Photo Credit: Corporation of Delta)



Example of House Design After North Delta Guidelines - Front entrance limited to 1 or 1 1/2 storeys; Projections and recessions break up front elevations.

(Photo Credit: Corporation of Delta)

COQUITLAM DESIGN GUIDELINES - INTENSIVE RESIDENTIAL DEVELOPMENT DPA (HOUSING CHOICES)

These guidelines apply to duplexes, triplexes, or four-plexes in low-density residential neighbourhoods.

Guidelines to retain and enhance neighbourhood character:

- Encourage new dwellings to minimize overlook and visual intrusion to neighbouring properties.
- Design the roof to minimize the overall building mass, incorporating sloped roof forms and/or articulation and variation of the eaves.
- Encourage detailing and materials on the principal facade to continue around the side elevation to the nearest architectural break or projection for two metres, which ever is less.
- Ensure that all principal and accessory buildings are designed to the same architectural style.
- Encourage the use of high-quality exterior cladding material such as wood, stone or brick on all street-facing facades.

CITY OF COQUITLAM ZONING APPROACH

HISTORY & CONTEXT

In the early 1990s, the City of Coquitlam was facing a similar situation to that of West Vancouver with the replacement of older homes in existing neighbourhoods. City Councillors were receiving many complaints about large houses being constructed next to bungalows, and there was general concern about the impact of these homes in established neighbourhoods. In response, the City introduced a number of zoning changes, implemented as part of a “large house” bylaw, that attempted to reduce the bulk and scale of replacement houses and to increase building articulation.

Since that time, this bylaw was incorporated into the City’s zoning bylaw and is the primary tool used to regulate building size and elements of design for single detached houses. The bylaw includes the use of average wall height and perimeter wall area maximums, requiring designers to step back long horizontal wall faces or step back second storeys.



POLICY & REGULATORY TOOLS TO HIGHLIGHT

KEY POLICIES

From a policy perspective, the City of Coquitlam has adopted a number of policies and practices that address issues of neighbourhood character. In relation to single detached housing replacement, the Official Community Plan identified an objective that new developments ensure compactness “in a manner which maintains existing neighbourhood character and provides for increasing choice.”

Further, Coquitlam has a number of development permit areas (DPAs) that were implemented to address issues of form and character of new houses, but also to protect the natural environment. While the DPA requirements do not apply to the redevelopment of single detached housing, there are a number of design guidelines for intensive residential development that are valuable to consider. Intensive residential development would apply to duplexes, tri-plexes or four-plexes. See Box on design guidelines for Intensive Residential Development.

REGULATIONS

The primary tool in place to regulate infill housing in existing neighbourhoods is the zoning bylaw and the use of average wall height and perimeter wall area regulations. These tools apply primarily to RS1 and RS3 zones, which are the zones most typical in the older established neighbourhoods.

- In the RS1 and RS3 zones, there is no maximum square footage applied through the use of floor area ratio or floor space ratio requirements. However, the use of average wall height and perimeter wall area limits achieves the desired result of staggered wall faces, and as such, greater building articulation and a reduction in overall massing.
- For horizontal wall faces, a maximum perimeter wall height of 20 ft. (6.1m) is permitted and all areas that are within the 45 degree shadow area are not included. As well, a perimeter wall area limit of 93 sq.m is required, with allowances for sloped sites. Higher portions of the building must step back 8ft. (24m.) from the first storey in order to add another storey.
- Height is measured based on the lesser of natural grade or finished grade to prevent manipulation of grade to meet provisions of bylaw.

COQUITLAM DESIGN GUIDELINES - INTENSIVE RESIDENTIAL DEVELOPMENT DPA (HOUSING CHOICES) *continued*

Guidelines to respect the neighbourhood context:

- Buildings should be stepped on sloping sites to reduce the height and massing of the development and reduce the need for retaining walls.
- Design yards to be gently graded, avoiding retaining walls and elevated or depressed front yards with entrances well above or well below street level.

Guidelines to achieve high-quality landscaping and minimize hard surface treatments:

- Design large expanses of paved surfaces, such as driveways, patios or parking areas, using pervious surface materials.
- Landscape all open spaces with a variety of trees, shrubs, flower beds and/or other acceptable planting materials in a professionally coordinated manner. Native and drought tolerant plants are encouraged.
- Encourage buildings to be sited and designed to retain existing mature trees.

