



*Salmon Run*

# GREENWAYS STRATEGY:

“WEAVE IT GREEN”



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### ***In Appreciation***

Many thanks to the residents of the City of Salmon Arm, government staff, City Committees, and other organizations and community groups who provided their time and input into the Greenways Strategy. The quantity and quality of the contributions demonstrate the commitment and passion for this community.



<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>1.0 INTRODUCTION .....</b>	<b>1</b>
1.1 Context .....	1
1.2 Purpose and Scope .....	5
1.3 Limitations .....	6
1.4 Planning Process .....	7
1.5 Related Initiatives and Standards - City .....	8
1.6 Related Initiatives and Standards - Other Organizations .....	13
1.7 Definitions and Abbreviations .....	16
<b>2.0 GUIDING STATEMENTS .....</b>	<b>18</b>
2.1 Benefits .....	18
2.2 Vision .....	19
2.3 Goals .....	20
2.4 Trail Planning and Design Considerations .....	21
2.5 Trail Planning and Design Issues .....	24
<b>3.0 CLASSIFICATION STANDARDS AND GUIDELINES .....</b>	<b>26</b>
3.1 Introduction .....	26
3.2 Role of Trails .....	27
3.3 Trail and Path Types .....	27
3.4 Trail Purpose and Use .....	34
<b>4.0 DESIGN GUIDELINES .....</b>	<b>36</b>
4.1 Trail Siting .....	36
4.2 Overall Trail Design .....	39
4.3 Accessibility .....	41
4.4 Signs .....	43
4.5 Trail Heads .....	44
4.6 Viewpoints and Rest Areas .....	46
4.7 Barriers and Fences .....	47
4.8 Vegetation .....	49
4.9 Safety .....	52
4.10 Maintenance .....	53



**5.0 IMPLEMENTATION ..... 54**

- 5.1 Implementation Methods ..... 54*
- 5.2 Costs ..... 59*
- 5.3 Phasing Plan ..... 63*
- 5.4 Next Steps ..... 65*
- 5.5 Conclusion ..... 67*

**RESOURCES ..... 68**

**LIST OF FIGURES**

- Figure 1.1 : STA Accomplishments ..... 14*
- Figure 2.1: Relationship of Benefits and Goals ..... 20*
- Figure 5.1: Trail Construction Unit Costs 2010 ..... 60*
- Figure 5.2: Estimated Greenway Type Costs 2010 ..... 63*
- Figure 5.3: Estimated Greenway Costs by Phase ..... 65*

**PULL-OUT MAPS AT BACK**

- Map 1: Role of Greenways*
- Map 2: Existing and Proposed Greenways*
- Map 3: Greenway Priorities*

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# EXECUTIVE SUMMARY



*City Centre pedestrian area*



*Trail at Turner Creek*



*Enjoying nature*

The City of Salmon Arm draws many outdoor enthusiasts to its rich and diverse natural environment. The trail supporters, some of whom are members of the Salmon Arm Greenways and Shuswap Trail Alliance (STA), have been encouraging the preparation of a Greenways Strategy along with City staff for some time. Council's support for greenways led to the formation of a Greenways Liaison Committee (GLC) in 2008. In 2009, a decision was made to prepare a Greenways Strategy concurrent with the Official Community Plan (OCP) Review process.

As part of the OCP Review, one of the first public consultation tasks was a community survey, conducted on the Internet, with hard copies also available. An impressive response rate of 823 respondents was obtained, with a strong interest in greenways and trails evident in the responses. A majority of survey respondents, 66% of those for whom property taxes apply, indicated a willingness to pay additional taxes for greenways improvements. According to survey respondents, the top two **overall priorities** for the new OCP are:

1. expand and improve sidewalks, trails and greenways for pedestrians and non-motorized transportation; and



2. protect / preserve natural environment, birds and wildlife.

British Columbia's draft Trails Strategy (2009) notes some interesting **trends** related to trails in the province. More people are enjoying trails in a greater number of ways. Complex interactions among trail users are occurring, presenting challenges to land managers, stewards, and trail users. More day trips, short outings, and dog walks are occurring, and the social and economic values of trails are increasingly apparent to the greater community. Consistent with these trends, Salmon Arm's City Council has increased its annual funding for greenway projects.

The **purpose** of the Greenways Strategy is to provide direction for the long-term planning and implementation of a trail / path network spanning the City, integrated with the sidewalk and bicycle networks, and connecting to existing and future regional trails, in order to provide recreational opportunities, to accommodate alternative transportation for a diverse range of trail / path users, and to support corridors for ecological connectivity.

This Greenways Strategy includes attainable goals along with a realistic and cost effective implementation program. This strategy is sensitive to private property rights, trespass issues, the jurisdictional authority of Indian Reserve and Crown lands, and senior government legislation.

Extensive consultation with the GLC and the community contributed to this document. The Greenways Strategy recognizes and addresses other City initiatives, standards, bylaws, and capital projects. The Strategy also respects the plans of other relevant jurisdictions.



*Greenways Liaison Committee*



*Regional connector*





The vision for the Greenways Strategy is as follows:

**An interconnected network of greenways and trails, serving all forms of non-vehicular movement and all ability levels, linking the City Centre, neighbourhoods and major points of interest with each other and with surrounding lands, and providing healthy transportation, outdoor recreation and tourism opportunities, and ecological connectivity.**

The City has 58 kilometres of existing trails. Greenway and trail systems offer multiple **benefits** to communities. The **goals** for the greenways and trails system are based on addressing and achieving the benefits:



There are a number of trail planning and design considerations unique to the City of Salmon Arm which were taken into account in the Greenways Strategy, including: terrain, the Shuswap Trail Alliance (STA), the regional trail system, key attractions, new developments, rural holdings, bicycle routes, sustainable design, equestrian use, and sidewalks.

There are also a number of trail planning and design issues that will need to be addressed during the implementation of the Greenways Strategy, including: trail use, dog management, motorized use, existing signs, washrooms, land ownership, and City capacity.

In the Greenways Strategy, there are two types of classifications applied to greenways:

**Role** – defines the context and overall function of the trail or path (Map 1):

- Regional Connector
- Community Connector
- Neighbourhood Connector
- Park Trails



**Type** – defines the construction standard (Map 2):

- Type 1 Path – major urban connections and promenade
- Type 2 Path – multi-use connectors
- Type 3 Trail – natural areas or parks
- Type 4 Trail – lower use natural areas
- Type 5 Trail – rough wilderness trail
- Type 6 Roadside Corridor

Guidance is provided on the purpose and use of trails. Design guidelines are outlined for trail siting, overall trail design, accessibility, signs, trail heads, viewpoints and rest areas, barriers and fences, vegetation, safety, and maintenance.

Salmon Arm's greenways are at various stages of completion, and each trail has been constructed to varying levels of design and standards. The **implementation** section identifies methods for land acquisition, trail development, and trail maintenance. Preliminary costs are provided, along with a proposed phasing plan. The next steps to implementing the Greenways Strategy are also identified.

Implementing the Greenways Strategy will require significant capital, operations and staff resources and the ongoing commitment of the City. It must be continually stressed that there is very high public interest and support for greenways and trails. Numerous ecological, social and economic benefits are derived from greenways for relatively low cost, especially compared to other recreational amenities.

# 1.0 INTRODUCTION



*City of Salmon Arm*

## **1.1 Context**

### **Background**

The City of Salmon Arm is nestled at the mouth of the Salmon River on Shuswap Lake. The natural environment surrounding and weaving into the City includes forested lands, rich agricultural land, the Salmon River and its bountiful habitats and wildlife, creeks and wetlands, beaches, and riparian edges on the shorelines of the lake. Drawn to this environment are many outdoor enthusiasts, some of whom have inspired and laboured over the construction of trails in and around the City.

The trail supporters, some of whom are members of the Salmon Arm Greenways and Shuswap Trail Alliance (STA), have been encouraging the preparation of a Greenways Strategy along with City staff for some time. City Council is very interested in and strongly supportive of alternative transportation and connectivity of sidewalks, trails, parks and other

destinations. Council's support for greenways led to the formation of a Greenways Liaison Committee (GLC) in 2008. Committee members, appointed by Council, were selected from the general public, STA, and Salmon Arm Greenways.

In 2009, when plans were being formed to review and update the Official Community Plan (OCP), a decision was made to prepare a Greenways Strategy concurrent with the OCP Review process. This enabled numerous opportunities for public consultation, as greenways topics were included in most components of the OCP Review process.

## **Community Survey**

As part of the OCP Review, one of the first public consultation tasks was a community survey, conducted on the Internet, with hard copies also available. An impressive response rate of 823 respondents was obtained, with a strong interest in greenways and trails evident in the responses.

At the beginning of the survey, respondents were asked open-ended questions about their primary likes and dislikes in Salmon Arm. The first mention for best liked was the 'natural setting of beautiful scenery, lakes and mountains, abundant greenery, birds and wildlife', mentioned by 24% of the respondents. The first mention for least liked was the 'dangerous driving conditions and pedestrian crossings, delays, noise and pollution caused by a major highway, large trucks and a railroad passing through town', mentioned by 18%. Both of these topics can be partially addressed through trails and greenways, as opportunities and challenges respectively.

In subsequent questions, potential strategies were presented to survey respondents under headings such as housing, transportation, environment, business, and so on. The top strategy in terms of support (with a resounding 97% in favour), is a transportation strategy to 'improve walking opportunities by completing sidewalk and trail connections'. Another transportation strategy, 'establish safe community bike routes', was almost as strongly supported with 96% in favour. A large majority of survey respondents supported each of the parks and recreation strategies, with the top two being: 'more natural parks' with 94% support, and 'more greenways and trails' with 92% support.

When all choices of each survey response on greenway improvements were taken into account, the four most preferred greenway improvements were:

1. expand trail / path networks;
2. establish bike lanes on major roads;

3. create a regional east-west multi-purpose trail through the city; and
4. expand the sidewalk network.

A majority of survey respondents, 66% of those for whom property taxes apply, indicated a willingness to pay additional taxes for greenways improvements. Three in ten survey respondents who were willing to pay additional taxes for greenways improvements also indicated a willingness to pay amounts of \$50 or more, 51% were willing to pay \$41 or more, and 59% were willing to pay \$31 or more. There is more discussion on this under Section 5.1 - Implementation.

According to survey respondents, the top two overall priorities for the new OCP are:

1. expand and improve sidewalks, trails and greenways for pedestrians and non-motorized transportation; and
2. protect / preserve natural environment, birds and wildlife.

Many public comments in the community survey related specifically to greenways and trails, examples of which are highlighted in this document. These sentiments are consistent with the input received at the OCP Review public open houses.

## Trends

British Columbia's draft Trails Strategy (2009) notes some interesting trends related to trails in the province. It notes that developments in technology associated with mountain bikes,

*“Greenways and trail improvements are both infrastructure and lifestyle improvements with long term benefits to most residents.”*  
– Survey respondent



South Canoe staging area

all terrain vehicles (ATVs), snowmobiles and other methods in which recreational trails are used means more people are enjoying trails in a greater number of ways. It also means that more complex interactions among trail users are occurring, presenting challenges to land managers, trail stewards, and users themselves.

An aging demographic and busy schedules result in more people using trails closer to home for shorter periods of time. More day trips, short outings, and dog walks are replacing the traditional three-day wilderness backpack experience.

At the same time, the social and economic values of trails are increasingly apparent to the greater community. Trails are becoming recognized as recreation infrastructure not unlike community swimming pools and skate parks. Trails are also acknowledged as being part of the transportation infrastructure. Municipal governments are formalizing trail planning and development programs, seeing the opportunities for community benefits and tourism growth in a highly valued local trail network. Until recently, senior levels of government have been providing grants for trail development, recognizing trails as an important investment that can help combat climate change by reducing greenhouse gas emissions.

Consistent with these trends and since the formation of the GLC, Salmon Arm’s City Council has increased its annual funding for greenway projects.

## Existing Trails

The Greenways Strategy has identified 58 kilometres of existing trails. Some of these are



Existing sign



Trail connection across road

relatively short sections, many of which are not connected to major routes. There are several well used routes leading to and from popular destinations in the City:

1. **Waterfront** – there are existing trails and paths from west of the Prestige Inn extending east and north along the waterfront to Raven. The routes currently consist of three portions: wharf/downtown section which is hard surfaced and fully accessible; SABNES (Salmon Arm Bay Nature Enhancement Society) through forests and wetlands, which is a wide gravel trail, and Raven trail to the north which is a narrower gravel trail.
2. **South Canoe** – this area contains an extensive network of relatively rough trails through forested areas. This is the staging area for the Larch Hills Connector, a regional trail to Sicamous. The area is one of the primary mountain biking areas in the City; there is now an annual mountain bike race, Salty Dog, held here, and the provincial high school mountain bike championships are scheduled for this location in 2011. Walkers/hikers, equestrians and ATV users also enjoy these trails, which mostly traverse City property and Crown land. The STA has developed a management plan for South Canoe. Phase 1 of that plan was approved by Council in April 2011.
3. **Turner Creek / Rotary Trail** – a trail along Turner Creek provides a link from residential neighbourhoods, the college, the Recreation Centre, and Little Mountain to the City Centre. There is one significant stretch of the trail where legal access has not been secured.
4. **Parks** – some of the City’s parks have trail networks through natural areas. These include: Park Hill, Coyote Park, Little Mountain Park, Pileated Woods, and RJ Haney Heritage Park. Most of these parks are used primarily by walkers, with some mountain bike and equestrian use in specific locations.

## 1.2 Purpose and Scope

**The purpose of the Greenways Strategy is to provide direction for the long-term planning and implementation of a trail / path network spanning the City, integrated with the sidewalk and bicycle networks, and connecting to existing and future regional trails, in order to provide recreational opportunities, to accommodate alternative transportation for a diverse range of trail / path users, and to support corridors for ecological connectivity.**

There are many competing demands on City resources that Council needs to balance in its allocation of funds. It was felt that a Greenways Strategy would help to further the

implementation of trails and paths by having projects, priorities and preliminary costing established. The Greenways Strategy can also be incorporated into the OCP, providing potential opportunities to achieve new trails / paths as part of new development.

Five, 10 and 25 year plans are identified in order to establish priorities for phasing, and for inclusion in the OCP. The time frame for accomplishing the entire Greenways Strategy is in the order of 50 years, depending on the funding commitments of future Councils.

It is critical that non-vehicular routes be continuous throughout the City. One of the goals of the Greenways Strategy is to integrate planning of the trail and path infrastructure that is outside of the road / sidewalk corridor, with the planning of sidewalks and bike lanes which are the responsibility of the Engineering and Public Works Department.

## 1.3 Limitations

It is important that this Greenways Strategy include attainable goals along with a realistic and cost effective implementation program. This strategy is sensitive to private property rights, trespass issues, the jurisdictional authority of Indian Reserve and Crown lands, and senior government legislation. With that in mind, the following are some important limitations to the scope of this strategy:

- With the adoption of this strategy, a current or future Council is under no legal obligation to commit financial or staff resources to greenway projects that are not approved on an annual budget cycle. In that regard, the purpose of the strategy, as

*“Work towards getting us out of our cars. Create a town where healthy people don’t need a car to go get milk.”  
– Survey respondent*



*Trail through the urban area*

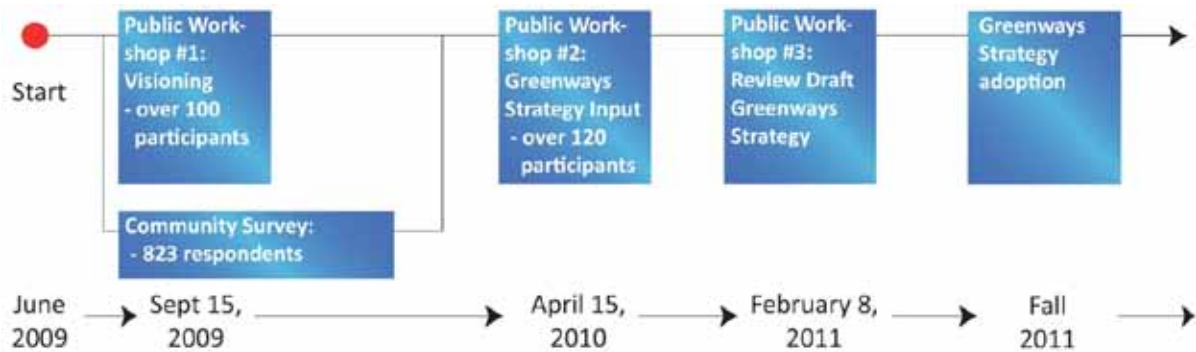


stated in Section 1.2, is limited to providing guidance to the City for planning, designing and implementing the proposed greenway network.

- The alignments of trails and paths shown to be traversing private property or Crown land on Maps 1-3 are strictly conceptual. The precise alignments of proposed greenways will be determined at the time of project approval. Project approval may involve a voluntary, negotiated or required land dedication or the granting of a statutory right-of-way by either the property owner or the Crown.
- The alignments of existing trails and paths shown to be traversing private property on Maps 1-3 which are in trespass (i.e., neither dedicated nor secured by a statutory right-of-way for public passage) are not considered to be approved greenways by the City.
- The alignments of trails and paths shown to be traversing Indian Reserve land on Maps 1-3 are strictly conceptual. The precise alignments of these proposed routes will be determined at the time of project approval. Project approval is required by either or both of the respective Band Councils. By identifying proposed trails and paths on Indian Reserve land, the City is not committing to funding the design, development or management of these conceptual greenways.
- The alignments of trails and paths that are proposed to traverse land in the Agricultural Land Reserve (ALR) will require approval by the Provincial Agricultural Land Commission prior to greenway development.
- The alignments of trails and paths that are proposed to be within 30 metres of a river, drainage ditch, watercourse or stream, as defined under the Riparian Areas Regulation (RAR), will be subject to an assessment by a Qualified Environmental Professional, and possibly approval by the Ministry of Environment prior to greenway development.
- This strategy does not include recommendations for land expropriation as defined and enabled under provincial legislation.

## ***1.4 Planning Process***

The OCP Review process guided the planning process for the Greenways Strategy in terms of timing and consultation opportunities, as illustrated below.



The initial phases of work on the Greenways Strategy were conducted by the GLC, with support from City staff. This group mapped potential trail routes, identified the priority trails, and provided information on the trail roles and types.

The GLC also provided extensive information and served as a sounding board for the Greenways Strategy during its formation. Overall, the GLC volunteered extensive hours of invaluable time in the development of this Greenways Strategy.

