CITY OF CHILLIWACK

Eastern Hillsides Comprehensive Area Plan

Department of Planning and Strategic Initiatives **May 2012**

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1 Introduction: Growth Context

Location and Site Characteristics

The Eastern Hillsides is located in the southeast part of the City of Chilliwack, approximately 8 kilometres from the downtown. It forms part of the rising north slopes of the Cascades that separates the Chilliwack River Valley from the agricultural lowlands of the Fraser River. The Eastern Hillsides comprises approximately 1,340 hectares. It is bounded to the west by the Ryder Lake uplands, to the south by Lookout Ridge and Elk Mountain, to the east by the Cascades in the Fraser Valley Regional District, and to the north by the Trans-Canada Highway and valley floor farmland. (Figure 1A – Planning Context.)

The Planning area, as identified on Figure 1B, contains significant natural features, including areas of steep topography, five main watercourses and associated ravines, and a substantial forest cover. These features represent both opportunities and constraints to future development.

Approximately 45% of the Plan Area contains slopes exceeding 30%, the generally accepted limit for urban development. The area's watercourses, ravines and forests provide fish and wildlife habitats that warrant protection. Past studies have also highlighted potential hazard areas that are incompatible with development. Our knowledge of this area remains incomplete and in-depth site analysis and systemic studies prior to broad-scale development are a prerequisite.

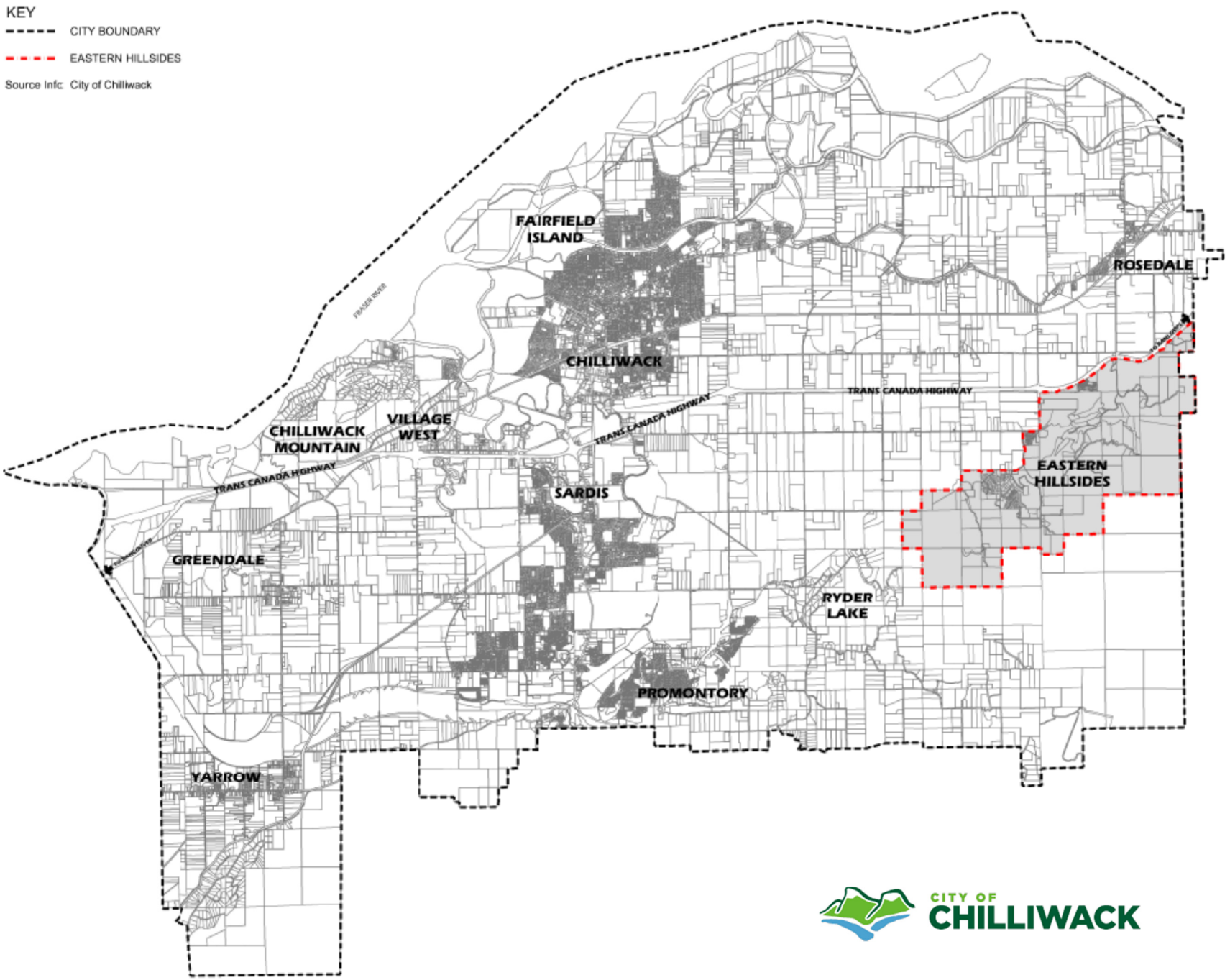
Development History

Early settlers homesteaded in East Chilliwack and the Eastern Hillsides was part of a thriving logging/milling industry in the late 19th and early 20th Century Chilliwack. Roads (wagon roads) such as Nixon, Ruddock, Allan and Hinkley go as far back as 1911, attesting to Eastern Hillsides' separate origin from modern suburbanism.

Around the 1970s, "exurbanites" began to build in the area, ushering in a new settlement period. However, it was only in the 1990s that suburban development moved toward "modern" community development where a formal structure and local amenities became essential.

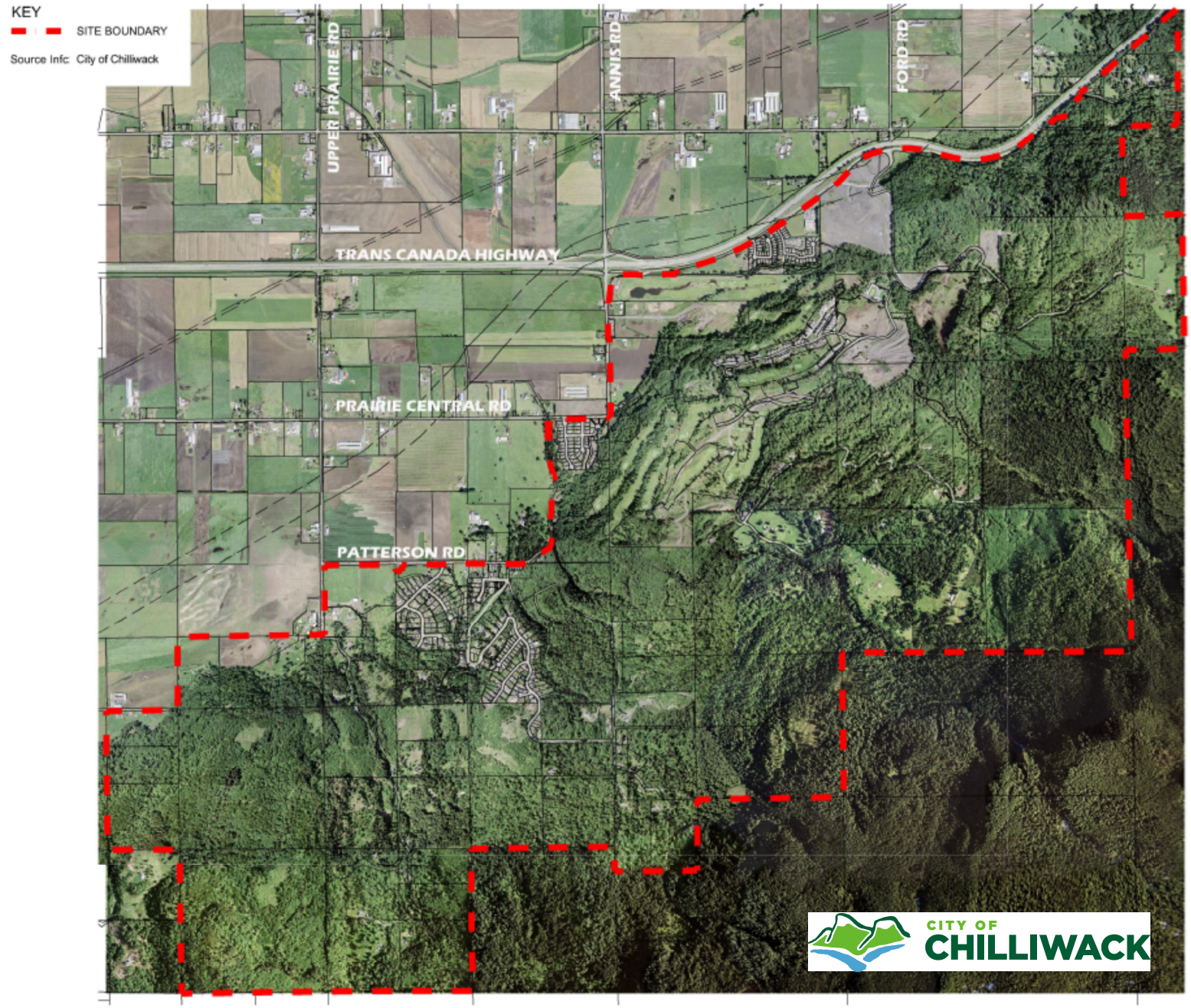
In 1994 the City adopted the Eastern Hillsides Comprehensive Development Plan, anticipating the robust growth of the Fraser Valley to continue into the future. The housing boom of the 1990s, however, ended shortly after the plan was adopted and clear signs of recovery only appeared after 2001.

Figure 1A Eastern Hillsides Planning Context



URBANSYSTEMS.

Figure 1B Eastern Hillsides Plan Boundaries





By the early 2000s, the suburban trend, driven by readily available and affordable land, had already passed its peak in the upper Fraser Valley. In Chilliwack, the first Eastern Hillsides suburban homes began construction near the base of the slopes; their large semi-serviced lots immediately set them apart in the housing market.

Even after full municipal services were extended to the area in 2001 and small lot zoning was introduced, the Eastern Hillsides continued with its focus on a specific segment of the suburban home markets (resort-oriented and a rural/natural setting), probably due to a relatively solid demand for single family homes, a limited supply (and choice) of green-field sites in the municipality, and the high costs associated with site engineering and servicing in this area. This specific housing trend and cost structure are unlikely to change much in the future, and they pose a formidable challenge to "inclusive community" planning for affordable housing.

Growth Management Strategy

Since the adoption of the1994 plan, the role of the Eastern Hillsides area within the City's Growth Management Strategy has evolved differently as hillside infrastructure costs, basic development requirements, and hillside residential market trends have become better known. Nevertheless, the 1998 Official Community Plan, following the recommendations of the 1994 Eastern Hillsides Plan, supports new community development in this southeast location of the municipality. It presents a strategy that looks to both the densification of the existing town site and select hillside community developments to meet urban growth needs and to protect agricultural land on the valley floor.

The 1994 Eastern Hillsides Plan envisioned a "complete community" of between 13,500 to 17,000 people for this hillside location. It represented a significant future growth capacity for the City. However, in 2000, following a detailed review by the City of the area's development potential in light of new environmental protection requirements and the most cost-effective approach to municipal servicing, only 12 of the original 29 potential "developable cells" were considered as accessible for development. An evaluation of the market trends and the 12 accessible areas resulted in a lowering of the anticipated population target to approximately 6,900 people.

Since then, a number of the lower, gentler slopes have been developed for single family subdivision. However, several developments within the municipality undertook extensive tree clearings and caused widespread community concern. As a result, the City prepared new Hillside Development Guidelines[1] and adopted a Municipal Tree Management Regulation[2] in 2008 and 2009, respectively.

With more difficult terrains and costly infrastructure upgrades impending, the next phase of development is expected to occur at a slower rate and move toward higher cost homes as dictated by economics. This will further impact the Eastern Hillsides' role in the City's long term growth vision.

This Plan aims to identify a scale that is conducive to cost-effective servicing and an optimal build-out yield, while supporting the community's hillside development objectives, fulfilling the governing environmental requirements, and observing geotechnical constraints. Above all, the focus of the future planning and development of this area is community building – much more than residential subdivision; and in this context, the City intends to play a leadership role in major infrastructure and amenity development, where its finances permit, for the future community.

[1] The City's Hillside Development Guidelines lays down the best practices regarding the natural hillside environment, site planning, building form and servicing. It also addresses specific issues such as retaining walls – their scale, type, environmental compatibility and aesthetics.

[2] The Tree Management (Land Development) Bylaw 2008, No. 3585, details the requirements of tree retention and replanting in the course of development, especially on the hillsides with a natural forest cover. They need to be reflected on the site plans of proposed hillside developments.

2 Intent of Plan

This plan, the Eastern Hillsides Comprehensive Area Plan (2011), presents an updated vision for a sustainably scaled Eastern Hillsides community, taking into account development economics, market trends, and the local residents' concerns and desire for carefully managed hillside development.

The Eastern Hillsides Area Plan aims to strike a prudent balance among the following realms:

- **The City's growth strategy** – including all of the provincial and federal environmental directives;

- **Economic/market dynamics** – considering the servicing needs and the long term market demand for housing in this area; and

- **Site capacity** – supporting the City's Hillside Development Guidelines and the community values for maintaining natural areas, protecting wildlife and their habitats, and reinforcing protection from geotechnical hazards.

Each of these realms entails in-depth study and broad consultation in order to arrive at a common vision for the future[3]. At the same time, the City has to acknowledge the realities of the existing community and its historic commitments to the current residents: future changes should be evolutionary and carefully planned.

The Plan's ultimate goal is to build a livable, healthy community. Its scope extends to amenity provision and collaboration with outside agencies, including school capacity, park and recreational facilities, and local shopping. Despite the suburban nature of the Eastern Hillsides community, the Plan will explore ways in which the Eastern Hillsides can contribute to the City's and the FVRD's long term sustainability objectives[4].

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[3] City of Chilliwack. ***Eastern Hillsides Comprehensive Area Plan, Discussion Paper No. 1: Growth Context***, 2011

[4] City of Chilliwack. ***Eastern Hillsides Comprehensive Area Plan, Discussion Paper No. 6: Sustainability***

3 Planning Process/Methodology

Process

The Eastern Hillsides Area Plan process began in the summer of 2010. It consisted of two parallel tracks: public consultation and technical analysis.

A Vision Café in June 2010 officially opened the dialogue with the Eastern Hillsides residents. From this initial gathering, the City recognized the current residents' views about their living environment and community assets. They advanced a "green vision" for their community in terms of environmental and forest protection, while embracing the provision of some neighbourhood level amenities and a density less than that of Promontory, which is a fully serviced hillside community with urban subdivision standards and different environmental constraints and topography.

During the second half of 2010, the City worked on three technical analyses:

1. Infrastructure requirements and costs, "population triggers" for new infrastructure improvements/investment, the resultant development cost (off/on-site total) of future housing units, funding strategies and the City's future financial commitments;

2. Current and future housing markets by type and demand (high-order estimates); and

3. Site capacities by select potential "development cells," as supported by local geotechnical, environmental and economic considerations, and by conceptual site plans for major "development cells".

In February 2011, the City held a second public open house and presented its preliminary findings. The City also conducted a "preference survey" at the open house on some of the park options. The findings at the open house and other public feedback have laid down some important guidelines for formulating future development options. The City also set up an Eastern Hillsides webpage and developed discussion papers[5] to inform the public on the progress and findings of the technical process.

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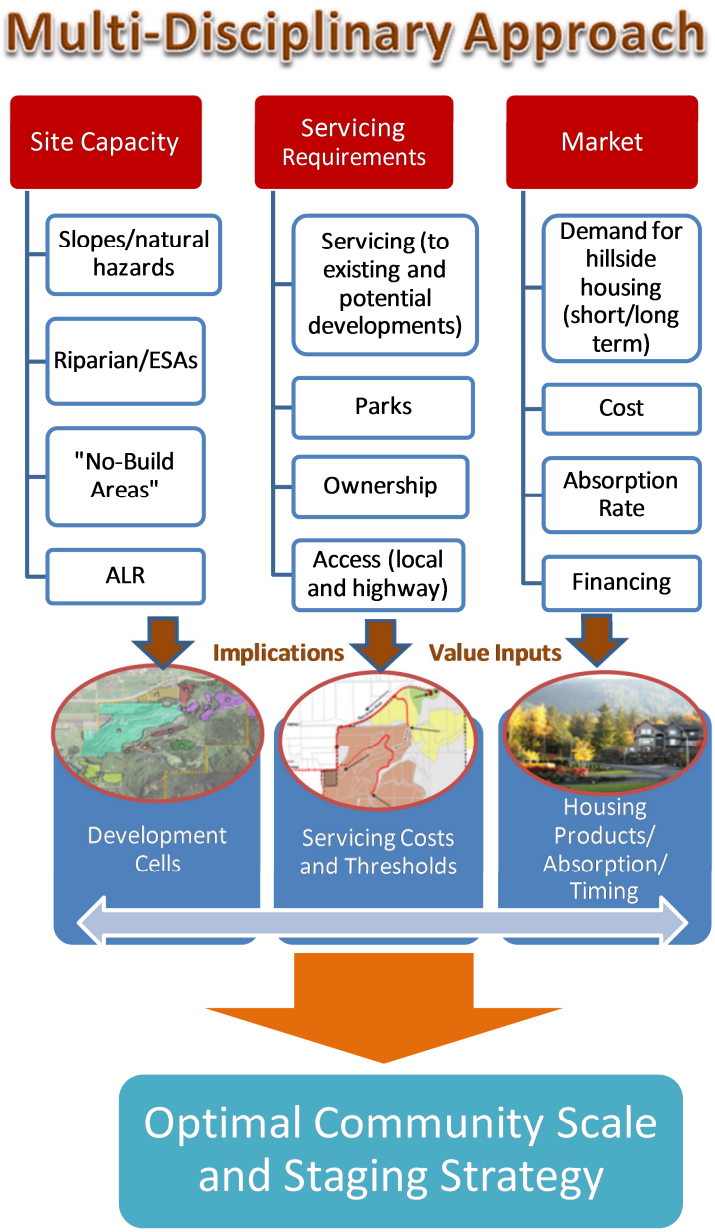
[5] In addition to the two Discussion Papers named previously, there are four discussion papers: ***Discussion Paper No. 2: Servicing and Transportation; Discussion Paper No. 3: Geotechnical Considerations; Discussion Paper No. 4: Environmental Values; and Discussion Paper No. 5: Parks, Recreation and Culture.*** They can be accessed through the City's website (www.chilliwack.ca).

