WEST SPRINGS

LAND USE CONCEPT AND GROWTH STRATEGY

EVDP 644 Advanced Professional Planning Project

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

Calgary's continuous growth has resulted in the expansion of urban areas into previously rural ones. In the community of West Springs, this expansion has resulted in fragmented development, where individual acreages have been individually transformed into suburban tracts with no long-term community plan or vision in mind.

The community has recognized the need for a land use concept plan and urban vision that will allow for future growth to occur within and between currently developed lands in order to create a cohesive community. This project and plan document serves to meet that need and will be critical to the long-term success of the community.

The land use concept will consider the gradual development of privately owned acreages, and their integration into the community. It will consider: how to ensure subdivisions are connected (green space & public realm); diverse housing is provided (density & housing form); and, address the overreaching rural/urban identity.

1.1 PROJECT BACKGROUND

In October 2012 the West Springs/Cougar Ridge Community Association (WSCR) submitted a research proposal to the Federation of Calgary Communities (FCC) for the purpose of providing projects to the University of Calgary's Faculty of Environmental Design (EVDS) graduate program. The WSCR proposal was selected as the capstone project for the Urban Design Stream of EVDS's Planning Program for 2013 Graduates.

This document serves two purposes:

- ✓ It is a required submittal for 2013 Graduate Students enrolled in EVDP 644 - Advanced Professional Planning Project; and,
- ✓ It serves as a recommendation and/or reference document to help the WSCR develop an urban vision and growth strategy for the future of the West Springs area.

1.2 PROJECT APPROACH

Illustrated below is the established approach for the development of the land use concept plan for West Springs.

1.3 PROJECT CONSTRAINTS

The following outlines project assumptions, limitations and exclusions:

Assumptions:

- WSCR represents the community as a whole and will act on their behalf, thus not necessitating public engagement processes;
- WSCR is to provide samples of the community survey that was conducted and survey results;
- All places of worship and already developed lands are to remain intact and incorporated into land use concept;
- All undeveloped land and rural residential acreages (with or without homes) are considered to be developable, except for those that have recently subdivided to maintain the existing residence;
- The proposed Land Use Concept plan will serve for academic purposes only and is not intended to be used/implemented as a formal plan.

Limitations:

- Very little to no access to private landowners and private property;
- The project timeline is limited to three months;
- The East Springbank ASP will be considered but will not limit the ideas/concepts outlined in the land use concept.

Exclusions:

- No costs or budgeting for implementation of the plan is provided.

The project area analysis aids to investigate character areas, highlight issues and summarize demographic data in order to help germinate a comprehensive and detailed concept plan.

Located in the Southwest quadrant of the city, the community of West Springs is bounded to the north by Old Banff Coach Road, to the east by Coach Hill Road, to the south by Bow Trail, and transitions to farmland on the west with its edge marking the proposed location of Stoney Trail (see Figure 2.1).

The maps below identify the area under study.

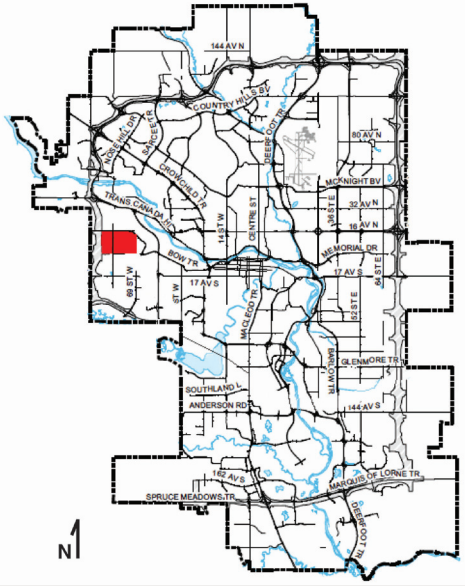


Figure 2.0. City of Calgary.

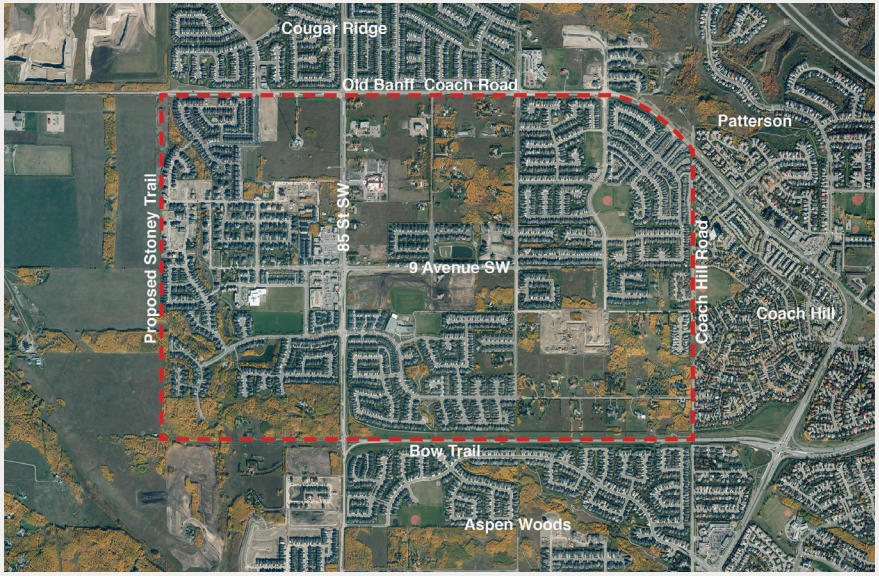


Figure 2.1. Community of West Springs.

2.1 SITE HISTORY

Annexed in 1995, the East Springbank Area Structure Plan (ASP) encompassed over 5,700 acres of land, primarily rural/country residential and some farm uses. Unlike larger parcels of farmland, the annexed land was not zoned Urban Reserve (UR), as is typical of pre-urban land, since there were many smaller parcels of 5 acres containing residential homes that were not related to a large agricultural use.

The entire area was zoned DC12Z96, essentially a holding district, limiting the subdivision potential in order to maintain the rural residential patterning. Therefore, in order to subdivide to build residential at a higher units/acre, rezoning is required along with subdivision. This original designation has by and large been replaced with suburban residential communities built throughout the East Springbank ASP's four main areas now called: Cougar Ridge; West Springs; Aspen Woods; and, Discovery Ridge. The exception being West Springs with approximately twenty 5-acre parcels remaining rural residential under DC 12Z96. The following figures show the historical evolution of the built form.

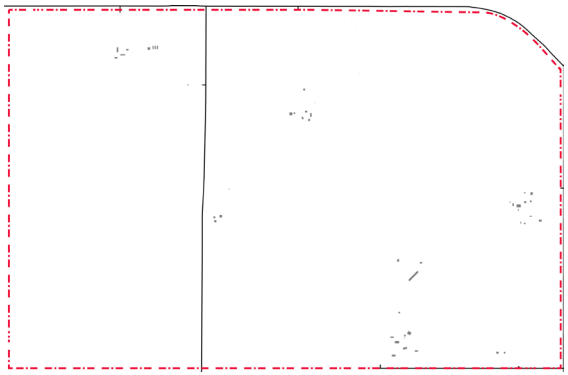


Figure 2.2. 1948.

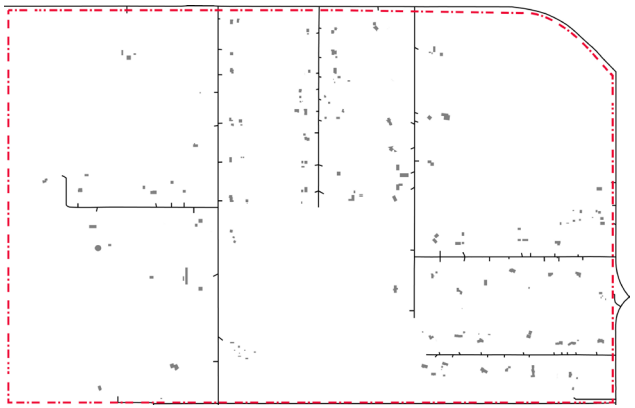


Figure 2.3. 1972.

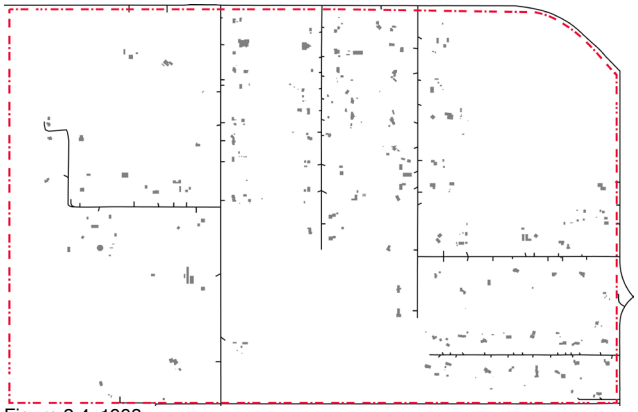


Figure 2.4. 1993.

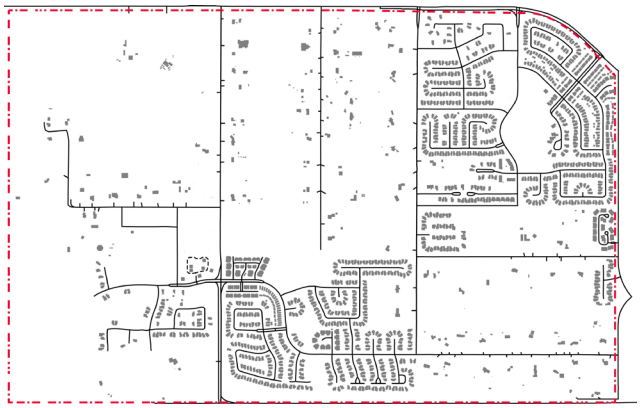


Figure 2.5. 2003.

The historical figure ground analysis ending with 2012 shows bursts of development since annexation evolving to the pattern of built form shown in Figure 2.6.

Unlike the other three East Springbank ASP areas, West Springs has experienced extensive piecemeal development on smaller sections of land resulting in many of the issues this analysis discusses. In July 2012 the West Springs portion of the original ASP was replaced by a new ASP that is more inline with the City's current Municipal Development Plan (MDP) and Transportation Plans (CTP). These policy plans along with the City's Open Space Plan inform the project outcome.

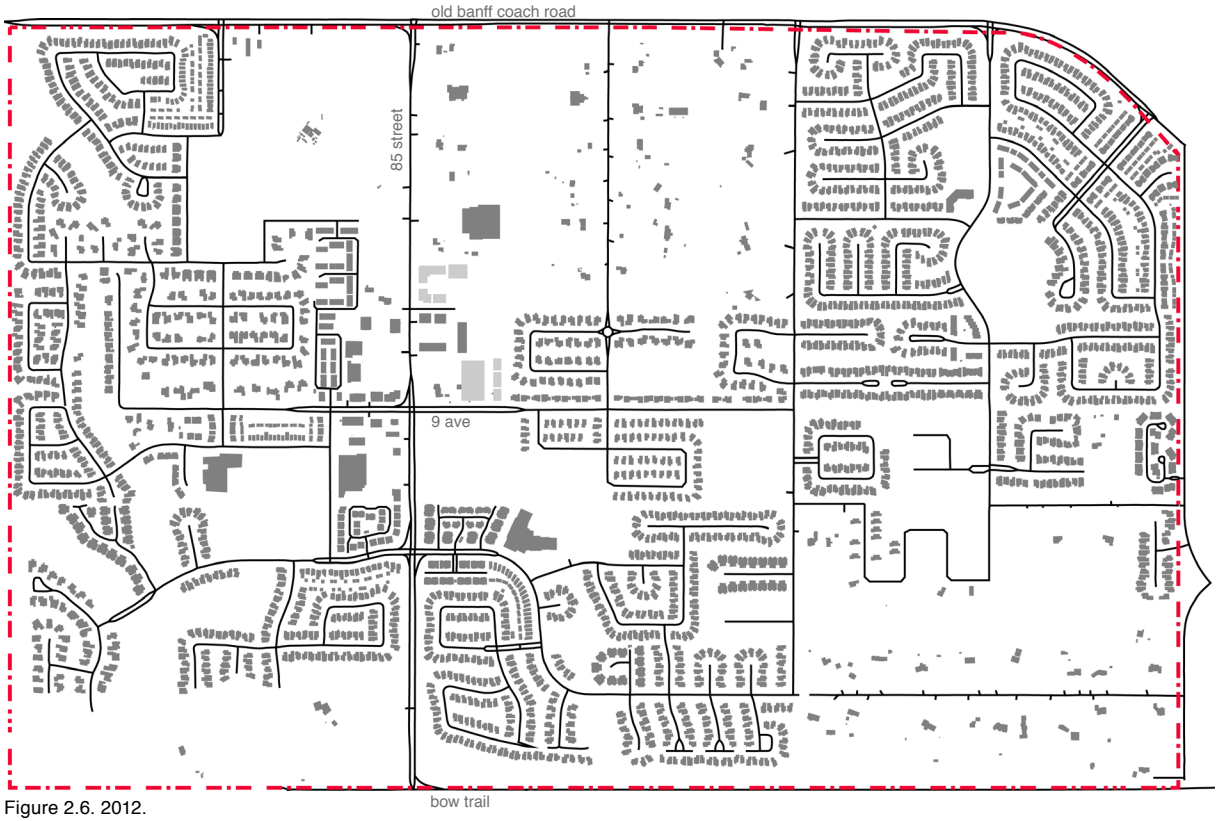


Figure 2.6. 2012.

2.2 DEMOGRAPHICS

2.2.1 Population, Age and Children

West Springs shows a diversity of age cohorts, but is currently predominated by families with young children, as is evident by the large percentages of persons in the 35-44yr and 5-14yr age cohorts as shown in Figure 2.7. There is also a higher than average number of children at home in comparison with Calgary. There is a very low percentage of seniors (65yr+) in comparison to other age cohorts.

As of 2011, the population of West Springs stood at 7,849, but is expected to grow by 36.1% by 2024, adding approximately 2,840 people to the area. This growth pressure on West Springs will result in a need to develop land relatively quickly over the next 10 years.

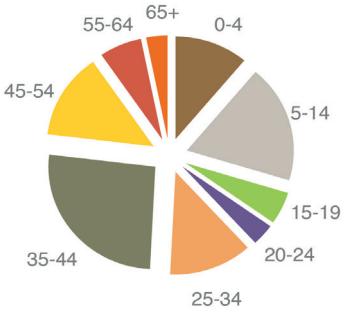


Figure 2.7. West Springs age distribution, 2011.

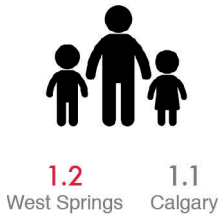


Figure 2.8. Average # of children, 2006.

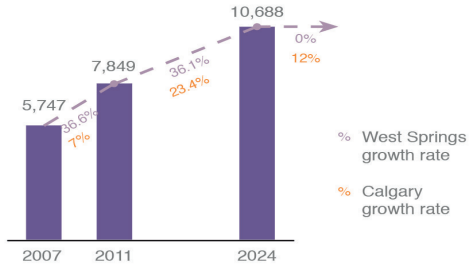


Figure 2.9. West Springs population.

2.2.2 Income

West Springs is considered to be a very affluent community with the median household income being significantly higher than the Calgary average. This affluence is also evident through average housing prices and housing size discussed in section 2.2.3.

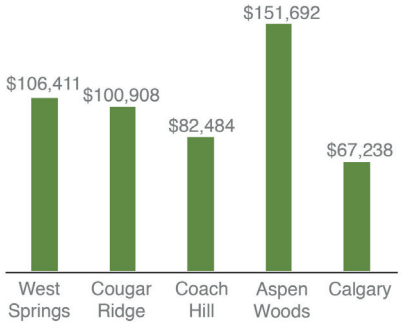


Figure 2.10. Median household income, 2005.