## ***1.5 Related Initiatives and Standards - City***

The City has a number of documents and initiatives that are relevant to the Greenways Strategy, as outlined in this section.

### **Department Responsibilities**

Non-vehicular infrastructure in Salmon Arm is addressed by two different departments. The Engineering and Public Works Department plans for and builds infrastructure associated with roads, including sidewalks and on-road bicycle lanes, as well as parks. The Director of Engineering and Public Works is responsible for administering the capital budget for greenways, sidewalks, bicycle paths and all aspects of the transportation budget.

The Development Services Department (Planning) staff oversees the planning of greenways and trails that are beyond roads and sidewalks, and assists the Manager of Roads and Parks in the coordination and implementation of their development. Through the subdivision and development process, City staff also secures rights-of-way for public passage and acquires land for parks and trails by dedication from developers and property owners.

There is a slight gap between the planning and implementation of greenway development. This gap is starting to narrow with staff from the Planning and Public Works and the Parks Departments serving on the GLC. Effective implementation of the Greenways Strategy will require a designated City staff member to lead the program with responsibilities over greenway budgeting and funding, and managing the design and construction contracts for trail development.

### **Official Community Plan (OCP)**

The existing OCP (2002) addresses greenways and trails in two sections. In the Parks, Recreation and Open Space section, four types of parks are defined and these are permitted in all land use designations: Community Park, Neighbourhood Park, Linear Park (Greenways and Bikeways), and Open Space. The existing and proposed parks, greenways, and a cycle network are illustrated on Maps 8.1 – 8.9 of the 2002 OCP. Two major categories of linear parks are defined as:

- Greenways which include multi-use linear corridors and trails, and
- Bikeways which currently follow existing roads and public rights-of-way.

The Transportation section of the OCP provides pedestrian/cycle corridor policies, summarized as follows:

- In residential and commercial areas, pedestrian needs, in conjunction with arterial and collector streets, should be accommodated by sidewalks on at least one side of streets with two travel lanes, and on both sides of streets with four travel lanes.
- Where possible, sidewalks adjacent to arterial streets shall be separated from the street with a landscaped boulevard.
- Where possible and identified as a need, arterial streets may be widened by 1.5 metres with paving to accommodate cyclists, transit and mailbox pullouts, provided such needs cannot be accommodated by separated walkways/cycle paths.

Maps 9.2.1 and 9.2.2 in the existing OCP illustrate existing and proposed sidewalks, and designated greenways and bikeways.

### **Development Cost Charge (DCC) Bylaw No. 3600**

This bylaw was amended in 2007 to recognize greenways projects in the existing OCP. As a result, more monies have been collected in reserves for greenway projects over the past three years. As required by provincial legislation, the updated DCC bylaw is tied to the City's Long Term Financial Plan, recognizing greenways as a distinct capital project within

the broad category of parks. The capital cost of greenway projects estimated in 2006 was \$1,256,250, of which \$502,500 (40%) was considered eligible for DCC funds. The greenway projects represent 18% of the cost of the capital parks projects itemized in the DCC Bylaw and Long Term Financial Plan.

### **Subdivision and Development Servicing (SDS) Bylaw No. 3596**

The SDS bylaw is tied to the current OCP. Areas designated medium and high density residential and commercial are required to have sidewalks constructed by a developer along both sides of the road at the time of subdivision or development. New subdivisions within neighbourhoods designated low density residential require a sidewalk to be constructed along one side of the road.

Through the subdivision process and pursuant to the *Land Title Act*, the Approving Officer may require the dedication of walkways and / or trails to assist in the linkage of neighbourhoods if such a dedication is deemed by the Approving Officer to be in the public interest. The SDS bylaw also enables the City Engineer to direct the installation of pathways at his or her discretion.

The challenge, in terms of pedestrian connectivity, is that infill subdivision and development occurs incrementally over the urban areas of the City at different times; the result is that new sidewalk construction is often discontinuous along City blocks. This places pressure on the City to finance the “filling in” of sidewalk gaps, particularly along collector and arterial roads. This construction only occurs when capital funds are allocated to sidewalk construction.

Another challenge is that the design standards for sidewalk construction in the SDS bylaw vary depending on the road classification and available space. For example, some sidewalks are constructed adjacent to the curb where ideally there should be a green separation of boulevard with trees and grass.

The SDS bylaw does not presently contain provisions that require trail construction by developers at the time of subdivision or development in a manner similar to sidewalk construction. City staff has identified a need to update the SDS bylaw in relation to sidewalks, pathways and potential trails.

## Capital Projects

As stated above, the construction of sidewalks results from a combination of City capital expenditures and projects financed by developers during the subdivision or development of private property. Since 2007, the City has invested an average of \$360,000 per year towards the design and construction of new sidewalks. Another \$350,000 has been allocated for 2011, representing a significant portion of the overall transportation budget. In addition to that, some collector and arterial streets have been widened for bicycle and pedestrian use.

In terms of trail construction, the provision of a consistent level of capital funding by Council is a new trend. Recent allocations to greenways projects by the City included \$30,000 in 2009, which was mostly spent on construction on the east and west Park Hill trail network, signage, and trail maintenance. For 2010, \$42,000 was allocated for new trail head signage and maps, and upgrades to R.J. Haney Heritage Park Nature Trail, South Canoe, Syphon Falls Upper Loop, and Park Hill West: Centre Trail. Council allocated an additional \$42,000 for trail development in the 2011 budget.

Greenway projects for 2010 were sidelined for a number of reasons. The City's budget allocation of \$42,000 was earmarked for "materials only", in anticipation of the STA leveraging those funds towards additional grant monies in the amount of \$84,000, which would have been earmarked for equipment and labour contracted by the STA. The total of \$126,000 was planned to be spread over six main projects. The STA assumed responsibility for the grant applications; however, it became apparent by the spring of 2010 that provincial grant opportunities had diminished.



*Sidewalk with boulevard*



*Paved shoulder for bicycles*

There were also challenges with labour arrangements. The intent was for trail construction to be carried out by STA volunteers and contracted labourers who specialize in greenway development. If City parks and public works crews were to be involved, the labour costs would be significantly higher and only a fraction of the projects could be completed.

Various standards in sidewalk and bike lane construction have been used over time, and that combined with incremental development has resulted in inconsistent treatment along established routes. For example, Auto Road, which is a major east-west corridor through the City offering the best topographical connection up and down the hill for pedestrians and cyclists, has at least four different cross-sections including: no sidewalk or bike lane, sidewalk on one side, paved shoulder on one side, and sidewalk with narrow bike lanes.

### **Parks and Open Space Plan (POSP)**

A POSP was prepared in 2001. Although not officially adopted by Council, many of the provisions of this plan were incorporated into the OCP, and the POSP has guided parks planning. The POSP contains a section on linear parks, including three types: greenways and bikeways as defined in the OCP, and ecolinkages which include streams, watercourses and their riparian areas. Six major greenways and linkages were recommended: Inland, Little Mountain, Foreshore, Gleneden, Waterfront and Area B. Objectives were also identified for bikeways. The City would benefit from an updated and adopted Parks and Open Space Plan, with a focus on a user needs assessment and recommendations for future parkland, and park and recreation facilities.

### **Greenways and Trails Infrastructure**

Current City standards include the following infrastructure and procedures, which are applicable to greenways, trails/paths, and parks:

- Memorial Benches – this program allows the purchase of a memorial bench for a cost of \$1,500. An issue is that purchasers expect the bench to remain forever; however, that amount does not allow for ongoing maintenance or replacement.
- Waste Receptacles – the City has large waste receptacles that are mostly underground. They require emptying approximately once a month.
- Fencing – the City has installed fencing along some trail segments. Installation has occurred along portions of the Turner Creek trail and the sections of the Raven to Coyote Park trail that are adjacent to private property. In both cases, the fencing extent and type were negotiated as part of right-of-way agreements with the adjacent property owners.

- Washrooms – there are washroom facilities in some of the larger parks, and some outhouses along trails. This leaves long sections of trails without washrooms. (The CSRD has a design standard for concrete toilets which cost about \$12,000.)
- Winter – the City clears the snow from sidewalks, but not trails.

## *1.6 Related Initiatives and Standards - Other Organizations*

A number of other organizations also have documents and initiatives that are relevant to the Greenways Strategy, as outlined in this section.

### **Shuswap Trail Alliance (STA)**

The STA was incorporated as a legal non-profit society in November 2005 out of a yearlong study on the viability of various groups working collaboratively towards a linked system of natural trail, hut-to-hut, and waterway routes for walking, hiking, mountain biking, Nordic skiing, snowshoeing, horseback riding, and paddling throughout the Shuswap, [www.shuswaptrailalliance.com](http://www.shuswaptrailalliance.com).

The full Shuswap Trail Strategy, first presented in November 2006, proposed an ambitious five-year development strategy to link existing trail plans throughout the Shuswap watershed into a unified message of active communities, ecological commitment, and welcome. Through the STA, First Nations, municipalities, the regional district, recreational clubs, environmental groups, businesses, industry, and community members were invited to coordinate their efforts toward the creation of trails and greenways throughout the region. The STA is now a leader in regional trail development and management (Figure 1.1).

Since 2006 the Shuswap Trail Alliance has worked with regional partners to:

- establish over 48 km of authorized trails for hiking, mountain biking, equestrian, and winter Nordic ski and snowshoe use,
- create five new signature destination trail systems within the Shuswap (Salmon Arm, Blind Bay/White Lake, Reinecker Creek, the Rubberhead Mountain Bike system, and the 38 km epic cross-country Larch Hills Traverse trail between Salmon Arm and Sicamous),
- assist in construction of the John Evdokimoff Bike Skills park designed by Jay Hoots,
- design and place over 140 standardized way finding trail signs throughout the region,
- repair and upgrade existing trails and foot bridges,
- protect the Larch Hills wetlands from seasonal damage,
- establish best practises for environmental trail stewardship planning in the province,
- produce effective maps and guides that are user friendly,
- promote trails and the Shuswap to tourists,
- assemble equipment valued at over \$55,000 for future trail work,
- coordinate more than 40 volunteer trail-building events totalling 3300 hours and valued at over \$50,000,
- create 35 full-time seasonal jobs employing over 50 people in 2009 and 2010,
- double every local dollar raised with matching grant investments,
- establish the Shuswap Trails Legacy Trust Fund, and
- advance consultation with Shuswap First Nations and regional government leadership establishing a commitment to work towards more accountable regional greenway trail planning and collaboration.

**Figure 1.1 : STA Accomplishments**

## **Parks Plans of Adjacent Communities**

The west and south boundaries of the City are adjacent to Electoral Area D (Falkland – Salmon Valley) of the Columbia Shuswap Regional District (CSRD). Electoral Area C (South Shuswap) touches the north City boundary on the west side of the lake, and Electoral Area E (Sicamous – Malakwa) touches the far north-east boundary.

All of these electoral areas have Parks Plans which describe the existing parks and trails, and which include recommendations for acquisition and development of new parks within the following categories: Waterfront Park, Community / Recreation Park, Trail Corridor Park, Conservation Park, and Special Feature Park. There are Trail Corridor Parks in the CSRD that meet existing and proposed trails within the City, e.g., Salmon Arm to Sicamous trail.



Most of the east boundary of the City is adjacent to Electoral Area F of the Regional District of North Okanagan. That area has an Official Community Plan but no Parks or Trails Plan. The District of Sicamous, which is surrounded by Electoral Area E of the CSRD, is in the process of preparing a Parks and Trails Master Plan.

### **First Nations**

Some of the proposed greenways are on Indian Reserve lands, affecting lands of the Adams Lake Indian Band and the Neskonlith Indian Band. A proposed foreshore trail would link Sandy Point to the City Centre and provide a safe alternative transportation route for Band members and the community. These proposed greenways are critical regional connections to the northwest portion of the City.

Approval by the Adams Lake Indian Band and the Neskonlith Indian Band would be required for these greenways to be implemented. The STA and the City have had some preliminary meetings with the Bands, and these trail connections seem to be important to the First Nations. Partnerships and cooperation between the City and the First Nations will be required if these trails are to proceed.

### **Provincial Agencies**

The Ministry of Jobs, Tourism and Innovation is responsible for trail planning on Crown land, per the overall guidance of the BC Trails Strategy Draft discussed previously. The Ministry of Forests, Lands and Natural Resource Operations and the Integrated Land Management Bureau have responsibilities and interests in the administration of Crown land.

The Agricultural Land Commission and Ministry of Environment may also be involved in the greenway approval process.

### **Shuswap Tourism**

Shuswap Tourism is an organization coordinated by the CSRD that markets accommodations, activities, attractions and events throughout the Shuswap region, [www.shuswap.bc.ca](http://www.shuswap.bc.ca). The City is a member of, and contributes funding to, Shuswap Tourism. With links to the STA, the Shuswap Tourism Website has a Shuswap Hiking, Biking and Trail Riding Guide, which lists 16 trails in Salmon Arm, along with community and trail descriptions, ratings, allowed uses, tips for trail safety, and rules of the trail.

The Website also contains a Shuswap – North Okanagan Cycle Touring Guide. The primary route featured for the City is the 100 kilometre Salmon Arm Century ride, connecting

Salmon Arm Bay with Grindrod, Enderby, Glenemma, and Silver Creek.

In 2010, a Shuswap Tourism Development Plan and a Shuswap Tourism Brand Vision were completed. The brand essence attributes are: Natural, Casual, Beautiful, and Down to Earth. The brand pillars are Lake, Country and Culture.

## **Trail Planning and Design Resources**

Many organizations have published materials that are helpful in greenway and trail planning and design (see Resources).

## ***1.7 Definitions and Abbreviations***

### **Definitions**

*City* – City of Salmon Arm

*ESA* - environmentally sensitive area

*Greenways* - linear corridors of land that support trails, paths and natural or cultural features of interest to trail users, providing recreational opportunities and/or corridors of wildlife habitat.

*Paths* – constructed routes within urban or suburban conditions.

*Trails* – constructed routes through natural areas, including naturals near the centre of the city.

### **Abbreviations**

*ATV* - all terrain vehicle

*CPTED* – Crime Prevention through Environmental Design

*CSR*D – Columbia Shuswap Regional District

*DCCs* – Development Cost Charges

*ESA* – environmentally sensitive area

*GLC* – Greenways Liaison Committee

*MOU* - Memorandum of Understanding

*OCP* – Official Community Plan

*POSP* - Parks and Open Space Plan

*SDS* – Subdivision and Development Servicing (Bylaw)

*STA* – Shuswap Trail Alliance

## 2.0 GUIDING STATEMENTS



*Access to nature*



*Recreation*

### **2.1 Benefits**

Greenway and trail systems offer multiple benefits to communities. The following are the primary benefits for Salmon Arm, identified through community input and planning sessions with the GLC. It is understood that there are significant inter-relationships and areas of overlap among the benefits listed.

#### **1. Alternative Transportation**

An alternative transportation system has many associated benefits including: decreased motorized transportation dependency, and reduction of greenhouse gas emissions, noise and traffic.

#### **2. Health and Recreation**

The recreation opportunities provided by trails include: increased fitness, improved psychological/ spiritual health, a more active community, and a variety of fun and interesting activities.

### 3. Ecology

Greenways can be an important tool for protecting and enhancing ecosystems, and raising the visibility and importance of ecosystems in the eyes of the public.

### 4. Tourism

A successful interconnected trail system can increase tourism by drawing more people to the community, retaining tourists for longer periods, and enabling tourists to visit more destinations within the community.

### 5. Economic

In addition to the economic benefits derived from tourism, greenways and trails can increase property values, attract workers and industry to the community, reduce health care costs, and provide economic benefits by serving as green infrastructure (e.g., improving air and water quality, rainwater management, flood control).

### 6. Interpretation

The cultural, heritage and ecological interpretive opportunities associated with trails have benefits such as: increasing public awareness and knowledge of the City's history and environment, providing opportunities for school use, and enhancing plant and wildlife viewing experiences.

### 7. Accessibility and Safety

A linked trail system designed for accessibility has associated benefits including opportunities for older and mobility-challenged residents to be active and more social, and providing a means for children to walk safely to school.

### 8. Social

The social benefits associated with trails include: facilitating interactions among trail users, fostering community pride, and providing a free activity which can be enjoyed by groups of people.

## 2.2 Vision

The vision for the Greenways Strategy is as follows:

***An interconnected network of greenways and trails, serving all forms of non-vehicular movement and all ability levels, linking the City Centre, neighbourhoods and major points of interest with each other and with surrounding lands, and providing healthy transportation, outdoor recreation and tourism opportunities, and ecological connectivity.***

## 2.3 Goals

The goals for the greenways and trails system are based on addressing and achieving the benefits described previously (Figure 2.1):



**Figure 2.1: Relationship of Benefits and Goals**

### 1. Alternative Transportation

Provide a safe, multi-use trail network, with connections to the City Centre, parks, schools, the waterfront, neighbourhoods, tourist accommodations, cultural and recreational public facilities, and surrounding trails.

### 2. Health and Recreation

Provide enjoyable, safe trails with good way-finding and supporting infrastructure to support positive experiences, such as signs and staging areas that encourage diverse recreational activities, including walking, hiking, cycling, jogging, mountain biking, and equestrian use.

### 3. Ecology

Protect and enhance environmentally sensitive areas within greenway corridors through appropriate design, construction, planting and maintenance standards and procedures, while balancing the accommodation of public access where appropriate.

### 4. Tourism

Plan and design the trail system to be a desirable attraction for tourists, in terms of location, character, quality, and support infrastructure; connect the trails to shopping areas and built and natural tourist attractions and points of interest; and include marketing of the greenways in tourist information.

**5. Economic**

Plan the trail system to serve major employment centres, to enhance residential settings, and to provide green infrastructure benefits.

**6. Interpretation**

Locate trails close to cultural, heritage and ecological resources, and provide signs and viewing areas that support public educational opportunities to appreciate and understand the values of those resources.

**7. Accessibility and Safety**

Design the trail for equitable access to the degree possible, especially where the terrain is more level, in the downtown area, and close to seniors' residences and facilities, and plan safe routes to schools from residential neighbourhoods.

**8. Social**

Design the trail with seating areas for small groups where appropriate, and engage the community in the planning and stewardship of the trail system.

**2.4 Trail Planning and Design Considerations**

There are a number of trail planning and design considerations unique to the City of Salmon Arm which were taken into account in the Greenways Strategy, as follows:

**Terrain**

The City has variable terrain, with some areas being relatively flat and conducive to fully accessible trails. Most areas are steep, posing grade challenges for bicycle routes. Terrain and grades were considered for the proposed routes identified in the Greenways Strategy.