In the first half of 2011, the technical process clarified the future direction of growth for the Eastern Hillsides and focussed on two scenarios: 4,000 population and 6,000 population – away from the higher targets of the previous servicing studies. Staff and consultants devoted much resource to identifying the options' detailed costs, tested their market feasibility, and explored various financing scenarios. They also sought input from outside agencies such as the School District, the Fraser Valley Regional District, the Department of Fisheries and Oceans, Ministry of Environment and the Ministry of Health. This multi-disciplinary process led to the adoption of a plan conducive to building an optimally scaled community.

Methodology

The "optimal" community scale is based on three previously noted technical studies: site capacity, future housing markets, and servicing, each of which provides a special lens to define the "optimum". The recommended "optimal scale" in this Plan therefore represents a composite threshold that satisfies a broad range of criteria, signifying the best course of action for the Eastern Hillsides in the foreseeable future.

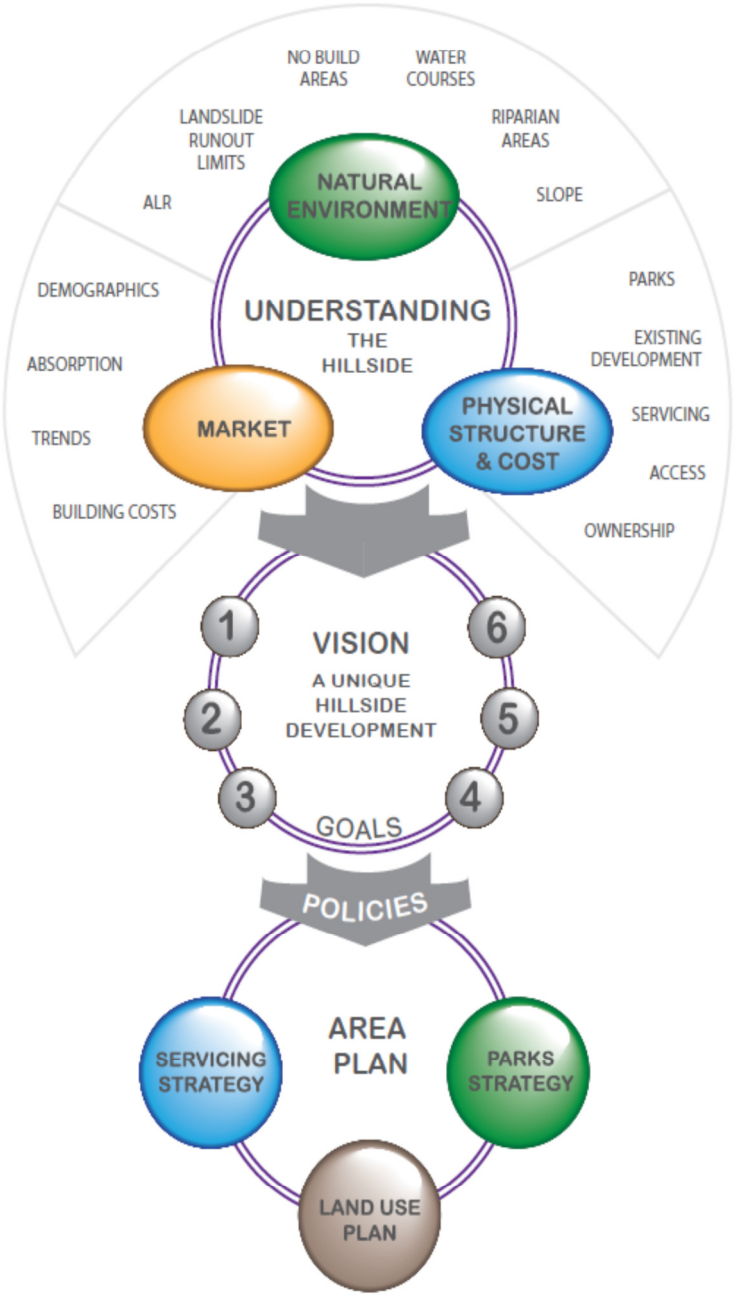


The site capacity study identifies excessive slopes/natural hazards, environmentally sensitive areas, the City's No Build Area, and the Agricultural Land Reserve within the Eastern Hillsides. From these constraint overlays, areas with development potential emerge and they are grouped into larger, viable "development cells" (see Figure 5) for servicing considerations, which include all utilities (water, sewers and storm drainage), roads, parks, property

ownership, existing development commitments and accessibility. The servicing analysis establishes the thresholds and costs for various site capacity targets, as well as a market-oriented financing strategy. Before an "optimal community scale" can be recommended, it needs to pass a "market reality check". The City's housing market analysis illustrates the cost structure of the new housing developments, their price range, product types, absorption rates and timeline. This is crucial as infrastructure investments and new developments cannot be justified if they cannot be supported by the future market: they must be able to at least recover the costs of all stakeholders, including those of the City, within a reasonable time frame. The results of this technical process and public consultation have enabled the City to determine an optimal community scale (population/capacity target), on which the Eastern Hillsides Area Plan is built.

The Plan presents a pragmatic vision and six broad goals. Under each of these goals the City lays out its specific objectives, policies and strategic actions to guide the future development of the Eastern Hillsides. To assist the implementation of the Plan, four technical "Schedules" (appendices) are attached, namely, the Eastern Hillsides Major Development Cells' Subdivision Concepts, the Eastern Hillsides Servicing Report; the Eastern Hillsides Parks and Trails Servicing Plan 2011, and the Eastern Hillsides Residential Development Scenario 2011-2051. These appendices present detailed system design concepts, off-site improvements for various neighbourhoods or population thresholds, and a conservative population growth scenario. They are invaluable tools to both the City and the development industry in planning individual projects and processing development applications. In brief, the process and

Area Plan's Structure



methodology of this Plan emphasize:

- A strong understanding of the Eastern Hillsides' environment, future community structure and infrastructure support, and the long-term hillside markets;
- A clear vision that reflects both practical considerations and community values; and
- Three critical realms of implementation: land use, servicing strategy and park provision.

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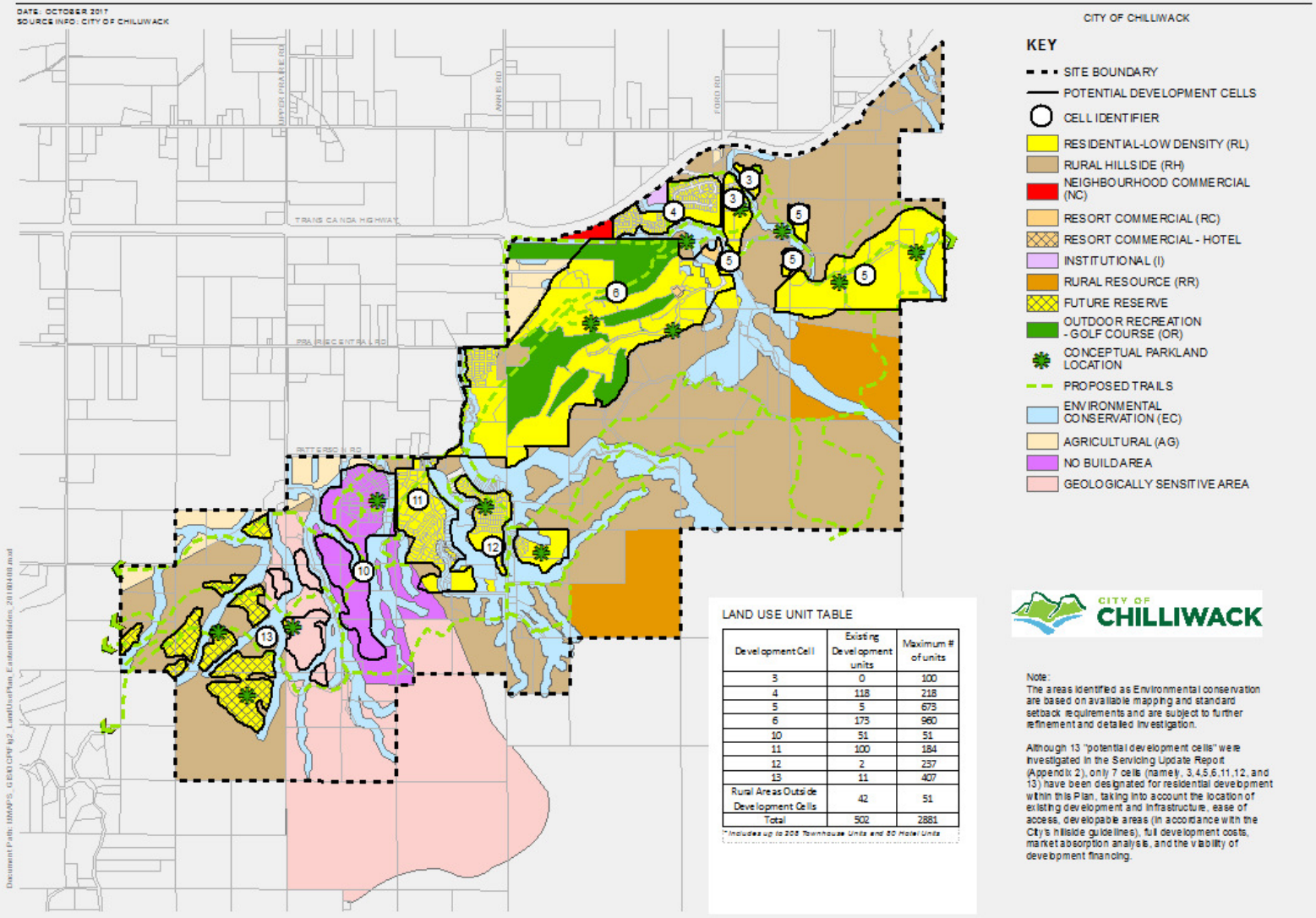
The Plan

Figure 2 Land Use Plan



LAND USE UNIT TABLE

Development Cell	Existing Development units	Maximum # of units
3	0	100
4	118	218
5	5	673
6	173	960
10	51	51
11	100	184
12	2	237
13	11	407
Rural Areas Outside Development Cells	42	51
Total	502	2881

* Includes up to 205 Townhouse Units and 80 Hotel Units

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Note:
The areas identified as Environmental conservation are based on available mapping and standard setback requirements and are subject to further refinement and detailed investigation.

Although 13 "potential development cells" were investigated in the Servicing Update Report (Appendix 2), only 7 cells (namely, 3,4,5,6,11,12, and 13) have been designated for residential development within this Plan, taking into account the location of existing development and infrastructure, ease of access, developable areas (in accordance with the City's hillside guidelines), full development costs, market absorption analysis, and the viability of development financing.

4 Vision Statement

"The Eastern Hillsides is an optimally scaled hillside community that supports the City's overall growth vision and intention to reduce urban pressure on the valley floor farmland, achieves a balance between development and environmental conservation, maintains the natural character of the hillsides, and provides outdoor recreation opportunities for residents and visitors. This new community will contribute to the sustainable objectives of the City through cost-effective infrastructure that is primarily financed by new developments, and through innovations in site planning, building design, zoning and land use."

5 Goals – An Overview

1

Protect the hillside environment, its ecosystem and its green character

2

Avoid geotechnical hazards and develop in accordance with hillside development best practices

3

Guide the development of an optimally scaled hillside community that supports the City's overall growth strategy, respects the constrained hillside capacity for development, and regards long-term market viability

4

Ensure the cost-effective provision of urban infrastructure to new development areas in accordance with the planned community capacity and financing strategy

5

Support healthy community development with essential infrastructure, parks and other amenities

6

Contribute to the City's sustainability efforts

Goal 1 – Environmental Protection

Protect the hillside environment, its ecosystem and its green character.

Rationale

The Eastern Hillsides supports a rich biodiversity of plants, fish and wildlife. Many of them depend on the aquatic and riparian habitats in the planning area, and some of these species are provincially and federally listed as at-risk. The Plan needs to embrace such biodiversity and enforce appropriate conservation practices. The environmental scope should ultimately extend to water resources, air quality, energy, greenhouse gas emissions and waste management. While many of the broader environmental issues have to be approached at the city and regional level, it is important that the Eastern Hillsides development identifies its role in the overall environmental conservation effort and be part of the solution. As the public places high value on the natural environment of the hillsides, environmental protection is also a social priority.

There are four basic components to the Eastern Hillsides' natural environment: the vegetation cover, fish and wildlife, streams and their riparian zones, and the air[6].

Despite a relatively long settlement history, the Eastern Hillsides still retains 72% of its natural vegetation cover, the balance being subdivision development sites (12%), the Falls Golf Course (7%), cleared open space (5%) and farmland (4%). In general, 82% of the hillsides (1,213 ha) is green space, hence of great habitat value to fish and wildlife.

Much of the area's natural cover consists of mixed forests, with deciduous trees on gentler benches and conifers on steeper slopes. Under this vast canopy is a variety of undergrowth, and together with the area's substantial creek systems, they form an intricate ecosystem that sustains many species of aquatic and land animals. The current provincial and municipal policies concentrate largely on the protection of the blue/red-listed species such as Mountain Beaver, Pacific giant salamander and tailed frog. However, beyond the 12 red/blue listed species, there are 17 yellow-listed and an unknown number of un-listed species of wildlife and flora. For the long term,

[6] The forests of the Eastern Hillsides are an important air filter and play an important role in maintaining the air quality of Chilliwack.

environmental conservation should be expanded to the entire eco-system and encompass all (well-inventoried) wildlife populations. In the meantime, the City will have to rely on its Development Permit process to preserve the natural environment, while channeling developments to select "development cells" and adopting best development and conservation practices.

In the context of sustainability, the environmental policy for the Eastern Hillsides should demonstrate a judicious balance among societal, scientific and economical values. Society must recognize the significance of the environment and determine its response and commitment to its protection. Secondly, science verifies the ecological importance of a place and substantiates public conservation policies. Thirdly, economic considerations should include the contributions of the natural environment to the livability and aesthetics of a community, hence a greater market value for the new hillside developments and an economic asset to the City.

Objectives

1. *Objective 1*
   Protect the hillsides' natural assets and ecosystem in the course of development.

2. *Objective 2*
   Preserve biodiversity through habitat conservation and best practices in development.

3. *Objective 3*
   Maintain the natural hydrology of the hillsides and minimize the impact of development on creek channels and underground hydrology.

4. *Objective 4*
   Coordinate environmental conservation actions with regional initiatives in air quality management, energy planning and greenhouse gas emission reduction.

Policies/Strategic Actions

5.1 Safeguard habitats, especially those of species protected under the federal Species At Risk Act (SARA) and the provincial red and blue lists, including species that are known to have existed or likely to exist in the planning area.

5.2 Protect water channels and riparian plants, fish and wildlife through Development Permits. Figure 3, Environmental Conservation identifies the protected riparian zones, ALR parcels, and alluvial fans; in the case of alluvial

fans, their development potential will be determined by a geotechnical report in the course of development permit application.

5.3 Minimize development impact on the existing forests and the flora and fauna not protected by the SARA and the provincial red and blue lists, by concentrating developments in designated cells, compacting construction footprints, and adopting planning best practices[7].

5.4 Strengthen the development application process for biodiversity protection with online provincial data search[8] and field surveys that:

a) Identify major wildlife populations, their movement/migration routes and their habitat range;
b) Confirm the presence of species at risk;
c) Flag areas of highly erodible soils; and
d) Recommend site-specific setbacks to protect riparian vegetation and habitats of species at risk
e) Identify appropriate buffers for the full protection of ecologically significant areas

5.5 Establish green corridors for wildlife populations to move freely within their habitat ranges.

5.6 Landscape with native or compatible plants to minimize irrigation and fertilization.

5.7 Incorporate passages for fish and amphibians in roads and creek crossings, especially along the migration routes.

5.8 Investigate invasive species' impact and develop a containment strategy.

5.9 Minimize surface water and groundwater discharge to creeks as a result of construction and residential use.

5.10 Adopt/promote environmental best practices for construction, including those specified in municipal Land Development Regulations that are in force from time to time and the Master Municipal Construction Document, and support the Provincial Ministry of Environment and Fisheries and Oceans Canada in the enforcement of their respective environmental regulations.

5.11 Minimize impervious areas and discourage oversized asphalt pavements[9].

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[7] The Development Permit Area 2 of the City's OCP has listed the core of the best environmental conservation practices, as well as the City's Municipal Tree Regulation in force from time to time.

[8] BC Species at Risk, BC Species and Ecosystems Explorer, and Wildlife Free Stewardship Program.

5.12 Promote the storm water management best practices[10] as recommended in Schedule 2, Eastern Hillsides Servicing Report, and the City's Watershed Management Plan.

5.13 Reinforce environmental protection by:

a) Supporting the sustainability provisions in Section 5, Goal 6 – Sustainability of this Plan; and

b) Supporting public ownership of all of the conservation areas, and lands that are not suitable for development but critical to the "green link" network, valley views and the hillside landscape character.[11]

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[9] Please consult the Eastern Hillsides Servicing Report (Schedule 2 of this Plan), and the City's Policy and Design Criteria Manual for Surface Water Management.

[10] Such as containment and/or treatment (i.e. swales) before discharging water to creeks.

[11] Also see Section 5, Goal 5 – Parks, Recreation and Culture Facilities, Policy 5.60.