2.2.3 Housing

Single detached family homes are predominant in the community, making up 80.5% of the housing stock. This is similar to the neighbouring communities of Cougar Ridge and Aspen Woods, but significantly lower than neighbouring Coach Hill and Calgary at large. There are very few housing options for cohorts such as students, singles, or seniors who wish to live in or may require smaller scale housing.

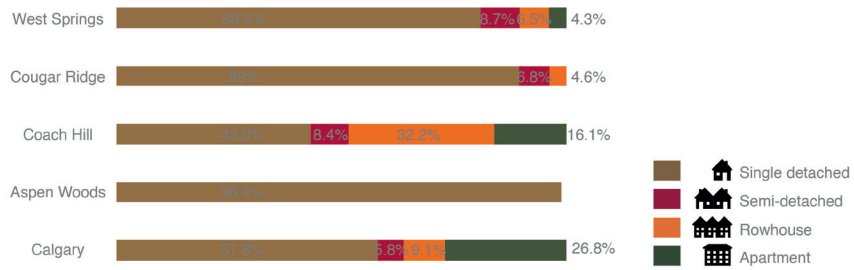


Figure 2.11. Dwellings by structure type, 2006.

Through extensive research of the current housing stock and real estate listings, it was determined that the average single family home in West Springs (which consists of 4 bedrooms, 3 bathrooms and a double garage) costs approximately $988,000 as of January 2013. As can be seen in Figure 2.12, the average West Springs single family home is considered to be unaffordable (spending more than 30% of income on shelter), even taking into account the higher median household income of residents.

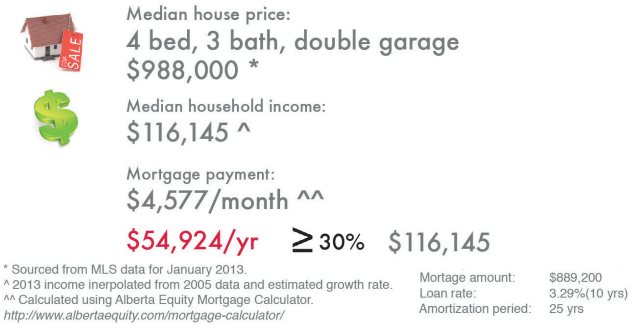


Figure 2.12. Housing affordability.

Only 3% of the housing stock in West Springs is rented/rentable. This provides very limited options for accommodation for those who do not have the economic means to buy a single family home, or those who do not wish to buy.

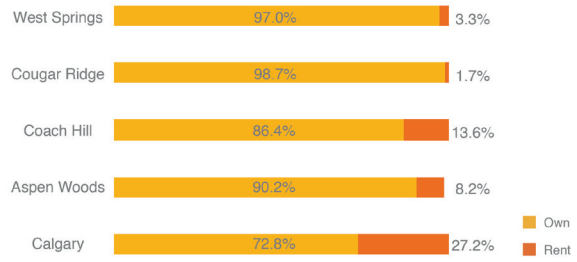


Figure 2.13. Dwellings by tenure, 2006.

2.3 INFRASTRUCTURE

2.3.1 Street Network

While there are distinct major, collector and local roads throughout West Springs the street network analysis reveals a number of issues regarding connectivity within the community (identified in the accompanying Figures 2.15 to 2.22). The predominance of a cul-de-sac type street and block pattern results in many dead ends, and prohibits vehicular and/or pedestrian connectivity. Similarly, some local and collector roads have been blocked off, likely implemented to limit cut-through traffic, in the southeast rural residential area and to/from adjacent communities.

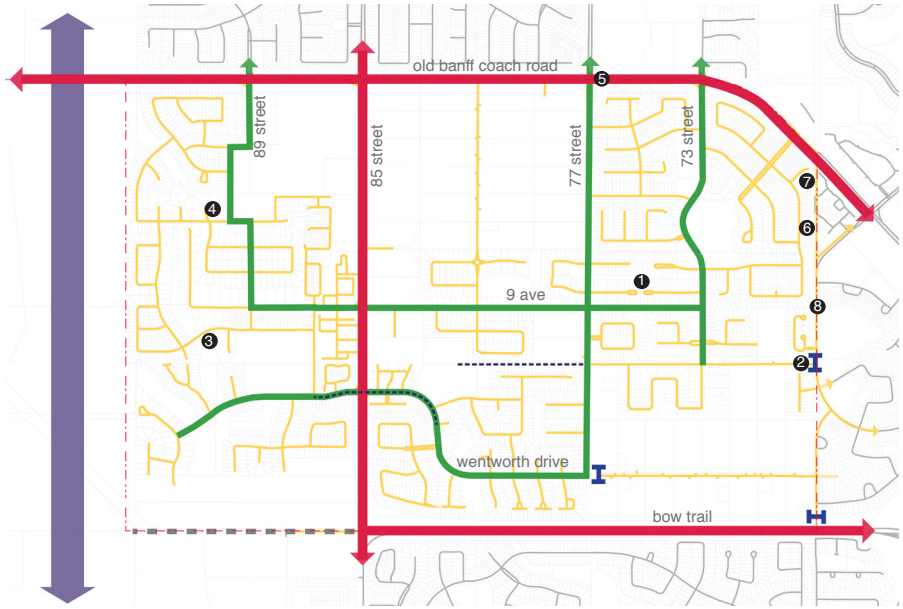
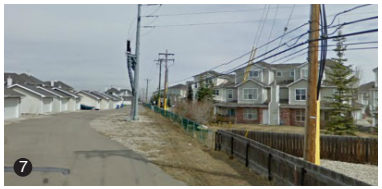


Figure 2.14. Street network.



Figures 2.15 to 2.22.

2.3.2 Street Typology

An analysis of the streets in West Springs revealed four common types described below along with corresponding images and sections.

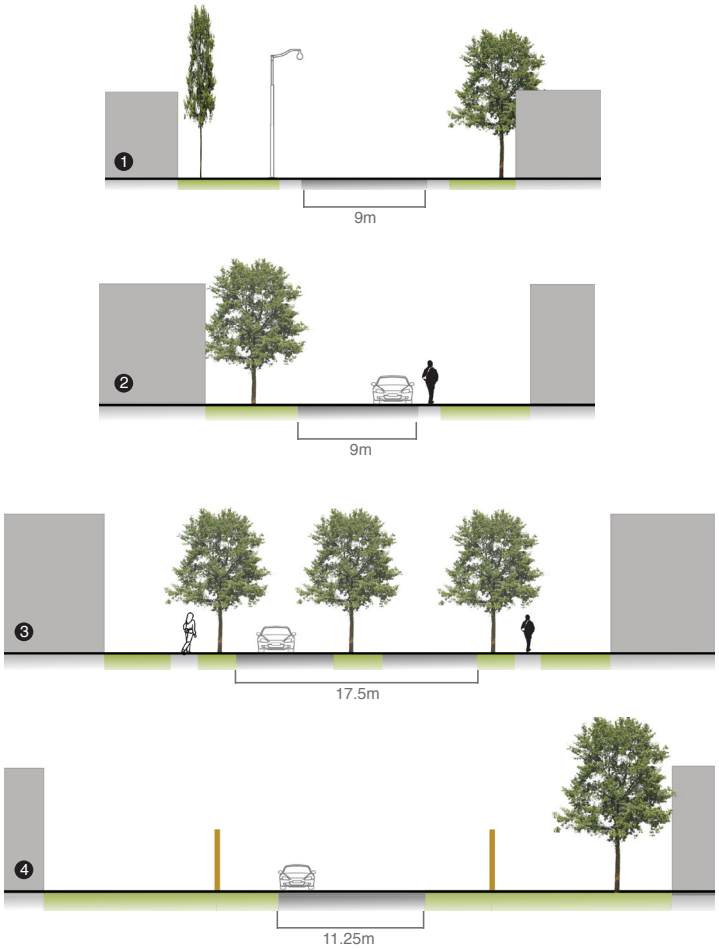
1. The streetscape where sidewalks are on both sides and shallow front yards produced a more human-scale environment.

2. The most common street type, dominated by front driveways and featuring a sidewalk on one side weakened pedestrian connectivity.

3. The boulevard street type with/without a median and boulevard trees is seen at some entries to the community but not along major thoroughfares.

4. The least human-scale streets are wide with buildings and fenced yards backing onto rather than fronting the road. Sidewalks are un-maintained or non-existent.

Figures 2.23 to 2.26.



Figures 2.27 to 2.30.

2.3.3 Public Transit

West Springs benefits from three existing bus routes that service the area (Routes 98, 453, and 452), all connecting to the 69th Street SW LRT station, approximately 4km from the centre of West Springs. Analysis revealed these feeder routes are convoluted and in some cases overlapping which increases travel time while limiting the possible catchment area. This may result in decreased ridership, as routes are indirect and do not comprehensively serve the community

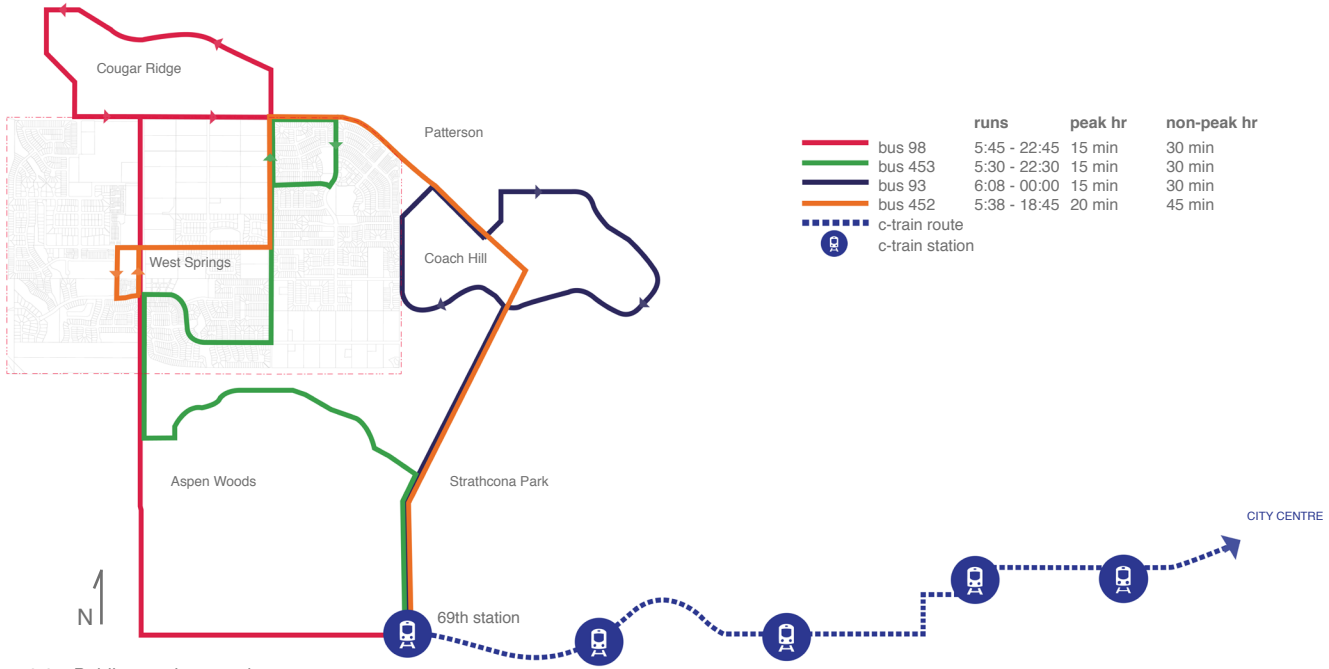


Figure 2.31. Public transit network.

2.3.3 Walkability

A pedshed, short for pedestrian shed, is a diagram displaying the basic measure of walkability within a neighbourhood. A pedshed is the area encompassed by the walking distance from a node within a neighbourhood, such as a school or shopping centre. A comfortable walking distance is considered to be the distance covered by a 5 minute walk, roughly 400m. Actual distance walked is not linear, due to non-uniform street and block patterning, as such a pedshed diagram takes an irregular not radial form.

Figure 2.32. Pedshed from coffee shop at community core.

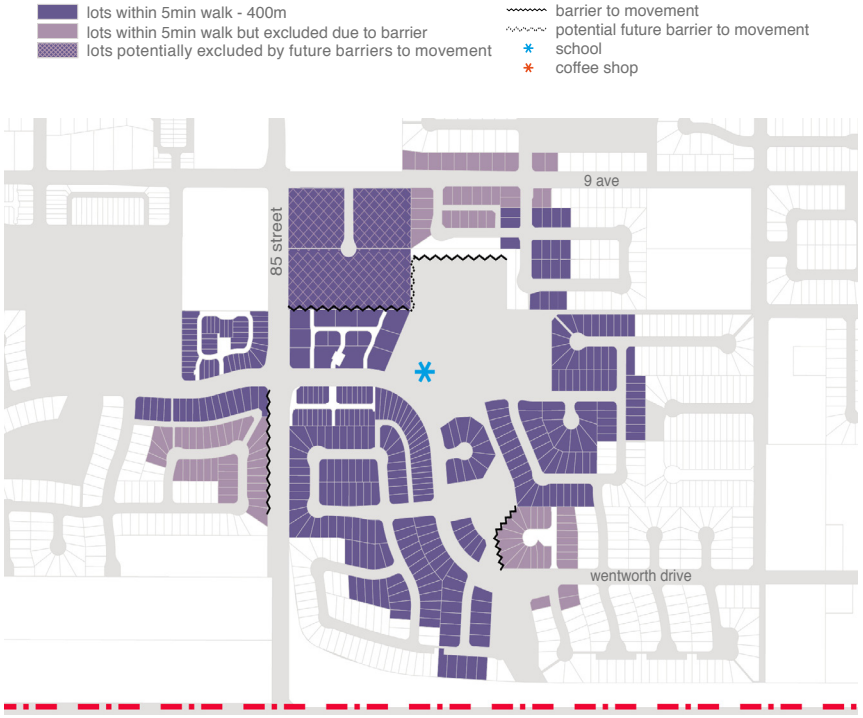


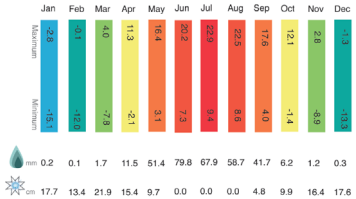
Figure 2.33. Pedshed from St. Joan of Arc school.

2.4 OPEN SPACE & ENVIRONMENT

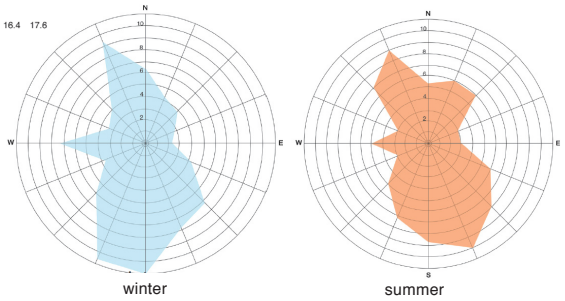
2.4.1 Natural Elements

Calgary's temperature and precipitation demonstrates that the city experiences extremes, varying from –45°C in winter to 36°C in summer, with rain precipitation peaking in warm months and snowfall dominating the winter months. Analysis of wind patterns reveals that directions are south-south easterly and north-north westerly in the summer months while winter months are characterized by southern winds and occasional chinooks.