**Shuswap Trail Alliance (STA)**

Members of the STA are active on the GLC, and the STA already has standards for trail classification and signs. The Greenways Strategy therefore builds on the STA standards in order to provide consistency within the region.

**Regional Trail System**

The Greenways Strategy is planned as part of the emerging regional trail system, respecting the increased ecological, social, and economic opportunities to be derived from a collaborative effort and resource.

### Key Attractions

Salmon Arm has some key natural and cultural attractions and recreation facilities that are worthy destinations, e.g., bird sanctuary, City Centre, waterfront, R.J. Haney Heritage Village and Museum, SASCU Recreation Centre, Sunwave Centre. The Greenways Strategy highlights those attractions, respecting and enhancing their values.

### New Developments

There are some large private land holdings within the community that are along proposed greenway corridors. The Greenways Strategy conceptually identifies proposed routes through these areas, with guidelines that address future trail planning.

### Rural Holdings

There are some large private land holdings, especially in rural areas, that do not have subdivision or development potential, yet would be conducive for greenway connections. The Greenways Strategy includes guidelines for securing and developing trails on ALR lands.

### Bicycle Routes

Some routes in the City are popular for cycling even though there is limited cycle infrastructure, e.g., Foothill Road is a well-used regional connector, linking Salmon Arm, Silver Creek, Armstrong, Spallumcheen and Vernon, even though it has no bike lanes. The Greenways Strategy proposes extensive lengths of roadside corridors that are intended for both bicycle and pedestrian use.



*Fostering a sense of community*

*“We are building and maintaining a community asset - it will have long lasting positive impacts in the area.”*

*– Survey respondent*



**Sustainable Design**

Salmon Arm is interested in building trails to the best standards in sustainable design to inspire and encourage use, minimize erosion, and reduce maintenance costs. Appropriate standards and guidelines are incorporated into the Greenways Strategy.

**Equestrian Use**

There are several rural neighbourhoods in Salmon Arm with significant numbers of horses, e.g., South Canoe, Foothill Road and Gleneden. In these areas, there is interest in equestrian use of trails.

**Sidewalks**

Incremental development combined with implementation of the City’s subdivision and development standards has resulted in anomalies such as short sections of disconnected sidewalks. The Greenways Strategy proposes links between existing and proposed trails and identifies new segments of sidewalks. It also recommends that new sidewalk construction explore alternative design approaches to the traditional standards set out in the City’s SDS Bylaw.



*Bike/pedestrian use at South Canoe*



*Trail on steep terrain*

*“The more extensive and interconnected the trails, the more use will result.”  
– Survey respondent*

### *2.5 Trail Planning and Design Issues*

There are a number of trail planning and design issues that will need to be addressed during the implementation of the Greenways Strategy.

#### **Trail Use**

With a few minor exceptions, the uses of trails are not currently designated and most are assumed by the public to be open for multiple purposes. Proper signage is a cost effective way to designate trail use when a particular use or multiple uses are intended. Adopting bylaws to regulate trail use is not necessarily an effective approach with the City's limited enforcement capabilities.

#### **Trail Naming**

Most of the trails in the City are not formally named, while many have multiple names. Trail names are helpful for planning and very important for public identification and way-finding. One of the key tasks for the GLC will be to formally name the existing and proposed trails approved in this strategy.

#### **Dog Management**

The Animal Control and Pound Bylaw states that dogs must be "under control" everywhere in the City. Experiences in other communities indicate that off-leash dogs can have significant negative impacts on trails, particularly with trampling and degrading of natural vegetation. It is also extremely difficult to convert off-leash areas to on-leash regulations once off-leash use is well established. Bylaws to manage dogs on trails are recommended for review and updating early in the implementation of the Greenways Strategy.

#### **Motorized Use**

ATVs use trails in some parts of the City, mostly in the rural areas that border Crown land. The Parks Regulation Bylaw prohibits the operation of a motorized vehicle within any City owned park or public land, except on designated vehicular routes. As ATV use can have negative impacts on trail surfaces and the natural environment and can conflict with non-motorized trail users, routes that may be designated for ATV use will need to be carefully planned, managed and maintained.

#### **Existing Signs**

There is a proliferation of different types of signs in some areas, some containing apparently conflicting information, e.g., at the South Canoe parking lot. A consolidated and consistent sign system used by all land managers would assist in management and aesthetics. Spearheaded by the STA, Phase 1 of a project to provide coordinated trail identification signs for City trails has recently been implemented. The design of these signs is consistent with those erected in the CSRD and the District of Sicamous.

**Washrooms**

Washrooms are in limited supply, even at the trail heads of some of the major existing trail systems. As use increases, provision and maintenance of washrooms will become more important.

**Land Ownership**

Existing and proposed trails pass through many different types of land ownership including City, Crown, private, and First Nations land holdings. Partnerships will be required among land owners and agencies in many locations to acquire approval for access and joint management. Where Crown or private landowners are informally allowing trail use, agreements that legitimize the use and address liability issues will be desirable if the use is to continue.

Trails identified in the Greenways Strategy that are on private property where there is no secured right-of-way, dedication or acknowledgement of trail use by the land owner are considered “proposed” and not secured.

**City Capacity**

The City has limited financial and staff resource capacity to plan, design, build and maintain trails. As a result, volunteers take on significant responsibilities. If not managed appropriately, this can lead to inconsistent standards and volunteer burn-out.



*Dog management*



*Buried waste containers*

*“Work with existing natural trails to link neighbourhood parks and make them accessible to all (hoof and woof, too).”  
– Survey respondent*

## 3.0 CLASSIFICATION STANDARDS AND GUIDELINES



*Sidewalk*



*Nature trail*

### ***3.1 Introduction***

There are various ways that trails can be classified, e.g., according to use, role, location, or construction standards. In the Greenways Strategy, there are two types of classifications applied:

- Role – defines the context and overall function of the trail,
- Type – defines the construction standard.

In addition to these classifications, each trail serves certain purposes and uses.

## ***3.2 Role of Trails***

The following are the trail roles (Map 1):

### **Regional Connector**

These trails provide the regional links to surrounding areas beyond City boundaries. They are typically long trails, and many pass through natural areas. Because they are major links, some of the regional connectors are destination trails, offering experiences of natural features of ecological significance.

### **Community Connector**

These trails provide the major links within the City, e.g. from the City Centre out to the neighbourhoods, major east-west connector. Many of these trails follow road corridors, since the roads already provide links and they provide access across challenging terrain. Even though a trail route may follow a road, the trail can be located off and separated from the road surface.

### **Neighbourhood Connector**

These trails are the “local” links in the trail system, connecting neighbourhoods to the regional and community connectors and serving local needs, e.g., safe routes to schools. These links are best located off road corridors.

### **Park Trails**

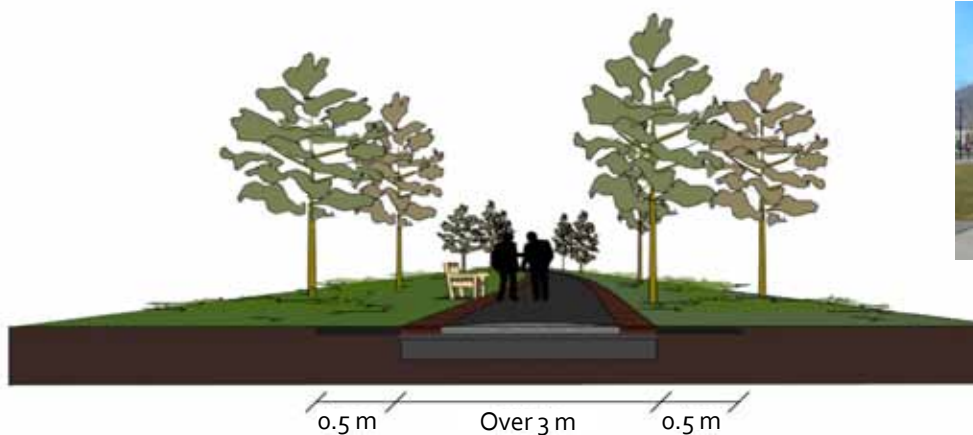
These trails are located within the City’s larger parks. Some of the trails connect with city-wide routes, and others function as part of the destination experience of the parks.

## ***3.3 Trail and Path Types***

There are many different standards for the design of trails. Because numerous interest groups in the Shuswap have already worked together to prepare accepted trail design standards, it was considered appropriate to adopt those standards for Salmon Arm.

The STA trail design standards form the basis of trail Types 2 to 5 below (Map 2). Type 1 is used to classify the highest level design standard for an urban greenway, which include existing and proposed pathways in the City Centre and recently constructed promenades along the foreshore. Type 6 is used to classify proposed Roadside Corridors in both the urban and rural areas. Information and reference to costs for each trail / path type are contained in section 5.

### Type 1 Path



#### **Criteria**

Location: key downtown connections, City Centre waterfront

Amount of Use: high

Type of Use: walking, jogging, cycling, wheelchairs (where possible), scooters (where possible), walkers (where possible), roller blades, maintenance vehicles (optional)

#### **Design Standards**

Trail Width: over 3 m

Clear Width: over 4 m

Surface: paved, usually with special paving, e.g., pavers, stamped concrete or stamped asphalt (could also be an elevated walkway like the waterfront promenade)

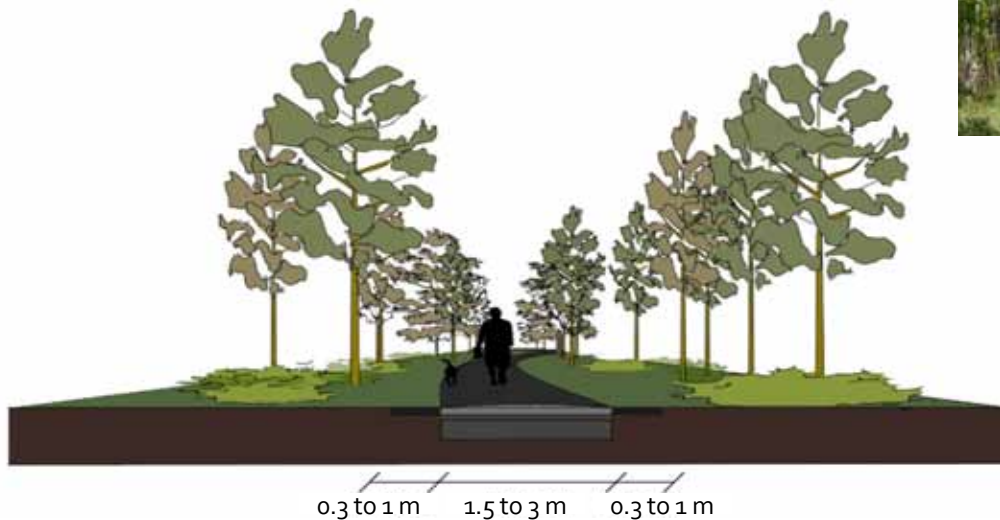
Base: solid granular base with full drainage

Longitudinal Slope: maximum 5% with short ramps to 8% follow Universal Accessibility Guidelines

Accessibility: universal accessibility throughout, provide at least 1 m width smooth surface for wheelchairs

Infrastructure: Pedestrian lighting, benches, points of interest, signs (directional, instructional and interpretive), waste receptacles, bollards

## Type 2 Trail



### **Criteria**

Location: community or neighbourhood connectors, secondary routes, regional connectors in non-urban areas

Amount of Use: moderate

Type of Use: walking, jogging, cycling, wheelchairs (where possible), scooters (where possible), walkers (where possible), maintenance vehicles (optional)

### **Design Standards**

Trail Width: 1.5 to 3 m

Clear Width: 1.6 to 5 m

Clear Height: 2.4 m

Surface: well compacted gravel or other granular material as a standard, asphalt as needed in the future for high use or more urban routes

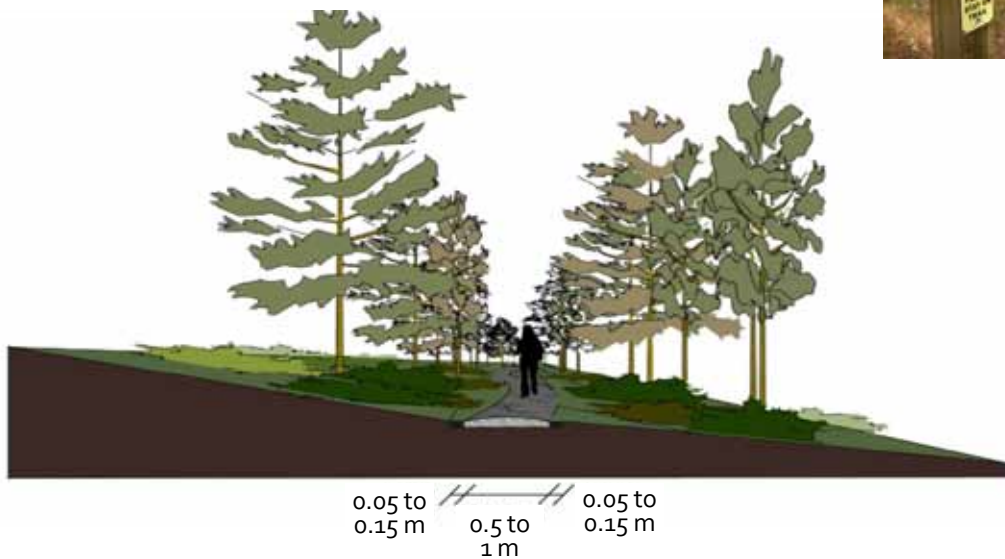
Base: granular base with swales and culverts for drainage

Longitudinal Slope: maximum 8% where possible, otherwise 15%

Accessibility: universal accessibility where possible

Infrastructure: benches, points of interest, signs (directional, instructional and interpretive), waste receptacles, bollards

### Type 3 Trail



#### **Criteria**

Location: natural areas – non-urban or parks

Amount of Use: low to moderate

Type of Use: walking, jogging, mountain biking

#### **Design Standards**

Trail Width: 0.5 to 1 m

Clear Width: 1.1 to 1.3 m

Clear Height: 2.4 m

Surface: compacted mineral soil

Base: mineral soil

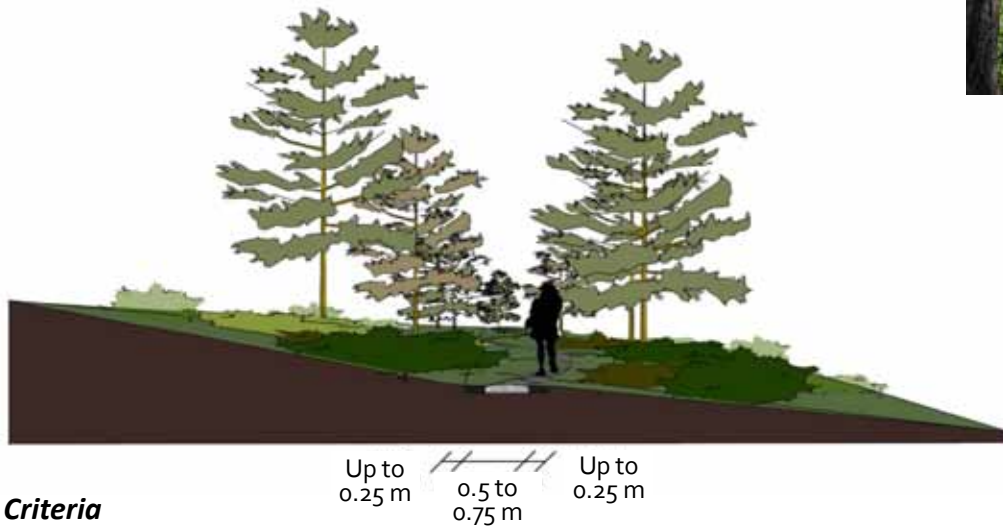
Back slope: 30 to 45 degrees

Accessibility: beginner to advanced trail user groups

Infrastructure: occasional benches, points of interest, signs (directional, instructional and interpretive), occasional waste receptacles (at trail heads), bollards or stiles where needed



## Type 4 Trail



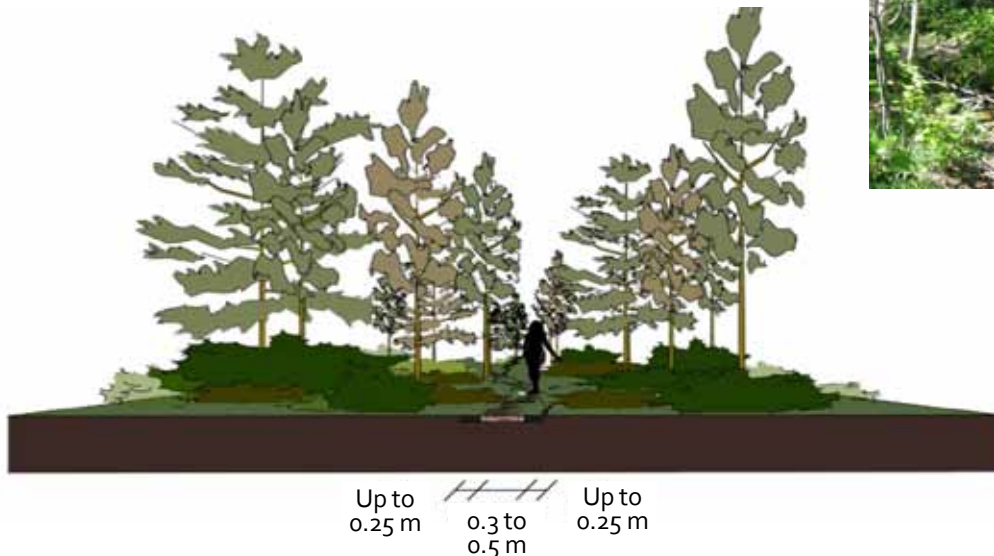
### **Criteria**

- Location: natural areas
- Amount of Use: low to moderate
- Type of Use: walking, jogging, mountain biking

### **Design Standards**

- Trail Width: 0.5 to 0.75 m
- Clear Width: up to 1 m
- Clear Height: 2.4 m
- Surface: mineral soil with some rocks and roots
- Base: mineral soil
- Back slope: 30 to 45 degrees
- Accessibility: intermediate to advanced trail user groups
- Infrastructure: occasional points of interest, occasional signs and waste receptacles (at trail heads), bollards or stiles where needed

### Type 5 Trail



#### **Criteria**

Location: natural areas

Amount of Use: low

Type of Use: walking, jogging, mountain biking (low impact)