- For RS4 lots, which are the compact/small lot zones, a lower building height of 30 ft. (9m) is used to address overall building size. To achieve additional articulation and “improve neighbourliness”, there are greater setback requirements for upper storeys. Specifically, those portions of the building included in the second storeys must be set back by 6 ft. (1.75m), compared to the interior side setback of 4 ft. (1.25m) required of the first storey of the building.
- The newer zones, RS 7, 8 and 9, for example, use a maximum FSR and lot coverage limits. One of the features of interest from these zones is that the uppermost storey has to be set back from the main floor so that the second storey is not more than 85% of floor area below, including front decks/porches. This new approach was introduced following a review of other municipalities’ regulatory tools and approaches and was perceived by staff to be easier to implement than the setback approach in the other older zones (i.e. RS4).
- Retaining walls have a maximum height of 3.9 ft. (1.2m) with a minimum separation of 3.9 ft. (1.2m) between them. This type of terraced effect serves to break up the height of large retaining walls.

PERIMETER WALL AREA EXCLUSIONS

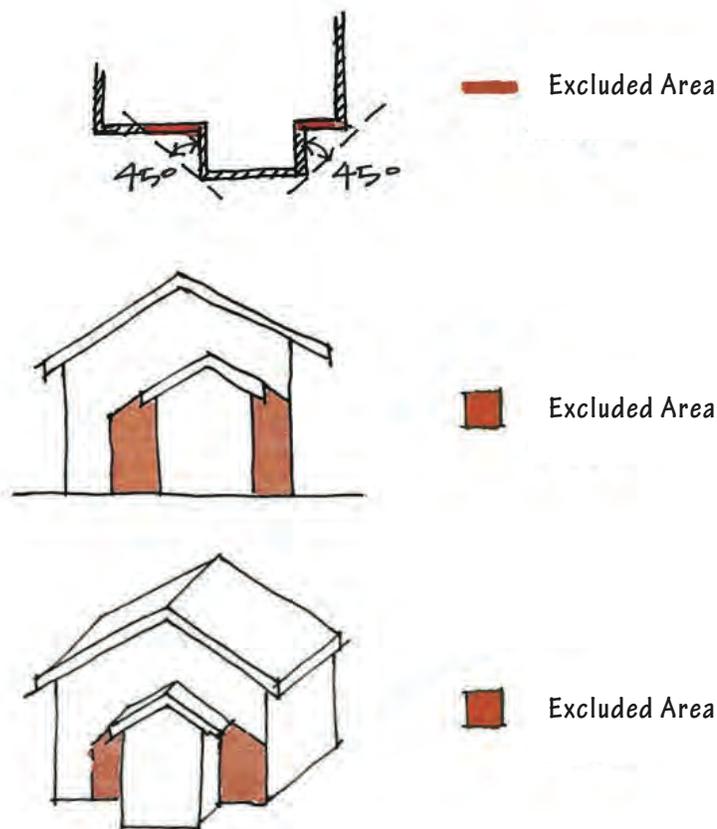


Illustration of Coquitlam's Perimeter Wall Area Exclusions (RS1 and RS3 Zones)

COQUITLAM - RS1 ZONE & General Regulations	
Site Coverage	<ul style="list-style-type: none"> • 45% site coverage (all building and structures)
Maximum Floor Area	<ul style="list-style-type: none"> • No floor area restrictions
Maximum Height	<ul style="list-style-type: none"> • 24 ft. (7.3 m), or 36 ft. (11m) for buildings with a roof slope with a pitch of 3 in 12 or greater for an area of at least 80% of all roof surfaces.
Average Perimeter Wall Height	<ul style="list-style-type: none"> • For any face, must not exceed 20 ft. (6.1m)
Perimeter Wall Area	<ul style="list-style-type: none"> • Must not exceed 1,001 sq.ft. (93 sq.m.)
Building Size	<ul style="list-style-type: none"> • Maximum volume of building is based on a calculation of perimeter wall area and perimeter wall height for each face of the building.
Retaining Walls	<ul style="list-style-type: none"> • Limited to 3.9 ft. (1.2m) in height, with a minimum 3.9 ft. (1.2m) separation in between.

LESSONS & TRANSFERABLE ELEMENTS

According to City staff, the “large house” zoning regulations have had the desired effect of achieving a positive improvement in the design of new houses. However, there are a number of elements related to Coquitlam’s experience that are worthy of additional consideration.