Figure 3 Environmental Conservation

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North
Not to Scale

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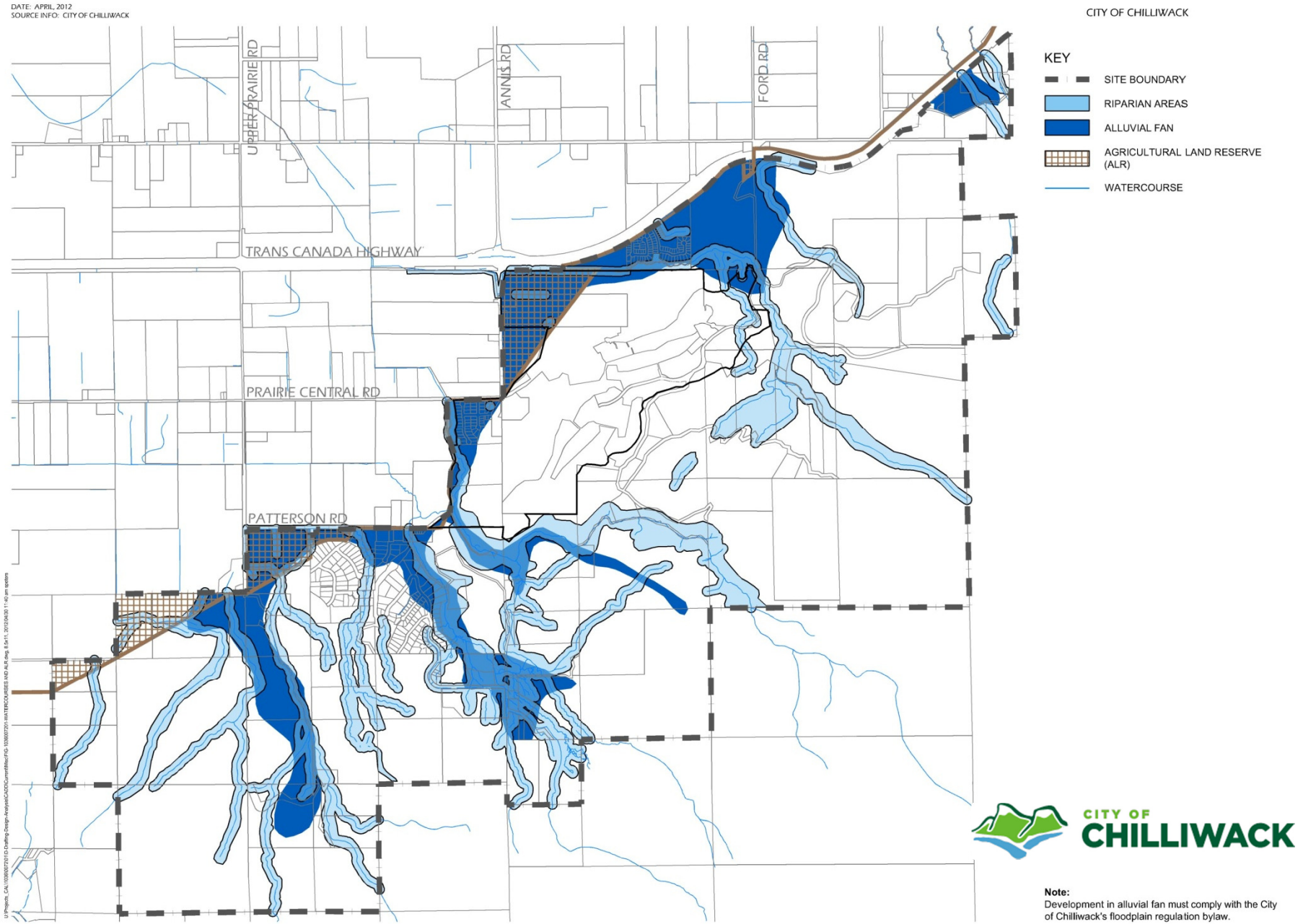
SOURCE INFO: CITY OF CHILLIWACK



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Note:
Development in alluvial fan must comply with the City of Chilliwack's floodplain regulation bylaw.

Goal 2 – Geotechnical Considerations

Avoid geotechnical hazards and develop in accordance with hillside development best practices

Rationale

The Eastern Hillsides' steep topography presents serious challenges to urban access, construction, and servicing. The City conducted a geo-technical study as part of the 1994 Eastern Hillsides Comprehensive Development Plan. It was a very high-order investigation, which was subsequently supplemented by parcel-based technical reports as developments occurred. As the Eastern Hillsides development moves further up the slopes or into the mountains, more challenging site and geotechnical issues are anticipated. Our knowledge about the hillsides and mountains has to stay ahead of development in order to ensure public safety. Therefore, the study of the area's geological nature, constraints, and hazards needs to continue in order to support detailed planning and design.

In summary, the hazards and constraints of the Eastern Hillsides include the following:

- Steep slopes (30% or greater) comprise 45% of the area. Their scattered distribution breaks up the gentler hillsides and reduces the potential development acreage to about 35% of the planning area, instead of the residual 55%.

- Five creek systems[12] cascade down the hillsides, creating insurmountable barriers to road connection and contiguous neighbourhood development.

- Run-outs from ancient upper slope slides are areas that, though hitherto stable, remain little known as a potential hazard and should best be left undisturbed as a "no-build zone"[13].

[12] They are Dunville-Nevin, Ford, Elk, Marble and Calkins.

[13] This was first documented in a geotechnical study that accompanied the 1994 Eastern Hillsides Comprehensive Development Plan (as Appendix G), and was acknowledged by the engineering studies in 2001 and 2007.

- Isolated deep ground movements have been detected in the Panorama subdivision, which was declared a "No Build Area" in 2004.

- Other hazards are small-scale but no less threatening, such as the tops of very steep slopes and erodible soils.

Under such formidable terrain conditions, the first principle of planning is to avoid major hazards and unnecessary risks to future developments. This Plan (as well as the 1994 Plan and the 2001 and 2007 engineering studies) has identified a number of potential development cells (see Figure 5), which, as previously noted, are the results of a rigorous assessment process. These development cells serve three purposes: to avoid major natural hazards, retain valuable environmental assets, and to provide focal points for planning and servicing future hillsides developments. They form the cornerstone of community planning in the Eastern Hillsides.

Objectives

Objective 1
Identify major hazard boundaries and provide an evidence-based and consistent policy to address hazardous sites.

Objective 2
Identify potential development cells to focus planning and development.

Objective 3
Set up a transparent development framework and reduce unrealistic expectations of site capability and capacity

Policies/Strategic Actions

5.14 Apply Figure 4, Geotechnical Constraints Development Cells, as an overlay on the Land Use Plan to inform development decisions.

5.15 Direct developments to the development cells that are designated on the Land Use Plan (Figure 2) [14].

[14] The boundaries of these Development Cells may be fine-tuned by the City upon detailed geotechnical study at the development application stage. Those adjustments should not undermine the planning principles and integrity of this Plan. In addition, not all of the development cells previously identified are economically feasible within the current planning horizon; those in that category are therefore not recommended for development in this Plan. (See Figure 2.)

5.16 Limit development in areas outside the recommended development cells and environmental-geotechnical constraint areas to low-impact estate and outdoor recreational uses.

5.17 Maintain the Eastern Hillsides in the Development Permit Area No. 2 of the Official Community Plan for protection against geotechnical hazards.

5.18 Enforce information/site-specific study requirements of Development Permit Area 2 of the City`s Official Community Plan during the rezoning process, including:

a) A concept plan of the overall development proposal;

b) A site plan of the proposed development that demonstrates Development Permit Area 2 compliance;

c) A design that complies with the City`s Hillside Development Guidelines, especially in regard to geo-hazards and steep slopes;

d) A hydro-geotechnical/geo-hazard study, including the protocols of working with hazards during and after construction;

e) A plan to address potential development impact on all watercourses;

f) A plan for any diversion or work within and/or adjacent to a watercourse that requires provincial and federal approvals, and an environmental report that helps implement it within the best practices; and

g) A report from a B.C. Licensed Professional Forester where land clearing or tree harvesting is involved.

5.19 Maintain the current No Build Area as identified on Figure 4.

5.20 Ensure that developments in areas identified as Alluvial Fan on Figure 4 comply with the requirements of the City`s Floodplain Protection Regulation in force from time to time.

5.21 Continue to build up a comprehensive geotechnical data base through:

- Site-specific studies in course of development application;
- Future comprehensive geotechnical studies of the Planning Area; and
- Continuous monitoring of any ground movement

Figure 4 Geotechnical Constraints

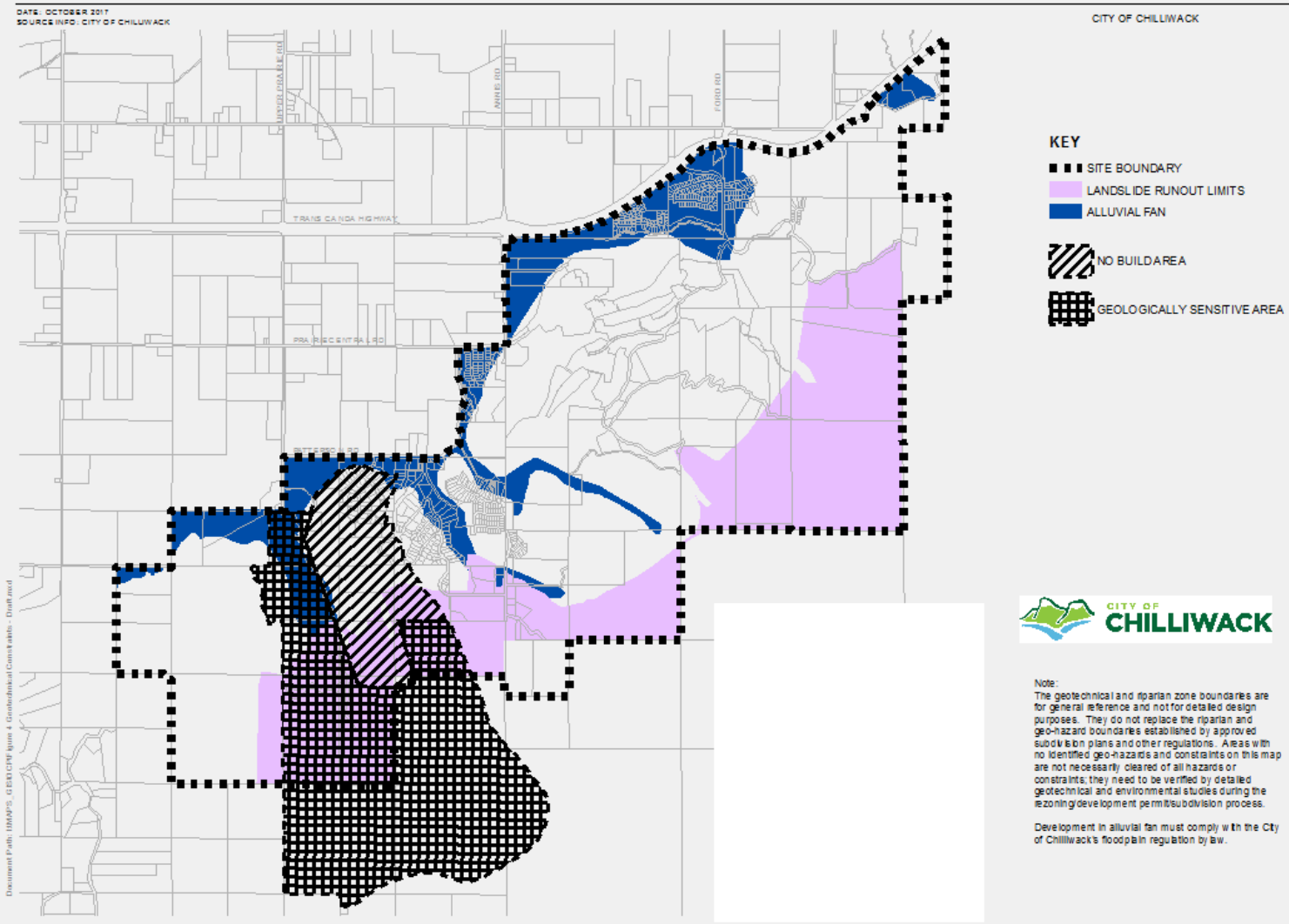
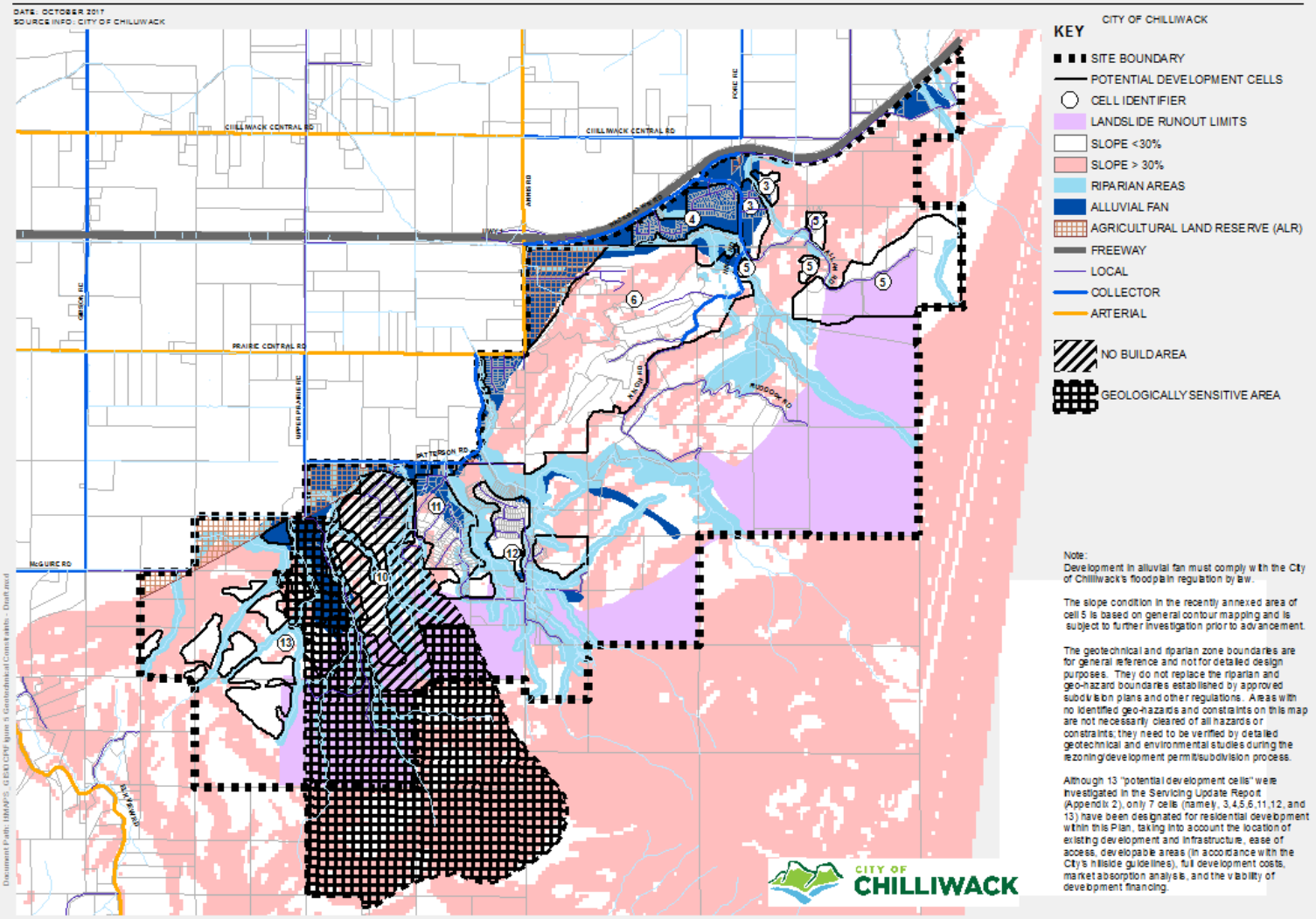


Figure 5 Environmental Constraint Overlays and Development Cells



Note:
Development in alluvial fan must comply with the City of Chilliwack's floodplain regulation by law.

The slope condition in the recently annexed area of cell 5 is based on general contour mapping and is subject to further investigation prior to advancement.

The geotechnical and riparian zone boundaries are for general reference and not for detailed design purposes. They do not replace the riparian and geo-hazard boundaries established by approved subdivision plans and other regulations. Areas with no identified geo-hazards and constraints on this map are not necessarily cleared of all hazards or constraints; they need to be verified by detailed geotechnical and environmental studies during the rezoning/development permit/subdivision process.

Although 13 "potential development cells" were investigated in the Servicing Update Report (Appendix 2), only 7 cells (namely, 3,4,5,6,11,12, and 13) have been designated for residential development within this Plan, taking into account the location of existing development and infrastructure, ease of access, developable areas (in accordance with the City's hillside guidelines), full development costs, market absorption analysis, and the viability of development financing.

Goal 3 – Land Use

Guide the development of an optimally scaled hillside community that supports the City's overall growth strategy, respects the constrained hillside capacity for development, and regards long-term market viability.

Rationale

Over the past two decades, hillside developments in Chilliwack have shown clear capacity limitations due to difficult terrains, geotechnical hazards, watercourse/wildlife habitat protection, and high servicing costs. In addition, hillside developments have to address a growing community value that favours the retention of the hillsides' natural environment and has a low tolerance for inordinate site disturbances. Pursuing an aggressive urban density or an over-sized urban community in the Eastern Hillsides is not only unviable, but also undesirable in the public view. As such, the previous strategy of relying on the hillsides to supply half of the City's future growth capacity needs to be revisited.

The 1998 OCP assumes that close to half of the City's growth through the 1999-2010 period would be accommodated by the hillsides. Even at the peak of the Promontory development (presently at 6,500 residents), hillside housing starts accounted for only 30% of the City's residential starts during this period. At best, hillside development represents a medium-term growth option for the City. The City's long-term growth capacity remains to rest with the existing valley floor urban corridor, and hillside development can only play an auxiliary role – averaging less than 20% of the City's annual housing starts.

