Magrath Regional Trails Master Plan

Adopted: December 2017

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ACKNOWLEDGEMENTS

Cardston County Resolution No. 646.17, December 11, 2017
Town of Magrath Resolution No. 2017-12-03, December 12, 2017

"That Council adopt the Magrath Regional Trails Master Plan and initiate an amendment process to recognize the Plan in the existing Cardston County and Town of Magrath Intermunicipal Development Plan."

The following people are thanked for their assistance and contribution to the development and publishing of this Plan:

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EXECUTIVE SUMMARY

- This plan envisions a peripheral trail network around and within the Town of Magrath, reflecting an enduring commitment to connecting people of all ages with the outdoor environment, providing new recreational opportunities, and offering an alternative transportation option. The total length of all trails envisioned on the Master Map is nearly 27 km.

- This plan sets forth recommendations for the location, design, maintenance, marketing and most every matter related to trails (often referred to as pathways) and includes an examination of the policy and planning context applicable to trails development.

- This plan does not contain detailed construction plans or specific design recommendations. Detailed site design must take place in order to avoid costly maintenance and/or reconstruction in the future.

- The Master Map (see Appendix B.1) presents a preferred route for the trail but should be referenced alongside the individual sector maps and sector analysis charts to ensure that all relevant information including land acquisition recommendations and routing opportunities/ constraints are understood.

- Highway crossing agreements have been approved by Alberta Transportation on September 19, 2017 (see Appendix E). Should the Town/County desire lighting, signage or any other feature related to the highway crossings, they would need to apply for a roadside development permit and receive approval from Alberta Transportation for the same.

- This plan is not a statutory plan. However, it is recommended that the respective Councils of the Town and County formally recognize this plan in the Intermunicipal Development Plan and their respective Municipal Development Plans.

- The realization of this plan requires an ongoing joint commitment to implementation. As such, this plan should be distributed and remain on the radar of the decision making bodies in the Town and the County, including the respective subdivision and development authorities, subdivision and development appeal boards, and Councils.

- It is suggested that the Magrath & District Recreation Committee continue to oversee the planning, development and management of the growing trail network.

PREFACE

In 2015 the Town of Magrath, with the support of Cardston County, secured grant funding under the Alberta Community Partnership program to facilitate the preparation of a Trails Master Plan for the lands lying within and adjacent to the corporate boundary of the Town of Magrath. These are lands that are critically important environmentally and from a land use planning perspective. The preliminary visioning of this project realized the opportunity for a trail network to weave the unique historical, social and natural fabrics of the region with a complementary recreational experience – building on the success of the existing Galt Canal Nature Trail (existing trail) that straddles the Town/County border in the southwest area of Magrath. Collaborative leadership, in the spirit of intermunicipal cooperation, allowed this plan to come to fruition.

Looking south at Galt Canal Nature Trail sign off of Highway 62

What Is A *Trails Master Plan*?

The master planning process is designed to bring the technical aspects of trails (also referred to as pathways in an urban setting) design together with the needs of the community/region and the physical features of the study area. A trail system must be viewed as a part of the entire community recreation facility profile – providing a passive recreation experience complementary to more organized recreation opportunities and capital intensive facilities. Good master plans are flexible, and have involved the community and stakeholders from the onset of the project, giving the plan a legitimate foothold and a better chance of coming to fruition. Still, regardless of the various recommendations that will be found in this plan, funding, land acquisition and other constraints will ultimately dictate where, when and how the trail will be constructed and managed. Although relatively well understood at this time, user trends and expectations may change, which will also have an effect on how the trail network materializes.

Use of This Document

This document is intended to be used throughout the trails planning and development process. Lands earmarked for trails development must be on the radar of the relevant approving authorities. Therefore, this document will need to be regularly referenced by the Councils, Subdivision and Development Authorities and Subdivision and Development Appeal Boards of the Town and County as they go about their business and conduct their duties. Landowners, developers and other stakeholder groups should be informed of the Plan's content as it relates to their lands or area of interest.

Looking south at the Pothole Creek valley just off of Highway 62 in Cardston County

PART 1: Introduction

1.1 Community Profiles

The *Town of Magrath* lies approximately 38 km south of the City of Lethbridge, and is home to 2,374 persons (2016 census) within a 4.97 km² corporate boundary. The Town is an agricultural community whose unique origins come from the convergence of the Mormon settlement practices and English financial backing – allowing it to rightfully lay claim to titles like "Irrigation Capital of Canada," and "Garden City."

Cardston County occupies an expansive 3,414 km² in beautiful southwestern Alberta and holds a population of 4,481 (2016 census). The County prides itself as the "Heart of the Southwest," a place where miles and miles of open ranges and fertile valleys are connected by lush ranch lands, wandering cattle, fields of wheat and family farms rooted in a century of pioneering spirit, tradition and values.

***Community Vision Statement**: To promote, protect and beautify Magrath, making it the home town of choice for families and businesses*

Town of Magrath Integrated Community Sustainability Plan

Croplands within Cardston County adjacent to the outer loop of the Galt Canal Nature Trail

1.2 Vision

The point of a plan is to "think big" while staying attached to reality and having regard for foreseeable obstacles. With the aim of providing clear direction for trails planning and development, the vision for this project is as follows:

> ***Vision Statement***
>
> *To provide a multi-use trail network for the benefit of the Town of Magrath and surrounding region, thereby facilitating the maintenance and growth of a vibrant, healthy community. The trail will serve (at least to some extent) to delineate the community's urban boundary by providing a peripheral greenbelt system as envisioned by the utopian "Garden City" model on which the community was founded on. The trail's primary function will be for recreational use but the trail's purpose will be two-fold: to provide a picturesque recreational experience & to offer interpretive elements that commemorate the unique human and natural history of the Town and surrounding region; thereby serving the residents of the Town and immediate region but also attracting non-residents and facilitating tourism.*

1.3 Steering Committee

The Trails Committee, consisting of 7 members and including 2 Town Council representatives, oversaw the formation of this plan. Starting from the ground up with the establishment of a terms of reference and basic visioning exercises, to the refinement of a draft plan. The committee's efforts included multiple field visits, review of landowner and stakeholder surveys and written submissions, and public consultation exercises.

The Trails Committee is a sub-committee of the Magrath & District Recreation Committee, who is incorporated under the Alberta Societies Act. The Rec Committee was formed in 2011 to promote recreation in the region and is comprised of both Town and County elected officials and members at large.

Looking east at existing trail south of Covered Wagon RV Park

1.4 Guiding Principles

The plan was developed under the guise of the following principles for trails planning and development. These principles provide a qualitative framework for evaluating different routes, designs, challenges and opportunities, and should be referenced as the multiple phases of the plan unfold.

1. *Trails Are Widely Accessible*

Objectives to achieve principle:

- Serve a wide range of interests
- Provide a diverse experience
- Are accessible to all age groups

2. *Safety Is a Paramount Concern*

Objectives to achieve principle:

- Clear and consistent signage
- Design to facilitate safe usage and mitigate against trespassing and crime
- Consistent maintenance for safe passage

3. *All Trails Are Connected*

Objectives to achieve principle:

- Make trail network accessible within 5 minute walk of all neighbourhoods
- Provide for continuous (no dead-ends) looping
- Provide key linkages to amenities and destination areas where possible

4. *Trails Are a Valued Community Asset*

Objectives to achieve principle:

- Educate the community on trail etiquette and use
- Promote the trail as a destination for non-residents
- Create opportunities for support of the trail through sponsorship and partnership programs

1.5 Key Goals & Objectives

This plan is designed to explore and achieve the following goals and objectives:

1. Analyze the existing trail network;
2. Evaluate recreation trends and trails development best practises and apply results to the plan;
3. Identify user groups and conduct needs assessment;
4. Establish and critically evaluate a primary route;
5. Engage the public and stakeholders in the planning process to ensure the voice of users is heard and incorporated into the decision making process;
6. Identify land acquisition methods and opportunities;
7. Establish guidelines for trail development and appurtenances thereto including signage and related amenities;
8. Identify funding strategies and implementation strategies with regard for capital budget constraints;
9. Provide recommendations for maintenance and management;
10. Identify measures to promote the trail system from an economic development and tourism attraction point of view.

April 11th, 2016 trails plan open house/info session

1.6 Stakeholder & Public Consultation

The success of this project was largely dependent on a public consultation process geared towards accessible and meaningful public participation and input.

<u>Public Consultation Highlights</u>

Landowner & Stakeholder Letter – January 18, 2016

- General letter advising of plan preparation process and soliciting comments and feedback on the project. Sent to 88 landowners with property adjacent to any contemplated or logical routes and to stakeholder groups.

Open house – April 11, 4-8pm, Town of Magrath Office

- General information session presenting findings to date including plan principles, trails development best practices, tentative trail route etc. and soliciting comments and dialogue from the public. Approximately 35 attendees. Presentation materials were advertised on the Town website afterwards.

Focused Landowner Letter – April 29, 2016

- Detailed letter advising of route options and preferences adjacent to land owned by the recipient along with a map illustrating the same. Sent to 49 landowners.

Preliminary trails route map displaying comments from open house attendees

Survey – January to June 2016

- 10 question online trail user survey including questions on trail use frequency, timing and duration, trail user types and comments on improvements and amenities. The survey was advertised through the Town and County websites and on all mail correspondence sent to landowners and stakeholders. 41 responses were collected. See Appendix D for summarized results.

Focused Landowner Letter – April 20, 2017

- Detailed letter to Sector 9 landowners explaining project and advising of route options and preferences along with a map illustrating the same. Sent to 16 landowners.

PART 2: Taking Stock

2.1 Trail & Recreation Trends

Trails are fast becoming essential components in community design and the enthusiasm for trails and support for opportunities they create is growing rapidly. The increasing availability of trails across Alberta will give rise to increased demand for them, as people come to expect to find them everywhere and integrate them into their recreational habits.

For a trail network to be successful it must emphasize unique local conditions so to produce a memorable reflection of the area and/or to provide an efficient practical purpose. The purpose of a trail is typically a combination of commuter/transportation and recreation. Trails that provide a primary recreation oriented experience are well suited to small/rural centres where a commuter oriented trail is unlikely to gain a foothold due to deeply entrenched transportation behavior supported by infrastructure.

The Alberta Recreation Survey (2013) analyzes the recreational behavior and trends of Albertans. The number one rated activity (of all types of activities) in Alberta is "walking for pleasure" and spawns from the top three motivations for recreation participation: *pleasure*, *physical health/exercise* and *to relax*. The top rated physical activities were "walking for pleasure" (84%) and "bicycling" (51%).

Within or in the vicinity of their neighbourhood of residence:

-62% of Albertans walk for leisure

-35% of Albertans walk for transportation

Alberta Health Services: Alberta Walking Survey (2013)

Figure 1 - 2013 Alberta Recreational Survey

2.2 Trail & Recreation Initiatives

Trans Canada Trail (TCT)

The TCT was born of Canada's 125th anniversary celebrations in 1992. This ambitious initiative aims to connect a network of multi-use trails from coast to coast by 2017. To date just over 18,000 kilometers of the TCT are operational; representing 80% of the proposed route. The TCT Foundation does not own or operate any trails. Trail sections are owned by local organizations and all levels of government and. Funds raised for the project are matched by the Government of Canada. Within Alberta, the proposed TCT route connects between Edmonton and Calgary and heads east to Saskatchewan (north of Lloydminster) and west to British Columbia over a northerly (towards Dawson Creek, BC) and southerly (to Banff and south through Kananaskis) course. According to the TCT Foundation there may be opportunity for isolated TCT designated loop/spur routes. It is noted that projects under the TCT banner have been all or partly funded and that trails that allow all-terrain or off-road vehicles are not eligible to be designated under the TCT.

"Children ages 5-17 should get at least 60 minutes of moderate to vigorous intensity physical activity daily"

Canadian Physical Activity Guidelines

Figure 2 - Trans Canada Trail Map

Trans Canada Trail Sign

"There is a growing body of research supporting the idea that access to nature is essential for the physical and emotional health of children and adults"

Active Alberta Policy

<u>Alberta's Wild Rose Trail System</u>

The Wild Rose Trail System is the collective moniker used to refer to Alberta's various trail initiatives (including initiatives from other jurisdictions and agencies) and is an overall plan for the development of a trail network in Alberta. For many years, trail development and use was focused mainly in the mountain and foothill regions and in larger urban centres. Developing trails in other parts of the province will enable recreationists to experience trails in the areas where they live, and to explore other natural regions of Alberta. The Wild Rose Trail System aims to connect major population centres, major recreation areas and neighbouring provinces via trails.

<u>Alberta TrailNet</u>

Alberta TrailNet is a registered society responsible for overseeing trail initiatives in the province including the Wild Rose Trail System and the Trans Canada Trail. TrailNet is a valuable resource that can be consulted for guidance on trail related endeavours including funding opportunities, local management/organization, and best practices. The province provides Alberta TrailNet with an annual operating grant and the society is managed by an 18 member board. TrailNet holds an office in Edmonton.

Recreation is the experience that results from freely chosen participation in physical, social, intellectual, creative and spiritual pursuits that enhance individual and community well being

Alberta Recreation & Parks Association

<u>WalkABle Alberta</u>

WalkABle Alberta is one of many movements promoting the physiological benefits of walking as part of an active lifestyle. The program, piloted in 2011 by Alberta Health Services, is a forward thinking response to increasingly sedentary lifestyles, which result in increased costs to the healthcare system. The 9 communities selected for the pilot project were assisted in developing and promoting active transportation, integrated pedestrian facilities, ongoing education campaigns, and the drafting of policy changes to elevate the status of

pedestrian transportation. The WalkABle program is ongoing and includes resources that may be of benefit in achieving community buy-in and should be accessed once this plan is adopted.

2.3 Benefits of a Trail

Recreational/Health

A trail offers a myriad of benefits. The foremost benefit is as a recreational amenity which provides ready opportunity for exercise consistent with the "fitness orientation" of the Town of Magrath. Trails provide exceptional opportunities to participate in outdoor recreation and adventure pursuits. They encourage outdoor activity, such as walking, which has become the physical activity of choice for Albertans. Research indicates that brisk walking for 30 minutes, 4 to 7 days per week, provides many health benefits including reduced risk of morbidity and mortality from chronic diseases such as heart disease, high blood pressure, obesity, osteoporosis, non-insulin dependent diabetes, and certain cancers. Regular walking is also associated with improved mental health including reduced anxiety, tension and depression, and improved self-esteem. Investment in outdoor recreation as a preventative health service makes dollars and sense; especially in an age of increasing sedentary behavior and technological reliance among youth.

"The relative risks of the four main Coronary Heart Disease risk factors (physical inactivity, elevated cholesterol, high blood pressure & cigarette smoking) were very similar. However, the prevalence of those risks for the three latter risk factors were small (10-18%) compared with that of failing to perform regular physical activity (59%)."

Casperesen (1989)

Social

Trails are accessible to all income groups, and provide accessible recreational opportunities to a full demographic range of people. Welcomed by-products of trails include improved self-image and social relationships, increased community participation, connecting rural and urban centres and forging partnerships.

The trail building process yields benefits from the process as well as the product. By stimulating new partnerships and relationships, trail development results in a stronger and more dynamic community. Trail development is a human scale project which requires close experience with the environment and in turn brings a sense of empowerment to the individual and the community.

Environmental/Educational

The use of land for trail purposes provides a lower impact on ecosystems and biodiversity than most land uses. Areas of environmental sensitivity/hazard, often perceived as having little development value, can be protected by allowing a trail to preclude more intensive forms of land use or to serve as an intervening buffer.

Trails facilitate a positive impression of ecosystems and biodiversity by bringing people up close to the natural environment. A natural setting provides a stimulating atmosphere for thought provoking educational and interpretive signage on significant cultural and historical features.

Economic

The growing body of work regarding the economic benefits of trails, which is typically centered on tourism impact, is substantial, and clearly suggests a positive relationship. Simply put, increased tourism visits will generate direct economic impact through various means. The potential for the trail to showcase historically and culturally significant features, like the colossal efforts exerted in

Direct Economic Impact

- *Trail user expenditures*
- *Events on trails (school groups, races, bus tours) incl. associated expenditures & partnership opportunities*
- *Business opportunities*
  - *Bicycle Retail/Repair, Specialty Clothing/ Footwear Retail, Restaurant/Café, Hotel/Bed & Breakfast*

Indirect Economic Impact

- *Increased property assessment value and resulting tax increase*
- *Avoidance of health care costs*
- *Motivation for people and businesses to relocate to the Town*
- *Increasing use of Town fee-for-service facilities (pool, museum etc.)*

establishing irrigation in southern Alberta, will attract users interested in more than just an exercise oriented recreational experience; thereby bolstering the Town and regional tourism portfolio.

Linkages between property value increases resulting from trails development have also been established. After a trail enters an undeveloped area it is not unusual for development demand to arise. Because of the linear nature of trails the positive benefit will spread over the entire wide area that the trail touches. Walkscore, which gages the walkability of a community, is a popular online product that speaks to the increase in using walkability as a factor in deciding where to live.

"Community design and transportation systems have a notable impact on how readily families can be active outdoors in natural environments"

Active Alberta Policy

2.4 Policy Context

Alberta has a robust policy framework to guide initiatives like the one at hand. Competing priorities do not make the decision to allocate resources an easy one. Having said that, the existing policy context, from the provincial level down to the local, supports responsible trails development in principle. Other policy documents provide guidance on trails development adjacent to areas of sensitivity like the water courses and wetlands.

Grain elevator within Magrath's "elevator row"

Active Alberta (2011-2021)

The Active Alberta document links the benefits of active living to the physical, social and emotional health and wellness of Albertans and their communities. The document provides recommendations to facilitate Albertans becoming more active every day through sustainable province-wide activities that generate awareness and motivate action through collaboration.

Alberta's Tourism Framework (2013-2020)

Alberta's tourism market is poised for growth over the framework period. In short, this document identifies tourism gaps and weaknesses, and stresses the benefits of and need for a collaborative tourism fabric at the regional and provincial level. The framework's findings state that the product supply strength for "Trails" in the South Region of the Province is "Secondary" while demand, at the regional and domestic levels, is "High," and at the international level, is "Moderate."

Alberta Cultural Policy (2008)

Alberta's Cultural Policy – the "Spirit of Alberta" – reflects the broad view of Albertan culture; encompassing the arts, heritage, natural landscape and recreation. These themes, especially the latter three, are the focus of the trails plan. While natural landscape and recreation are the backbone of this trails initiative, the opportunity to focus on the region's robust heritage is one that will make the project truly special. Themes of settlement, irrigation, sport, agriculture and industry all lie within the landscape and the stories of generations past. It will be incumbent upon the trails team to flesh out these themes and to present them in an interesting and meaningful way through interpretive signage and other methods along the trail.

"Culture is the window through which the rest of the world sees our province"

Alberta Cultural Policy

Stepping Back From the Water (2012)

This document is designed to assist municipalities in determining appropriate setbacks for development adjacent to waterbodies and watercourses in order to achieve riparian (areas strongly under the influence of water and supporting high biodiversity) outcomes. The Pothole Creek valley traverses the southerly boundary of Magrath and is a picturesque area rich in biodiversity. The creek valley is an obvious candidate for trail development but requires sensitivity and careful planning to ensure the integrity of the creek and its riparian area is upheld.

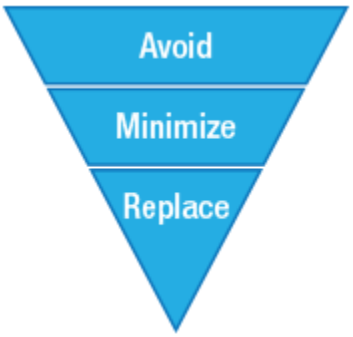


Figure 3 - Alberta Wetland Policy "Preferred Response" Chart

Wetland Policy (2013)

This document provides strategic direction to facilitate informed decisions on wetland areas and to minimize the loss and degradation of wetlands in the province. Wetland areas are encountered throughout the Pothole Creek valley and in other areas logical for trails development. Wetlands are sensitive ecosystems that contain high levels of biodiversity, play a critical role in protecting watersheds, and have been subject to an increasing focus by the provincial government. Wetlands come in a variety of types, including bogs, fens, marshes, swamps and shallow open water areas. In the Magrath area wetlands exist primarily along the Pothole Creek Valley and in proximity to the former irrigation canal areas. The primary and preferred response to activities that could have an adverse effect on a wetland is avoidance, however, options do exist. It is noted that under the *Public Lands Act* the province owns permanent and naturally occurring water bodies, including permanent wetlands.

SEE THE PROVINCE'S "GUIDE FOR ASSESSING PERMANENCE OF WETLAND BASINS" DOCUMENT FOR MORE INFO

Biodiversity Management Framework (draft)

The draft Biodiversity Management Framework is designed to support biodiversity, or the variety of all types of life and the ecological complexes of which they are part of, monitoring and management within the South Saskatchewan Regional Plan Area. The framework uses monitoring of biodiversity indicators, representing species and habitats from both terrestrial (land) and aquatic (water) ecosystems, against trigger values. A key goal is to drive improved land use practices so that the biodiversity we see today will be maintained into the future.

2.5 Planning Context

The following documents constitute the catalogue for land use planning and development in Magrath and Cardston County. Statutory plans provide strategic guidance and policy direction while a land use bylaw is a regulatory document that spells out rules for land use and development. Part 17 (Planning & Development) of the *Municipal Government Act* stipulates the required content and process for adoption of these documents. The non-statutory plans and other documents provide planning context, and show that trail development has been an objective of the Town since as early as 1977.

Figure 4 – SSRP Boundaries

Statutory Plans and Land Use Bylaws

South Saskatchewan Regional Plan (2014-2024)

The South Saskatchewan Regional Plan (SSRP) uses a cumulative effects management approach to set policy direction for municipalities to achieve desired environmental, economic and social outcomes within the Region

until 2024. Supportive policy statements of relevance to the formation of a trails initiative can be found under the *Tourism, Outdoor Recreation & Historic Resources, Planning Cooperation & Integration,* and *Community Development* sections of the SSRP. As the overarching policy guide for the Region, the SSRP is very broad, however it is important to make note of the SSRP's *Appendix J: Overview of the South Saskatchewan Regional Trail System Plan*. The forthcoming regional trail system plan will classify, analyze and guide the development and linkage of respective trails systems in the Region.

"Tourism, Parks & Recreation, and Environment & Sustainable Resource Development will collaborate with and engage aboriginal communities, municipal governments, stakeholders and the public to plan and develop a regional trail system plan"

South Saskatchewan Regional Plan

Municipal Government Act (RSA 2000, Chapter M-26)

Of particular relevance to this plan are the mechanisms in the *Municipal Government Act (MGA)* that provide for trails development. Section 650 and 655 (development agreements) allow a municipality to require, without compensation, a developer to construct or pay for the construction of a pedestrian walkway system or connect to an existing pedestrian walkway.

Municipal Reserve (MR) is a required 10% dedication of land or cash-in-lieu of land as part of a subdivision approval. MR is dealt with under Sections 663, 666, 667 and 671 of the MGA. The dedication and use of MR for a trail is another means of allocating right-of-way. See Part 3.4 for more information on land acquisition.

Cardston County & Town of Magrath
Intermunicipal Development Plan (2011)

The Town and County have established a good working relationship with respect to planning matters of joint interest and have chosen to formalize their relationship through an Intermunicipal Development Plan (IMDP). One of the main thrusts of the document is to ensure on-going communication through planning and development referrals and IMDP Committee meetings. Possible future urban expansion is addressed in the IMDP, with Map 4 (see Appendix B.3) indicating a priority for some lands over others in the plan area. Trail development is not specifically contemplated within the IMDP at this time and should be amended to formalize the recommendations in this report within a joint statutory planning document.

Livestock within the Pothole Creek valley

Cardston County Municipal Development Plan (1999)

The Cardston County Municipal Development Plan (MDP) guides land use planning and development decisions in the County. Being that an IMDP is in place, the policies of the IMDP prevail over the relevant policies of the MDP. It is noted that Maps 1-4, taken from the "Environmentally Significant Areas in the Oldman River Region - Municipal District of Cardston," and illustrating significant sites for Natural, Hazard Areas, Prehistoric Sites and Paleontological Sensitivity Zones, show nothing for the areas within and adjacent to the Town of Magrath with the exception of the Pothole Creek and associated flood plain. Trail development is not specifically contemplated within the MDP.

Looking west at 5th Avenue S (being the Town/County southerly boundary) with the waste transfer station in the background

Town of Magrath Municipal Development Plan (forthcoming)

Council for the Town has committed to the preparation of a comprehensive plan to guide the future of the Town. The proposed timeline for development of a Municipal Development Plan is convenient in that it will allow for the freshly prepared trails plan to be integrated, where appropriate, into the future MDP.

Cardston County Land Use Bylaw (1998)

The Land Use Bylaw (LUB) for the County prescribes the land use district (zoning) which is bestowed upon each parcel of land in the County and sets forth specific subdivision and development standards. Map 20 (see Appendix B.4) of the LUB illustrates that some of the lands lying adjacent to the Town have been rezoned from the Agriculture (AG) base zoning. The rezonings that have taken place are mostly to the Grouped Country Residential (GCR) district. The zoning of land prescribes the types of land uses and ability for subdivision for a parcel of land, and as such is relevant to the development of a trail network. "Public Park or Recreation Use," which would include a walking/multi-use trail, is listed as a Discretionary Use in all land use districts that are currently shown on Map 20. These districts will provide for the consideration of a trail development and it is noted that there is not a land use district dedicated exclusively to public/recreational/institutional use. The portion of the existing trail network with Cardston County is zoned Agriculture (AG).

Town of Magrath Land Use Bylaw (2007)

The Town's Land Use Bylaw (LUB) prescribes the land use district (zoning) which is bestowed upon each parcel of land in the Town and sets forth specific subdivision and development standards. The Institutional/ Recreation (I/R) district is the ideal zoning to accommodate trails development as "Public Recreation" and similar type uses are listed as Permitted Uses. The various residential districts, including the Large Lot Residential (R3) district which occupies the entire Pothole Creek valley area, also provide for the development of a trail by listing "Public Park, Playground & Sportsfield," the definition for which would also include trails, as a Discretionary Use.

Non-Statutory Plans and Other Documents

Magrath & District Five-Year Recreation Master Plan (1977)

This plan provided a comprehensive review of existing facilities and recreational amenities in Magrath and the hamlets within Cardston County. Most relevant to the plan formation task at hand are the following findings and recommendations: (1) that the Pothole Creek basin should be preserved for the environmental and cultural benefit of the District, including the restriction of livestock grazing in this prime wildlife corridor; (2) that the creek valley should be acquired by the Town or other public entity; and (3) that a network of walking/jogging trails should be promoted in the immediate Magrath vicinity.

Magrath & District Recreation Master Plan: 1991-1995 (1991)

The 1991 Recreation Master Plan builds upon the original iteration. The sentiment that residents are not willing to bear future tax increases in

"The Magrath & District Recreation Board should promote a network of walking/jogging trails in the immediate Magrath vicinity"

Magrath & District Five Year Recreation Master Plan (1977)

Looking south at Pothole Creek downstream of irrigation headgates

Priority No. 1: "Establishment of an interconnected multi-purpose trails and park network including Magrath's historic irrigation canal corridor, irrigation builders memorial park and pothole creek natural area"

Magrath & District Recreation Master Plan: 1991-1995 (1991)

support of recreation, and that any new facilities or programs can only be justified on a user-pay basis, was confirmed in the findings of the 1989 Magrath Community Improvement Survey. Assuming this view is shared at the current time, decision makers will need to carefully balance competing priorities and promote awareness of the advantages of a prospective trail. Most importantly, the 1991 plan provides specific recommendations and guidance on establishing a trail. The project is ranked as "Facilities Priority No. 1" of 5 priorities in the plan. The recommendations from this plan, including a map showing where the trail could be located, are very pertinent to the formation of the Trails Master Plan and are attached as Appendix B.6.

Town of Magrath Integrated Community Sustainability Plan (2010)

The Town's Integrated Community Sustainability Plan (ICSP) includes guiding policies in support of trail development in the context of broader community development. The preparation of a plan, along with Cardston County, for a community encompassing trail and greenbelt loop is clearly supported. The ICSP suggests the value of strategic investment in the "Historic Sites, Natural Area & Trail System" in tandem with the establishment of a peripheral greenbelt system "…in reinforcing its oasis-like visual quality and natural boundaries through innovative urban and trail system planning, landscape architecture, land use planning and urban design."

Environmental Priority #1: "Invest in and expand the Town's Pothole Creek and Galt Canal Corridor, linking it with an eventual peripheral trail system loop in conjunction with Cardston County"

Town of Magrath Integrated Community Sustainability Plan

Town of Magrath Infrastructure Master Plan (2012)

This plan illustrates existing and proposed pieces of municipal infrastructure in the Town of Magrath. Of particular relevance to the Trails Plan are the sidewalk network, road hierarchy, ditch profiles and stormwater drainage ponds. The majority of roads in the Town are not equipped with sidewalks and the existing sidewalk network is quite limited. The existing sidewalk network including proposed capital projects is displayed in Appendix B.5.

A cross-section of 4th Street E, which was slated for trail development at the time this master plan was prepared, is shown on Figure 6.7 of this document. This figure was produced as part of the plan to perform ditch upgrades along 4th Street E to facilitate flows to a prospective stormwater pond within the old sewage lagoons parcel. It is understood that this plan for 4th Street E has been abandoned indefinitely.

First generation sign on the Galt Canal Nature Trail

Second generation sign (Summer 2016) on the Galt Canal Nature Trail

2.6 Other Trail Documents

The following is a list of relevant reference documents produced by or on behalf of the Government of Alberta:

- *Alberta Recreation Corridor & Trails Classification System* (2009)
- *Best Practises Guide to Minimizing Risk & Liability on Trails* (2013)
- *Trail Builders Companion (2001)*
- *Trails in Alberta Highway Rights-of-Way: Policies, Standards & Guidelines* (2015)

2.7 Typical Trail User Groups

It is incumbent upon the trail designer to understand the user groups that are to be accommodated by the trail. Practical challenges like topography and budget limitations are the principal issues that inform the trail design and ultimately, the user groups that will be accommodated. Additionally, issues like user group

compatibility and land use conflict must be inserted into the decision making matrix.

Pedestrians (walking, hiking, running)

Including any person using the trail without a mobility aid (other than a walking stick), pedestrians are typically the starting point for design considerations. Pedestrians typically travel at speeds ranging from 4.0 km/hr to 9.0 km/hr. An average speed of 5.0 km/hr (1.4 m/s) is typically used for urban design purposes. A variety of surfaces are suitable for pedestrians, ranging from unsurfaced natural ground to smooth pavement. A single pedestrian can travel on a trail as narrow as 0.3 m with a cleared width of 1.0 m. Design so to facilitate comfortable use by senior citizens and persons with disabilities (barrier-free design) must be considered.

Small Wheeled Users (strollers, skateboards, wheelchairs, scooters)

Small wheeled equipment is commonly used on trails, sometimes as an optional mobility aid and sometimes as a necessary one (strollers, wheelchairs). Small wheeled equipment is less tolerant of slope than other uses and is best accommodated by a smooth paved surface. Generally, sealed surface trails with a minimum surface width of 1.0 m are suitable for this user group.

Cross-Country Skiing & Snowshoeing

A cross-country skier is similar to a pedestrian in terms of trail requirements, but requires a larger width (1.2 m for one-way skiing or 2.1 m for two-way skiing) to accommodate the poles and skate skiing technique. Different types of cross-country skiing, along with varying abilities, can require different levels of trail grooming. A range of trail types can accommodate this user group, including narrow trails where they break their own trail, to wider trails that have been packed. With a little preparation (and minimal maintenance) a multi-use trail can easily become a winter use trail that accommodates these non-invasive user groups. The southern Alberta climate, including frequent Chinooks, often precludes a consistent snow-pack for cross-country skiing purposes.

Equestrian

This category includes any person on a horse or other large riding or pack animal. Equestrians can travel on a wide range of surfaces from rough and rocky to a smooth natural surface. Paved trails are not preferred for equestrian use due to the potential to injure horse's feet and the potential for damage to the surface (especially where the sub-base is poorly prepared). Equestrian users vary but average around 1.0 m wide and 2.5 m to 3.0 m high.

Cyclists (commuting, recreational, touring, mountain)

This category includes any person on a bicycle. It is important to note that there are several types of cyclists, including commuting, recreational, touring and mountain biking. Each group uses different equipment (i.e. tires, gear ratios, etc.) and has somewhat different needs, requirements and capabilities. Additionally, age and experience will have a large influence on the capabilities and confidence of the user. Although the size of a bicycle

ranges, the average is in the neighbourhood of 0.6 m wide and 1.0 m high. Cyclists can travel on a variety of trails ranging from technically challenging with a narrow tread, to smooth, wide pavement. The casual cyclist typically travels within a speed range of 5 km/hr to 30 km/hr. A surface width of no less than 2.4 m (8 ft.) is required for two-way bicycle traffic, while 3.0 m (10 ft.) is recommended.

Motorized (dirt bike, ATV, snowmobile)

Powered vehicles of various shapes and sizes are generally regarded as being unfit to share a multi-use trail. This is due to this user group's high speeds and high potential to damage trail surfaces. As a result, motorized uses often require exclusive rights to trails.

2.8 Demographic Profile

The demographic profile of the Town of Magrath, Census Division 03 (a 13,866 km² area, including all of Cardston County, within southwestern Alberta) and the Province of Alberta are displayed below. Simple analysis shows that the Town has a young age distribution (19 and under), a low working/middle age distribution (20 to 54), and an average to high senior age population.

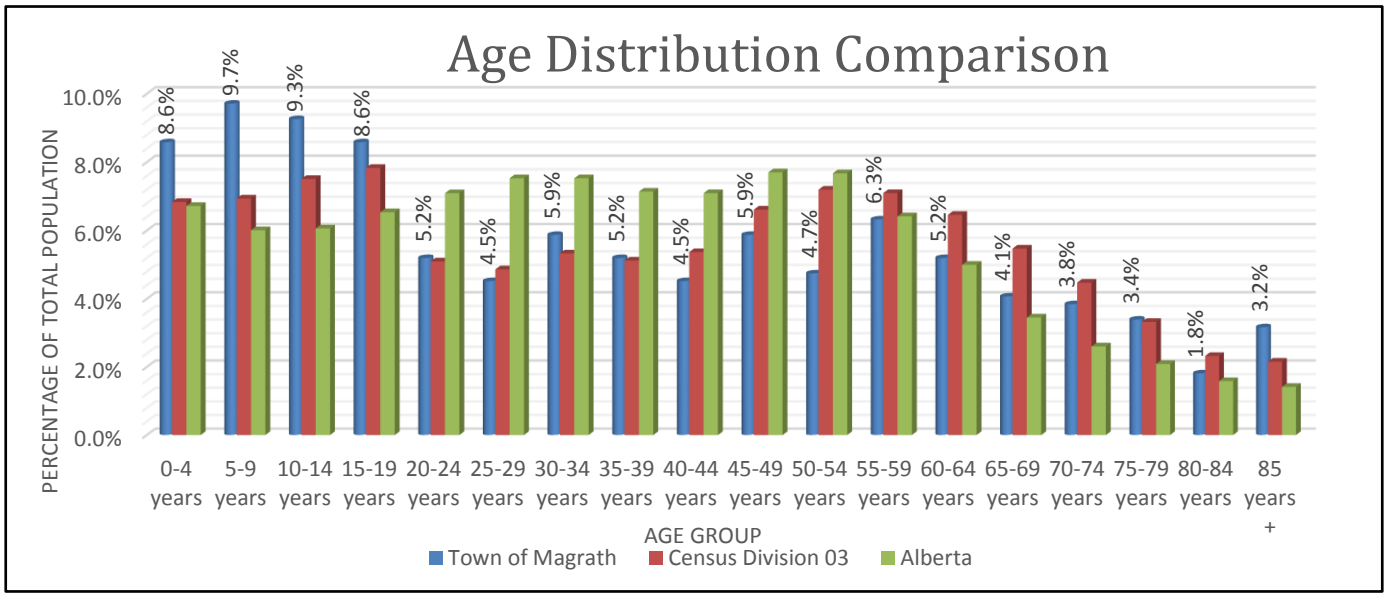


Figure 5 – Age Distribution Comparison Chart from 2011 Federal Census

2.9 Physical Characteristics

The Town of Magrath sits at an elevation of 975 m (3198 ft.) above sea-level and experiences what is often described as a humid continental climate with warm summers. The warm season, with an average daily high of 20 degrees Celsius, lasts from June 18 to September 10. The cold season, with an average daily high of 4°C, lasts from November 19 to March 5. The Town and immediate area average over 115-125 frost-free days per year and upwards of 2300 sunshine hours per year.

Over the course of the year typical wind speeds vary from 1 m/s to 13 m/s (light air to strong breeze), with the highest average wind speed occurring around

November 16 (7 m/s) and the lowest average wind speed occurring around August 4 (4 m/s). The wind is most often out of the west (39% of the time) and the southwest (19%) of the time. May and June are the months with the highest precipitation, averaging 22 days per respective month and 72 mm in the month of June alone. The Town receives an average of 318 mm of precipitation over the course of the growing season. In summer, warm sunshine dries the air and calms the wind. Chinooks (warm dry winds that descend from the eastern slopes) can occur year-round but the effects are most pronounced during the winter when temperature increases of 25°C or more within a few hours are possible.

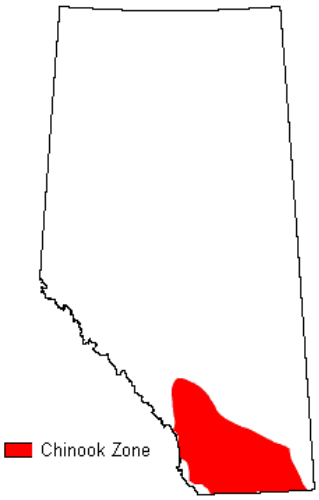


Figure 6 – Chinook climate zone within Alberta

2.10 Existing Trail Network Analysis & User Counts

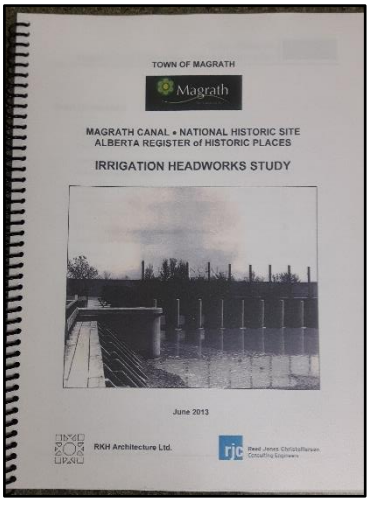
Existing Galt Canal Nature Trail Network

The existing trail network (see Figure 10 following this section), sometimes referred to as the Galt Canal Nature Trail, overlaps the southern boundary between the Town and the County and lies to the west of the cemetery and Highway 62. The project commenced in the early 1990s with the construction of the original inner loop, and has continued to grow in scope and profile thanks to the support of numerous community leaders.

The main trailhead or start to the trail system, lies adjacent to the Magrath Jubilee Park (including fish pond) and campground area (established in 1956) and the JA Spencer Irrigation Park. Two "loops" comprise the existing trail system and circle a beautiful natural area containing significant wetlands and high levels of biodiversity. As of summer 2016, particular trail segments have been designated within the two "loops" as part of a new signage initiative. These include the Galt Canal Trail, Highline Trail, Fell Balderson Nature Trail, and the Creekside Trail; each extending a distance between 1.0 to 2.0 km.

See the "Irrigation Headworks Study" document (2013) for more information on the Magrath Canal and Irrigation Headgates including proposed refurbishments

The inner loop of the trail (approx. 2 km) runs along the parallel Pothole Creek and Galt Canal watercourses, and averages a width of 2.4 m (8 ft.) with paved and unpaved portions. Portions of the inner loop are comfortably enclosed by diverse foliage and tree stands with adjacent wetland areas. The inner loop passes over the Magrath Irrigation Canal Headgates, which are both a Provincial Historic Resource (recognized May 14, 1987) and a National Historic Resource (recognized December 12, 2007) due to the part of irrigation in transforming southern Alberta, and are slated for major refurbishment. Grades along the inner loop are comfortable and accommodating of all user types.



Irrigation Headworks Study Document

The outer loop (approx. 3.5 km) sits atop the Fell Balderson Nature Preserve, adjacent to cropland, until it descends as it approaches the golf course and turns north towards the Covered Wagon RV Park. The outer loop lies next to open expanses of prairie grasses with excellent panoramic views of the adjacent scenery. Barbwire fencing on the inside of the trail keeps users from entering the Nature Preserve to the north. Grades along the outer loop are relatively comfortable save for steep sections adjacent to the golf course and west of the cemetery (switch-back) with modestly steep sections along the upper bench (adjacent to crop lands). The majority of the existing trail network stays open year round, except for approximately 2/3 of the outer loop (Richards land), which is typically closed from November to March.

Existing Trail Network User Counts

Trail user counts were performed to understand the amount, type and timing of trail use. These counts confirm the suspicions of many in the community, that the trail system sees regular use and is an asset to the community. Counts were taken over the full spectrum of the typical user day during three separate days. The analysis shows that walking is the most popular method of use, followed by dog-walking, cycling, and other forms of use (i.e. small wheeled users).

Cycling, at only 8.5% of the total usership, is less than expected. Although the existing trail is likely less desirable for sport cyclists (higher speeds), recumbent cyclists (slower speeds) reported feeling comfortable on the facility.

Trail Count Location: Bench by headgates, at pathway intersection
Morning – Thursday June 9, 2016. 21°C, SW 35 km/h, few clouds
Afternoon – Tuesday May 17, 2016. 18°C, S 25 km/h, few clouds
Evening – Sunday June 5, 2016. 25°C, E 10 km/h, sky clear

General Observations

- People often travelled in groups of 2-6, frequently as families or in walking groups
- Strollers more common during the morning hours
- Roller-blades and long-boards were commonly seen

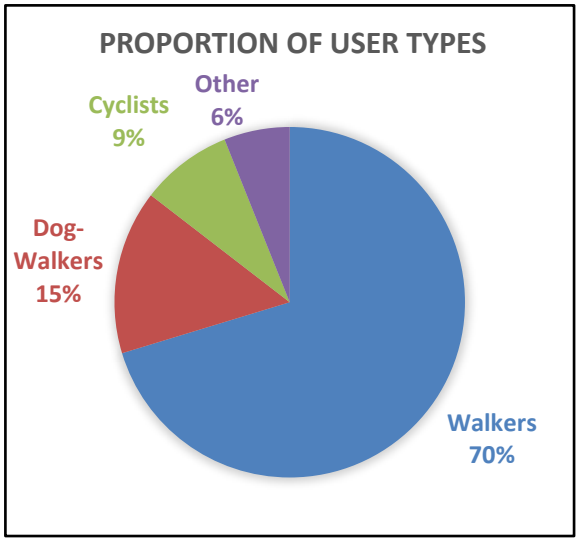


Figure 7 – Existing Trail Network Proportion Of User Types

Looking west as outer loop turns south towards Magrath Golf Course

The hourly analysis illustrated below shows steady use throughout the whole user day, with an average of 13 users per hour, and the heaviest use in the evening (5-8 pm).