- The main challenge that has been noted is with the complexity of the calculations associated with wall area and height calculations. Compared to the use of floor area ratios, the use of weighted averages is found to be confusing for designers/builders. Staff reported that applications often involve two or three revisions before approval. Notwithstanding this challenge, there is a sense that once the calculations are understood they provide designers with enhanced flexibility, allowing them more freedom to design the building as they choose.
- While the regulations are specific, and the plan checkers aim to be consistent in how they apply the regulations, staff report a level of discretion is applied, with a focus on ensuring that the builder is trying to meet the intent of the bylaw.
- Relaxations to the wall area limits have been implemented for lots on sloped sites, such that builders are not penalized for sloped site limitations. For every 1% of slope (from front to back corner), a building on a sloped site is allowed 0.5 ft. (0.15m) of extra wall space on downhill side and 0.5 ft. (0.15m) of wall height.
- The City recently consolidated and updated its design guidelines into one document, which have been incorporated into the OCP as citywide design guidelines. The guidelines are now common to all development permit areas, which is expected to provide clear design direction and improve development application processing times and staff efficiency.

HIGHLIGHTS FROM OTHER MUNICIPALITIES

In addition to the three case studies described, there are various tools and approaches used by other municipalities and jurisdictions that are of interest. A small selection of these are noted here.

CITY OF VANCOUVER

In the City of Vancouver, the zoning for one family dwellings (particularly RS-3, RS-3A, and RS-5) was developed to maintain the single-family residential character of those neighbourhoods. These zoning districts support new development that is compatible with the form and design of existing development. Through the use of discretionary provisions, planning staff can determine appropriate site grading, heights, and building setbacks relative to the existing conditions of adjoining homes. This focus on compatibility is intended to mitigate the impact of bulk and size of new houses.

Vancouver also distinguishes between “outright” uses, such as the construction of a one-family dwelling that is considered compatible with surrounding form and design, and “conditional” uses, such as infill and laneway housing, that may introduce a different character than is currently present. Conditional uses typically require the approval of the City’s Development Permit Board or the Director of Planning.

The City of Vancouver is governed by the Vancouver Charter, which gives the City greater legislative authority than other BC municipalities, which are governed by the Community Charter and the Local Government Act. While West Vancouver may not share Vancouver’s discretionary powers, the District could implement a similar approach of outright and conditional uses. The District would need to consider wider use of its existing Development Permit Area Guidelines, perhaps introducing a Development Permit Area specifically intended to help manage replacement of single family homes in existing neighbourhoods.

RESORT MUNICIPALITY OF WHISTLER

Whistler’s use of mean height calculations has been noted to be effective at controlling bulk and massing issues on sloped site terrain. In Whistler, “mean height” is determined by:

- Calculating the area of each plane within the roof (in plan view) as a percentage of the entire roof;
- Multiplying the mean height of each plane by its percentage of the overall roof area; and
- Adding together the weighted averages of the heights of the roof planes to establish the overall mean level of the roof. (See Example of Calculation in Table 3.4)

This approach to height provides the designer/builder with the flexibility to best address site-specific conditions. The overall height is limited by the maximum height established in the zone, which is typically 25 ft. (7.6m). Introducing lower roofing forms serves to lower the mean height and this allows other portions of the building to project higher, providing greater articulation in the overall building massing.

TABLE 3.4: WHISTLER - Example of Mean Height Calculation				
Plane	Area (Sq.Ft.)	%	Height (Ft.)	Weighted Height
1	200	9%	12.5	1
2	200	9%	12.5	1
3	200	9%	12.5	1
4	1,600	73%	25	18
Total	2,200	100%		22
Mean Height = 22				

MARIN COUNTY, CALIFORNIA

Marin County implemented a set of single family residential design guidelines to assist with creating desirable new developments. The design guidelines are applied as part of the design review process, giving the County an opportunity to provide constructive direction to development. The Design Guidelines emphasize essential principles of development, particularly site planning, preservation of natural features, compatibility with neighbouring development, general building form, massing and scale. The guidelines do not address more subjective measures such as architectural styles. Highlights includes:

- Grading should be kept to a minimum and performed in a way that respects significant natural features and blends visually with adjacent properties.
- To avoid excessive building bulk viewed from adjacent lots and front and street side elevations, stepbacks should be incorporated into the design of residences.
- The design of proposed projects should consider the composition and integration of the outdoor spaces and buildings that make up the physical neighbourhood. Generally, the floor area of proposed development should not substantially exceed the median home size in the surrounding neighbourhood.
- The form, mass, profile, and architectural features should be designed to be compatible with the scale and character of the neighbourhood.