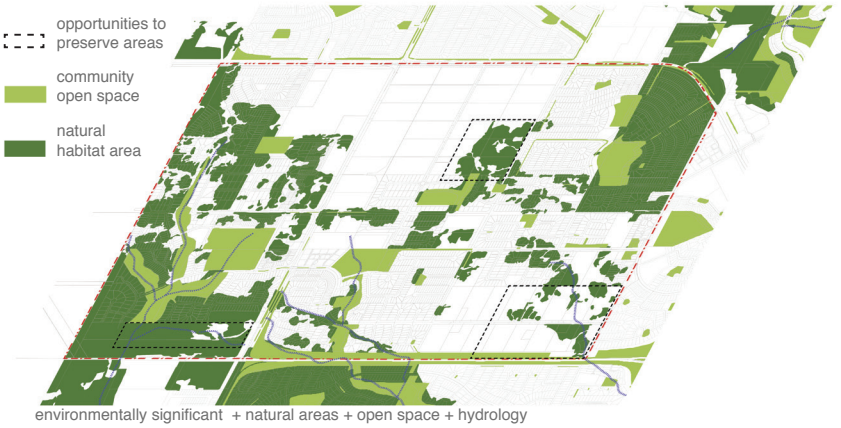
Through the mapping of natural and ecological areas, including intermittent streams and habitat types, sectors of greater significance were identified. By further overlaying the current developed areas (streets, lots and open spaces) three zones with the highest priority for protection were outlined, in Figure 2.37, and were considered during concept plan development.



temperature and precipitation



Figures 2.34 to 2.36. Temperature & precipitation, Winter and Summer wind patterns.



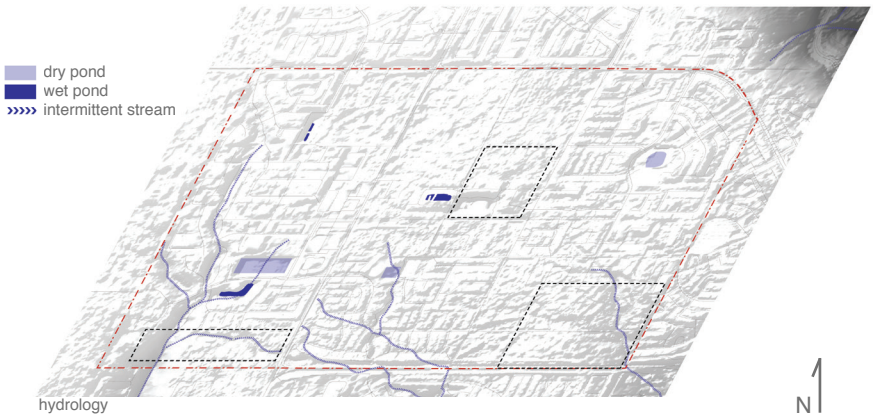


Figure 2.37. Environmental and open space mapping.

2.4.2 Open Space Network

The existing open space was analysed in order to identify programmed and un-programmed areas used by residents. The analysis revealed natural areas are incorporated into the open space network and how the network is linked throughout West Springs. More importantly, gaps were uncovered where open space is deficient, where poor connectivity exists and ultimately where new and improved open spaces are needed.

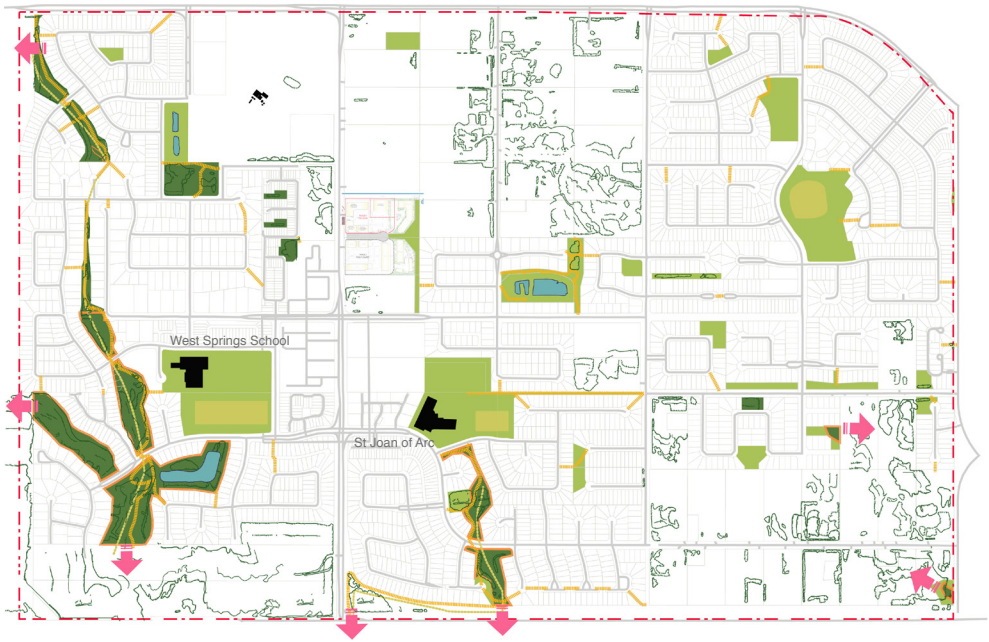


Figure 2.38. West Springs open space network.

Figures 2.39 to 2.44. Natural and open spaces throughout West Springs.

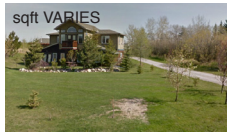
2.5 BUILT FORM

2.5.1 Building Typology

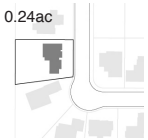
This research aids to understand and categorize the variety of building types throughout West Springs, their associated size and placement on the land. This typology is further utilised in the characters areas (2.5.2).

RESIDENTIAL

single detached dwelling
RURAL

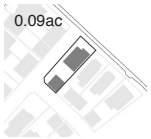


single detached dwelling
ESTATE

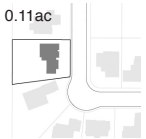


single detached dwelling
TYPICAL ATTACHED GARAGE

single detached dwelling
TYPICAL DETACHED GARAGE

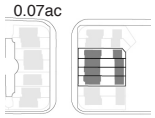


semi-detached dwelling
TYPICAL ATTACHED GARAGE

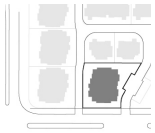


semi-detached dwelling
TYPICAL DETACHED GARAGE

multi-family dwelling
LOW RISE

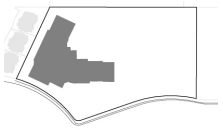


multi-family dwelling
MID RISE



INSTITUTIONAL

SCHOOL
CHURCH
INFRASTRUCTURE



COMMERCIAL

LOCAL
NEIGHBOURHOOD

2.5.2 Character Areas

The character areas were categorized by several unifying factors including subdivision date, street naming, building types and block patterning. Analyzing the character of individual areas of the community reveals how they fit together and contribute to the overall community and reveals limitations and opportunities when moving towards implementing guidelines and recommendations. Shown to the right on this page are three examples of the variety of character areas in West Springs. Appendix A outlines all character areas that were analysed.

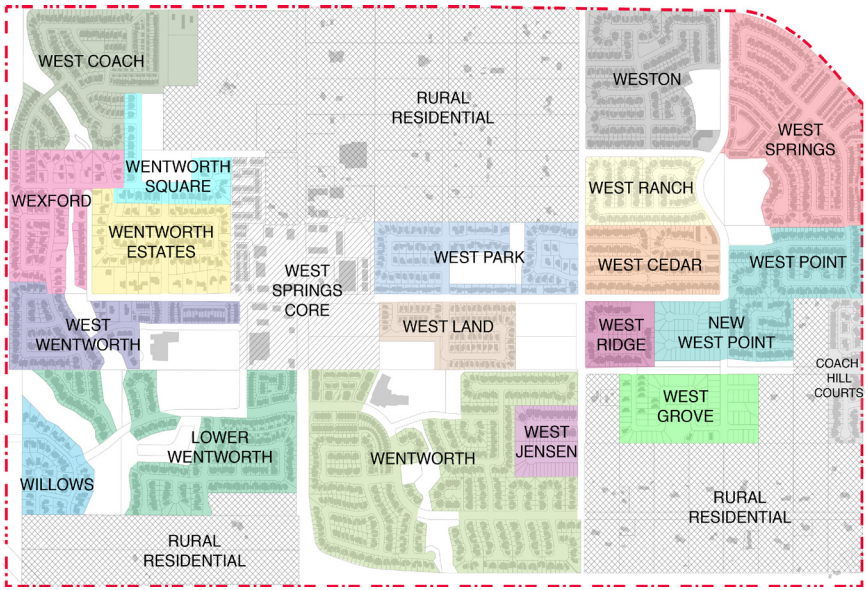


Figure 2.45. West Springs character areas.

RURAL RESIDENTIAL
varies
0.2UPA



A mix of old and new rural residential homes on 5 acre lots. Three churches are also located across several parcels.

WILLOWS
2005
3.3UPA


A private development with 40 units featuring green swales and the retention of original aspens.

WEST SPRINGS
2000/02
8.4UPA



This area contains many building types mixed within a variety of block patterns. The large park/future school site, local commercial uses and transit are nearby.

2.6 LAND USE

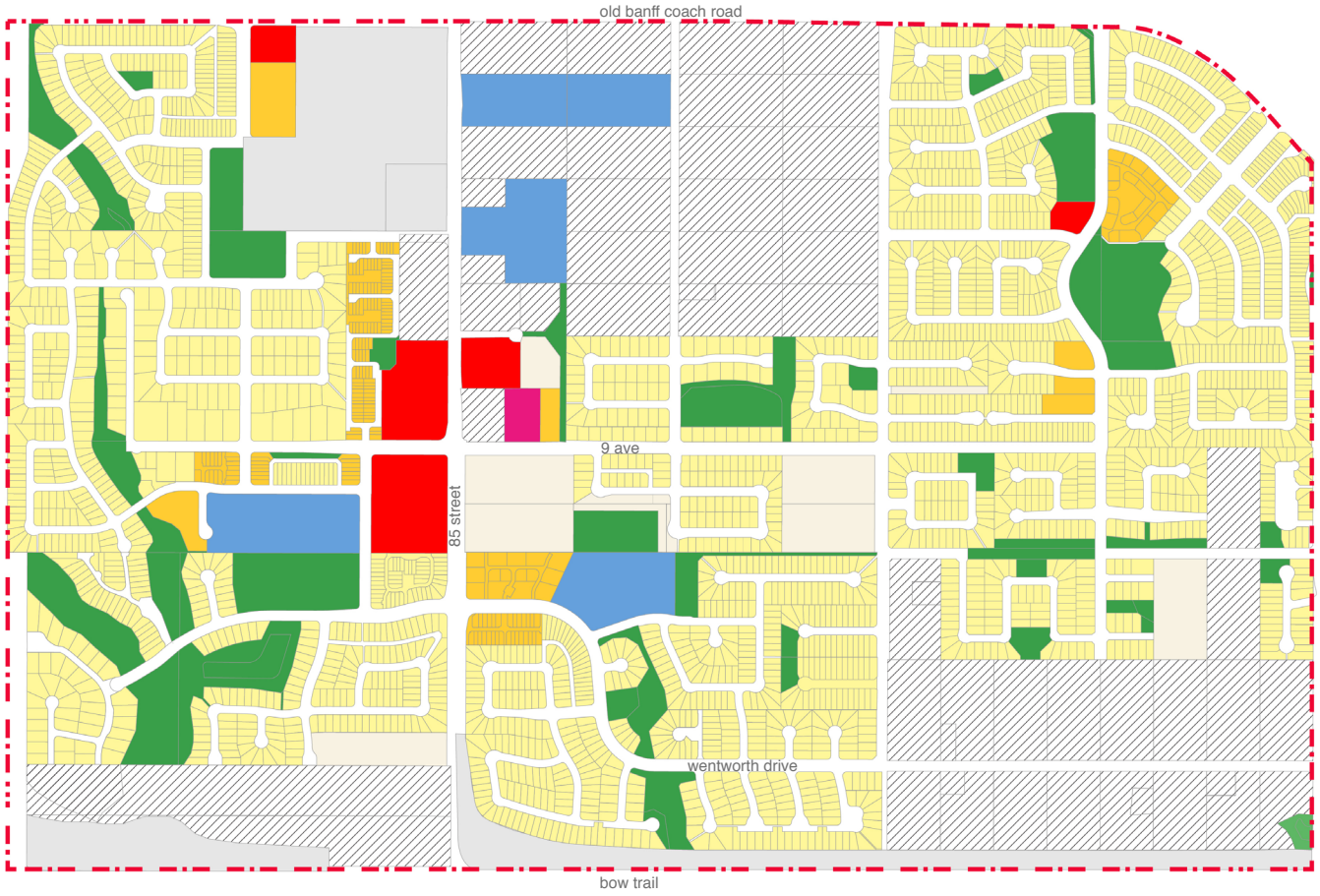


Figure 2.46. Current land use, 2013.

Understanding the current land uses on the ground provides guidance for the future possibilities of development in the defined planning area. The manner in which the current lands are allocated and used in West Springs points to how resources, facilities and services are (or are not) contributing to the physical, economic and social efficiency of the community.

2.7 SUMMATION

2.7.1 Development Potential

Following the land use analysis, the map in Figure 2.47 summarizes the assessment of land potential. Unconstrained areas have potential to develop in a completely new manner whereas sectors where zoning is in place or development has recently occurred are more restricted in their potential. This schema will set the foundation to move towards developing a concept plan, and selecting the best land use options that will foster positive economic and social conditions for the community as a whole.

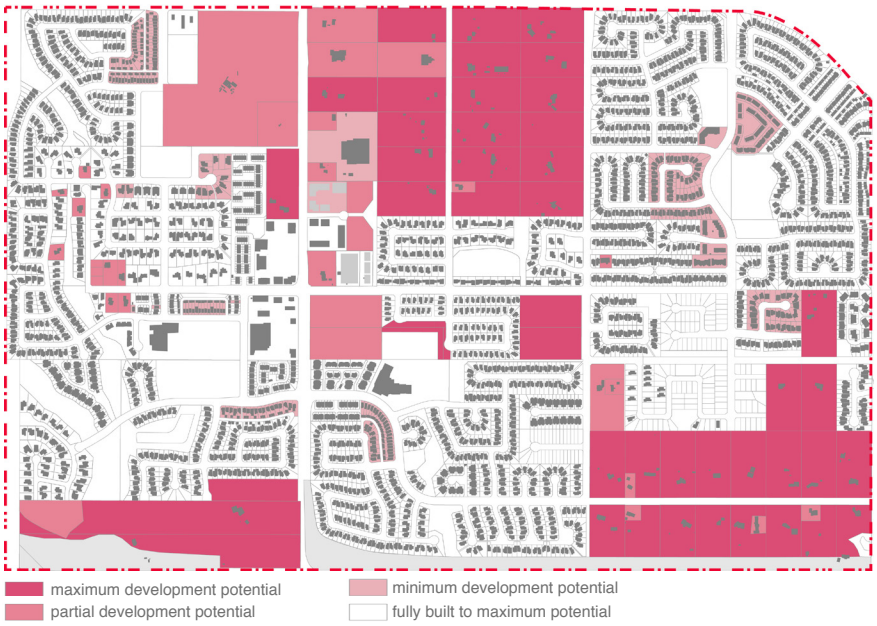


Figure 2.47. Development potential map.

maximum development potential: opportunity for re-zoning, subdivision & design.

partial development potential: recent zoning in place, subdivision & design options available.

minimum development potential: recently subdivided and/or constructed, optional intensification.

fully built to maximum potential: redevelopment unlikely during current community life cycle.

Figures 2.48 to 2.51. Examples of levels of development potential.

2.7.2 Conclusion

Concluding the analysis and taking into consideration the development potential resulted in an overall schematic of the broad opportunities and constraints of the project. Figure 2.52 shows three areas of primarily rural residential parcels where the concept plan will focus on developing block patterns, land use and open space networks, as well acknowledge key barriers in the south of the community due to infrastructure determinants. However, reviewing specifically each analysis section reveals more nuanced details that will need to be considered in order to adequately address the community's concerns as outlined in the original project proposal.

The analysis of the connectivity coupled with on-site investigations revealed local traffic typically enters West Springs through the primary entrances where 85th Street meets Bow Trail and where 73rd Street meets Old Banff Coach Road. The connectivity between sectors of development within West Springs and to the adjacent community of Coach Hill is hindered. The street typology indicates streetscapes where sidewalks are on both sides, and front yards shallow, offers a more human scale environment. However, the most common street type, dominated by front driveways and featuring a sidewalk on one side weakens pedestrian connectivity. The boulevard street type with/without a median and well planted with trees is seen at some entries to the community but not along major thoroughfares.