The overarching goal of this Plan is to identify a clear vision for the right scale of development in the Eastern Hillsides. It has to find a balance among the following factors:

- **Growth management** – provision for hillside capacities to accommodate some community growth and specific housing markets, with an aim to not undermine the urban corridor's densification, and to reduce development pressure on the valley floor agricultural land[15], which needs protection.

- **Site capacity** – limitations imposed by the topography, the need for safe access and protection from geotechnical hazards, and the preservation of

[15] Small ALR acreages have been a popular target for large suburban/exurban home buyers. Hillside developments may satisfy part of the suburban, larger home market and reduce the pressure on valley floor agricultural land.

environmental values.

- **Market forces** – the supply and demand of different development types that can support the Plan's vision and achieve its land use and development concepts over a practical period of financing. This takes into account the full cost of the infrastructure improvements required to service the community at build-out.

- **Community values** – a well-designed community, retention of green space and rural/low-density suburban character, the aesthetics of the hillside landscape, full municipal services and the provision of essential amenities.

- **Existing Development and Infrastructure Investment Situation** – a recognition of the existing development pattern and infrastructure investment by the current developers/owners and the City.

- **Implementation Implications** – the scales and costs of the required capital works at different thresholds, their economic feasibility (cost recovery), the parties responsible for off-site infrastructure improvements, and the financing options open to the City.

The previously outlined planning and study process (Section 3) provided a technical grounding for weighing the above factors. In the end, the 6,400 population threshold was chosen as the "optimal community scale". At that milestone, the Annis Interchange will need four-lanes (reconstruction), major interconnecting road improvements[16], and additional utility upgrades (such as twinning the Prairie Central water mains and a new sewage pumping station) will have to be in place. Specifically, the 6,400 population scenario represents an optimal, balanced approach in light of the following:

a) Major off-site road improvements are triggered early in the hillside development. At the 4,400 population threshold, the rebuilding (four-laning) of the Annis Interchange becomes necessary and it is a costly undertaking ($13 million). However, capping the capacity at or under 4,400 is impractical for three reasons:

    - Significant investment has been undertaken to facilitate development in some areas based on previous plans such as Lower Nixon Road and the western portion of Allan Road.

[16] These projects involve Allan Road, Hack-Brown Road, a section of Upper Nixon Road, Marble Hill Road and Hinkley Road (most likely a new local road network serving Cell 13)

Capping the Eastern Hillsides capacity at 4400 population would require some of these areas to stop development or be abandoned, which would result in significant investment losses.

- Preliminary case studies for select development cells indicate that a capacity higher than the 4400 population (but not beyond this Plan's recommendation) is practical and can meet the City's Hillsides Development Guidelines. The concepts in Schedule 1 illustrates how development can preserve significant natural areas, avoid slopes greater than 30%, and provide for adequate park space to serve future residents.

- It is anticipated that a number of Eastern Hillsides homes at the final build-out could have secondary suites and there would be no "contingency capacity" in the 4,400 scenario to accommodate such a shortfall. The consequence is congestion at the Annis interchange, which is a gateway for much of the Eastern Hillsides traffic[17].

b) First stage utility improvements will sustain growth to just under the 4,000 (for sanitary sewers) and 5,000 (for water mains) population thresholds. Even within the 4,000 population scenario, the sewer capacity will trigger a second stage improvement that can support 6,000 or more residents. This will, in turn, support the second-phase water improvements. This higher level utility investment may be further justified by the decision of the Annis Interchange rebuilding, which basically opens the door for a higher capacity target.

On the other hand, an overly aggressive capacity target (exceeding the 6400 population threshold) is not desirable. It will not only add to the infrastructure requirements (e.g. the four-laning of Hack-Brown Road), but also raise amenity demand to a level that is impossible to meet in the Eastern Hillsides (e.g. schools, sportsfields, enclosed recreational facilities and larger scale commercial uses). Moreover, its larger development footprint will inexorably amplify its environmental impact and render full compliance with the City's Hillside Development Guidelines formidable, likely undermining the green environment/character of the hillsides that is highly valued by the local residents and the City. In essence, as the capacity target moves beyond the optimal level, its land use, environment and community amenity challenges will multiply quickly and defy any reasonable solutions.

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[17] It should be noted that secondary rental suites under this new plan will be permitted only where servicing capacities exist, given the unit-critical aspect of this plan and servicing strategy.

Meanwhile, on-site infrastructure upgrades will rise in complexity and cost as higher urban standards apply (such as fire flow for commercial and higher density multi-family residential development) and more local reservoirs and storm drainage systems need to be built. In addition, the Interconnecting Road costs (between development cells) will climb as the urban standard roads now extend to high elevation sites (e.g., additional $6.2 million for Upper Nixon Road reconstruction). As the Interconnecting Roads are upgraded at the cost of the developers concerned, a high capacity target only results in a heavy financial burden that can render projects economically unviable – not just based on the "hardware" costs, but also the risk of an insufficient future market to pay for the investment within a reasonable timeline and to return a profit in the meantime. At the 6,400 cap, the total offsite infrastructure and interconnection road costs total $48 million. When combined with on-site infrastructure and site engineering expenses (developers' costs), this development scale most likely marks the point of transition to excessive financial risks to both public and private investments, hence the "optimal point"

In assessing the market risks, the City commissioned a long-term housing market study. The study indicates that the Eastern Hillsides market, apart from some townhousing opportunities, will be predominantly single detached housing. While several current subdivision proposals aim to offer relatively affordable single homes, the long-term market of the Eastern Hillsides will likely cater to homes above the City's average price as the Eastern Hillsides development costs will inevitably rise. The future absorption of the Eastern Hillsides homes is expected to be moderate, and achieving a high capacity target within a reasonable timeframe (30 years or shorter) is a low possibility[18]. These findings corroborate with the City's own view of setting an "optimal" build-out target that allows the municipality to properly manage market risks and plan for the financing of the required infrastructure works in a practical manner.

In summary, the optimal capacity target is set at 6,400 population, or 2,822 dwellings (including existing homes)[19]. This capacity represents a threshold that enables a reasonable balance between public and private infrastructure investment requirements, realistic market expectations (pricing, volume and profit margins) and financial risks of stakeholders (including the City), community scale and its ability to provide public amenities (especially when private development and public use are competing for the same limited usable

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[18] Paul Rollo and Associates. **Eastern Hillsides' Long Term Housing Market Assessment**, City of Chilliwack, 2012.

[19] These numbers, though not "immutable", will be adhered to diligently in the implementation of the Plan in order to maintain a "level playing field" for all stakeholders of the Eastern Hillsides, and to avoid a "slippery rope" dilemma.

sites), the future development footprint and the environmental preservation objectives. Beyond this threshold, community development will incur increasingly disproportional risks, be they environmental, geo-technical, or economical/financial/market; it will also sharply reduce its ability to provide amenities as the demand increases and developable sites diminish.

Beyond the above objectives, setting an optimal scale is a necessary step to rectify a general notion that maximizing development would generate greater economies of scale and lower the cost of housing. It is quite possible that a high build-out could still be accompanied by a high housing cost, a compromised environmental integrity, a more obtrusive urban landscape on the hillsides, a greater geo-technical risk, a less livable community (underserviced by inadequate amenity provision), and an undesirable traffic/commuting situation.

Objectives

Objective 1
Establish and implement policies to provide a build-out capacity of 2,822 dwellings or approximately 6,400 population.

Objective 2
Develop a growth distribution and land use pattern that supports the targeted capacity, the geotechnical and environmental criteria, and the servicing, amenity and sustainability goals of this Plan.

Policies/Strategic Actions

5.22 Direct development to the development cells that are identified on Figure 6 and are supported by future infrastructure improvements, cleared of geotechnical hazards (especially slopes greater than 30%), meeting the environmental provisions of this Plan, and conforming to the City's Hillside Development Guidelines.

5.23 Protect the community from forest fires by emphasizing Fire Risk Assessment[20] and protective actions during the development process[21], especially in areas of

[20] In accordance with the municipal Tree Management Regulation that is force from time to time

[21] It encompasses rezoning, development permit, subdivision and building permit applications. The requirement of Fire Risk Assessment is supported by the City of Chilliwack, Bylaw No. 3815, Development Approval Information Bylaw.

moderate to extreme fire hazard as identified by the City's Tree Regulation that is in force from time to time.

5.24 Direct commercial and institutional uses to locations that are relatively flat and readily accessible by most local residents, and are strategically linked with the City's arterial network and the Trans-Canada Highway system.

5.25 Locate parks and recreational facilities according to the provisions of Section 5, Goal 5 – Parks, Recreation and Cultural Facilities.

5.26 Coordinate residential developments with the staging/financing strategy of the major off/on-site capital works, and accept no development proposals that are ahead of the staging sequence of servicing[22] as recommended in Schedule 3, Eastern Hillsides Servicing Report.

5.27 Figure 2, the Land Use Plan, shall guide future public and private development decisions and zoning designations for plan implementation[23]. The designations of this Plan identify the locations of future land uses; they also define, in conjunction with Figure 6, the build-out capacities of the recommended development cells such that the allowable growth capacity will be appropriately distributed and not exceed the optimal threshold set by this Plan. Provisions for the designations in the Land Use Plan are as follows:

- Residential – Low-Density (RL)
  - Location criteria: sites within the potential development cells identified in Figure 3
  - Appropriate housing types
    - ✓ Single detached home
    - ✓ Small-lot single detached home that conforms to select slope/lot size performance standards[24]
    - ✓ Duplex
    - ✓ Townhouse (as part of an approved[25] comprehensive development plan)

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[22] The City will support this policy with dialogues and information sharing with the private sector in order to enhance public appreciation of the underlying servicing requirements and costs, and to enable developers to plan and schedule their projects logically and cost-effectively. Concurrently, conformance to the capital work staging/financing strategy will be as one of the conditions for rezoning and subdivision application approval.

[23] See Section 6, Implementation.

[24] The City's SHR (Suburban Hillside Residential) Zone represents one such example where the required lot size is "indirectly proportional" to the slope of the land in question: the steeper the site, the larger the required lot size. For example, conventional small lots (360 m^2) would require 9% or less slopes.

- Elementary School (subject to available utility[26] and road capacities)
- Church (subject to available utility and road capacities)
- Neighbourhood park
- Density[27]:
  - ✓ Overall site average: 9 units per ha
  - ✓ Maximum for single detached housing: 9 units per ha
  - ✓ Maximum for duplex and townhousing: 18 units per ha
  - ✓ Total allowable units: per build-out capacities listed on Figure 2
- Site planning guidelines for form and character:
  - ✓ Conform to the City's Hillsides Development Guidelines for a visually enhanced design.
  - ✓ Align subdivisions/units with the contours to enhance the units' valley views and to avoid "runway-like" roads (perpendicular to the contours and in full exposure to the valley).
  - ✓ Maintain a natural forest/vegetation buffer between vertically adjoining developments and avoid the appearance of units stacking on top of each other.
  - ✓ Preserve trees within proposed development areas in accordance with the Municipal Tree Regulation that is in force from time to time.
  - ✓ Encourage architectural designs of future residential, commercial and institutional development to complement the natural character of the hillsides[28].
  - ✓ Group units at an appropriate scale and provide adequate natural vegetation buffers between development clusters/projects through the development permit/subdivision process.

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[25] Approved under Comprehensive Development Area zoning, meeting the requirements of the municipal Land Development Regulations that are in force from time to time, and within the servicing capacity of the development cell concerned

[26] Available "fire flow" will be a critical consideration in considering future school locations.

[27] All densities are gross and to be calculated before the dedication of roadways and parkland, and before the exclusion of slopes with 30% or steeper gradients, riparian zones and other hazard lands.

[28] Single residential developments are exempt from form and character control in the provincial legislation. Commercial developments will be subject to Development Permit Area #9 (form and character control), and institutional designs would best be effected through "negotiation" at the time when school and church applications are received, which could be in the distant future.

- ✓ Ensure the greening/landscaping of roadways to meet the requirements of the City's Land Development Regulations that are in force from time to time.

- Resort Commercial
  - Location Criteria: sites within or adjacent to the existing golf course area
  - Appropriate uses
    - ✓ Golf club house
    - ✓ Restaurant associated with the golf course
    - ✓ Golf course administration office
    - ✓ Hotel
    - ✓ Townhouse ((as part of an approved[29] comprehensive development plan)
- Neighbourhood Commercial (NC)[30]
  - Location criteria: site(s) easily accessible by most Eastern Hillsides residents and strategically linked to municipal arterial routes and the Annis Interchange/Trans-Canada Highway;
  - Appropriate uses
    - ✓ Neighbourhood commercial centre that caters to local needs
    - ✓ Personal service, including restaurant
    - ✓ Small-business office
    - ✓ Community service (non-profit)
    - ✓ Church
    - ✓ School
    - ✓ Park
    - ✓ Indoor recreational facility
    - ✓ Government/public use
    - ✓ Health care
  - Servicing: All permitted uses shall not exceed the planned servicing capacity for the area concerned (as

[29] Approved under Comprehensive Development Area zoning, meeting the requirements of the municipal Land Development Regulations that are in force from time to time, and within the servicing capacity of the development cell concerned.

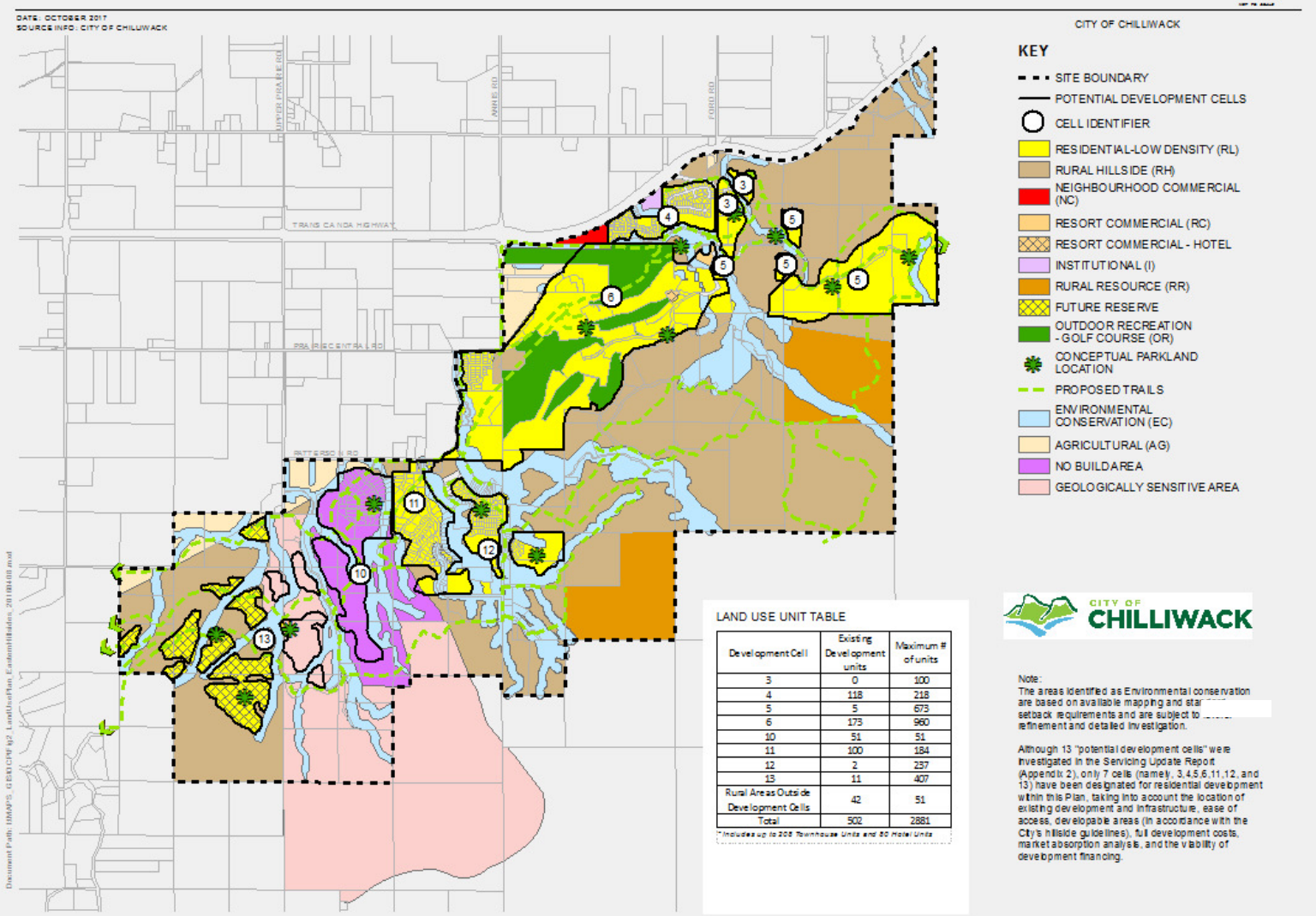
[30] See Section 5, Goal 5 – Infrastructure and Amenities, Other Amenities, which summarizes the needs of commercial space and the difficulties of meeting those needs because of lack of flat land, especially strategically situated flat parcels that can satisfy the basic location criteria. Therefore, not all of the future commercial sites are identified at this time on the Land Use Plan. Nevertheless, there is a long lead time before the market can support a neighbourhood commercial centre. During that time, opportunities may emerge to allow adding more commercial sites and the Area Plan will be amended accordingly.

recommended in Schedule 2, Eastern Hillsides Servicing Report).