While the legislative context is not comparable, there is an opportunity to implement design guidelines for single family development where a development permit area is established.



Illustration of Appropriate Massing from Marin County Single Family Guidelines

4

MOVING FORWARD



EFFECTIVENESS OF REGULATIONS

- Is the use of FAR necessary? Floor area ratio limits, or the placing of a cap on floor space are two strategies used elsewhere in the Metro Vancouver region, both of which can be contentious. In light of such experiences, are there other regulatory tools that offer similar outcomes (i.e. control of massing and bulk) yet focus on specific aspects of the proposed development, be it overall building height, wall height measurements, or wall area limits.
- Does the use of Highest Building Face regulations result in an increase to building facade modulation? Are there simpler means to achieve greater variety and modulation of the facades?

As established neighbourhoods in West Vancouver continue to transition, with older houses being replaced by new ones, ongoing tensions can be anticipated. Moving forward, this paper offers some questions to ponder as well as some suggestions for future consideration.

QUESTIONS & CONSIDERATIONS

Having reviewed the context and issues of single family housing replacement in West Vancouver, a number of questions and considerations have come to light that might be valuable to include as part of future review and planning.

Community Objectives & Priorities — What is the common vision about what the key issues and priorities are? To identify a set of tools and an effective response to the current situation, it is important to agree on what the community's objectives and priorities are.

Effectiveness of Regulations — Are the current regulations achieving what they intended to achieve and are they meeting community expectations? While West Vancouver has a detailed and complex set of zoning requirements, it is not clear that they have entirely addressed the community's concerns around visual impact, environmental protection, and neighbourhood disruption. (See Box)

Flexibility — Is there enough flexibility in the regulations to allow for creative ways of siting and development that achieves a better fit/relationship to the land? Does the zoning bylaw foster creativity, flexibility, or opportunities to innovate.

Simplifying the Rules — Conversations on housing in West Vancouver have revealed that current regulations result in onerous calculations and subsequent errors by the applicants. Is there a way to simplify/clarify calculations? Could this include more graphic depictions?

Visual Impact as Priority — Is visual impact the critical issue? If it is, there may be specific adjustments and bylaw amendments to re-focus the regulations on the visual impact of new developments. (See Box)

Environmental Sustainability — Is the central issue related to protecting the environment and respecting the natural terrain? If that is the case, should there be more intensive regulations regarding tree protection, pervious surface requirements, and using 'design with nature' siting techniques. Should mature trees be protected or at the very least, a value be placed on their removal? Are there incentives that facilitate good design, siting and integration?

Construction-Related Disruption — To what extent is neighbourhood disruption from construction the cause of the ongoing friction? Is there a way to engage neighbours to minimize disruption and impact of construction, but not increase the already lengthy construction time? Do current bylaws, like the noise bylaw, inadvertently extend the construction timeframe? Can the construction period be streamlined?

FOCUSING ON VISUAL IMPACTS

- Is there an opportunity to shift the bulk around the site to reduce the visual impact, but still achieve same density?
- Highest building face is currently not regulated on all sides; it only applies to the facade of a house with greatest height differential across the facade. Should building face apply to more than one facade?
- Is there a need for different regulations for uphill lots versus downslope lots? If the uphill lots have the greatest visual impact, should the rules be more stringent for those lots?