#### **Design Standards**

Trail Width: 0.3 to 0.5 m

Clear Width: up to 1 m

Clear Height: 2.4 m

Surface: mineral soil with rocks and roots, can be rough

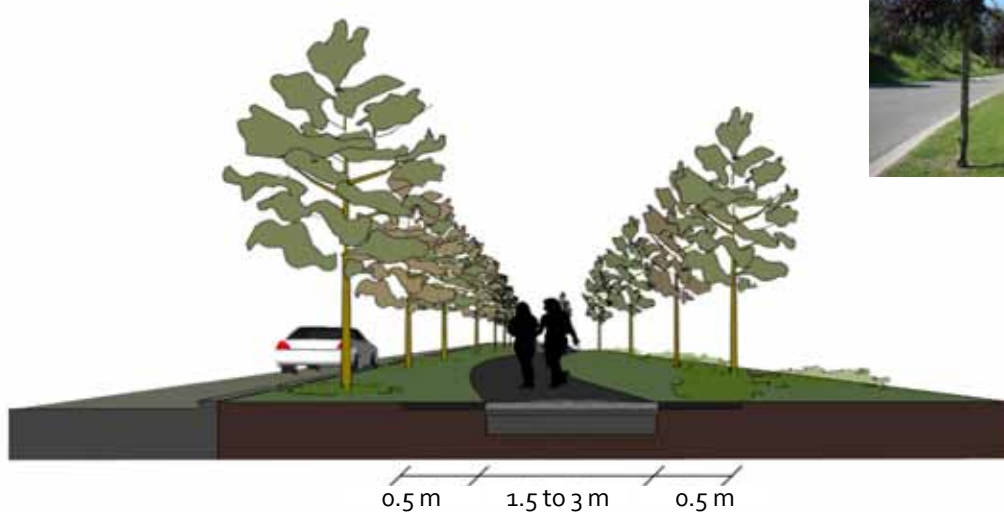
Base: mineral soil

Back slope: 30 to 45 degrees

Accessibility: intermediate to advanced trail user groups

Infrastructure: occasional points of interest, occasional signs and waste receptacles (at trail heads), bollards or stiles where needed

## Type 6 Roadside Corridor



### **Criteria**

Location: adjacent to roads, typically within the road right-of-way

Amount of Use: moderate to high

Type of Use: walking, jogging, cycling, wheelchairs (where possible), scooters (where possible), walkers (where possible), maintenance vehicles (optional)

### **Design Standards**

Trail Width: 1.5 to 3 m

Clear Width: 2 to 4 m

Clear Height: 2.4 m

Surface: concrete sidewalk, asphalt pathway, or well compacted gravel or other granular material

Base: granular base

Longitudinal Slope: maximum 8% where possible, otherwise 15%

Accessibility: universal accessibility where possible

Infrastructure: Pedestrian lighting (optional, usually not needed due to road lighting), signs (directional, instructional), waste receptacles, bollards

Other: Separate as much as possible from the travel lane of the road

## 3.4 Trail Purpose and Use

### Trail Purpose

It is understood that in addition to the key role, each greenway corridor fulfills different purposes to varying degrees. Most of the greenways in Salmon Arm serve recreational and transportation needs, some corridors are primarily ecological, and others address both use and ecological functions.

On another level, some corridors serve as access routes for residents, others are destination routes for residents and visitors to the region, and many trails serve both of these purposes.

### Trail Use

Trails can be designed to accommodate a variety of uses, or they can be designated for a single purpose. Because a significant number of trails are required in Salmon Arm to meet basic needs, it is unrealistic to consider many single-purpose trails. One or two may be considered for specific needs.

Section 3.3 identifies the proposed uses generally associated with the trail types. The following is a summary of uses potentially permitted on trails:

- Multi-use Non-motorized – most of the trails and paths will fall within this category, which allows for a wide variety of non-motorized uses, including: walking, hiking,



No motorized vehicles



Dogs on trails require management

*“Some walkways are important for enabling people to get to work... Others simply improve the quality of life. Helping people to enjoy exercise, say hello to fellow pedestrians, or to stop and admire a view.”  
– Survey respondent*

jogging, cycling, wheelchairs, electric wheelchairs / scooters (exception to the non-motorized designation), roller blades, and Nordic skiing (on certain unplowed trails only). Within this category are several subcategories:

- Universally accessible – trails and paths designed for wheelchair, electric wheelchair / scooter, walker, and other mobility challenges,
- Limited accessibility – trails that are too steep to be built for universal accessibility or that do not meet the design standards required,
- Pedestrian only – trails or paths for pedestrians only, not bicycles, typically where there is an alternate route available for bicycles.
- Equestrian use – equestrian use may be designated on certain multi-use non-motorized trails, usually close to stables, residents owning horses, or equestrian staging areas. Equestrian use is best separated from motorized uses. It can coexist with mountain biking in most locations, but not in steep or high-use mountain biking areas.
- Mountain biking – mountain biking may be designated on certain multi-use non-motorized trails; however, some trails should be off limits for mountain biking, and other trails may be designated for mountain biking as a single purpose where demand is high and there is an alternate trail available for other uses.
- Multi-use Motorized – a small number of trails may be designated as accessible to ATVs or snowmobiles. These should be trails without steps, and with a high design standard in steep areas to limit the potential for erosion caused by these uses. These trails are ideally located in the rural areas close to and leading into Crown land.
- Dogs – in the future most of the trails will likely be designated for on-leash dogs only, therefore dog owners should be encouraged to leash their dogs on trails. There may be some trails where dogs are not allowed due to the sensitivity of the habitat or wildlife. One trail in the City may be considered in the future for off-leash dog use, but only if natural resources are not significant and there is an alternate route available for people who do not wish to encounter off-leash dogs.

## 4.0 DESIGN GUIDELINES



*Multi-purpose sign*



*Bike lane and sidewalk*



*Community-built trail*

### 4.1 Trail Siting

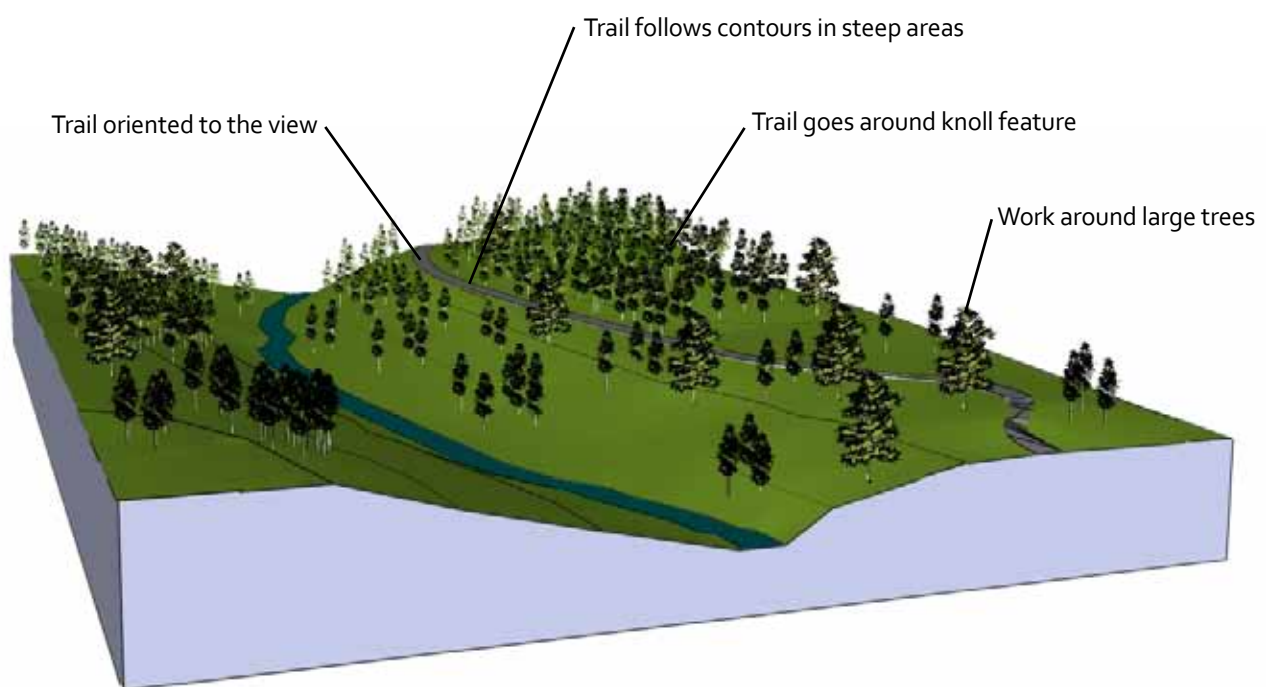
The trails in Salmon Arm vary widely in their siting and design standards. This section provides some guidelines for siting of all trails, and more specific guidelines for siting of trails within new developments. These guidelines are consistent with provincial sustainable trail design standards, adapted to the specific context of Salmon Arm.

The routes on the maps are conceptual and do not indicate precise alignments nor do they consider all of the design guidelines in this section. Detailed trail design by a landscape architect or trail development professional will be required to meet these guidelines.

#### Siting of All Trails

- Site trails to take advantage of views of scenic features and access to cultural features where appropriate.

- Follow contours to the degree possible when siting trails in order to minimize the amount of cut required; the use of fill along trails is not typically part of sustainable design.
- Site trails around large trees and major landform features to minimize the need for removal of vegetation.

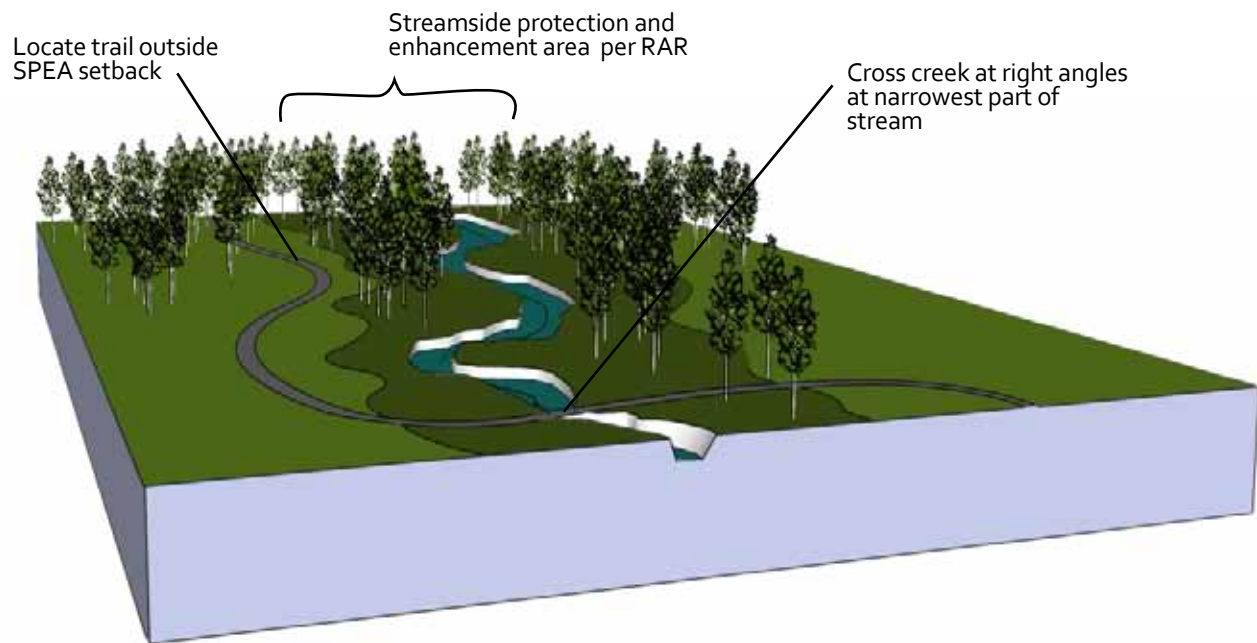


### Siting of Trails in and near Riparian Areas

- Identify riparian areas and other environmentally sensitive areas (ESAs) in the vicinity of proposed trails.
- Identify riparian setbacks by applying the Riparian Areas Regulations (RAR), and site trails outside the setbacks where possible. DFO and MOE approval may be required where trails are proposed within riparian setbacks.
- For riparian crossings and trails or boardwalks within riparian setbacks, ensure that environmental assessments, the necessary permits from senior government agencies, and monitoring during construction by a qualified environmental professional (QEP) are obtained and conducted.

## 4.0 Design Guidelines

- Locate riparian crossings at the narrowest point of the creek or gully if possible, and construct riparian crossings as close as possible to a right angle with the creek.
- Locate riparian crossings on straight sections of the creek to minimize bank erosion.



### Siting of Trails on Development Projects

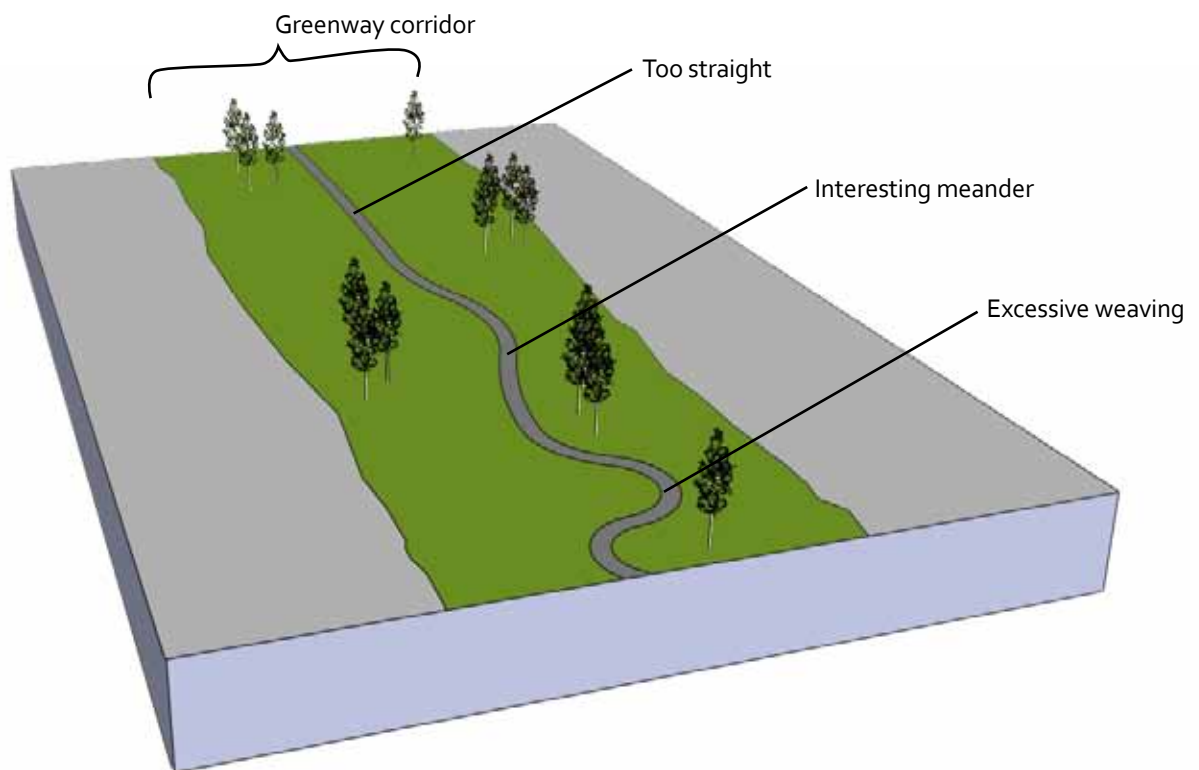
- Plan development projects with parks and trails as a priority. The following is the recommended sequence for the planning process:
  - Identify riparian areas and other ESAs, and other constraints such as hazard areas,
  - Identify a preliminary plan for the development road network, minimizing the need for regrading and impacts to the riparian areas and other ESAs,
  - Where a proposed trail is indicated through the property on the Greenways Strategy, identify a potential corridor, ideally separate from roads, minimizing road crossings, adjacent to the riparian/ESA areas, and linking parks and other attractions or destinations,
  - Identify a preliminary plan for parks, based on opportunities such as views, terrain, proximity to trails, etc.,
  - Lay out residential and other uses to fit within the features noted above.



## 4.2 Overall Trail Design

### Trail Layout

- Avoid long straight segments. Provide enough meander to make the trail interesting, but avoid excessive weaving, especially along a narrow corridor.
- Develop design templates or standards to be used in the trail system, and apply these throughout. The templates will include some items that never vary, e.g., signs, waste receptacles; and other elements that may vary with the setting, e.g., benches, bollards.
- Design trails on ALR land in accordance with “*A Guide to Using and Developing Trails in Farm and Ranch Areas*” (Ministry of Agriculture), and obtain approval from the Agricultural Land Commission if necessary.



### Materials

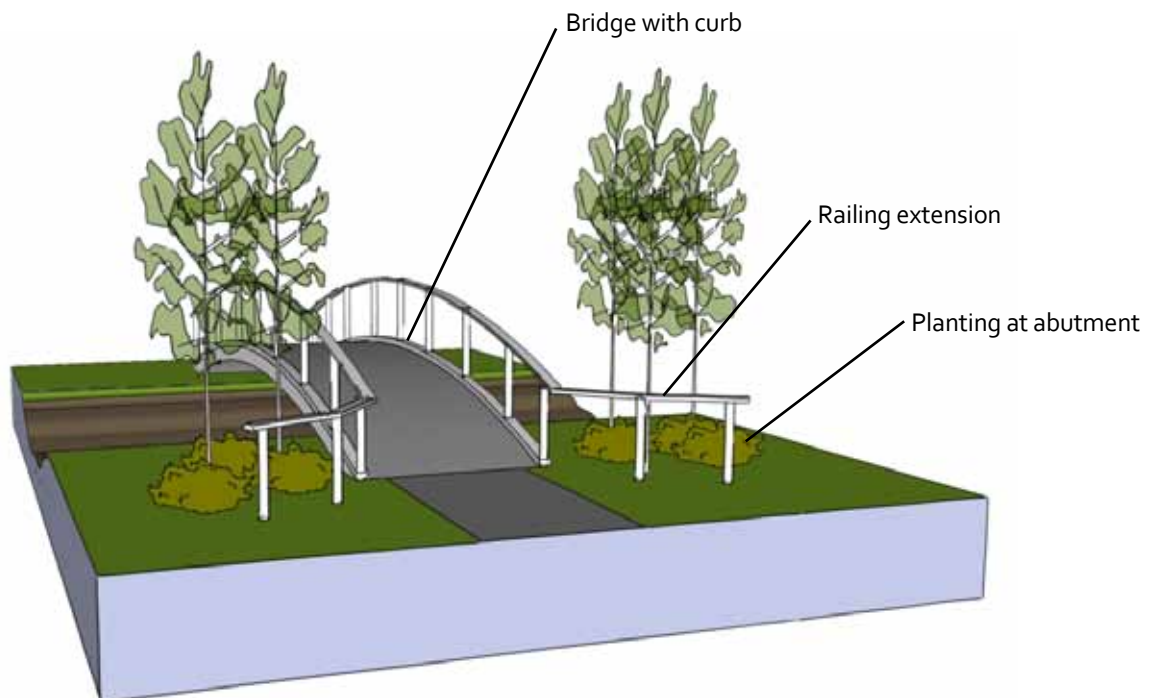
- Use vandal-resistant materials, e.g., no glass.
- Ensure that trails with a special paving surface are suitable for wheels, such as wheelchairs, strollers, walkers and rollerblades. This could be a strip of smooth paving, narrow bands of smooth paving, or pavers that do not provide a bumpy experience.