- Rural Hillside (RH)
  - Location criteria: sites outside the recommended development cells and where the concerned terrains, on-site conditions (for a building site and on-site servicing), and rural roadways permit
  - Appropriate use:
    - ✓ Large residential acreage
    - ✓ Retreat centre (subject to on-site servicing)
    - ✓ Outdoor recreation camp
  - Minimum lot size: 4 to 8 ha
- Rural Resource (RR)
  - Location criteria: crown and private forest lands governed by the BC Forest and Range Practices Act
  - Appropriate use
    - ✓ Forestry uses under the BC Forest and Range Practices Act
- Environmental Conservation (EC)
  - Location criteria: major riparian zones, dedicated areas of high environmental value or sensitivity, areas with known geotechnical concerns and other natural hazards, public trails, and areas recommended by detailed environmental reviews as part of the rezoning requirements
  - Appropriate uses
    - ✓ Conservation, appropriately designed trail use and other very low-impact, related activities
- Outdoor Recreation – Golf Course (OR)
  - Location criteria: existing golf course
  - Appropriate uses:
    - ✓ Golf course and auxiliary uses
- No Build Area
  - Location: boundaries of the earthflow area, Areas C1, C2, and C3 as identified in eotechincal reports from the engineering firm of Klohn Crippen Berger dated August 3, 2016; and former Marble Hill Road (slide)
  - Appropriate uses:
    - ✓ Existing residential uses; no new construction or reconstruction of existing homes
- Geologically Sensitive Area
  - Location: boundaries of the Ridge Crest rockfall area, Areas A1 and A2; and Hinkley Creek suspect landslide area, Area B, as identified in geotechnical reports from the engineering firm of Klohn Crippen Berger, dated August 3, 2016
  - Appropriate uses:

- ✓ Residential uses, in accordance with a development permit issued by Council; no tree cutting shall be permited except in accordance with a development permit issued by Council

Figure 2 Land Use Plan



LAND USE UNIT TABLE

Development Cell	Existing Development units	Maximum # of units
3	0	100
4	118	218
5	5	673
6	173	960
10	51	51
11	100	184
12	2	237
13	11	407
Rural Areas Outside Development Cells	42	51
Total	502	2881

*Includes up to 208 Townhouse Units and 80 Hotel Units

Note:
The areas identified as Environmental conservation are based on available mapping and star setback requirements and are subject to refinement and detailed investigation.

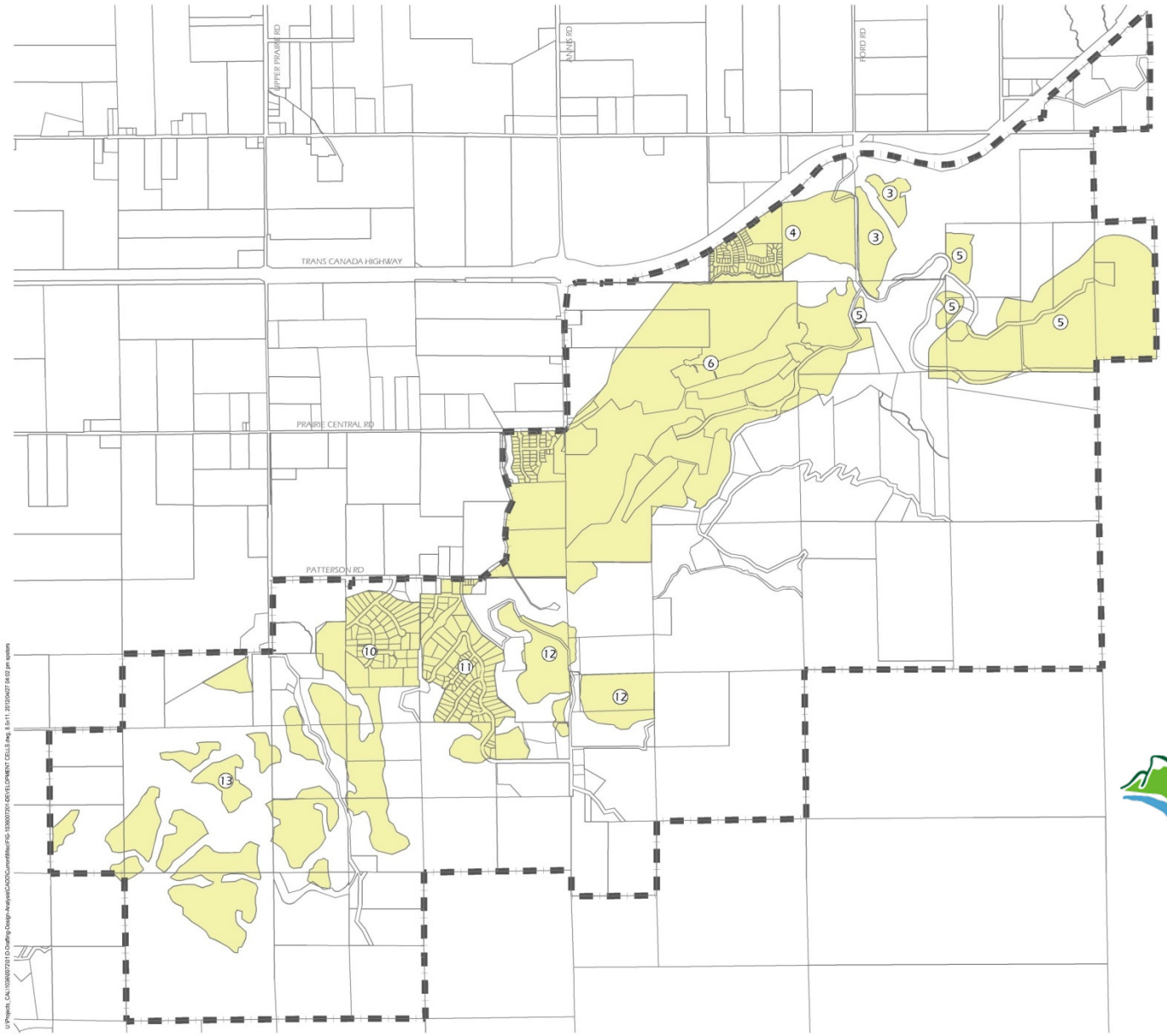
Although 13 "potential development cells" were investigated in the Servicing Update Report (Appendix 2), only 7 cells (namely, 3,4,5,6,11,12, and 13) have been designated for residential development within this Plan, taking into account the location of existing development and infrastructure, ease of access, developable areas (in accordance with the City's hillside guidelines), full development costs, market absorption analysis, and the viability of development financing.

Figure 6 Development Cells
(For Potential Development Considerations)

URBANSYSTEMS.

North
Not to Scale

DATE: APRIL, 2012
SOURCE INFO: CITY OF CHILLIWACK



CITY OF CHILLIWACK

KEY

- SITE BOUNDARY
- DEVELOPMENT CELLS
- (3) CELL IDENTIFIER

CITY OF CHILLIWACK

Note:
Although 13 "potential development cells" were investigated in the Servicing . Report , only 7 cells (namely, 3,4,5,6,11,12, and 13) have been designated for residential development within this Plan, taking into account the location of existing development and infrastructure, ease of access, developable areas (in accordance with the City's hillside guidelines), full development costs, market absorption analysis, and the viability of development financing.

Goal 4- Servicing Principles

Ensure the cost-effective provision of urban infrastructure to new development areas in accordance with the planned community capacity and financing strategy.

Rationale

The previous subsection has established the optimal scale for the Eastern Hillsides development at a population of 6,400 or 2,822 dwellings (including existing units). Much of its rationale is based on the cost-effective range of servicing and road/access considerations. Underlining this "cost-effectiveness" are the servicing standards that the City intends to maintain.

The City's basic principle of servicing is that all planned hillside developments should be directed to select development cells where they can be efficiently serviced. The second principle is that all developments in the select cells should be fully serviced, including an appropriate storm sewer system – in order to ensure a healthy and safe living environment. In the early 1990s large semi-serviced lots were allowed but the City soon decided that full servicing was the future. Such level of standard was only realized in 2000 when the City extended water and sanitary sewer mains from Sardis to the Eastern Hillsides.

While full servicing is the standard within the select development cells, it may be relaxed for the rural hillsides outside the cells where no municipal services – other than rural roads – can be provided practically. In that case, appropriate land use/subdivision policies will apply to ensure a large minimum lot size where on-site water supply and sewage disposal systems can safely operate. Those policies will also aim at discouraging the proliferation of residential acreages outside the select development cells, which are the focal points of growth.

The full service standard is a prerequisite for utility system planning. The City will reinforce its lead role by laying down a unified framework for community water, sanitary sewerage, local road networks and storm drainage. The traditional pay-as-you-go, individual project-based utility systems have proved to be costly for maintenance, and inefficient as a network to serve the community as a whole. This plan gives high priority to a logical, efficient overall system design and an orderly undertaking of the required infrastructure improvements and residential development – as opposed to the pay-as-you-go improvisations that can produce unintended consequences.

The Eastern Hillsides Servicing Report – as attached to this Plan as Schedule 2 – has identified the servicing and road needs and costs for community growth at various thresholds. Such clarity in service planning has enabled the City to determine the optimal community scale (6,400 population). In addition, it has helped the City identify capital works to be funded by city-wide development

cost charges, and localized infrastructure improvements for which the concerned developers are responsible. Given such clarity, both the public and private sectors can plan their projects accordingly. This transparency in responsibility helps create consistency in subdivision approval requirements, hence a "level playing field" among all developers/owners. In the meantime, it ensures that all necessary public and private infrastructure projects will take place at the various junctures of community growth, and allow the City to establish a "development-pays" funding strategy from the outset (through development cost charging). Without such fore-thought and planning, "servicing crises" could suddenly appear and the City might incur both the responsibility and costs of correcting those situations. Protecting the "public good" – the welfare of future Eastern Hillsides residents and the City' finances – is one of the main purposes of this Plan.

Objectives

Objective 1
Ensure full services and urban standard roads for the recommended future development areas[31].

Objective 2
Enable the design and construction of an efficient and cost-effective overall infrastructure system for the optimally scaled community.

Objective 3
Finance servicing and road improvements in a manner that allows full cost recovery of off-site infrastructure improvements, and the development industry to plan for its total servicing and cost requirements.

[31] This objective defines the overall servicing area, and the design standards and required improvements of the utility and road systems, which are addressed under Goal 5 – Infrastructure and Amenities.

Policies/Strategic Actions

5.28 Enforce the urban service and road requirements in accordance with the adopted build-out scenario[32], of all developments in areas designated Residential-Low-Density (RL), Neighbourhood Centre (NC) and Outdoor Recreation (OR) in this Plan.

5.29 Consider, where appropriate, rural standards for services and roads in areas designated Rural Hillside (RH), Environmental Conservation (EC), and Rural Resource (RR).

5.30 Develop detailed off-site capital work cost schedules for development cost charge formulation.

5.31 Adopt an effective, equitable funding strategy and enabling bylaws for the required capital works and cost recovery.

5.32 Ensure that future rezoning and subdivision applications conform to the off-site requirements of this Plan and contribute to their undertaking through development cost charge levies.

[32] See the servicing requirements identified in the Eastern Hillsides Servicing Report (Schedule 1).

Goal 5 – Infrastructure and Amenities

Support healthy community development with essential infrastructure and amenities.

Rationale

A healthy community begins with a healthy environment. In the context of the Eastern Hillsides, that healthy environment consists of its natural surroundings (see Section 5, Goal 1 – Environmental Protection, and Goal 2 – Geotechnical Considerations), and the overall community development areas. Section 5, Goal 3 (Land Use) and Goal 4 (Servicing Principles) set out the community's "form" and servicing "policies". Under Goal 5 – Infrastructure and Amenities, the Plan establishes the system design concepts for future infrastructure improvement; it also sets the directions of amenity provision to help realize the healthy community vision. While they guide future offsite and onsite infrastructure development, they are not "policies", nor are they otherwise binding the City to the capital works recommended in this Plan. The City will continue to exercise its discretion and fine-tune, where necessary, the system designs and its requirements for future development projects in the Eastern Hillsides.

Road/Traffic System

Improvement Requirements

The Eastern Hillsides road system comprises three main components: local, city network, and the Trans-Canada Highway. The local hillside roads, which owe their origins to the "wagon roads" of the early 20th Century, have much to catch up to the current traffic needs – despite various ad hoc local improvements over the last century.

In the *Eastern Hillsides Servicing Report* (see Schedule 2), the critical off-site road improvements of the Land Use *Plan*[33] (as epitomized by Figure 2 with a build-out population at 6,400) have been identified as follows:

- Lower Nixon Road Upgrade[34]
  (Stage 1: asphalt improvement/sidewalk/curb & gutter)

[33] See Figure 2 and Sections 4, 5 and 6.

[34] This "offsite" project encompasses some roadway dedication and urban frontage construction by the developers/owners concerned in the course of subdivision development.

- Hack Brown Road Service Improvements and R.O.W. Acquisition[35]
  (Stage 1: Widening/realignment/creek crossing/sidewalk/channelized right-turn lane and storage;)
  (Stage 2: East bound taper lane)
- New intersection and widening of Annis at Hack Brown and R.O.W. acquisition
  (Stage 1: New four lanes on Annis Road between Hack Brown and Interchange; sidewalk and new signal)
  (Stage 2: Storage lane for southbound left turn on Annis)
- New signals at Highway 1 Interchange and Annis Road (Stage 1)
- Interchange improvements at Annis Road and Highway 1
  (Stage 2: East bound off ramp auxiliary right turn lane;
  East bound off ramp channelize right turn lane;
  East bound off ramp lengthening)
- Reconstruction (four-laning) of Highway 1 Interchange at Annis Road (Stage 3)
- Total cost: $19.6 million

Parallel to the offsite road improvements are the Interconnecting Road upgrades, which are considered as on-site expenses of the concerned developers[36] and emcompass, but are not limited to, the following:

- Northeast Hack Brown Road upgrade (asphalt improvement/sidewalk/curb & gutter)
- Allan Road upgrade (western section for asphalt improvement/sidewalk/ curb & gutter; central and eastern sections for reconstruction/realignment/ widening)
- Upper Nixon Road upgrade (between Allan Road and last exit to Cell 6: asphalt improvement/sidewalk/curb & gutter)
- Marble Hill Access Road 1 upgrade (asphalt improvement/sidewalk/curb & gutter)
- Marble Hill Access Road 2 (Hinkley Road reconstruction/new local road network)
- Total cost: $11.3 million approximately[37].

[35] These "offsite" improvements will trigger some roadway dedication and urban frontage construction by the developers/owners concerned in the course of subdivision development.

[36] These improvements do not include the on-site road works on individual development properties.

[37] There is an adjustment to the Allan Road upgrade cost estimate, resulting in a lower overall interconnecting road total cost than the estimate in Schedule 2.

Objectives

Objective 1
Ensure the Eastern Hillsides road system is well connected to the valley floor network and the provincial/national highway system, and support it with all necessary improvements in a cost-effective manner.

Policies/Strategic Actions

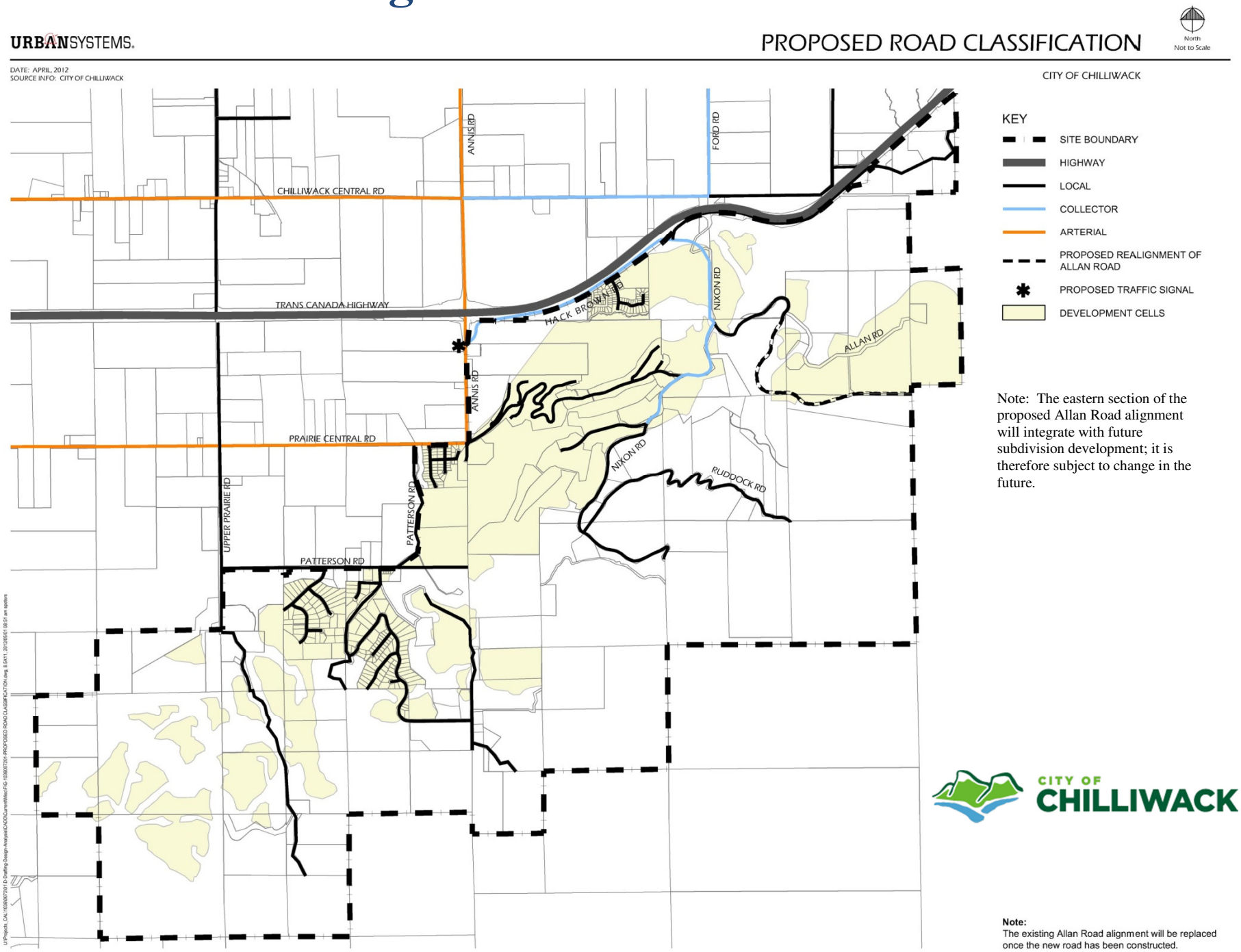
5.33 Effectuate, through the development application process and long-term capital work planning, future road improvements to support the planned capacity of 6,400 population. (See Schedule 2, Eastern Hillsides Servicing Report.)