PRECINCT 2				
Design Guidelines				
TABLE OF ELEMENTS				
CHARACTER ELEMENT	OBJECTIVE	DESIGN RESPONSE	AVOID	ILLUSTRATION
VEGETATION	<ul style="list-style-type: none"> • To maintain and enhance the landscaped setting of dwellings. 	<ul style="list-style-type: none"> • Ensure front gardens incorporate soft landscaping that complements the streetscape. • Ensure the retention of large trees. 	<ul style="list-style-type: none"> • Removal of large trees. • Front gardens dominated by hard surfaces. • Loss of front gardens. 	 <p>Encourage landscaped gardens.</p>
SITING	<ul style="list-style-type: none"> • To maintain and enhance the existing streetscape rhythm and sense of spaciousness. • To maintain the existing spacious backyard character and enhance the area's leafy feel. 	<ul style="list-style-type: none"> • Ensure buildings are setback no less than the average distance of the front setback of the adjoining properties on either side or 9m, whichever is less. • Ensure buildings are setback from at least one side boundary in accordance with the prevailing streetscape spacing. • Ensure buildings are sufficiently setback from rear boundaries to maintain the open, backyard character of the immediate area where this exists. • Provide a secluded private open space area with a minimum dimension of four metres to enable the planting and retention of large trees. • Give preference to units set one behind the other as opposed to side by side town houses. • Ensure new development on a corner site is adequately set back to provide a transition between the adjoining buildings. 	<ul style="list-style-type: none"> • Dwellings set too far forward. • Boundary to boundary development. • Dwellings built too close to their rear boundary with other residential properties. 	 <p>Side setbacks</p> <p>Siting on corner sites</p> <p>Front setbacks</p> <p>Siting of units</p>

Example of Design Guidelines

TOOLS TO CONSIDER

The experience from other municipalities brings to light some new tools or approaches for West Vancouver to consider. Zoning is the regulatory tool currently in use by the District to attempt to control bulk and massing issues related to single detached housing replacement in existing neighbourhoods. Other tools in place relate to construction-related disruption and site intervention, namely noise and blasting bylaws, as well as the soil removal and deposit bylaw.

To varying degrees, these tools and regulations have had some effect at minimizing the impact of large house redevelopment on neighbours and neighbourhoods. However, ongoing community concern has called for a review of other tools and practices to further enhance the effectiveness of West Vancouver's approach. The following tools and approaches are in practice in other jurisdictions and may be worthy of consideration for West Vancouver.

DEVELOPMENT PERMIT AREAS

Different areas in a municipality can be designated as development permit areas (DPA) to establish objectives and guidelines for form and character of residential development. Recent legislation (Bill 27, 2008) has expanded the authority of local government to establish development permit areas for the following purposes:

- Protection of the natural environment, its ecosystems and biological diversity (e.g. loss of trees and natural vegetation).
- Protection of development from hazardous conditions (e.g. drainage impacts and potential flooding from excessive site intervention).
- Establishment of objectives for the form and character of commercial, industrial, or multi-family residential development (e.g. principal dwelling and coach house).
- Establishment of objectives to promote energy conservation or reduction of greenhouse gas emissions (e.g. siting and building orientation; designing for shade and ventilation; drought tolerant plants, etc.).

While West Vancouver has implemented DPAs under this recent legislation, they have not been applied to the redevelopment of single detached houses in existing neighbourhoods. The experience from North Delta that is described earlier in this study highlights the use of intensive residential development to control form and character of houses that are larger than the houses they are replacing. The development permit process in North Delta was found to be effective at improving the design & compatibility of homes, with little or no additional staff time needed.

Equally, the coach house bylaw preparations that are currently underway create an opportunity to consider the introduction of form and character guidelines for properties with a coach house, and for these guidelines to apply to all buildings on that property.

DESIGN GUIDELINES

Design guidelines are developed alongside development permit area requirements to provide direction to builders and designers regarding design and layout aspects that are not typically addressed through zoning, such as colour schemes and landscaping. Design guidelines can also be introduced on a voluntary basis, although they are more effective if they can be tied to a development permit requirement. Based on Kelowna's experience with hillside development guidelines, it is best to keep guidelines to a manageable/achievable number and allow the design professional to identify the specific guidelines which the building corresponds with. The use of graphic depictions and photographs is also effective at illustrating the intent behind the guidelines.

LINKING DENSITY TO DEVELOPMENT PERMIT PROCESS

Another outcome of the development permit area process may be to link increased density to the development permit process, and in doing so create a tiered level of development review and set of requirements. That is, if a building's FAR was under a pre-determined threshold (e.g. 0.3), then a development permit would not be required, similar to the current development process in the District. If, however, a developer/applicant wishes to explore a density threshold beyond the base minimum density (e.g. up to a maximum of 0.35), then the requirement for a development permit would be triggered.