In terms of the pedestrian, as Figures 2.32 & 2.33 show, there are a number of barriers to movement, such as walls, that prohibit certain areas from being included in the pedsheds surrounding the school and coffee shop on 85th Street. Removing these barriers, and being aware of where future barriers might be located could improve the pedsheds, resulting in a more comfortable walking distance for residents, and ultimately more residents choosing to walk to important nodes instead of driving.

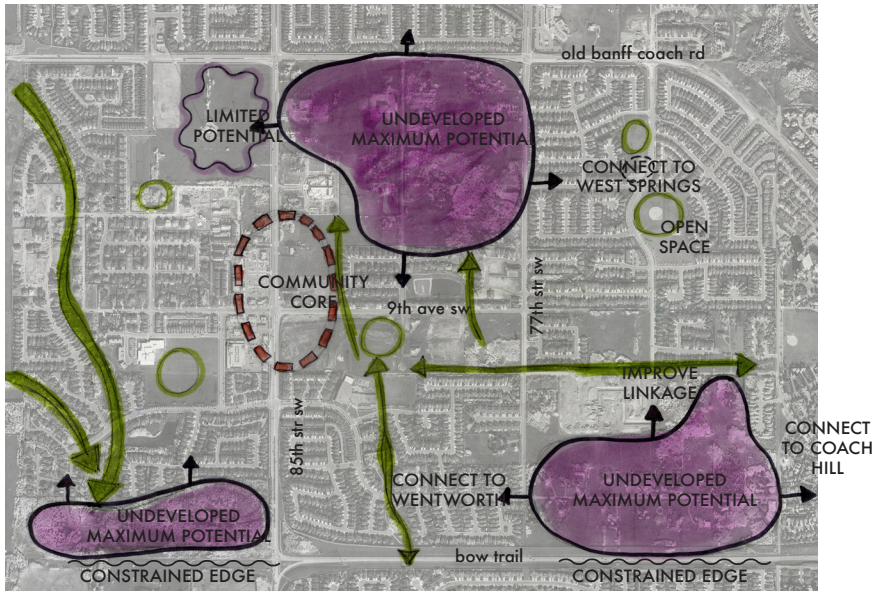


Figure 2.52. Opportunities and constraints map.

The character areas in West Springs, categorised by several factors including subdivision date, building types and block patterning undescores the ‘piecemeal’ pattern of development and disconnected connectivity revealed in the section 2.3, Infrastructure. Taking into consideration the section 2.5, Built Form, and looking at West Springs holistically, it appears that the community lacks diversity in several aspects. This was initially exposed by the demographic data, diversity in resident age, housing stock and affordability analysed in section 2.2, Demographics.

Given the increase in population and expected growth in the area over the next decade, opportunities exist whereby the provision of a more diverse housing stock will significantly contribute toward providing options for a more diverse society, while still accommodating the young families currently typifying West Springs’ population. An increase in other housing types, such as semi-detached, multi-family townhomes and apartments will allow for the needs of people of all age groups, income and lifestyles to be met, such as aging-in-place. Figure 2.53 comprehensively outlines the issues and planned objectives that have been identified through analysis and conversations with the community association.

With this model in place, the ensuing concept plan and guidelines will focus on: initiatives and necessary design strategies to address West Springs’ community and area-specific issues; and, create a convenient, equitable, healthful, efficient, and attractive environment for present and future generations. Although all issues and objectives will be addressed in the land use concept, the following three have been prioritized:

- ✓ CONNECTIVITY
- ✓ HOUSING DIVERSITY
- ✓ COHESIVE DEVELOPMENT

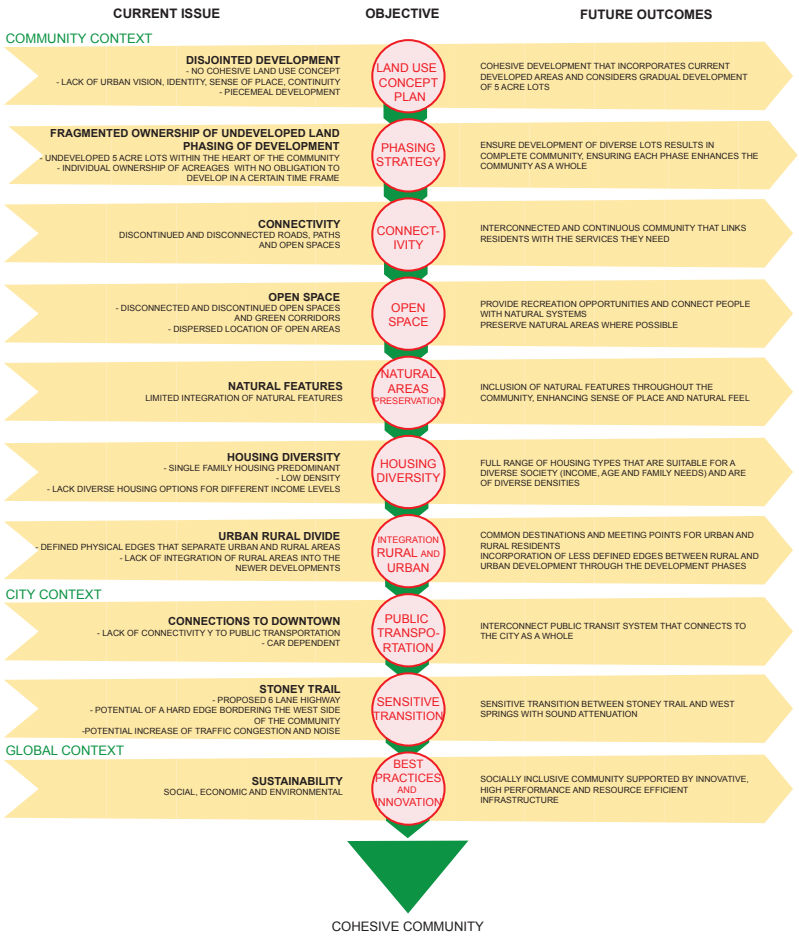


Figure 2.53. Issues and objective diagram.

The goal of the concept plan and development strategy, combined with urban design guidelines (4.0), is to facilitate West Springs in becoming a vibrant and diverse community at final build-out. The open space network and street patterning plans are followed by land use scheme is which is complimented by a building typology. The building typology is comprised of a variety of defined building forms which aid to determine the final density of each of the three undeveloped areas of West Springs. By employing planning principles the concept plan lays down the land use framework, providing structure while allowing flexibility in building types in order to achieve the overreaching goals of diversity, cohesiveness and connectivity.

The initial stage of concept development revisited the opportunities and constraints map and considered the three main objectives, then began by creating first a comprehensive open space network linking existing natural and programmed areas to proposed open spaces.

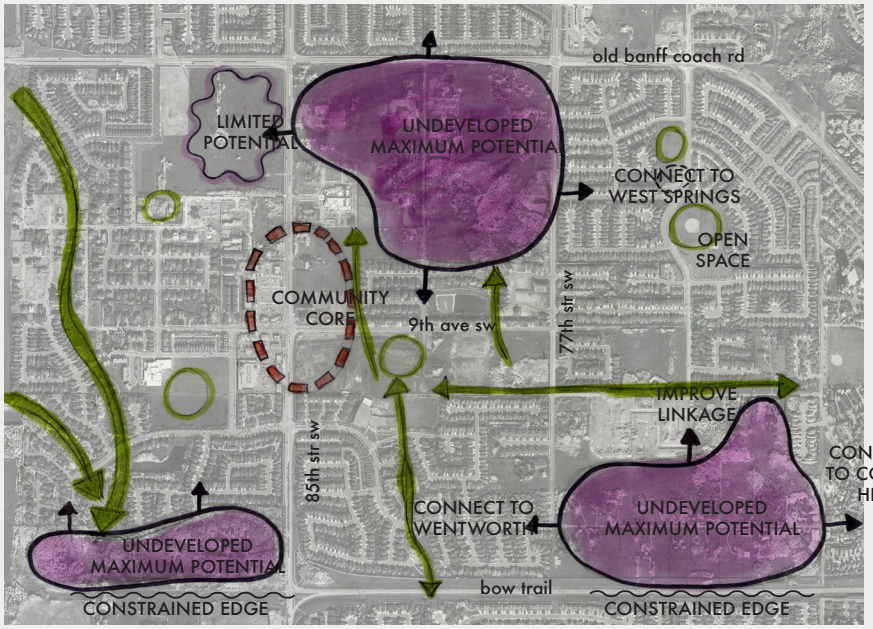


Figure 3.1. Opportunities and constraints map.

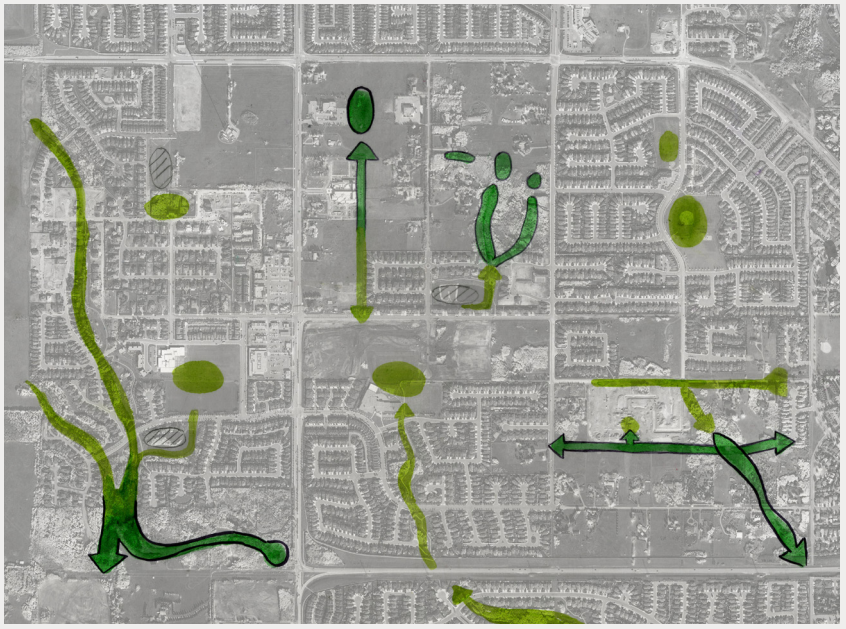


Figure 3.2. Natural and open space overlay.

Next, the existing West Springs major streets network was overlaid to develop new roads connecting to the north and southeast areas of redevelopment. The southwest section where future road rights-of-way constrain connectivity, three possible local street linkages to existing residential nodes were identified. Third, a potential land use scheme was applied taking into consideration the existing land uses surrounding the three major areas of development.

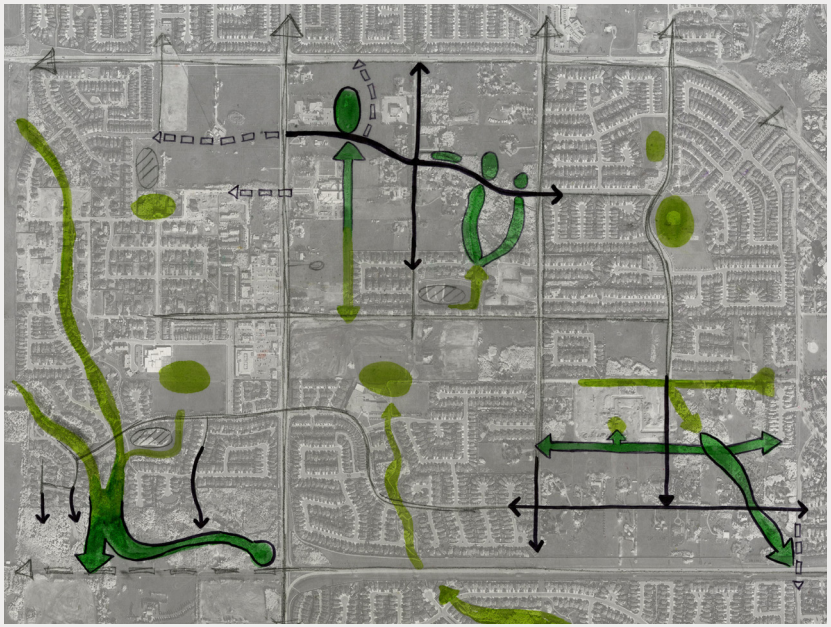


Figure 3.3. Major road connections overlay.

Figure 3.4. Surrounding land use overlay.

In order progress to a more detailed plan, the current 5 acre lots were overlaid on the final concept (Figure 3.5) to help delineate subdivision patterns. As the current ownership is fragmented there is a risk for piecemeal development to occur, which may result in the cul-de-sac block pattern that is typical of the existing developed areas of West Springs. Cul-de-sac development could further break up connectivity and create longer trips. Considering the ownership and unknown phasing of future development, a street and block pattern that would allow for independent subdivision to occur was designed that would also result in a cohesive and connected neighbourhood at final build-out.

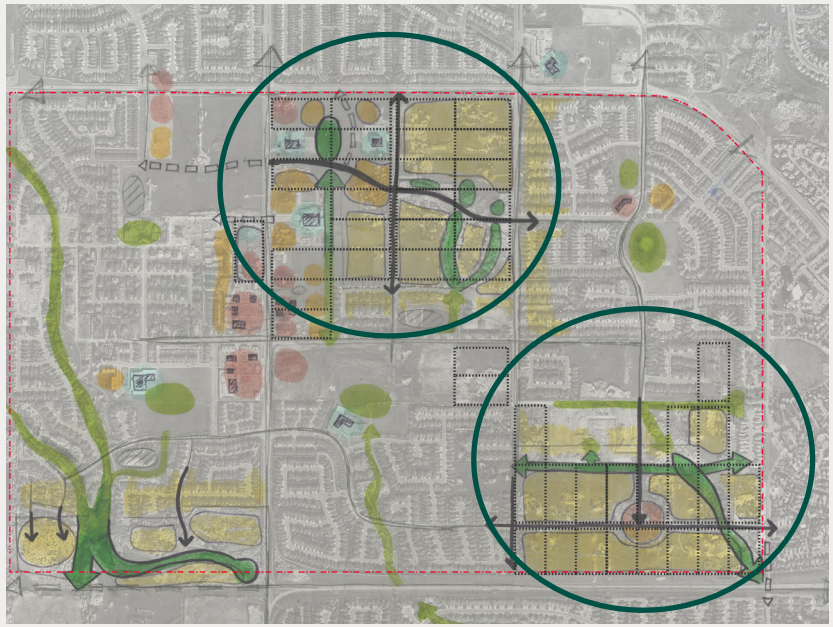


Figure 3.5. 5 acre lots overlay.

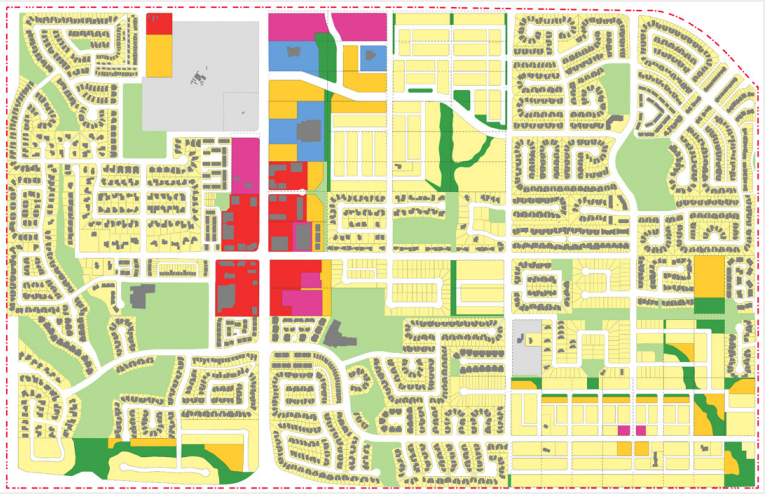


Figure 3.6. General concept plan.