5.34 Accept no urban development applications for sites that lie outside the development cells or contravene the City's off-site infrastructure improvement staging strategy.

5.35 Refuse development applications that trigger a need for Interconnecting Road improvements but provide no plan or resources to fulfill their requirements.

5.36 Maintain or improve municipal roads in the Eastern Hillsides according to the classifications of Figure 7, and the standards of the City's Transportation Plan and Land Development Regulations that are in force from time to time, and the Eastern Hillsides Servicing Report (Schedule 2 of this Plan).

Figure 7 Road Classification



Water Supply System

Improvement Requirements

The water supply to the Eastern Hillsides community comes from the valley floor urban settlement. Its capacity expansion is contingent on the capacities at the source and the Prairie Centre water main between Sardis and the Eastern Hillsides. From its Annis Road site a pumping station distributes water to Hack Brown/Lower Nixon Road/the Falls Resort, and to Marble Hill Road pump station, which in turn distributes water to the existing subdivisions through a series of reservoirs and pump stations. The full development of the Eastern Hillsides will see the number of reservoirs increase to 13 (excluding Cells 1,2, 7, 8 and 9), 9 pump stations, 4 Pressure Relieve Values (for the select cells only), the twinning of the Prairie Central main, and a main extension to Cell 13 (Hinkley Road area). Many of these water reservoirs and pump stations are designated as "on-site works" to be carried out by the responsible developers as they are designed for specific development cells. Given the long list, private sector investment in water works will obviously be substantial and its timing will be attuned to the hillside housing market.

The off-site (community-wide) works that will be initiated by the City are confined to the following:

- Eastern Hillsides Balancing Reservoir (Stage 1)
- Annis Road Pump Station upgrade[38] (Stage 1)
- Twinning Prairie Central water main (Stage 2)
- Total cost: $8.7 million

Objectives

Objective 2
Provide an overall design to guide the development of an integrated, cost effective water supply system on the hillsides, and identify the required off-site and common improvements and the parties that are responsible for their costs and construction.

[38] This refers to Alternative B in the Eastern Hillsides Servicing Report, Schedule 1.

Policies/Strategic Actions

5.37 Establish the Eastern Hillsides Servicing Report (Schedule 2) as the basic framework to guide the development of an integrated water system for the community as a whole, while allowing future design revisions without the need of amending this Plan.

5.38 Integrate the system design requirements as recommended in the Eastern Hillsides Servicing Report into the rezoning/subdivision process, and the development cost charge structure.

Sanitary Servicing

Improvement Requirements

The sewer system in the Planning Area is centred on the force-main on Prairie Central Road which transports waste water from the Eastern Hillsides homes to the Sardis-Vedder sewer trunk, and eventually to the Wolfe Road treatment plant. Like the water system, the expansion of Eastern Hillsides sewer system is governed by the available sewer and treatment capacities of the urban corridor systems. The scale of the future Eastern Hillsides development will have a direct impact on the main urban settlement, and therefore it needs to be planned within – rather than in isolation of – the City's overall growth strategy.

In order to reach the build-out capacity, the following offsite sewerage improvements will have to take place:

- Sanitary pump station on Annis Road (SPS 32) upgrade (Stage 1)
- Hack Brown Road sanitary sewer twinning (Stage 1)
- New Banford Road Sanitary Pump Station (Stage 2)
- Total cost: $2.6 million

The above works are primarily municipal initiatives. There is an array of "on-site" sewerage installations, which could be as large as a subsystem for a development cell, that also have to be constructed. Since they are assigned to specific development cells and need to integrate with future development proposals, they are the responsibilities of the concerned developers.

Objectives

Objective 3
Adopt a coordinated design for the overall hillside sanitary sewer system and the supporting network improvements on the valley floor.

Policies/Strategic Actions

5.39 Expand the sanitary sewer system of the Eastern Hillsides in accordance with the framework of this Plan. (See Schedule 2, Eastern Hillsides Servicing Report).

5.40 Require new developments to conform to the staging sequence of the municipal offsite sanitary improvements as recommended in this Plan. (See Schedule 2).

5.41 Refuse development proposals that cannot fit into the servicing framework of this Plan. (See Schedule 2).

5.42 Integrate the "on-site" sanitary sewer requirements as identified in this Plan (Schedule 2) into the development application process.

Storm-Water Servicing

Improvement Requirements

Hillside developments pose different challenges to storm water management from those of "flat-land" developments. Having collected the necessary field data, the Servicing Report concludes that uncontrolled flows pose the highest risk of flooding and channel erosion on the hillsides. As such, hillside development cannot ignore storm water issues. In addition, the overall hillside development has a defined impact on the valley floor storm drainage. While the City has a Master Drainage Plan, it is not sufficient to address those challenges. In particular, the City needs site-specific geotechnical analysis to determine the suitability/risks of "rainfall capture" (full-scale on-site retention/infiltration), and this process should apply to every development as the conditions of the hillsides could vary dramatically from location to location. Where rainfall capture is deemed inappropriate, modified criteria for runoff control (detention) and flood risk management (conveyance) should apply in accordance with the criteria recommended in the Eastern Hillsides Servicing Report, which include:

- Potential impact and appropriate level of flow control to manage flood and erosion risks, without comprising the natural functions of hillside creeks;
- Temporary storage and flow diversion requirements;
- Forms and sizing standards for detention systems, if required; and
- Impact on the lowland storm drainage systems and their future improvements attributable to hillside developments.

Further, the Report recommends the basic approach as follows:

- Focus on frequent events and divert their excess volume from the natural channels as the basis to manage risks;

- Promote the use of small-scale subsurface storage facilities – as opposed to large community-based detention facilities;

- Capture only the runoff from the impervious surfaces in order to minimize the storage volume and to allow the pervious areas to runoff uncontrolled;

- Require "on-site" storm water storage facilities to include capacities for road surface runoff;

- Assign the required storm water system works as follows:

  - ✓ Offsite hillside storm drainage works:
    - Lowland storm water system improvements attributable to the impact of the Eastern Hillsides development
    - Total cost: $1.2 million

  - ✓ Onsite hillside storm drainage works (to be integrated into development projects by the responsible developers):
    - All hillside piping and detention infrastructure
    - Total on-site cost estimate (trunks only): $36 million with detention facilities (or $25 million without detention if deemed acceptable)

Objectives

Objective 4
Develop an environmentally prudent framework and best practices to guide on- and off-site storm sewerage designs on the hillsides.

Policies/Strategic Actions

5.43 Require all new hillside developments to provide storm water management facilities in accordance with the framework recommended in the Eastern Hillsides Servicing Report (see Schedule 2), and the current hillside storm water servicing practices of the City.

5.44 Assign, through development cost charging and/or other appropriate instruments, the costs of off-site storm water improvements on the Lowland to

the Eastern Hillsides developments in proportion to their impact on the valley floor.

Parks, Recreation and Cultural Facilities

Rationale

A community often defines its livability by its amenities, especially parks, recreational and cultural facilities. The Eastern Hillsides has no public amenities, such as playgrounds, sports fields and community halls. The only amenities suitable for public gathering and leisure activities belong to an independent school (Unity Christian) and the Falls Resort (a private golf club). Practically, the Eastern Hillsides community is starting from the beginning in the provision of public "leisure facilities".

Nevertheless, its vast natural assets show great prospects for public trail development and nature-oriented activities, which will help compensate for the Eastern Hillsides' park deficiencies. The hillside forests and landscape, by their presence alone, represent great aesthetic, vista and livability values. The trees, especially the old growth, and the fish and wildlife that live in their midst, underscore a natural community setting that few places can compare with.

In planning leisure facilities, the City stresses seven principles: adequacy, diversity, accessibility[39], connectivity[40], quality, safety and sustainability[41]. Based on the Eastern Hillsides Parks, Trails and Green Space Plan (see Schedule 3), a fully developed Eastern Hillsides community at 6,400 population should offer a minimum of 6 ha of Neighbourhood/Subneighbourhood Park, and 19 ha of Sub-Community Park. The obvious challenge to fulfilling these expectations is the lack of flat or gently sloping sites for standard park development, and where they exist, they often go to residential development which can easily outbid any public use in a "free market". These difficulties call for an effective parkland acquisition strategy, as providing no leisure amenity for a 6,400 population community is simply not an option.

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[39] Primarily by foot, and at the community park level, by automobile as well.

[40] Connectivity refers to networking with interconnections between green space, residential areas and other destinations.

[41] Sustainability embraces the physical maintenance of both natural and constructed environments, as well the financial resources required for facility upkeeping.

Objectives

Objective 5
Provide park, recreational and cultural facilities in accordance with the City's park planning principles and objectives.

Objective 6
Recognize the natural setting and outdoor lifestyle of the Eastern Hillsides community.

Objective 7
Integrate the park and current development processes effectively to facilitate the acquisition, funding, and development of the future parks, recreational/cultural facilities and green space.

Policies/Strategic Actions

5.45 Establish a hillside trail network as outlined by Figure 8.

5.46 Provide connections between the trails and the neighbourhoods of the Eastern Hillsides.

5.47 Connect, in the long term, the Eastern Hillsides Trails with the Ryder Lake area, Mt. Thom Park and Promontory.

5.48 Explore opportunities for school/park joint development with the School District and independent schools[42], and an integrated park-subdivision design with the development industry.

5.49 Achieve the target of one park for each development cell and at the locations and scale as recommended in the attached Eastern Hillsides Parks, Trails and Green Space Plan. (See Schedule 3.)

5.50 Plan for the acquisition of 6.3 ha of Neighbourhood/ Subneighbourhood Park land, and 18.9 ha of Sub-Community parkland[43] or equivalent capacity in common facilities sponsored by multiple stakeholders.

5.51 Protect heritage assets, including the historic "wagon road" (Browlee Road) and other long-standing trails, from being converted into roadways for developments.

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[42] Such as the new Rosedale Combined School and Unity Christian Middle/High School.

[43] Two Sub-community Parks are recommended in the Eastern Hillsides Parks, Trails and Green Space Plan (Schedule 3), 6 ha and 4 ha respectively. Their locations are also noted in the Schedule 3.

5.52 Explore the feasibility of a Community Forest for demonstration and public education purposes in the Eastern Hillsides[44].

5.53 Require 5% park dedication[45], cash-in-lieu, or a combination of land and cash toward the Neighbourhood and Subneighbourhood Park developments as identified in Schedule 3 of this Plan. The City, through the subdivision process, will determine the neighbourhood/subneighbourhood park contribution option that is appropriate to the circumstances of the proposed development.

5.54 Collect development cost charges toward the acquisition of Community and Sub-community parkland and park development[46].

5.55 Explore the park potential of municipally owned properties that have not been committed to other City priorities.[47]

5.56 Integrate, where possible, trail development adjacent to riparian areas to link with proposed east-west trails and development areas.

5.57 Reinforce trail development through 5% park dedication if a designated trail corridor passes through a proposed development site or adjoins a riparian zone.

5.58 Acquire for public ownership areas that are unsuitable for development but valuable to hillside vistas, the aesthetics of the natural landscape, the linkage of riparian zones, and the establishment of wildlife corridors and the Eastern Hillsides green space/link network[48].

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[44] The City owns a 54 ha property that is under forest use. See Schedule 3.

[45] In accordance with Section 941 of BC's Local Government Act,

[46] The collection of development cost charge collection is in addition to the 5% dedication (or its cash-in-lieu). Although the former is generally intended for community-wide facilities; it can be directed toward neighbourhood/subneighbourhood park projects – as permitted by the Local Government Act. The detailed allocation of park DCC fund is considered a technical matter in the City's ongoing park planning and subdivision application process.

[47] Schedule 3 lists a number of city properties in the Eastern Hillsides that might be of value for general park or public education use. They include the "community forest" property as noted above, Elk Creek Riparian Corridor and former intake area, a parcel in Dunville Watershed, and other sites in the Allison-Ridgeview- Panorama area.

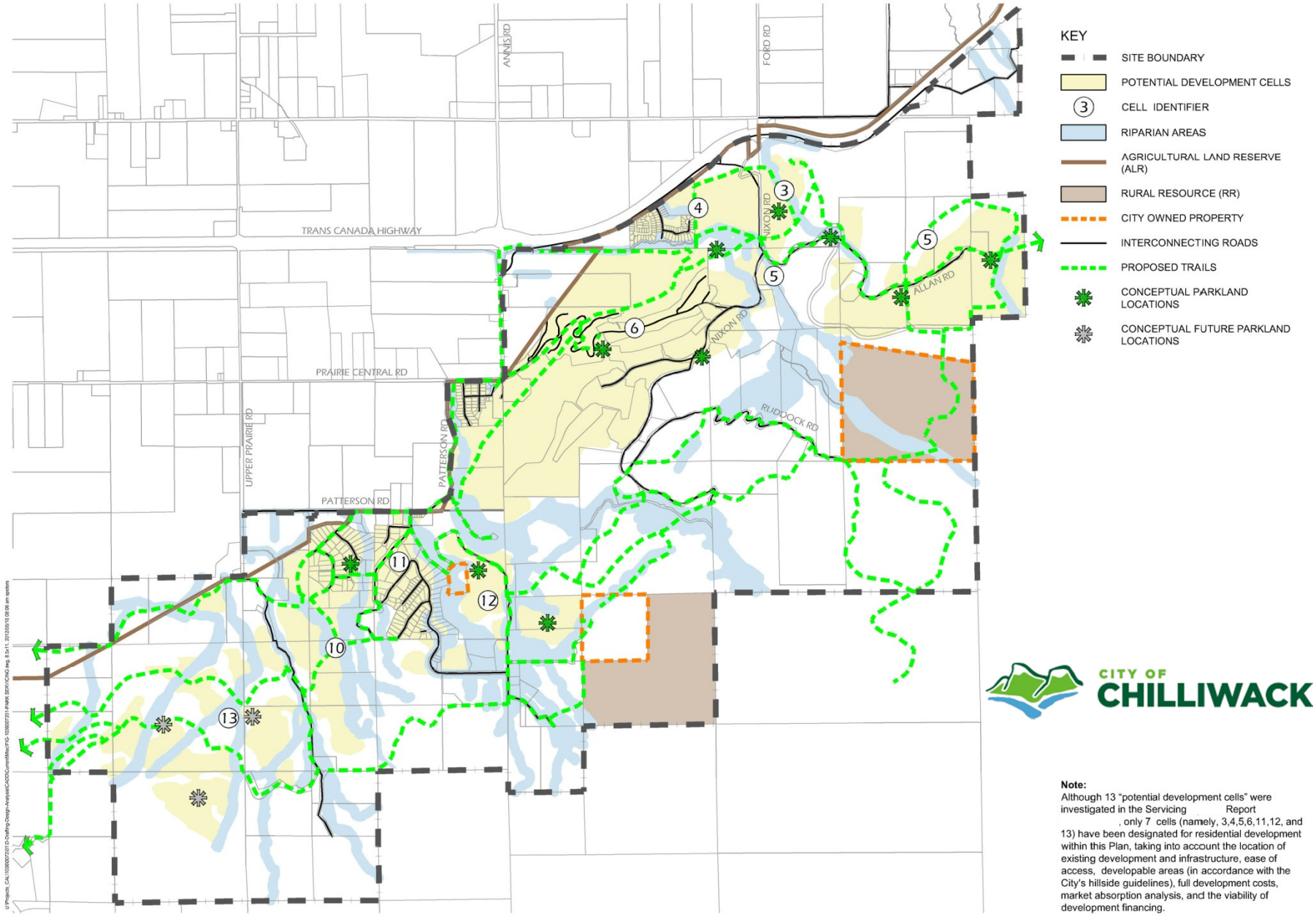
[48] The Green Links and similar open spaces are designated as Environmental Conservation (EC) as they are considered as an environmental asset (for their corridor and aesthetic values). Their acquisition will be primarily done through negotiation during the development process (rezoning/development permit/subdivision) – outside of the 5% parkland dedication.

Figure 8 Proposed Parks and Trail Network

URBANSYSTEMS.

North
Not to Scale

DATE: APRIL, 2012
SOURCE INFO: CITY OF CHILLIWACK



CITY OF CHILLIWACK

Note:
Although 13 "potential development cells" were investigated in the Servicing Report , only 7 cells (namely, 3,4,5,6,11,12, and 13) have been designated for residential development within this Plan, taking into account the location of existing development and infrastructure, ease of access, developable areas (in accordance with the City's hillside guidelines), full development costs, market absorption analysis, and the viability of development financing.

Schools

Rationale

School District #33 is responsible for school planning and development in Chilliwack. City and School District staff have been collaborating on identifying the current and future school needs of the Eastern Hillsides community. At present, the community sends its elementary school students to East Chilliwack Elementary, which is the closest facility (on Chilliwack Central Road), and they take up 36% of that school's capacity[49]. Although the rural/farm population is trending down, the Eastern Hillsides students will increase at a much faster pace than the "excess capacity" growth (due to a contracting rural population). Already the suburban demand has generated much pressure on East Chilliwack Elementary. Expanding the school onsite is one potential option, but the school authority prefers a school dedicated to the needs of the Eastern Hillsides community in the long run. In its preliminary estimate, there will be enough long-term demand to justify the construction of a new elementary school for the Eastern Hillsides community, perhaps before the 2025. At the build-out population, about 2 "small" elementary schools[50], or 1.6 "medium size" elementary schools might be needed.

The middle and senior secondary school students of the Eastern Hillsides are currently accommodated in Rosedale (the closest facility), Chilliwack proper and Sardis. At full development, the hillside community could probably support a combined school (Gr. 7 to 12). This remains a long-term estimation, pending further investigation.