ALTERNATIVES TO CURRENT ZONING

West Vancouver's zoning requirements and related calculations are reported to be among the most rigorous and complicated in the region. To address this, a detailed audit of current zoning regulations may be required to identify ways that it can be adjusted and simplified. It would be important to consider, for example, if additional limits to house size were introduced by way of reducing the FAR, or by removing the exclusion of basements in FAR, would this actually achieve the intended objectives? Is there the potential for unintended consequences such as basements being dug out after the fact? How can the current calculations related to natural grade, height, and highest building face be simplified?

MONITORING

An important consideration and process aspect that is often neglected is follow up and review of the effectiveness of new tools and regulations following implementation. Following an agreed upon time period (e.g. two to five years), it would be beneficial to conduct a post-implementation study to determine the effectiveness of the new regulations and the extent to which they have achieved the community's overall objectives. Kelowna's evaluation and post-implementation review of their hillside development practice is a good example of the effectiveness of ongoing monitoring and assessment.

NEXT STEPS

This paper was intended to summarize the current context and issues in West Vancouver and present some food for thought as well as some potential tools to consider as part of ongoing consultation on the topic of siting, form and character for new single detached houses in existing neighbourhoods. It provides a framework for future community engagement in West Vancouver. It is anticipated that such community engagement and additional review will be undertaken in early 2014.

APPENDIX A - SOURCES & CONTACTS

LIST OF KEY DOCUMENTS & SOURCES

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16. District of West Vancouver. December 2012. The Potential for 'Coach Houses' in West Vancouver: A Discussion Paper.
17. District of West Vancouver. March 4, 2013. Council Report: Council Reconsideration of Directions from Committee of the Whole Meeting on Neighbourhood Character and Housing Held on January 28, 2013. Prepared by Bob Sokol.
18. Marin County Community Development Agency. July 2005. Single Family Residential Design Guidelines.
19. Resort Municipality of Whistler. 2011. Builder's Information Package - Residential Projects.
20. Resort Municipality of Whistler. 2013 Consolidation - Zoning and Parking Bylaw No.303, 1983.

Municipality	Contacts
Corporation of Delta	Jimmy Ho, Planning Alex Cauduro, Building Permits
City of Kelowna	James Moore, Policy & Planning Ryan Smith, Real Estate Services (formerly Strategic Planning)
City of Coquitlam	Ryan Perry, Planning & Development Adam Quinones, Building Permits

APPENDIX B - GLOSSARY

DEFINITIONS & DESCRIPTIONS OF KEY TERMS

This glossary includes a list of descriptive definitions of key terms that are currently in use by the District of West Vancouver.

Accessory Buildings	<p>A building that is smaller, and usually incidental, to the principal building, such as a shed or a garage.</p> <p>Currently accessory buildings that are located closer than 15 ft. (4.6m) to the principal dwelling only receive a 50 sq.ft. (4.6 sq.m.) exemption in the floor area ratio. Accessory buildings were previously not included in total FAR calculations, but this was amended in 2008 following concerns that they were being used to increase total habitable space without inclusion in permitted floor area.</p>
Average Grade	<p>Measured around the perimeter of the building or structure at or directly above or below the outermost projection of the exterior walls or the posts of carports.</p> <p>Average grade (combination of natural and finished) is measured around the perimeter of a building (not including a deck). The lower of average natural grade or average finished grade is used in building height and floor area calculations. To calculate the average finished grade and natural grade for the building, calculate the average grade elevation for each wall section by dividing the grade elevation at each end by 2 [(grade x and grade y) ÷ 2 = average], then multiply this average grade elevation by the length of that wall section; add the resulting numbers for each section of wall; divide this total number by the total perimeter wall length of the building. This will be the average grade, natural or finished.</p> <p>See Building Height.</p>
Basement	<p>A storey that is more than 1 ft. (0.3 m) below the lower of average natural or average finished grade</p> <p>Basements are partially excluded from FAR. The area that is exempt is based on a calculation of the basement volume that exists below the lower of average natural or average finished grade (i.e. if the basement is half underground, then half of all basement square footage is exempt)</p>
Building Bulk	<p>Bulk is a quantified measure and a qualitative perception of building development intensity. Volume and size attempt to quantify bulk, but qualitative issues like neighbourhood compatibility and design are critical considerations when attempting to describe bulk.</p>
Building Height	<p>Height is measured from the lower of average natural grade and average finished grade. Maximum height is measured from the midpoint of a pitched roof, but allows an additional 3 to 4 ft. (~1m) of roof above allowable 25 ft. (7.6m) maximum.</p>
Boulevard	<p>The strip of land that separates the edge of the road from the property line. How boulevards are maintained or developed can have an impact on neighbourhood character.</p>
Covered Verandas	<p>Covered decks on the top floor of any two storey house were added to FAR calculations in 2008, as a result of their “excessive” use on the top floor of houses and resulting impact on neighbours. Previously, if decks or patios did not exceed 2 ft. (0.6 m) above the higher of natural and finished grade, they were not included in FAR.</p>