	Walkers	Dog-Walkers	Cyclists	Other	All Modes
0700 - 0800	2	1			3
0800 - 0900	8[1]	3			11
0900 - 1000	14	2	1	1[5]	18
1000 - 1100	8[2]	2			10
1100 - 1200	4		2		6
1200 - 1300	19[3]	1	2		22
Total (Morning)	**55**	**9**	**5**	**1**	**70**
1300 - 1400	2		2		4
1400 - 1500	3			1[5]	4
1500 - 1600	0	2			2
1600 - 1700	13[4]	4		4[6]	21
Total (Afternoon)	**18**	**6**	**2**	**5**	**31**
1700 - 1800	5	4			9
1800 - 1900	11	2	5	3[7]	21
1900 - 2000	27	4	2	1[8]	34
Total (Evening)	**43**	**10**	**7**	**4**	**64**
Total (Day)	**116**	**25**	**14**	**10**	**165**

Hourly Averages (All Modes)	
Morning	12
Afternoon	8
Evening	16
Overall	13

[1] 1 stroller
[2] 2 strollers
[3] 3 strollers
[4] 12 person school group
[5] 1 runner
[6] 4 long boarders
[7] 3 rollerbladers
[8] 1 longboarder

Figure 8 – Existing Trail Network Hourly Trail Counts Chart

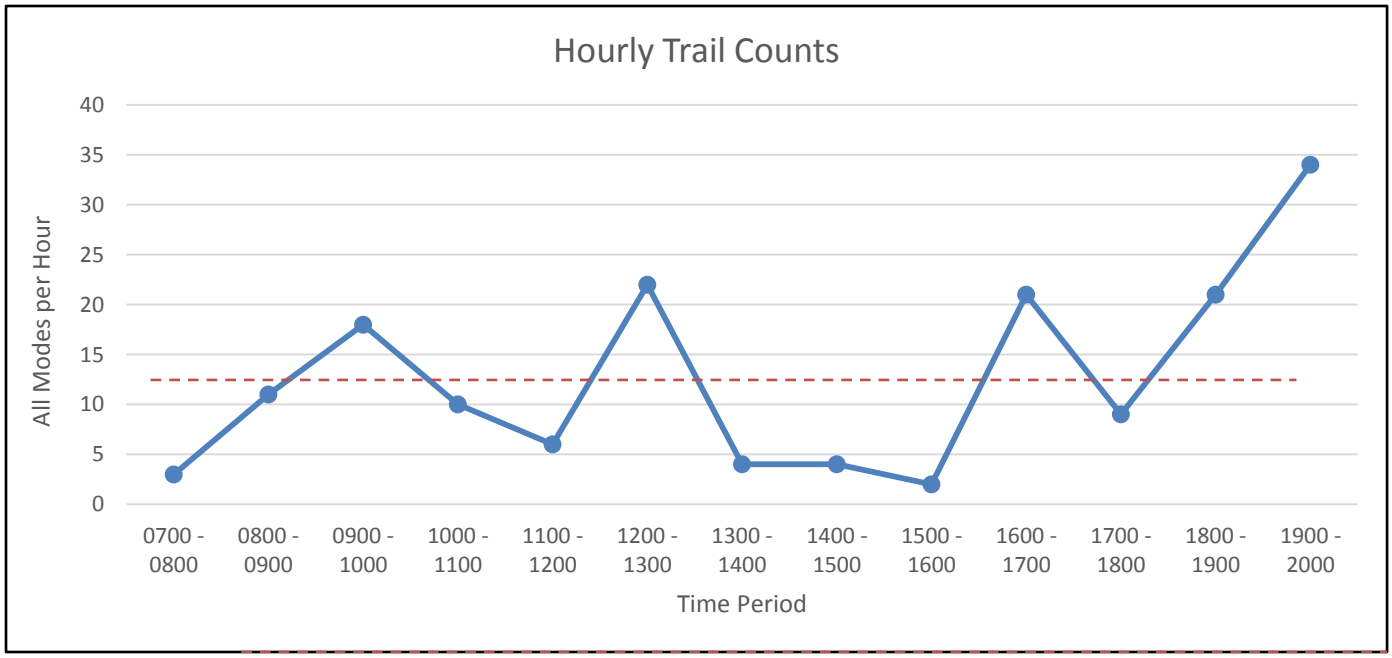


Figure 9 – Existing Trail Network Hourly Trail Counts Graph

Existing Trail Network Pictures

Looking south at fish pond and playground area adjacent to trail head

Looking west at existing trail south of Covered Wagon RV Park

Snapshot of domestic animals with wildlife in the background taken from existing trail north of headgates

Looking west at existing trail south of Covered Wagon RV Park

Existing gap in pavement (paved in August 2016) adjacent to Magrath Golf Course

Upstream of the Magrath Irrigation Headworks looking northeast

Looking southwest from the Magrath Irrigation Headworks

Looking south at pedestrian access over Magrath Irrigation Headworks

Looking west upstream of Magrath Irrigation Headworks

Looking west at fenced segment of outer loop

Looking south at temporary bridge over Pothole Creek (replaced in August 2016)

Looking northeast at new bridge (August 2016) over Pothole Creek

Looking south at surface transition in outer loop of existing trail (paved in August 2016)

Looking east at informal bike jump area adjacent to outer trail loop

Looking southwest at hole 17 of the Magrath Golf Club (located southwest of existing trail)

Looking at steep switchback area within outer trail loop

Looking at irrigation implements adjacent to trail within JA Spencer park

Looking east at informal access over private property

Looking at dock structure in Pothole Creek south of JA Spencer Irrigation Park

Looking northeast from outer loop of trail at White-tailed deer within Fell Balderson Nature Preserve

Low lying wetlands adjancet to inner loop

Looking north at recent bank stabalization work adjacent to trail

Recently constucted (August 2016) commemorative wall and signage board southeast of JA Spencer Irrigation Park

2.11 Recommendations For Existing Trail Network

The existing trail facility is well kept and well utilized. Anecdotally, there is good support the facility throughout the community. The following recommendations should be considered to improve the existing trail network and to align it with future trail segments.

1. Add 3 benches on outer loop at spacing of approximately 500 m (1640 ft.) and 1 bench on inner loop (in proximity to #21 on map);
2. Add handrails and signage advising user of hazard at steep areas (#24 on map);
3. Add interpretive signage on wildlife (i.e. white-tailed deer, leopard frog), and irrigation (.i.e. history and importance to southern Alberta) ;
4. Pave the existing gravel (8 ft. wide) portion of inner loop;
5. Provide trail connection to the cemetery;
6. Review informal trail access over Lot 1, Block 45, Plan 3046H (adjacent to #23 on map) and obtain easement for legal means of passage (there currently is no registration against the certificate of title);
7. Provide a point of access to the trail within the 3rd Avenue S road right-of-way (west of the north portion of the Fish Pond) thereby encouraging persons to avoid using the highway as an access corridor ;
8. Continue to perform crack sealing, weed control and preventative measures to address pavement failure;
9. Promote responsible cycling through signage;
10. Facilitate cross-country skiing on closed portions of outer loop during winter months;
11. Consider the comprehensive recommendations in the Irrigation Headworks Study Document (i.e. improvements to irrigation headgates/weir and establishment of interpretive pavillion, wetlands area for bird watching, etc.).

"We live in Lethbridge and enjoy the trail very much. We use it regularly with our family in Magrath"

"Please BENCHES so that older residents can use the trail"

*See **Appendix D** for complete survey results*

Looking northeast at cropline parallel to trail after Fall harvest

1. Bench
2. Bike/BMX Jumps
3. Bird Roost
4. Bridge
5. Buried Pipelines Sign & Manhole
6. Culvert
7. Dredger Irrigation Equipment
8. "Dug In" Home Comm. Stone/Plaque
9. Fell Balderson Nature Preserve
10. Galt Comm. Stone Plaque
11. Garbage Receptacle with Doggie Bags
12. Headgates
13. Interpretative Irrigation Plaque
14. Irrigation Commemorative Stone/Plaque
15. JA Spence Irrigation Park Comm. Stone/Plaque
16. Leopard Frog Sign
17. Magrath Comm. Plaque
18. Magrath Rod & Gun Club Wildlife Preserve Sign
19. Observation Point
20. Old Concrete Pad
21. Outhouse
22. Private Property Sign
23. User Sign
24. Steep Slope
25. Dock
26. Marquee & Brick Wall

Magrath Town Boundary
Index Contours (2.5m)
Inner Loop
Outer Loop

Existing Trail Widths
Gravel, 6 Feet
Gravel, 8 Feet
Paved, 6 Feet
Paved, 8 Feet
Shale, 6 Feet

Length of Inner Loop: 1.96±km
Length of Outer Loop: 3.47±km

MAGRATH REGIONAL TRAILS MASTER PLAN

FIGURE 10 - EXISTING TRAIL NETWORK

PHOTO DATE: MAY 7, 2013

OLDMAN RIVER REGIONAL SERVICES COMMISSION

0 Metres 50 100 150 200

November 10, 2017 O:\ORISA-Drawings\Cardston-County\Magrath\Magrath Projects\Magrath Trails.dwg

PART 3: Looking Ahead

3.1 Setting a Direction

The general direction for expansion of the existing trail network was obvious from the onset of the project and confirmed in early visioning sessions. The notion that the trail should encircle the entire community stems simply from the "looping" principle that results in a course with no dead ends and no need to travel the same path twice on the route. A continuous loop around the community will offer convenient access to all residents, thereby providing an inclusive system. This idea is supported by the "Garden City" movement, whereby a community would be surrounded by a greenbelt system that provides aesthetic and social relief from the congestion and bustle of the urban environment. A complete loop of the perimeter of the Town requires roughly 11 km (6.8 miles) of trail.

Field assessment using handheld GPS (global positioning system) units

The *Town/County Intermunicipal Development Plan* (see map in Appendix B.3) establishes, generally, the future growth directions of the Town. In broad terms, the Town will grow westward and eastward, avoiding crossing over Highway 5 to the north and avoiding crossing the Pothole Creek to the south. These growth directions give the guidance necessary to achieve the desired "peripheral" result for the trail, although perhaps not all at once, and perhaps not forever (seeing as the Town will grow outwards beyond the limits of certain segments of the trail – in which case additional segments may be established, making for a comprehensive, concentric system).

Critical to the success of the Trails Master Plan process was the need to determine the type and form of trail network that was desired by residents of the Town and County. Through the process to develop the Plan, information was collected and analyzed relating to the existing trail system, perceived destinations and barriers, and the scope and location of trail expansion. This information was collected through a number of mechanisms including public consultation, field research and the knowledge and experience of staff and the consulting team.

3.2 Exploring the Path

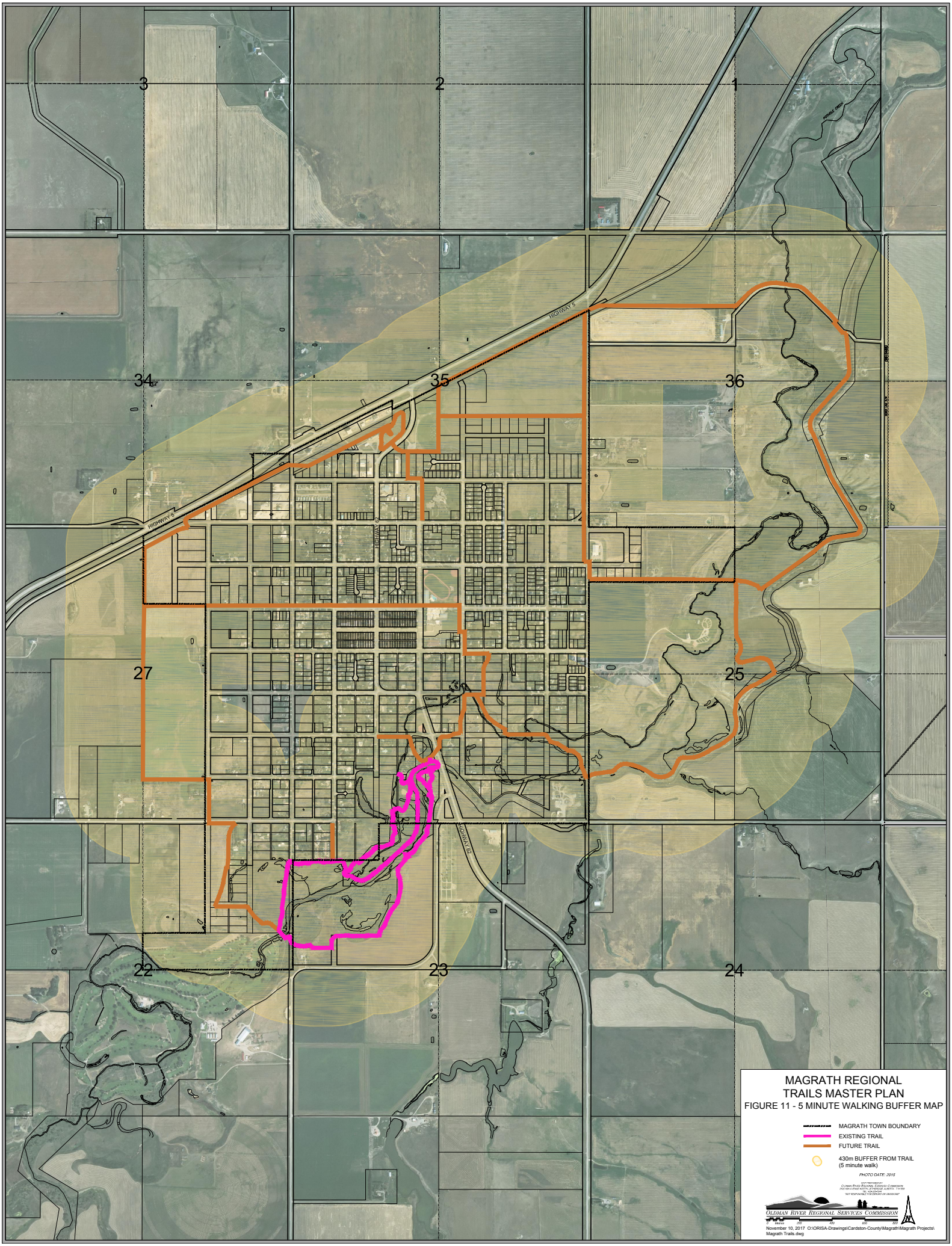
Subsequent to early desktop and mapping exercises, multiple field visits in search of the acceptable and preferred routes were undertaken in the winter of 2015 and Winter/Spring/Summer of 2016. On February 25, 2016, an on-site field assessment was undertaken by members of staff and the trails committee. More precise route finding was undertaken for certain sectors using GPS modeling in the field on June 1 and June 29, 2016. Using satellite data retrieved through GPS allowed potential routes to be confirmed relative to parcel boundaries and physical features, which is especially important where property boundaries are not clearly defined. Candidate routes were selected based on the general trail expansion direction. Each candidate route was evaluated, to the extent known, for its suitability based on the following principles:

- **Connectivity**: *provides important connections in the trail system, is looping, and/or provides good secondary connections into neighbourhoods and/or amenity areas*

- **Accessibility:** *features multiple access points in close proximity to neighbourhoods*
- **Route Acquisition**: *alignment requires no land acquisition cost, uses existing Town/County-owned properties or rights-of-way and has few land use constraints*
- **User Experience**: *provides a quality user-experience, including interesting views and memorable landscape features, and a separation from traffic and non-compatible land uses through landscaping buffers*
- **Functionality**: *provides for sufficient width, volumes, user needs and poses few accessibility concerns or grading issues, requires no stairs or ramps*
- **Constructability**: *provides ease of construction with good access points, soil conditions and few grading or public relation concerns*
- **Environmental**: *poses few environmental constraints, which would include soil erosion and sediment control, tree clearing, or habitat disruption*
- **Safety**: *provides few safety concerns, which includes good sightlines, no hazards, emergency access and separation from traffic or mitigation of traffic challenges*

Looking east at former irrigation canal road and embankment

Looking south from 1st Street E (south of lift station) at the Pothole Creek Valley.


3
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35
36
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23
24
HIGHWAY 5
HIGHWAY 5
HIGHWAY 62
HIGHWAY 62
TRIPLE CREEK
MAGRATH REGIONAL
TRAILS MASTER PLAN
FIGURE 11 - 5 MINUTE WALKING BUFFER MAP
MAGRATH TOWN BOUNDARY
EXISTING TRAIL
FUTURE TRAIL
430m BUFFER FROM TRAIL
(5 minute walk)
PHOTO DATE: 2015
OLDMAN RIVER REGIONAL SERVICES COMMISSION
November 10, 2017 O:\ORISA-Drawings\Cardston-County\Magrath\Magrath Projects\
Magrath Trails.dwg

3.3 Establishing the Preferred Route

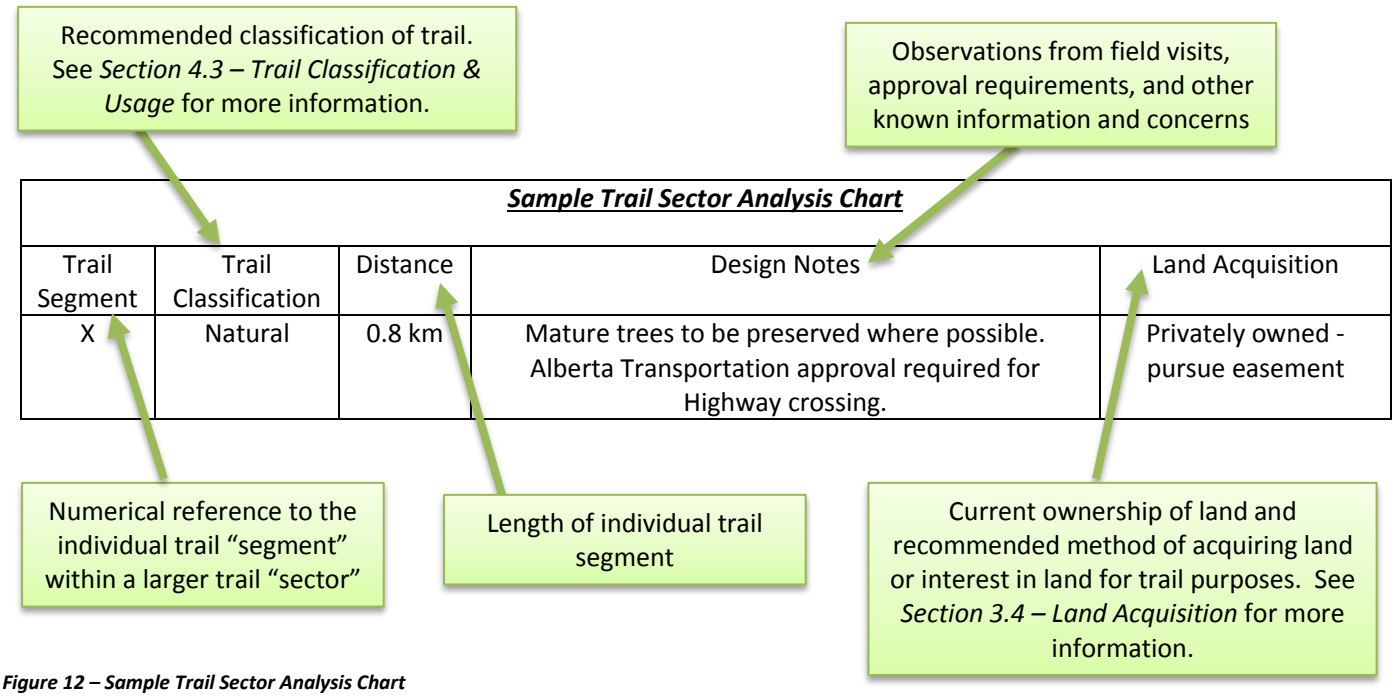
The preferred route is established based on the guiding principles in Section 1.4, the routing principles in Section 3.2, and "on the ground" realities (i.e. route unable to be acquired) that are known at this time. Accessibility, as one of the key principles for trails planning, is achieved by locating the trail so that nearly the entire town is within a 5 minute walk (see map on following page). Looping within the loop, or providing small loops inside the trail loop as a whole, was a design philosophy implemented where appropriate.

Looking northeast towards Pothole Creek from arop former irrigation canal embankment in SW¼ 25-5-22-W4M

Looking north from within former irrigation canal in NE¼ 36-5-22-W4M

3.3 Establishing the Preferred Route (cont'd.)

Route exploration and analysis is displayed in the following pages – broken down into nine sectors. Reasonably viable alternative routes are available in most sectors except where noted in the individual sector analysis. The preferred route is illustrated on the individual sector maps (along with other route options) and comprehensively on the master map (see Appendix B.1). As indicated in the individual sector analysis, the willingness of certain landowners to potentially enter into an easement agreement or some other right to lands has not been obtained – despite multiple efforts to contact all landowners. As such, final route selection may vary.



Sample Trail Sector Analysis Chart

Trail Segment	Trail Classification	Distance	Design Notes	Land Acquisition
X	Natural	0.8 km	Mature trees to be preserved where possible. Alberta Transportation approval required for Highway crossing.	Privately owned - pursue easement

Figure 12 – Sample Trail Sector Analysis Chart

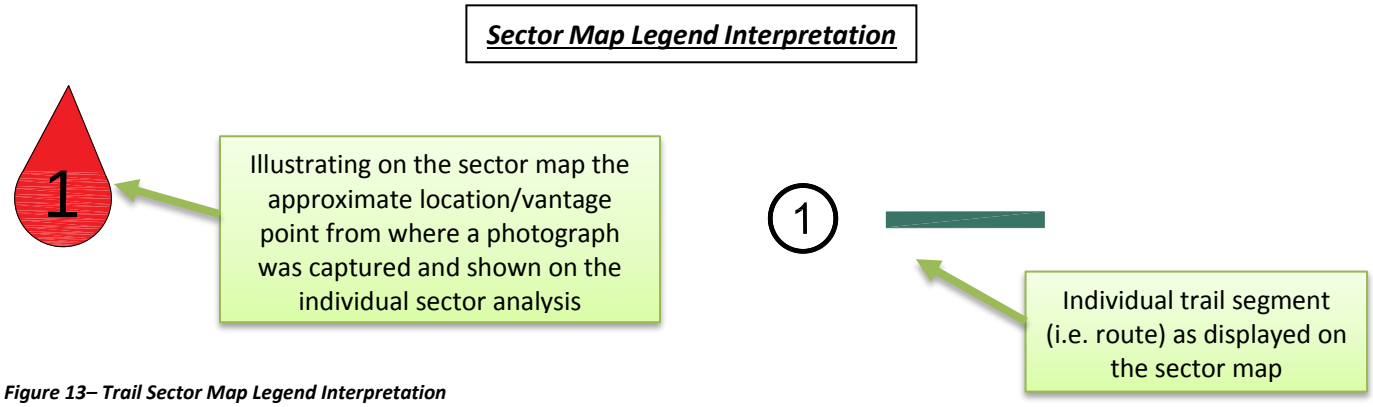
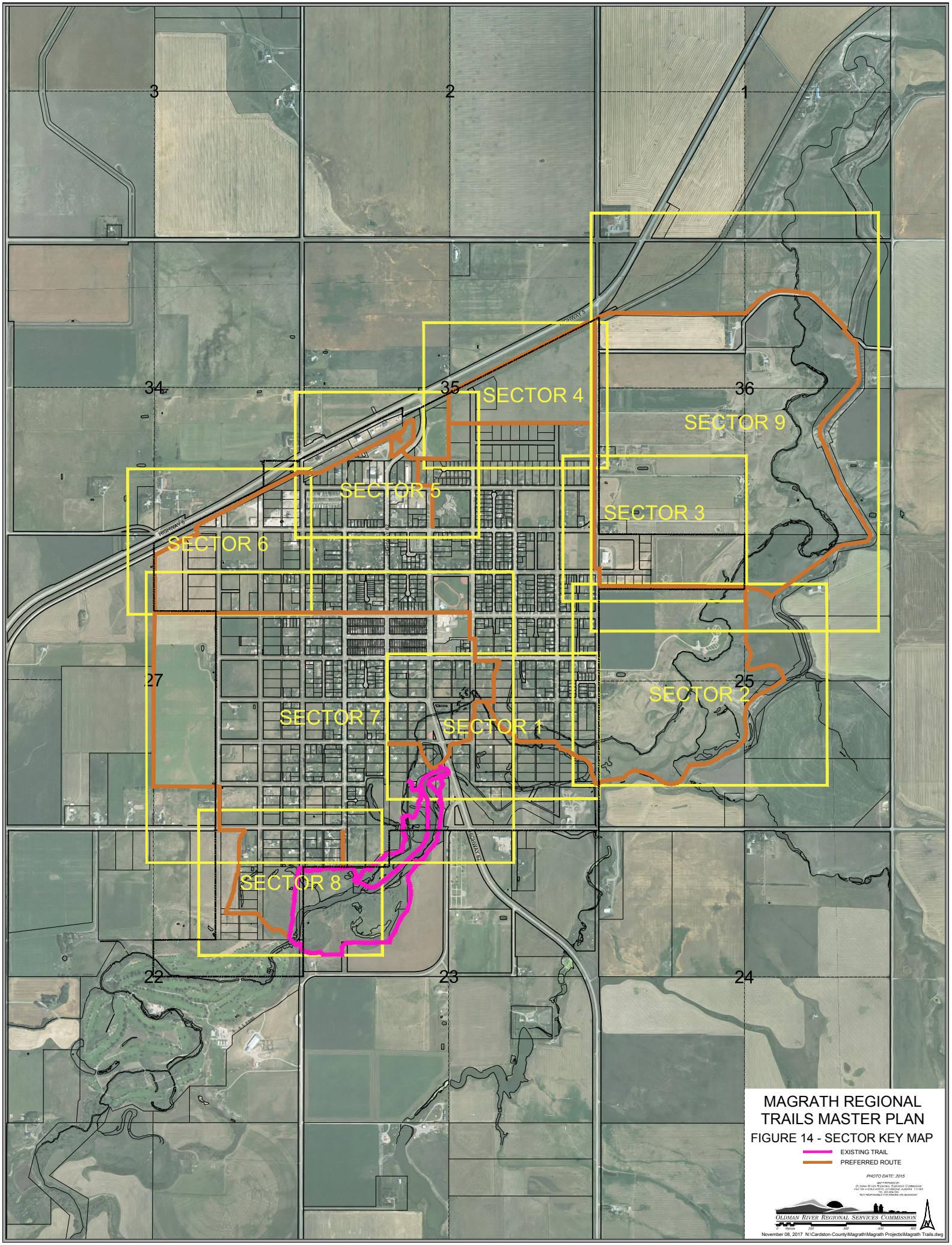


Figure 13– Trail Sector Map Legend Interpretation

The areas slated for future trail development are broken down into sectors. Each sector contains multiple segments with an accompanying map displaying the route options explored by the steering committee.


3
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36
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22
23
24
SECTOR 4
SECTOR 9
SECTOR 5
SECTOR 3
SECTOR 6
SECTOR 2
SECTOR 7
SECTOR 1
SECTOR 8
HIGHWAY 5
HIGHWAY 62
MAGRATH REGIONAL
TRAILS MASTER PLAN
FIGURE 14 - SECTOR KEY MAP
EXISTING TRAIL
PREFERRED ROUTE
PHOTO DATE: 2015
OLDMAN RIVER REGIONAL SERVICES COMMISSION
November 08, 2017 N:\Cardston-County\Magrath\Magrath Projects\Magrath Trails.dwg

Sector #1: Pothole Creek Valley

Located west of Highway 62, this sector is within the scenic Pothole Creek valley, offering a close connection with the environment and opportunity for interpretive features on animals like the White-Tailed Deer and Northern Leopard Frogs (reintroduced through Alberta Fish & Wildlife's Species at Risk Program in early 2000s). The Pothole Creek floodplain is rich in biodiversity and includes sedge, cattail, shrub and willow communities as well as cottonwood groves and areas of grassland. Crossing the highway, either over the surface or under the bridge, is the major challenge here. A tunnel underneath the highway would eliminate safety concerns but comes at a substantial cost (see Appendix D). A connection point from 1st Avenue, by way of a new sidewalk, will provide a community linkage from the existing sidewalk system to the trail network convenient for school groups.

The Town's typical road right-of-way, from the original survey Plan 3046H of the townsite completed in 1900, is 30.5 m (100 ft.) with the odd exception. Intervening laneways between blocks were established at 6.1 m (20 ft.) wide. The grid imposed over the Pothole Creek valley and consisting of undeveloped road and laneways adjacent to privately owned, undeveloped lots, provides a corridor (with multiple options) for the trail to traverse through. Still, some corridors are much more conducive to trails development than others, given the undulating topography with trapped low areas.

The majority of the properties within the creek valley, each at approximately 0.49 hectares (1.2 acres), are privately owned and undeveloped save for a few dwellings adjacent to 3rd Avenue S. Although the future of the creek valley has not been determined by policy, it has previously been suggested that the area should be preserved free from development. As such, Town ownership of the private lots within the creek valley would be a positive acquisition. A passive recreational use like a trail will be a compatible land use in the creek valley provided that measures are taken to ensure the high biodiversity of the area is upheld. Measures could include signage advising of the sensitive habitat areas, especially adjacent to the creek.

The flooding history of Pothole Creek is not well documented. Anecdotally, it is understood that significant flooding last occurred in June of 1995 – a time when flooding devastated numerous communities in southern Alberta. Flooding is said to have occurred on the north side of the Pothole Creek within the Town of Magrath at this time.

Sector #1 challenges & opportunities

- *Highway 62 crossing*
- *Environmental/habitat sensitivity*
- *Uncertainty of future land use in creek valley*
- *Bridge crossings*
- *Flood risk*
- *Potential for private property trespassing due to uncertainty of property boundaries*
- *Natural beauty of Pothole Creek Valley*
- *Lands available within undeveloped road rights-of-way*

Picture 1 - Looking north at previously excavated area within 1st Stree E road allowance in segment 4

Picture 2 - Looking east below Highway 62 bridge at segment 3

Picture 3 - Looking north at east side of Highway 62 right-of-way within segment 1

Picture 4 - Looking west at segment 2, adjacent to potential Highway 62 crossing

Picture 5 - Looking northwest at low area within segment 8A from just north of transfer station

Picture 6 - Looking southeast at future bridge location over Pothole Creek in segment 4

Picture 7 - Looking north at waterhole adjacent to segment 6 within 2nd Street E closed road allowance

Picture 8 - Looking west at Pothole Creek within segment 8

Picture 9 - Looking north at segment 6

Note: a plan to revegetate and restore the high biodiversity in the Pothole Creek Valley, which has been over-grazed over the years, should be pursued in tandem with this plan (see "Ecosystem Health Assessments & Recommendations for Starfield Centre Magrath, Alberta" document for reference).

Figure 15- Sector 1 Trail Analysis Chart

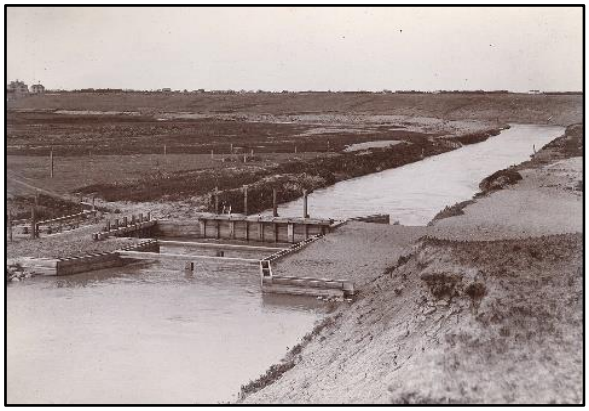
Trail Segment	Trail Classification	Distance (m)	Design Notes	Land Acquisition
1	Local Connector	243	Highway 62 crossing sightlines are adequate but not optimal. Some excavation already completed to accommodate trail – use existing disturbed area where possible.	1. AB Transportation approval 2. N/A - Town road right-of-way
2	Local Connector	238	Need to provide legibility (i.e. separation) between roadway and trail using design measures.	N/A - Town owned parcel
2A	Local Connector	152	Ball diamond fence needs to be moved in at left-field corner to provide for sufficient width.	N/A - Town owned parcel
2B	Local Connector	178	Bridge needed and tree clearing. Should encourage people to not have to use highway to access trail system.	N/A - Town road right-of-way
3	Local Connector	291	Travels under highway bridge. Safety/nuisance activity concerns. Lighting under bridge should be considered. Provide guard rail to mitigate slopes under bridge and adjacent to bridge. Use asphalt for surface material under bridge to prevent loos during flood. Limited space within highway right-of-way for sections parallel to highway.	AB Transportation approval
3A	Local Connector	213	Adjacent to creek bank – setback needed.	N/A - County owned parcel
3B	Local Connector	321	Bridge needed. Shoulder on east side of road should be suitable for trail and does not currently have any driveway crossings.	N/A - Town road right-of-way
3C	Local Connector	242	Bridge needed.	N/A - Town road right-of-way
4	Local Connector	581	Highway 62 crossing has better sightlines than segment 1 highway crossing. Some excavation already completed to accommodate trail - use existing disturbed area where appropriate. Add plantings for bank stabilization for areas adjacent to creek (between trail and creek).	N/A - Town road right-of-way
4A	Local Connector	285	Adjacent to creek bank – setback needed.	1. N/A - Town lane right-of-way 2. Privately owned - pursue easement
5	Local Connector	249	Bridge needed. Add plantings for bank stabilization for areas adjacent to creek (between trail and creek). Landowner correspondence indicates privacy concerns with segment.	N/A - Town road right-of-way
5A	Local Connector	247	High level of design needed for steep walk down from 1st Avenue S and staging area. Barrier free accessibility is recommended. Add crosswalk from north side to south side of 1st Avenue S. Adjacent to creek bank – setback needed. Add plantings for bank stabilization for areas adjacent to creek (between trail and creek).	1. N/A - Town lane right-of-way 2. Privately owned - pursue easement or ownership
5B	Natural	257	Add plantings for bank stabilization for areas adjacent to creek (between trail and creek).	Privately owned - pursue easement or ownership

Trail Segment	Trail Classification	Distance (m)	Design Notes	Land Acquisition
6	Local Connector/ Natural	539	Add crosswalk from north side to south side of 1st Avenue S. High level of design needed for moderately walk down from 1st Avenue S and staging area. Nice open viewscape provided at start of segment 6 as one ventures south.	N/A - Town lane and road right-of-way
7	Natural	671	Bridge needed over substantial low area south of Lot 1, Block 78. Boardwalk likely necessary over wetland areas within road allowance. Add plantings for bank stabilization for areas adjacent to creek (between trail and creek).	N/A - Town road right-of-way
8	Natural	448	Bridges needed (2). Low area within closed road allowance.	N/A - Town road right-of-way
8A	Natural	351	Add plantings for bank stabilization for areas adjacent to drainage area (between trail and low area). Culvert needed in Lot 7, Block 86.	Privately owned - pursue easement or ownership
Staging Area (start of segment 5A or 6)		Provide parking area and appropriate amenities. Geotechnical testing should be performed to ensure the potential staging area in Lot 5, Block 68 is suitable to support vehicle parking.		1. N/A – Town road right-of-way 2. N/A – Town owned parcel

Tunnel for golf cart/walking path beneath Highway 534 (Vulcan, AB)

Charles & Mabel Magrath standing next to an irrigation canal near Magrath circa 1900. Photo credit Galt Museum & Archives.

Walking trail tunnel beneath roadway in Confederation Park (Calgary, AB)



Irrigation canal near Magrath circa 1890-1905. Photo credit Galt Museum & Archives.

MAGRATH REGIONAL TRAILS MASTER PLAN

FIGURE 16 - SECTOR 1

Establish Crosswalk

Establish Crosswalk

Testing needed to ensure slope stability if used for parking

Steep Climb

Low Area

Establish plantings (ie Willow and balsam poplar) for bank stabalization and riparian protection between trail and bank. Minimum 20' setback from top of bank to trail.

Waste transfer 300m buffer

Low / Flood Plain Area

Low Area

1 AVE S

2 AVE S

3 AVE S

4 AVE S

1 ST W

1 ST E

2 ST E

2A ST E

3 ST E

4 ST E

CENTRE ST

HERITAGE RD

HIGHWAY 62

ROADWAY

Magrath Town Boundary

1

2

2A

2B

3

3A

3B

3C

4

4A

5

5A

5B

6

7

8

8A

Existing Trail

Existing Sidewalk

Preferred Route

Second Preference

Photo Vantage Point

Index Contours (2.5m)

Closed Road

School Zone Sign

Stop Sign

Yield Sign

Staging Area

PHOTO DATE: MAY 7, 2013

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Sector #2: Former Irrigation Canal Corridor

This sector traverses over the former irrigation works once known as the "high line" - constructed during 1898-1899. The modification of the landscape that was performed to accommodate this ambitious and formative project is amazing, and provides a great opportunity for commemoration through interpretive signage. Beautiful views are offered by this very important sector. A "natural" (less developed) trail type is fitting here given the various steep sections and lower anticipated use. Earth work and landscaping will likely be necessary in order to ensure appropriate slopes and trail widths in a few locations.

The lands within this sector are privately held and the success of the route through this area is contingent upon the willingness of a select few landowners. As the route meanders off the irrigation corridor and past the LDS Church campground it must climb a steep hill which will require switch backs or an accessible design solution so to make the slopes climbable. In the north area of this sector, adjcaent to the Town of Magrath corporate boundary, the trail forks – and allows the user to continue north into Sector 9 or west into Sector 3.

Sector #2 challenges & opportunities

- *Land acquisition*
- *Distance from amenities & emergency facilities*
- *Steep slopes*
- *Potential conflict with livestock*
- *Wide open viewscapes*
- *Integrated within landscape modified for irrigation and resulting interpretive opportunities*
- *Potential for partnership with LDS Church for future amenities adjacent to trail*

"It was fortunate that the Galts, who understood the fundamentals of colonization - the care of the newcomers - and the Mormons, who understood irrigation by actual experience, met at this time. It was only a question of bringing about co-operation of the two interests."

(Irrigation Builders, p. 61)

Picture 10 - Looking north at former irrigation canal within segment 10

Picture 11 - Looking east atop former irrigation canal road within segment 9

Picture 12 - Looking east at cut in irrigation bank (potential spot to get atop of irrigation canal bank) within segment 9

Picture 13 - Looking northwest towards Magrath Stake Campground from atop former irrigation canal within segment 12

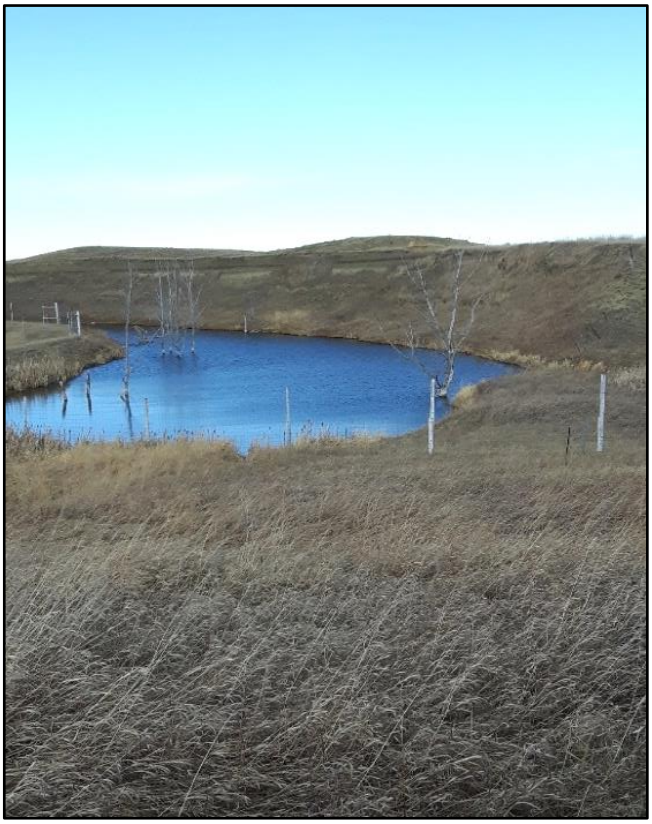
Picture 15 - Looking west towards Magrath Stake Campground within segment 12

Picture 16 - Looking southeast from segment 13 towards Magrath Stake Campground

Picture 14 - Looking southwest along former irrigation canal bank within segment 10

Picture 17 - Looking south along former irrigation canal bank within segment 10

Picture 18 - Looking southwest at irrigated crop lands within SE 25-5-22-W4M (south of segment 10)



Picture 19 - Looking northeast at ponding within former irrigation canal adjacent to segment 12

Picture 20 - Looking east at Pothole Creek, showing approximate bridge location within segment 12

Figure 17 – Sector 2 Trail Analysis Chart

Trail Segment	Trail Classification	Distance (m)	Design Notes	Land Acquisition
9	Natural	791	Narrow "bench" (10-20 ft. wide) on portions of former irrigation canal bank and steep side slopes. Route trail on north side of canal bank until "cut" at which can climb up onto bench. Add plantings for bank stabilization where appropriate. Land owner correspondence indicates a willingness to consider an easement for the trail.	Privately owned - pursue easement
10	Natural	475	Narrow "bench" (10-20 ft. wide) on portions of former irrigation canal bank and steep side slopes. Earthwork likely necessary to flatten/widen trail corridor. Add plantings for bank stabilization where appropriate. Provide shelter/wind break at location with good view.	Privately owned - pursue easement or ownership
11	Natural	720	Bridge needed. Steep climb from west of creek to top of slope. Correspondence with landowner's agent (LDS Church) indicates reluctance for trail passage.	Privately owned - pursue easement
12	Natural	1067	Bridge needed. Steep climb from west of creek to top of slope. Privacy concerns adjacent to LDS Stake Campground. Run parallel to (north of) waterslide within campground. Correspondence with landowner's agent indicates an easement is a possibility.	Privately owned - pursue easement or ownership
12A	Natural	852	Hug property line to avoid fragmenting farmland. Bridge needed adjacent to campground. Steep climb from west of creek to top of slope. Correspondence with landowner's agent (Ririe) indicates an easement is a possibility. Correspondence with landowner's agent (LDS Church) indicates reluctance for trail passage.	Privately owned - pursue easement
12B	Natural	213	Correspondence with landowner's agent (Ririe) indicates an easement is a possibility.	Privately owned - pursue easement
13	Natural	854	Provide 3.0 m vegetative buffer setback from 4th Street E. Correspondence with landowner's agent (LDS Church) indicates reluctance for trail passage.	Privately owned - pursue easement

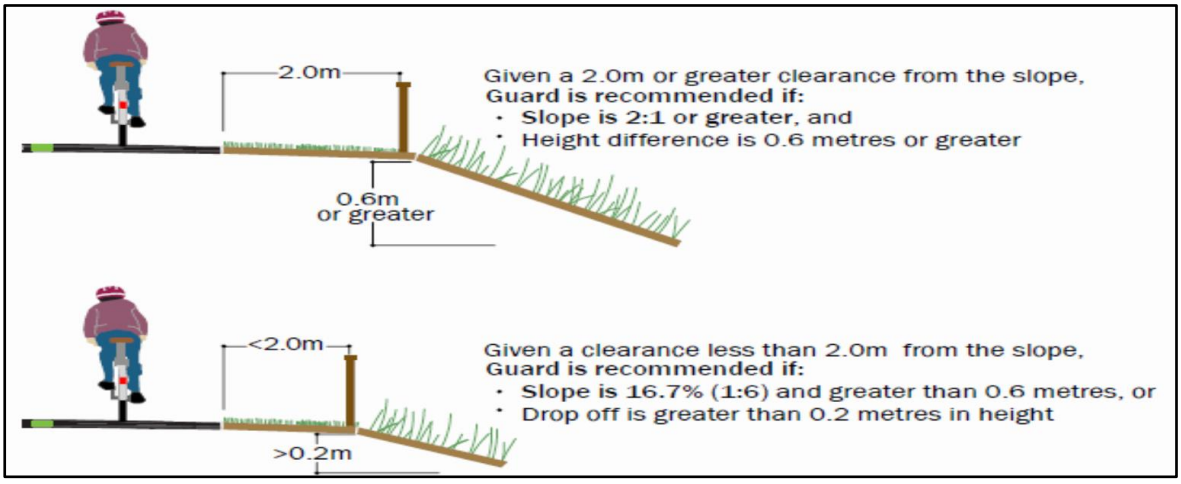


Figure 18 – Guard Rail Criteria Drawing

Note: Illustration from Best Practises Guide to Minimizing Risk & Liability on Trails (2013) showing general criteria for guard rails. Guard rails should be a minimum 1.05 m (3.4 ft.) in height and may be necessary along the former irrigation canal road.