### Experiential Component

- Site and design the trail system with attention to the experience of the trail user, ensuring that the trail is easy to locate, marked prominently and that way-finding is as straightforward as possible, e.g., avoid complicated routes with many sharp turns.

### Bridges and Boardwalks

Although expensive, bridges and boardwalks can help to traverse challenging or environmentally sensitive terrain and provide unique viewing and experiential opportunities.



- Consider boardwalks in very specialized locations where a nature viewing opportunity can be provided without undue damage to environmental resources, and where there are no suitable alternatives.
- Keep bridge abutments as small as possible and screen with planted native vegetation.
- Provide curb and railing designs that consider safety for wheelchair users.
- Extend the railings of major bridges and boardwalks approximately 5 m from the ends of each structure where needed as a safety transition to avoid protrusions of railings onto trails at the ends of structures.

### 4.3 Accessibility

The accessibility of trails in Salmon Arm is highly variable. Most of the routes in the City Centre are accessible. The SABNES trail also has reasonable accessibility. Most other trails have sections that are too steep or too rough to be universally accessible.

The following are guidelines for accessibility:

- Determine which sections of trails are to be designed to be universally accessible, based on an analysis of terrain, amount of use, types of users, and the setting. It is most critical that trails in the urban area and those which are key links to the urban area be fully accessible.
- Use existing guidelines to design these trails to accessibility standards. The following are some available resources:
  - BC Website for Accessible Tourism, Communities, Parks and Trails - <http://www.everyoneincluded.com>
  - Universal Design Guidelines for Outdoor Spaces: Plan and Design for Choice – Maple Ridge and Pitt Meadows, funded by Measuring Up - [www.mapleridge.ca](http://www.mapleridge.ca)
  - Measuring Up Accessibility Online - [http://www.2010legaciesnow.com/measuring\\_up](http://www.2010legaciesnow.com/measuring_up)
  - Accessibility Online Resource Guide (US) - <http://www.accessibilityonline.org>
  - National Center on Disability (US) - <http://www.ncaonline.org/>
  - US Forest Service - <http://www.fs.fed.us/recreation/programs/accessibility/>

## 4.0 Design Guidelines

- National Trails Training Partnership (US) - <http://www.americantrails.org/resources/accessible/index.html>
- Trails for all Ontarions - <http://www.abilitiescentre.org/trails/index.html>.
- The following are some key guidelines for accessible trails:
  - Ensure that the path surface meets flush with the surrounding grade immediately adjacent to the trail.
  - Ensure a uniform consistent surface (well compacted for aggregate trails) without puddles or depressions and free of obstructions.
  - Provide curb cuts where paths cross roads and from parking areas to trails.
  - Ensure there are no drainage grates within the trail surface. (New grates per the SDS bylaw are bike-friendly.)
  - At trail heads, provide designated handicap parking stall(s) per relevant City bylaws.
  - Provide access from these parking spots directly to the accessible entry of the trail and ensure there are no speed bumps that wheelchair users need to cross. Provide accessible paths to information and interpretive signs and to major park features and use areas.
  - Ensure that washrooms are wheelchair-accessible and that they have wheelchair-accessible stall(s).
  - Ensure that spaces between bollards, baffles and other barriers are sufficient to allow passage by wheelchairs. Ensure that motorized vehicles are prevented from entering the trail.

*“Be creative - make our charming walking trails within and outside the City a tourist attraction.”  
– Survey respondent*



*Paving surface suitable for wheels*



*Paving denotes pedestrian crossing*

## 4.4 Signs

There are four types of signs that are needed along trail systems, as follows:

- Way-finding, or directional, signs indicate routes and facilities, e.g. trail name, trail uses, distance to specific destinations, map of trail system indicating current location,
- Regulatory signs indicate traffic regulations, e.g., stop, yield to pedestrians,
- Warning signs advise users of potential hazards, e.g. railway crossing ahead, and may include notices about risk and liability for trails with specific hazards,
- Educational, or interpretive, signs provide information about the surroundings, e.g., description of natural history, vegetation, fish and wildlife, landmarks.

The STA has prepared standards for directional signs. These are in the form of plaques on bollards, some of which have already been installed in Salmon Arm. At older trail heads in the City, signs vary significantly, and certain locations have a proliferation of different and sometimes contradictory signs.

Guidelines for signs are as follows:

- Continue to install the directional signs on bollards per STA standards.
- Plan the locations of the directional signs per needs related to visibility and way-finding.
- Implement regulatory and warning signs that are consistent with the STA standards, mounted on taller posts and with graphics designed to ensure visibility.



Way-finding bollard sign at turner creek



Regulatory signs

*“I think we need to encourage us to get out of cars. Also, need to know where the trails are!”*  
 – Survey respondent

- Organize a group of stakeholders, e.g., STA, naturalists, heritage group, to prepare:
  - a design template for interpretive signs that is complementary with the STA signs, allowing more space for explanatory graphics and text, specifying sign sizes, graphic template, etc.,
  - sign mounting options, recognizing that different mounting methods will be required in certain locations, e.g., sign mounted on railing, free-standing sign at bollard height, and information kiosk for major trailheads to include maps, regulatory and interpretive information.

### 4.5 Trail Heads

Trail heads are the access points to trails, typically occurring at roads or parking lots. Consistency in the design of trail heads can help to establish an identity for the City's trail system and help in way-finding. There is currently a wide variety in the design of trail heads in the City.

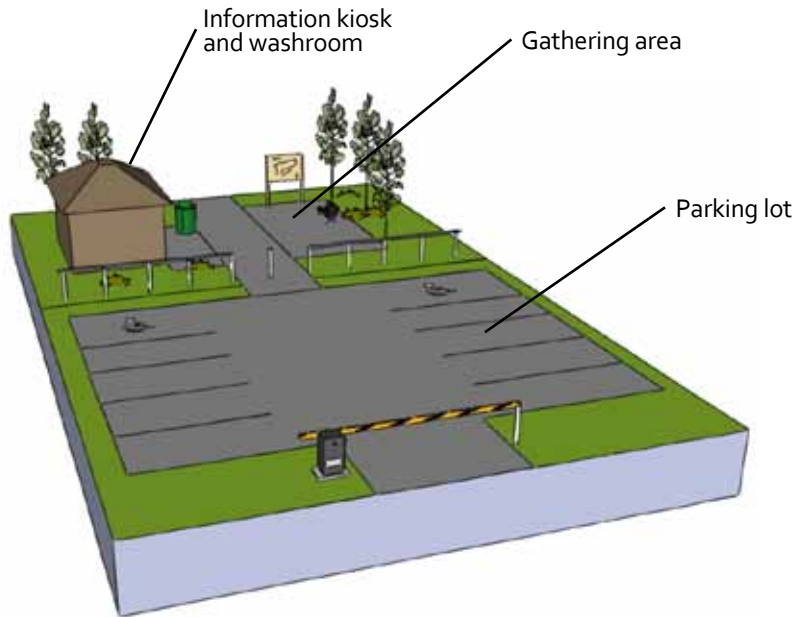
There are three general levels of trail head that are needed in Salmon Arm, as follows:

- Major trail head – for access to significant trail systems (e.g., South Canoe), typically includes a parking lot, information kiosk, washroom, and waste receptacle. Additional facilities may include a larger area of the trail surface material (gathering area), bench(es), washroom building, bike racks (usually in urban areas), and drinking fountain and/or bike wash. Major trail heads are an excellent opportunity to incorporate public art.
- Moderate trail head - for access to one major trail (e.g., SABNES), typically includes a few parking spaces or on-street parking, sign, waste receptacle,
- Minor trail head – for connecting trails, typically includes a bollard sign, waste receptacle.

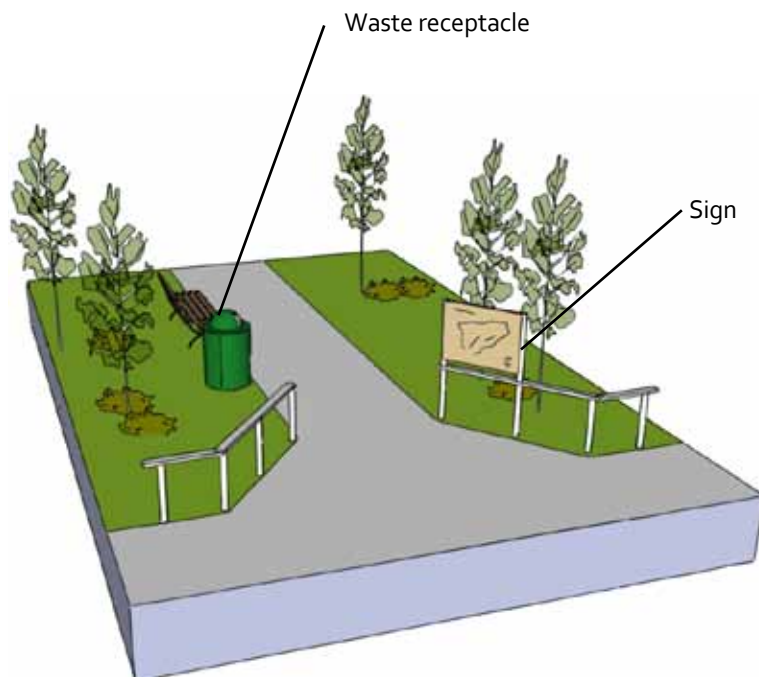
Guidelines for trail heads are as follows:

- Identify locations for major, moderate and minor trail heads.
- Locate parking for bicycles in easily accessible, highly visible areas, and next to places where people might choose to stop, especially in urban areas. Provide bike racks that support the frame of the bike.
- Site waste receptacles in convenient and accessible locations to reduce the amount of litter in the City and along trails and paths. Continue to use in-ground receptacles outside the City Centre and a more urban standard within.

- At principal trail heads, make efforts to provide interesting and identifiable landmarks, e.g., landforms, public art, bridges, structures, etc. They provide trail users with an easily identifiable place to meet and they promote the City and its trails to visitors.



Major Trail Head

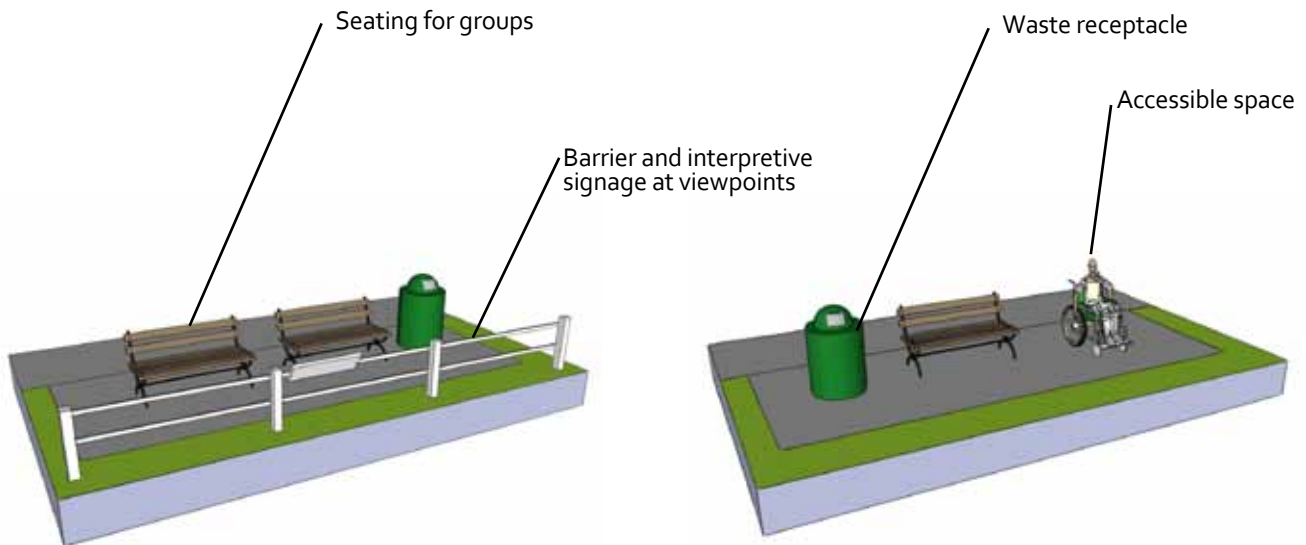


Moderate Trail Head

## 4.6 Viewpoints and Rest Areas

Viewpoints and rest areas are locations along trails that provide opportunities for sitting, socializing, resting, and viewing scenery and wildlife. They can be points of interest with educational kiosks and signage. At a minimum, viewpoints include a sign indicating a view and rest areas include a bench. It is often advantageous to combine rest areas with viewpoints. Viewpoints and rest areas add tremendous value to the experience of trails, particularly for tourists and those with mobility challenges.

There are currently very few formal viewpoints or rest areas in Salmon Arm, but there are numerous spots with beautiful views where people can rest. There are several viewpoints built along the SABNES trail.





Guidelines for viewpoints and rest areas are as follows:

- Prepare typical design templates for the design of viewpoints and rest areas, but vary them based on site-specific conditions such as soils, slope, views, vegetation, interpretive opportunities, and adjacent land uses and features.
- Locate viewpoints to take advantage of good vistas and cultural features.
- Locate rest areas at viewpoints, major use areas, primary trail heads, or other nodes based on site-specific opportunities. More rest areas are required for the most highly used and the most accessible trails, with a 500 metre spacing as a minimum for the highest use trails.
- Select a bench (City standard) to be used at rest areas, but allow for variation in the design based on the location and character of the trail, e.g., urban nodes may have a uniquely designed bench, remote natural areas may have seats made from logs.
- Provide seating in groups, e.g., at least two benches, in the highest use areas.

## 4.7 Barriers and Fences

### Barriers

Barriers are located at trail heads or road crossings to prohibit certain types of access to the trail. The following are the types of barriers typically used:

- Bollards are used to prohibit access by motorized vehicles. The bollards can be removable to allow for access by service vehicles.
- Baffles (or stiles) can be used to restrict access to pedestrians only, or to prohibit motorized vehicles, depending on the design and dimensions.
- Gates with a separate access for pedestrians are sometimes used along trails that require relatively frequent access by service or emergency vehicles.
- Fences or railings on either side of the trail, or rocks, can be used to restrict users based on the width of the opening.

Salmon Arm does not currently have many barriers at its trail heads. As use levels increase, more barriers will likely be required.

Guidelines for barriers are as follows:

- Ensure that bollards, baffles or other barriers permit wheelchair passage on accessible trails.

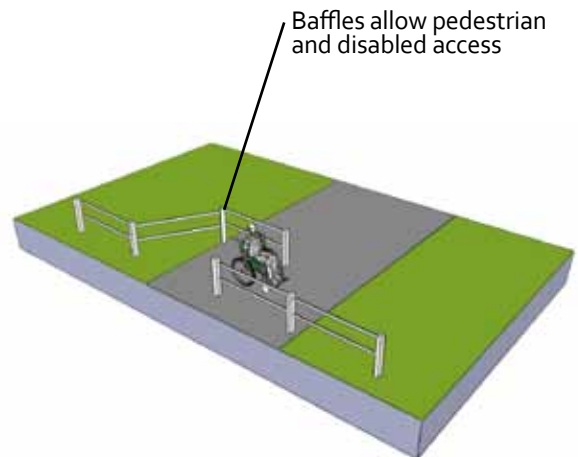
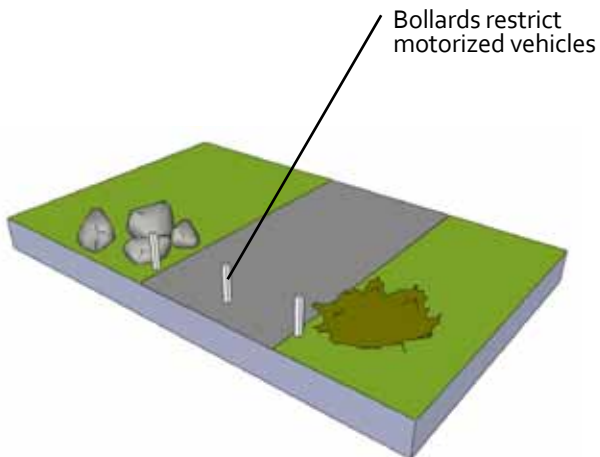
- Prepare typical design details for barriers that are complementary with the STA sign standards.
- Avoid the use of chains between bollards as they are difficult to detect for the visually impaired, they can be dangerous for cyclists, and aesthetically they do not have the same enduring quality as solid materials.

### Fences

Fences will likely be required along the trail system, and the specific applications will need to be determined in consultation with the City. To date, fences have not been built as part of the trail infrastructure, so fences between private land and trail corridors are unique to each private lot. As more trails are built within the community, fences may be needed in some situations.

The following are some types of fences and their potential locations:

- Low wood rail, e.g., 0.6 m (2 feet) high: This railing functions as a visual barrier. It may be used to identify a property line between public and private land, or a particular use (e.g. no dogs allowed, an ESA, top of slope at a viewpoint, edge of parking area) where restricting access is not a major issue and aesthetic quality is of some concern.



- Higher wood rail fence, e.g., 1.1 m (3.5 feet) high: This railing may be used as part of an identifying marker for the trail system where visibility of the railing is important and the height will not affect views (e.g. at trail heads, road crossings).
- Black vinyl-coated galvanized chain link fence 1.2 to 1.8 m (4 to 6 feet) high: This fence may be used adjacent to single family back yards, or where there are major safety or access issues. The purpose of the fence is to serve as a barrier. Black is proposed because it blends better with the surroundings. The purpose of galvanizing is durability.
- Gates: Typically, there will be no need for gates along the low and higher wood rail fences. Locking gates can be located within fences as required to access public or private land.