3.1 OPEN SPACE

3.1.1 Concept Plan

The new open spaces were allocated so as to ensure connectivity with existing environmental reserves thus enhancing opportunities for ecological systems to function at a larger scale, including incorporating the intermittent streams. These areas serve as connectivity corridors and buffer divergent land uses for environmental, visual and/or safety reasons. Open spaces are also allocated where they can be used for a variety of informal or social activities.

Throughout the three main areas of redevelopment the goal is to maintain as many trees and natural elements as possible, sensitively merge natural with built environment and maximize landscape biodiversity.

Figure 3.7. Proposed and existing open space concept.

3.1.2 Open Space Typology

Further refining the open space concept, a typology was developed to identify how the areas could be used and ensure a cohesive and complete network that would serve new and existing residents of the community. These types are mapped, both new and existing, on Figure 3.7.

❶ Natural

Areas of importance for geological, wildlife, flora, fauna or other special interest, which is reserved and managed for conservation. These open spaces serve as sections of nature, promoting biodiversity and providing a home for natural species.

❷ Semi-natural

Areas of undeveloped or previously developed land with residual natural habitats or which have been planted or colonized by vegetation.

❸ Informal Un-programmed

Time spent in an open space for recreation offers a reprieve from the urban environment and includes gardening, greened linear parks connecting open space and or passive recreation, which may simply entail being in the open space.

❹ Formal Programmed

Recreation in open space may also include active recreation such as organized sports fields, playgrounds and civic plazas. Generally, manicured areas of grassland or specially designed surfaces, used primarily for specific activities or events and which can be reserved for use by residents.

3.2 CONNECTIVITY

3.2.1 Street Network & Hierarchy

Figure 3.9 shows the proposed street network and road hierarchy which facilitates efficient and effective connectivity between the existing developed areas of West Springs, the areas of expected new development, and the adjacent communities. New collector roads, in particular 81st and 69th Streets, will ensure that the newly developed areas are well connected to the existing arterial roads, Old Banff Coach Road and Bow Trail respectively. Even though the proposed street network and block pattern steers away from a cul-de-sac type, it nonetheless is characterized by a hierarchical street pattern, arterial-collector-local, which easily directs local residential traffic to higher-volume arterials.

Sections and accompanying precedents for each of the street types is shown in Figure 3.8. The proposed streets are intended to provide for all modes of transportation, but prioritize pedestrian, cycling and transit modes over vehicular traffic. This concept is also reflected in The City of Calgary Transportation Plan. The design and width of the streets was informed by a combination of industry best practices and The City of Calgary Design Guidelines for Subdivision Servicing.

In summary, the more traditional street pattern and subsequent block layout results in a better-connected street network. Aside from facilitating cohesive phasing, this more gridded layout with sidewalks has the capacity to benefit the community in the following ways:

- Supports the number of people walking and bicycling;
- Decreases travel distances;
- Increases traffic safety;
- Improves wayfinding; and,
- Allows for more effective emergency response

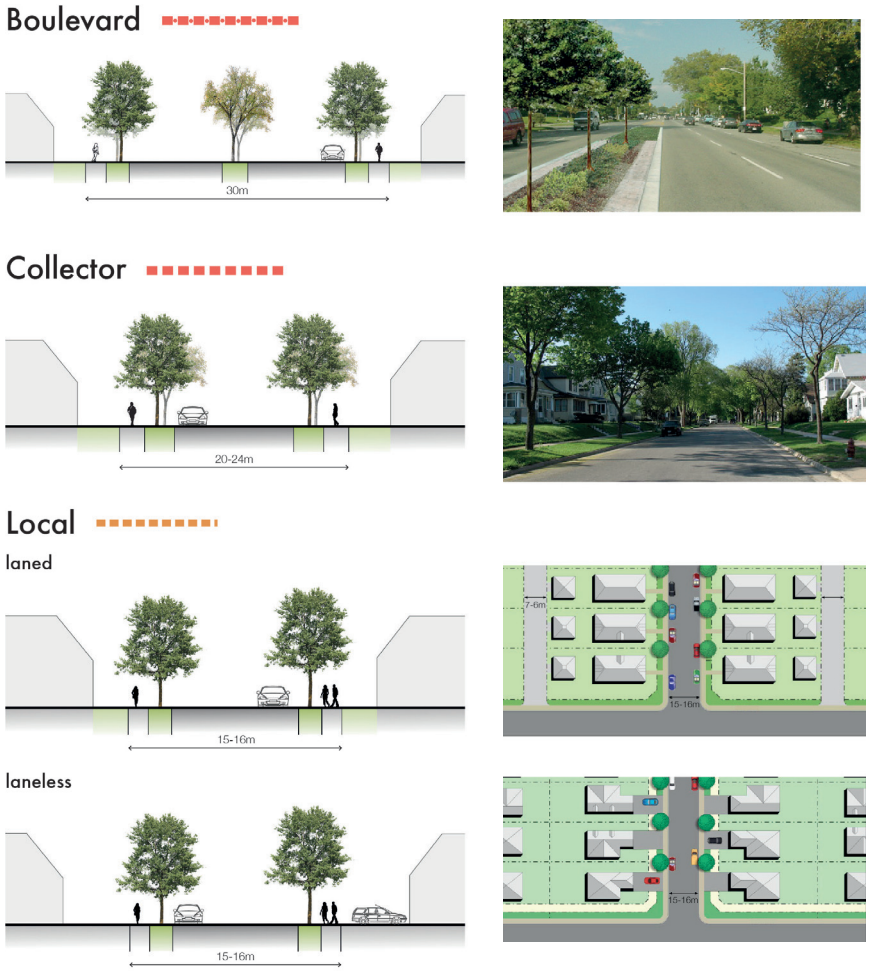


Figure 3.8. Street sections and precedents.

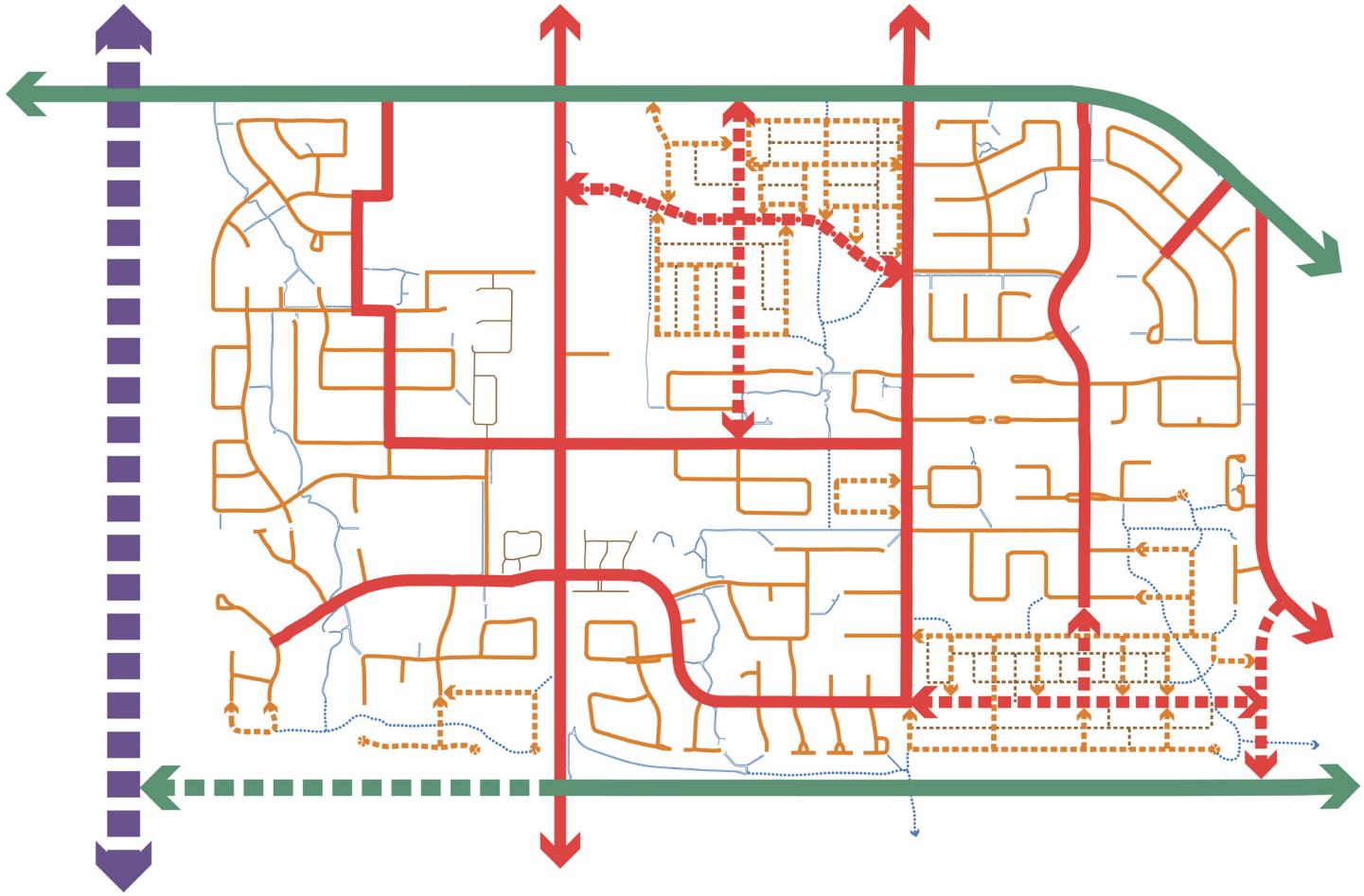


Figure 3.9. Proposed and existing street network.

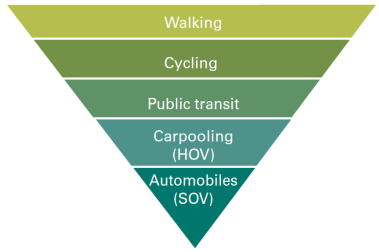


Figure 3.10. Calgary Transportaiton Plan prioritization of transportation modes.

As growth occurs in the undeveloped areas of West Springs, specifically the north and southeast sections, more vehicular traffic will be brought to the area. If new connections to the surrounding arterials are not made, this additional traffic will be directed towards the existing intersections (mainly 85th Str SW & Bow Trail), increasing congestion. The typical solution would be to increase capacity of the intersection and the roads that lead to them, possibly resulting in the widening of existing roads. This unfortunately (and counter-intuitively) results in more congestion, higher speeds, decreased pedestrian safety and connectivity, ultimately negatively impacting the quality of the public realm (Duany et al. 2000). Therefore, it is highly recommended that new connections be made to the existing arterials, in particular the connection to Bow Trail in the southeast.

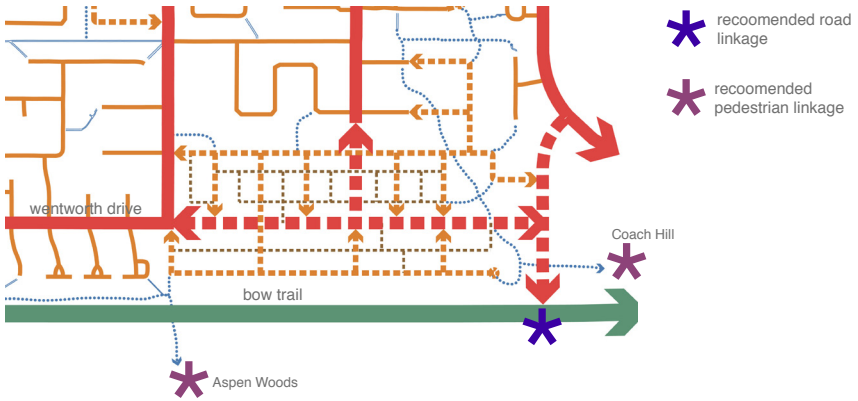


Figure 3.11. Recommended street and pedestrian connections.

3.2.2 Bicycle & Pedestrian Connectivity

Bicycles are to be accommodated within the carriageway of all new and existing roads and pathways. On heavier trafficked roads, such as the boulevard and collector roads, bike “sharrows” are recommended, painted on the street surface to indicate the presence of bicycles along these routes. It is anticipated that most of the bicycle trips made within West Springs will be local trips and/or recreational. Due to the cost of investment and limited vehicular traffic on local roads, separated bike lanes are deemed to be unnecessary at this stage. As noted in Figure 3.10, connections to the regional pathway system in Coach Hill to the east and Aspen Woods to the south are recommended.

Similar to bicycle connectivity, pedestrians are to be accommodated within road right-of-ways on sidewalks. As per the street sections shown in Figure 3.8, sidewalks will be provided on both sides of the street for all road types. Pedestrian connectivity will also enhance through new proposed pathways. With identified existing regional pathways in both West Springs and south in Aspen Woods, a pedestrian bridge over Bow Trail would connect both communities and their green spaces allowing residents to safely cross what will, in future, be a busier arterial road. Local pedestrian connections are further explored in 4.2 guidelines.

Figure 3.12. Bike sharrow.

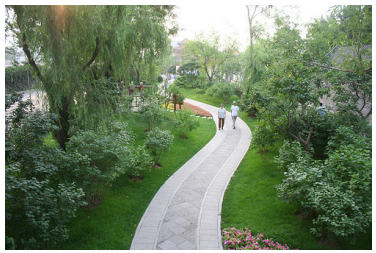


Figure 3.13. Multi-use pathway.

3.2.3 Public Transit

Based on the proposed street network and block pattern, changes in bus routes have been recommended as shown in Figure 3.15. These recommended routes will follow a more circular pattern, as compared with the existing routes (as discussed in section 2.3.3). In this manner, buses travel along the local and collector roads in one direction, resulting in a larger area of the community being serviced. With reference to section 3.2.2, it is also recommended that all buses be equipped with bicycle racks such that bicycles can be transported easily on bus routes. Major bus stops, particularly in the community core, should also provide bicycle parking/storage facilities. This will allow for residents that are outside of convenient walking distance from a bus stop to be able to cycle to one, and either take their bike with them on the bus, or park it until their return trip, thereby improving the integration between these modes of transport.

Figure 3.14. Bike rack on bus, Calgary.

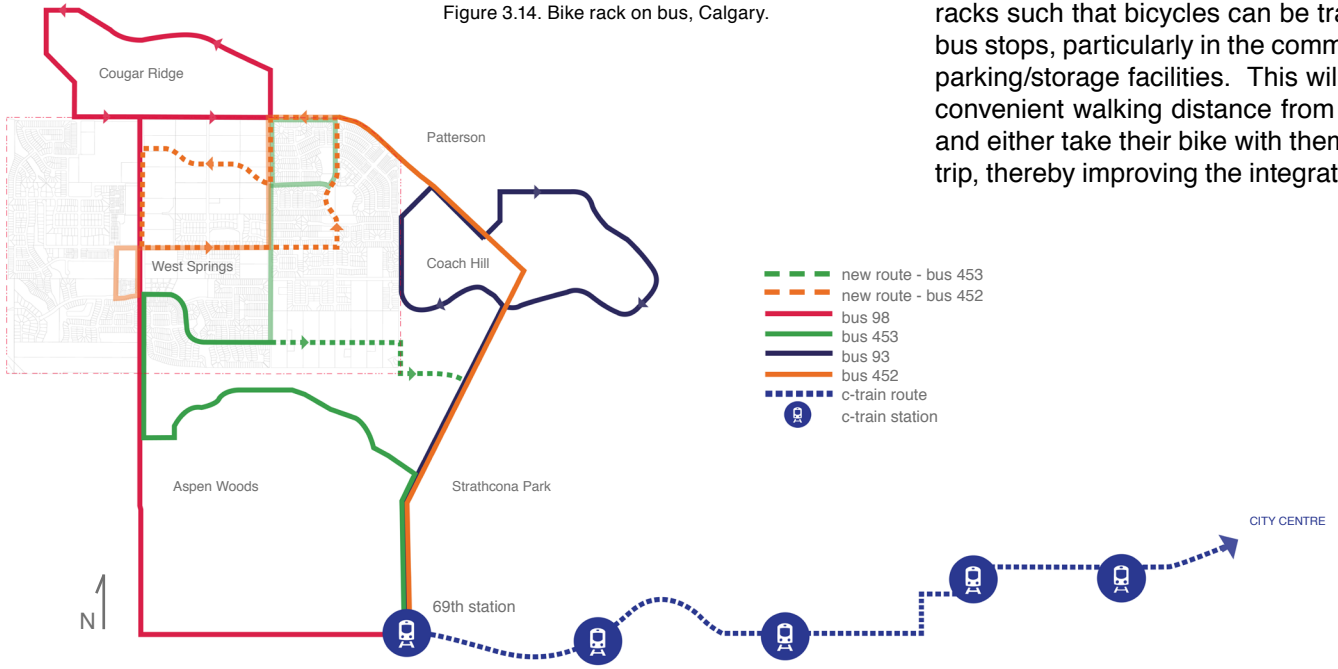


Figure 3.15. Proposed and existing bus routes.