MAGRATH REGIONAL TRAILS MASTER PLAN

FIGURE 19 - SECTOR 2

Existing gravel road

Undeveloped passageway

Steep climb

Low Area

Provide covered shelterbelt/sitting area at location with good view

Provide guard and/or hand rails where necessary

Former irrigation canal road

Waste transfer 300m buffer

Low Area

North of embankment

Climb atop embankment (where there is a break)

Establish plantings (ie Willow and balsam poplar) for bank stabalization and riparian protection between trail and bank. Minimum 20' setback from top of bank to trail.

NW25 5-22-4

NE25 5-22-4

SW25 5-22-4

SE25 5-22-4

4 ST E

4A ST E

HERITAGE RD

IRRIGATION R/W

IRR834CU

IRR37H

CANAL R/W

IRR129TER

Magrath Town Boundary

8

8A

9

10

11

12

12A

12B

13

13A

34

Preferred Route

Photo Vantage Point

Index Contours (2.5m)

Closed Road

Yield Sign

PHOTO DATE: MAY 7, 2013

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Sector #3: Former Sewage Lagoons/Town Industrial Park

Sector #3 challenges & opportunities

- *Steep slopes (same as node #2)*
- *Crossing of 4th Street E*
- *Residents oppose a trail in close proximity to 4th Street E*
- *Link to industrial area (employment centre)*
- *Adjacent to future residential neighbourhoods*

The former sewage lagoons (relocated to the northeast of the Town in the early 1990s) previously occupied this sector, which has since been cleared for residential/parkland type (Alberta Tier 1 Guidelines) use as per the *Confirmatory Sampling of the Former Magrath Sewage Lagoons* (2012) document. The lands east of 4th Street E are zoned for industrial use and as this area develops it is expected to be a significant employment centre for the Town. Plans for the "Starfield Centre" a multi-greenhouse/food production development should be reviewed once they are finalized to ensure compatibility with the trail. There may be opportunity for a trail "spur" to provide a linkage between new employment generating developments in this area and the trail network.

The existing gravel passageway over the former municipal reserve parcel provides a suitable corridor (segment 13A) leading up to 4th Street E. 4th Street E is a busy road that is expected to increase in traffic, especially truck traffic, as the adjacent industrial area develops. The *Infrastructure Master Plan* identifies the possibility of widening the 4th Street E right-of-way (from 20 m to 30 m) for the primary purpose of making ditch improvements to accommodate storm water conveyance and with the secondary benefit of providing a corridor for trail development. It is understood that stormwater management in this area will likely be handled in an alternate manner and that the ditch upgrades identified in the Infrastructure Master Plan will not be necessary. Instead of putting the trail within the road right-of-way it is proposed that a parallel corridor within adjacent private lands be developed, along with an intervening landscaping buffer.

Picture 21 - Looking west from the bottom of slope within segment12

Picture 22 - Looking east from where steep slopes begin, within segment 12, towards Pothole Creek

Picture 23 - Looking east, south of Town industrial lots, at gravel road in segment 13A

Picture 24 - Looking west from 1 Ave N (south of Inline Ovals) at segment 15 where it will cross 4th Street E

Picture 25 - Looking north, from intersection of 4th Street E and 1st Avenue N, at segment 15

Picture 27 - Looking south, from intersection of 4th Street E and 3rd Avenue N, at segment 15

Picture 26 - Looking east, south of former sewage lagoons, at primitive road in segment 13A (note that gravel road extends from 4th Street E to a point approx. 30 m east of the most easterly new Town industrial lot)

Figure 20 – Sector 3 Trail Analysis Chart

Trail Segment	Trail Classification	Distance (m)	Design Notes	Land Acquisition
13A	Local Connector	607	Existing gravel road approx. 4.5 m (15 ft.) wide extends from 4th Street E to a point approx. 30 m (100 ft.) east of Town where it transitions to an undeveloped vehicle passageway. Need to make trail legible within former road surface (i.e. reduce road width and plant trees within reduced road area). Potentially provide "spur" to future development. Former MR parcel (disposed of in 2016).	N/A - Town owned parcel (previous MR designation on title was removed in 2015)
14	Local Connector	765	Potentially located within future road corridor. Hug westerly boundary to not interfere with road. North/south leg could go atop existing berm over pipeline right-of-way 971 0117. Former MR parcel (disposed of in 2016).	1. N/A - Town owned parcel 2. Privately owned - pursue easement or take MR
15	Local Connector	375	Crossing of 4th Street E must be carefully designed and signed for maximum user safety. Provide 3.0 m vegetative buffer setback from 4th Street E. See Appendix A.4 for plan view drawing and Appendix A.5 for roadway crossing drawing.	Privately owned - take MR or take sufficient road right-of-way to include trail
Staging Area (within Public Utility Lot adjacent to segments 13 and 13A)			Provide parking area and appropriate amenities. Potential location for future washroom, facility.	N/A - Town owned parcel

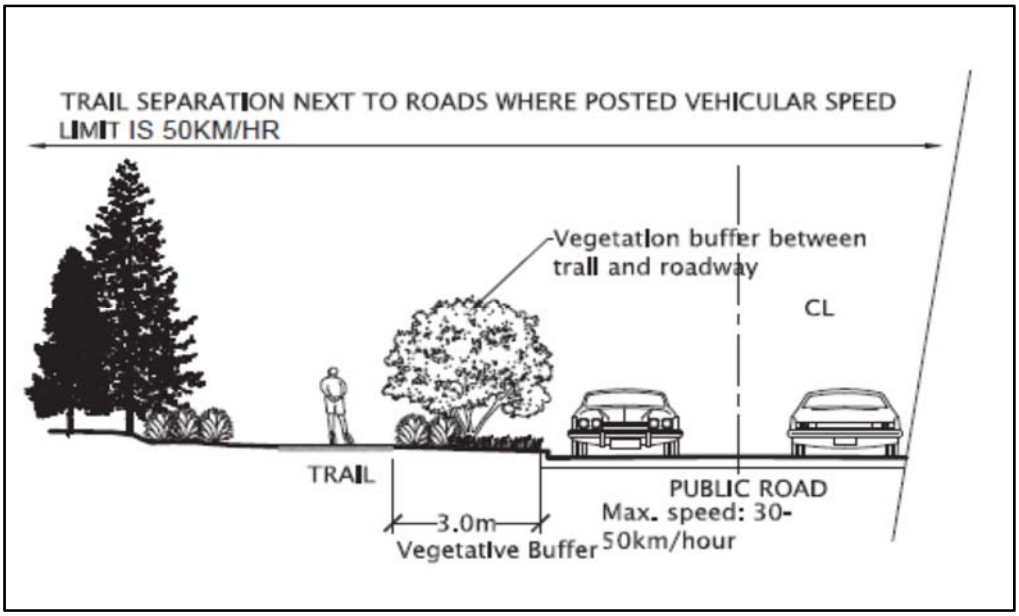
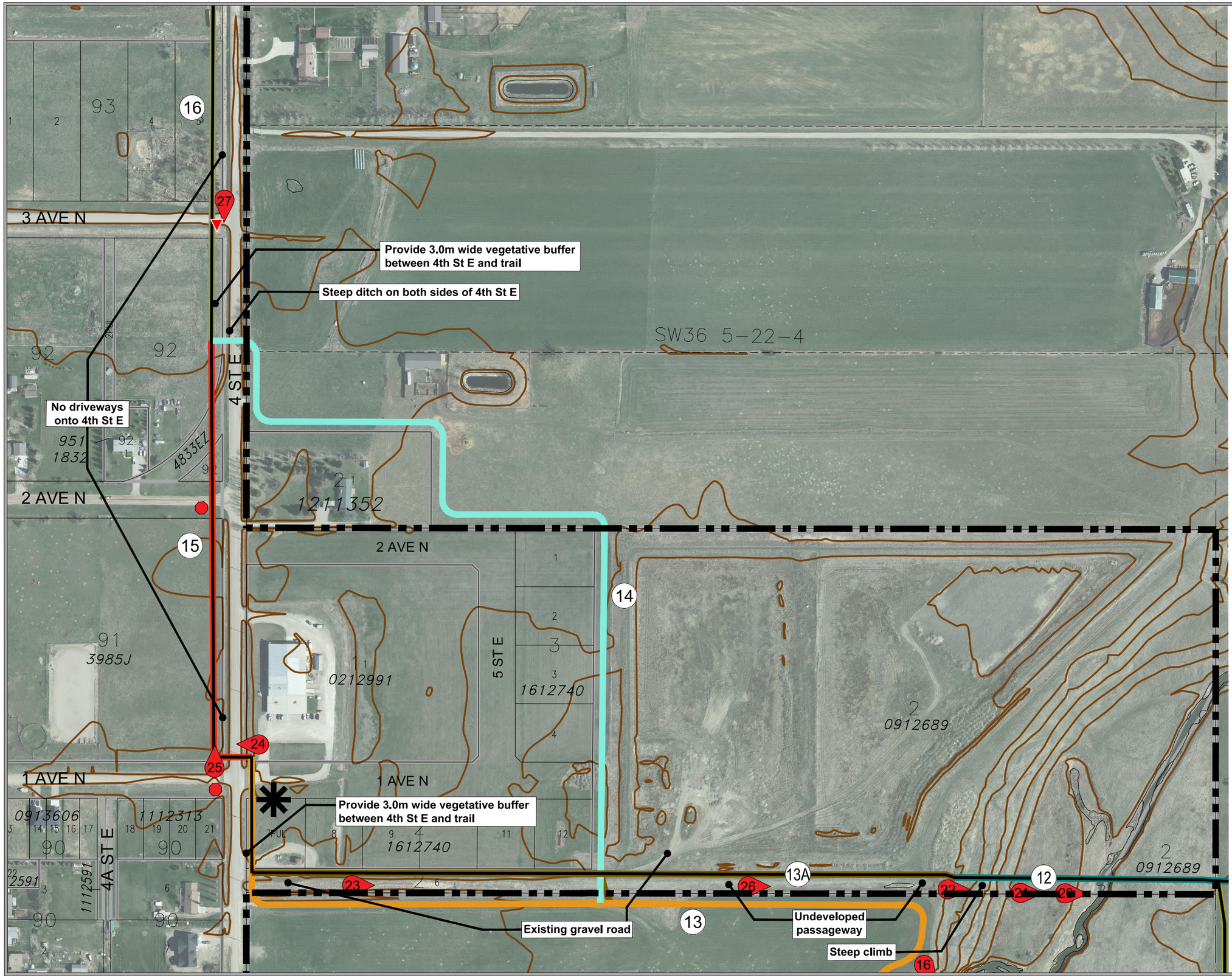


Figure 21 – Trail Separation Buffer

Note: Suggested minimum buffer between trail and roadway as per Best Practises Guide To Minimizing Risk & Liability on Trails (2013) which should be applied to trail adjacent to 4th Street E. See rendering in Appendix A.2.

MAGRATH REGIONAL TRAILS MASTER PLAN

FIGURE 22 - SECTOR 3



Magrath Town Boundary

12

12A

13

13A

14

15

16

Preferred Route

Photo Vantage Point 72

Index Contours (2.5m)

Stop Sign

Yield Sign

Staging Area

PHOTO DATE: MAY 7, 2013

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Sector #4: Willow Gardens

This area is within the future Willow Gardens (tentative neighbourhood name as per landowner/developer) community which is potentially slated for large lot residential development. The trail will run alongside the future stormwater canal which will be constructed near the former Canadian Pacific Railway rail bed, parallel to Highway 5. The past existence of the railroad, which arrived at Magrath in the fall of 1900 and was abandoned and ultimately removed in the mid 1990s, offers opportunity for interpretive signage on rail transportation and its role in the establishment of the region. The highway is not a major safety concern here as a considerable setback of at least 70 m (230 ft.) exists between the nearest edge of the highway surface and the trail.

It is suggested that this segment be classified and designed as "regional multi-use" which will accommodate a higher volume of traffic and provide a width more suitable to handle large groups anticipated to visit the future wetland area to the west in Sector 5 and its associated amenities. The inclusion of segment 17A, which makes for a complete loop within this sector, will make this area a destination in itself, and provides a circuitous route within the larger network. The integration of the trail into the fabric of this future neighbourhood will provide for a dynamic, walkable community.

Sector #4 challenges & opportunities

- *Proximity to Highway 5*
- *Potential to create individual neighbourhood loop within the trail loop as a whole*
- *Use of former railway corridor and interpretive opportunities*
- *Adjacent to future residential neighbourhood*

Picture 28 - Looking west at towards segment 16 from 4th Street E

Picture 29 - Looking northwest at segment 17 from 4th Street E

Picture 30 - Looking southwest from the intersection of segments 17 and 18 adjacent to 4th Street E

Picture 31 - Looking east at future Willow Gardens community from segment 19

Picture 32 - Looking east at segment 18 adjacent to former railway right-of-way and Highway 5

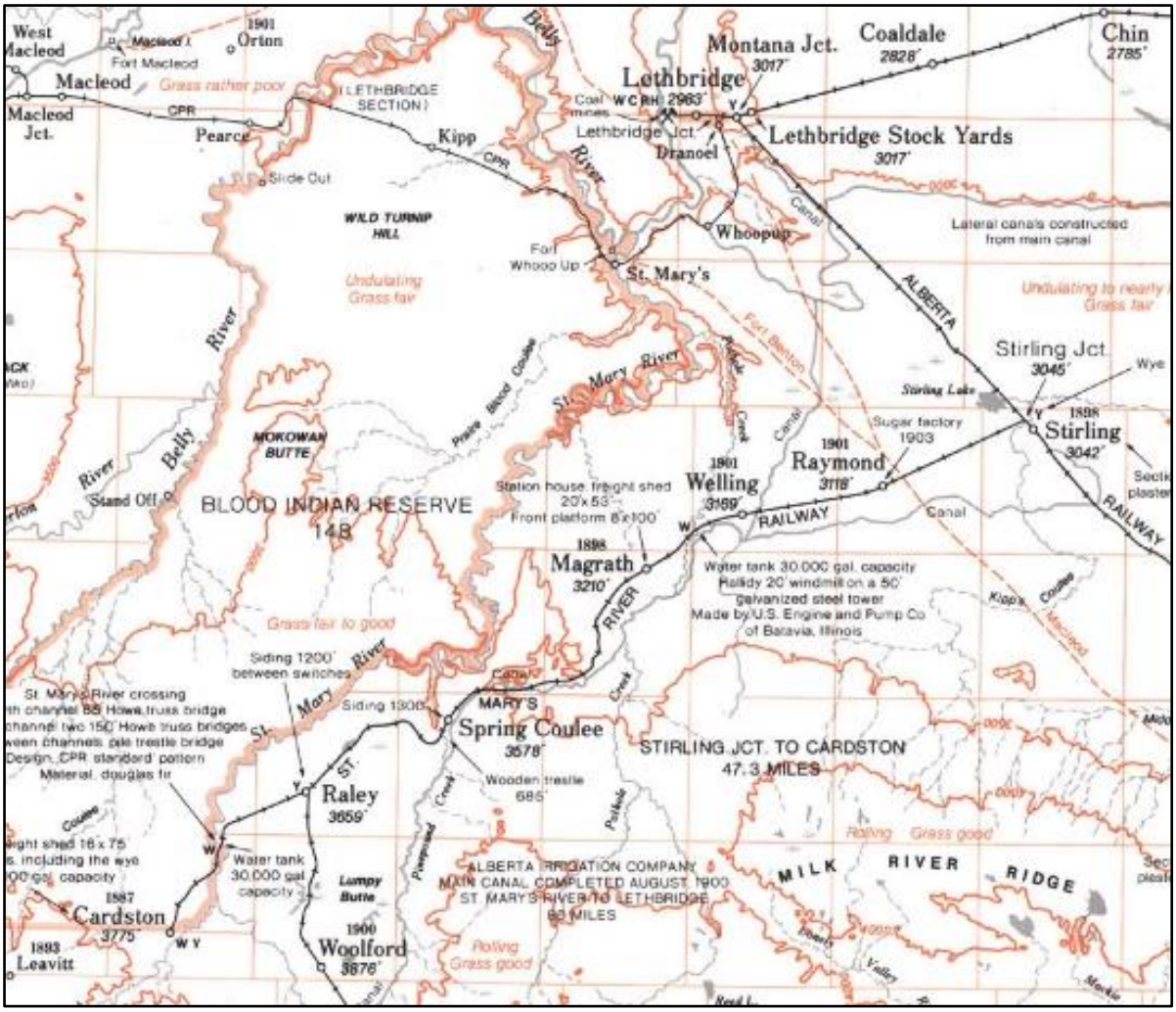


Figure 23 - Alberta Railway & Coal Map, St. Mary River Region, showing the former railway through Magrath. The last train left Magrath in 1995 after which the railbed was removed and the railway parcels sold to adjacent landowners.

Figure 24 – Sector 4 Trail Analysis Chart

Trail Segment	Trail Classification	Distance (m)	Design Notes	Land Acquisition
16	Local Connector	458	Provide 3.0 m vegetative buffer setback from 4th Street E.	Privately owned - take MR
17	Regional Multi-use	1152	Provide 3.0 m vegetative buffer setback from 4th Street E. Design with higher speed users in mind to accommodate special events like races. See Appendix A.4 for plan view drawing.	Privately owned - take MR
17A	Regional Multi-use	736	Design with higher speed users and large groups in mind to accommodate special events like races.	Privately owned - take MR
18	Regional Multi-use	623	Align with future stormwater canal as per design drawings from MPE. Design with higher speed users and large groups in mind to accommodate special events like races.	Privately owned - include within UROW/PUL for stormwater drainage ditch

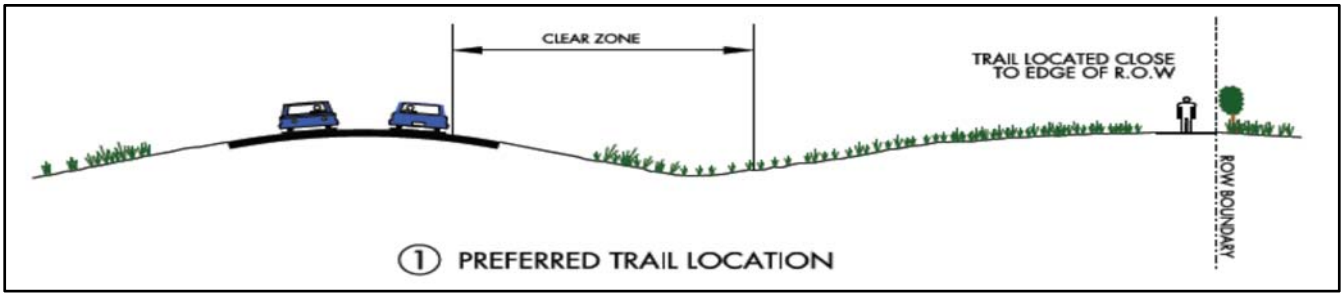
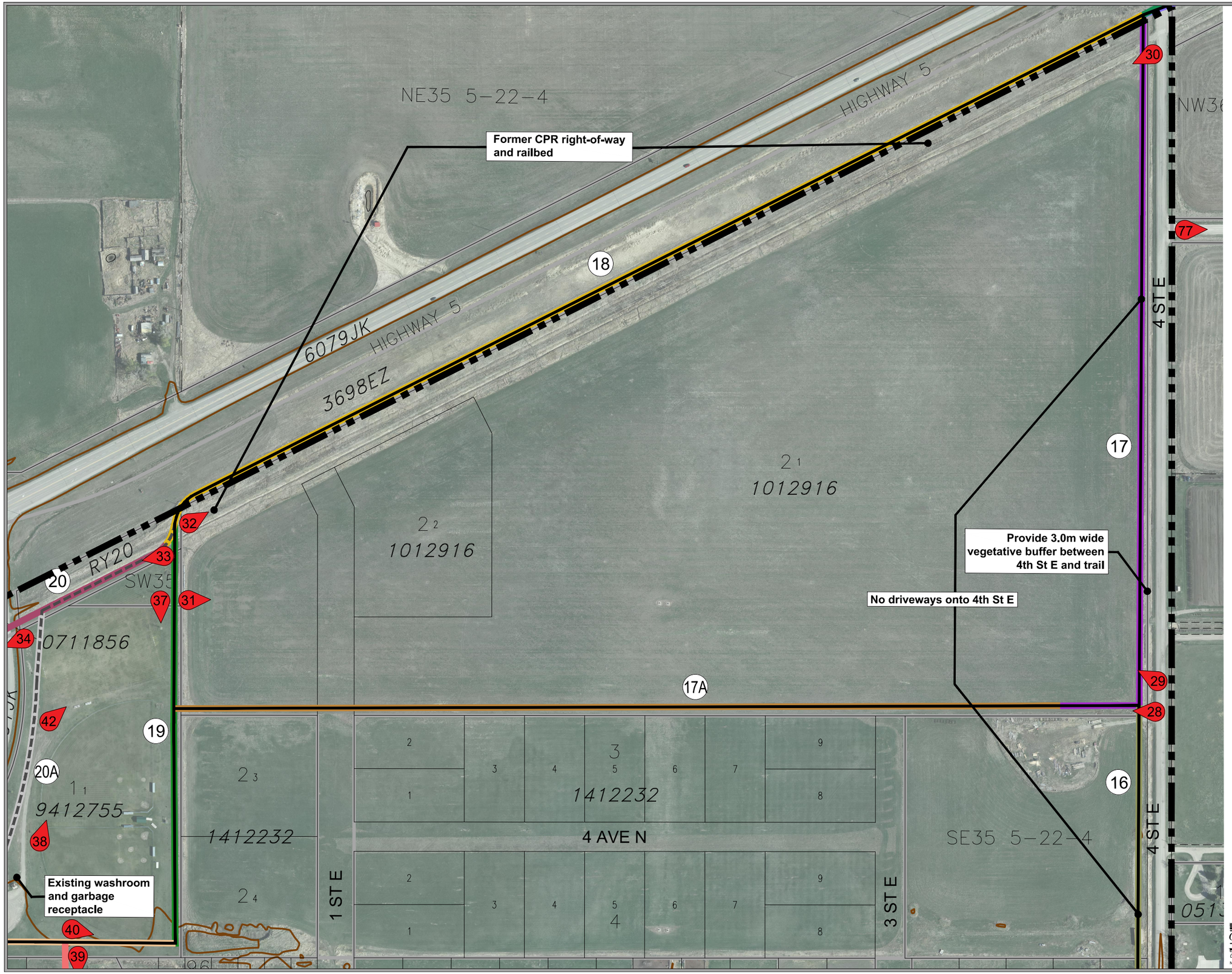


Figure 25 – Preferred Trail Location In Proximity to Highways

Note: Illustration from Trails in Alberta Highway Rights-of-Way: Policies, Guidelines & Standards (2015) showing, generally, the preferred location of a trail within the highway right-of-way as is proposed with Segment 18 (permission required from Alberta Transportation), where a trail cannot be located outside of the highway right-of-way (which is the preference of Alberta Transportation).

MAGRATH REGIONAL TRAILS MASTER PLAN

FIGURE 26 - SECTOR 4



Magrath Town Boundary

16

17

17A

18

19

20

20A

21

21A

Photo Vantage Point 72

Index Contours (2.5m)

Preferred Route

PHOTO DATE: MAY 7, 2013

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Sector #5: Elevator Row/Cook Centennial Park

Sector #5 challenges & opportunities

- *Highway 62 crossing*
- *Land acquisition for portion of segment#21A*
- *Linkage to community recreation area and hospital*
- *Viewscapes and interpretive opportunities within elevator row*
- *Use of former railway corridor and interpretive opportunities*
- *Future naturalized wetland loop and related amenities*

The primary entrance to Town, off of Highway 5, bisects this sector. A major Town/County stormwater drainage (open canal) project initiated in 2016, including a naturalized wetland, conveniently provides opportunity for a parallel trail. Starting from the east, the space behind the ball diamonds and soccer field within Cook Centennial Park varies from 10 m - 20 m wide, and is a logical corridor that will provide a path for people using these facilities to travel to and from their destination and an opportunity to introduce non-residents to the trail system. Alternatively, segment 20A which sneaks behind the soccer field on the east side of Highway 62, could be utilized. Segment 21A will provide connectivity to the more central areas of the Town by way of the Hospital site which transitions to the sidewalk system and heads south towards the school.

Preliminary discussions with Alberta Transportation suggest that either of the two potential highway crossings could work, but a preference was suggested for the more southerly crossing. The highway crossing will be required to comply with the *Trails in Alberta Highway Rights-of-Way: Policies, Standards & Guidelines* (2015), and approved by Alberta Transportation. The potential Segment 20 crossing is close to the Highway 5 right-of-way and the resulting stacking distances and sight lines are concerning. A future naturalized wetland area west of Highway 62 will include a trail loop and will be an attraction equipped with landscaping, lighting and a boardwalk. Continuing west, under the shadows of multiple types of grain elevators, this sector provide the perfect setting for interpretive signage on the history of grain storage and agricultural practises in the region.

Picture 33 - Looking west at future location of stormwater ditch within segment 20

Picture 34 - Looking west at potential Highway 62 crossing within segment 20 at area slated for future naturalized wetland

Picture 35 - Looking northwest at intersection of Highways 5 & 62, at potential Highway 62 crossing location within segment 20

Picture 36 - Looking southwest at Highway 62 entrance into Town at the potential highway crossing location within segment 20

Picture 37 - Looking south along segment 19, betwwen private property to east and sports fields to the west

Picture 38 - Looking northeast at Cook Centennial Park (ball diamonds and soccer fields)

Picture 39 - Looking south towards the hospital site along segment 21A

Picture 40 - Looking east behind outfield fence of southerly ball diamond within segment 21

Picture 41 - Looking northwest at vehicle entrance from Highway 62 to Cook Centennial Park within segment 21

Picture 42 - Looking northeast at segment 20A behind soccer field

Picture 43 - Looking southwest from potential Highway 62 crossing location within segment 21 adjacent to future wetland area

Picture 44 - Looking southeast at potential Highway 62 crossing location within segment 21 from area slated for future naturalized wetland

Picture 45 - Looking east at future location of stormwater ditch within segment 22

Picture 46 - Looking east at wetland area adjacent to segment 22

Picture 47 - Looking northeast from segment 22 at "elevator row"

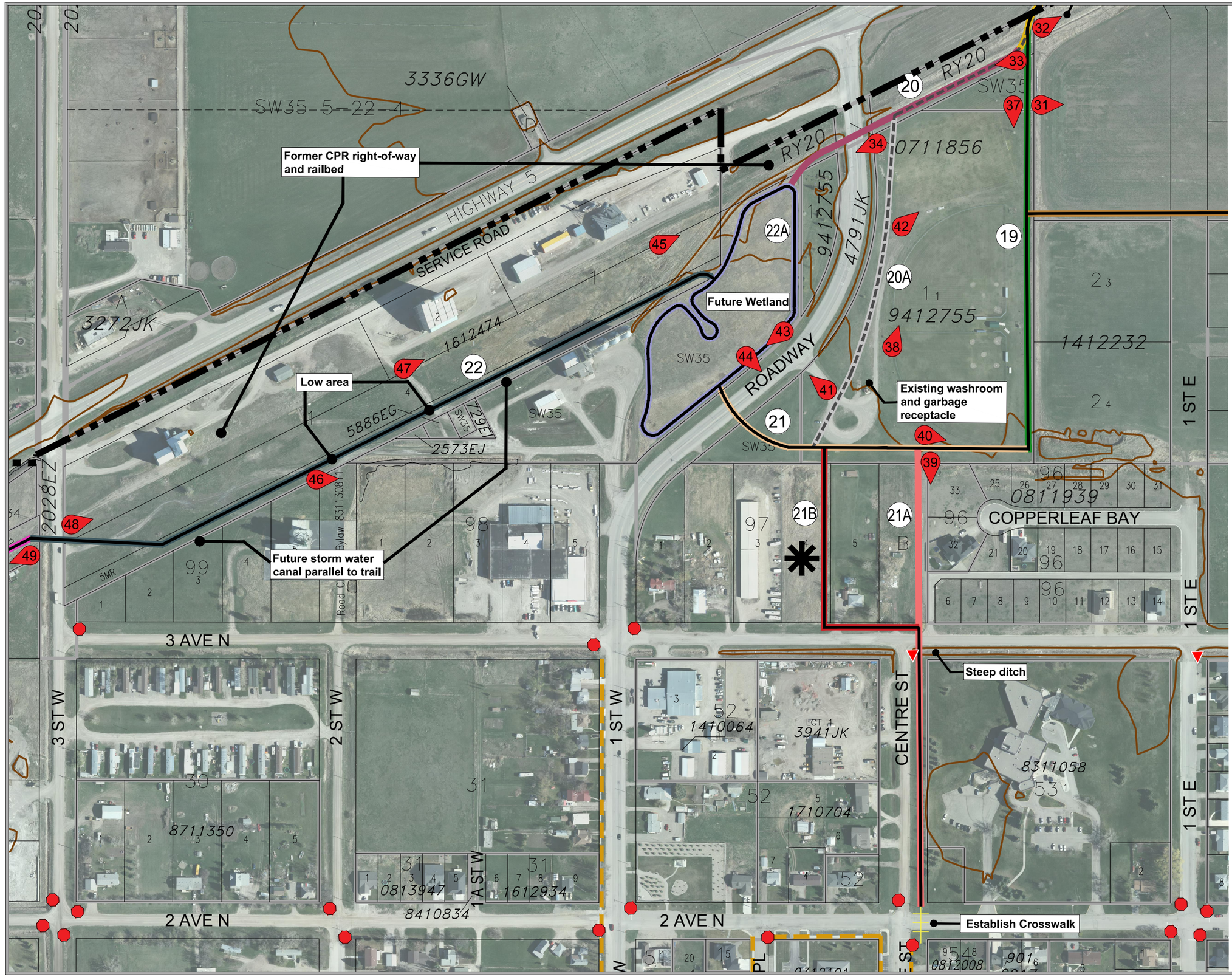
Picture 48 - Looking east from segment 22 at "elevator row" from 3rd Street W

Figure 27 – Sector 5 Trail Analysis Chart

Trail Segment	Trail Classification	Distance (m)	Design Notes	Land Acquisition
19	Regional Multi-use	349	Design with higher speed users in mind to accommodate special events like races.	1. Privately owned - pursue easement over ptn. of SW¼ 35 or ownership 2. N/A - Town owned parcel
20	Regional Multi-use	350	Highway 62 crossing that is within the functional area of the intersection Highway 5 and Highway 62. Concerns regarding vehicle stacking distances and limited reaction sightlines/reaction time for drivers turning off Highway 5.	1. Privately owned - include within UROW/PUL for stormwater drainage ditch 2. Alberta Transportation approval
20A	Regional Multi-use	286	Limited space between soccer field and Highway 62. Route trail between soccer goals and sign so to avoid irrigation lines. May interfere with vehicle parking and flow during sporting events.	N/A - Town owned parcel
21	Regional Multi-use	360	Highway 62 presents some concerns given the curvature of the road and resulting sightline limitations. Preliminary conversations with Alberta Transportation indicate that a crossing at this location should not be a concern.	1. N/A - Town owned parcel 2. Alberta Transportation approval
21A	Local Connector	379	Deep ditch within south side of 3rd Avenue N right-of-way north of hospital.	Privately owned - pursue easement
21B	Local Connector		Deep ditch within south side of 3rd Avenue N right-of-way north of hospital.	N/A - Town owned parcel
22	Local Connector	632	Align with future stormwater canal as per design drawings from MPE. Avoid wetland area in south-central portion of parcel.	1. N/A - Town owned parcel 2. N/A - County owned parcel
22A	Regional Multi-use	602	Align with future wetland area as per design drawings from MPE. Wetland area will be furnished with amenities (i.e. benches, look out points, etc.) and will be a feature point of this sector.	N/A - Town owned parcel
Staging Area (adjacent to segment 20A or adjacent to segment 21B)			An existing seasonal washroom already exists adjacent to the vehicle loop near the ball diamonds. A staging area could be developed at this location or within the recently acquired town property in segment 21B.	N/A - Town owned parcel

MAGRATH REGIONAL TRAILS MASTER PLAN

FIGURE 28 - SECTOR 5



Sector #6: Northwest Portion of Town

The lands within Sector 6 are largely undeveloped. Existing developments are mostly industrial in nature and include Southwest Concrete, Jenex Contracting and the Cardston County shop, set amongst pasture lands and a few acreage residential parcels. The few remaining opportunities for industrial/commercial development will be conveniently located next to the trail. The former railway parcel provides a logical linear corridor for the continuation of the trail from the west. The future stormwater canal will run through this corridor commencing from a point just east of 6th Street W before it crosses 2nd Avenue N. Segments 23 and 23A run parallel to the proposed stormwater canal drainage project.

As the trail extends south and west from this point it will enter the 9.0 m wide (29.5 ft.) municipal reserve strip (Lot 1MR, Block 100, Plan 151 2700). A corresponding MR strip should be dedicated along the perimeter of the west half of Lot 1, Block 102, Plan 151 2700. This block will likely be subdivided in a similar fashion to the east half of the block.

Sector #6 challenges & opportunities

- *Isolated area of town with few opportunities for "natural surveillance" after hours*
- *Close proximity to Highway 5 in certain areas*
- *Use of former railway corridor and interpretive opportunities*
- *Agricultural backdrop with mountain vista provides good opportunity for interpretive signage on agriculture*
- *Link to existing and future industrial/commercial employment area*

Picture 49 - Looking south west from 3rd Street W at former CPR corridor and future stormwater ditch within segment 23

Picture 50 - Looking west at former railway stop within segment 23

Picture 51 - Looking north from 2nd Avenue N at segment 23

Picture 52 - Looking north from 2nd Avenue N at Southwest Concrete, located to the south of segment 23

Picture 53 - Looking northeast from 2nd Avenue N at segment 23A, west of Cardston County shop

Picture 54 - Looking east at existing municipal reserve lot south of 2nd Avenue N and within segment 23/23A

Figure 29 – Sector 6 Trail Analysis Chart

Trail Segment	Trail Classification	Distance (m)	Design Notes	Land Acquisition
23	Local Connector	821	Align with future stormwater canal as per design drawings from MPE. Low areas within former railway corridor. Former rail bed may be suitable for base of trail. Provide 3.0 m wide vegetative buffer adjacent to 2nd Avenue N.	1. County owned - include within UROW/PUL for stormwater drainage ditch 2. Privately owned - pursue easement 3. Town owned MR lot
23A	Local Connector	260	Align with future stormwater canal as per design drawings from MPE. Former rail bed may be suitable for base of trail.	1. County owned - include within UROW/PUL for stormwater drainage ditch 2. Town owned MR lot
23B	Local Connector	484	Provide 3.0 m wide vegetative buffer adjacent to 2nd Avenue N	Privately owned - take MR

MAGRATH REGIONAL TRAILS MASTER PLAN

FIGURE 30 - SECTOR 6

Former CPR right-of-way and railbed

Establish 3m vegetative buffer between 2nd Ave N and trail

Start of future storm water canal which will run parallel to segment 23

HIGHWAY 5

RAILWAY R/W

2 AVE N

1 AVE N

3 ST W

4 ST W

5 ST W

6 ST W

SE34 5-22-4

SW34 5-22-4

9010259

0613196

1512700

0512045

1711275

1011701

9311657

9711603

1312931

6080JK

6079JK

3698EZ

1284EZ

RY20

Magrath Town Boundary

22

23

23A

23B

33

Preferred Route

Future Trail
(actual alignment to be determined at Area Structure Plan stage)

Photo Vantage Point

Index Contours (2.5m)

Stop Sign

Yield Sign

PHOTO DATE: MAY 7, 2013

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Sector #7: West Boundary of Town/County

This portion of the plan presently lies with the County. Pursuant to Map 4 of the *Town/County Intermunicipal Development Plan*, the E½ of 27-5-22-W4M, containing approximately 40 ha (98.8 acres) are likely to be pursued for annexation into the Town at some point in the future (see Appendix B.3).

The majority of the lands within this sector are currently used for extensive agriculture. An open expanse of windswept agricultural lands, complete with mountain views to the west, will make this sector an important linkage in the network. Acreage residential parcels line the corridor fronting onto Township Road 54 (5th Avenue S) and portions of 5th Street W. Given the favourable topography and the absence of development constraints, a precise alignment has not been suggested. Rather it is recommended that trail development in this sector hold off until the lands are slated for subdivision. At the time of area structure plan, the trail alignment must be designed and fully integrated into the future subdivision. As subdivision is not likely to occur until the lands are annexed to the Town, for which there is no definite timeline (but not likely within the next 10 years), this sector, along with Sector 9, will likely be the last alignments to be constructed. At the time of area structure plan, consideration should be given to locating more intensive land uses (i.e. medium density residential, public & institutional uses, etc.) adjacent to the trail corridor so to fully utilize the trail amenity.

A linkage eastward to the existing developed portion of the Town, should be considered, and would be logical in any one of the Harker, 1st, 2nd or 3rd Avenue rights-of-way. A more northerly segment (i.e. Harker or 1st) would provide a connection to the downtown core, while a more southerly segment (2nd or 3rd Avenue) would link up with the Lions Park area and the existing sidewalk network and north/south trail system (segment 29 or 29A). It is noted that a typical 1.2 m - 1.5 m wide sidewalk is a utilitarian facility not capable of handling the same uses as the trail. Further, a sidewalk will change the way users feel about the facility as it transitions. Note that the existing sidewalk in 2nd Street W between 2nd and 3rd Avenues is slated for removal and replacement (per Appendix 1, Section 14.6 of the *Infrastructure Master Plan).* A design for driveway crossings must be considered and new driveways along the preferred route should be limited. In order to be compatible with existing and future driveway crossings this trail linkage should be concrete and at least 1.8 m (6 ft.) to 2.4 m (8 ft.) wide.

Sector #7 challenges & opportunities

- *Uncertainty of timeline for development*
- *Irrigation infrastructure located within avenue (E-W) road right-of-ways*
- *Private driveway crossings*
- *Interface with limited existing sidewalk network*
- *Opportunity to strategically integrate trail within future neighbourhoods and potential future school site*

Picture 55 - Looking northwest from 5th Street W at sector 7 croplands within Cardston County

Picture 56 - Looking southwest from 5th Street W at acreages fronting onto Township Road #54 (5th Avenue S) within Cardston County

Picture 57 - Looking north at 5th Street W, the current boundary between the Town and County

Picture 58 - Looking south at segment 29A adjacent to Lions Park

Picture 60 - Looking north at irrigation infrastructure within the east side of the 5th Street W right-of-way

Picture 59 - Looking south from 2nd Avenue S at segment 29 within 2nd Street and showing existing sidewalk

Picture 61 - Looking north from 3rd Avenue (point where sidewalk ends) at segment 29 within 2nd Street

Picture 62 - Looking south from 4th Avenue S at segment 29 within 2nd Street

Picture 63 - Looking southwest at Lions Park, lying adjacent to segment 29A

Figure 31 – Sector 7 Trail Analysis Chart

Trail Segment	Trail Classification	Distance (m)	Design Notes	Land Acquisition
29	Local Connector	501	Requires crossing at least 5 private driveways. Appropriate driveway crossing standard must be implemented to ensure viability. Remove existing sidewalk (note that sidewalk slated for removal and replacement in Appendix 1, Section 14.6 of the *Infrastructure Master Plan*).	N/A - Town owned road right-of-way
29A	Local Connector	703	Requires removal of trees and other obstructions in laneway, which currently varies in right-of-way width.	N/A - Town owned lane right-of-way
30	Local Connector	1035	Concrete swale proposed on both sides of road right-of-way as per Infrastructure Master Plan (Figure 6.5).	N/A - Town owned road right-of-way
31	Local Connector	1035	Concrete swale proposed on both sides of road right-of-way, from 2nd Street west to 5th Street, as per Infrastructure Master Plan (Figure 6.5). Establish cross-walk at Lion's Park.	N/A - Town owned road right-of-way
32	Local Connector	1035	Concrete swale proposed on both sides of road right-of-way, from 2nd Street west to 5th Street, as per Infrastructure Master Plan (Figure 6.5).	N/A - Town owned road right-of-way
33	Local Connector	2161	Concrete swale proposed on both sides of road right-of-way, from 2nd Street west to 5th Street, as per Infrastructure Master Plan (Figure 6.5).	N/A - Town owned road right-of-way

MAGRATH REGIONAL TRAILS MASTER PLAN

FIGURE 32 - SECTOR 7

Allocate lands adjacent to future trail for more intensive uses likely to take advantage of trail

POTENTIAL SCHOOL SITE (for discussion purposes only)

Establish Crosswalk

Establish Crosswalk

Establish Crosswalk

Steep Climb

Sidewalk ends

Steep slope

STREET

HARKER AVE

CIVIC AVE

1 AVE S

2 AVE S

3 AVE S

4 AVE S

5 AVE S

CENTRE ST

MAGRATH PL

WILDROSE PL

CENTENNIAL PL

1 ST W

2 ST W

3 ST W

4 ST W

5 ST W

1 ST E

1A ST E

2A ST W

3A ST W

HIGHWAY 62

MAIN ST

NE27 5-22-4

SE27 5-22-4

Magrath Town Boundary

Existing Sidewalk

Preferred Route

Future Trail
(actual alignment to be determined at Area Structure Plan stage)

Photo Vantage Point

Conceptual Land Use and Lot Design
(for discussion purposes only)

Index Contours (2.5m)

Playground Zone Sign

School Zone Sign

Stop Sign

Yield Sign

Staging Area

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Sector #8: Southwest Portion of Town

This sector represents the final linkage between the future trail and the existing trail network. Multiple routes are available through this sector by way of the existing road grid. Some of these road rights-of-way are developed while others have been closed and a title created for the same.

The south side of the 5th Avenue S right-of-way contains, for the most part, adequate space, that should facilitate trail development. However, this corridor is not ideal given road crossings, power poles, and slopes. The westerly segments (24 & 25) experience a slightly more rapid elevation drop, however any of the identified routes are relatively easily traversable. The more easterly segments (26, 27 & 28) are desirable because they provide an entrance point to the trail network closer to the core areas of the Town. All things considered segment 24 is preferred given its openness and the presence of few limitations, namely that the trail would not have to be developed in tandem with an existing roadway. An extension northwards (segment 29 or 29A) into the core of the Town is suggested in order to facilitate more ready access to the trail system. Again, this extension could be constructed either as a concrete sidewalk or developed to a local connector trail standard.

It is noted that an informal equestrian trail exists in segment 25. The equestrian trail then heads south, fording the creek east of the golf course, and continuing south to the Agriplex.