## 4.8 Vegetation

Vegetation along greenways offers enormous benefits, including: enhancing the visual character, improving the user experience by providing shade, and maintaining biodiversity and ecological values.

There are the following primary existing conditions with respect to vegetation along trails:

- Trail passes through an existing natural area with diverse vegetation,
- Path passes through an urban area with significant existing urban vegetation, e.g., trees and shrubs,
- Trail or path passes through an area with minimal vegetation, where the opportunity exists to enhance the vegetation.

Guidelines related to vegetation are as follows:

- Minimize disturbance to vegetation near trails to the highest degree possible.
- Protect existing trees and their roots wherever possible in the planning, design, construction and maintenance of the trail system. Route trails around the drip line of existing significant trees where possible. Where trails are within the drip line, minimize cut and fill; where roots need to be removed, cut cleanly using standard arboriculture practices.
- In areas with opportunities for enhancement of the vegetation, plant trees and shrubs, selecting native plants in natural areas that reflect the habitat, e.g., riparian, forest; or in urban areas plants that will thrive in the site conditions and provide habitat for birds and small mammals.

## 4.0 Design Guidelines

- Trim any hazardous trees to create snags for wildlife instead of removing the entire tree where possible and appropriate.
- Minimize excavation in areas with dense trees, especially for trails that are not to be paved. Instead consider the use of geotextile with granular material placed above existing grade.
- For paved trails, remove all roots below the path surface in preparing the subgrade. Where there are tree roots likely to extend under the path, use a commercial root barrier to prevent this.
- Avoid cuts to tree bark by construction equipment.
- Consider windthrow hazard if clearing clumps of trees, especially in densely forested areas. Assess trees along the edges of clearings for wind firmness and disease, and apply mitigation measures as needed.
- Where feasible in natural areas, use felled trees from required clearing to add coarse woody debris and to limit access where necessary, but remove fine fuels (less than 12 cm diameter).
- Do not change the drainage pattern around existing trees where possible.
- Do not attach signs to trees.
- As soon as possible after trail construction, restore disturbed areas with growing medium if possible, and revegetate with seed/sod and/or native plants.
- All landscape installation and maintenance practices are to conform to the latest edition of the B.C. Landscape Standard.
- Avoid planting masses of tall shrubs near the trail where they will impede visibility along the trail, or the view from parking lots, washrooms or other use areas, in accordance with CPTED guidelines.
- Ensure that adequate silt control measures and other best management practices are used during construction, especially near riparian or other ESAs.
- In urban areas, add rain gardens and bioswales along trails where appropriate to infiltrate, clean, and slow urban run-off.
- Use low impact and environmentally conscious materials and construction methods to the degree possible.
- As part of trail construction projects, remove invasive species from natural areas and replace with native varieties where possible.
- Where options for plants are limited, use design details or public art to connect people with nature.

- Plant large trees at least 2 m from the edge of trails in urban areas.
- During trail construction, minimize disturbance to the soil surface and existing vegetation adjacent to trails.
- Use bioengineering for erosion control along steep slopes where erosion is a risk or has occurred.
- Along utility corridors, comply with the specific guidelines of the utility regarding planting.
- Along hydro corridors, refer to “Planting Near Power Lines” by B.C. Hydro (or any updated brochures). B.C. Hydro requires that plants within 5 m of power lines have a maximum mature height of 6 m. Beyond this zone and up to 20 m from the power line, the maximum mature height of trees should be 12 m.
- Where trails are close to residential property, provide adequate screening with plants for privacy and to enhance the quality of the trail, but avoid tall dense thickets to address safety and security.
- Reduce the visual impact of hard edges such as fences, retaining walls or extensive paved areas with tree and shrub planting.
- In new developments, encourage placement of multi-family housing rather than single family housing adjacent to greenways, without fences or other barriers between the open space and the trail.



*Vegetation for shade and habitat*



*Protect existing trees*

*“We need to appreciate and protect the beauty and wholesomeness of all we have here.”  
-Survey respondent*

### 4.9 Safety

The safety aspects of the trail system are critical to the long-term use and success of the greenways. Many of the guidelines contained in other sections of this document are intended to promote safety.

The following are some specific guidelines related to design, construction and maintenance practices that support safety:

- Apply the principles of CPTED (Crime Prevention through Environmental Design) to all trail planning and design work.
- Locate at-grade trail crossings of arterial roads at intersections with traffic signals, or if mid-block, install pedestrian-activated crossing signals.
- Use pathway design, public education and signs as some of the methods to control speed of trail users, particularly cyclists.
- For trails next to steep slopes, provide vegetation and/or a railing between the trail surface and the slope, depending on the proximity and steepness of the grade.
- Adopt a code of conduct (etiquette) for use of the trail system and post this at major trail heads. The code is to include: speed, keep right, “wheels yield to heels”, cyclists-sound warning, etc.
- Post the modes of transport permitted on each type of trail at trail heads.



Boardwalk



City Centre sidewalk

*“Please make sure we have sidewalks that connect everywhere so people with disabilities, young children and all can safely navigate around the town.”*  
-Survey respondent

- Request a review of the design and management of the entire trail system or specific trails from the police when appropriate.
- Acquire the greatest width of land possible along greenways in the urban area to minimize conflicts with adjacent land uses and to allow for sightlines for user safety and security.

### 4.10 Maintenance

Maintenance of trails in urban areas and parks will be consistent with standard City maintenance procedures. The City's Parks Department relies on trail users to advise where maintenance is required. Maintenance is prioritized based on a review of site-specific conditions, estimated costs, budgets and available human resources. Generally, trails through natural areas require significantly less maintenance. Most trails are inspected on a regular basis; annually for the more remote trails, more frequently for trails that have higher use.

The following are some guidelines related to maintenance of trails in natural areas:

- Manage the vegetation along trails with the objectives of ecological protection and enhancement balanced with the provision of safe and comfortable user experiences.
- Protect and enhance vegetation, including: removal of invasive species, removal of unauthorized structures and litter, planting of native species, and blocking of redundant trails. Use coarse woody debris or other natural materials to decommission unsanctioned trails.
- Brush vegetation within the clear zone on an annual basis or as needed.
- Where the stability of tree roots have been compromised by erosion, consider creating wildlife trees instead of tree removal where possible.
- Inspect trails for erosion, braiding, or water flowing down the trail on an annual basis, and repair trails as needed to manage these conditions.
- Set up environmental monitoring sites in locations with known or potential concerns in order to quantify damage and monitor results of improvements or repairs.

## 5.0 IMPLEMENTATION



*New development and an opportunity to expand greenways*



*Encouraging walking in City Centre with enhanced pedestrian space*

### ***5.1 Implementation Methods***

Salmon Arm's greenways are at various stages of completion, and each trail has been constructed to varying levels of design and standards. Most trails exist as rustic trails which have been cleared or partially developed by trail users without consideration of formal design standards and construction practices. Some trails are well established on public land, several are currently unsanctioned routes across private land, and others are ideas at this stage, requiring land acquisition followed by trail development.

The implementation methods are different for land acquisition and trail development. An important concept for the implementation process is innovation and going beyond the minimum requirements. The City is interested in working with developers on the successful implementation of greenways and trails, recognizing the economic and many other benefits to the development project, neighbourhood and the entire community.



## Land Acquisition

Most of the proposed trails, those not yet established, require the acquisition of land. This section focuses on acquisition of private land.

There are two key methods for acquisition of land for greenways:

- City acquisition of properties or portions of properties from land owners, or
- Land dedication as part of subdivision and rezoning approvals.

The City has DCC funds allocated for parkland acquisition and improvements in the annual budget; approximately 18% of the DCCs collected for the Parks Reserve Fund are intended for greenways. Other potential methods for land acquisition are as follows:

- Greenways Reserve Fund: the City could create a specific and consistent annual fund for greenways, of which a portion would be allocated to land acquisition. Annual contributions to this fund could be derived from a variety of taxing options, a reallocation of monies from other funds, or a combination of taxation and reallocation.
- Tax Increases: although this may be challenging politically, in the community survey, a significant number of participants indicated a willingness to pay increased taxes for greenways. This could be a flat parcel tax similar to the Transportation Parcel Tax.
- Regional gas tax: consider use of the regional gas tax for regional greenways, e.g., Kelowna has made extensive use of this for trail construction.

*“The town should commit more resources to support greenway projects. All new residential developments should include a greenways and trail plan.”*  
– Survey respondent



*Trail adjacent to private property*

- Donations: donations of land for environmental conservation are encouraged by deductions allowed in the Income Tax Act, and greenways could be incorporated in those lands.
- Bequests: encourage by reaching out to landowners with suitable property.

Greenways do not necessarily require public ownership of the land. Other options include:

- Covenants: conservation covenants, with trails, can be registered against land title and held by governments or registered conservation organizations.
- Statutory rights-of-way: these can be negotiated with land owners to enable trail access.
- Leases and contract agreements: these types of agreements can outline specific conditions or time frames.

The above tools can all include limitations on liability to the land owner resulting from public use of the lands. This might include indemnification clauses written into agreements saving the landowner harmless from claims related to use of greenways. It may also include signs along trails with proposed codes of conduct for trails through private land, and notifications about the limitations on liability.

When the City is purchasing or negotiating for the use of land, it may be necessary to decide which properties to acquire for greenways. The following are some evaluation criteria:

- A greenway identified in the OCP or the Greenways Strategy, with the priority noted,
- Willingness of property owner,
- A specific acquisition and/or trail development opportunity arises,
- High level of connectivity with other portions of the trail,
- Anticipated level of use is significant,
- Property has features of interest, e.g., cultural or heritage resources, ESAs, good views, or other unique characteristics,
- Property has opportunity to support related infrastructure, e.g., trail head, viewpoint, park facilities,
- Public supports the acquisition (if known),
- Potential for a funding partnership is available, e.g., regional district, developer, community group, bequest,
- Cost is low compared to the property value,
- Property has a high potential to be sold for development making it unlikely to be available in the future.

The Greenways Strategy strongly recommends taking an innovative and proactive approach to working with landowners and developers on the acquisition of greenways, stressing the multiple benefits rather than using specific regulations or requirements. However, there will be situations when the use of policies and regulatory tools will be necessary to acquire greenways. The following are some potential strategies for acquisition:

- Where the Greenways Strategy indicates a greenway through a private property, secure, where possible, a minimum 3 metre, preferably 10 metre wide land dedication or statutory right-of-way for public access, to be negotiated with the developer.
- The City's Approving Officer may implement the Greenways Strategy by requiring the dedication of either parkland or highways without compensation, for both fee simple and bare land strata subdivisions.
- In order to achieve the above, the City's Subdivision and Development Servicing Bylaw should be updated to reflect the Greenways Strategy.
- Council may make it a condition of rezoning for all types of development, including single family residential, that required trail corridors be dedicated to the City without compensation. A policy supporting this statement is proposed for the new OCP.
- Parkland and public access dedication requirements may be imposed over and above any requirements for environmental setbacks.
- The development permit approval process offers no opportunity to require the dedication of land for parks or public access without compensation; however, land dedication or right-of-way may be negotiated between the landowner and the City as noted above.
- Updated density bonusing policies should be considered and proposed for the new OCP and for the City's Zoning Bylaw. Under Section 904 of the Local Government Act, an increase in density (either dwelling units or lots) may be permitted in exchange for amenities such as greenways and trails.

### Trail Development

The following are recommendations related to the planning, management and implementation of trail development:

- Establish a specific and consistent Greenways Reserve Fund as an annual fund for greenways, of which a portion would be allocated to trail development. Annual contributions to this fund could be derived from a variety of taxing options, a reallocation of monies from other funds, or a combination of taxation and reallocation.

## 5.0 Implementation

- Pursue corporate support and partnerships to finance trail development, along with a method to acknowledge their support, e.g., trail brochure could list corporate donors and partners,
- Work closely with First Nations on trail opportunities on Indian Reserve land,
- Continue to pursue grants for trail construction,
- Continue to support the STA and other volunteer groups on grant proposals.
- Work with trail users to ensure that they recognize that lines on the map do not provide the right to build trails, since illegal activities can hamper opportunities for legitimate trails,
- Coordinate RAR assessments for efficiency when several trails are scheduled for development.

A significant amount of work on the planning and design of trails has been undertaken by volunteer groups. City staff assists when they can; however, no one person or department at the City has specific responsibility for greenways planning, budgeting, design, trail construction and maintenance.

A City staff person with sole responsibility for parks and greenways planning and development would be a significant asset in helping to implement the Greenways Strategy. This person could work in collaboration with CSRD trail planning staff.

*“You need to make certain you have long range funding in place to maintain the trails once you build them.”  
– Survey respondent*



*Trail erosion*



*Trail in hydro right-of-way*

## Trail Maintenance

Trails and paths must be properly maintained; therefore the City needs to ensure that any built greenways can be adequately maintained. Currently, the City maintains paths within parks and the urban area. One opportunity is to replace drain grates on bike routes with the new bike-friendly design.

Volunteers are conducting most of the maintenance on the trails through natural areas. An established arrangement is required for trail maintenance in natural areas. The following are some options:

- Contract out a proportion of trail maintenance, and provide a budget for that task,
- Arrange for one agency in the region to maintain trails, e.g., CSRD, with the other agencies assisting with funding proportionately,
- Establish maintenance standards for trails, and increase the responsibilities (and budget) of City parks staff to take on that task.

## 5.2 Costs

Building greenways involves construction of the trail surface itself. There is also a significant amount of infrastructure that is required, especially at trail heads, rest areas, and viewpoints, potentially including: fences, bollards, railings, waste containers, signs, benches, washrooms, parking lots, drainage, lighting, and planting or restoration of vegetation.

Most infrastructure is required for a Type 1 trail; however, some of that infrastructure, e.g., lighting and/or concrete paving, may be provided within other budgets for capital works projects at the discretion of Council.

The 2010 unit costs (Figure 5.1), which require verification with local contractors, can be used to determine trail construction costs. These are “market” costs for contractor work; the use of volunteers and material donations can substantially reduce total costs. Costs can also vary widely based on access and site-specific conditions.

## 5.0 Implementation

Item	Unit	Unit Cost
Clearing & grubbing (machine, not much vegetation)	m <sup>2</sup>	\$1
Clearing & grubbing (by hand due to access or significant vegetation)	m <sup>2</sup>	\$3
Disposal (where necessary)	m <sup>2</sup>	\$2
Subgrade establishment (machine)	m <sup>2</sup>	\$3
Aggregate base - 150mm thickness, 19 mm minus, 95% MPD	m <sup>2</sup>	\$20
Aggregate surface - 50mm depth crusher chips	m <sup>2</sup>	\$14
Asphalt 50mm thick	m <sup>2</sup>	\$40
Concrete - 100mm thick	m <sup>2</sup>	\$75
Stamped coloured concrete - 100mm thick, 2 colours/texture	m <sup>2</sup>	\$140
Trash container - basic quality, secured to steel post	each	\$800
Trash & recycling containers - std park quality, on concrete pad w base	each	\$1,500
Trash & recycling containers - urban quality, on concrete pad w base	each	\$1,800
Pathway lighting - std park quality, incl fixture, conduit, pole, base	each	\$2,500
Pathway lighting - urban quality, incl fixture, conduit, pole, base	each	\$3,200
Benches - 1.8m length, basic quality, in concrete footings	each	\$1,000
Benches - 1.8m length, std park quality, on concrete pad w base	each	\$1,600
Benches - 1.8m length, urban quality, on concrete pad w base	each	\$2,200
Bollards - basic quality (wood)	each	\$400
Bollards - std park quality	each	\$800
Bollards - urban quality with light	each	\$1,800
Seed to restore disturbed path edge	m <sup>2</sup>	\$4
Sign - small	each	\$100
Sign - medium	each	\$500
Sign - large	each	\$1,000

**Figure 5.1: Trail Construction Unit Costs 2010**

Costs were calculated for each of the trail types, based on average design standards and infrastructure (Figure 5.2). These costs do not include land acquisition, or costs associated with geotechnical and environmental challenges since those costs can vary greatly depending on location and circumstances. The costs in this section include most of the associated infrastructure whereas the minimum costs calculated in section 5.3 include the trail surface only, except for the Type 1 Path.