Floor Area Ratio	<p>Also known as floor space ratio (FSR), floor area ratio (FAR) is the total area of a building (in square feet or square metres) divided by the total area of the lot that the building is located on. FAR is used to control density.</p> <p>In West Vancouver, generally FAR is established as 0.35, meaning that the maximum area of a permitted house is 35% of the lot area for typically sized lots (7,287 sq. ft.) There are several exemptions to FAR:</p> <ul style="list-style-type: none"> • Garages that are 440 sq.ft. (41 sq.m.) • Accessory buildings that are 240 sq.ft. (22.5 sq.m.) or less, and located at least 15 ft. (4.5 m) from the principal dwelling • A percentage of the basement, as described under the above description of Basement • Open balconies
Finished Grade	The final ground surface after development.
Grade Line	Grade line refers to the maximum limit of the combined natural slope of the land plus the slope created by retaining walls and fill. In reference to retaining walls and grade buildup, grade line means a line above which retaining walls and finished grade are restricted.
Hillside Development	The definition of what is considered hillside development varies across the municipalities within the province. Some consider slopes of 10% or greater as hillside, while others consider 20% or higher as hillside or steep terrain.
Highest Building Face	Of the four building elevations (front, rear, left or right side), highest building face refers to the one which has the greatest difference in height. Height is measured from the midpoint of the roofline (average eave or parapet level) to ground level (based on the lower of natural or finished grade along that face). The highest building face is usually the facade on the downhill side of the property, but is not always the face with the most exposed area. See Highest Building Face Envelope.
Highest Building Face Envelope	<p>A three dimensional envelope, within which the entire building must be situated. It is achieved by drawing a series of vertical lines at all points along the exterior face of a building, then inward over the building at right angles to the plane of the building at an angle of 45°. It is applied to the one facade with the greatest exposed height (usually downhill facade of a building).</p> <p>Highest building face and highest building face envelope were intended to reduce the appearance of bulk and facilitate more articulation of the building mass and front facade.</p>
Retaining Wall/Grade Line Heights	Retaining wall heights are generally restricted to a height of 4 ft. (1.2 m) but can reach a maximum of 8 ft. (2.4 m), under certain conditions. The regulations on retaining wall height and grade line were created to control changes to the existing land form through the construction of high walls at the property line or creating major grade increases at the street level or next to a neighbouring property.
Rock Removal Volumes	The maximum allowable volume of bedrock that can be removed is 200 m ³ (with an allowance for typical overblast). Volumes over that amount are permitted only if approved by Council using criteria that establish a better fit of the house on a site and achieve reduced neighbour impact.