Sector #8 challenges & opportunities

- *Uncertainty of timeline for development*
- *Private driveway crossings*
- *Logical expansion/connection to existing trail system*
- *Possible linkage to golf course*
- *Scenic open viewscapes to west and south*

Picture 64 - Looking north at segment 24 with former 5th Street right-of-way

Picture 65 - Looking east at segment 24

Picture 66 - Looking east at segment 25 within 5th Avenue S right-of-way, adjacent to 5th Street W

Picture 67 - Looking south at segment 25 within former 4th Street W right-of-way (road is closed)

Picture 68 - Looking south at entry point to existing trail at the southerly end of segment 28

Picture 69 - Looking south at segment 26 from the 3rd Street W right-of-way, with existing trail in the background

Picture 70 - Looking north at segment 26 within 3rd Street W right-of-way

Picture 71 - Looking west at steel sloping portion of segment 28 within 5th Avenue S

Picture 72 - Looking north at potential staging area at segment 28 within 2nd Street W right-of-way

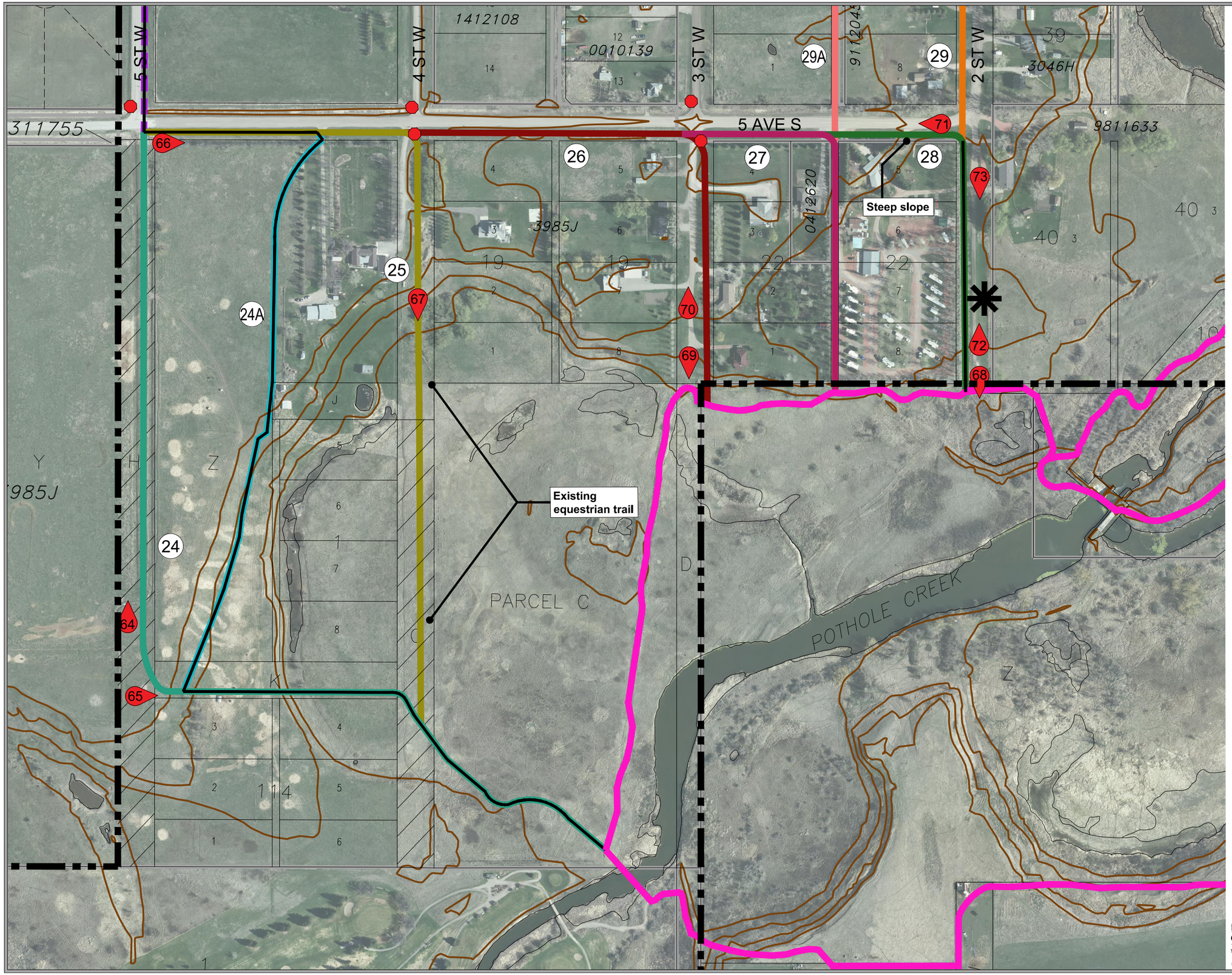
Figure 33 – Sector 8 Trail Analysis Chart

Trail Segment	Trail Classification	Distance (m)	Design Notes	Land Acquisition
24	Local Connector	895	Elevation drop as the route turns eastward.	1. N/A - Town owned parcel 2. Privately owned - pursue easement
24A	Local Connector	491	Situated in a location that would be more facilitative of future residential development (west of 24A), whereby the closed road right-of-way could be used for vehicle access with no interference by a trail (segment 24)	Privately owned – take MR
25	Local Connector	712	Driveway crossing (1). Elevation drop at end of road right-of-way. Power poles in 5th Avenue S right-of-way. The north/south portion of this segment is currently used as an equestrian trail.	N/A - Town owned road right-of-way and parcel
26	Local Connector	465	Driveway crossings (3). Power poles in 5th Avenue S right-of-way.	N/A - Town owned road right-of-way
27	Local Connector	336	Contains mature trees.	N/A - Town owned road right-of-way and lane
28	Local Connector	326	Power poles in 5th Avenue S right-of-way. Moderate/steep slope adjacent to intersection of 5th Avenue and 2nd Street. Situate trail close to fence on west side of road right-of-way to provide room for parking.	N/A - Town owned road right-of-way
Staging Area (adjacent to segment 28)			This location provides a good location for vehicle parking and other appropriate amenities within the 30 m (98 ft.) wide road right-of-way.	N/A - Town owned road right-of-way

Picture 73 - Looking south at segment 28 and potential staging area located within 2nd Street W right-of-way

MAGRATH REGIONAL TRAILS MASTER PLAN

FIGURE 34 - SECTOR 8



- Magrath Town Boundary
- 24
- 24A
- 25
- 26
- 27
- 28
- 29
- 29A
- Preferred Route
- Future Trail (actual alignment to be determined at Area Structure Plan stage)
- Existing Trail
- Photo Vantage Point (72)
- Index Contours (2.5m)
- Closed Road
- Stop Sign
- Staging Area

PHOTO DATE: MAY 7, 2013

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Sector #9: Creek Valley/Historic Canal Corridor Expansion Leg

This sector is entirely within Cardston County, east of the Town of Magrath boundary. The continuation of the trail northward, within the meandering corridor between Pothole Creek and the former irrigation canal and then westward back towards the town, is an appealing future option. The appeal of this beautiful natural corridor was recognized in the Magrath & District Recreation Master Plan: 1991-1995 (see Section 2.5 for more info).

Lands within this corridor are privately held but given the fragmented nature of the lands, resulting in limited agricultural use dotted with country residential, acquiring right-of-way should be possible over time. This sector would likely be best suited to the "natural" trail standard, the same as recommended for Sector 2 to the south. At approximately 3.3 km, this trail segment would be a similar length as the outer loop of the existing Galt Canal Nature Trail. In terms of connectivity, a linkage through this sector would complement the main peripheral trail network – offering an alternate route option for users in the northeast and east central areas. A review of aerial photography indicates the presence of isolated low areas and meandering terrain – features that present both obstacles and inviting opportunities (see page 66 for design ideas). According to a long time landowner, the creek valley outside of the channel stays dry save for the infrequent flood event.

The former irrigation canal again offers an excellent opportunity through this sector. A route including sections both atop the former irrigation road and lower within the more sheltered creek valley may provide a nice variety and an opportunity for shelter during windy periods. Limited field analysis has been undertaken for this sector therefore the route options on the Section #9 map should be reviewed with caution. At the northerly portion of this sector there are two options to bring the trail west and connect it back to the rest of the trail system. Alberta Transportation and Cardston County both hold linear right-of-way parcels that would likely be conducive to trails development.

Sector #9 challenges & opportunities

- *Uncertainty of timeline for development*
- *Considerable elevation changes*
- *Low lying areas*
- *Multiple isolated country residential dwellings with potential privacy concerns*
- *Distance from amenities & emergency facilities*
- *Wide open viewscapes*
- *Integrated within landscape modified for irrigation and resulting interpretive opportunities*

Picture 74 - Looking south at Pothole Creek valley from atop the Old Raymond Bridge

Picture 75 - Looking south at Pothole Creek valley from hill south of Old Raymond Bridge

Picture 76 - Looking south at magnificent former irrigation canal located east of Old Raymond Bridge

Picture 77 - Looking east at Township Road 55A from 4th Street E

Picture 78 - Looking south at "cut" in irrigation canal road approximately 50 ft. in width

Picture 79 – Looking south at irrigation canal right-of-way from County road allowance

Picture 80 - Looking west at County road allowance

Picture 81 - Looking northwest along Toanwhip Road 55A east of the Old Raymond Bridge

Figure 35 – Sector 9 Trail Analysis Chart

Trail Segment	Trail Classification	Distance (m)	Design Notes	Land Acquisition
34	Natural	2325	Crosses multiple (±8) private titles, making right-of-way assembly difficult. Steep slopes along west bank of former irrigation canal. Low lying wetland areas throughout corridor. At least one (1) bridge required over Pothole Creek. Crossing of Township Road 55A adjacent to Old Raymond Bridge. Potential to align parallel with future stormwater canal on the north side of road but switchbacks may be required due to steep slope.	Privately owned - pursue easement or MR
34A	Natural	1389	At its starting point (southerly) this segment is, for the most part, within a single linear parcel (as opposed to segment 34). Sits atop former irrigation canal road. Requires bridge over 50 ft. (approx.) wide "cut" in the west bank of the former irrigation canal. Landowner immediately south of Township Road 55A (Heggie) does not support trail corridor within the creek valley but may support trail corridor along west side of former irrigation canal. The westerly top of the former irrigation canal bank is preferable to the east as it appears to offer more privacy for adjacent landowners due to sitting lower than the east side in some areas.	1. Privately owned - pursue easement or ownership 2. N/A - County owned road right-of-way
34B	Natural	1020	Sightlines for crossing of Township Road 55A at this location are not good. Continue along west top of former irrigation canal. County road allowance is currently irrigated and farmed and contains an overhead electric line.	1. Privately owned - pursue easement or ownership 2. N/A - County owned road right-of-way
34C	Natural	475	Run parallel to existing fence line and Township Road 55A.	Privately owned - pursue easement or MR
35	Natural	909	20 m (66 ft.) wide Alberta Transportation drainage right-of-way which is to be used for future stormwater drainage purposes.	Alberta Transportation owned - Pursue agreement
36	Natural	1547	30 m (98 ft.) wide former CPR railway parcel that would likely be suitable for trail development.	N/A - County owned road right-of-way and parcel

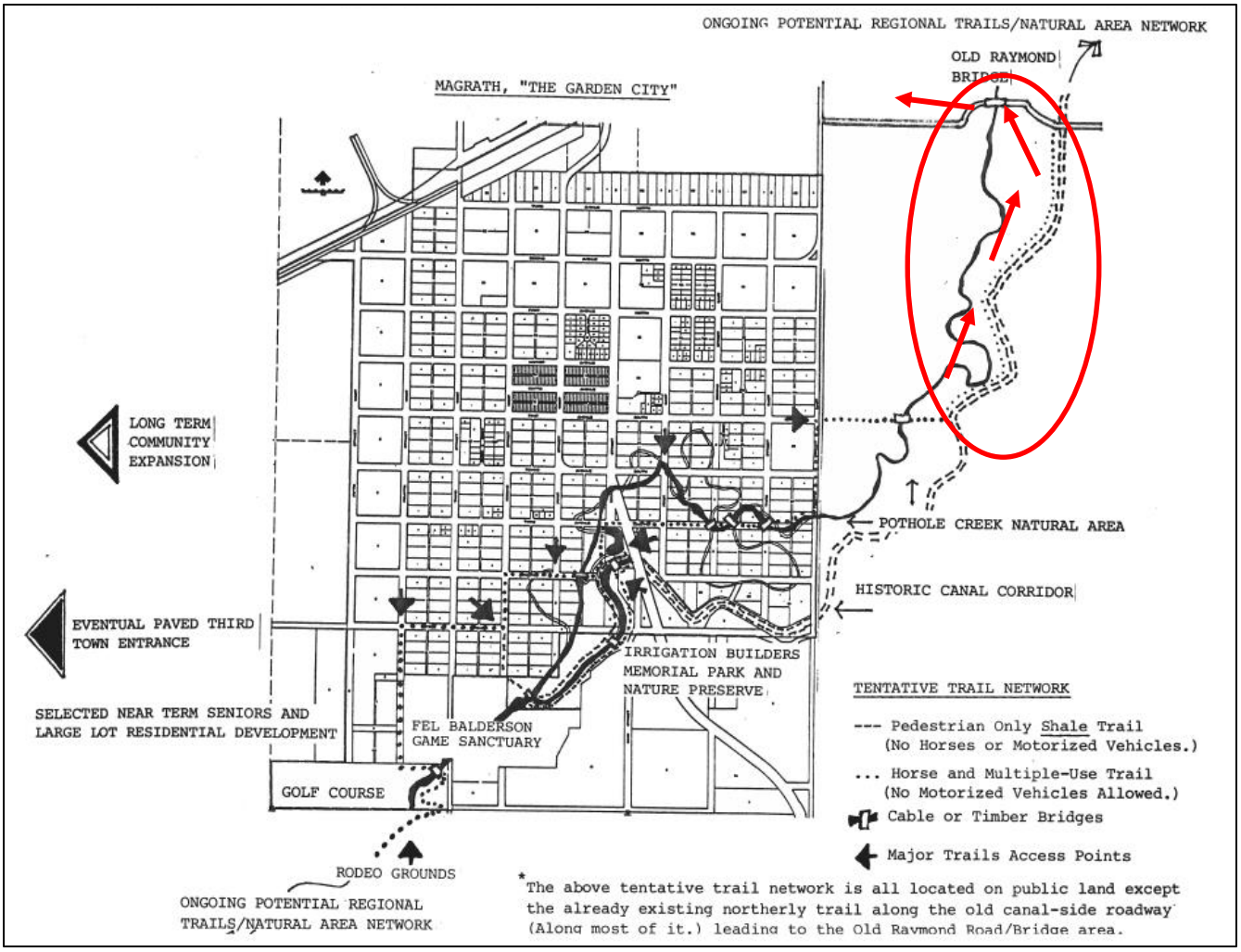

Figure 36 - Trails Map from Magrath & District Recreation Master Plan: 1991-1995 showing the trail extending northward through the natural corridor between Pothole Creek and the former irrigation canal (see Appendix B.6 for more information on this plan)

MAGRATH REGIONAL TRAILS MASTER PLAN

FIGURE 37 - SECTOR 9

Provide 3.0m wide vegetative buffer between 4th St E and trail

Steep ditch on both sides of 4th St E

Provide 3.0m wide vegetative buffer between 4th St E and trail

Existing gravel road

Undeveloped passageway

Steep climb

Trail on westerly side of former irrigation canal embankment

Magrath Town Boundary

Preferred Route (tentative - further review needed)

Photo Vantage Point

Index Contours (2.5m)

PHOTO DATE: MAY 7, 2013

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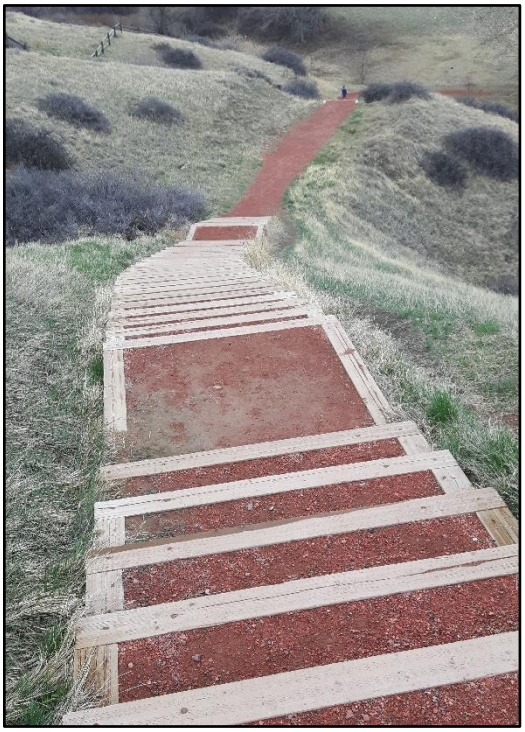
Trail Slope/Low Area Development Sample Pictures

Fortified trail perpendicular to slope (Lethbridge, AB)

Trail switch-back (Lethbridge, AB)



Timber framed stair set (Lethbridge, AB)

Trail board walk over marshy area (Calgary, AB)

3.4 Land Acquisition

It is important to understand the subdivision process as it relates to land acquisition. In simple terms, the *Municipal Government Act (MGA)* authorizes a subdivision authority to require an applicant for subdivision to dedicate, without compensation, land for public roadways and public utilities, land that is physically undevelopable or ought not to be developed for environmental reasons, and land for municipal parks and schools. Further, the MGA enables a municipality to require a developer to pay for improvements including but not limited to "(a) pedestrian walkway system to serve the subdivision or (b) pedestrian walkways to connect the pedestrian walkway system serving the subdivision with a pedestrian walkway system that serves or is proposed to serve an adjacent subdivision." Subsection 655(b) suggests that a municipality can require a "pedestrian walkway system" to be more than a conventional sidewalk.

SEE SECTION 662 OF THE MGA ON OBLIGATORY LAND DEDICATION AND SECTION 655 ON OBLIGATION TO CONSTRUCT OR PAY FOR IMPROVEMENTS

The acquisition or control of lands with which to implement the trails plan can be procured using the following methods:

1. Acquisition via subdivision process:
   a. **Municipal Reserve (MR)** is a required (at the discretion of the Subdivision Authority) land, or cash-in-lieu of land, dedication, which is only to be used for purposes as outlined in Section 671(2) of the MGA, including for a public park or public recreation area. The amount of land may not exceed 10% of the gross subdivision area. MR lots must be provided for separately on a plan of subdivision and are automatically titled to the municipality within which the land is located. Cash-in-lieu of MR must be accounted for separately and may be used to purchase lands for MR purposes or other purposes.

      It is not uncommon to take and use MR for trail purposes. However, a review of best practices indicates that MR is best utilized for recreation developments that are not solely for circulation purposes, suggesting that lands for trails or walkways should not be credited towards satisfying the MR requirement. It is fair to say that MR dedication and use varies from community to community.

SEE SECTIONS 663, 666, 667 & 671 OF THE MGA ON MUNICIPAL RESERVE

Trail Committee members looking at route options in the field

   b. **Environmental Reserve (ER)** is an optional (at the discretion of the Subdivision Authority) land dedication which may be taken only where the land consists of an environmentally sensitive area, is subject to flooding, or is located beside a watercourse. ER may be taken to an extent as is necessary provided it is consistent with the criteria above. ER is typically to be left in its natural state but may be used for a public park. Based on a review of practice, it is suggested that ER could also be used for trail purposes provided that there isn't significant manipulation of or effect on the natural state of the lands. ER lots must be provided for separately on a plan of

SEE SECTIONS 664 & 671 OF THE MGA ON ENVIRONMENTAL RESERVE

subdivision and are automatically titled to the municipality within which the land is located. ER may also be taken as an easement provided the landowner consents to the same.

c. **Public Utility Lots (PULs)** are used to facilitate the installation and maintenance of public utilities. PULs may be used as multi-use corridors, where appropriate, and could accommodate a trail in this manner. PULs must be provided for separately on a plan of subdivision and are automatically titled to the municipality within which the land is located.

SEE SECTION 616(V) OF THE MGA ON PUBLIC UTILITY LOTS

d. **Road Right-of-Way** is taken where a roadway is needed to access a subdivision. A road right-of-way of sufficient width may, where appropriate, be used for side-by-side road and trail development. Note that public roads are owned by the Crown in right of Alberta and controlled by the municipality pursuant to Sections 16 and 18 of the MGA.

SEE SECTION 662 OF THE MGA ON ROAD DEDICATIONS

2. Acquisition outside of the subdivision process:
   a. An **Easement** is an agreement that provides for the use of property in a prescribed way subject to terms and conditions that have been agreed upon. Easements are registered against the certificate of title for the property and are automatically transferred from one owner to another as the land is sold. An easement may only be removed from title by consent of the holder (dominant tenement) or by judge's order. Easements (often referred to as "rights-of-way") are typically used for purposes like access and utilities and generally are appropriate for trails. An easement agreement should be accompanied by a plan of survey prepared in accordance with the Surveys Act and Section 81 of the *Land Titles Act* delineating the exact area subject of the easement (see Section 4.3 for minimum widths). Note that easements are often obtained through the subdivision process as well.

Looking west at Magrath Stake Campground and showing waterslide adjacent to segment 12A

   b. The outright **Purchase or Lease** of property is another option for securing the trail route. This option is likely to be the most costly but may be necessary where no other option is available. Lands located within strategic areas, like the Pothole Creek valley, should be considered for purchase where a long term vision has been established (i.e. in the Municipal Development Plan) and that would be bolstered by municipal ownership of the lands. Note that a long term lease of a portion of a parcel may require subdivision approval.

SECTION 72 OF THE MGA REQUIRES A MUNICIPALITY TO OBTAIN CONSENT FROM THE MUNICIPALITY IN WHICH THE LANDS ARE LOCATED PRIOR TO PURCHASING LANDS OUTSIDE OF ITS CORPORATE BOUNDARY

c. **Conservation Easements/Land Trusts** are less traditional methods of land acquisition that have become more prominent over the last decade. Under a conservation easement landowners can voluntarily restrict the use of their land to protect its natural, cultural or agricultural heritage. Provided that it is consistent with the purpose of the conservation easement (i.e. protecting the natural environment), recreational use may be provided for within the area that is subject of the conservation easement. Like other easements, conservation easements are registered against the certificate of title for the property. Land trusts are non-profit charitable organizations that seek to enable conservation of private lands. Financial incentives may be available for the voluntary conservation of lands.

SEE SECTIONS 29-34 OF THE LAND STEWARDSHIP ACT ON CONSERVATION EASEMENTS

3.5 Subdivision of Lands Containing Trail Routes

Further to Section 2.3 (Economic) which explores the linkage between increased land values and trail development, and Section 3.4(1) (Municipal Reserve), it is suggested that landowners looking to subdivide their lands should be required to contribute towards the development of the trail.

Development Agreements are typically required as a condition of subdivision approval. The MGA allows a municipality to require, without compensation, a developer to construct or pay for the construction of a pedestrian walkway system or connect to an existing pedestrian walkway. This requirement is typical in centres where a sidewalk and/or a trail system exists, and are anticipated and rarely challenged by the developer. Improvements are typically located within road rights-of-ways, municipal reserve (MR) lots, public utility lots (PULs) or privately titled lots (and protected by an easement or utility right-of-way).

SEE MGA SECTION 655(1)(B)(II)(B) ON DEVELOPMENT AGREEMENTS

The courts have traditionally applied a broad interpretation in respect of municipal statutory powers to impose obligations on developers. In *Stantec Consulting Ltd. v. Edmonton (City)*, [2004] A.J. No. 781, 2004 A.B.C.A 241, (2004) 354 A.R. 336 (2004) 4 M.P.L.R. (4th) 216, the Court of Appeal found that a "pedestrian walkway" was not restricted to individuals travelling on foot but could include pathways for mechanical devices such as bicycles.

***Note**: In view of the benefit of the trail to a prospective land owner/developer and the community at large, it is suggested that a portion of the total capital cost of trails development (including all related amenities i.e. plantings, benches, etc.), in an amount proportionate to the benefit received to the landowner (ie. increase in land value or salability), should normally be borne by the developer where the trail is being dedicated as part of a subdivision approval. This matter is to be dealt with in the development agreement. Further, it is suggested that municipal reserve (MR) credit shall be given for lands dedicated for the purpose of the trail. If Town and/or County Council chooses to support this recommendation, it should be formalized by way of specific recognition in the respective Municipal Development Plans or the Intermunicipal Development Plan and in municipal servicing policy.*

PART 4: Moving Forward

Looking northeast at standing water adjacent to former irrigation canal embankment

4.1 Implementation Timeline

It is recognized that the trails plan will be implemented through both municipal and developer initiated projects. As a result, implementation of the trails plan shall likely unfold over an undefined length of time and as a response to defined "triggering" events and the availability of funding. Given the inherent uncertainty with respect to land acquisition, and the unpredictable timeline associated with developer initiated projects, it is difficult to predict an overall timeline for the full implementation of the trails plan.

4.2 Phasing & Theming Strategy

Phasing will allow the trail to realize cost savings through economies of scale given the high cost of mobilizing machinery/equipment and labour for the construction of the trail. A particular phasing strategy is not offered in this document as one is not necessary. Where lands have been acquired and funding secured, there should be no limit to the advancement of the construction of the trail beyond the suggested phasing as long as there is certainty respecting the location of the trail relative to future land use and subdivision. In other words, the trail should not be constructed within lands where there is not a clear understanding (i.e. area structure plan) of how the lands will be used and subdivided in the future. Phasing may result in temporary dead-ends that need to be temporarily furnished with signage advising the user accordingly.

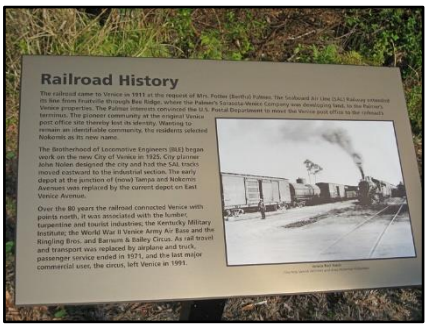
Theming of individual loops, segments or areas of the trail distinguishes the highlights the physical and non-physical (i.e. cultural or historical) attributes that are unique to certain portions of the proposed trail system. Theming also provides legibility for users, who will be able to reference each theme loop/area by name, thereby establishing an individual identity for each loop. Any theming that takes place must be consistent with and in the context of the trail branding effort as a whole (see Section 6.7 – Marketing, Branding & Community Appreciation). See sample theme ideas on the following page.

Sample Theme – Former Railway Area & Railway History (Figure 38)

Sectors 4,5 and 6 contain the former Canadian Pacific Railway right-of-way and rail bed. The history of the railway and what it meant for grain transportation, bolstered by the existence of multiple grain elevators, in the area would be an effective theme for this area of trail.

Sample theme logo

Sample theme sign



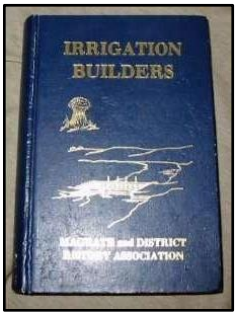
Sample interpretive sign

View of the train at the Alberta Railway & Iriigation Company Station at Magrath circa 1909. Photo credit Galt Museum & Archives.

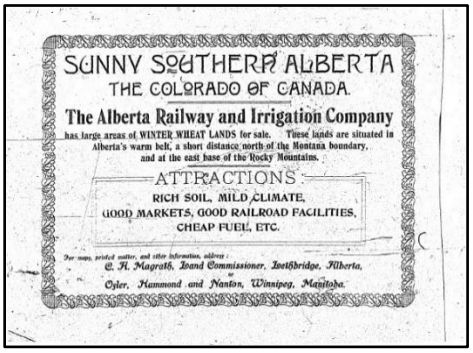
Magrath grain elevators (past & present) adjacent to former rail line

Sample Theme – Former Irrigation Corridor & Irrigation History (Figure 39)

Sectors 2 and 9 are proposed to travel atop the former irrigation canal road for a significant stretch. The significance of irrigation to the town and the region, bolstered by the impressive modifications to the landscape for sake of the same, would be an effective theme for this area of trail



Magrath region irrigation history book



Historical marketing sign for Alberta Railway & Irrigation Company

Man standing atop irrigation canal embankment near Magrath circa 1890-1905.. Photo credit Galt Museum & Archives.

Sample interpretive sign

Irrigation facilitated the cultivation of lands which would normally have been unsuitable for agriculture – historical Magrath region photo

4.3 Trail Classification & Specifications

The following trail classifications were developed based on a literature review, the *Alberta Recreation Corridor & Trails Classification System* (2009), the *Best Practises Guide to Minimizing Risk & Liability on Trails* (2013) and pertinence to the local setting. These classes provide a baseline for the development expectations of each individual corridor. Flexibility is needed in applying these expectations and each particular corridor should be allowed to deviate as may be necessary. For example, there will be circumstances where minimums cannot be achieved or cases where a higher than typical standard is warranted. In these instances, site specific exemptions to these guidelines are recommended provided that user safety will be maintained and that barrier-free accessibility has been considered.

SEE APPENDIX A FOR TRAIL TYPE CROSS SECTION DRAWINGS

- **Natural:** *landscape characteristics make them a destination but natural limitations preclude an urban cross-section design. Low traffic volume and low impact design.*

  A natural trail class is appropriate where usage is not above average and where use is limited to walking/hiking and possibly mountain biking. The outer reaches of the proposed trail network, beginning from where the 1st Avenue connection turns east and travels through the Pothole Creek valley into the County (sectors 2 & 9), is recommended for this trail type. The presence of steeper slopes, narrow spaces and obstructed sightlines in this area limits the constructability of the trail and makes a more primitive standard more appropriate.

- **Local Connector:** *provide community links and access to local services and points of interest. Moderate traffic volume and design impact.*

  The local connector class is the middle ground between the other two types listed in this plan and facilitates almost all users. This trail type may either be hard surfaced (i.e. asphalt) or granular based (i.e. limestone) depending on the myriad of factors that contribute to the decision on surface type (capital cost/maintenance cost/user groups to accommodate).

- **Regional Multi-Use:** *provide key connections to community destinations or are destinations in themselves due to design and adjacent amenities. Designed to accommodate a range of users and potentially high-volume of traffic*

  This trail class is designed to support all appropriate users of the trail system and accordingly needs to be of a gentle slope on a smooth, hard surface. Under most conditions a 3.0 m (10 ft.) surface is recommended. A reduced width, to not less than 2.4 m (8 ft.), should only be used where: bicycle traffic is expected to be low; pedestrian use is not more than average; and provided that good sufficient horizontal and vertical sightlines are intact to accommodate passing opportunities. A 10 cm yellow centre line pavement marking is recommended where needed for safety purposes.

  This class of trail is warranted for the existing inner trail loop as the scenic attributes of this area make it a destination in itself. The northeasterly area

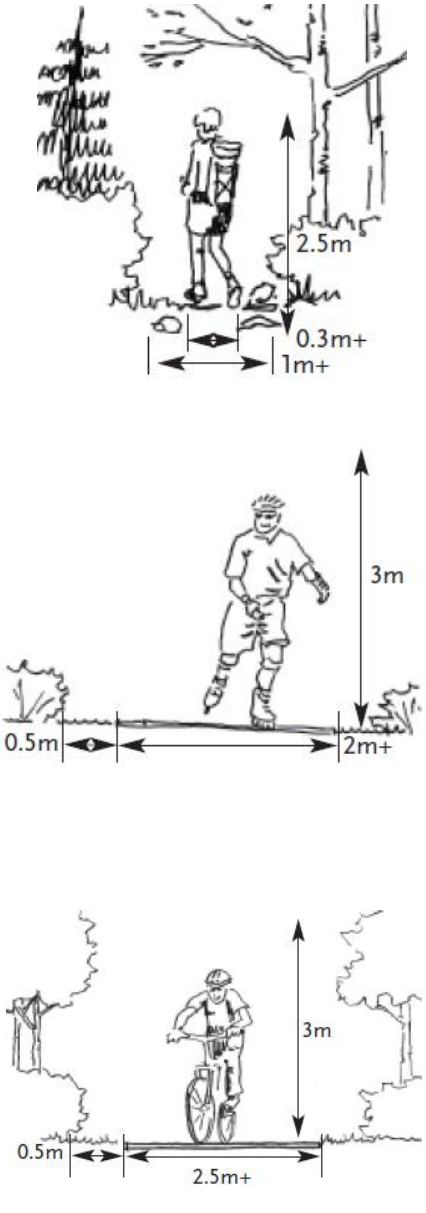


Figure 40 – Trails Classification Type Drawings

of the Town of Magrath, including the tentative future "Willow Gardens" neighbourhood, town owned wetland west of Highway 62 and town recreational area east of Highway 62, is the other area where the regional multi-use trail spec should be used.

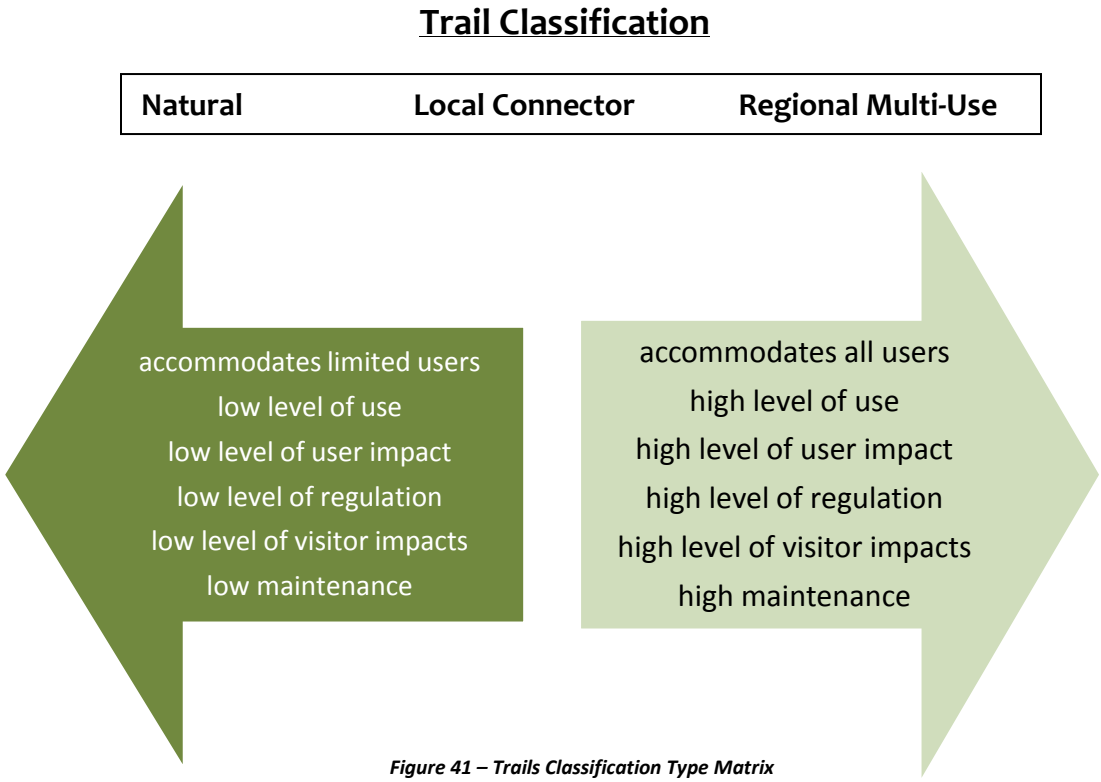


Figure 41 – Trails Classification Type Matrix

Figure 42 - Trail Design Specifications Chart

	CLASS		
	Natural	**Local Connector**	**Regional Multi-Use**
Use (non-motorized)	Walking/hiking, mountain biking	Walking, cycling, small wheeled users	All uses (non-motorized)
Degree of Difficulty	Intermediate to Difficult	Easy to Intermediate	Easy
Maximum Sustained Vertical Grade[1]	10% (where erosion mitigation is in place) 3% (where erosion mitigation is not in place)	7%	5%
Cross-slope	3%	2%	2%
Minimum Trail Width	1.2 m (4 ft.)	1.8 m (6 ft.)	2.4 m (8 ft.)
Preferred Trail Width	1.8 m (6 ft.)	2.4 m (8 ft.)	3.0 m (10 ft.)
Minimum Clearing Width	0.3 m (1 ft.) on each side	0.45 m (1.5 ft.) on each side	0.6 m (2 ft.) on each side
Minimum ROW Width[2]	6.1 m (20 ft.)	7.6 m (25 ft.)	9.1 m (30 ft.)
Minimum Clearing Height	2.4 m (8 ft.)	2.4 m (8 ft.)	3.0 m (10 ft.)
Surface Material	Granular/Native	Granular/Sealed[3]	Sealed
Barrier Free[4]	No	Yes, where possible	Yes
Rest Areas & Amenities[5]	Seldom	Occasional	Frequent

Maximum Length for Steep Grades
10% grades – 61 m (200 ft.)
12% grade – 9 m (29.5 ft.)
14% grade – 3 m (9.8 ft.)

Mitigation for Substandard Vertical Grades
-design horizontal and vertical geometry for a higher design speed
-widen path
-employ signage advising user of grade
-increase lateral clearances
-provide flatter grade resting areas between steeper segments
-provide run-out areas at the end of each turn
-install guard rails

[1] Handrails should be provided where slopes exceed 12% and where necessary to ensure user safety
[2] Site specific features/limitations/desired amenities (particularly trees) must be closely examined in order to ensure the appropriate right-of-way is acquired
[3] Sealed means hard surfaced (i.e. asphalt or concrete) and should is recommended for more local connector areas especially in higher use situations or to facilitate barrier-free accessibility
[4] Codes for barrier-free exist to allow proper and safe access to facilities for persons with all disabilities
[5] See Section 5.4 for amenity design and locational criteria

PART 5: Design & Construction

5.1 Need for Additional Detailed Design

This plan does not include detailed design or technical analysis of the various trail routes. Detailed design work, including geotechnical analysis performed by a qualified professional, should be undertaken where necessary. There will be cases where modification to the landscape is required including, but not limited to, the removal of organic soils and replacement with granular base materials, tree removal, establishment of switchbacks and hand rails, grading and culvert installation, bridges and crossings, all of which will require detailed analysis and design.

5.2 Surface Material Types & Cost

The surfacing material on a trail significantly affects which user groups will be capable of negotiating the path. Soft surfaces (i.e. sand and gravel) are more difficult for all users to negotiate. They present particular hazards for those using wheeled devices such as bicycles, strollers, and wheelchairs not designed for outdoor terrain. In contrast, unpaved surfaces might be preferred by equestrians and runners to prevent excessive jarring of the joints and skeleton. Others, such as mountain bikers, often prefer unpaved surfaces for the thrill and challenge of negotiating rough terrain.

Local conditions influence the choice of trail surfaces. Soil composition is the most important factor in determining the subgrade's structural suitability. The best subgrade for a multi-use trail is firm, well-drained soil (see soils chart on following page). Recreational trail surfaces are commonly composed of naturally occurring soil, however, surfaces ranging from concrete to wood chips may be used depending on the designated user types, the anticipated volume of traffic, the climate, and the conditions of the surrounding environment like grade and cross slope. High-use trails passing through developed areas and fragile environments are commonly surfaced with pavement, crushed rock, or soils mixed with stabilizing agents to minimize the impact of human traffic on the path.

Locations where the surface changes unexpectedly can frustrate or even endanger trail users unable to negotiate the new surface. This is especially critical in areas where surface conditions change dramatically. Providing information about surface changes through signage or other trail guide products can help visitors avoid such problems.

A baseline analysis of surface materials is presented below on the materials likely to be used for this trails project. A variety of synthetic materials such as stabilizer additives, geotextiles (stabilizer mats and vegetation control devices) are also available for trails development but are not analyzed here.