### Type 1 Path

DESCRIPTION OF WORK *	UNIT	QTY.	UNIT COST	SUB-TOTAL
Clearing & grubbing	m <sup>2</sup>	4	\$3	\$12
Subgrade establishment	m <sup>2</sup>	4	\$3	\$12
Aggregate base	m <sup>2</sup>	4	\$20	\$80
Stamped coloured concrete with concrete for accessibility	m <sup>2</sup>	4	\$140	\$560
Trash & recycling containers . . . urban quality, on concrete pad w base	4/100m	0.04	\$1,800	\$72
Pathway lighting . . . urban quality, incl fixture, conduit, pole, base	5/100m	0.05	\$3,200	\$160
Benches . . . 1.8m length, urban quality, on concrete pad w base	5/100m	0.05	\$2,200	\$110
Bollards . . . urban quality	10/100m	0.1	\$1,800	\$180
Signs - medium	4/100m	0.04	\$500	\$20
<b>SUB-TOTAL</b> per length of trail section :			\$1,206	
Contingency (% of sub-total) :			15%	\$181
Consulting fees (% of sub-total) :			10%	\$121
<b>TOTAL COST</b> per lineal metre :			<b>\$1,508</b>	

\* Assumptions: trail width 4 m, does not include: elevated promenade, any items not listed above

### Type 2 Trail

DESCRIPTION OF WORK *	UNIT	QTY.	UNIT COST	SUB-TOTAL
Clearing & grubbing	m <sup>2</sup>	2	\$3	\$6
Subgrade establishment	m <sup>2</sup>	2	\$3	\$6
Aggregate base	m <sup>2</sup>	2	\$20	\$40
Aggregate surface	m <sup>2</sup>	2	\$14	\$28
Trash & recycling containers . . . std park quality, on concrete pad	2/100m	0.02	\$1,500	\$30
Benches . . . 1.8m length, std park quality, on concrete pad w base	3/100m	0.03	\$2,200	\$66
Bollards . . . std park quality	6/100m	0.06	\$800	\$48
Signs - medium	3/100m	0.03	\$500	\$15
<b>SUB-TOTAL</b> per length of trail section :			\$239	
Contingency (% of sub-total) :			15%	\$36
Consulting fees (% of sub-total) :			10%	\$24
<b>TOTAL COST</b> per lineal metre :			<b>\$299</b>	

\* Assumptions: trail width 2 m, gravel surface, does not include any items not listed above

## Type 3 Trail

DESCRIPTION OF WORK *	UNIT	QTY.	UNIT COST	SUB-TOTAL
Clearing & grubbing	m <sup>2</sup>	1	\$3	\$3
Trash & recycling containers . . . basic quality	1/100m	0.01	\$800	\$8
Benches . . . 1.8m length, basic quality, 1n concrete footings	1/100m	0.01	\$1,000	\$10
Bollards . . . basic quality	2/100m	0.02	\$400	\$8
Signs - one large, one small	2/100m	0.02	\$1,100	\$22
<b>SUB-TOTAL</b> per length of trail section :				\$51
Contingency (% of sub-total) :			15%	\$8
Consulting fees (% of sub-total) :			10%	\$5
<b>TOTAL COST</b> per lineal metre :				<b>\$64</b>

\* Assumptions: trail width 1 m, mineral soil surface, does not include any items not listed above

## Type 4 Trail

DESCRIPTION OF WORK *	UNIT	QTY.	UNIT COST	SUB-TOTAL
Clearing & grubbing	m <sup>2</sup>	0.6	\$3	\$1.80
Trash & recycling containers . . . basic quality	1/200m	0.005	\$800	\$4
Bollards . . . basic quality	1/100m	0.01	\$400	\$4
Signs - one large, one small	2/100m	0.02	\$1,100	\$22
<b>SUB-TOTAL</b> per length of trail section :				\$32
Contingency (% of sub-total) :			15%	\$5
Consulting fees (% of sub-total) :			10%	\$3
<b>TOTAL COST</b> per lineal metre :				<b>\$40</b>

\* Assumptions: trail width 0.6 m, mineral soil surface, does not include any items not listed above

## Type 5 Trail

DESCRIPTION OF WORK *	UNIT	QTY.	UNIT COST	SUB-TOTAL
Clearing & grubbing	m <sup>2</sup>	0.3	\$3	\$0.90
Trash & recycling containers . . . basic quality	1/400m	0.0025	\$800	\$2
Bollards . . . basic quality	1/200m	0.005	\$400	\$2
Signs - one small	1/100m	0.01	\$100	\$1
<b>SUB-TOTAL</b> per length of trail section :				\$6
Contingency (% of sub-total) :			15%	\$1
Consulting fees (% of sub-total) :			10%	\$1
<b>TOTAL COST</b> per lineal metre :				<b>\$7</b>

\* Assumptions: trail width 0.3 m, rough natural surface, does not include any items not listed above



**Type 6 Roadside Corridor**

DESCRIPTION OF WORK *	UNIT	QTY.	UNIT COST	SUB-TOTAL
Clearing & grubbing	m <sup>2</sup>	<b>2</b>	<b>\$3</b>	\$6
Subgrade establishment	m <sup>2</sup>	<b>2</b>	<b>\$3</b>	\$6
Aggregate base	m <sup>2</sup>	<b>2</b>	<b>\$20</b>	\$40
Concrete - 100mm thick	m <sup>2</sup>	<b>2</b>	<b>\$75</b>	\$150
Trash & recycling containers . . . std park quality, on concrete pad	1/100m	<b>0.01</b>	<b>\$1,500</b>	\$15
Benches . . . 1.8m length, std park quality, on concrete pad w base	2/100m	<b>0.02</b>	<b>\$2,200</b>	\$44
Bollards . . . std park quality	6/100m	<b>0.06</b>	<b>\$800</b>	\$48
Signs - medium	3/100m	<b>0.03</b>	<b>\$500</b>	\$15
<b>SUB-TOTAL</b> per lineal metre:				\$324
Contingency (% of sub-total) :			15%	\$49
Consulting fees (% of sub-total) :			10%	\$32
<b>TOTAL COST</b> per lineal metre :				<b>\$405</b>

\* Assumptions: trail width 2 m, concrete surface, does not include lighting (part of road) or any items not listed above

**Figure 5.2: Estimated Greenway Type Costs 2010**

**5.3 Phasing Plan**

The Greenways Strategy presents a long-term vision for the City’s trail, path and roadside corridor network. The strategy is supported by a phasing plan that establishes higher, medium and lower priorities for implementation. Implementing greenway projects is subject primarily to City funding, supplemented by other sources of funding as identified in section 5.4.

The adoption of this strategy does not commit current or future City Councils to any set budget or timing for greenways projects. At a minimum; however, it is expected that the Greenways phasing plan will be considered by Councils in short and long-term financial plans, the DCC Bylaw, and at annual budget deliberations.

The phasing plan was prepared based on the following criteria:

- Focus on acquiring land and developing key trail linkages, and securing land dedications or rights-of-way for roadside corridor development;
- Focus on existing corridors where land may be available, but where trails and roadside corridors are neither developed to a proposed standard nor formally recognized;

## 5.0 Implementation

- Focus on linkages from forest to lake, neighbourhood to neighbourhood, and neighbourhoods to City Centre (e.g., overcoming the topography along the “urban ridge”);
- Focus on preserving ecological corridors to support uninterrupted wildlife travel routes and protection of wildlife habitat;
- Focus on universally accessible trails within the City Centre, and other urban areas where possible;
- Focus on routes to or within destination areas and corridors with tourist appeal; and
- Consider public input received from three open houses held during the latest OCP review.

Priorities for phasing are categorized based on ideal time frames for completion of the various greenway projects (see Map 3):

- Short Term: Ideally completed within a time frame of 5 years
- Medium Term: Ideally completed within a time frame of 10 years
- Long Term: Ideally completed within a time frame of 25 years
- Future Consideration: Greenways identified on Map 3 that are not categorized as short, medium or long term priority are still considered to be priorities for future consideration.

Figure 5 illustrates the potential minimum costs associated with developing each greenway type within each phase. Cost estimates per metre do not include land acquisition or costs associated with geotechnical, grading or environmental challenges. Except for Type 1 paths, the estimates in this section do not include costs for any of the trail or roadside corridor infrastructure itemized in section 5.2. The Type 6 Roadside Corridor assumes a concrete surface; however, the surface may be asphalt or gravel (which are significantly less expensive), depending on location and budget constraints.

Approximately 63 kilometres of the greenways are proposed for development within 25 years, at a minimum cost of \$14.4 million. Most of that (80%) is comprised of Type 6 roadside corridors, at 38 kilometres or 60% of the total network. Only 7% is allocated to trail development (i.e., Types 2, 3 and 4). There are no Type 5 trails; however, this category was retained to make provision for this type of trail in the future.

**Short Term Priority**

Greenway Type	Length in Metres	Minimum Development Cost per Lineal Metre	Minimum Project Cost
1	1,056	\$1,500	\$ 1,584,000
2	6,242	\$80	\$ 499,360
3	5,850	\$20	\$ 117,000
6	1,874	\$300	\$ 562,200
Total Length	<b>15,022</b>	Estimated Minimum Cost	<b>\$ 2,762,560</b>

**Medium Term Priority**

Greenway Type	Length in Metres	Minimum Development Cost per Lineal Metre	Minimum Project Cost
1	259	\$1,500	\$ 388,500
2	2,191	\$80	\$ 175,280
3	4,570	\$20	\$ 91,400
6	12,047	\$300	\$ 3,614,100
Total Length	<b>19,067</b>	Estimated Minimum Cost	<b>\$ 4,269,280</b>

**Long Term Priority**

Greenway Type	Length in Metres	Minimum Development Cost per Lineal Metre	Minimum Project Cost
2	1,546	\$80	\$ 123,680
3	2,460	\$20	\$ 49,200
4	818	\$10	\$ 8,180
6	24,035	\$300	\$ 7,210,500
Total Length	<b>28,859</b>	Estimated Minimum Cost	<b>\$ 7,391,560</b>

Figure 5.3: Estimated Greenway Costs by Phase

In addition to the projects noted above, the Greenways Strategy includes the following projects:

- Implementation of the South Canoe Trail Management Plan, and
- Preparation of a Mount Ida Trail Management Plan.

## 5.4 Next Steps

Implementing the Greenways Strategy will involve significant time and City resources, yet it will result in major benefits to the community. It is not the intent of this strategy to suggest that all of the recommended steps be taken at once or in any particular order. It is anticipated that the GLC and City staff will recommend to Council, on an annual basis, which step or steps should be put into action.

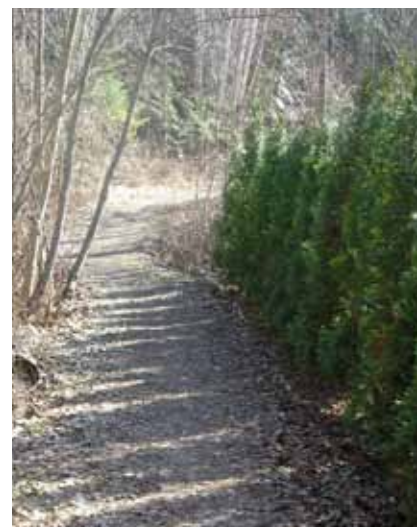
### Recommendations

1. Incorporate the Greenways Strategy into the new OCP, including in the OCP new and updated policies related to the acquisition and development of greenways.
2. Using the Greenways Strategy as a basis for cost estimates, incorporate capital planning for trail, path and roadside corridor development into relevant City bylaws and annual budgets.
3. Ensure that annual budgets and capital works planning are consistent with the Greenways Strategy.
4. Establish a Greenways Reserve Fund to be used for greenway planning, design, development, maintenance, and land acquisition.
5. Explore ways to increase revenue for greenways acquisition and development, such as implementing a parcel tax and using a portion of federal gas tax funds.
6. Update the SDS Bylaw to include requirements and design standards related to trails, paths and roadside corridors for active / alternative transportation.

*“The careful implementation and upgrading of trails, sidewalks and bike paths would help not only accessibility but tourism as well.”  
– Survey respondent*



*Access to businesses*



*Finding trail routes*

7. Establish or confirm City department and staff responsibilities for administering the recommended Greenways Reserve Fund; and consider contracting out specialized planning, technical design and construction services for Greenways Strategy implementation.
8. Prepare a policy for formally naming existing and proposed greenways, and then assign formal names to trails and paths.
9. If a comprehensive ecological inventory becomes available, use it to assist in the selection of greenway corridors to protect significant ecological resources.
10. Prepare a dog management strategy for paths, trails and roadside corridors.
11. Encourage developers to appropriately locate and construct greenways, incorporating greenway negotiations into the development planning and approval processes.
12. Establish incentives for developers and property owners to offer land for greenway development.
13. Prepare a variety of mapping, educational and communication materials suitable for the promotion of greenways, and reach out to community trail building and stakeholder groups with those materials.
14. Develop consistent design templates for viewpoints, rest areas, fences, railings, barriers, interpretive signs and other infrastructure.
15. Undertake detailed planning, design and construction with respect to the priority greenways outlined in Section 5.3.
16. Plan for larger projects such as implementation of the South Canoe Trail Management Plan and undertaking a comprehensive trail and access plan for Mount Ida.

## 5.5 Conclusion

Implementing the Greenways Strategy will require significant capital, operations and staff resources and the ongoing commitment of the City. It must continually be stressed that there is very high public interest and support for greenways and trails. Numerous ecological, social and economic benefits are derived from greenways for relatively low cost, especially compared to other recreational amenities. Ultimately, a well planned and constructed greenway network will become an integral part of the City's transportation system.

# RESOURCES

Gross, Michael, Zimmerman, Ron, and Buchholz, Jim. *Signs, Trails, and Wayside Exhibits: Connecting People and Places, 3<sup>rd</sup> Edition*. Stevens Point, Wisconsin: UW-SP Foundation Press, Inc., 2006.

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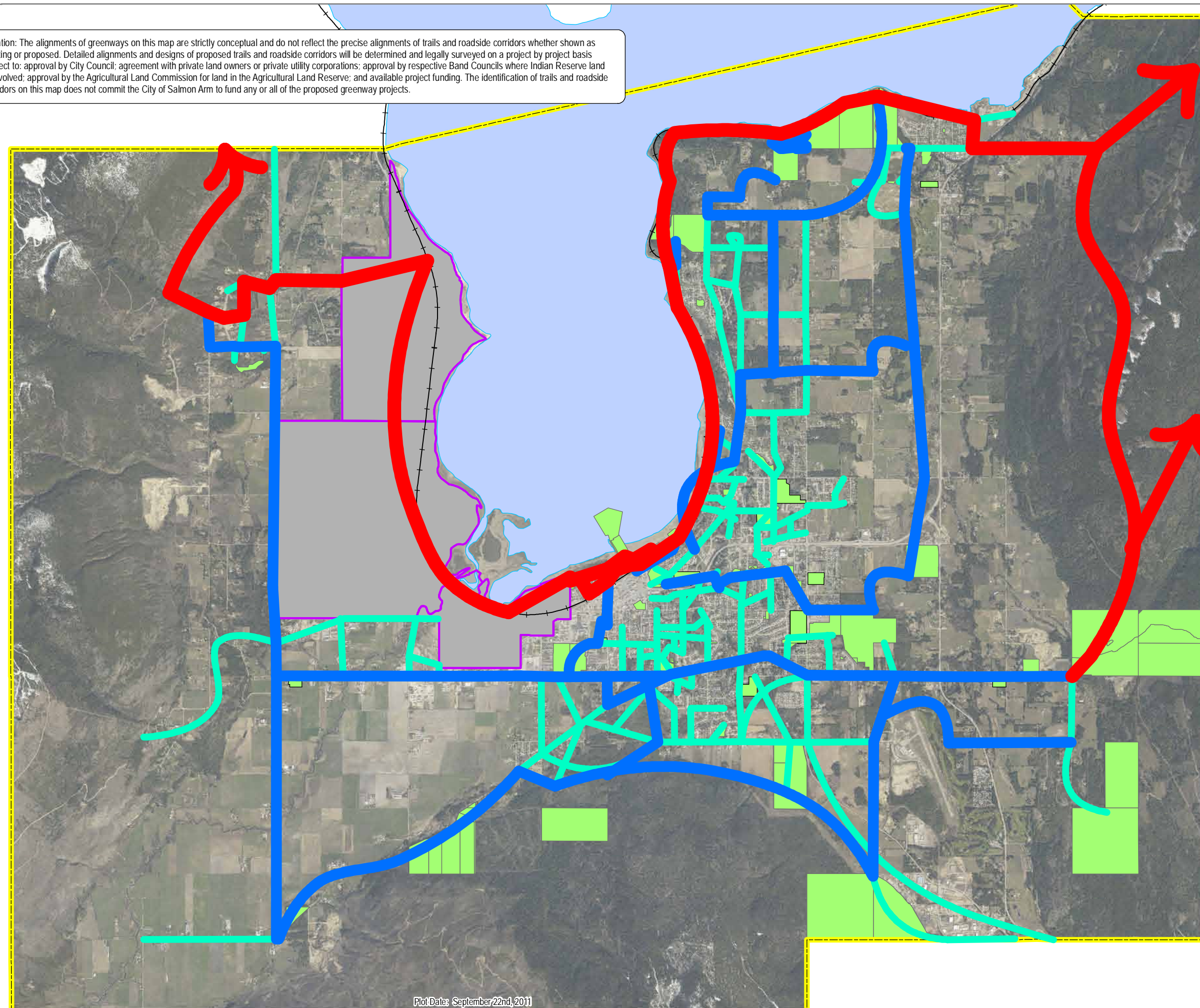
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Map 1: Role of Greenways

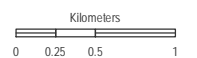
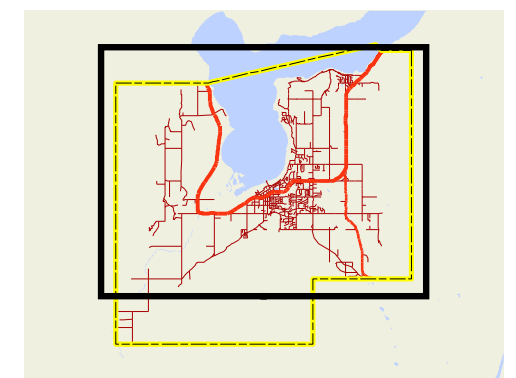
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Legend

-  Regional Connector
-  Community Connector
-  Neighbourhood Connector
-  Parks, Open Space & Schools
-  City Boundary
-  Indian Reserves

Key Map



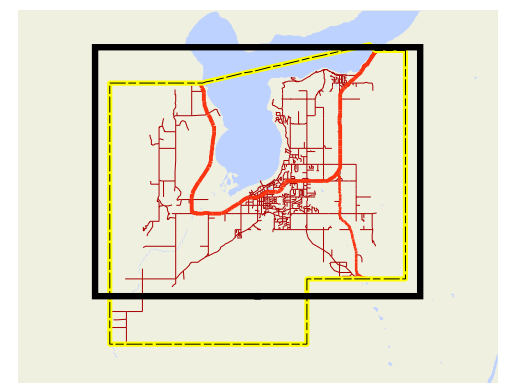
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## Map 2: Existing and Proposed Greenways

### Legend

-  Major Urban Connection - Existing Type 1
-  Major Urban Connection - Proposed Type 1
-  Multi-use Connector - Existing Type 2
-  Multi-use Connector - Proposed Type 2
-  Natural Area or Park - Existing Type 3
-  Natural Area or Park - Proposed Type 3
-  Lower Use Natural Area - Existing Type 4
-  Lower Use Natural Area - Proposed Type 4
-  Roadside Corridor - Proposed Type 6
-  Proposed Community Park (Approx. Location)
-  Proposed Neighbourhood Park (Approx. Location)
-  Community Park
-  Neighbourhood Park
-  Open Space
-  Indoor Recreation Facilities
-  Schools
-  Agricultural Land Reserve
-  City Boundary
-  Indian Reserves
-  Parcels