Like all other amenities, the future challenge to school development is the shortage of suitable sites in the Eastern Hillsides. While the School District prefers "on-site" locations, it will weigh all available options, from adapting school construction and operation to hillside conditions, to "off-site remedies", including adding capacities to the Rosedale and urban corridor schools. Long term strategic planning is ongoing and the City and the School District will continue to work together to find a satisfactory solution.

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[49] About 98 Eastern Hillsides students are going to East Chilliwack Elementary School at present.

[50] "Small" elementary schools are designed for approximately 300 students; medium elementary, 400 students.

Objectives

Objective 8
Formulate a long-term strategy and planning process to meet the growing school needs of the Eastern Hillsides community.

Objective 9
Provide school capacities within the Eastern Hillsides, where possible.

Policies/Strategic Actions

5.59 Collaborate with the School District on an ongoing basis in school planning.

5.60 Assist the School District in identifying school needs and capacity provision at major population thresholds – especially where a new school is warranted.

5.61 Initiate new school/capacity planning well in advance of the population threshold in order to ensure the least cost of land acquisition, the welfare of the students, and no necessity for temporary structures.

5.62 Work with the School District on future community school opportunities to service the Eastern Hillsides residents.

Other Amenities

Rationale

Besides parks, recreational/cultural facilities and schools, other amenities such as local shopping, churches and non-government organization services also contribute much to the livability of a community. For the Eastern Hillsides' neighbourhood commercial development, the City has established a minimum site need of 2,200 m^2, whereas the NGO needs remain undetermined[51]. Since these demands are open-ended and primarily driven by service providers, the municipal planning process and zoning have to be flexible. Nevertheless, general location criteria should be established to ensure any such proposal would be a good fit with the community layout proposed by this Plan. Since these are considered as gathering places for the residents, they are best concentrated at a central location

[51] Discussion Paper No. 5, Eastern Hillsides Comprehensive Area Plan 2011.

easily accessible by all residents, and where the city-wide/regional road connections and improvements are planned.

Objectives

Objective 10
Support local shopping and NGO facility development to enhance community livability.

Objective 11
Ensure any non-public agency amenity development is effectively integrated into the community pattern of this Plan.

Policies/Strategic Actions

5.63 Concentrate local shopping/service and non-public agency amenity developments in a central location that can be conveniently accessed by most Eastern Hillsides residents, is suitable for commercial-institutional development, and is well linked to the city arterial road network and the Trans-Canada Highway system.

5.64 Facilitate the development of essential amenity uses with flexible zoning and other applicable planning instruments.

Goal 6: Sustainability

Rationale

The City of Chilliwack has developed *A Community Action Plan* regarding *Integrated Air Quality, Energy and Greenhouse Gas* (2011), which signifies a significant milestone toward sustainability. While not specifically formulating a "sustainability plan", Chilliwack has clearly demonstrated sustainable development objectives through city-wide/neighbourhood planning and current land use decisions based on a long-term sustainable growth strategy. Nevertheless, certain historical suburban realities have remained and need to be addressed pragmatically, including the Eastern Hillsides development. In fulfilling its sixth goal, "To contribute to the City's sustainability efforts", this Plan needs to first articulate the city-wide "sustainable land use" framework and how its recommendations for the Eastern Hillsides development – as a suburban community – can fit in.

Sustainability

Sustainability is generally defined as a development state in which it can be sustained physically/environmentally, economically and socially for generations. It therefore emphasizes efficiency, functionality, cost-effectiveness, conservation, an unpolluted environment, economic viability, livability and healthy social development. In land use terms, these virtues are usually associated with compact, complete, pedestrian/people-oriented, and energy efficient urban form and structure.

Sustainable Suburban Development

In much of the 20th Century suburban development and sustainability were considered as mutually incompatible, as the former was equated with low density "sprawl" that relied on automobile and highways for accessing employment and main services in metropolitan centres. While these "classic" suburbs still prevail in many parts of North America, some suburban communities of the late 20th and early 21st Centuries have since transformed themselves into urban centres with a strong employment base and complete with services and amenities. Instead of a large metro centre loosely surrounded by low-density and dependent suburbs, some urban regions feature a metro centre with a network of smaller urban centres that show a high degree of self-sufficiency; at times, they even challenge the supremacy of the metro centre as a job and service purveyor. In fact, they are a close-knit network of urban centres capable of self-sustaining, and are well-connected by public transit (generally not automobile dependent); they are an urban-network

region that supports local/transit-oriented/pedestrian-friendly developments, with a clearly defined urban-agricultural boundary – the "hallmark" of sustainable development. The Lower Mainland (especially Metro Vancouver) is one such region.

Sustainable Lower Mainland

In the early days, Metro Vancouver consisted of one dominant Vancouver Downtown that supplied most of the region's "career employment" and high-order services, and its traffic was concentrated in two flows and two peaks – in and out between the downtown and the suburbs. At present, Metro Vancouver is comprised of 2 Metro Centres, 9 Regional Centres, and 17 Town Centres. The current "sustainability challenge" of Metro Vancouver is not density or livability, which has made great advances, but transit. The vast network of metro/regional/town centres has created a highly complex, crisscrossing pattern of traffic flow, which demands much resource and planning effort be dedicated to inter-centre transit; at the same time, it also requires municipal growth be oriented toward local centres in order to reduce cross-region traffic movements.

In parallel with the "complete community" development in Metro Vancouver, the Fraser Valley Regional District has focussed its first Regional Growth Strategy on building a sustainable region. It emphasizes developing a network of sustainable valley communities, preserving farmland with Urban Growth Boundaries, protecting the environment through stewardship and best practices, and supporting regional transit development.

These two regional districts have shown strong leadership in sustainable development, and their works have complemented with each other in making the Lower Mainland one of the most livable "mega regions" in North America.

Sustainable Chilliwack

In the context of the Fraser Valley and Chilliwack, sustainability is best achieved by focusing on local centre and local community development. In all of its Official Community Plans of the past three decades, the City's goal has been to create an urban corridor that consolidates Chilliwack proper, Sardis and Vedder into a linear form (with distinct local centres) for effective people/goods/service movement and efficient municipal servicing, and ultimately for community building, economic development, healthy living and sustainability. However, as alluded earlier, there are some historical realities that are a "sustainability challenge" awaiting for a resolution, namely, the Eastern Hillsides.

Sustainable Eastern Hillsides

In the previous subsections, this Plan has set the following directions for the Eastern Hillsides in support of sustainability:

- The Eastern Hillsides development should be optimally scaled such that it functions as a "livable community" (not merely a residential subdivision) and does not detract growth and resources from the urban corridor where the majority of Chilliwack's population live[52].

- The Eastern Hillsides development will be largely self-financed by new developments through on-site works by developers and offsite works through development cost charges.

- The new hillside community will provide essential infrastructure and aim toward self-sustaining in amenities, including parks, basic shopping, schools and other civic services (on-site or off-site in close proximity) – entailing fewer commuting trips to the main urban corridor.

- The optimally scaled hillside community will preserve much of the hillside forest cover, hence its environment and green character, and the Eastern Hillsides will continue to serve as an air/greenhouse-gas filter and a carbon storage.

The Eastern Hillsides, because of its hillside terrains, lack of flat lands and fringe location, will not have its own economic/employment base. Nevertheless, employment trips could still be concentrated within the City boundaries through economic developments in the Village West business parks, the Downtown, Canada Education Parks, and the commercial centres in Sardis and Vedder. This strategy also applies to the whole of the municipality as the City's goal is to reduce out-of-town commuter trips.

Other Eastern Hillsides sustainable actions that lie outside traditional land use and transportation planning can also merge with the City's overall sustainability efforts. These include building form and technology, social development and affordable housing, recycling and waste (including construction waste), and energy and Greenhouse Gas/carbon neutral

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[52] At present, 74% of Chilliwack's population live in the urban corridor (Chilliwack proper-Sardis-Vedder), and the City foresees its densification path to raise the percentage to 80% or higher in the next 20 years. This vision needs to be corroborated with dedicating adequate resources to infrastructure re-investment, and not allowing hillside developments to siphon off those resources, and ultimately to detract growth by "subsidizing" the hillside development (at least not disproportionally).

planning. They are best addressed through dedicated plans, such as the City's Integrated Air quality, Energy and Greenhouse Gas Community Action Plan (2011), and Solid Waste Collection and Disposal Bylaw. Other initiatives may come from the Province and the Federal Government in Building Code changes and energy conservation incentive programs, and education/awareness/incentive programs in the market place such as geo-thermal heating, BC Hydro Power Smart Programs for homes and for business, and LEED. The following suggestions highlight the critical actions/directions in these areas that complement the environmental, land use, transportation and servicing policies of this Plan[53].

Strategic Actions

5.65 Promote public awareness of sustainable development practices and sustainable living in the Eastern Hillsides through annual workshops with the development industry and the general public.

5.66 Encourage the industry and homeowners to adopt energy efficient and water-conserving building performance standards such as LEED.

5.67 Support provincial initiatives on building code changes that improve energy efficiency and water conservation.

5.68 Promote carpooling and multi-purpose trip planning through the City's Greenheart Column (in the local newspaper) and other public information instruments.

5.69 Work with Chilliwack Economic Partners Corporation to increase local employment and to reduce out-of-town commuter and shopping trips.

5.70 Foster a strong local community identification and social network in the Eastern Hillsides in support of the local amenity, social and cultural development (primarily through the programs of the City's Parks, Recreation and Culture Department).

5.71 Articulate the role of the Eastern Hillsides development within the context of the City's **Integrated Air quality, Energy and Greenhouse Gas Community action Plan** (2011).

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[53] The City's Engineering (GHG planning), Parks (social development), Development (building permits) and Corporate Services (communications) Departments will play an active role in carrying out these recommendations.

6 Implementation

General Principles

Rationale

Since the Eastern Hillsides development will likely span over 30 years, it has to confront many uncertainties, especially with the housing markets and the long-term population growth of the City. This Plan addresses those uncertainties through scenario planning, focusing on "milestones", "triggers" and "indicators" in staging capital works, rather than adopting a preset timetable and building infrastructure on speculation. Its future success depends on close monitoring the markets and development projects in the Eastern Hillsides and the City.

Throughout the process, a "single-scenario" funding/financing strategy should be in place to guide the anticipated capital works. The emphasis on one "build-out" scenario stems from the reality that capital work improvements are not necessarily cumulative and they are oftentimes governed by specific standards and designs. In the case of roads, once urban standards are adopted, their rights-of-way, street light and sidewalk requirements, gradients and sight-lines are set; conversion from rural to urban standards is very costly – if at all possible when surrounded by new houses. Similarly, the twining of the Upper Prairie water main will cater to a set design capacity: it is not amenable to gradually phasing in. Just as important is the funding formula such as development cost charges: they do not allow a municipality, after the subdivision/building permit stage, to return to early phase residents for further levies – especially when the improvements in question are triggered by, and largely benefiting, the later phase developments. There is only one window to collect development cost charges and distribute the capital work costs equitably, and that is at the beginning of full-scale development.

Strategic Actions

6.1 Maintain a consistent process of applying the Plan's standards, system design concepts, principles and on/off-site improvement requirements to current development applications.

6.2 Monitor new developments on the Eastern Hillsides to inform the City's long-term capital work planning.

6.3 Focus on the 6,400 population scenario as the basis of the Eastern Hillsides financing/funding strategy.

(Schedule 4 shows a 40-year residential growth scenario. It is a conservative "projection" that serves as a general reference in monitoring the ongoing

development. It helps prepare the timeline of "forward planning" for utilities, schools and roads/traffic" – before the arrival of their actual population thresholds.)

Development Process

Rationale

Development applications refer to Official Community Plan (OCP) amendments, rezoning, development permits, subdivision applications and building permits. These various instruments involve different processes and serve specific purposes, but they represent a logical sequence of steps that bring a development proposal to reality. While they revolve around current development, they are the "small, daily decisions" that cumulatively set the course of long-term development and bring the community vision to fruition.

Strategic Actions

6.4 Require major[54] development permit and rezoning applications that concern the Eastern Hillsides be submitted with qualified technical studies on site capabilities and potential impacts, including:

- Environmental features, assets and sensitive areas
- Geotechnical hazards
- Environmental impact
- Tree management (where applicable)
- Identification of natural hazard and conservation areas
- Identification of suitable development areas
- Identification of heritage assets (especially the historic wagon roadways)
- Conceptual site plan that defines the proposed development areas, hazard lands and conservation zones, and provides key design details on land use and development concepts, servicing, amenity provision (including parks), access, traffic, and other components as deemed essential by the City

[54] Any development generating more than 10 dwelling units or 2000 m^2 of non-residential building space may be considered as "major development" and may trigger the requirements of technical studies.

- Precautions, mitigations or site engineering works required to render safe and environmentally sound conditions for the proposed use and development

- Compliance with the City's Hillsides Development Guidelines

- Infrastructure/servicing strategy

- "Form and Character" compliance where the OCP Design Guidelines apply

- Market analysis, where warranted[55]

6.5 Enforce consistently during the subdivision application process, the requirements of park dedication or cash-in-lieu, heritage conservation (historic wagon road preservation), and the geotechnical, environmental provisions required by the City.

Long-Term Planning Process

Rationale

This Plan should be reviewed on a medium-term basis in order to stay current with the development (supply) and market (demand) situations in the Eastern Hillsides. An updated plan is also essential to keeping the cost estimates of DCC funded infrastructure improvements accurate, so as to allow adjustments to the funding system from time to time.

Strategic Action

6.6 Review the Eastern Hillsides Area Plan every five years, and adjust the servicing schedules and funding strategy/DCC schedule accordingly.

Engineering, Public Works, Parks and Finance Departments

Rationale

In addition to the departments of Planning and Strategic Initiatives and Development and Regulatory Services which are directly involved in the current development and land use planning processes, the departments of Engineering, Public Works, Parks, Recreation and Culture, and Finance also

[55] The City may request a market analysis if a proposed development triggers off-site infrastructure developments and the City is involved in effectuating those improvements.

play critical roles. They are the agencies that oversee the planning, design, evaluation and funding of the infrastructure system and amenities. Likewise, a continuous dialogue between the City and the School District, the development industry, provincial agencies, BC Hydro, cable companies and NGOs should also take place on a regular basis in order to keep all stakeholders informed and prepared.

Strategic Actions

6.7 Set up a protocol for regular inter-departmental forums on the following:

- Monitoring of the Eastern Hillsides developments;
- Evaluation of the infrastructure system (capacity absorption);
- Planning/design of short/medium term capital work projects; and
- Funding strategy and DCC update

6.8 Initiate regular information sharing sessions with the real estate/development industry, BC Hydro and communications companies regarding the Eastern Hillsides' growth, developments, needs, and challenges.

6.9 Monitor the implementation of the Eastern Hillsides Parks, Trails and Green Space Plan, especially with regard to the following aspects:

- Park provision standards and strategy, funding and strategic partnerships with the School District, church groups, environmental conservancies, and other civil/ societies
- Specific park locations/location guidelines
- Design/concepts of proposed parks, trails and other green space
- Alternative and off-site strategies for higher level parks and recreation/outdoor sports facility capacity provision
- Assessment of various potential park/green space assets in the planning area

6.10 Maintain a regular dialogue with the School District on school capacity needs and planning for the Eastern Hillsides community

Final Comments

This Plan highlights the forces that are driving the Eastern Hillsides community development. The issues are intertwined and complex, and the recommended solutions require decisive actions, consistent day-to-day development decisions, and "scenario planning" to address long-term uncertainties. Despite the handicapping uncertainties, the Plan has identified "milestones" where

changes to resource requirements, the hillside landscape and geotechnical/environmental impact will occur. This has given the Plan a healthy base to approach the future. The future success of the Plan therefore rests with consistent, pro-active implementation, and regular monitoring for mid-course feedback and adjustments.

The second key to the Plan's future success is inter-departmental collaboration and dialogue between the City and outside agencies and stakeholders, including the development industry and the developing Eastern Hillsides community.

The third key to success is the Plan's continuous harmonization with the City's Official Community Plan. This is to ensure that the future Eastern Hillsides development will always fit into the City's long-term growth strategy and not detract the growth of the urban corridor, or otherwise change the City's overall urban form and structure in an unintended direction.

This plan has a 30 plus year planning horizon. It has to a "living document" that needs updating and course adjustments from time to time. On the other hand, it represents a firm direction if the healthy community vision of the Eastern Hillsides is to be realized. In the end, it is a prudent balance of the ever-changing forces in our social/cultural, economic and physical environments.