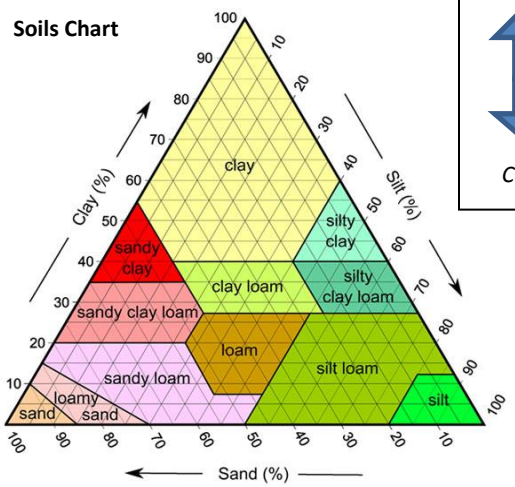
Ashphalt failure on inner loop of existing trail

Ashphalt failure on inner loop of existing trail

Figure 43 - Trail Surface Materials Chart

Surface Material	Cost *(estimate per square meter)*	Properties	Permeability	Lifespan/Maintenance	Comments
Native Soil	n/a	Variable depending on composition	Variable	Undetermined. Fixing drainage problems and repairing areas of erosion, vegetation control, etc.	A native soil base may be temporarily suitable for the "natural" trail sector over the former irrigation canal corridor.
Gravel (4")	$6	Requires variable particle size so to facilitate binding and stability	Not very pervious	8-10 year lifespan. Spot repairs and vegetation control as necessary.	Raises dust and will scatter. Challenging to traverse over on even modest slopes.
Crushed Limestone (4")	$19	Requires variable particle size so to facilitate binding	Somewhat pervious	8-10 year lifespan. Spot repairs and vegetation control as necessary.	Requires occasional grading, more so than shale.
Shale (4")	$22	Requires variable particle size so to facilitate binding	Somewhat pervious	8-10 year lifespan. Spot repairs and vegetation control as necessary.	Does not bind as well as limestone and is more costly.
Asphalt (3" w/ prime coat)	$30	Hard and smooth	Impervious (typically)	10-15 year lifespan. Annual crack filling, sealing, and vegetation control as necessary.	Requires greater initial excavation than concrete to resist vegetative penetration. Minimum 12" sterilized buffer on either side to keep vegetation from compromising the surface. Softer than concrete (easy on joints).
Concrete (3")	$55	Hard and smooth	Impervious (typically)	20+ year lifespan	Increased durability in flood-prone locations

Soils Chart



Soil Types

Fine

Clay – most stable, drains poorly, high water retention

Silt – moderately stable, drains well, moderate water retention

Sand – least stable, drains very well, low water retention

Coarse

Trails Surface Materials Sample Pictures

¾" limestone with 50% dust

¾" limestone with 50% dust after two lifts installed and compacted

4" deep ashphalt (inner loop of existing trail)

Paving stone trail

Native soil trail

0.5" – 2" gravel/washed rock (inner loop of existing trail)

Concrete trail

Red shale trail

Figure 44 - Sample **Asphalt** cross-section

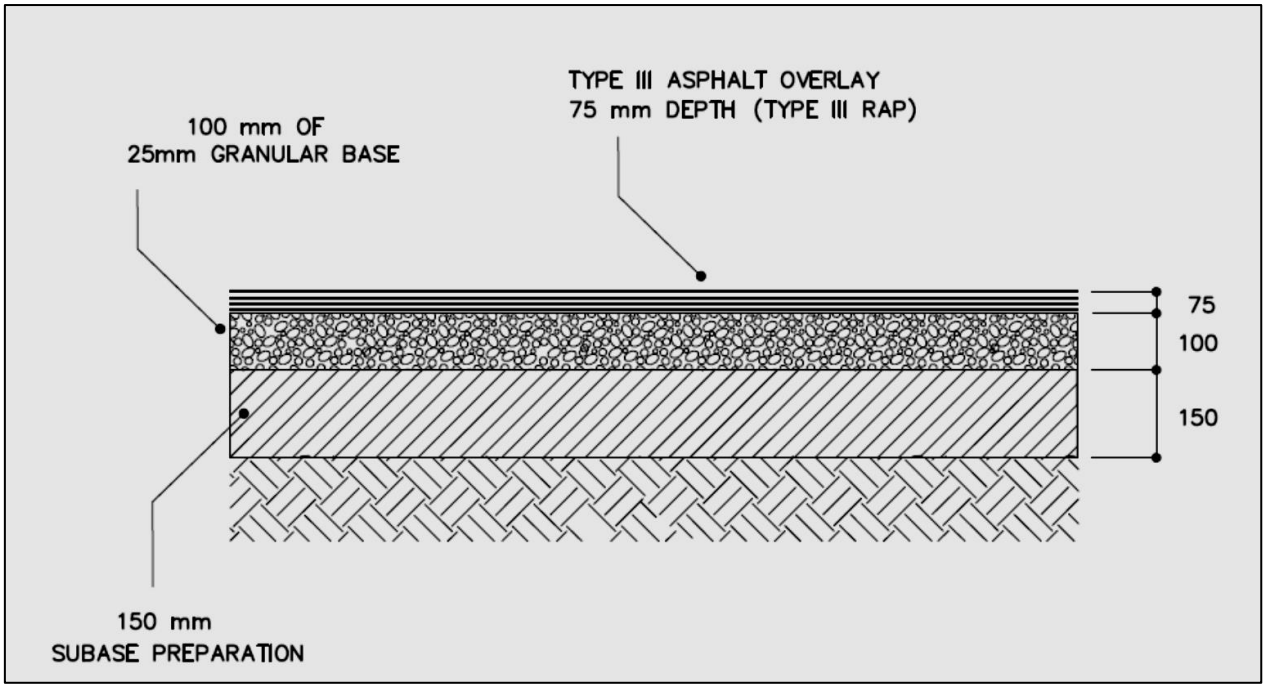


Figure 45 - Sample **Limestone or Shale** cross-section

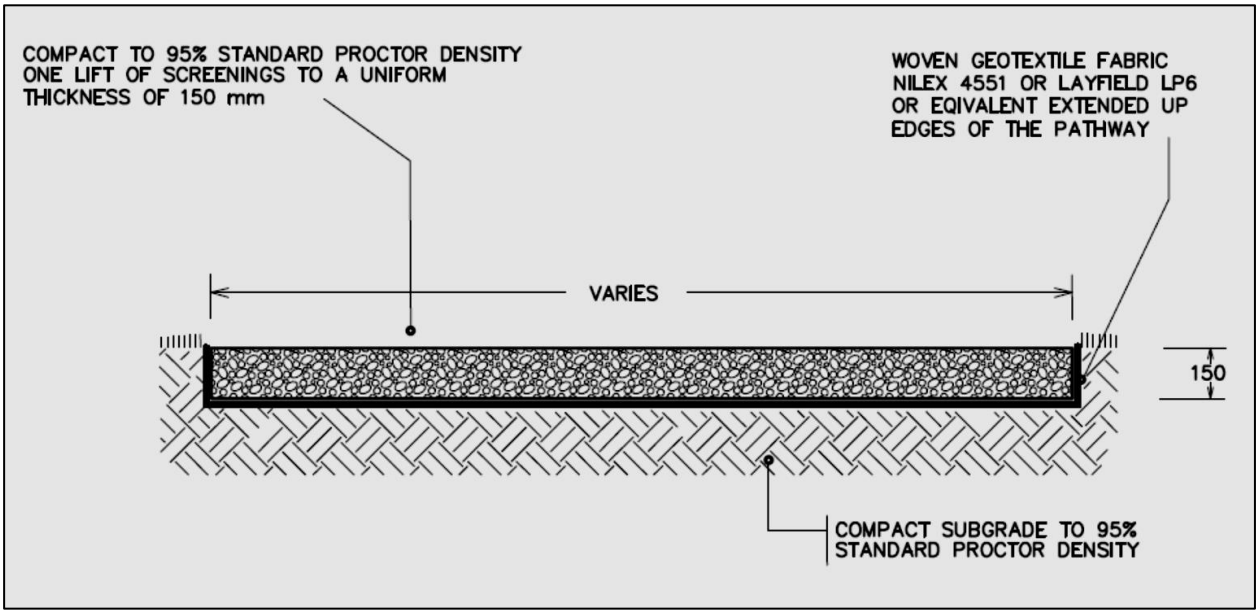
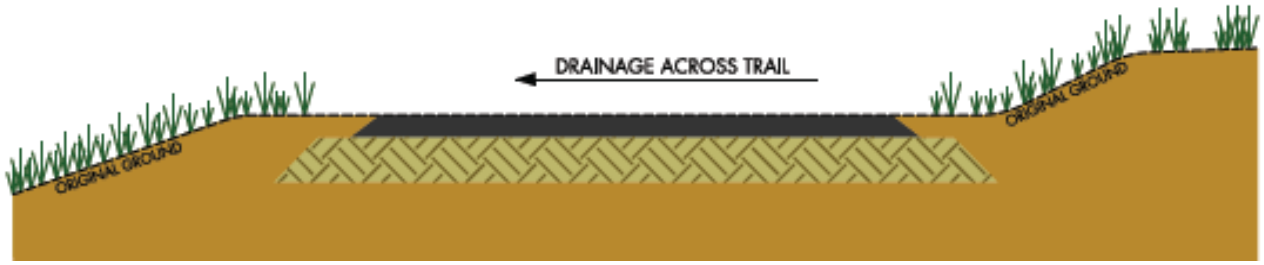


Figure 46 - Trail Design Considerations

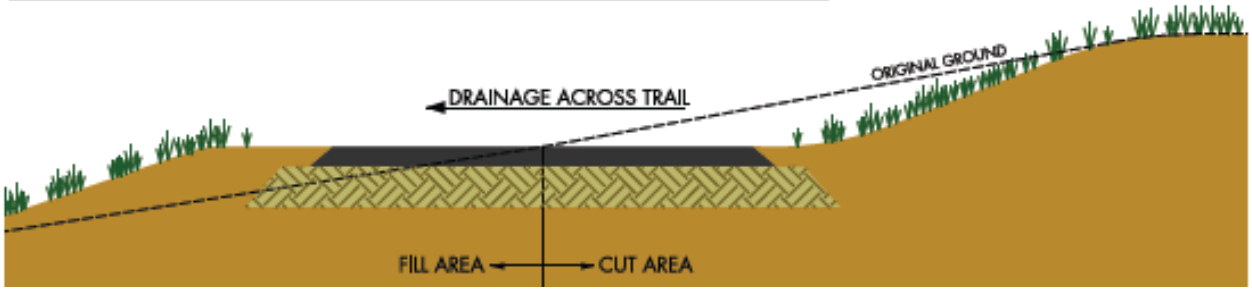
Where original ground cross slope is less than 2% (paved trail) or less than 3% (unpaved trail), it is possible to construct the trail at the same elevation and slope as the existing natural ground.

-easiest to construct	-can be prone to swamping
-lowest cost	-susceptible to frost heave



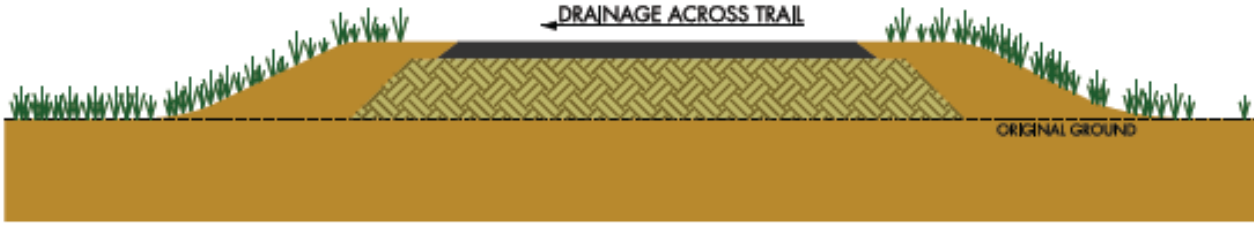
Option - Where original ground cross slope is more than 2% (paved trail) or more than 3% (unpaved trail), the trail should not be constructed at the same elevation as the existing natural ground. Instead, an option is to construct the trail in partial cut and fill.

-will drain well	-moderate construction cost
-maintains existing drainage pattern	-moderate maintenance



Option - Where original ground cross slope is more than 2% (paved trail) or more than 3% (unpaved trail), the trail should not be constructed at the same elevation as the existing natural ground. Instead, an option is to construct the trail on an embankment.

-least impacted by frost heave	-highest construction cost
-drains well	-may require culverts
-low maintance	



5.3 Construction Preparation & Performance

It is recommended that a construction engineer, representing the Town or County, be on site during all construction to oversee the work and ensure that site preparation and workmanship is of sufficient quality and in accordance with approved plans. Proper construction is critical in order to avoid costly maintenance and/or reconstruction later on.

Recently constructed (Summer 2016) pavillion and bathroom facility (seasonal) in Jubilee Park adjacent to the existing Galt Canal Nature Trail

5.4 Design & Locational Criteria for Amenities & Infrastructure

The following standards for amenity and infrastructure placement and design are to be used as guidelines and should be applied with flexibility and regard for locational context. These recommendations are based on a review of best practices, pertinence to local conditions and the user survey (see Appendix D).

Benches

Benches provide opportunity for rest and view of the surrounding landscape. After garbage receptacles, benches were cited as the most important amenity to locate on the trail system in the trail user survey (question 8 of Appendix D). Benches are also a popular item for sponsorship. There are currently five (5) benches in the existing trail system and a significant stretch of the outer-loop is without a bench or rest area. Trees and plantings should be considered adjacent to benches to provide shelter. Benches should be established as follows:

- One every 500 m (1640 ft.) for regional multi-use and local connector trails
- One every 700 m (2296 ft.) for natural trails
- At staging areas as needed

Bench in Indian Battle Park (Lethbridge, AB)

Garbage Receptacles

Trails furnished with garbage bins help preclude littering and offer convenience to users. According to the trail user survey and a review of similar surveys, the typical trail user will use the trail system for 1 - 2 hours. A trip of this duration does not normally require bringing anything more than a light coat, snack and a water bottle and as such, generates little garbage. The majority of garbage accumulated during a trail outing is from responsible dog walkers who pick up after their animals. Garbage receptacles should be established as follows:

- One every 1000 m (3280 ft.) for regional multi-use and local connector trails
- One every 2000 m (6561 ft.) for natural trails
- Bear-proof design
- Setback from benches and rest areas

Existing animal proof garbage receptacle on outer loop of existing trail

Shelterbelts/Trees

Shelterbelts provide relief from the elements, especially the sun on a hot summer day or the gusting southern Alberta winds. Landscaping in the form of trees is the most common way of providing shelter. Given the mostly urban or semi-urban nature of this trail, shelterbelts other than trees (i.e. manmade roofed shelters) are not likely necessary. Landscaping should consist of drought resistant and chinook tolerant species and be setback

from the trail surface so to avoid root migration. Shelterbelts/Trees should be established as follows:

- Along all routes except for segments 9, 10 & 34A that sit atop the former irrigation canal embankment to preserve views and sense of openness
- Establish wind/shelterbreak within segment 10 at location with good visibility
- The frequency and type of plantings shall be determined on a case by case basis. Tree grouping or stands should incorporate a variety of types to provide visual interest and seasonal contrast while providing a degree of consistent shelter throughout the year (deciduous and coniferous) and a balance of light and shade

Landscaping feature (Vulcan, AB)

- CPTED (crime prevention through environmental design) should be kept in mind while establish tree density and type where natural surveillance – "see and be seen" – is desired to combat nuisance or criminal behavior.
- Utilize existing trees wherever possible

Landscaping/Plantings

The establishment of landscaping features should be used to create visual interest. Annual flowerbeds and natural plant xeriscapes are two popular examples that can be used to enhance the user experience. A local volunteer group is a good candidate for managing a small landscaping garden or flower bed. Interpretive signage in conjunction with a native plant garden is a nice, inexpensive addition to the trail. Landscaping/planting beds should be established as follows:

- Where appropriate with regard for maintenance (i.e. watering) and any other relevant matters

Xeriscaping (low water requirements) feature (Missoula, MT)

Washrooms

Washroom service is sometimes expected in proximity to trails in urban areas. In terms of the amenities typically contemplated for a trail, washrooms come with the highest capital and operating cost. There are currently washroom facilities at Jubilee Park (near the fish pond) and at the sportsfield area at Cook Centennial Park (adjacent to sportsfields). The facilities at Jubilee Park close for winter but a seasonal unit (portable toilet) is brought in for the winter. The facilities at Cook Centennial Park are open year-round. Both of these existing facilities are aptly located at the trail head/entrance to the two "regional multi-use" trail loops proposed as part of this plan. Washrooms should be established as follows:

- Consideration for washroom in the staging area within Sector 3
- Potential future washroom in Sector 7 once trail and adjacent land use is established/mature
- CPTED principles must be applied as bathrooms can be a focus of vandalism

Existing washroom facility in Cook Centennial park

Signage

Signage is a key part of any trail network and requires careful consideration in its execution. Signage should provide ways to identify trails, give directions and distances, identify attractions and points of interest, warn of hazards, and advise on use expectations and restrictions. In addition to distance, the time (based on average walking speed) it takes to navigate a trail segment should be expressed. Sign clusters at trail heads should supply the user with all the information necessary to commence the journey. Information should be expressed in simple terms at a legible size for quick interpretation. In addition to serving its function, signs can help define the trail's image by using design to foster a unique sense of place and providing an interesting experience by telling the stories of the community. *Wayfinding* (directional) and *User* (regulatory and informational) signage should be established as follows:

SIGNAGE SHOULD BE GRAPHICALLY DISTINCT (ORIGINAL), THEMATICALLY CONSISTENT AND EXPRESSED IN BOTH DISTANCE AND THE TIME IT TAKES THE TYPICAL USER TO REACH HIS/HER DESTINATION

SEE APPENDIX D FOR SIGNAGE SAMPLES

- At the start of all trails and the intersection of all trails with other trails and with roadways
  - Pavement markings should be used where appropriate to reinforce signs and in advance of roadway crossings
- At hazard locations
- Every 700 m (2296 ft.) where no signage is in place
- QR code or other internet-based media links should be considered

Interpretive signage should be established as follows:

- Adjacent to sites with cultural, historical, environmental
  - Locate at least 4 ft. off trail to allow all users (i.e. wheelchair) to remove themselves from trail and read the sign.

Mile marker sign (Vulcan, AB)

Bicycle Parking

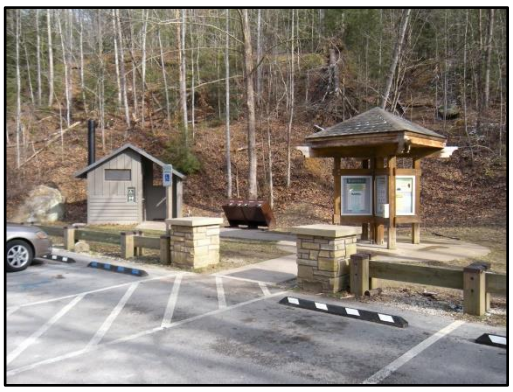
The availability of convenient, secure bicycle parking is important to cyclists and encourages bicycle use. Bicycle parking allows for a user to transition to a different mode of use, or to take a break while securing their ride. Provision of bicycle parking where a trail transitions to a non-cycling type of facility for the typical user will allow the user to continue its journey. Bicycle parking should be established as follows:

- At the trail head/start of both regional multi-use loops
- Where the trail encounters a topographical change that does not facilitate navigation by the typical user
- Where the trail transitions to a trail type that does not facilitate bicycling by the typical user
- At washroom facilities

Mile marker sign (Missoula, MT)

Staging Areas

Staging areas, also known as trail heads, are areas which provide a cluster of amenities (or sometimes simply just a sign) and open space at an entrance to the trail system. It is important to allocate sufficient space for staging areas. Although the full space may not often be needed, there will be times when special events and group activities require the full space. Staging areas are contemplated at 3 locations in addition to the existing staging area at Jubilee Park. The principle amenity to be provided in staging areas is vehicle parking. Vehicle parking stalls should be clearly delineated. Wheel stops and bollards should be employed where necessary to ensure orderly parking. Staging areas should also include amenities, where appropriate, like trail maps, signage, garbage receptacle, bench(s) and plantings/trees. Staging areas should be established as follows:



Sample highly developed staging areas/trail head

- At the point of commencement of the trail system in Sectors 1, 3, 5 & 8 of an extent and scale appropriate to the particulars of the setting

Playground & Exercise Equipment/Fitness Courses

Playground equipment provides a destination for young families and offers a chance to break up a trail sector. Exercise equipment and fitness courses are becoming a popular addition to municipal trails and parks. These amenities are typically furnished with a variety of workout stations, providing varying levels of difficulty and accommodating different sized users, which make up a circuit or loop. The areas where stations are situated should be level, free draining and cleared of obstacles and trees so to provide good sightlines, thereby facilitating safe and secure use. Each piece equipment should include simple instructions and an illustration advising of appropriate usage. In the online user survey exercise equipment/fitness courses were not recognized as being an important amenity. Exercise equipment/fitness courses should be established as follows:

Exercise equipment adjacent to trail in Indian Battle Park (Lethbridge, AB)

- Playground and exercise equipment/fitness courses facilities may be warranted in the future but development of the same should be delayed until the trail system is fully developed

Bird/Nature Watching Binoculars

Binoculars (including telescopes and all observation apparatuses) are a simple, low-maintenance amenity that allow the trail user to examine the landscape and enjoy the movement of birds, and animals from a safe distance. Binoculars should be situated at least 1.2 m (4 ft.) off of the trail so to avoid conflict with trail users. The radius of binoculars should not allow for full 360° use, but should be restricted so to avoid private residences and any other areas aside from natural and special interest areas. Bird/nature watching binoculars should be established as follows:

Public telescope for nature viewing

- In range of scenic landscapes, natural areas and points of interest, where appropriate

BBQ Pits/Picnic Areas

BBQ pits and picnic areas expand the typical scope of trail use by allowing for organized meals and extended stays in a particular location beyond what other amenities typically facilitate. BBQ pits and picnic tables currently exist at the campground adjacent to Jubilee Park, which also includes an enclosed camp kitchen building. Any future amenities of this nature should be setback so not to interfere with circulation on the trail. Bear in mind that these facilities attract wildlife and generate garbage. BBQ pits/picnic areas should be established as follows:

- Additional BBQ pits/picnic areas are not warranted at this time but should be reviewed once trail facilities are in operation

Picnic table adjacent to trail in Indian Battle Park (Lethbridge, AB)

Fencing

Certain segments of the trail system will require fencing. Fencing serves the purpose of mitigating land use conflict and trespassing, and can keep people from accessing hazard or environmentally sensitive areas and private property. Fencing can come in various styles and sizes, which should be carefully selected based on the purpose of the fencing (i.e. opaque for privacy, transparent for viewscapes and security). Fencing should be established as follows:

- Where necessary in order to mitigate land use conflict, trespassing, avoidance of hazard or environmentally sensitive areas or for any other necessary purpose
- Consideration of CPTED principles

Solar lighting adjacent to trail and playground at Pavan Park (Lethbridge, AB)

Lighting

Lighting provides the ability to navigate over the trail after daylight has dissipated. The existing trail is a day use trail and future trails will likely be limited to the same. Lighting should be established as follows:

- At trailhead/staging areas where necessary in order to provide a sense of security or convenience to the user
- Consideration of CPTED principles

Culverts & Bridges

Water is potentially the most detrimental element a trail can face. The destructive potential of erosion must not be underestimated. In general, water flows should not be allowed to concentrate or to gain speed. Culverts become necessary wherever water flows are present (no matter how small). The maintenance or establishment of native plants with deep root systems in proximity to the trail will greatly reduce the risk of erosion. Bridges will be necessary for all creek crossings and possibly for traversing seasonally wet areas. Culverts & bridges should be established as follows:

- Where necessary in order to facilitate the flow of water or to resist against ponding and erosion; and where necessary in order to cross a watercourse or wet/low area

See individual sector maps for approximate locations of bridges and culverts.

***Note**: Pothole Creek is a Class 'C' fish bearing water body under the Code of Practice for Watercourse Crossings with a restricted activity period from April 1 to May 31 of every year (see Appendix C.2). Notification (see form in Schedule 1 of Code of Practice) must be provided to the Regional Director of Alberta Environment at least 14 days prior to the development of a crossing. A Type '1' crossing (i.e. a single span bridge with no portion of structure in bed or shore) is the preferred crossing type and does not typically require the involvement of a Qualified Aquatic Environment Specialist.*

SEE CODE OF PRACTISE FOR WATERCOURSE CROSSINGS *(MADE UNDER THE WATER ACT AND WATER MINISTERIAL REGULATION)*

5.5 Design Principles

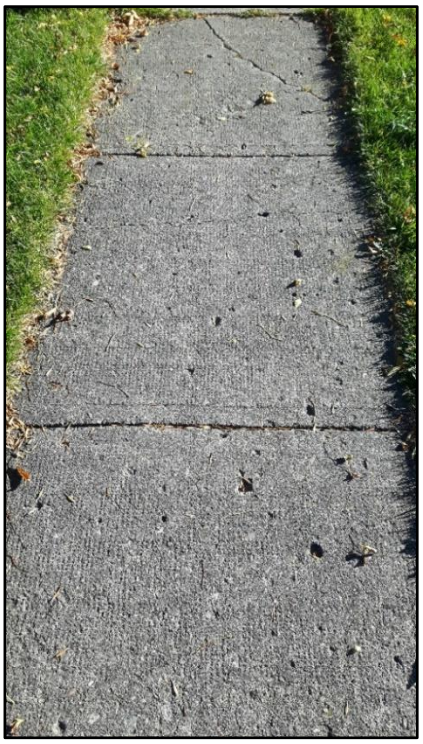
The following are basic design principles based on best practices. These principles have been considered throughout the routing review and selection process as part of this document but are more relevant to detailed route planning. As such, these principles are to be applied at the time of detailed route planning (i.e. the actual exact field location of the trail route) and construction.

Preservation of Landscape

Wherever possible trail development should be completed with an aim for "naturalized" as opposed to "manicured," so to preserve the landscape and the habitat areas within. Not only will this principle serve to support the landscape, it will also assist in reducing maintenance activities. Having said this, manicuring/invasive type activity is necessary in trail sub-grade and base preparation to ensure a solid foundation and a shoulder resistant to weed infestation. Natural areas like those within Sectors 1, 2 and 9 will require careful construction planning and materials storage. Restoration should immediately follow construction activities.

Transition from Sidewalk to Trail

The linkage from existing sidewalk to trail has been considered and accounted for in various areas within the Town in order to provide a continuous pedestrian/user network (see Section 7.2 for more information on new sidewalks). Sidewalks in the Town will typically be narrower than the trail (i.e. 1.2 m wide). At the point where the two intersect, signage should be displayed to advise the user of the change. Just as importantly, the trail should immediately take on (where possible) a meandering shape (see "Natural Shapes" section below) which will provoke a playfulness that will allow the transitioning user to recognize and enjoy the recreational nature of the trail. Overhanging trees can be used to create a gateway effect to emphasize the start of the trail (see "Gateways" section below).



Existing sidewalk in Magrath

Anchors

An anchor is a distinct feature visible from the perspective of a user. Anchors are typically ordinary vertical side features that provide contrast, and draw-in the eye of the user. An anchor gives a trail a visible reason to be "here" instead of "there" and provides a memorable point of reference for the user. The more a feature attracts and holds the attention of the user, the stronger it is as an anchor. Anchors that exist naturally should be integrated with the trail design. Features can also be brought in and used as an anchor in combination with a change in trail direction (i.e. turn or swerve) or for highlighting a point of interest.

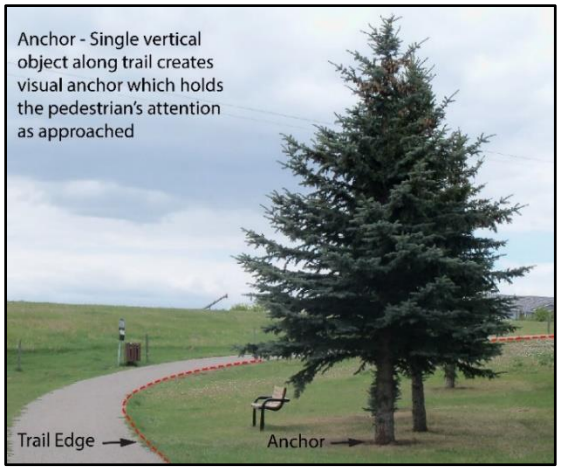


Figure 47 – Trail Anchor Graphic

Sight Distances

Sight distances are important from both a safety and aesthetic perspective. Safety, as one of the "paramount concerns" of the trail, should be the principal consideration in evaluating sight distances. Simply put, sight distances should be proportionate to the speed of the trail user; the higher the speed, the greater the sight distance requirement. Given that most trails in Magrath/Cardston Country will accommodate cycling, sight distances must always be considered. A 45 m (147 ft.) unobstructed sight distance is optimal but will not always be achievable. Where necessary, signage should be used to advise the user of blind corners and limited sight distances. Field testing of the trail once it is built will be necessary to evaluate sightlines.

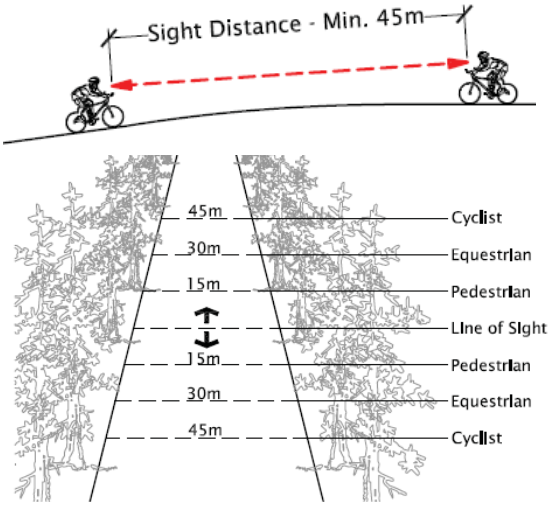


Figure 48 – Trail Sightline Distances

Viewscapes

Lines of sight outwards towards the landscape or a built feature are called viewscapes. A positive correlation exists between the quality of the trail user experience and the availability of quality viewscapes. Viewscapes should be preserved by removing existing obstructions and not erecting any new obstructions. Benches and signage are good ways to highlight viewscapes for user enjoyment.

Edges

Edges are distinct physical transitions. Vegetated areas, cliffs, water bodies and other features are edges that can be utilized in trail planning. Being on an edge is like being on the cusp of two different realms. Edges often run parallel along the transition seam or sit adjacent to the seam, flaring out as a response to the shapes close to the trail. Where the trail straddles an edge, interesting features like anchors can be used to award the trail user with a visual experience that isn't offered by diverging from the path.

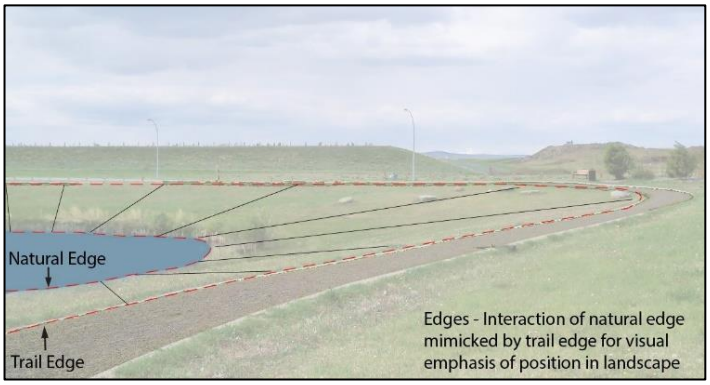


Figure 49 – Trail Edge Graphic

Natural Shapes

Nature has a distinctive shape: unpredictability. Trails should not be perfectly linear, curved or curvilinear. Rather, they should be all these things. Trails that slightly meander, back and forth and back again, allow the user's field of vision to rotate back and forth, thereby facilitating a more robust visual experience and a feeling of playfulness. A meandering trail also helps to slightly moderate the speed of cyclists and fast paced users. Of course there will be sectors where trail orientation will be restricted by the terrain and landscape.

Desired Trail Shape

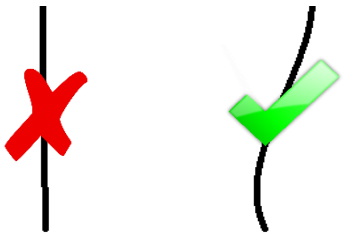


Figure 50 – Trail Shape Drawing

Erosion Control

The destructive power of erosion must not be underestimated. Two simple principles will assist in erosion control:

1. Don't allow water flows to concentrate
2. Don't allow water flow to gain speed

Erosion control is best established in the planning stage, including locating the trail appropriately (especially where adjacent to steep slopes), limiting trail slope as much as possible, and designing the trail so to resist and mitigate drainge. Other principles to employ include retaining native vegetation adjacent to the trail (drought resistant native plants have robust root systems) and hardening the trail (adding binding agent and tamping).

Sloughing adjacent to trail at Pavan Park (Lethbridge, AB)

Gateways

Gateways occur where the trail is clearly constrained on both sides and/or above by physical features (i.e. trees). The more the trail feels like it squeezes through, the stronger the gateway effect. Gateways create a sense of passage, and facilitate a connection with the natural environment. Psychologically, gateways signify a transition from the outside world to the trail, and are especially effective at the start of a trail.

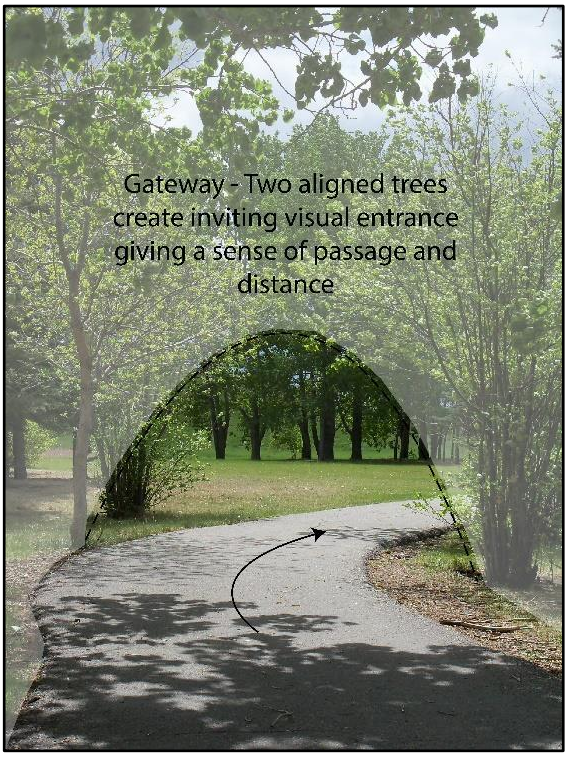


Figure 51 – Trail Gateway Graphic

5.6 Trail As A Peripheral Greenbelt

The notion of a "peripheral greenbelt" is commonly found in literature pertaining to and authored by the Town of Magrath. The idea of a perimeter green strip is one of the pillars of the Garden City movement; a movement which the Town has adopted in its discourse. The trail provides an excellent opportunity for a greenway corridor. Plantings (trees, bushes, etc.) will be complementary to the use of the trail; providing shade and wind protection (important elements for a winter-use trail so to prevent ice formation and snow drifting). Once mature, plantings will provide an oasis like quality that allow the user to make the psychological association of the trail with the natural environment.

SEE APPENDIX A.3 FOR SAMPLE PLAN VIEW DRAWING SHOWING LANDSCAPING

Example of tree clusters, alternating between deciduous and coniferous, adjacent to trail (Lethbridge, AB)

Figure 52 - Sample drawing: ensure new trees are setback sufficiently to avoid root migration and tree droppings

5.7 Roadway Crossings

Each time the trail crosses a roadway conflict points are introduced. Multiple roadway crossings are contained within the proposed trail network. The establishment of legible roadway crossings is paramount in order to ensure safety. Intersection semiotics (signs and symbols) are especially important at trail crossings, as motor vehicle operators and trail users alike are generally not as familiar with this type of crossing.

Magrath's current road network includes both hard surfaced and non-hard surfaced (i.e. gravel) roads. Outside of the central area of Town, cross-walks are not delineated with zebra crossings or other forms of markings. Therefore it is expected that trail crossings (not including Highway crossings) will rely on signage exclusively to inform and regulate both roadway and trail users.

"At a place where there is a crosswalk, a pedestrian has, unless otherwise directed by a peace officer or traffic control device, the right-of-way over vehicles for the purpose of crossing the roadway within the crosswalk"

Use of Highway & Rules of the road Regulation (Alberta Regulation 304/2002)

Figure 53 - Design Considerations & Principles For Roadway Crossings

- *Trail crossing should be perpendicular to a straight section of road*
- *Maintain clear sight triangle adjacent to intersection*
- *Trail traffic control devices must be clear and concise and serve a distinct purpose*
- *Consider a jog in trail (i.e. "T" or "L" shaped jog) before intersection to slow down trail user*
- *Increase trail width adjacent to intersection to give space for trail users to slow down and contemplate crossing*
- *Change surface material (i.e. from asphalt to paving stone) prior to intersection to alert trail user*
- *Establish who has the "right-of-way" and advise motorists and trail users with signage*
    - *Right-of-way must be determined based on particular site conditions (i.e. traffic volume, roadway speed, trail grade and sight distances prior to intersection)*
    - *Typically a pedestrain is given the right-of-way at a crosswalk as per the "Use of Highway & Rules of the Road Regulation"*

Signage at trail/roadway intersection telling cyclists to dismount prior to crossing (Sherwood Park, AB)

Signage at trail/roadway intersection telling cyclists to dismount prior to crossing (Sherwood Park, AB)

See Appendix A.4 for sample roadway crossing drawing

PART 6: Management, Operation & Funding

Fencing adjacent to outerloop of Galt Canal Nature Trail keeps users out of Fell Balderson Nature Preserve

6.1 Trail Management & Maintenance

The maintenance and management of a trail system must be considered and factored into the decision making formula as new trails are planned for. Trails management most often falls under the umbrella of municipal government, with some trails being managed by the provincial government. Non-government management is rare for multi-use trails, especially given the heavy use and complex dynamics of a trail system within/adjacent to an urban environment.

It is important that the two municipal governments, Cardston County and the Town of Magrath, establish a management regime to oversee the implementation and operations of the trail network. The Magrath & District Recreation Committee, which includes representation from both municipal Councils, has led the trail planning, development and management initiative thus far, and is best suited to continue functioning in this capacity.

A thorough maintenance and safety plan, along with a budget for the same, is necessary, especially as the trail system expands. While the energy and excitement generated by planning for new trails makes fundraising and grant acquisition relatively easy, securing funding for routine maintenance is difficult. Therefore maintenance costs typically come from general revenues. As a result maintenance costs are best addressed through prevention and must be foreseen from the onset of the planning process. In simple terms, the trail's design and location must reflect the amount of money and time available for maintenance.

Existing Maintenance Regime & Cost

Current maintenance of the existing trail system includes the following:

- Same day (typically) snow clearing, performed on quad w/ blade
- Weekly garbage bag replacement
- 3-4x per season weed spraying
- Annual pavement crack sealing
- Other maintenance activities as necessary
- Annual trails clean up in June of each year
  (note that approximately 2/3 of the existing outer loop is closed during the winter and not plowed)

Currently, the total annual maintenance cost for the existing trail is estimated at $3000 per annum. Maintenance is performed by Town of Magrath staff.

The Town of Magrath has provided the following routine maintenance annual cost estimates (2016 dollars) which can be extrapolated to estimate the annual maintenance cost for future trail sectors:

- Future Paved Segments (If any) on Uneven Terrain - $1,250 per km
- Future Paved Segments on Flat Terrain along Town Streets - $1,000 per km
- Future Compacted Pit Run or Other Material-Based Segments - $750 per km
- Future Carved Soil-Only-based Segments - $500 per km

Trail Etiquette Reminders:

"Share the Trail"

"Pass Safely"

"Manage Your Dog"

"Trash Your Trash"

"Stay On the Trail"

"Leave What You Find"

"Leave No Trace"

Maintenance Recommendations for Existing & Future Trails

It is recommended that a maintenance checklist be established for the existing trail and all future trails. This will formalize the maintenance regime which will eliminate uncertainties for both maintenance staff and trail users and allow for organized tracking/reporting and budgetary adjustments where necessary.

Figure 54 - Sample Annual Maintenance Checklist

Activity	Frequency	Time	Materials/Equipment Cost
Weed spraying	*4x per season*	*4 hours*	*$200 (chemicals)*
Tree & shrub pruning	*3x per season*	*10 hours*	*$150 (annual repair & replacement of tools)*
Inspect bridges & culverts	*1x per season*	*Contract*	*$1500 (professional services)*

6.2 Safety & Security

A safe and secure trail system will be brought together through various means. Clear user signage that indicates trail etiquette, possible hazards, length of the trail and other matters necessary is a simple pro-active approach that will facilitate safety and a sense of security. Strict enforcement of dog rules is a safety concern that should not be overlooked.

Crime/incident reporting through the RCMP data management program is not available specifically for the existing trail network. However, according to a veteran RCMP officer, there has never been an incident requiring RCMP dispatch to the trail.

CPTED (Crime Prevention Through Environmental Design) is proactive design to mitigate against crime and is typically based on the following overlapping concepts: natural access control, natural surveillance, territorial reinforcement and maintenance.

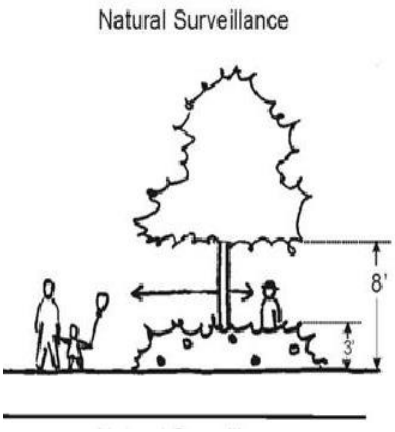


Figure 55 - Example of CPTED principle

6.3 Risk Management

Risk management is used to assess risk and implement risk prevention. Proper risk management will significantly improve the safety of trail users and decrease liability for the municipalities as trail owners/managers.

The respective municipalities, as land owners or as "occupiers" (see definition in *The Occupiers' Liability Act*) of land (i.e. grantee of easement) must be aware that anyone can bring a civil case against them for damages incurred while using the trail. However, according to the *Act*, "an occupier does not owe a duty of care to a trespasser on the occupier's premises." Instead, an occupier is only liable "for damages for death of or injury to the trespasser that results from the occupier's willful or reckless conduct." "Willful" conduct requires a deliberate act intended to cause injury and "reckless" conduct implies gross negligence. This means, generally speaking, that a municipality, as manager of the trail, could be held liable if their conduct shows an indifference to the safety of the "trespasser." It must be noted that there is a higher expectation for occupiers in relation to

> *"The liability of an occupier to a person who uses the premises described in subsection (2) (including: 'recreational trails reasonably marked as such') or a portion of them for a recreational purpose shall be determined as if the person was a trespasser"*
>
> *The Occupiers' Liability Act (RSA 2000, Chapter 0-4)*

children, as children are less perceptive of dangers that may exist and are less equipped to make decisions to avoid those dangers. As a result, it is in the best interest of a municipality to provide a reasonable "duty of care" that contributes to the safety of all trail users and in turn reduces municipality's exposure to risk. An acceptable "duty of care" can be established and upheld through informative user signage and regular maintenance and observation.

Recommendations for Risk Management

- Identify all potential dangers (i.e. wildlife encounters, dogs on/off trail, severe weather events etc.)
- Consistent incident reporting, documentation and response
- Consistent complaint reporting, documentation and response
- Consistent maintenance and monitoring reporting and documentation
- Proper communication and awareness of dangers/hazards/rules through clear signage and promotional materials and including municipal contact info
- Establish an emergency response protocol
- Consult an insurance agent or insurance lawyer for advice on necessary insurance coverage

6.4 Meeting the Needs of Adjacent Landowners

Concerns from adjacent landowners regarding trails typically include trespassing, crime, property value impact and liability. Although adjacent landowner concerns have been voiced throughout the development of this plan (online survey, open house etc.), the primary issue from adjacent landowners has not been consistently articulated. That is, concerns often don't mention the reason for the concern, rather just that the landowner does not support the trail (often for reasons related to the use of tax dollars, infrastructure priorities etc.). Still, trail planning and operation must be proactive in dealing with land use conflict. It will not be possible to foresee and address all the potential issues resulting from the trail prior to it coming into operation. As a result, the trail system must provide for complaint reporting and response. Design responses, like the erection of fences or buffers, are a common way to protect against trespassers and should be considered in response to recurring complaints. Below are additional strategies to address the needs of adjacent landowners.

Chain link fence adjacent to Henderson Golf Course and Nika Yuko Japanese Gardens (Lethbridge, AB)

Board fence on outer loop of existing trail

Recommendations for Avoiding & Mitigating Conflict with Adjacent Properties

- Signage advising the user to stay on the trail – *awareness*
- Educational/promotional materials – *awareness*
- Buffers/screening (landscaping, plantings, berms) – *privacy*
- Fencing - *privacy/security*
  - *Opaque (i.e. board) fencing – privacy & security*
  - *Transparent (i.e. chain link) fencing - security*
- Complaint/comment forms - easy complaint management and documentation

Consideration should be given to setting aside space for more intensive land uses adjacent to the future trail corridor by way of policy in the Municipal Development Plan

6.5 Land Use Adjacent To The Trail

The future use of land adjacent to the trail, especially those lands immediately adjacent (abutting) to the trail, must be given careful planning consideration.

Land use conflict can easily be avoided or mitigated with proper planning. Access restrictions over the trail are implied but should be formalized by way of restrictions in the land use bylaw. Planning should also serve to take full advantage of the trail. Ear-marking and setting aside space for land uses like schools, child care facilities, assisted living facilities and other more intensive uses (i.e. other than low density residential) immediately adjacent to the trail will allow for a fuller utilization of the trail and a direct benefit to more individuals. Linkages to parks and public facilities encourage active transportation and all new park and open spaces should be connected to the trail system. Of particular note is the westerly trail corridor (see Sector 7 map); which is undeveloped, and presents an opportunity to align land use strategically with the trail.

See Section 3.5 for more info on developer contributions to trail

6.6 Funding for Capital Costs

To date, the existing trail has been funded through private contributions, local fundraisers and support from the Town, County and Province. The Magrath & District Recreation Committee and its Trail Sub-Committee (the project steering committee for this plan) have led the way by organizing and championing this important community initiative.

Municipalities face increasing fiscal challenges, requiring the pursuit of innovative funding mechanisms to leverage limited public dollars. Funding for the trail can come from a variety of sources which should be pursued prior to adding tax load on the community. As recommended in Section 3.5, where a particular trail sector crosses a developer's property who is proposing subdivision, the developer should be made responsible for a portion of the capital cost of the trail. Where subdivision of the subject property cannot or is not likely to occur in the time period when trail development is to occur, funding will need to come from outside sources.

Historical sign for equestrian trail in southwest portion of Town/County

Potential Funding Opportunities

- *Adopt-a-mile* – where an individual or entity sponsors a segment (i.e. 1 mile) of trail development, often celebrated by a plaque or other form of physical recognition displayed on the trail.
- *Naming Rights* - where an individual or entity sponsors a physical feature, landmark, or place (i.e. a significant viewscape or landscape feature) along the trail, typically celebrated by a plaque, memorial bench or other form of physical recognition displayed on the trail.
- *Friends Association* – an entity established for the ongoing purpose of raising funds toward trails development and that can receive private donations and endowments (may require registration under the *Charitable Fund-raising Act*).
- *Advertising Sales* – carefully managed, tasteful advertising may be appropriate on benches or perhaps other visible forms provided the advertising does not distract to a point where the user experience is diminished.

A policy should be developed prior to selling any naming rights for the trail.

Grants *(the following is not an exhaustive list)*

- *New Deal for Cities & Communities* – a Federal Government program to give financial assistance to infrastructure that helps to provide sustainability,

including active transportation infrastructure, through reimbursement of the gas tax.

- *Federal Gas Tax Fund* – A Federal Government program delivered by the province for the support of local infrastructure (including recreational infrastructure such as a trail system) needs that enhance the vibrancy of communities.
- *Community Facility Enhancement Program* – A Provincial Government program to fund (up to $125,000 per fiscal year) community recreational or cultural facilities. Municipalities are not eligible to receive; must be a registered society or other eligible entity.
- *Community Initiative Program* – A Provincial Government program to fund (up to $75,000 per fiscal year) for various community projects. Municipalities are not eligible to receive; must be a registered society or other eligible entity.
- *EcoAction Community Funding Program* – A Federal Government program for the support of community action projects that have measurable positive impact on the environment. The recreational focus of the trail may not make it eligible for this funding. However, funding may be available for programs complementary to the trail (i.e. re-vegetation of creek valley). Municipalities are not eligible to receive; must be a registered society or other eligible entity.
- *Alberta Ecotrust Foundation* – Offering community grants for projects that align with their environmental priorities. Municipalities are not eligible to receive; must be a registered society or other eligible entity.