APPENDIX C - TIMELINE OF KEY POLICIES & BYLAW AMENDMENTS

Year	Bylaw/Policy	Description
1972	Bylaw 2416	Zoning bylaw amended to permit in-law suites in single family dwellings. Occupancy of in-law suites is restricted to direct "family" members.
1978	Bylaw 2733	Changes the definitions for front, rear and side yards in RM1 and RM2 zones to provide for east-west sideyards.
1980	Bylaw 2877	Bylaw amends minimum site widths for a single family dwelling to 33 ft. (10 m) and the minimum site area to be 4,000 sq.ft. (370 sq.m).
1980	Bylaw 2883	The definition of an enclosed balcony amended to: "a balcony on the exterior of an apartment, separated from the interior of a building by all-weather glass doors and/or windows, any part of which balcony has been enclosed by transparent glass above the level of its protective rail or wall. The definition of FAR was amended to exclude up to 100 sq.ft. (9.3 sq.m.) of an enclosed balcony as long as its all-weather glass doors and/or windows remain in place.
1980	Bylaw 2899	Bylaw amends minimum side yard setback requirements within residential zones. In general, a minimum side yard setback of 5 ft. was established. A sum of 10 ft. (3.0m) side yard for RS5, 16 ft. (4.9m) for RS2 and RS3, and 15 ft. (4.6m) for RS4.
1981	Bylaw 2962	Floor Area Ratio introduced. Floor area ratio for single family dwellings is not to exceed 0.45. Total FAR to include basements where ceiling is 2 ft. (0.6m) above average finished grade. Floor area excludes garages smaller than 592 sq.ft. (55 sq.m.) and any exterior accessory buildings. Notwithstanding this, the floor area need not be less than 3,003 sq.ft. (279 sq.m.) or 0.6 times the area of the lot.
1984	Bylaw 3179	Bylaw to create a new single family zone (RS9) and to rezone the south sides of the 1100 and 1200 Block Esquimalt from RS5 zone to RS9 zone.
1987	Bylaw 3360	Bylaw amends definitions of basement, cellar and height. Basement and cellar are now defined using the lower of average natural grade elevation or the average finished grade elevation calculated around the perimeter of a building. Height is defined as the vertical distance (from the lower of average natural grade or average finished grade calculated around the perimeter of a building) to the midpoint of the roof.
1989	Bylaw 3511	Bylaw to amend various regulations: FAR decreased to 0.35 for most lots. Site coverage decreased to 30% for most lots (40% for small lots). Front yard paving restricted, and parking from the lane required; combined side yard setback regulations increased.
1989	Bylaw 3515	Bylaw to amend certain regulations respecting accessory buildings
1990	Bylaw 3623	Bylaw to amend minimum building site conditions and dimensions. Newly-created lots must provide a specific building envelope capable of accommodating a building footprint of 2,000 sq.ft.(185.8 sq.m.) or 20% of lot area, whichever is less.
1991		Amendment to the OCP to require DPs for subdivision of steep sloped land.

Year	Bylaw/Policy	Description
1992	Bylaw 3774	Bylaw to amend various regulations respecting building and structure height, setbacks and other related issues. New definitions and changes to Highest Building Face, Highest Building Face Envelope, FAR, Grade, Side yard, retaining wall, etc. (different zones).
1992	Report	SAFE - Soil and Foundation Excavation report on blasting and site construction.
1992	Bylaw 3786	Soil Removal and Deposit Regulation bylaw regulates the volume of rock that can be removed from a site and requirements to notify surrounding neighbours of blasting activities. The allowed volume is ~50% of the basement volume up to a max. of 600 m ³ .
1994		Instituted highest building face, retaining wall grade line and upper storey combined side yard setback regulations
1996	Bylaw 4020	Bylaw to amend various regulations to the zoning bylaw respecting the form and siting of buildings and structures. Minor changes to FAR exemptions, site coverage, retaining walls, side yard setbacks, and accessory buildings: <ul style="list-style-type: none"> • Increased side yard setbacks for two storey buildings • Increased allowed site coverage for medium sized lots • FAR exemption for parts of basements • Reduced parking area exemption from max. 592 sq.ft. (55 sq.m.) to 440 sq.ft. (40.9 sq.m) • Reduced grade line angle for retaining walls from the front/flanking sides of property lines from 45° to 36 7/8°
1997	Bylaw 4070	Minor changes to setback regulations and corrections to improve clarity
2004	OCP	The new OCP included Built Form and Neighbourhood Character policies that highlight distinctive neighbourhoods and aim to “retain and enhance the overall character of neighbourhoods, particularly in relation to boulevards, general lot sizes, building form and size, public and natural amenities and street forms.”
2008	Community Process	Community Dialogue on Neighbourhood Character and Housing, which included workshops, a survey, plus other engagement approaches.
2008	Community Process	The Housing and Neighbourhood Character Working Group recommended that single family zoning be amended to address community concerns over the integration of new houses in established neighbourhoods, in terms of size and apparent bulk, e.g. floor area, siting, height and massing
2008	Bylaw 4581	A bylaw to amend sections of the zoning bylaw respecting FAR. Bylaw reduces permitted size of accessory buildings to 50 sq.ft. (4.6 sq.m.) if located closer than 15 ft. (4.6m) to the principal building. FAR calculations to include covered balconies.
2010	Community Process	Housing Pilot Project Program to develop up to three projects to test new ideas or design concepts with respect to development of single detached housing lots.