“Schedule 1”

Eastern Hillsides
Major Development Cells’
Subdivision Concepts

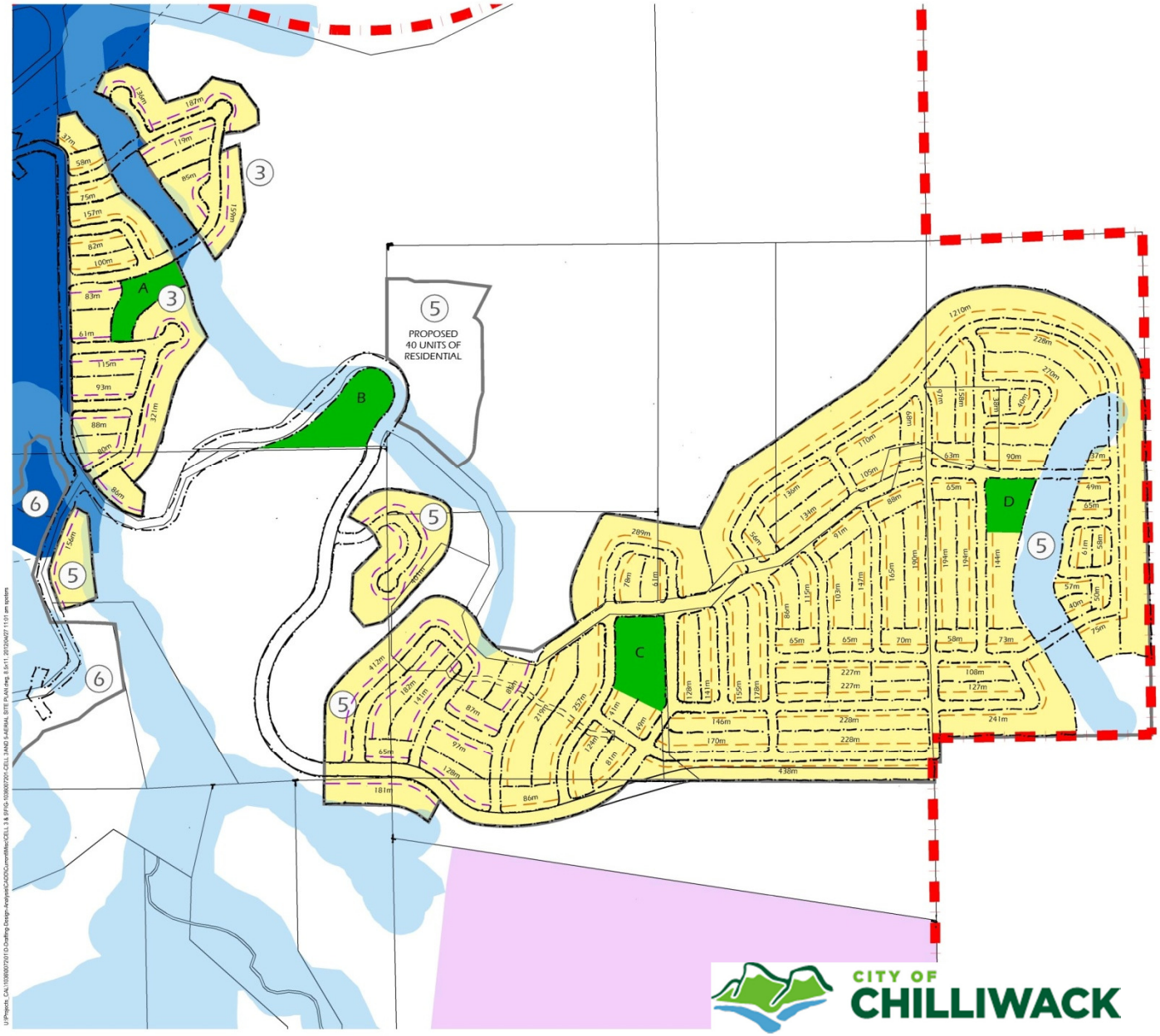
These concepts are intended for setting the cell capacities and demonstrating compliance with the Hillside Development Guidelines of the City, especially with regard to avoiding 30% plus slopes and creeks/riparian zones. The proposed road layouts are suggestions only and future development proposals for these sites will be evaluated on their own merits. However, they must conform with the assigned capacity limits and the Hillside Development Guidelines.

Cell 3 and 5 Subdivision Development Concepts

URBANSYSTEMS.

North
Not to Scale

DATE: APRIL, 2012
SOURCE INFO: CITY OF CHILLIWACK



CITY OF CHILLIWACK

KEY

- RIPARIAN CORRIDOR
- ALLUVIAL FAN
- LANDSLIDE RUN-OUT LIMITS
- PROPOSED RESIDENTIAL AREA
- POTENTIAL PARK
- LARGE LOTS
- SMALL LOTS

Cell 3 & 5 Assumptions:

- Directed development to lands with < 30% slope & outside any riparian areas.
- Sited larger lots on lands with slopes generally > 20%
- Adjacent land owners cooperate to provide logical development areas
- Preserved vegetation wherever possible
- Directed smaller lots to lands where site disturbance (including clearing) had already occurred
- Aligned residential units with the slope condition wherever possible
- Identified potential park spaces
- Typical lot depths range from 30 m to 50 m

Cell 3 Frontage Calculations & Anticipated Yield

- Total Frontage = 2122 m
- Small lot frontage = 509 m @ 17.5 m = 29 units
- Larger lot frontage = 1613 m @ 22.5 m = 71 units

Total anticipated yield = +/- 100 residential units

Cell 5 Frontage Calculations & Anticipated Yield

- Total Frontage = 11414 m
- Small lot frontage = 9479 m @ 17.5 m = 542 units
- Larger lot frontage = 1935 m @ 22.5 m = 86 units

Total anticipated yield = +/- 628 residential units

Developable Area

Cell 3
Proposed Residential = 10.9 ha / 26.9 ac +/-
Cell 5
Proposed Residential = 56.7 ha / 140.1 ac +/-

Park Space

Park A Area = 0.62 ha / 1.53 ac +/- (108m x 49m)
Park B Area = 1.08 ha / 2.68 ac +/- (143m x 70m)
Park C Area = 0.97 ha / 2.41 ac +/- (125m x 76m)
Park D Area = 0.52 ha / 1.30 ac +/- (80m x 64m)

Note:

The attached preliminary concept has been developed based on available mapping and in accordance with the City of Chilliwack Hillside Development Guidelines, and is subject to further refinement and detailed design.

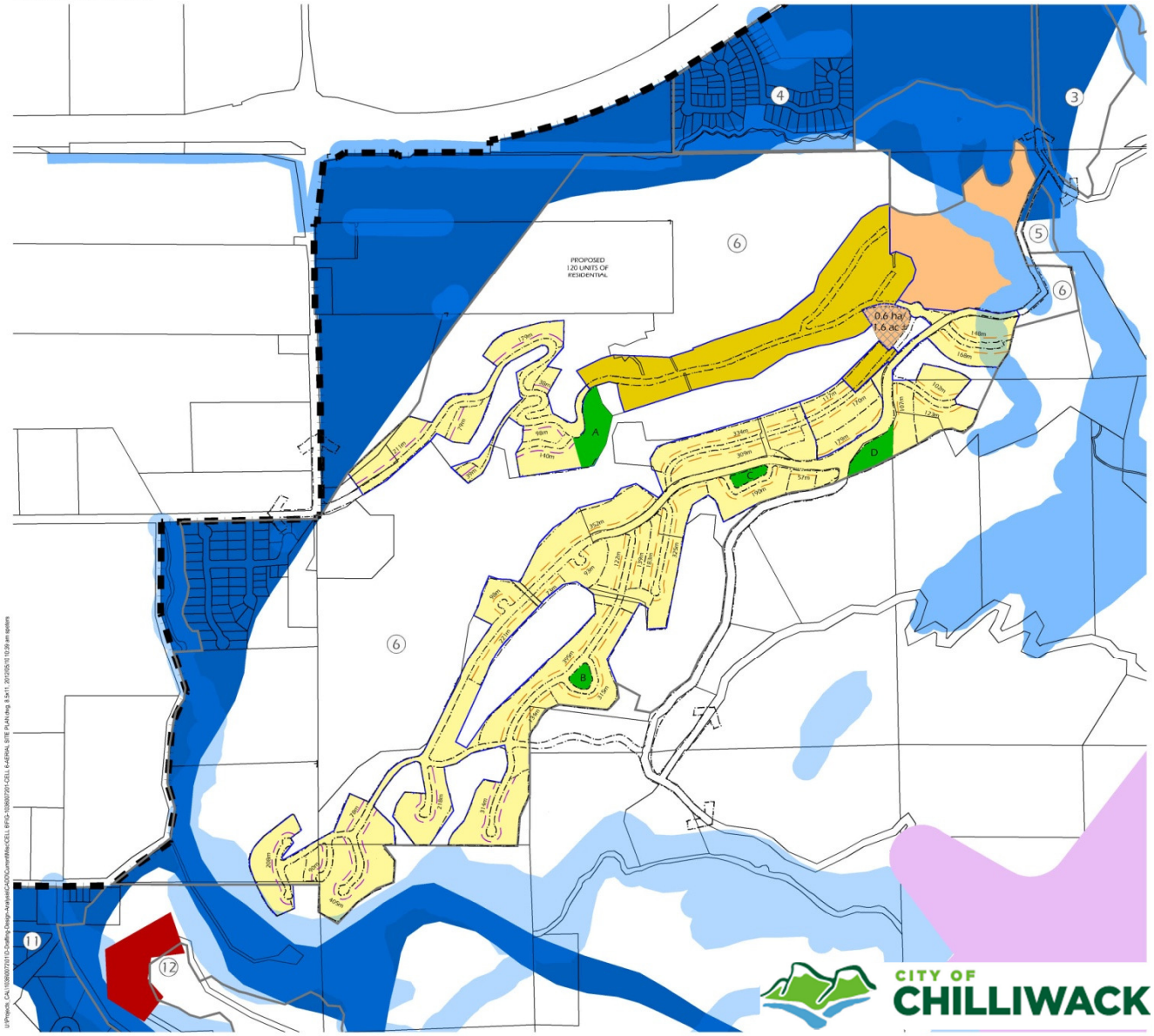
CITY OF CHILLIWACK

Cell 6 Subdivision Development Concept

URBANSYSTEMS.

North
Not to Scale

DATE: APRIL, 2012
SOURCE INFO: CITY OF CHILLIWACK



CITY OF CHILLIWACK

KEY

- RIPARIAN CORRIDOR
- ALLUVIAL FAN
- LANDSLIDE RUN-OUT LIMITS
- NO BUILD ZONE
- EXISTING RESIDENTIAL AREA
- PROPOSED RESIDENTIAL AREA
- PROPOSED RESORT COMMERCIAL AREA
- PROPOSED RESORT COMMERCIAL AREA - HOTEL
- POTENTIAL PARK
- LARGE LOTS
- SMALL LOTS

Cell 6 Assumptions:

- Directed development to lands with < 30% slope & outside any riparian & alluvial fan areas.
- Located larger lots on lands with slopes generally > 20%
- Adjacent land owners cooperate to provide logical development areas
- Preserved vegetation wherever possible
- Directed smaller lots to lands where site disturbance (including clearing) had already occurred
- Aligned residential units with the slope condition wherever possible
- Identified potential park spaces
- Typical lot depths range from 30 m to 50 m

Cell 6 Frontage & Area Calculations & Anticipated Yield

- Total Frontage = 6689 m
- Small lot frontage = 4580 m @ 17.5 m = 262 units
- Larger lot frontage = 2109 m @ 22.5 m = 93 units
- Hotel Area = 0.6 ha at 133 uph = 80 units
- Townhouse Units = 208 units

Total anticipated yield =

+/- 355 single family residential units
+/- 208 townhouse units
+/- 80 hotel units

Developable Area

Existing Residential Area = 9.4 ha / 23.2 ac +/-
Proposed Residential Area = 44.8 ha / 110.7 ac +/-

Park Space

Park A Area = 0.87 ha / 2.16 ac +/- (132m x 58m)
Park B Area = 0.20 ha / 0.50 ac +/- (52m x 59m)
Park C Area = 0.22 ha / 0.54 ac +/- (83m x 26m)
Park D Area = 0.54 ha / 1.33 ac +/- (111m x 55m)

Note:

The attached preliminary concept has been developed based on available mapping and in accordance with the City of Chilliwack Hillside Development Guidelines, and is subject to further refinement and detailed design.

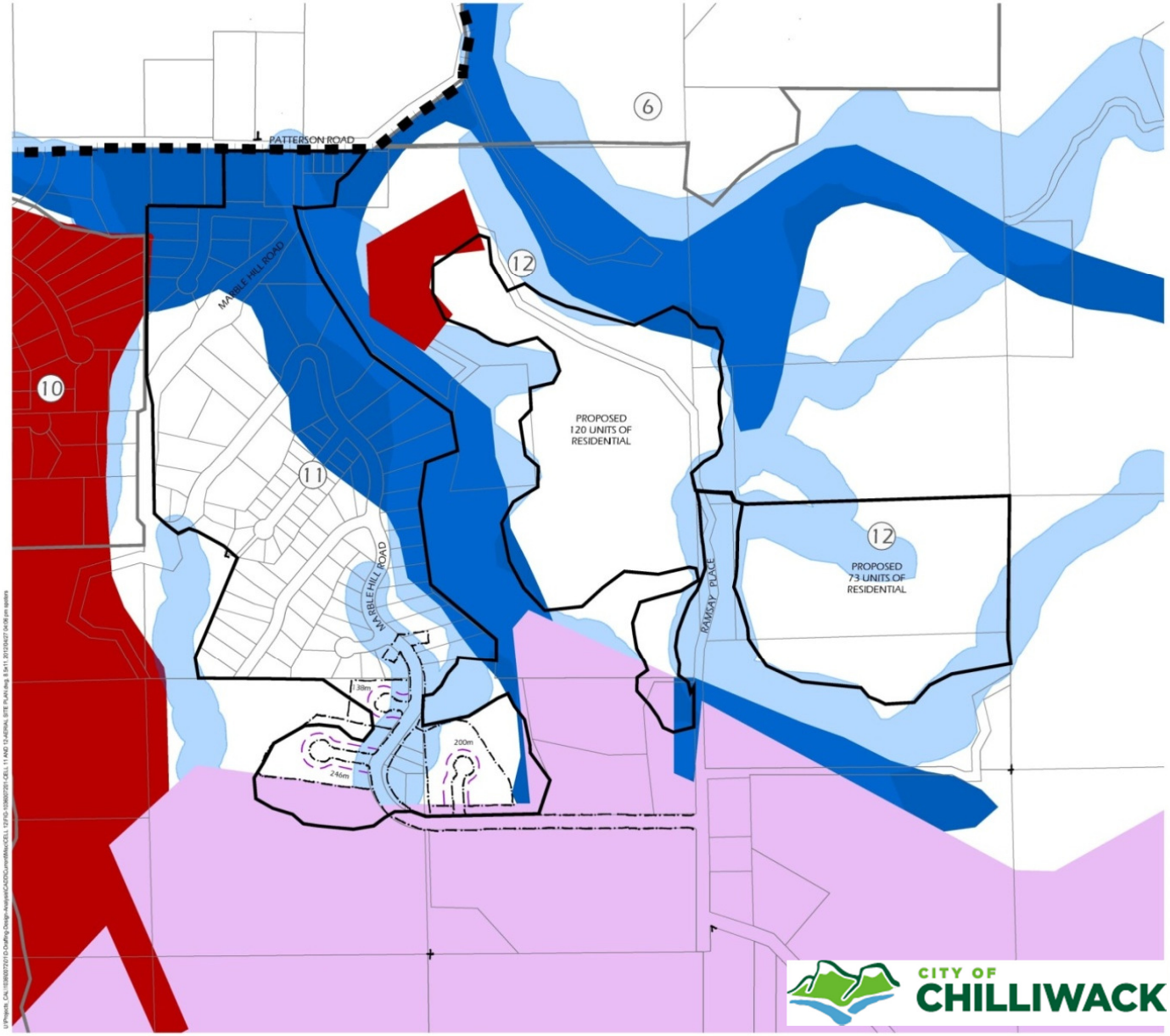
CITY OF CHILLIWACK

Cell 11 & 12 Subdivision Development Concept

URBANSYSTEMS.

North
Not to Scale

DATE: APRIL 2012
SOURCE INFO: CITY OF CHILLIWACK



CITY OF CHILLIWACK

KEY

- RIPARIAN CORRIDOR
- ALLUVIAL FAN
- LANDSLIDE RUN-OUT LIMITS
- NO BUILD ZONE
- LARGE LOTS

Cell 11 & 12 Assumptions:

- Directed development to lands:
  - -< 30% slope &
  - -outside any riparian areas & alluvial fan areas
- Sited larger lots on lands with slopes generally > 20%
- Adjacent land owners cooperate to provide logical development areas
- Preserved vegetation wherever possible
- Directed smaller lots to disturbed lands (ie. clearing)
- Aligned residential units with the slope condition wherever possible
- Identified potential park spaces
- Typical lot depths range from 30 m to 50 m

Cell 11 Frontage Calculations & Anticipated Yield

- Total Frontage = 584 m
- Larger lot frontage = 584 m @ 22.5 m = 25 units

Total anticipated yield = +/- 25 residential units

Note:
The attached preliminary concept has been developed based on available mapping and in accordance with the City of Chilliwack Hillside Development guidelines, and is subject to further refinement and detailed design. The concept recognizes the opportunities and constraints associated with the site and the cell boundary and demonstrates how the lands can be developed to accommodate large lots in keeping with the Hillside Development Guidelines.

“Schedule 2”

Eastern Hillsides
Servicing Report

“Schedule 3”

Eastern Hillsides Parks, Trails and Green Space Plan

"Schedule 4"

Eastern Hillsides Residential Development Scenario 2011-2051

	2011 Dwellings	2011 Population	2021 Dwellings	2021 Population	2031 Dwellings	2031 Population	2051 Dwellings	2051 Population
Single Detached	454	1,289	848	2,351	1,247	3,037	1,827	4,079
Duplex	10	27	10	27	24	57	49	112
Manufactured Home	2	4	2	4	-	-	5	9
Townhouse	-	-	30	75	-	-	236	514
Apartment/Hotel	-	-	-	-	-	-	80	142
Secondary Suite	-	-	5	9	53	94	244	387
All Dwelling Units	466	1,320	895	2,467	1,324	3,188	2,441	5,242

Note: The above projection represents a conservative scenario. It positions the Eastern Hillsides community growth between the Medium and Low Demand ranges of the "Development Opportunity Study, Eastern Hillsides" by G. P. Rollo & Associates (commissioned by the City). In a city-wide conservative growth regime, the Low Demand Range of the Eastern Hillsides entails a 48 year build-out, averaging 47 units per year. Its Medium Demand Range suggests building out in 37 years and an annual absorption of 61 units. Its High Demand Range reduces the build-out time to between 30 years, but requires a sale volume of 75 units every year, which is hard to achieve in light of the difficult terrains, the many offsite and onsite infrastructure improvements, and a long term market above average pricing. From the City's perspective, a low-to-medium long term growth scenario would be more prudent, especially in terms of managing market risks and financing. However, the City does not preclude future cyclical peaks and valleys, and it will adjust the Eastern Hillsides capital work timeline if the Eastern Hillsides' growth proceeds at a faster pace than the above scenario.