Looking west from the westerly Town/County boundary at croplands with Cardston County

- *Oldman Watershed Council Watershed Legacy Program* – A grant program for matters related to the protection, restoration and enhancement of watersheds, including activities like riparian and creek restoration, invasive species management, wetland restoration and development, land use issues, water quality and other items.
- *Community Foundation of Lethbridge & Southwestern Alberta* – Offering small grants for a wide range of community development purposes. Municipalities, school districts and registered charities are eligible to receive.
- *Farm Credit Canada AgriSpirit Fund* – Offering community grants for capital projects in rural communities with populations less than 150,000. Municipalities and charitable organizations are eligible to receive.

6.7 Marketing, Branding & Community Appreciation

Marketing

The existing Galt Canal trail loop is already becoming a popular tourist destination – even in the absence of a concentrated marketing effort. The trail project as a whole should take every opportunity to market the trail to tourists. Agencies like Canadian Badlands, Alberta Southwest and other tourism agencies offer promotional guidance. The Town must lead the marketing initiative and should consider integration with its own municipal branding efforts.

Figure 56 - Sample trail logos and branding

Branding

- establish a logo for the trail and use consistently in signage and publications
- create slogan to go along with the logo
- Consider "Magrath Regional Trails," "Magrath Trail System" or something similar as opposed to signage/branding that only recognizes the Town of Magrath

Publications

- Trail master map – large printed copy for display at Town Office
- Trail guide (incl. map and highlights of attractions)
- Annual printed public service announcements (PSAs) poster
- Listing on trail websites (Alberta Trails, All Trails etc.)

Establish an annual or bi-annual community trail walkathon to garner community awareness & appreciation and media attention

Event Promotion & Attraction

- Winter walk day (first Wednesday in February)
- Seniors bus tours
- School group tours
- Racing groups and events

Community Appreciation

A lack of community support is just as challenging as a lack of funding. Support shortfall often is simply a result of a lack of knowledge about the trail project. Developing an effective promotional campaign is an on-going project that is critical to maintaining a critical mass of community support and appreciation. Community groups already interested or active in trail development and maintenance should be invited to permanently vest their role as trail stewards. New community groups should be encouraged to take an active role in trail development, maintenance and promotion.

Wind turbine farm west of Magrath

PART 7: Future Trail Expansion & Conclusion

7.1 Future Trail Expansion Opportunity

Looking forward requires looking back. Future trail expansion beyond the scope contemplated in the earlier portions of this plan will no doubt be subject to the success of the same. It is recognized that the planned portions of the trail system (sectors 1 – 9) is already an ambitious future goal. However ambitious, it is worth identifying a potential future connection area at this time – the idea stage. As long-term future trail segments are developed, additional tributary routes will begin to envisioned and someday come to fruition.

Jensen Reservoir Sign

Jensen Reservoir Provincial Recreation Area

Located approximately 8 km south of Magrath and situated along the toe of the Milk River Ridge, Jensen Reservoir forms a link in the canal system between St. Mary and Milk River Ridge Reservoir. Adjacent to the dam at the north end of the reservoir, a day use area awaits those coming for a picnic, boating or fishing outing in a quiet setting. Nearby the reservoir are a number of cliffs used for rappelling and ice climbing. These cliffs are locally used to train youth and adults in safety and technique when rappelling or ice climbing on natural features. At 8 km, potentially alongside the scenic Pothole Creek valley, this future trail leg would offer a long distance option, thereby expanding the profile of the regional trail system.

Cliffs adjacent to Jensen Reservoir

7.2 Connections To The Trail System

As a trail system matures it is interesting to watch the built environment respond to the new trail. Connections to the trail system, or spurs, both formal and informal, will occur as the system develops. Formal connections (i.e. planned linkages to public and private developments by way of sidewalks or feeder trails) should be supported. Informal connections (i.e. unplanned short-cuts) should be reviewed on a case by case basis. There may be times where an informal connection makes sense and should be rewarded with formalization – natural wayfinding at work! Transitions on and off the trail should be developed with regard for Section 5.5 (Transition from Sidewalk to Trail).

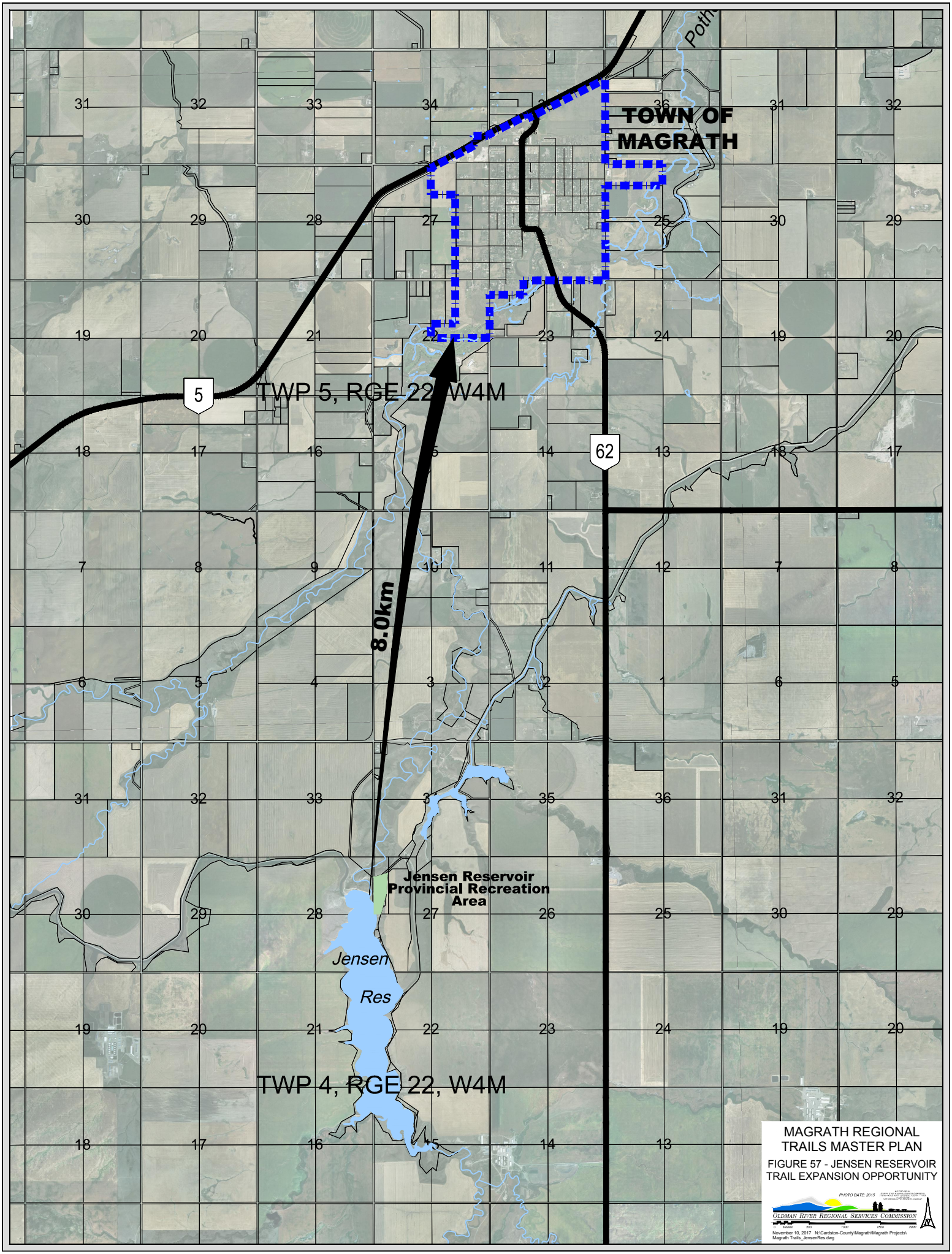
Potential trail connections/spurs: Magrath Golf Club, cemetery, future town parks, Agriplex etc.

The Town's existing sidewalk network, which is limited in its reach, must be reviewed. New developments have not consistently provided sidewalks. In order to establish a complete alternative transportation network that includes the trail system, the Town must review current policy on the establishment of sidewalk infrastructure in support of new developments and explore the potential of establishing sidewalks in existing areas.

7.3 Conclusion

The Magrath Regional Trails Master Plan is a guiding document, reflecting an enduring commitment to connect people of all ages with the outdoor environment, thereby providing new recreational opportunities, and offering an alternative transportation options that will reduce automobile dependence. The plan also provides the opportunity to implement "Garden City" planning principles like the establishment of a peripheral greenbelt. Key community

linkages are provided from the trail system, and new linkages and land use decisions will be made in the context of continuing to provide connectivity within the Town of Magrath and the surrounding region. The Plan will demonstrate community leadership and regional cooperation by optimizing social, cultural, environmental and economic benefits.


TOWN OF MAGRATH
TWP 5, RGE 22, W4M
TWP 4, RGE 22, W4M
5
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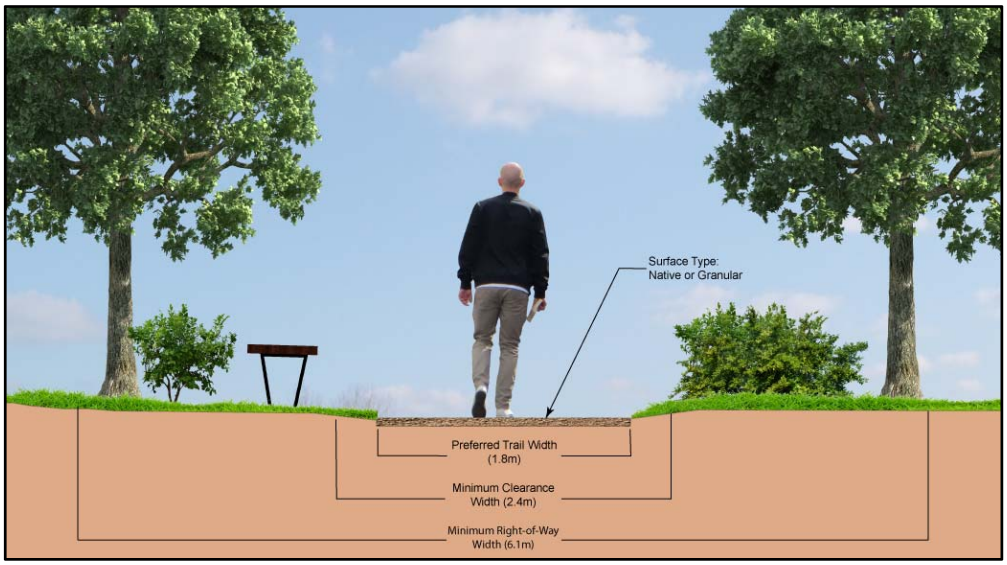
8.0km
Jensen Reservoir Provincial Recreation Area
Jensen Res
MAGRATH REGIONAL TRAILS MASTER PLAN
FIGURE 57 - JENSEN RESERVOIR TRAIL EXPANSION OPPORTUNITY
PHOTO DATE: 2015
OLDMAN RIVER REGIONAL SERVICES COMMISSION
November 10, 2017 N:\Cardston-County\Magrath\Magrath Projects\Magrath Trails_JensenRes.dwg

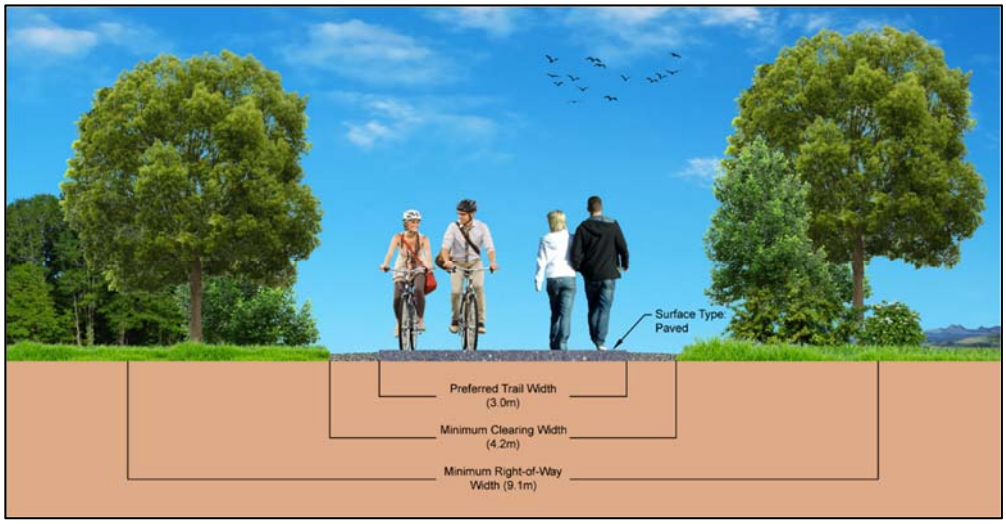
APPENDIX A – Trail Drawings

Appendix A.1
Cross Sectional Renderings



Natural
landscape characteristics make them a destination but natural limitations preclude an urban cross-section design. Low traffic volume and low impact design.

Local Connector
provide community links and access to local services and points of interest. Moderate traffic volume and design impact.



Regional Multi-Use
provide key connections to community destinations or are destinations in themselves due to design and adjacent amenities. Designed to accommodate a range of users and potentially high-volume of traffic

Appendix A.2
Trail Mock-Ups

Looking north at staging area adjacent to Covered Wagon RV Park on trail Segment 28 within Sector 8

Looking south at trail adjacent to sports fields just south of Highway 5 on trail Segment 19 within Sector 5

Looking northwest at trail atop old irrigation canal road on trail Segment 9 within Sector 2

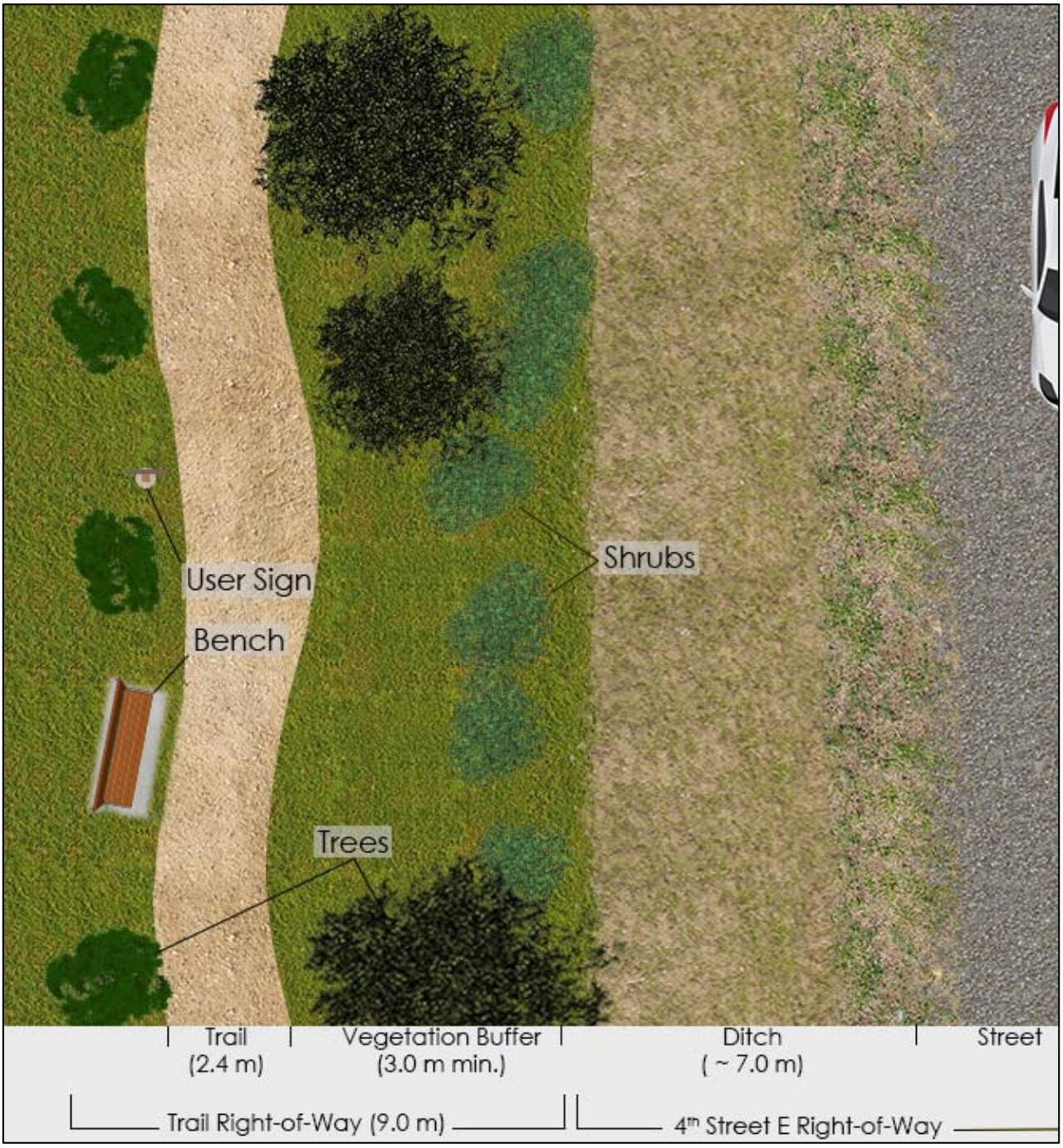
Appendix A.3
Sample Right-of-Way Widths

6.1 m (20 ft.) right-of-way (minimum recommended for "natural" trail spec)

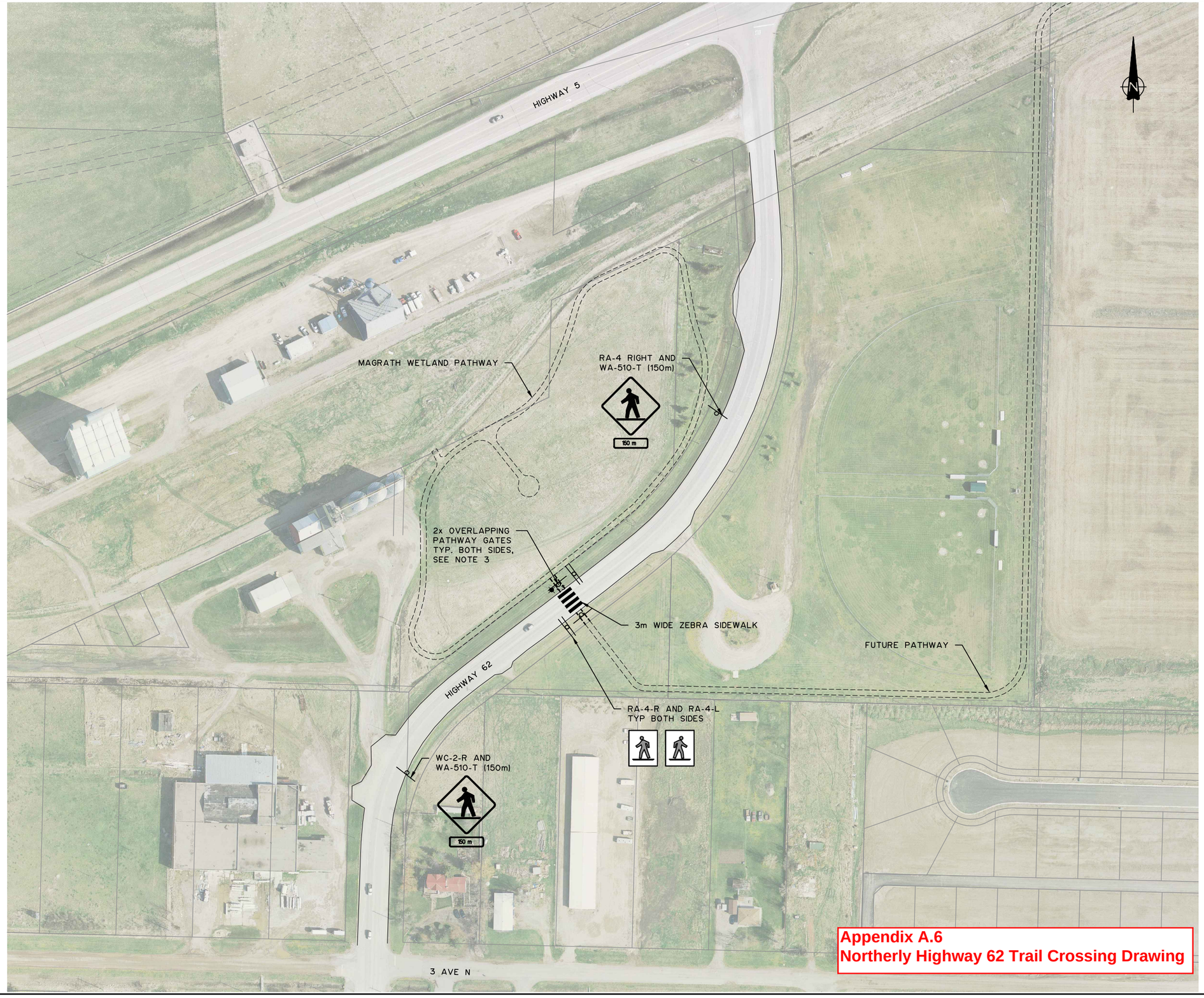
7.6 m (25 ft.) right-of-way (minimum recommended for "local connector" trail spec)

9.1 m (30 ft.) right-of-way (minimum recommended for "regional multi-use" trail spec)

Appendix A.4
Trail Segment #15 Sample Plan
View Drawing



Appendix A.5
Trail Segment #15 Sample
Roadway Crossing Drawing



NOTES:

1. PATHWAY TO BE CONSTRUCTED TO ALBERTA TRANSPORTATION POLICIES, GUIDELINES, AND STANDARDS FOR NON-MOTORIZED TRAILS.
2. VERTICAL GRADES NOT TO EXCEED 6.0% ON APPROACH TO HIGHWAY CROSSING.
3. OVERLAPPING PATHWAY GATES TO BE INSTALLED TO SLOW STRAIT THROUGH PEDESTRIAN TRAFFIC.
4. HIGHWAY 62 PEDESTRIAN CROSSING DETAILS:
   - APPROXIMATELY 220m NORTH OF 3 AVE. NORTH
   - HWY 62 AADT=2,600 (A.T. COUNT 102050, 2016)
   - DISTANCE FROM NEAREST CROSSING > 200m
   - PEDESTRIAN USE EXPECTED < 15 EAU
   - SITE PROVIDES SYSTEM CONNECTIVITY FOR PEDESTRIAN PATHWAY
   - HWY 62 IS 2 LANE, POSTED SPEED OF 50km/h
   - REQUIRED SSD FOR 50km/h IS 65m (AS PER TABLE 1.2.5.3 OF TAC GDRCR).
   - BASED ON TAC WARRANT, A GM1 IS APPROPRIATE FOR POSTED SPEED.

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PERMIT NUMBER: P 3680
The Association of Professional Engineers and Geoscientists of Alberta

PROFESSIONAL LICENSEE ENGINEERING ALBERTA
G. RUSSELL BUTLER
2017-08-15

MPE Engineering Ltd.

OLDMAN RIVER REGIONAL SERVICES COMMISSION

MAGRATH TRAIL HIGHWAY CROSSINGS PAVEMENT MARKINGS AND TRAFFIC SIGNING PLAN

Appendix A.6
Northerly Highway 62 Trail Crossing Drawing

DESIGNED	T.J.S., G.R.B.	JOB	0191-002-00
DRAWN	T.J.S.	SCALE	1:2000
DATE	AUGUST 2017	DRAWING	C1.3

Suite 300, 714 - 5 Avenue South
Lethbridge, AB T1J 0V1
Phone: 403-329-3442
1-866-329-3442
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Appendix A.7
Southerly Highway 62 Trail Crossing/Tunneling Drawings & Engineering Opinion

ORRSC
3105-16th Avenue North
Lethbridge, Alberta
Postal Code

January 24, 2017
File: N:\0191\002-00\L01-1.0

Attention: Ryan Dyck
Planner

Dear Mr. Dyck:

Re: Engineering Services for Magrath Trail System Highway Crossings

MPE Engineering Ltd. (MPE) was retained by the Oldman River Regional Services Commission to provide engineering services for two crossings of Highway 62 for the proposed Magrath Trail System. The intent of this assessment is to evaluate and provide comment on four options for locating the southern trail crossing near the fish pond:

- Pothole Creek Bridge
- East 3rd Avenue South
- Near the south fish pond access
- Tunnel near the south fish pond access

See attached Figure 1 for a location plan of the crossing locations.

Option 1 – Pothole Creek Bridge
The Pothole Creek Bridge is located north of 3rd Avenue South where Highway 62 crosses Pothole Creek. This option has two alternatives: a crossing at the surface, and a crossing under the bridge. The evaluation of this location is summarized in the following sections.

Option 1A – Surface Crossing
The evaluation of this option is summarized as follows:

- Indirect route from existing trail system,
- Requires a trail parallel to the highway in the ditch, or a trail around the west side of the ball diamonds to connect the existing trail system to the crossing location,
- Stopping sight distance for highway traffic in both directions meets Alberta Transportation's (AT) minimum requirement of 65 m for the posted speed limit of 50 km/h as listed in the Highway Geometric Design Guide.

Option 1B –Under Bridge Crossing
The evaluation of this option is summarized as follows:

- No conflict points on Highway 62
- Indirect route from existing trail system,
- Requires a trail parallel to the highway in the ditch, or a trail around the west side of the ball diamonds to connect the existing trail system to the crossing location,
- Safety/nuisance activity concerns have been identified in the draft Magrath/Cardston County Intermunicipal Trails Master Plan,
- Lighting under the bridge should be considered to mitigate safety/nuisance activities,

- Steep slope to creek bottom. A barrier should be considered to prevent trail users from falling down the slope,
- Water and flooding hazard due to the proximity to Pothole Creek on the north,
- Asphalt surface should be considered to prevent loss of trail surface during a flood,
- Less costly than Option 4 – Tunnel near the fish pond south access.

Option 2 – 3rd Avenue South

The proposed 3rd Avenue South crossing location is a surface crossing on the north side of 3rd Avenue South. The evaluation of this location is summarized as follows:

- Indirect route from existing trail system,
- Requires a trail connecting the existing trail system to the crossing location,
- This location has the best sightlines for an at-grade crossing as it is roughly halfway between the curve in the highway to the north and the crest of the hill of the highway to the south,
- Less fill required when compared to other locations if constructed close to the intersection,
- Stopping sight distance for highway traffic in both directions exceeds AT's minimum requirement of 65 m for the posted speed limit of 50 km/h h as listed in the Highway Geometric Design Guide.

Option 3 – Near the Fish Pond South Access

This proposed crossing location is a surface crossing on the north side of the south fish pond access road. The evaluation of this location is summarized as follows:

- Direct route from existing trail system,
- Reduced sightlines from northbound traffic coming over the crest of the hill,
- Requires crossing the fish pond access road,
- Some fill work has already been completed to accommodate the trail,
- Least costly option due to the direct route to the existing trail system,
- Stopping sight distance for highway traffic in both directions exceeds AT's minimum requirement of 65 m for the posted speed limit of 50 km/h h as listed in the Highway Geometric Design Guide.

Option 4 – Tunnel near the Fish Pond South Access

A tunnel or underpass under Hwy 62 near the fish pond south access was also evaluated. AT sets out policies, guidelines, and standards for trails crossing a highway. This includes horizontal widths and vertical clearances. The minimum typical trail width for a non-motorized low volume trail is 2.0 m. The minimum vertical clearance is 3.0 m. In order to accommodate the minimum width and vertical clearance MPE investigated utilizing a large diameter culvert, a multi-plate culvert designed for pedestrian underpasses, and a large concrete box culvert.

MPE completed a topographic survey of the proposed crossing locations on December 14, 2016. Discussions with the Town of Magrath indicate that the water level of the fish pond at the time of the survey is approximately 0.3 m lower than the normal high water level. The site constraints of the fish pond normal water elevation and the highway elevations do not allow for the use of a large diameter culvert or a multi-plate pedestrian underpass. A large concrete box culvert could potentially be utilized, however; further investigation is required into AT requirements and fish pond normal water operation levels.

Installation of a concrete box culvert would require Highway 62 to be shut down and a detour established for a period of 1-2 weeks while the work is completed. There are no close options for a detour. AT has been contacted as part of the investigation for this report. AT is not opposed to the project and may be open to closing the highway for the work to be completed. AT should be contacted again during design to confirm that they are willing to allow the Highway to be shut down and a tunnel installed.

Two tunnel crossing locations were evaluated. The summaries of the evaluations are included in the following sections.

Option 4A –North of the South Fish Pond Access

The evaluation of this location is summarized as follows:

- No conflict points on Highway 62,
- Requires crossing the fish pond access road,
- Direct route from existing trail system,
- Safety/Nuisance activity concerns,
- Lighting the tunnel should be considered to mitigate safety/nuisance concerns,
- Potentially cost prohibitive due to the installation of the tunnel,
- Normal water elevation of the fish pond is approximately 0.5 m higher than the tunnel trail surface, which precludes this option from further analysis.

Option 4B – South of the South Fish Pond Access

The evaluation of this location is summarized as follows:

- No conflict points on Highway 62,
- Does not require crossing the fish pond access road,
- Direct route from existing trail system,
- Potentially encroaches on private property on the east side of Highway 62,
- Safety/nuisance activity concerns,
- Lighting the tunnel should be considered to mitigate safety/nuisance concerns,
- Water and flooding hazard due to close proximity to the fish pond on the north and the irrigation park pond on the south,
- Potentially cost prohibitive due to the installation of the tunnel,
- Normal water elevation of the fish pond is approximately 0.1 m lower than the tunnel trail surface. A pump system or modifications to the operation of the fish pond may be required to prevent ground and/or surface water from entering the tunnel during periods of higher than normal water levels.

See the attached Figure 2 and a preliminary cost estimate for this option for reference.

Surface Crossing Markings and Signage

Options 1A, 2, and 3 are proposed to be at-grade crossings of Highway 62. The location of these crossings is in the transition zone from the Town of Magrath to the rural highway and would be considered a semi-urban area. In AT's Trails in Alberta Highway Rights-of-Way Policies, Guidelines, and Standards it states that a mid-block crossing or a crosswalk at an intersection may be considered for this application. Figure 7.3 from this document has been attached as an example of a signage and surface markings for a mid-block crossing. The signage and surface markings for a crosswalk at an intersection would be similar in nature. It should be noted that signage and surface markings on the highway are determined during the detailed design stage in conjunction with AT.

Conclusion and Recommendations

The results of the review of the four options for locating the Highway 62 crossing indicate that it is feasible to construct the Highway 62 crossing at any of the three at-grade proposed locations (Options 1A, 2, and 3). See the attached Figure 7.3 for an example of some typical surface crossing markings that could be utilized for the at-grade crossings.

The comparison of Option 1A (Pothole Creek Bridge), Option 2 (3rd Avenue South), and Option 3 (Near the South Fish Pond Access) indicate that near the south fish pond access is the most direct route to the existing trail system and the most economical option due to the work that has already been completed at

this location.

Option 1B is not recommended without further investigation into the normal water levels and flood levels of the adjacent pothole creek.

Options 4A and 4B are not recommended without further investigation into the normal operating water levels of the fish pond, due to the high normal water elevations of the adjacent water bodies and also due to the magnitude of the cost for the crossing when compared to the other options.

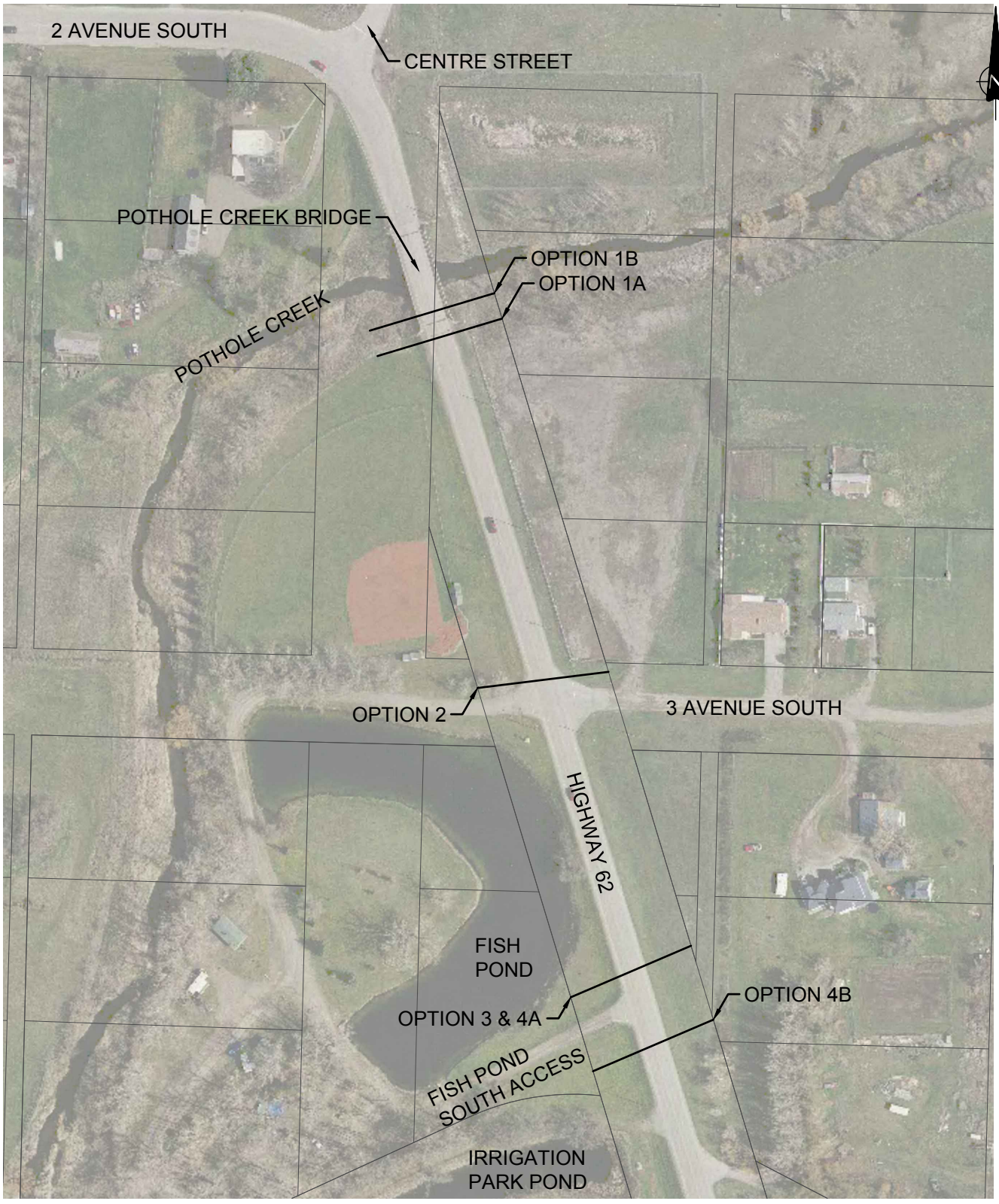
Yours truly,

MPE ENGINEERING LTD.

Blake Smith, C.E.T.,
Engineering Technologist

:bs

Enclosure

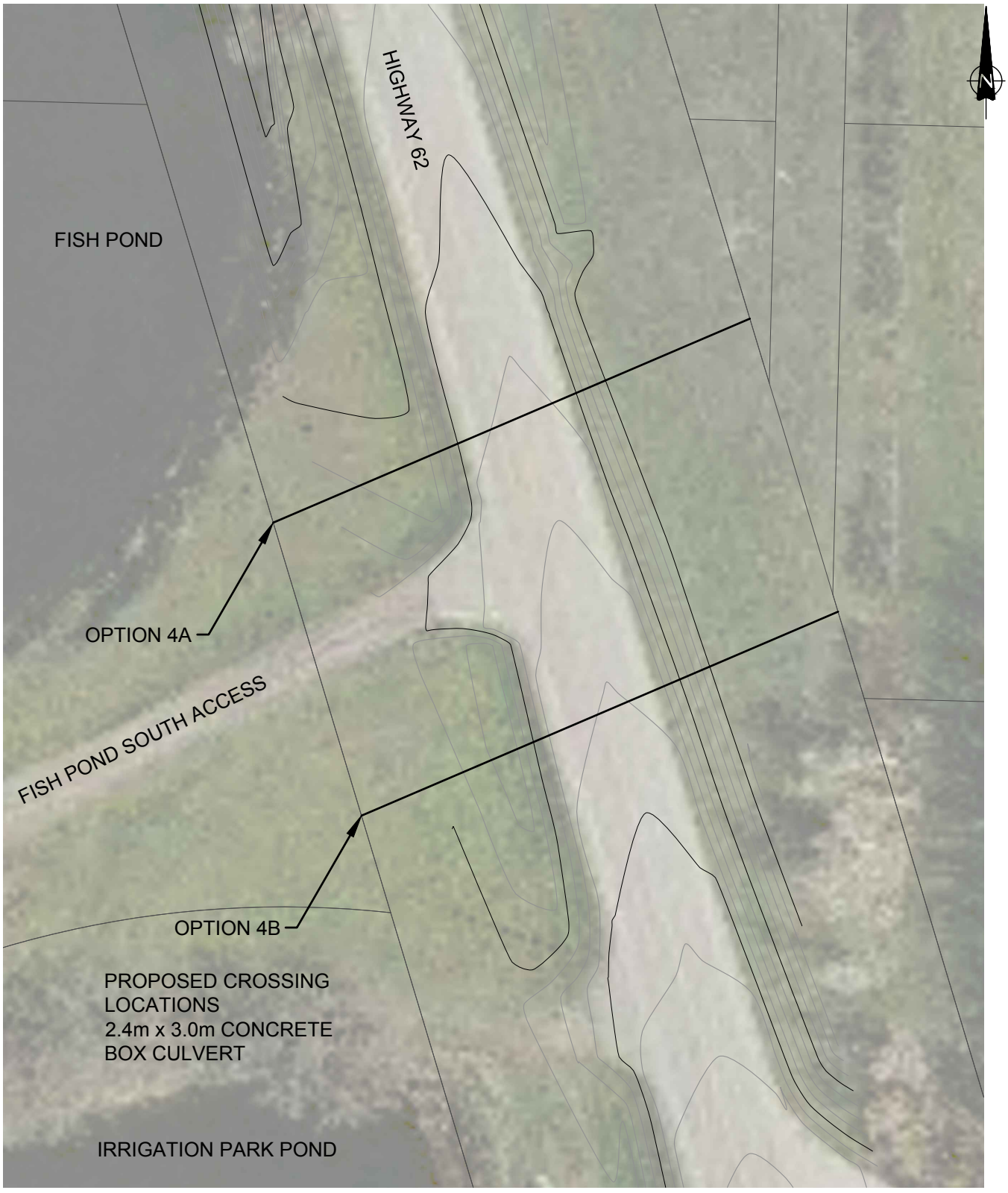


MPE Engineering Ltd.

OLDMAN RIVER REGIONAL SERVICES COMMISSION

MAGRATH TRAIL HIGHWAY CROSSINGS
PROPOSED CROSSING LOCATIONS

SCALE: 1:2000	DATE: JANUARY 2017	JOB: 0191-002-00	FIGURE: 1



MPE Engineering Ltd.

OLDMAN RIVER REGIONAL SERVICES COMMISSION

MAGRATH TRAIL HIGHWAY CROSSINGS
HIGHWAY 62 TUNNEL CROSSING OPTIONS

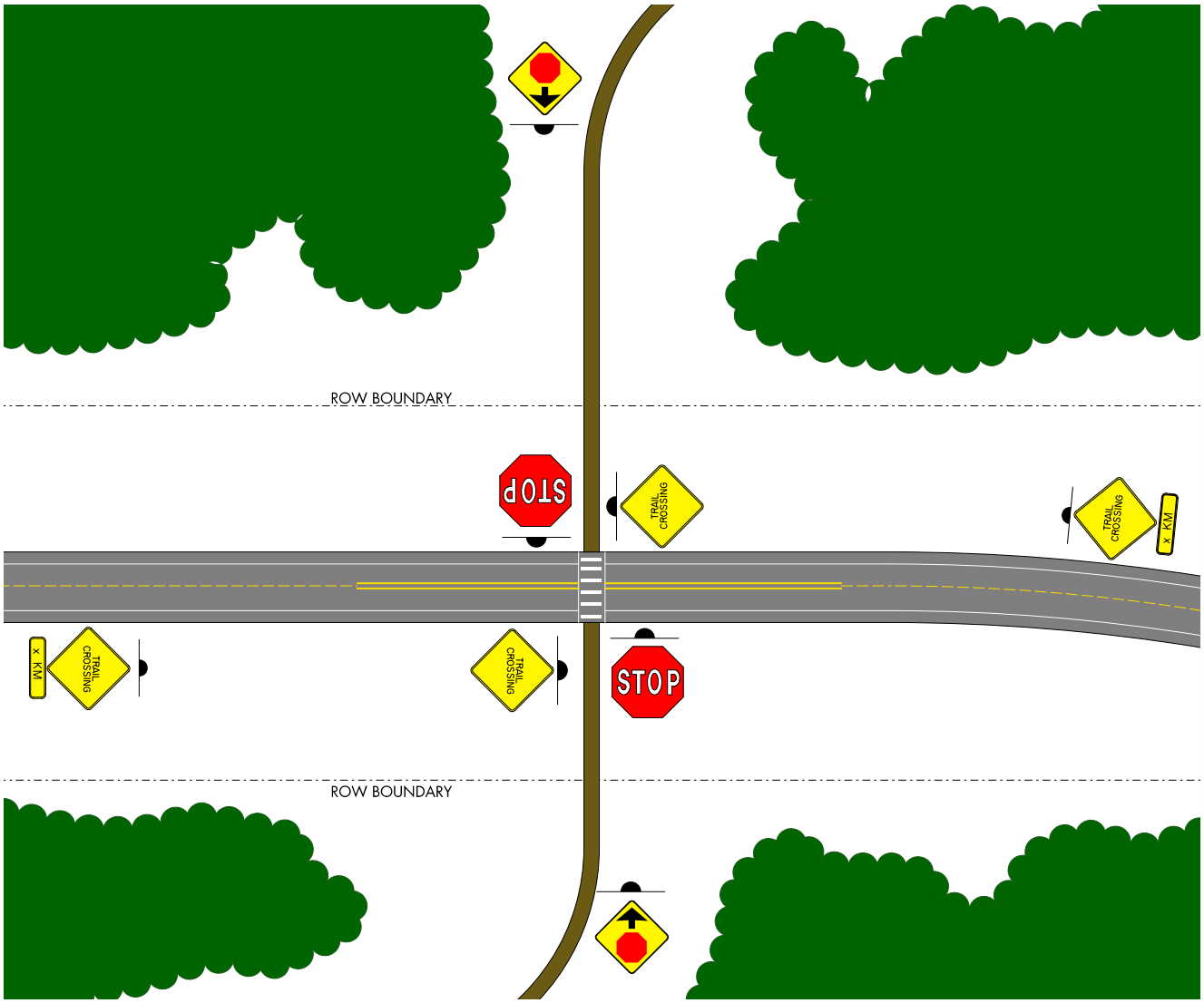
SCALE: 1:500	DATE: JANUARY 2017	JOB: 0191-002-00	FIGURE: 2

Oldman River Regional Services Commission
Magrath Trail Highway Crossings - Highway 62 Tunnel Crossing
Cost Estimate

	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
General Items					
1	Mobilization, demobilization, bonding, insurance, etc.	1	LS	$ 20,000.00	$ 20,000.00
2	Traffic Accomodation	1	LS	$ 20,000.00	$ 20,000.00
3	Common Excavation	100	m^3	$ 15.00	$ 1,500.00
4	Waste Excavation	250	m^3	$ 20.00	$ 5,000.00
5	HWY 62 Crossing - 2400 x 3000 Concrete*	1	LS	$ 145,000.00	$ 145,000.00
6	Pre-cast Concrete Catch Basin	1	ea	$ 2,000.00	$ 2,000.00
7	100 mm Drain Tile to Fish Pond	40	m	$ 50.00	$ 2,000.00
8	Fish Pond South Access Road Restoration	50	m^2	$ 30.00	$ 1,500.00
9	300 mm Subgrade Preparation	200	m^2	$ 5.00	$ 1,000.00
10	Base Granular Material - 350 mm depth*	200	m^2	$ 30.00	$ 6,000.00
11	120 mm Hot Mix Asphalt*	200	m^2	$ 40.00	$ 8,000.00
12	Strip, Stockpile and Replace Topsoil	750	m^2	$ 10.00	$ 7,500.00
13	Coarse Grass Hydro-Seeding and Hydromulch	750	m^2	$ 4.00	$ 3,000.00
Subtotal					$ 223,000.00
CONTINGENCY (20%)					$ 45,000.00
ENGINEERING (12%)					$ 32,000.00
TOTAL					**$ 300,000.00**

* Assumes tunnel required for 25 m. Alberta Transportation may require the tunnel from property line to property line, which will significantly increase the cost of the project.
* Base granular and hot mix asphalt depths are assumed depths based on similar highway projects.