Figure 3.16. Bicycle locker, Calgary.

3.3 LAND USE

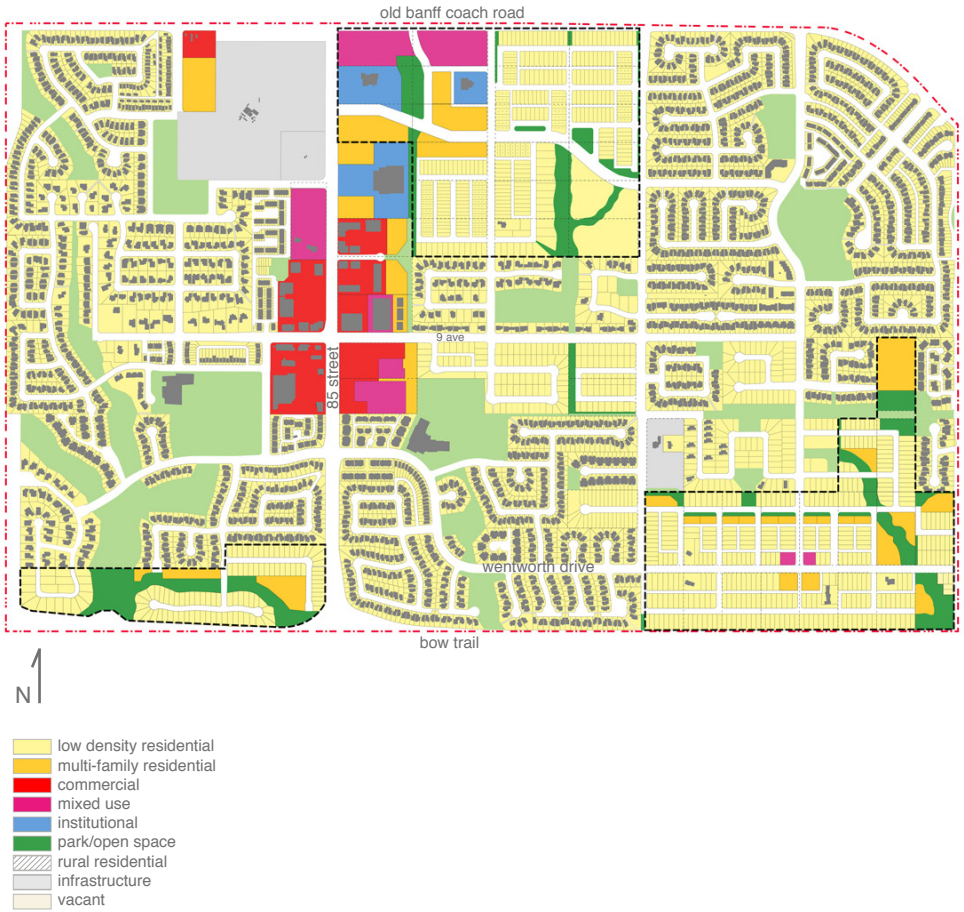


Figure 3.17. Proposed and existing land use map.

The land use designations provide for housing and other uses that are integral to, and supportive of, a complete community. Housing may take many forms ranging in density and scale from detached homes to high-rise apartment structures. To provide opportunities for the development of a broad range of residential uses that will satisfy housing requirements, and to ensure compatibility issues are addressed, three categories of Residential land use have been identified. These areas, designated Low Density Residential; Multi-Family; and, Mixed Use, are further defined into a building typology on page 37, differentiated according to function, desired uses, location criteria, density, and scale of development.

3.3.1 Building Typology

The building typology was developed using the base land use categories and each subsequent type is loosely based on City of Calgary Land Use Bylaw 1P2007 districts in order to capture setbacks, heights, and form based envelopes. By utilizing the current land use bylaw the concept plan is further grounded in certainty. Lastly, by utilizing possible land use districts when developing the building typology and applying them to blocks the resulting density of each of the three developable areas is quantified and is displayed in sections 3.3.2, 3.3.3, and 3.3.4.

Low Density Residential

❶ Single/Semi-detached (laned)

Laned Detached Garage, Single or Semi Detached Dwellings on narrow lots situated foremost on the parcel near public sidewalks and where appropriate can accommodate optional detached laneway units.


❷ Single/Semi-detached (laneless)

Laneless Attached Garage, Single or Semi Detached Dwellings on wider shallow lots where attached garages are balanced with legible prominent entries and when desired secondary suites are optional within the principle building.


❸ Estate

Estate-style Single Detached Dwellings located on parcels 0.25 acres or more. These estate homes may be situated as a clustered enclave, individually and/or may include retained rural residential units.


Multi Family Residential

❹ Cottage Housing

A new form to be introduced, it offers smaller dwelling units clustered on a site, often with shared green space. Also referred to as a Pocket Neighbourhood it's characterized with reduced or segregating parking and roadways and homes with smaller square footage built in close proximity to one another resulting in a higher density than typical low density forms.


❺ Low Density Multi Family

Townhouse style dwellings situated on traditional blocks or on unique residual parcels. They may also combine forms of dwellings (single, semi-detached, townhouse) and be subdivided or strata titled. This type may serve as a suitable transition between Low Density Residential areas and more intense forms of land use.


❻ Med-High Density Multi Family

A greater number of configurations are possible at this end of the density scale typically with communal parking garages either below grade or in a separate structure. This type of development provides for an efficient use of land, energy and community services and facilities, and contributes to a broad range of choice in housing.


Mixed Use

❼ Small Scale Mixed Use

While the majority of commercial uses are clustered along 85th Street, there is room for smaller scale commercial uses within the development areas that serve the immediate residents. These uses could take the form of convenience store, office and personal service as stand alone buildings or integrated with residential units above or as a live-work scenario.


❽ Large Scale Mixed Use

Mixed Use areas situated along major roads could take the form of a mix of uses within one building. Alternatively a parcel could be divided to accommodate commercial towards the road with dwelling units situated adjacent to surrounding residential uses and open space. Dwelling units within a building at a larger scale may consist of assisted living, live-work and/or commercial units.


3.3.2 North

The largest and most flexible undeveloped area of West Springs is characterized by 5 acre lots with commercial development to the west along 85th Street and a large stand of aspen trees along the easterly section. This varied context informed the recommended subdivision and land use allocations. The need for east-west connectivity is achieved with a feature boulevard connecting Weston Drive to 85th Street (with the possibility of continuing the connection through to West Coach Road). This also allows for new access to the existing churches where densification with dwelling units is recommended.

The green space from Westpark is continued northwards, capturing portions of the existing tree stand, and splays out upon crossing the feature boulevard into formed open spaces, ideally suited to offer a playground area. Area E is dominated with the tree stand and subdivision is best met with cottage housing or estate style development where tree retention is paramount. The remaining area is subdivided to accommodate single family dwellings with optional secondary suites or laneway housing, and semi-detached dwellings.

Figure 3.18. Area E, shown in Figure 3.20, contains a large sector of original trees. This seciton has been planned with built-in flexibilty so that when these lands are developed either cottage housing or clusters of multi family are positioned in order to maximize tree rentention.

Figure 3.19. With such a large and varied plan the north area has the opportunity to grow to accomodate a variety of dwellings types and residents.

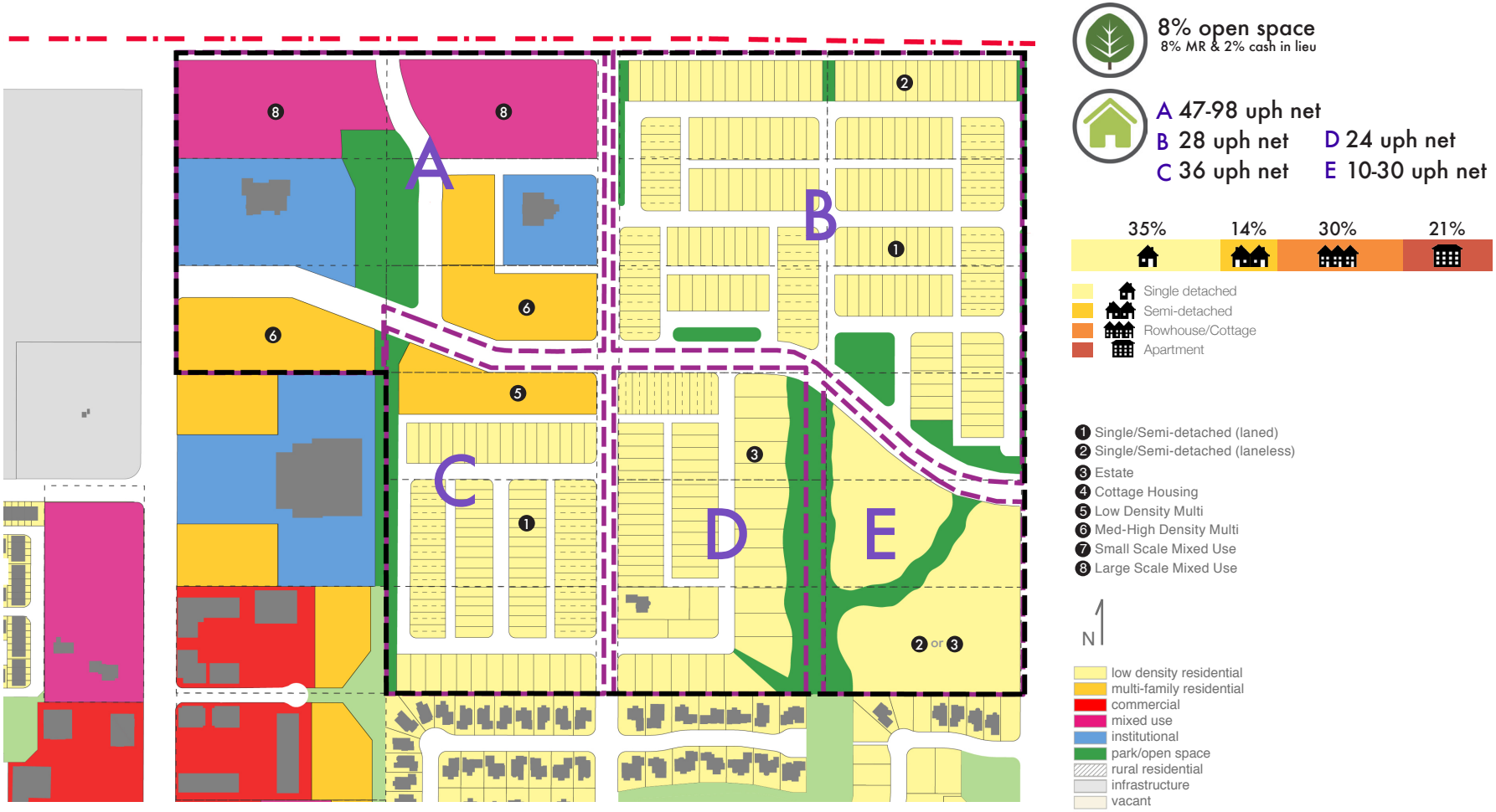


Figure 3.20. North quadrant concept plan and building types.

3.3.3 Southeast

The large and relatively flexible southeast portion of West Springs is currently characterized by 5 acre rural-residential lots aligned in a north-south direction. One of the main objectives of this area was to develop a street pattern that respected existing lots, as well as recently subdivided properties, whereby each 5 acre lot could be developed independently of each other. This facilitates the possibility of incremental development, but still results in a cohesive and connected community at final build out (further discussed in section 4.1). To ensure connectivity to the existing West Springs neighbourhoods to the west and north as well as to Coach Hill to the east, collector roads are located on 11th Avenue and 73rd Street.

As this area is not within walking distance of the community core on 85th Street, it is recommended that small scale mixed use opportunities be provided to facilitate local needs. A sequence of open spaces and preservation of the environmental reserve respect the existing natural spaces and clusters of trees while offering respite for local residents. Opportunities for multi family housing exist, in particular low density cottage housing, on irregular shaped parcels that surround these open areas makes efficient use of the land.

Figure 3.21. 11th Avenue, currently blocked at both ends.


Figure 3.22. Cottage housing example, Conover Commons, Redmond, WA.

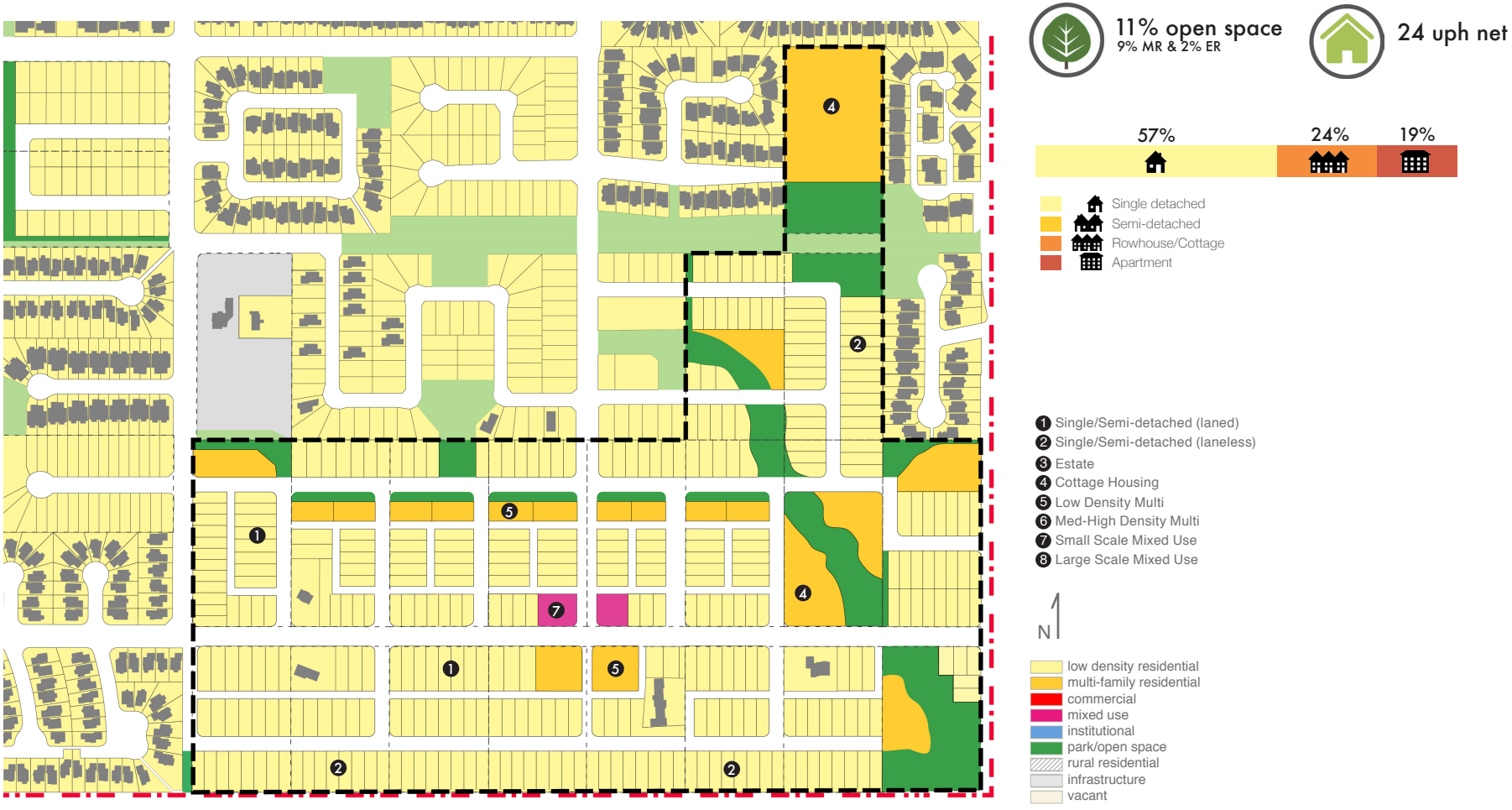


Figure 3.23. Southeast quadrant concept plan and building types.