### Key Map

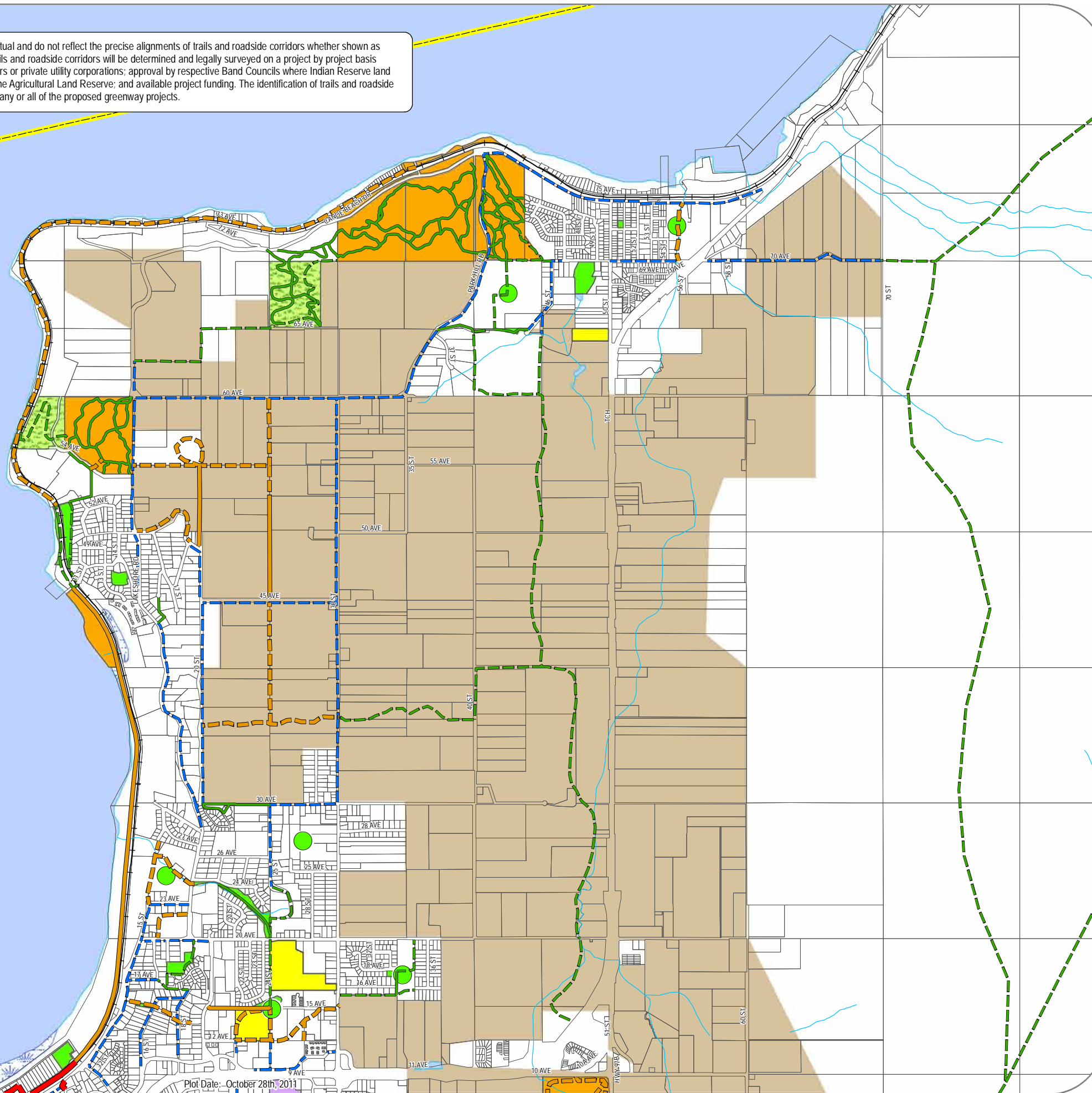


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**Map 2: Existing and Proposed Greenways**

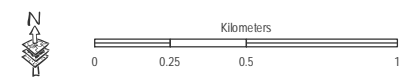
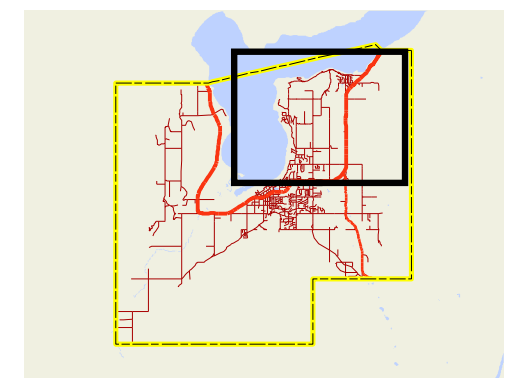
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**Legend**

-  Major Urban Connection - Existing Type 1
-  Major Urban Connection - Proposed Type 1
-  Multi-use Connector - Existing Type 2
-  Multi-use Connector - Proposed Type 2
-  Natural Area or Park - Existing Type 3
-  Natural Area or Park - Proposed Type 3
-  Lower Use Natural Area - Existing Type 4
-  Lower Use Natural Area - Proposed Type 4
-  Roadside Corridor - Proposed Type 6
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**Key Map**



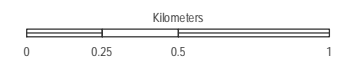
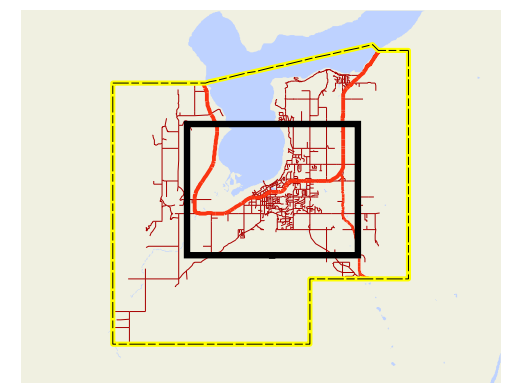
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#### Legend

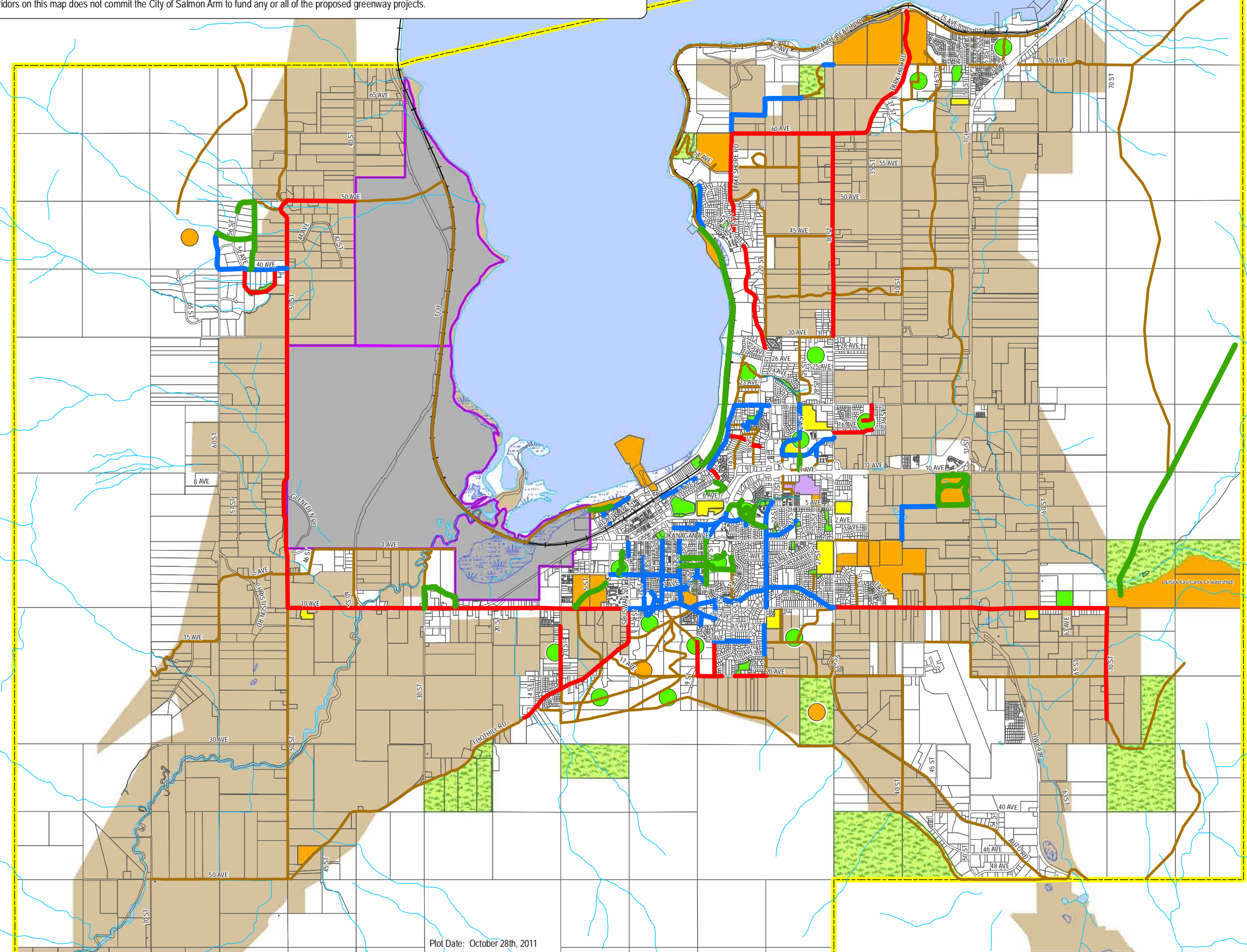
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#### Key Map



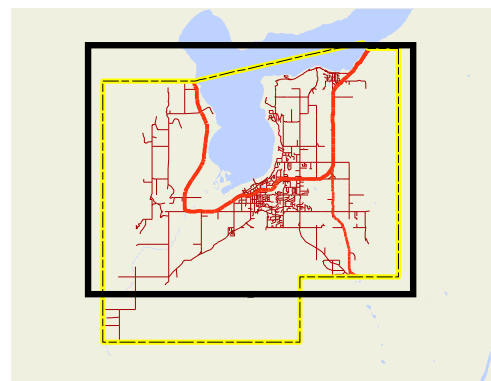
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Map 3: Greenway Priorities



- Legend**
- Short Term (within 5 years)
  - Medium Term (within 10 years)
  - Long Term (within 25 years)
  - Priority for Future Consideration
  - Proposed Community Park (Approx. Location)
  - Proposed Neighbourhood Park (Approx. Location)
  - Community Park
  - Neighbourhood Park
  - Open Space
  - Indoor Recreation Facilities
  - + Schools
  - Agricultural Land Reserve
  - + City Boundary
  - Indian Reserves
  - Parcels

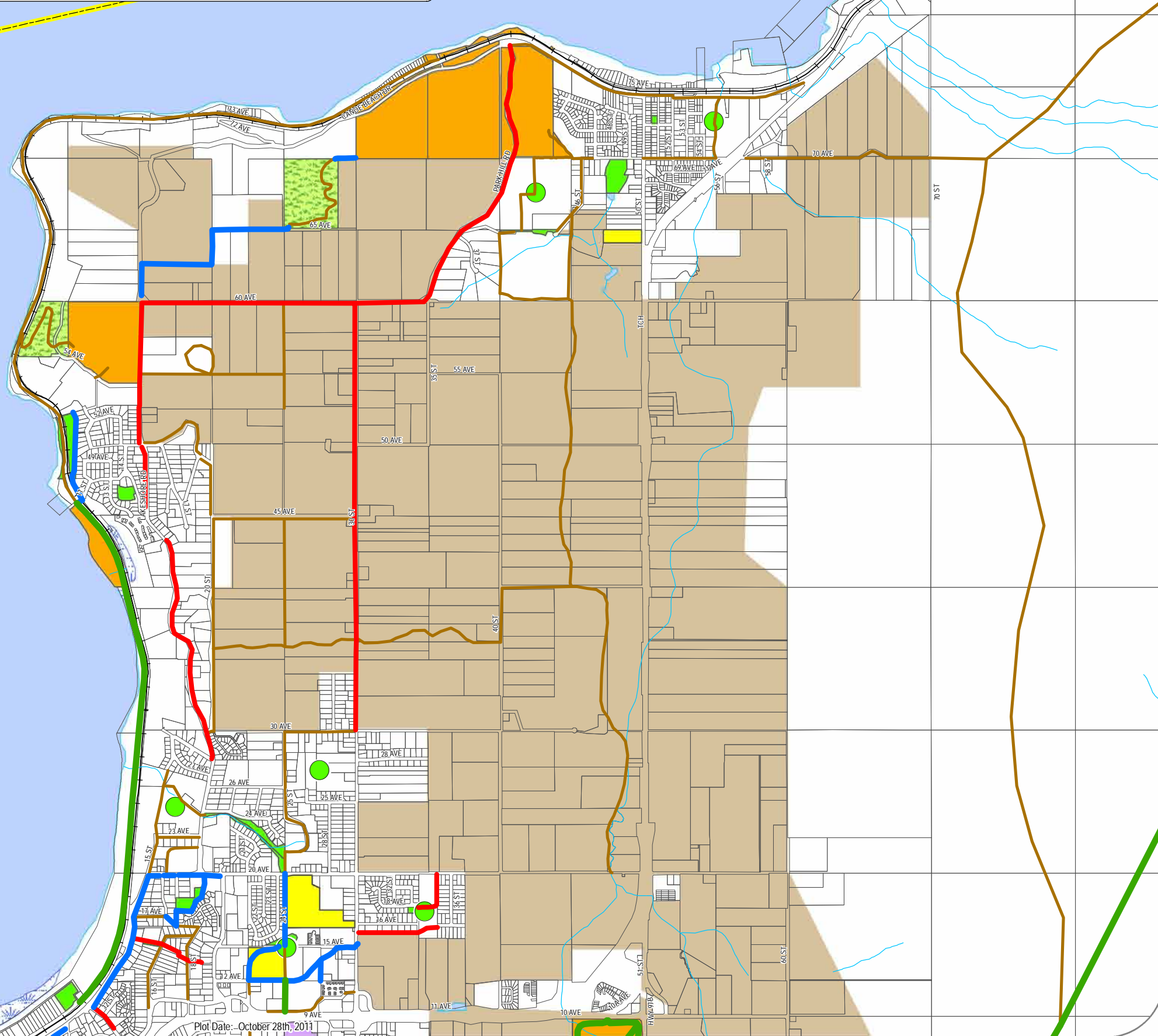
Key Map



Plot Date: October 28th, 2011

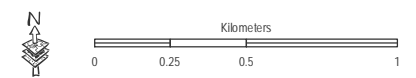
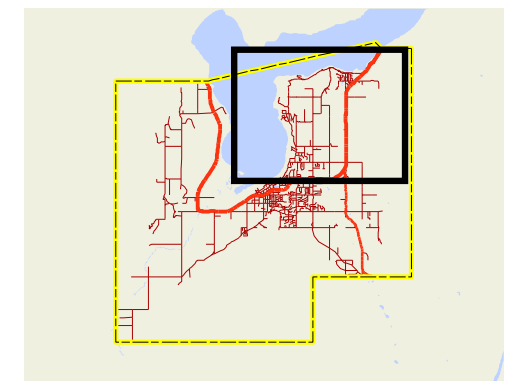
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- Legend**
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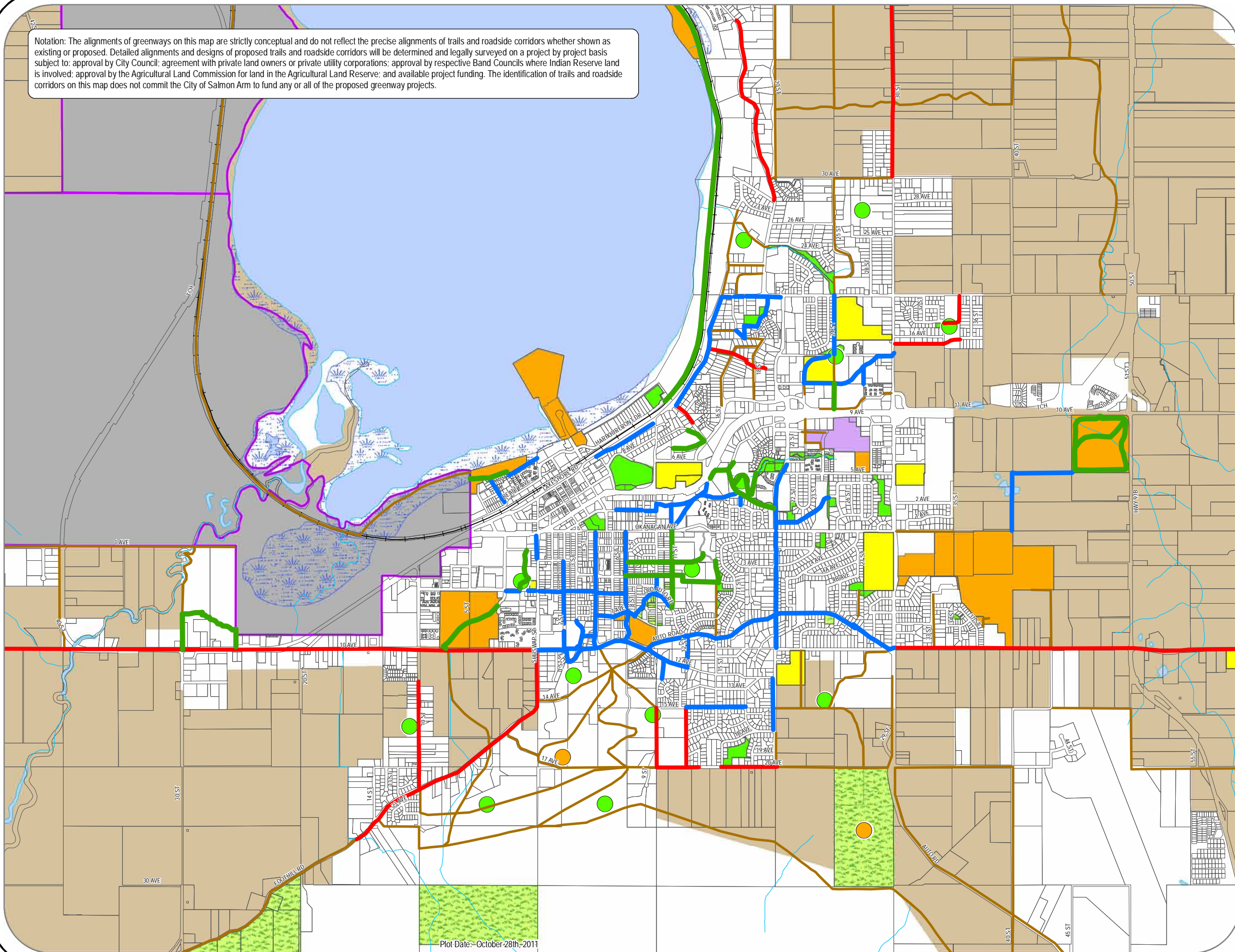
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