Figure 7.3 Typical Signage of Mid-Block Crossing Two-Lane Undivided Highway



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Phone: 403-329-3442
1-866-329-3442
Fax: 403-329-9354

Engineering Ltd.

Town of Magrath
PO Box 520
55 South 1st Street West
Magrath, Alberta
T0K 1J0

January 26, 2017
File: N:\0191\002-00\L02-1.0

Attention: Wade Alston
Chief Administrative Officer

Dear Mr. Alston:

Re: Magrath Trails Highway 62 Tunnel at Fish Pond

MPE Engineering Ltd. (MPE) was retained by the Town of Magrath (Town) to investigate the feasibility of installing a pedestrian underpass or tunnel near the fish pond south access in the Town of Magrath to mitigate safety concerns expressed by the Town associated with a surface crossing of Highway 62. The intent of this assessment is to evaluate and provide comment on the feasibility of installing a pedestrian underpass near the fish pond in conjunction with an application for funding.

Background

The Town is currently working with Cardston County and the Oldman River Regional Services Commission on the Magrath/Cardston County Intermunicipal Trails Master Plan to provide a system of interconnected trails surrounding the Town. A portion of this trail system will involve a crossing of Highway 62 from the existing trail system near the fish pond to a proposed trail system on the east side of Highway 62. The Town has expressed concern with safety aspects of a surface crossing at this location. The installation of a tunnel at this location would remove the potential for conflict between trail users and highway traffic.

Tunnel near the Fish Pond South Access

A tunnel under Hwy 62 near the fish pond south access was evaluated. Alberta Transportation (AT) sets out policies, guidelines, and standards for trails crossing a highway. This includes horizontal widths and vertical clearances. The minimum typical trail width for a non-motorized low volume trail is 2.0 m. The minimum vertical clearance is 3.0 m. In order to accommodate the minimum width and vertical clearance MPE investigated utilizing a large diameter culvert, a multi-plate culvert designed for pedestrian underpasses, and a large concrete box culvert.

MPE completed a topographic survey of the proposed crossing locations on December 14, 2016. Discussions with the Town of Magrath indicate that the water level of the fish pond at the time of the survey is approximately 0.3 m lower than the normal high water level. The site constraints of the fish pond normal water elevation and the highway elevations do not allow for the use of a large diameter culvert or a multi-plate pedestrian underpass. A large concrete box culvert could potentially be utilized, however; further investigation is required into AT requirements and fish pond normal water operation levels.

APPENDIX B – Maps

3
2
1
34
35
36
27
25
22
23
24
15
14
HIGHWAY 3
HIGHWAY 62
SHERIDAN WAY
Tentative alignment
Actual alignment to be determined at Area Structure Plan stage

MAGRATH REGIONAL TRAILS MASTER PLAN

Appendix B.1 - MASTER MAP

- MAGRATH TOWN BOUNDARY
- EXISTING TRAIL
- INDEX CONTOURS (2.5m)

PREFERRED ROUTE

- N - NATURAL
- LC - LOCAL CONNECTOR
- RM - REGIONAL MULTIUSE

PHOTO DATE: 2015

PREPARED BY:
OLDMAN RIVER REGIONAL SERVICES COMMISSION
NOT RESPONSIBLE FOR ERRORS OR OMISSIONS

OLDMAN RIVER REGIONAL SERVICES COMMISSION

0 Metres 200 400 600 800

November 10, 2017
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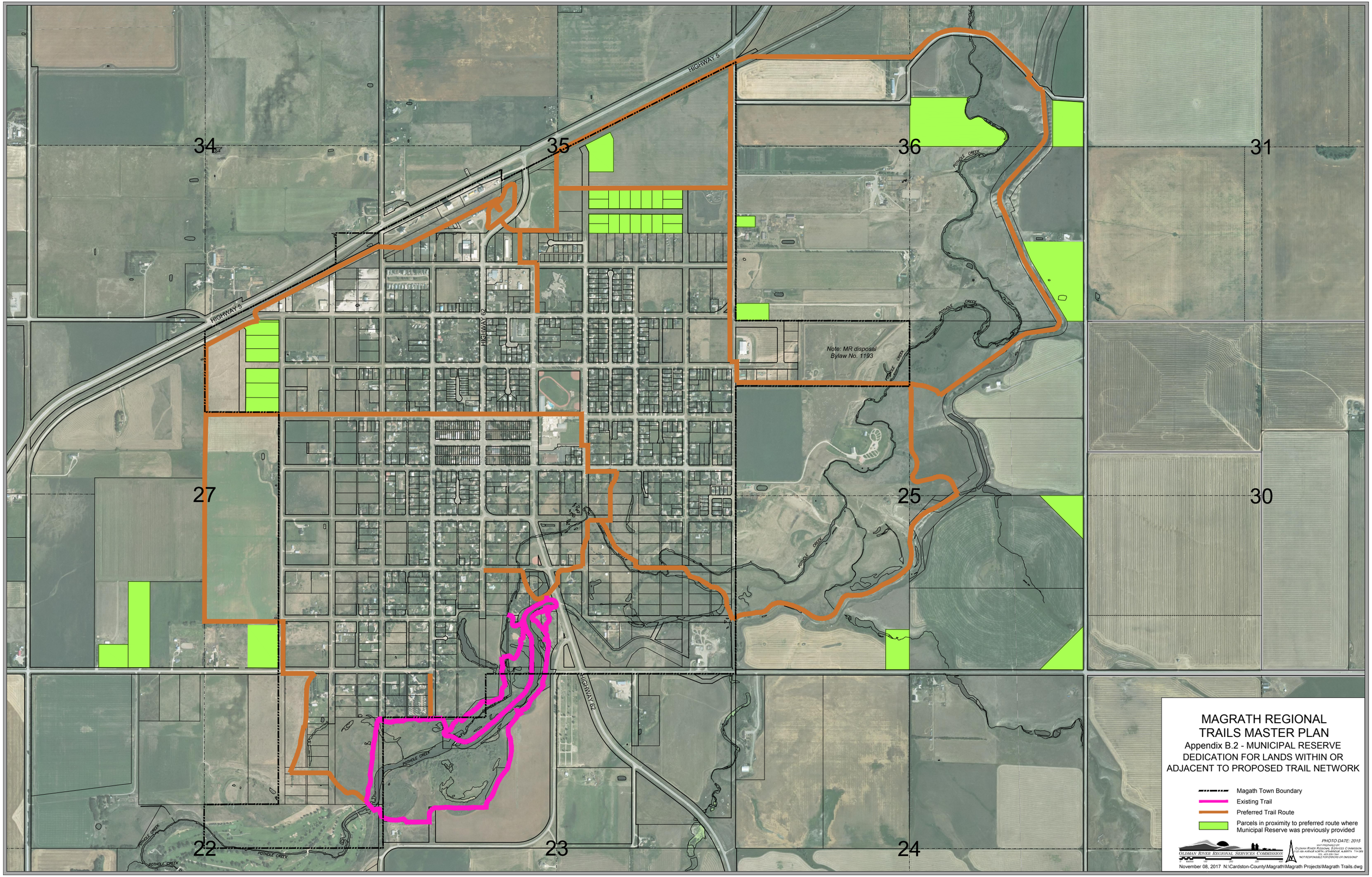
Magrath Trails.dwg



MAGRATH REGIONAL TRAILS MASTER PLAN

Appendix B.2 - MUNICIPAL RESERVE DEDICATION FOR LANDS WITHIN OR ADJACENT TO PROPOSED TRAIL NETWORK

- Magath Town Boundary
- Existing Trail
- Preferred Trail Route
- Parcels in proximity to preferred route where Municipal Reserve was previously provided

PHOTO DATE: 2015

MAP PREPARED BY:
OLDMAN RIVER REGIONAL SERVICES COMMISSION
100 188 AVENUE NORTH LETHBRIDGE, ALBERTA T1H 0B9
PH. 403.329.1344
"NOT RESPONSIBLE FOR ERRORS OR OMISSIONS"

OLDMAN RIVER REGIONAL SERVICES COMMISSION

November 08, 2017 N:\Cardston-County\Magrath\Magrath Projects\Magrath Trails.dwg

Code of Practice for Pipelines and Telecommunications Lines Crossing a Water Body

Code of Practice for Watercourse Crosssings

Code of Practice for Outfall Structures on Water Bodies

Lethbridge Management Area Map

November 2006

Water Body Class	Water Body Class Symbol	Restricted Activity Period
Class A	or	- See applicable Code of Practice for specific requirements
Class C		- September 1 to August 15
		- September 16 to April 15
		- May 1 to July 15 and September 16 to April 15
		- April 1 to July 31
		- April 1 to May 31
		- April 1 to June 30
Class D	None	- No Restricted Activity Period

Locations of Class A and B Water Bodies

Any person who carries out an activity governed by a Code of Practice (Code) under the *Water Act*, must use all of the following information to determine the Class of water body applicable to the activity location: the Code provisions and the applicable Management Area Map (the map), including the associated map legend and its tables. The table below describes the locations of Class A and B water bodies. Where water body Classes appear to overlap on the map or where the water body Class indicated by the map differs from the map legend and its tables, the water body Class indicated in the map legend and tables will apply.

Water Body	Water Body Class	Location	Comments
Bow River	A	Twp 21 – Rge 19 – W4 Sec 2	Significant spawning habitat for numerous fish species.
Confluence of Bow River & Oldman River	A	Twp 11 – Rge 13 – W4 Sec. 12,13,14,21,22,23,26,27,28,34,35	Significant fish migration habitat.
Confluence of Little Bow River & Oldman River	A	Twp 11 – Rge 19 – W4 Sec 1,12	Significant fish migration habitat.
Confluence of St. Mary River & Oldman River	A	Twp 8 – Rge 22 – W4 Sec 11	Significant fish migration habitat.
Confluence of Belly River & Oldman River	A	Twp 9 – Rge 23 – W4 Sec 25,26,35,36	Significant fish migration habitat.
Confluence of St. Mary River & Pothole Creek	A	Twp 7 – Rge 21 – W4 Sec 18, 19	Significant fish migration habitat.

Green Area, M.O. 22/99, May 1999

White Area

LOCATION MAP OF LETHBRIDGE MANAGEMENT AREA

This map forms part of the Code of Practice for Pipelines and Telecommunication Lines Crossing a Water Body, the Code of Practice for Watercourse Crossings and the Code of Practice for Outfall Structures on Water Bodies. This map is subject to change.

Note: The Water Body Classifications and Restricted Activity Periods on this map are only for water bodies as defined in the *Water Act* Codes of Practice (Codes). The Codes also outline provisions for: determining exceptions to coded water bodies, and determining the classification and Restricted Activity Periods for unmapped and uncoded water bodies. For detailed information please refer to the appropriate Code.

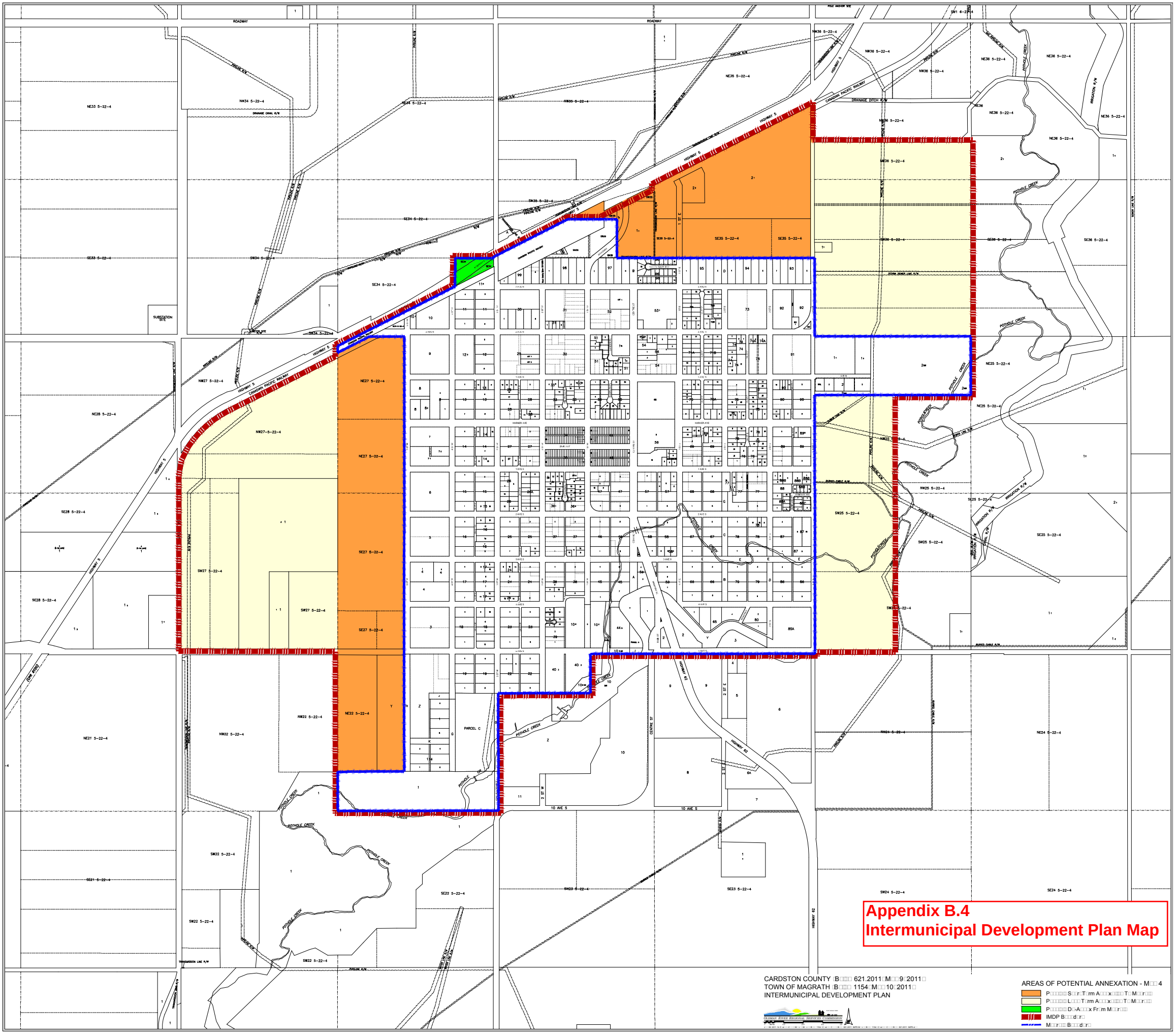
Wetlands, sloughs, and both fish bearing and non-fish bearing lakes are outside the scope of the Codes. Activities on these types of water bodies may require authorizations under the *Water Act* and, therefore, an application under the *Water Act* should be submitted to your nearest regional Alberta Environment office.

For additional information on the Codes and other authorizations check the Environment website at http://www3.gov.ab.ca/env/water or contact your nearest regional Alberta Environment office.

Alberta ENVIRONMENT

Alberta SUSTAINABLE RESOURCE DEVELOPMENT

Prepared by Alberta Sustainable Resource Development, Finance and Administration Division, Resource Information Management Branch
Base Map Provided by Spatial Data Warehouse Ltd.



Appendix B.4
Intermunicipal Development Plan Map

CARDSTON COUNTY □B□□□ 621.2011□M□□9□2011□
TOWN OF MAGRATH □B□□□ 1154□M□□10□2011□
INTERMUNICIPAL DEVELOPMENT PLAN

AREAS OF POTENTIAL ANNEXATION - M□□ 4
- P□□□□□S□□r□T□rm A□□□x□□□□ T□ M□□r□□□
- P□□□□□L□□□ T□rm A□□□x□□□□ T□ M□□r□□□
- P□□□□□D□-A□□□x Fr□m M□□r□□□
- IMDP B□□□d□r□
- M□□r□□□B□□□d□r□

CARDSTON COUNTY
LAND USE DISTRICTS

MAP 20

PORTION OF TWP 5□RGE 22□W 4 M

Appendix B.5
Cardston County Land Use Bylaw Map

Am□□d□□□ B□□□□ □□
4□□2004□490□2005□510□2007□511□2007□523□2007□
536□200□□537□200□□545□200□□566□2009□605□2010□
612□2010□616□2011□622□2011□62□□201

LAND USE DISTRICTS

B□□□□ N□□443□9□
D□□□□A□□□□□24□199□

- AGRICULTURE - AG
- HAMLET - H
- HAMLET OF AETNA - HOA
- GROUPED COUNTRY RESIDENTIAL - GCR
- RURAL RECREATIONAL - RR
- RURAL COMMERCIAL□INDUSTRIAL - RCI
- SINGLE-LOT COUNTRY RESIDENTIAL - SCR
- RURAL SMALL HOLDINGS - RSH
- DIRECT CONTROL - DC
- DESIGNATED HAMLET□URBAN BOUNDARY

SCALE 1: 1□000

MAP PREPARED BY:
OLDMAN RIVER REGIONAL SERVICES COMMISSION
3105 16th AVENUE NORTH, LETHBRIDGE, ALBERTA
TEL. 329-1344 T1H 5E8
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OLDMAN RIVER REGIONAL SERVICES COMMISSION

A□r□16□2012 N:□C□rd□□□□-C□□□□□C□rd□□□□ C□□□□□LUD & L□□d U□□ R□d□□□□□□□□□□□
C□rd□□□□ C□□□□□LUB 443-9□ A□□□□□199□ □LUD m□□□□ □m□□d□d □□ □□□□□ 632-2012□d□□

SW 1/4 34-5-22 W4M

SE 1/4 34-5-22 W4M

SW 1/4 36-5-22 W4M

NW 1/4 27-5-22 W4M

NW 1/4 25-5-22 W4M

HIGHWAY 5

3 AVE N

2 AVE N

1 AVE N

HARKER AVE

CIVIC AVE

1 AVE S

2 AVE S

3 AVE S

1A ST E

2A ST E

GARDEN PL

WILDROSE PL

MAGRATH PL

CENTENNIAL PL

CENTRE ST

5 ST W

4 ST W

3 ST W

2 ST W

2A ST W

1 ST W

1 ST E

2 ST E

3 ST E

4 ST E

THOLE CREEK

Appendix B.6
Infrastructure Master Plan Sidewalks Map

LEGEND

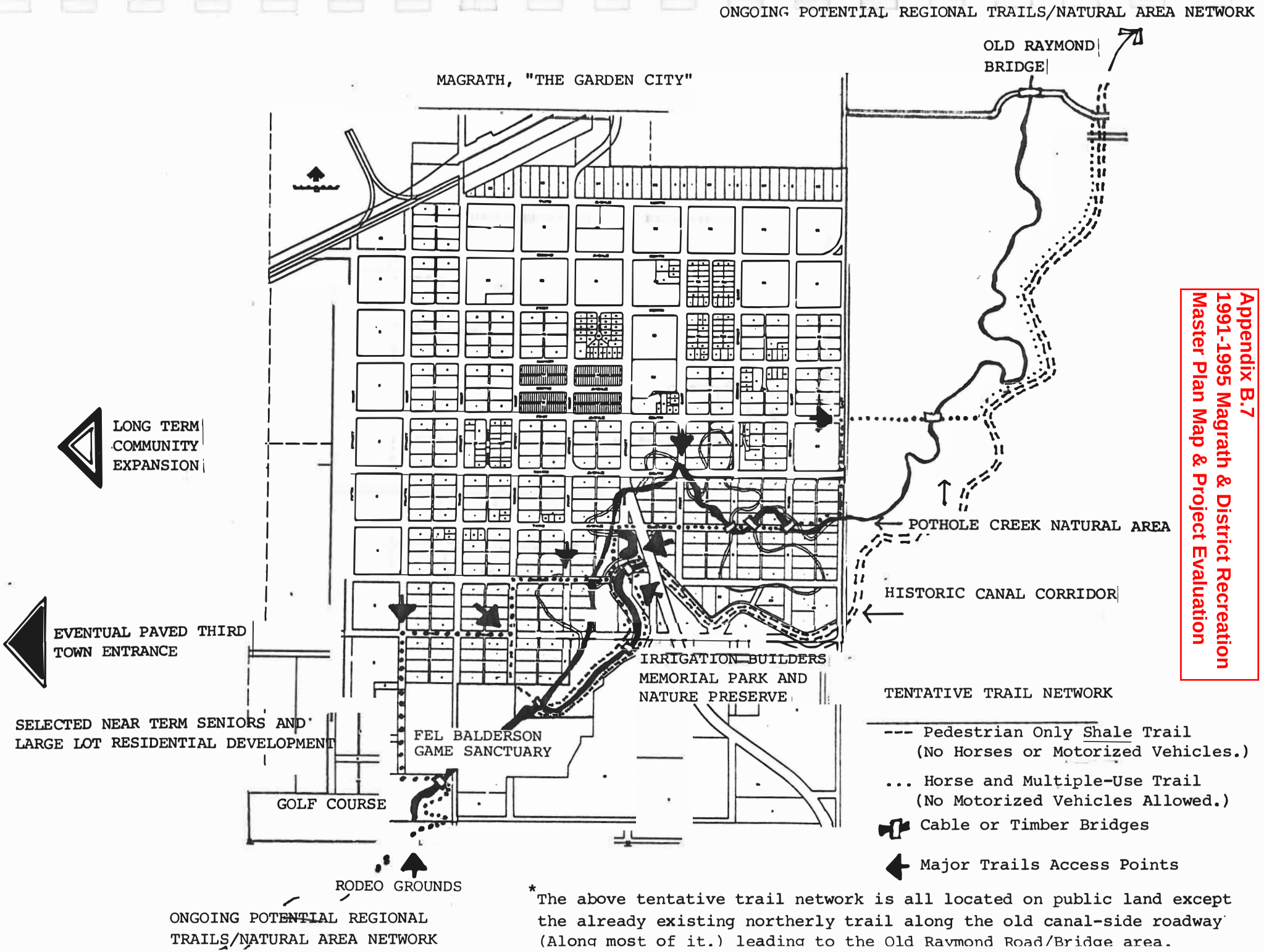
- TOWN BOUNDARY
- MONOLITHIC SIDEWALK SHORT TERM CAPITAL PROJECTS
- MONOLITHIC SIDEWALK MEDIUM TERM CAPITAL PROJECTS
- MONOLITHIC SIDEWALK LONG TERM CAPITAL PROJECTS
- NO MONOLITHIC SIDEWALK CAPITAL WORK REQUIRED
- SEPARATE SIDEWALK SHORT TERM CAPITAL PROJECTS
- SEPARATE SIDEWALK MEDIUM TERM CAPITAL PROJECTS
- SEPARATE SIDEWALK LONG TERM CAPITAL PROJECTS
- NO SEPARATE SIDEWALK CAPITAL WORK REQUIRED
- WHEELCHAIR RAMP REQUIRED

MPE Engineering Ltd.

TOWN OF MAGRATH

INFRASTRUCTURE MASTER PLAN
SIDEWALK WORK PROJECT PRIORITY PLAN
MONOLITHIC AND SEPARATE SIDEWALKS

SCALE: 1:10 000	DATE: DECEMBER 2012	JOB: 1410-059-00	FIGURE: 3.2



Appendix B.7
1991-1995 Magrath & District Recreation Master Plan Map & Project Evaluation

GOAL: ESTABLISHMENT OF AN INTERCONNECTED MULTI-PURPOSE TRAILS AND PARK NETWORK INCLUDING MAGRATH'S HISTORIC IRRIGATION CANAL CORRIDOR, IRRIGATION BUILDERS MEMORIAL PARK, AND POTHOLE CREEK NATURAL AREA.

OBJECTIVE:

CONCERN(S) ADDRESSED: The need to develop this outstanding natural and historic resource for local and area residents and also to attract tourists and new residents to the Town and surrounding area.

JUSTIFICATION: These interconnected areas have great recreation potential which can be developed and maintained at a minimal cost.

RANK NO. 1

FACILITIES

MARKETS IMPLICATED: All age groups and all residents of the district as well as tourists and other visitors to the region.

TIME FRAME: 3 Years **EXPENSE:** From 50-100,000 Dollars Depending on the Level of Volunteer Assistance.

ACTION STEPS	BY WHOM	WHEN	RESULTS
1. Develop a segregated 3 year horse and pedestrial trails system plan linking the Agricultural Fair and Rodeo Grounds and the Pothole Creek Natural Area and Historic Canal Corridor east of the Town and north to the "Old Raymond Bridge."	Trails and Natural Area Sub-Committee of the Rec. Board	January to March 1991	A plan sufficiently detailed to allow construction to begin on a First Phase in 1991.
2. Seek support subject to special provisions from any affected private landowners throughout this corridor. (See tentative map on following page for details.)	As Above	January to April 1991	Support from the majority of potentially affected landowners subject to conditions.
3. Begin construction of Phase 1 (The Irrigation Builders Memorial Park and Nature Preserve and the Fourth Street West horse and pedestrian trails.) as described on the following map, with actual trails and timber or cable bridge locations to be chosen by a landscape architect.	Town of Magrath	Commencing May 1991	Shale pedestrian trails and dirt horsetrails in place by autumn 1991; including bridges as specified if funding is available. Bridges to be completed by 1992 at the latest.
4. Begin construction of Phase 2 (The Pothole Creek Natural Area trails and bridges up to the Norton Game Farm and a dirt horse and pedestrian trail from the Ririe barn east along the road allowance to the creek and irrigation corridor. The west side of the old canal going north has an existing trail along most of its length—an old canal-side road—leading to the Old Raymond Road and Bridge area. Final locations to be chosen as in point 3 above.	Town of Magrath	Commencing May 1992	A shale pedestrian trail from Hwy. 62 bridge to the Norton Game Farm and a separate dirt horse trail along 3rd Ave. S. to the same point. From there a dirt multi-use trail connecting with the historic canal corridor.

ACTION STEPS	BY WHOM	WHEN	RESULTS
5. Once all trails and bridges are in place, maintenance and continual upgrading of the trails network and its surrounding natural areas becomes a high priority. Also the addition and maintenance of attractive and informative signage, particularly in the Jubilee Park and the Memorial Park and Nature Preserve areas. All signage should be in place and a maintenance program staffed primarily by volunteers operational by the spring of 1993.	Trails and Natural Area Sub-Committee in Cooperation with Local Volunteers and Youth Groups.	By May 1993	Trails, signage (Both Historical and Natural Area Signage) and Maintenance Program Fully In Place.
6. In January of each year up to and following 1995, the Recreation Board and Sub-Committee should seriously consider opportunities to enhance the historical and natural features of this parks and trails network to encourage greater use, improved quality and condition, and the overall attractiveness of this unique resource.	Board and Sub-Committee	January of Each Year.	An evolving or constantly improving trails, historic, and natural environmental and recreational resource for the community, surrounding district, and for visitors.
7. A tourist booth and rest area facility should be established just west of Hwy 62 within Irrigation Builders Memorial Park. Equipment displays should continue to be encouraged here as well.	Recreation Board and Town of Magrath	1993	The tourist booth could be portable and used during peak months only. Provision of an attractive entrance/ recreational and tourism amenity for the community.

ACTION STEPS	BY WHOM	WHEN	RESULTS
8. Over the years the Town should acquire, when available, or accept donations, of privately-held land within the Town limits which can contribute to length and quality of this park and trail system. The Town should also cooperate with the M.D. of Cardston No. 6 in acquiring lands and/or easements within the recommended Pothole Creek Natural Area to ensure the preservation and environmentally appropriate use of this unique historical, natural and scenic resource.	Town of Magrath with the Advice of the Sub-Committee and Recreation Board	Effective Immediately	Achieving greater control or unrestricted access to these areas in perpetuity, thus avoiding the possibility of incompatible use being made of these lands.
9. The Sub-Committee should also coordinate with the M.D. of Cardston No, 6 in cooperation with the Town of Magrath to ensure that the integrity or continuity of the Pothole Creek Natural Area or lands bordering the Fel Balderson Game Sanctuary or the Memorial Park to the South are not developed in a way inconsistent with the current mixed park and agricultural use of the proposed natural area or with the agricultural use of the lands bordering south of the game sanctuary and south and east of the Memorial Park. A concrete understanding and a formalization of this principle should be established as soon as possible to avoid oversights and inappropriate non-agricultural or recreational development in future.	Town of Magrath and the M.D. Council in Cooperation with the Recreation Board, Committee, and Sub-Committee	Effective Immediately	Ensuring that land use peripheral to the Town on the east and south east continues to be used in a manner consistent with the recreation, natural area preservation, and history interpretive and preservation goals of the Rec. Board and the Town of Magrath are rigorously protected through some form of formal agreement.

ACTION STEPS	BY WHOM	WHEN	RESULTS
10. If at some future point in time the Magrath Rod and Gun Club decides that the Fel Balderson Game Sanctuary the Club could benefit from active participation in this park and natural area program, their involvement should be actively encouraged. This entire area up to the Old Raymond Bridge should be established as a wildlife protection zone with no hunting allowed. Should the Club decide to get involved it would be appropriate if one of their members was chosen to sit on the Sub-Committee.	Trails and Natural Area Sub-Committee	1/1991	Close cooperation between the Club and Recreation Board/Sub-Committee in the areas of habitat preservation, wildlife protection, conservation and interpretive programming and community education, and the conducting of wildlife related walks and tours external to the game sanctuary.
11. The Pothole Creek Natural Area should be designated and posted as a non-hunting area if this can be arranged.	As Above	1991	Designation of these areas as wildlife sanctuary.
12. Finally, this trails and natural areas system should form a leading and central part in the formation of a regional horse trail and natural area system for use by Town and regional residents as well as by tourists and special horse-related activities and organizations.	As Above	Ongoing Until Regional Network and Maintenance/ Development Program is in Place.	As described.

APPENDIX C – SIGNAGE SAMPLES

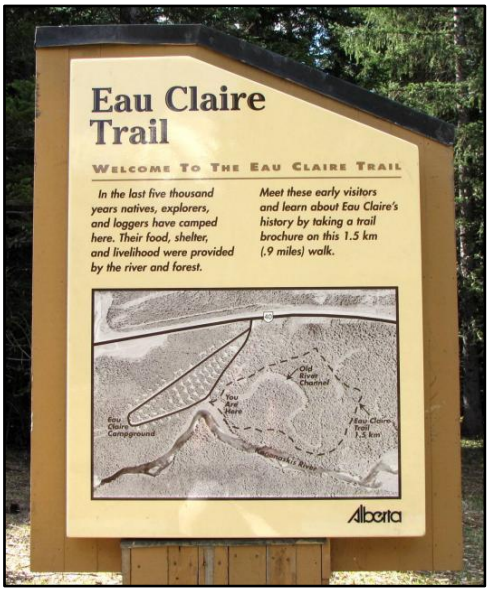

Multi-Use Trail
Permitted Uses
MaineDOT
All motorized vehicles must be registered as ATV's.
Winter Use Only with Snow Cover
Bureau of Parks and Lands
Off-Road Vehicle Division

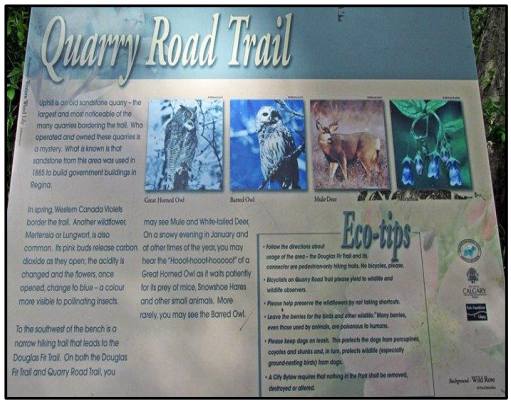

Share the Trail
Be a responsible trail user.
• Don't block the trail
• Keep dogs under control – 6' leash maximum
• Travel at a safe speed
• Pass with care
• Bicyclists keep right except to pass
• Pedestrians keep left to face oncoming cyclists
www.roseville.ca.us/ShareTheTrail


Rules For The Trail
Protect and Preserve Your Trails
• Hours: Trails Are Closed 10:00 pm-5:00 am
• No Motorized Vehicles or Horses on Trails
• Pets Must Be on Leash at All Times
• No Overnight Camping or Fires
• All Refuse Carried in Must be Carried Out
• No Removal of Flowers, Shrubs, or Animals
• No Firearms Allowed on Trails
Rules and Regulations adopted pursuant to Jefferson County Home Rule Ordinance and Fairfield Municipal Ordinance.
All city, county, state, and federal laws are applicable to you on these trails.
ENJOY YOUR TRAIL!

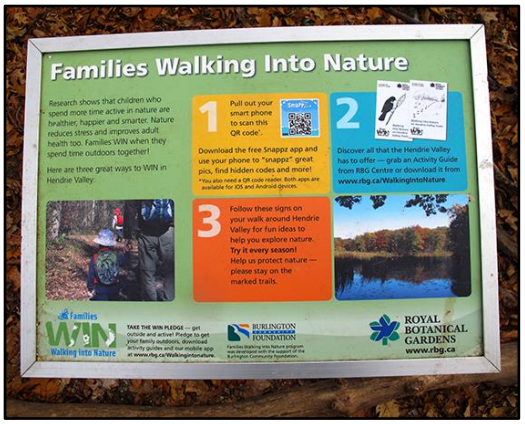

INTERPRETIVE
STOP 1
Chadakoin Formation outcrop
Devonian Era siltstones, shales and sandstones were deposited on the outer shelf of a Mediterranean-like sea about 350 million years ago. Fossils include brachiopods, bryozoans, crinoids and possibly sponges.


Helmets Save Lives
Enjoy Nature, Don't Destroy It
Please Stay On Trails
Help Us, Please Report Vandalism


Eau Claire Trail
Welcome To The Eau Claire Trail
In the last five thousand years natives, explorers, and loggers have camped here. Their food, shelter, and livelihood were provided by the river and forest.
Meet these early visitors and learn about Eau Claire's history by taking a trail brochure on this 1.5 km (.9 miles) walk.
Old River Channel
You Are Here
Eau Claire Campground
Eau Claire Trail 1.5 km
Alberta


Quarry Road Trail
Great Horned Owl
Barred Owl
Mule Deer
Eco-tips
CALGARY


PATH CLOSED
FOR RESTORATION
PLEASE USE DESIGNATED TRAILS


Families Walking Into Nature
Research shows that children who spend more time active in nature are healthier, happier and smarter. Nature reduces stress and improves adult health too. Families WIN when they spend time outdoors together!
Here are three great ways to WIN in Hendrie Valley:
1 Pull out your smart phone to scan this QR code.
Download the free Snappz app and use your phone to "snappz" great pics, find hidden codes and more!
2 Discover all that the Hendrie Valley has to offer — grab an Activity Guide from RBG Centre or download it from www.rbg.ca/WalkingIntoNature
3 Follow these signs on your walk around Hendrie Valley for fun ideas to help you explore nature. Try it every season! Help us protect nature — please stay on the marked trails.
Families WIN Walking Into Nature
TAKE THE WIN PLEDGE — get outside and active! Pledge to get your family outdoors, download Activity guides and our mobile app at www.rbg.ca/WalkingIntoNature
BURLINGTON BOTANICAL GARDENS FOUNDATION
ROYAL BOTANICAL GARDENS
www.rbg.ca

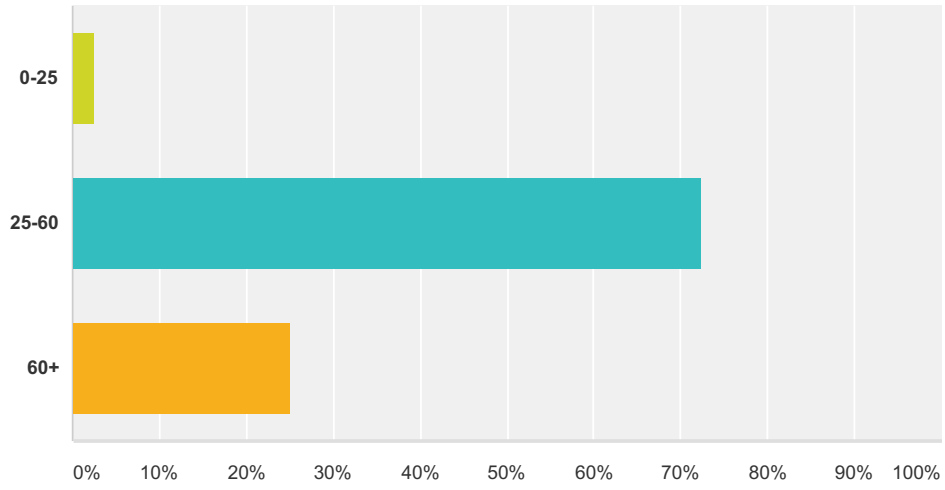

LOYALIST HIKING TRAIL
Length - 4km (return)
Rating - Intermediate
Approx. Time - 2 hours
The trail leads to the Loyalist Building which is situated on the shores of Country Harbour. There you will find more interpretive panels and an enlarged copy a the 1784 Land Grant which displays names, ranks and a map depicting the areas first settlers. The area around the building is also a great location for a picnic as there is a picnic table, garbage cans and washroom facilities.


Oswego Canal Park Walking Trails
You are here:
Oswego Maritime District
Health Tip:
150 minutes each week seems like a lot, but you don't have to do it all at once. It is best to spread your activity out during the week, even break it up into smaller chunks of time during the day - as long as you're doing your activity at a moderate or vigorous effort for at least 10 minutes at a time.
Blue Trail = 1.65 miles (round trip)
Green Trail = 1.60 miles (round trip)
Orange Trail = 1.30 miles (round trip)

APPENDIX D – TRAIL USER SURVEY RESULTS

Q1 What is you age?

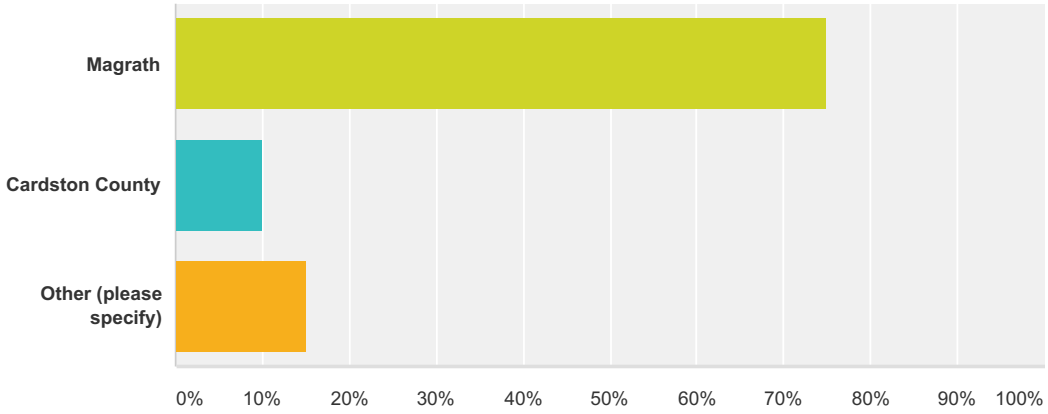
Answered: 40 Skipped: 1



Answer Choices	Responses	
0-25	**2.50%**	1
25-60	**72.50%**	29
60+	**25.00%**	10
Total		**40**

Q2 Where do you live?

Answered: 40 Skipped: 1

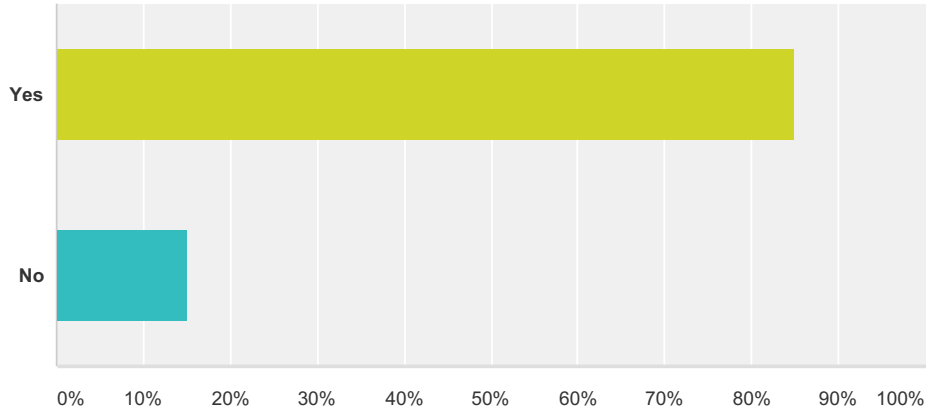


Answer Choices	Responses	
Magrath	**75.00%**	30
Cardston County	**10.00%**	4
Other (please specify)	**15.00%**	6
Total		**40**

Lethbridge, AB (4)
Thorsby, AB (1)
Richmond, VA (1)

Q3 Have you ever used the existing trail network in the Town of Magrath?

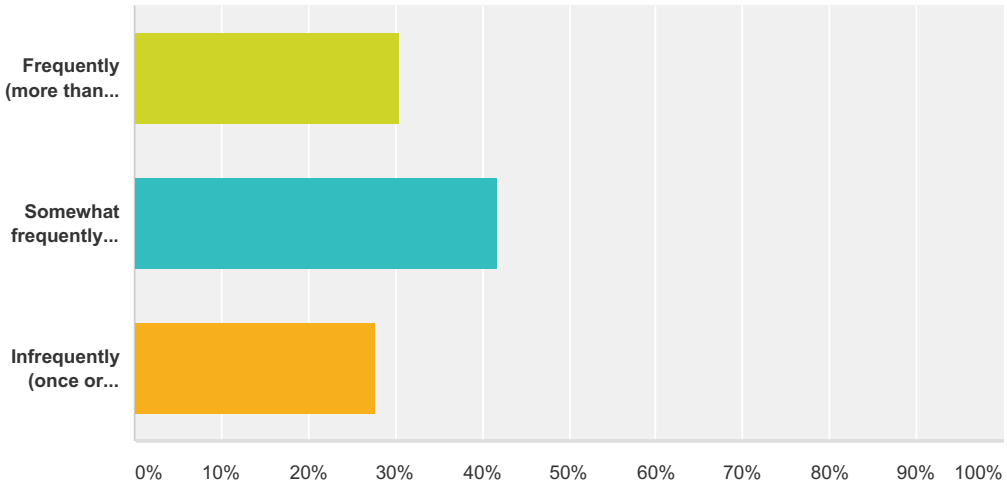
Answered: 40 Skipped: 1



Answer Choices	Responses	
Yes	**85.00%**	34
No	**15.00%**	6
Total		**40**

Q4 If yes, how often do you currently use the existing trail network?