3.3.4 Southwest

The proposed subdivision in the southwestern part of the community was informed by the existing natural elements, preserveing intermittent streams and environmentally significant areas (identified in Figure 2.37). Land use allocation for the southwest area of West Springs provides diversity of housing and a significant amount of natural open space. The proposed development in this area is sensitive to the scale of the existing context. The open space along the west side of the community is expanded in order to maintain natural features, habitat and existing pedestrian flows and enhance connectivity to the remaining community.

West of the open space an extension of the existing Willows development, following a similar street and lot pattern, is proposed. The area to the east of the open space is subdivided to accommodate low-density multi family and single-family dwellings. The low-density multi family addresses the irregular shaped residual areas between existing development and open space, and allows for denser development to balance the loss of developable land set aside for environmental reserve.

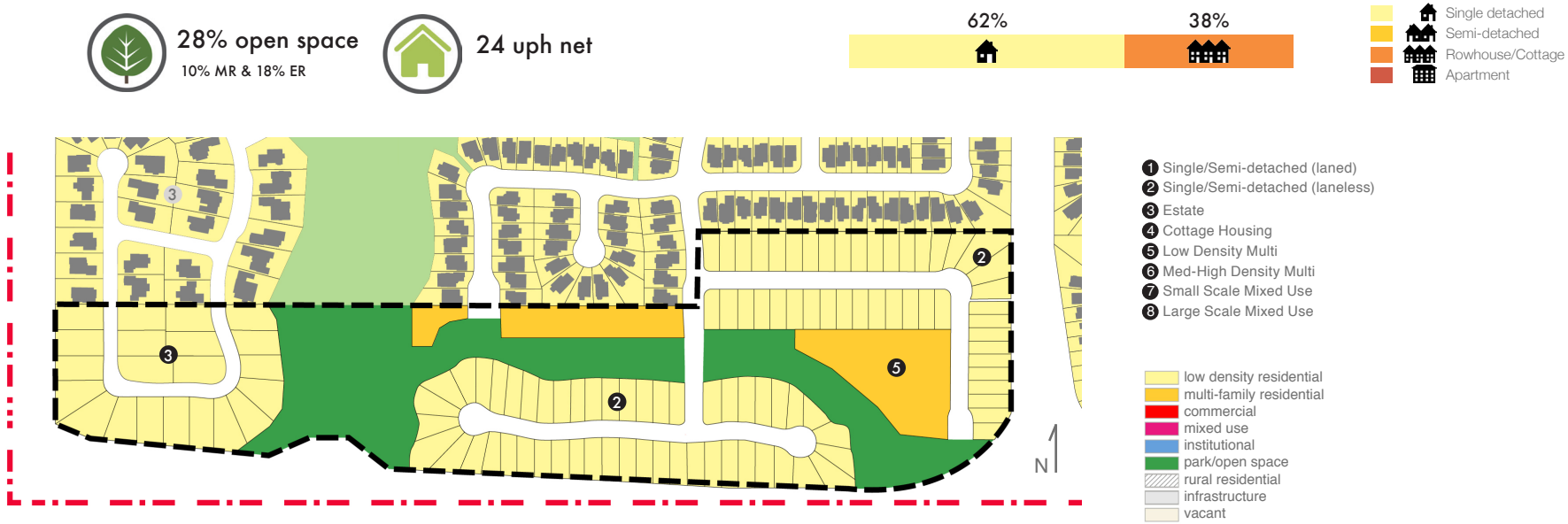


Figure 3.24. Southwest quadrant concept plan and building types.

4.0 GUIDELINES

The following urban design guidelines combined with section 3.0, Concept Plan, address the existing concerns as outlined in the community's proposal by providing a mix of housing types, active street frontages, connected natural and open spaces that accommodate all ages and lifestyles. The guidelines synthesise and integrate ideas from a wide variety of sources and precedents together to be used by the community as development continues into the rural residential 5-acre lots and used to inform improvements to the existing public realm of West Springs.

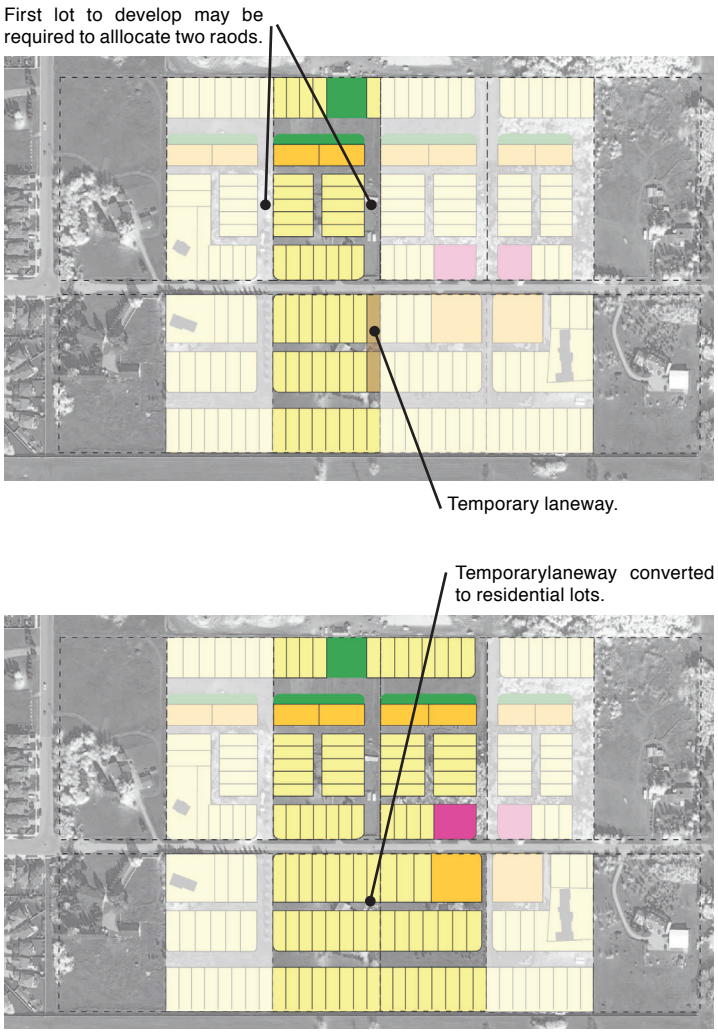


Figure 4.1. Phasing of 5 acres lots.

4.1 PHASING

As discussed in section 3.2, in order to mitigate the effects of piecemeal development, a street and block pattern that would allow for independent development of the individually owned 5 acres lots to occur, but result in a cohesive and connected neighbourhood at final buildout needed to be developed. This concept informed the laying out of local roads and laneways such that (for the most part), they align with the property lines.

The intent is that only one main road is required to be built on each 5 acre lot. However, due to access requirements, the owner developing first takes on the responsibility for building both roads. This upfront cost could be recouped through an agreement with the neighbouring owner, as the neighbour would not be required to build a road if they developed second.

Similarly, individual owners could build temporary laneways to facilitate access. Once neighbouring 5 acre lots are developed and access is provided through new roads, the laneways could be converted into individual residential lots. Both these concepts are illustrated in Figure 4.1 using a portion of the southeast undeveloped area.

4.2 BETTER STREETS

> "Streets are the most important part of our urban environment", Don Appleyard.

Higher consideration should be given to the liveability of streets, and the importance of serving not only vehicles but also cyclists and pedestrians. By balancing the needs of all street users it will become clear that "the pedestrian environment is about much more than just transportation – streets serve a multitude of social, recreational and ecological needs that must be considered when deciding on the most important design" (San Francisco Planning Department, 2008, 6).

This section provides design guidelines for West Springs' streetscapes that are not only applicable to new developments but also to existing streets and lanes that have the potential to be retrofitted. The Better Street guidelines will meet the goal of creating a complete and connected community. The suggested improvements are not excessive or uncommon, and are currently in use in various communities around the city, including small parts of the existing West Springs. Furthermore, the City of Calgary has various documents in place that support several of the design elements presented in this section.

4.2.1 Pedestrian Safety and Traffic

The following traffic calming and pedestrian oriented design option will enhance safety and result in places that are more inviting to pedestrians. Traffic Calming is defined as " the combination of mainly physical measures that reduce the negative effect of motor vehicle use, alter driver behavior, and improve conditions for non-motorized street users," (Los Angeles County, 2011, 10-2). The aim is to enhance legibility of the street environment in order to reduce vehicular speeds to improve safety and consequently increase pedestrian comfort.

Roundabouts should be placed in intersections where deemed appropriate. Benefits include controlled vehicle speeds, simplified intersections, and allowances for landscaping opportunities that can accommodate environmental factors (storm water management) as demonstrated in Figure 4.2.

> "Roundabouts have the potential to be the cheapest, safest and most aesthetic form of traffic control, reducing vehicle to vehicle and vehicle to pedestrian conflicts,"
>
> (Los Angeles County, 2011).

Figure 4.2. Vegetated roundabout.

Corner Radii, can significantly impact pedestrian safety and comfort. Smaller corner radii reduce crossing distances for pedestrians and slowdown turning traffic. The recommended radii of 15 feet, illustrated in Figure 4.3, should be utilized where considered appropriate, such as crossing where pedestrian traffic is high.

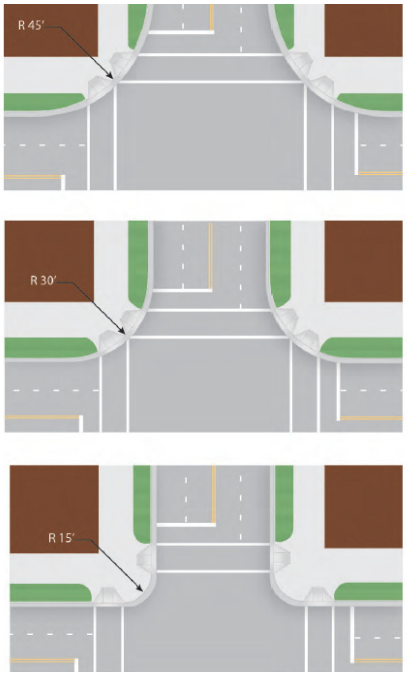


Figure 4.3. Tighter corner radii.

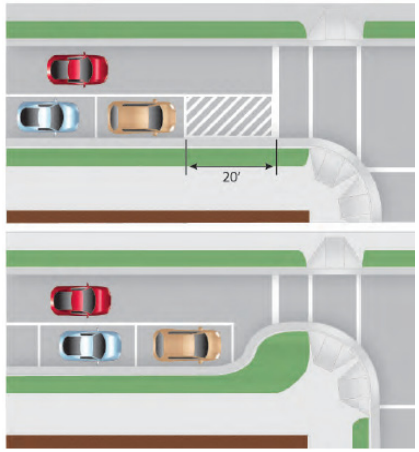


Figure 4.4. Curb extension.

Curb extensions improve pedestrian safety, visually and physically narrowing the roadway, improving the ability for pedestrians and motorists to see each other, by reducing the crossing distance and slowing down traffic. These types of interventions are appropriate in many street patterns and can provide opportunities for landscaping, thus enhancing aesthetics and fostering a better sense of place (Los Angeles County, 2011).

Figure 4.5. Vegetated curb extension.

Crosswalks that are raised and/or designed with different textures or colors, as shown in Figures 4.6 and 4.7, clearly outline the area as pedestrian crossings, and are appropriate where motor vehicle traffic should be slowed, such as near schools, parks, main streets, retail environments and other activated space.

Figures 4.6 & 4.7. Vegetated curb extension and textured sidewalks.

4.2.2 Connecting Green Spaces

As a continuation of enhancing crosswalks for pedestrian safety, this strategy is a combination of curb extension and raised sidewalks adjacent to areas where green spaces are located on both sides of the street. The result is a merging of pedestrian crosswalks and open spaces acting as a connective tissue for the community. Figure 4.10 shows potential areas of implementation in the community, highlighted in orange.

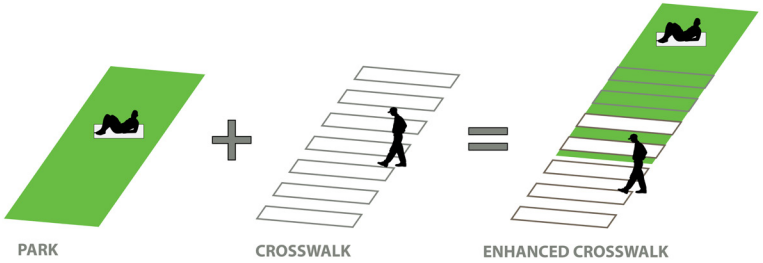


Figure 4.8. Connecting green space concept.

Figure 4.9. A visualization of a greened connection across a major road.

Figure 4.10. Map of recommended green space connections and an example in the SE quadrant.

4.2.3 Greening Streets and Laneways

Streets and laneways have the potential to have natural and ecological functions integrated within the development pattern and infrastructure. The goal of integrating ecological features with streets is “to reduce environmental impacts of mobility corridors and use green infrastructure to mimic natural functions that perform environmental services such as cleansing and infiltrating rainfall and cleaning air,” (University of Arkansas Community Design Centre, 2010). Such strategies further enhance landscape diversity, connect urban and natural systems and provide opportunities for native planting thus improving the character and aesthetic of streets and corridors. Furthermore, these systems can be integrated with traffic calming measures such as in curb extensions and traffic circles, as shown in the previous seciton, 4.2.1.

Figure 4.11. An extensively greened laneway, Mole Hill district, Vancouver.

Figure 4.12. An existing greened laneway in West Springs.

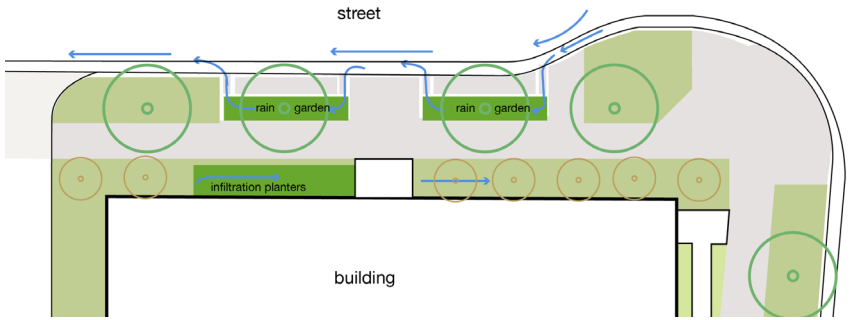


Figure 4.13. Water movement in/out of bioswales through curb opening and plantings

Figure 4.14. Bioswale on a local residential road.

4.2.4 Improved Street Design

Existing streets such as 9th Avenue between 77th and 73rd Streets SW provides little regard for the public realm, pedestrians and interface with residential buildings. Issues with such streets, illustrated in Figures 4.15 and 4.16 include: unnecessarily wide roadway, visual and physical barriers, no pedestrian buffer, narrow sidewalks, no tree canopy, lack of visual interest nor sense of place. By redesigning existing and thoughtfully designing new streets there is the potential to provide a multitude of social, recreational and ecological services alongside the original function of a vehicular thoroughfare.

The improved street, as shown in Figures 4.17 and 4.18, reclaims excess space by narrowing the street allowing for enhance public use and slowing drivers. Benches and lighting enhance pedestrian comfort while new vegetation including trees, native plantings (berries and fruit trees), provide a pedestrian buffer and visual interest thus encouraging activity and social connections.

Figure 4.15. Existing street. 9th Avenue between 77th and 73rd Streets SW.

Figure 4.16. Existing street. 9th Avenue between 77th and 73rd Streets SW.

Figures 4.17 & 4.18. Proposed improvements to 9th Avenue between 77th and 73rd Streets SW .

4.3 PLACEMAKING

Placemaking can be defined as making places in a community special and important to the people who live and visit there. Through public realm improvements it's possible to enhance community identity and increase connections between people and between people and place. By refocusing streets as 'centers of civic life' these urban areas will provide opportunities for social interactions and community events; creating places in West Springs that are special and important to the people who live there. Initiatives to create a sense of place can take various forms, including but not limited to the following strategies outlined in the following figures on page 55. Below are two recommended readings on placemaking strategies for communities.

PROGRAMMING UNDER-USED SPACE – Utilizing parking lots for temporary programming such as farmer markets, Stampede breakfasts, and outdoor festivals will bring life and activity to current typically empty areas in a feasible manner.

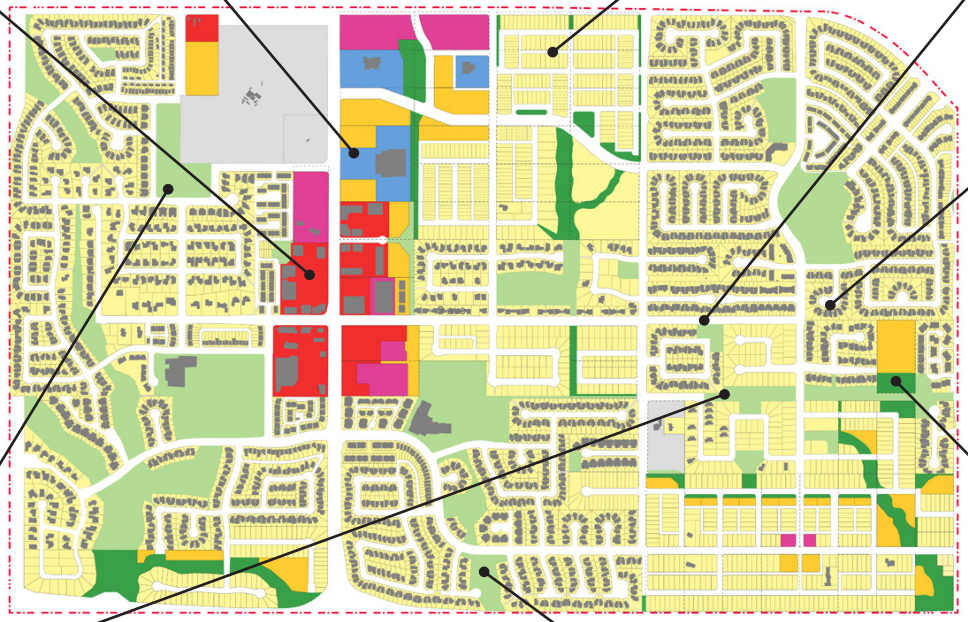
STREET PARTIES – Various streets and cul-de-sacs have the potential to host block parties promoting activities and fostering social connections and neighborly interactions thus enhancing community members' sense of belonging.

OUTDOOR GYMS - Playgrounds for different ages and uses such as outdoor gyms can be installed in new and existing areas and provide opportunity for a different segment of the population to get outdoors and be active, not only promoting healthy living but enhancing the choice of activities that are accessible to the community.

COMMUNITY GARDENS – Small and larger-scale community gardens are easy and attractive improvements that can occur in new or existing spaces. With the proposed higher densification these initiatives will provide further opportunities for community members to connect with the outdoors and the community as a whole.

Figures 4.19 to 4.21. Activating under-used spaces.

Figures 4.22 to 4.24. Local street parties.



Figures 4.25 to 4.27. Outdoor gyms.

Figures 4.28 to 4.30. Community gardens.

4.4 FENCES & BARRIERS

While there are municipal regulations in place to control fence heights in all land uses, there is little in the way of guidelines for design and appearance. As noted during site visits to West Springs and in discussions with community members, there is opportunity to improve the location and styles of both privacy fences and sound barriers from major roads.

4.4.1 Residential Fences

The following figures show the current practices when constructing fences alongside recommended design guidelines.

Figure 4.31 & 4.32: Existing 9 Avenue fences along with a sample of a recommended greened fence.

Figure 4.33 & 4.34. An existing imposing fenced walkway and a prefered visually enhanced fence

4.4.2 Sound Attenuation Barriers

As Bow Trail matures and the ring road is built west of the community sound attenuation barriers will be introduced. The following figures show recommended design guidelines for sound attenuation barriers that will be not only effective but also visually enhanced and contribute to the character of West Springs.

Figure 4.35. A typical sound barrier, Calgary.

Figure 4.36 & 4.37. Recommended architecturally designed sound attenuation walls, Australia.

Figure 4.38. Laneway house, Vancouver.

Figure 4.39. An existing church parking lot.

Figure 4.40. Densification with dwelling units.

4.5 DENSIFICATION

Densification in the West Springs context would benefit the community in a number of ways, but most significantly by providing more affordable housing options that meets the needs of a diverse society. Densifying or recapturing underutilized space not only results in a more compact and walkable urban form, it makes use of the existing infrastructure and aids in supporting local retail and commercial services, as well as public transit.

As discussed in section 2.7.1, Development Potential, certain areas of West Springs hold opportunities for development in the form of densification, where the existing buildings and land use are retained and respected.

4.5.1 Laneways

Laneways provide opportunities for densification through the introduction of laneway houses and secondary suites. These opportunities exist for all new and existing laneways, and allow for implementation to occur gradually at the discretion of the individual property owners (Figure 4.38).

4.5.2 Religious Institutions

Underutilized parking lots and land surrounding any of the three religious institutions located in the north end of 85th Street can be transformed by proposing the integration of housing and mixed-use options. This not only underscores the concept of a complete community, but can financially diversify the institution's existing operations. Grants for not-for-profit organizations, such as religious institutions, are also available to assist in the development of assisted or affordable housing. Figures 4.39 and 4.40 show an example of an existing church parking lot and the potential to infill with a complimentry use, affordable housing available less the fortunate members of the congregation.

5.0 CONCLUSION

To date, West Springs has been subjected to piecemeal development that has resulted in a disconnected community, not always meeting the needs of its residents. Due to the continuous existence of fragmented ownership, West Springs is at risk for this piecemeal development pattern to continue in the future. It is therefore crucial for the community of West Springs to address this issue. Once disconnected patterns of development occur, they are very hard to change. The blueprints have essentially been laid down, and as the community grows, it becomes more permanent and less adaptable. By implementing the suggestions and concepts outlined in this document, particularly those related to connectivity and street/block patterning, new development in West Springs can be done more cohesively, and enhance the community as a whole.

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★ Highly Recommended Reading

FIGURES

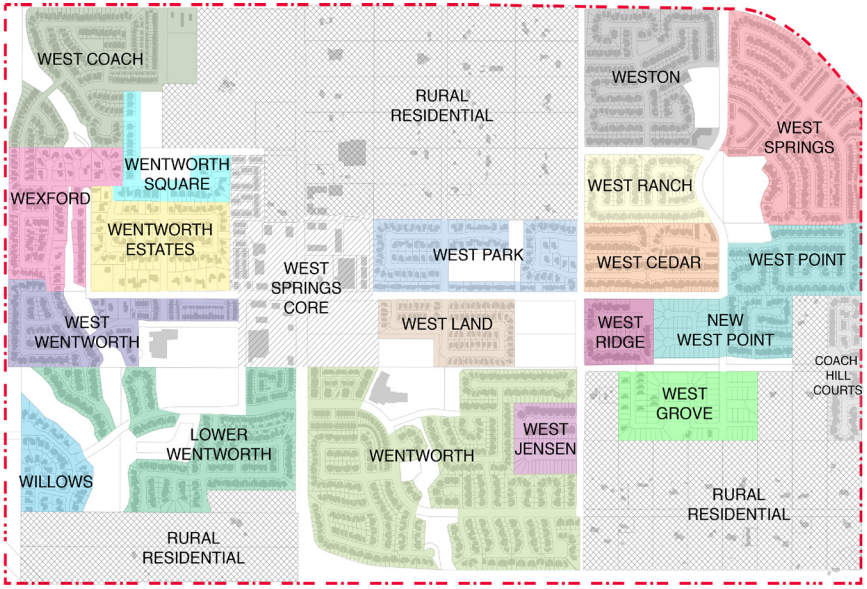
All illustrations and photographs are by authors unless otherwise noted below:

Fig. 2.0 City of Calgary. West Springs Are Redevelopment Plan, 2012.
Fig. 2.1 Community of West Springs. Aerial photographs provided by the Spatial and Number Data Services at the University of Calgary.
Fig. 2.15, 2.18, 2.19, 2.20, 2.21, 2.22. Google Earth.
Fig. 2.23, 2.24, 2.25. Google Earth.
Fig 2.39 to 2.44 Natural and open spaces throughout West Springs. Google Earth.
Fig. 2.48 Examples of levels of development. http://www.schwartzarch.com/projects/global_green_housing.html
Fig. 2.49 Examples of levels of development. http://www.royop.com/current.htm; http://www.collierscanada.com/5763
Fig. 2.50 Examples of levels of development, laneway house. http://www.lanefab.com/laneway-house-designs/mcgill-slocan-mendoza-laneway-house/
Fig. 3.8 Street sections and precedents. Residential Street Design Policy, 2012. http://depts.washington.edu/hhwb/Thm_SafeStreets.html
Fig. 3.10 Calgary Transportation Plan prioritization of transportation modes. Calgary Transportation Plan, 2009, pg 3-3.
Fig. 3.12 Bike sharrow. Google Images.
Fig. 3.13 Multi-use pathway, Beijing. http://www.flickr.com/photos/yellojkt/2681531937/
Fig. 3.14 bike rack on bus, Calgary. http://www.calgarytransit.com/html/bike_racks_how_to.html
Fig. 3.16 Bicycle locker, Calgary. http://www.calgarytransit.com/html/bike_lockers.html
Fig. 3.19 Complete community. Google Images.
Fig. 3.22 Cottage housing examples, Conover Commons, Redmond, WA. . http://www.pocket-neighborhoods.net/patterns/clusters.html
Fig. 4.2 Vegetated roundabout. Google Images.
Fig. 4.3 Tighter corner radii. Los Angeles County - Model for Living Streets Design Manual, 2011, 5-5.
Fig. 4.4 Curb extension. Los Angeles County - Model for Living Streets Design Manual, 2011, 5-6.
Fig. 4.5 Vegetated curb extension. http://wedigportland.com/commercial/drainage-solutions/attachment/bioswale/
Fig. 4.6, 4.7 Vegetated curb extension and textured sidewalk. http://transitutopia.blogspot.ca/2011_01_01_archive.html
Fig. 4.9 A visualization of a greened connection across a major road. Google Images.
Fig. 4.11 An extensively greened laneway, Mole Hill district, Vancouver. Google Earth.
Fig. 4.14 Bioswale on a local residential road. http://www.restreets.org/case-studies/portland-green-street-program
Fig. 4.19 - 4.20 Activating under-used space. Farmers markets, Google Images & http://upload.wikimedia.org/wikipedia/commons/9/92/Ballard_Farmers'_Market_-_vegetables.jp.
Fig. 4.22 – 4.24 Local street parties. Block parties, Google Images & http://linuxcaffe.ca/files/Jersey%20Street%20Party%202.jpg
Fig. 4.25 – 4.27 Outdoor gyms. Google Images.
Fig. 4.28 Community gardens. Google Images & http://www.tntmagazine.com/image.php/media/content/_master/47738/images/1535-lifestyle-health-outdoor-gyms.jpg?file=media%2Fcontent%2F_master%2F47738%2Fimages%2F1535-lifestyle-health-outdoor-gyms.jpg&width=450
Fig. 4.32 Existing 9 Avenue fences along with a sample of a recommended greened fence. http://www.greenlivingfences.com/applications/instant-living-fence/
Fig. 4.34 An existing imposing fenced walkway and a preferred visually enhanced fence. http://www.marthaschwartz.com/projects/bilder/art_commissions/soundwall/soundwall_1.jpg
Fig. 4.36, 4.37 Recommended architecturally designed sound attenuation walls, Australia. http://www.marthaschwartz.com/projects/bilder/art_commissions/soundwall/soundwall_1.jpg & http://www.connecteast.com.au/Uploads/Images/Content/TJ-D-PHT-01134-0-LR.jpg
Fig. 4.38 Laneway house, Vancouver. http://www.treomadesign.com/wp-content/uploads/2011/12/1.jpg
Fig. 4.39 An existing church parking lot. Sprawl Repair Manual, 2010, pg. 273.
Fig. 4.40 Densification with dwelling units. Sprawl Repair Manual, 2010, pg. 273

APPENDIX A

Character Areas

The character areas were categorized by several unifying factors including subdivision date, street naming, building types and block patterning. Analyzing the character of individual areas of the community reveals how they fit together and contribute to the overall community and reveals limitations and opportunities when moving towards implementing guidelines and recommendations.



WEST CEDAR 2002/04 — 7.3UPA


A 10 acre area four cul-de-sacs consist of a variety of types but no open space and poor connectivity.

WEST SPRINGS 2000/02 — 8.4UPA



This area contains many building types mixed in a variety of block patterns. A large park/future school, local commercial uses and transit are nearby

WEST WENTWORTH 2003/07 — 5.6UPA



A small area but with the most variety of dwelling types, all close to the school, commercial core and open space network.

WENTWORTH 1999/03 — 7.4UPA



Many types of buildings in this large area including a school, low & mi-rise multi family. The open space corridor continues south to the boundary.

WEST SPRINGS CORE varies — 14UPA



The main commercial node with three multi-building retail developments. Currently no mixed use buildings, only mid-rise multi-family

RURAL RESIDENTIAL varies — 0.2UPA



A mix of older and new rural residential homes on 4 to 5 acre lots. Three churches are also located across several parcels.

COACH HILL COURTS
1998/00

5.6UPA


Two cul-de-sac developments isolated from West Springs but quasi-linked via their green spaces.

WEST POINT
1999/12

6.2UPA


The newer part of West Point offers estate homes and the southern edge is a green belt along 10 Ave.

WEST RIDGE
2003

5.0UPA


The smallest subdivision consisting of one large cul-de-sac with an isolated green space.

WEST COACH
2008

6.7UPA


A variety of building types with access to open space, a large playground & local commercial.

WEST RANCH
2002

7.5UPA


Near a large open space, West Ranch has one entry point and poor connectivity to the west & south.

WESTON
2002

6.8UPA


Despite proximity to transit, commercial use & parks, the pedestrian connections are limited.

WENTWORTH SQUARE
2006/09

5.6UPA


Large semi-detached and single detached dwellings surrounding a park and playground.

LOWER WENTWORTH
2002/04

6.9UPA


Primarily single detached homes near the public school and the largest portion of the open space corridor.

WEST GROVE
2011/12

5.0UPA


A recent subdivision, closing 10 Avenue, West Grove consists of one building type only.

WENTWORTH ESTATES
2006

3.1UPA


Large estate homes including retained original rural homes. There is no open space incorporated.

WEST PARK
2006

4.3UPA


A smaller subdivision with large homes surrounding a wet pond.

WEST LAND
2011

5.6UPA


Above the school in Wentworth, this smaller subdivision features typical single detached homes.

WEXFORD
2007

4.1UPA


Traditional and modern styled unique estate homes, many of which back on to the ravine.

WILLOWS
2005

3.3UPA


A private development with 40 units featuring green swales and the retention of original aspens.

WEST JENSEN
2007

6.7UPA


5 acre semi-detached developments, each with fenced green spaces poorly linked to community.

APPENDIX B

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EVDP 644 Advanced Professional Planning Project WINTER 2012