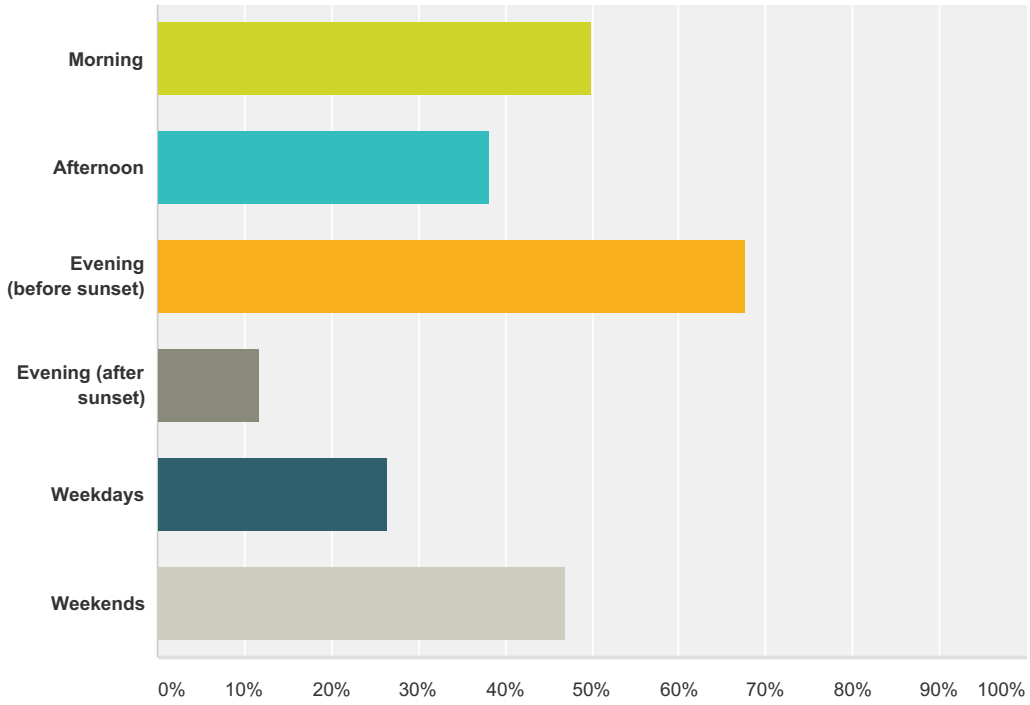
Answered: 36 Skipped: 5



Answer Choices	Responses	
Frequently (more than once/week)	**30.56%**	11
Somewhat frequently (more than once/month)	**41.67%**	15
Infrequently (once or more/year)	**27.78%**	10
Total		**36**

Q5 Is there a particular time or day that you typically use or would use the trail network?

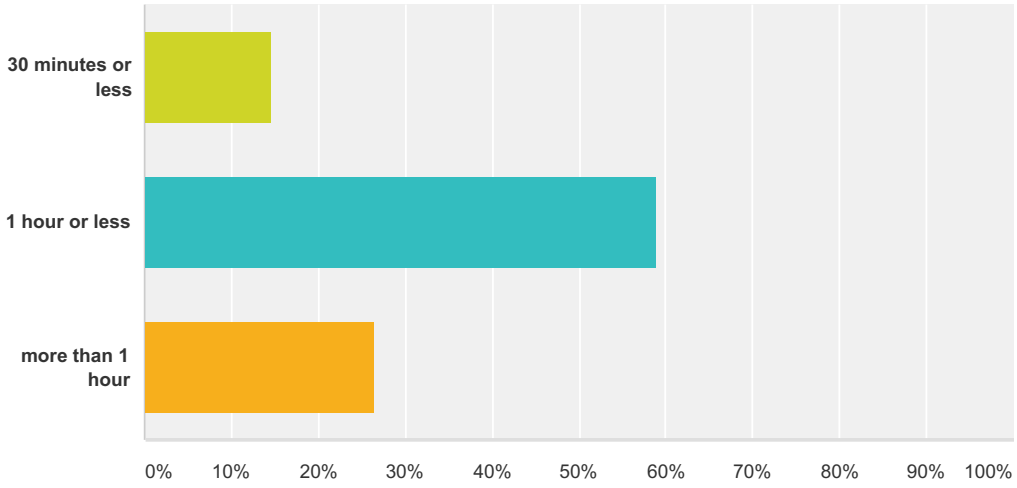
Answered: 34 Skipped: 7



Answer Choices	Responses	
Morning	**50.00%**	17
Afternoon	**38.24%**	13
Evening (before sunset)	**67.65%**	23
Evening (after sunset)	**11.76%**	4
Weekdays	**26.47%**	9
Weekends	**47.06%**	16
Total Respondents: 34		

Q6 For how long would your typical trail outing (whether on the existing Magrath network or elsewhere) last?

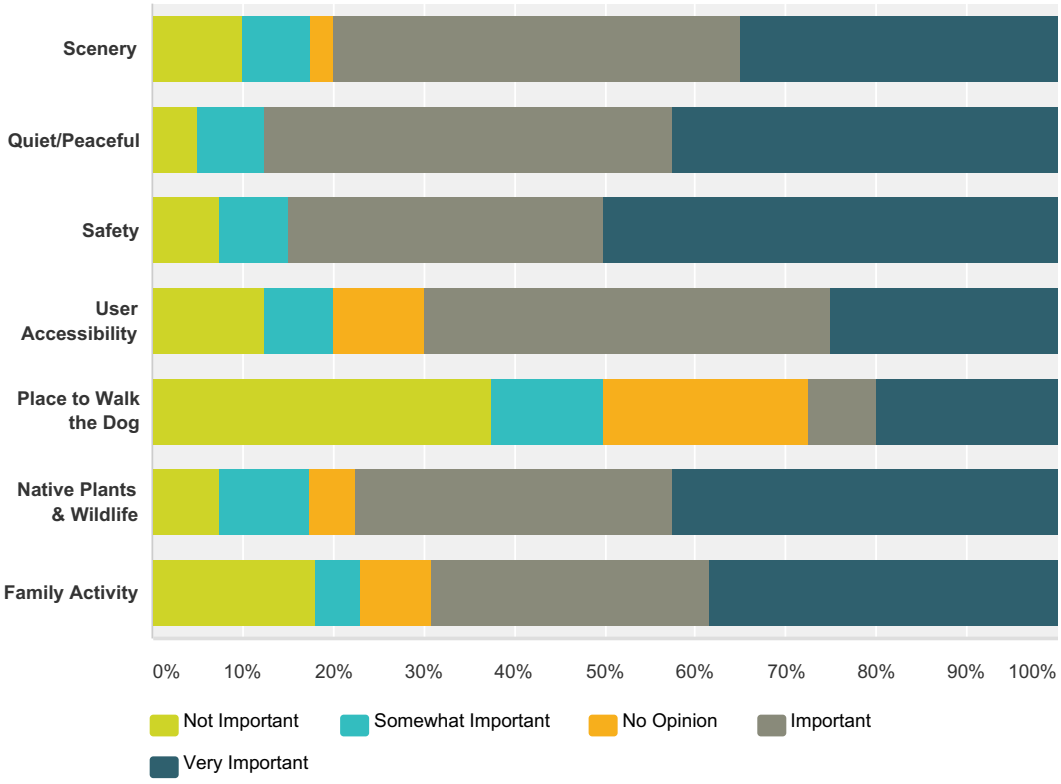
Answered: 34 Skipped: 7



Answer Choices	Responses	
30 minutes or less	**14.71%**	5
1 hour or less	**58.82%**	20
more than 1 hour	**26.47%**	9
Total		**34**

Q7 Identify the importance of the following attributes to the trial network

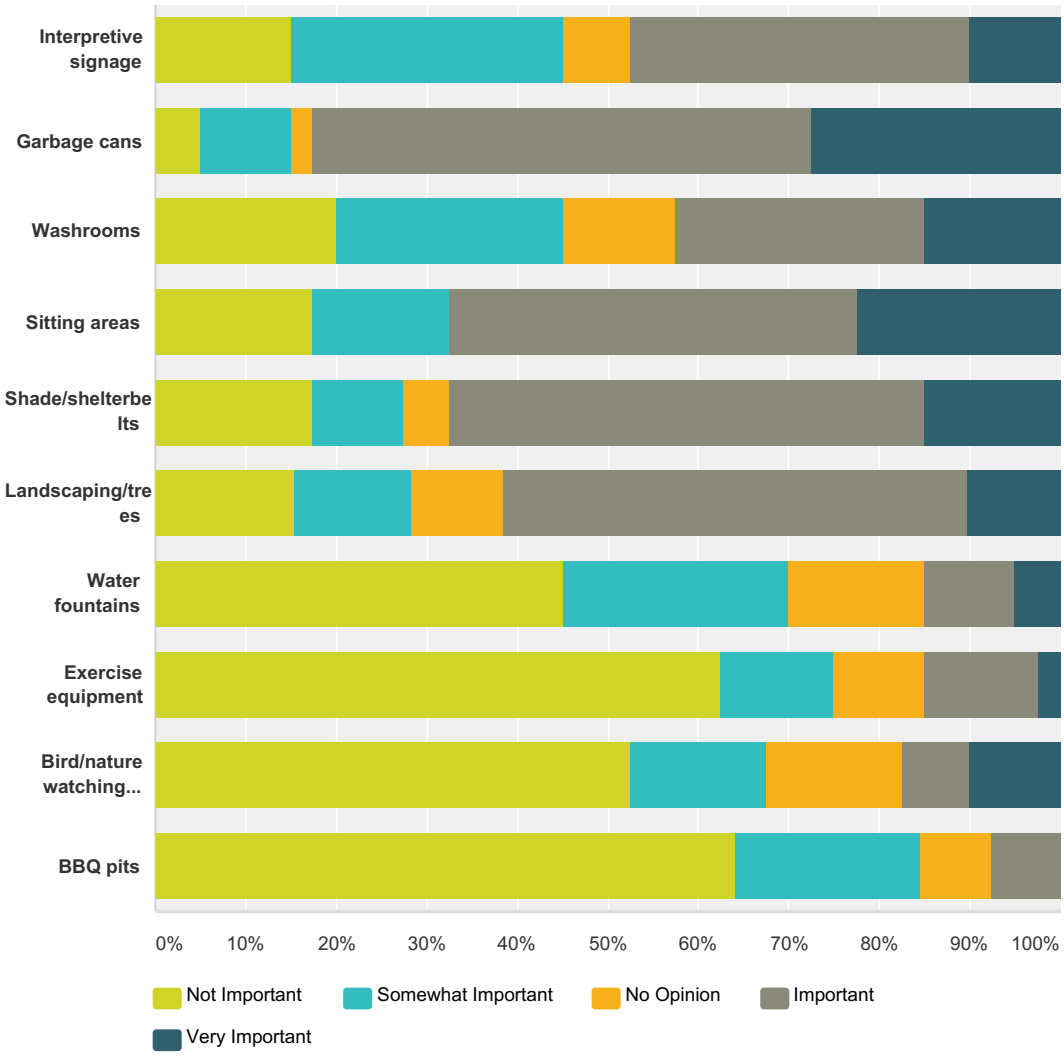
Answered: 40 Skipped: 1



	Not Important	Somewhat Important	No Opinion	Important	Very Important	Total
Scenery	**10.00%** 4	**7.50%** 3	**2.50%** 1	**45.00%** 18	**35.00%** 14	40
Quiet/Peaceful	**5.00%** 2	**7.50%** 3	**0.00%** 0	**45.00%** 18	**42.50%** 17	40
Safety	**7.50%** 3	**7.50%** 3	**0.00%** 0	**35.00%** 14	**50.00%** 20	40
User Accessibility	**12.50%** 5	**7.50%** 3	**10.00%** 4	**45.00%** 18	**25.00%** 10	40
Place to Walk the Dog	**37.50%** 15	**12.50%** 5	**22.50%** 9	**7.50%** 3	**20.00%** 8	40
Native Plants & Wildlife	**7.50%** 3	**10.00%** 4	**5.00%** 2	**35.00%** 14	**42.50%** 17	40
Family Activity	**17.95%** 7	**5.13%** 2	**7.69%** 3	**30.77%** 12	**38.46%** 15	39

Q8 Identify the importance of the following facilities to the trail network in terms of receiving funding

Answered: 40 Skipped: 1

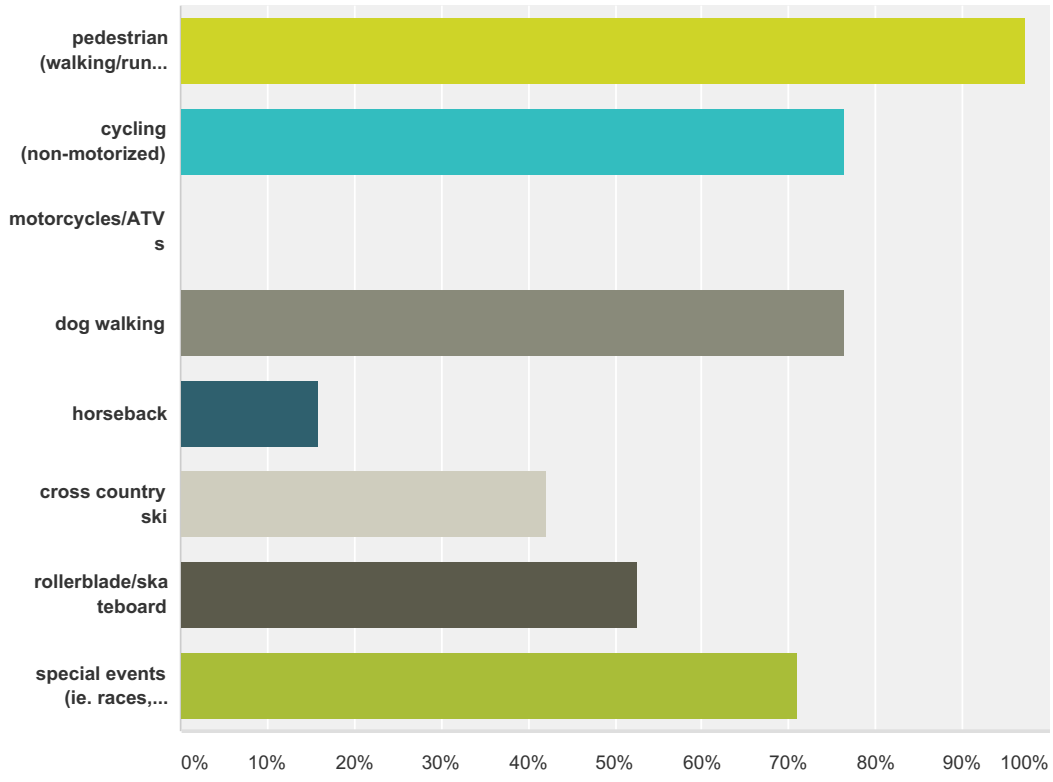


	Not Important	Somewhat Important	No Opinion	Important	Very Important	Total
Interpretive signage	**15.00%** 6	**30.00%** 12	**7.50%** 3	**37.50%** 15	**10.00%** 4	40
Garbage cans	**5.00%** 2	**10.00%** 4	**2.50%** 1	**55.00%** 22	**27.50%** 11	40
Washrooms	**20.00%** 8	**25.00%** 10	**12.50%** 5	**27.50%** 11	**15.00%** 6	40
Sitting areas	**17.50%** 7	**15.00%** 6	**0.00%** 0	**45.00%** 18	**22.50%** 9	40
Shade/shelterbelts	**17.50%** 7	**10.00%** 4	**5.00%** 2	**52.50%** 21	**15.00%** 6	40
Landscaping/trees	**15.38%** 6	**12.82%** 5	**10.26%** 4	**51.28%** 20	**10.26%** 4	39

Water fountains	**45.00%** 18	**25.00%** 10	**15.00%** 6	**10.00%** 4	**5.00%** 2	40
Exercise equipment	**62.50%** 25	**12.50%** 5	**10.00%** 4	**12.50%** 5	**2.50%** 1	40
Bird/nature watching binoculars	**52.50%** 21	**15.00%** 6	**15.00%** 6	**7.50%** 3	**10.00%** 4	40
BBQ pits	**64.10%** 25	**20.51%** 8	**7.69%** 3	**7.69%** 3	**0.00%** 0	39

Q9 What are the appropriate uses of the trail network?

Answered: 38 Skipped: 3



Answer Choices	Responses	
pedestrian (walking/running)	**97.37%**	37
cycling (non-motorized)	**76.32%**	29
motorcycles/ATVs	**0.00%**	0
dog walking	**76.32%**	29
horseback	**15.79%**	6
cross country ski	**42.11%**	16
rollerblade/skateboard	**52.63%**	20
special events (ie. races, school programs etc.)	**71.05%**	27
Total Respondents: 38		

-"The trail should not be used where it interfers with wildlife"
-"NO MOTORIZED VEHICLES."
-"Please NO motorcycles/ATVs"
-"education related to the natural and historic resources, contact with nature"
-"NOT in favor of the trail!!!!!!!"

Q10 Please list any concerns or recommendations regarding the location, design and future construction of the Magrath/Cardston County trail network.

Answered: 23 Skipped: 18

-"The type of benches offered on the existing network should be re-evaluated when planning the new network. The existing benches are very low, and uncomfortable for sitting on over extended periods of time. Additionally, rest areas should be installed more frequently along the new network. Garbage cans should be placed more frequently. Certain parts of the Canal trail would benefit from way-finding signage, especially where a trail splits. Ideally, better signage would be installed in the new network."
-"We live in lethbridge and enjoy the trail very much. We use it regularly with our family in Magrath"
-"Your proposed plan crosses my property and I will never give permission for that to happen."
-"This survey assumes that people want the trail. There were no options for those of us that do not want the trail at all. The town is spending money in places that are of least importance aka Wade Alston. I do not want this trail coming up though my yard. If wade wants it so bad put the trail through his yard."
-"Strongly feel it is not a good idea to have a trail next to residential property."
-"I bought my house in 2012 the realter told me that the wild live reserve could not be touched or altered by anyone now you have a trail through the middle of the reserve causing the animals to run out of the reserve all the time , no wonder you have deer in the town they have nowhere to go and rest, I bought my house opposite the reserve for peace and quite and do not want anymore trails"
-"The map you sent out is very difficult to understand - I would not support number 24 and definitely not #25! this is a waste of tax money!"
-"2A, 3A and 4A and 6 are the best proposed routes because it follows the creek and interacts the best with nature. These routes stay away from houses and personal property and decreases animosity among residents."
-"Concerned with trying to go under the bridge near ball diamonds. Not as direct and safety concerns at night."
-"Sorry, Not in favor of expansion towards the south end of town! Thank u"
-"Controlling weeds and regrowth along all trail systems must be maintained. Maintaining pavement needs to be done annually. When will the gravel area of existing trail be paved?"
-"When the current info building and washrooms are completed I think the Town should move on to other projects and just maintain what we have as a trail system. We have spend 10 years and enough money on this trail system. It is time to move on."
-"Construction and maintenance costs. Location of exit accesses. Amount of usage verses other more important needs in town - infrastructure. Property taxes are high in town and I am against ANY tax dollars being used for the trail."
-"Although the trail will likely be built in stages, the master plan needs to be far-reaching and comprehensive."

Q10 Please list any concerns or recommendations regarding the location, design and future construction of the Magrath/Cardston County trail network.

Answered: 23 Skipped: 18

-"Please take into consideration the privacy and security of adjacent residence."
-"Preserve it as it is. Don't put in so called improvements that detract from the natural ecosystem. A bench or garbage can at an appropriate spot is OK. I would like to see the trail network expanded along the pothole east of town and around the golf course. I would love to see cross country skiing trails available around and over the golf course as is done in other locations. It would be great to see the old spillway rebuilt but maybe not practical or to expensive. Small signs stating the names of the fauna and flora would be very good. I think that we have a real treasure in the pothole coulee going past Magrath. Appropriate activities: Rollerblade/skateboard are OK(?); dog walking OK if the leftovers are picked up; no motorized cycling; cycling OK if limited and they don't get the idea that pedestrians have to make way for them; Horses no."
-"Please BENCHES so that the older residents also can use the trail"
-"I live right next to the current trail system and use it for running. I love it. I think many more residents of Magrath would use it more if the trail were closer to them. I like the idea of expanding the trail as a loop around the existing town."
-"I do not think it should be expanded there is not enough use to expand to that extent"
-"The present trail was poorly planed and designed: - steep sections are a barrier to use by seniors and handicapped and dangerous to others!! -routing totally ignored the wind/snow factor resulting heavy drifts which closes trail in winter. -trail was routed through active land slump areas. (sections of the trail will eventually collapse) -red shale or crushed limestone would probably provide a more durable and safer walking surface. than asphalt pavement.
-Please put a bench on the look out on the middle trail = such a beautiful scenery to enjoy there. Also please make it known that cyclist have a bell and use it so not to come up from behind and hit you,"
-"would really appreciate xcountry ski ability on at least part of trail. don't clear the entire path or even leave sides snowy for a track and educate people not to walk on tracks or allow dogs to walk on tracks. Also would be great to have trail for xcountry go inoto golf course"

APPENDIX E – ALBERTA TRANSPORTATION HIGHWAY 62 CROSSING APPROVAL

Alberta Transportation

Delivery Services Division
Box 314
3rd Floor, Administration Building
909 Third Avenue North
Lethbridge, Alberta T1H 0H5
Telephone: 403/381-5426
Fax: 403/382-4057
www.transportation.alberta.ca

Our Reference: 2511-SW 35-5-22-W4M (62)
Permit No. 5059-17

September 19, 2017

Wade Alston
Chief Administrative Officer
wade@magrath.ca
Town of Magrath
PO Box 52
Magrath, AB T0K 1J0

Dear Mr. Alston:

RE: PROPOSED CROSSWALK

Attached is a permit issued under the Highways Development and Protection Regulation, being Alberta Regulation 326/2009 and amendments thereto, authorizing the above noted development. This permit is subject to the conditions listed on page 2.

In consideration of Permit No. 5059-17, the applicant shall indemnify and hold harmless Alberta Transportation, its employees and agents from any and all claims, demands, actions, and costs whatsoever that may arise, directly or indirectly, from anything done or omitted to be done in the construction, maintenance, alteration, or operation of the works authorized.

Issuance of this permit by Alberta Transportation does not relieve the holder of the responsibility of complying with relevant municipal bylaws and this permit once issued does not excuse violation of any regulation, bylaw, or act which may affect this project.

A detailed Traffic Accommodation Strategy (TAS) shall be provided for review and acceptance by Alberta Transportation prior to any work within the highway right-of-way.

Upon completion of the project, we ask that you notify Leah Olsen, Development/Planning Technologist or John Thomas, Development/Planning Technologist at Lethbridge, 403/381-5426, who will inspect the conditions of the permit. Your cooperation in this matter will be appreciated.

Yours truly,

Leah Olsen
Development/Planning Technologist

LO/jb

cc: Oldman River Regional Services Commission – ryandyck@orrsc.com
Volker Stevin - lethbridge.admin@volkerstevin.ca
Terry Becker – e-mailed
Kenneth Mulhall – e-mailed
Curtis Nagel
Don Kovacs– e-mailed

Permit forwarded to: MPE Engineering Ltd., 300, 714 – 5 Avenue South, Lethbridge, AB T1J 0V1
Tom Leavitt - tsiemens@mpe.ca
Trevor Siemens - tleavitt@mpe.ca
Russell Bly - rbly@mpe.ca

Alberta

../2

Alberta Transportation

(To be completed by Alberta Transportation)

ROADSIDE DEVELOPMENT APPLICATION APPROVAL FOR DEVELOPMENT NEAR A PRIMARY HIGHWAY

PERMIT

Permission is hereby granted to **Town of Magrath** to carry out the development in accordance with the plan(s) and specifications attached hereto and subject to the conditions shown below.

If the development has not been carried out by the **19th** day of **September** **2018** this permit lapses and the applicant must reapply for a new permit if they wish to proceed.

SIGNED Leah Olsen.

TITLE Development/Planning Technologist

PERMIT NO. **5059-17**

FILE NO. **SW 35-5-22-W4M (62)**

DATE **September 19, 2017**

PERMIT CONDITIONS: (Note: This permit is subject to the provisions of Section 11 - 19 inclusive of the Highways Development and Protection Act, Chapter H-8.5 2004, amendments thereto, and Highways Development and Protection Regulation (Alberta Regulation 326/2009) and amendments thereto).

A. ACCESS CONDITIONS: (Note: All highway accesses are to be considered temporary. No compensation shall be payable to the applicant or his assigns or successors when the Department removes or relocates the temporary access or if highway access is removed and access provided via service road).

1. ~~(a) No direct highway access will be permitted. Access shall be via the local municipal road. (b) Use of the existing highway access may continue on a temporary basis. (c) Permit authorizes construction of proposed access at the location shown and to the attached specifications. (Figure D-3.3b)~~
2. No additional highway access will be permitted.
3. The applicant shall construct and maintain any highway access to the Operations Manager's satisfaction.
4. Approval of companies having buried utilities shall be obtained prior to access construction or upgrading.

B. SETBACK CONDITIONS (Note: Minimum setbacks usually allow for anticipated highway widening and construction of a service road parallel and adjacent to the highway).

1. The proposed **n/a** is to be set back **n/a** meters (**n/a** feet) from the centre line of the highway.
2. The department accepts no responsibility for the noise impact of highway traffic upon any development or occupants thereof.

C. OTHER CONDITIONS:

1. This permit is issued subject to the approval of the **n/a.**
2. This permit approves only the development contained herein, and a further application is required for any changes or additions.
3. The department is under no obligation to reissue a permit if the development is not completed before expiry of this permit.
4. Leah Olsen, Development/Planning Technologist or John Thomas, Development/Planning Technologist in Lethbridge, Telephone number 403/381-5426 shall be notified before construction commencement.
5. The Applicant shall not place any signs contrary to Alberta Regulation 326/2009. A separate "SIGN APPLICATION" form shall be submitted for any proposed sign.

D. ADDITIONAL CONDITIONS and/or ADVISEMENTS:

See attached Schedule "A" – Site Specific Conditions

See attached Schedule "B" – Recommended Practices for Advance Warning of Traffic Control Change

SCHEDULE "A"
Site Specific Conditions
(Permit 5059-17)

D: ADDITIONAL CONDITIONS and/or ADVISEMENTS:

1. Conditions of approval are based on the understanding that MPE Engineering Ltd. has been retained by the Town of Magrath to obtain approval from Alberta Transportation for construction of a crosswalk.

2. Approval is for construction of a crosswalk only. Any additional development and/or alterations (e.g. pedestrian activated lights) will be expressly subject to Condition C.2 and at the sole cost of the Town of Magrath.

3. Alberta Transportation's **"Recommended Practices for Advance Warning of Traffic Control Change"** is attached and shown as Schedule "B".

4. Pavement markings shall be in accordance with **Section C3.3 – Crosswalk Lines** of the Alberta Transportation – Highway Pavement Marking Guide – Dated March 2003 (2nd Edition). Permanent/durable pavement markings are required (Figure TCS-C-301 attached).

   The Highway Pavement Marking Guide is available on the internet at www.transportation.alberta.ca/Content/docType233/Production/pavemark.pdf.

5. The Town of Magrath will be responsible for all costs associated with the installation of signs. Installation of the signs can be coordinated by contacting **Mr. Curtis Nagel, Maintenance Contractor Inspector, Lethbridge at 403-382-4078 and/or Mr. Don Kovacs, Field Support Technologist, Lethbridge at 403-382-4082.**

6. The Town of Magrath will be responsible for maintaining existing drainage patterns and not alter or add drainage to the highway right-of-way and will be responsible for supplying and installing a culvert.

7. The Town of Magrath will be responsible for the ongoing maintenance of the crosswalk including, but not limited to, winter maintenance excluding the road surface proper.

8. The applicant will be responsible for placement of topsoil and seeding of all disturbed areas within the highway right-of-way. The local Agricultural Service Board is to be contacted in regard to the agronomic seed mix designated for use in the area. The designated agronomic seed mix is also available on the internet at www.transportation.alberta.ca/Content/docType233/Production/designbulletin25.pdf (seeding special provision and seed mixture zone map).

9. A detailed Traffic Accommodation Strategy (TAS) shall be provided for review and acceptance by Alberta Transportation prior to any work within the highway right-of-way.

10. MPE Engineering Ltd./Town of Magrath will be responsible for arranging a final inspection with Alberta Transportation for acceptance of all work associated with the construction of the crosswalk.

11. Any peripheral lighting (yard lights/area lighting) that may be considered a distraction to the motoring public or deemed to create a traffic hazard will not be permitted.

12. It is the applicant's/developer's responsibility to ensure that no mud or debris is tracked onto the highway during construction of the crosswalk.

SCHEDULE "B"
Recommended Practices for Advance Warning of Traffic Control Change
(Permit 5059-17)

Government of Alberta ■ Transportation	ADVANCE WARNING OF A TRAFFIC CONTROL CHANGE	*Issued: JAN 2010*
		Revised:
		Page 1of 3

RECOMMENDED PRACTICES	PART	HIGHWAY SIGNS
	SECTION	WARNING SIGNS
	SUB-SECTION	

General

When significant changes are made to the traffic control scheme at an intersection or at other points along the highway, drivers familiar with the old traffic control scheme may be surprised by the changes and react improperly to the new traffic control scheme. Examples of common traffic control changes are: installation of a new traffic signal, major change to traffic signal timing or phasing, and change to right-of-way control.

In order to maintain highway safety, it is important to warn drivers when they are approaching a location with recent and significant traffic control changes.

Standard

A standard "NEW" (WD-182) sign consists of a red, white, and black message on a yellow background.

WD-182	750 mm x 750 mm	
Colour	Message Background	White, Red, Black Yellow
Sheeting	ASTM, Type III or IV	

Tab signs (WD-182-T, WD-182-A, WD-182-B, WD-182-C) may be installed below the WD-182 sign to clarify the type of change at the location. The standard tab signs consist of a black message on a yellow background.

WD-182-T	600 mm x 300 mm	
Colour	Message Background	Black Yellow
Sheeting	ASTM, Type III or IV	

WD-182A-T	600 mm x 300 mm	
Colour	Message Background	Black Yellow
Sheeting	ASTM, Type III or IV	

WD-182B-T	600 mm x 300 mm	
Colour	Message Background	Black Yellow
Sheeting	ASTM, Type III or IV	

WD-182C-T	600 mm x 300 mm	
Colour	Message Background	Black Yellow
Sheeting	ASTM, Type III or IV	

Guidelines for Use

In cases where confusion may arise due to a change in the traffic control scheme, a "NEW" sign is installed in advance of the change. The WD-182 sign warns motorists of the change ahead so they can use caution and react properly to the new traffic control scheme.

WD-182 signs should be placed in advance of all new traffic signal installations. WD-182 signs may also be used in situations where the traffic control scheme has changed significantly enough that the change may lead to driver confusion, such as where:

- Left or right turn channelization has been added at an intersection;
- A Two-Way Stop condition has become a Four-Way Stop condition (or other Stop condition change); or
- Major signal timing or phasing changes have occurred (i.e., new phase added/removed, leading protected left turn becomes lagging left turn, etc.).

WD-182-T tab sign may be placed below the WD-182 sign in areas where the right-of-way control or other traffic control elements have changed.

The WD-182A-T and WD-182B-T tab signs may be placed below the WD-182 sign in advance of traffic signals with timing or phasing changes, respectively.

It may not be necessary to install the "NEW" sign (and associated tab signs) where only minor changes to traffic signal timing or phasing have taken place, and driver confusion likely would not result from the change (i.e., changes to coordination,

change to minimum or maximum green time).

The WD-182C-T tab sign may be placed below the WD-182 sign in advance of new traffic signal installations.

When used, the WD-182 sign should be in place for an introductory period of up to 60 days. After the introductory period has elapsed, the WD-182 sign and associated tab signs should be removed.

Guidelines for Placement

The "NEW" sign should be placed a distance of 250 to 350 m in advance of the traffic control change. Signs should be installed for all directions of travel.

Signs are installed on the right-hand side of the highway. On divided highways, an additional sign should be installed on the left-hand side of the roadway.

References to Standards

Recommended Practices Section: General	Placement of Signs

Government of Alberta ■
Transportation

ROADSIDE DEVELOPMENT APPLICATION FOR DEVELOPMENT NEAR A PROVINCIAL HIGHWAY

(print please)

Alberta Transportation Permit # 5059-17

Applicant's Name	MPE Engineering Ltd. on behalf of the Town of Magrath				
Mailing Address	300, 714 - 5th Avenue S				
City/Town/Village	Lethbridge	**Province**	Alberta	**Postal Code**	T1J 0V1
Phone #	403-329-3442	**Fax #**	403-329-9354	**e-mail**	tsiemens@mpe.ca
Landowner's Name	Town of Magrath				
(If different from above) Mailing Address	PO Box 520 55 South 1st Street W				
City/Town/Village	Magrath	**Province**	Alberta	**Postal Code**	T0K 1J0
Phone #	403-758-3212	**Fax #**	403-758-6333	**e-mail**	wade@magrath.ca

APPLICATION IS HEREBY MADE TO: (Please provide a description of the proposed development including all proposed above and below ground installations. Attach a detailed report if necessary.)

Proposal to construct two pathway crossings within the Town of Magrath across Highway 62.

Also attach a plan showing in detail the location of all existing and proposed development and access.

Property Information

SW~~35, SW26~~	35,~~26~~	5	22	W4M
(NE, NW, SE, SW)	¼ Section	Township	Range	West of Meridian

Lot	Block	Plan Number	Parcel size (acres or hectares)

Highway No. 62 ____ ____ **kilometres** ____ **of** Within Town of Magrath
(north, south, etc.) (City, Town or Village)

Distance of the proposed development to the highway right-of-way boundary ____ **metres**

Town of Magrath	Roadways	
Name of Municipality	**Existing / Proposed Land Use**	**Estimated cost of proposed development**

It is understood that all works will be constructed, altered, maintained or operated at the sole expense of the undersigned, and that any work must not begin before a permit has been issued by Alberta Transportation.

In consideration of any permit issued in respect to this application, the Applicant shall indemnify and hold harmless Alberta Transportation, its employees and agents from any and all claims, demands, actions and costs whatsoever that may arise, directly or indirectly from anything done or omitted to be done in the construction, maintenance, alteration or operation of the works authorized. The Applicant also consents to a person designated by Alberta Transportation to enter upon land for the purpose of inspection during the processing of this application.

The issuance of a permit by Alberta Transportation does not relieve the holder of the responsibility of complying with relevant municipal bylaws and this permit once issued does not excuse violation of any regulation, bylaw or act which may affect this project.

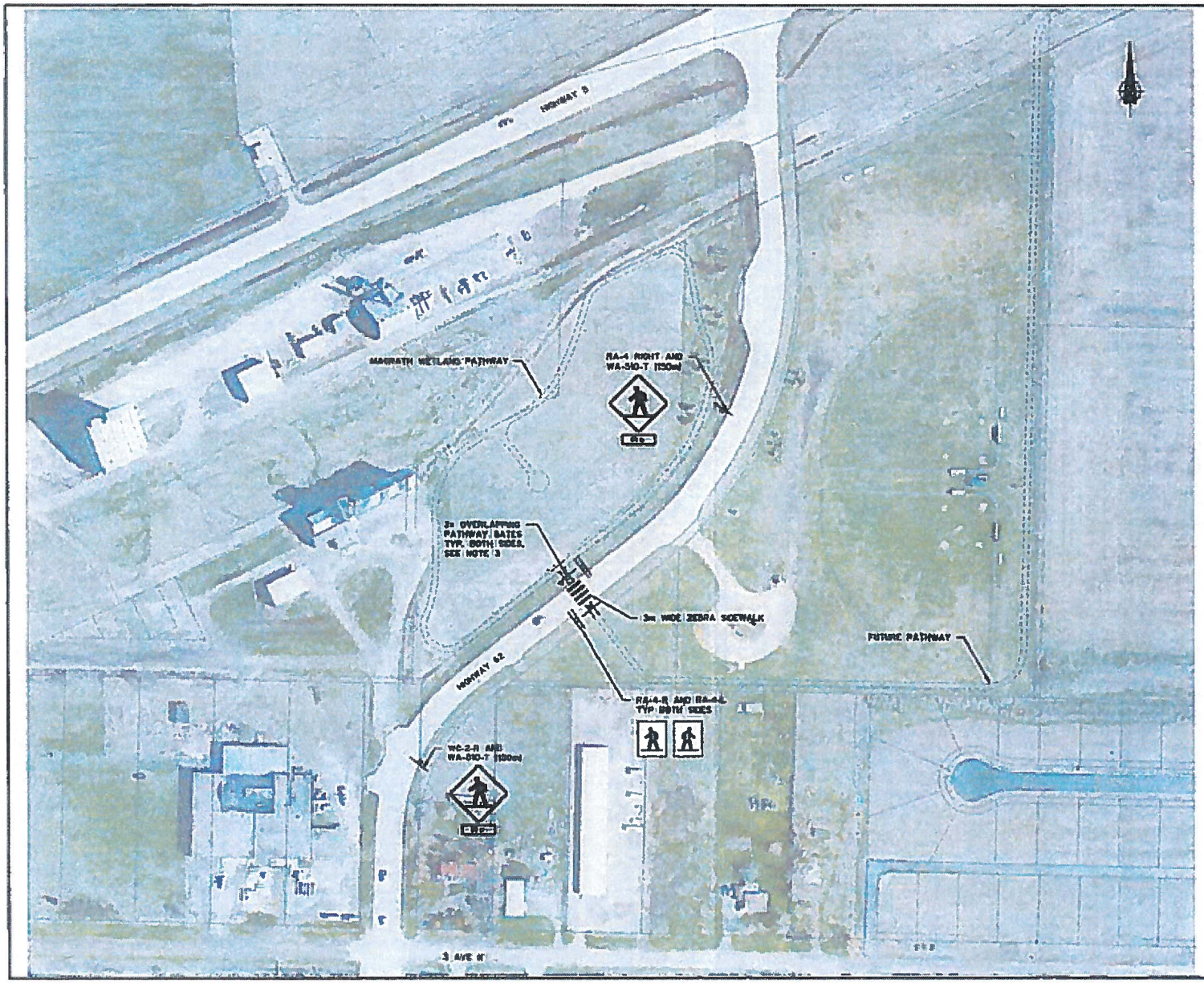
I ____ (print full name) hereby certify that ○ I am the registered owner ____ Signature

I Tom Leavitt (print full name) hereby certify that ◉ I am authorized to act on the owner's behalf ____ Signature

and that the information given on this form is full and complete and is, to the best of my knowledge, a true statement of facts relating to this application for roadside development.

(Date) May 9, 2017

RECEIVED
MAY 12 2017
Southern Region
TRANSPORTATION
May 12/17



NOTES:

1. PATHWAY TO BE CONSTRUCTED TO ALBERTA TRANSPORTATION POLICIES, GUIDELINES, AND STANDARDS FOR NON-MOTORIZED TRAILS
2. VERTICAL GRADES NOT TO EXCEED 6.0% ON APPROACH TO HIGHWAY CROSSING.
3. OVERLAPPING PATHWAY GATES TO BE INSTALLED TO SLOW STRAIT THROUGH PEDESTRIAN TRAFFIC.
4. HIGHWAY 62 PEDESTRIAN CROSSING DETAILS:
   - APPROXIMATELY 220m NORTH OF 3 AVE. NORTH
   - HWY 62 AADT=2,600 (A.T. COUNT 102050, 2016)
   - DISTANCE FROM NEAREST CROSSING > 200m
   - PEDESTRIAN USE EXPECTED < 15 EAU
   - SITE PROVIDES SYSTEM CONNECTIVITY FOR PEDESTRIAN PATHWAY
   - HWY 62 IS 2 LANE, POSTED SPEED OF 50km/h
   - REQUIRED SSD FOR 50km/h IS 65m (AS PER TABLE 12.5.3 OF TAC GDRCR)
   - BASED ON TAC WARRANT, A GMI IS APPROPRIATE FOR POSTED SPEED.

CONTACT INFORMATION
OWNER: TOWN OF MAGRATH
55 SOUTH 1 STREET WEST
MAGRATH, AB T0K 1J0
(403) 758-3[illegible]
ENGINEER: MPE ENGINEERING LTD.
SUITE [illegible]
LETHBRIDGE, AB T1J 4P6
(403) [illegible]

Alberta TRANSPORTATION APPROVED

Development/Planning Technologist

Permit No. 809-17

ISSUE	DATE	REVISION
1	17-08-13	FOR APPROVAL
YY-MM-DD		REVISION

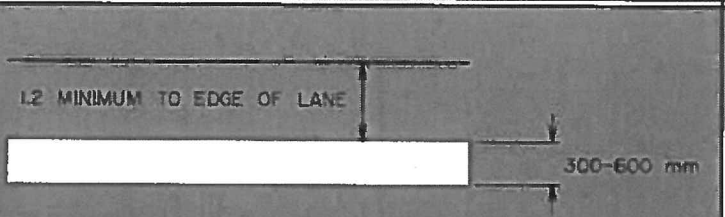
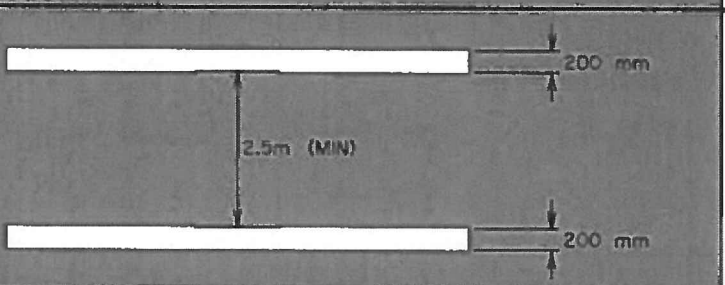
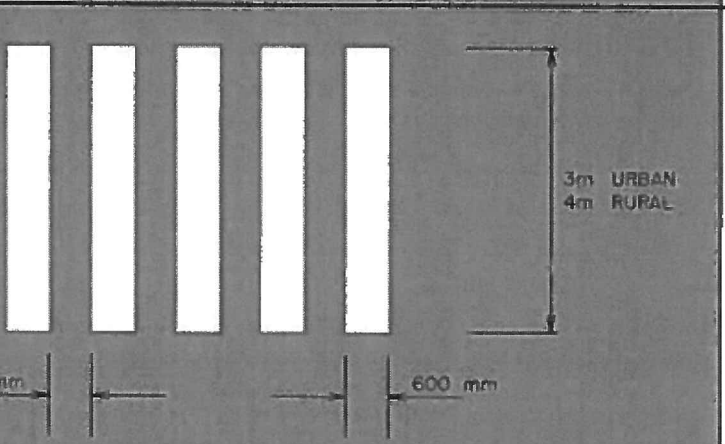
PERMIT TO PRACTICE
MPE ENGINEERING LTD.
PERMIT NUMBER: P 3680
The Association of Professional Engineers and Geoscientists of Alberta

MPE Engineering Ltd.

OLDMAN RIVER REGIONAL SERVICES COMMISSION

MAGRATH TRAIL HIGHWAY CROSSINGS PAVEMENT MARKINGS AND TRAFFIC SIGNING PLAN

DESIGNED	T.J.S., G.R.B.	JOB	0191-002-00
DRAWN	T.J.S.	SCALE	1:2000
DATE	AUGUST 2017	DRAWING	CL3

LINE TYPE	PATTERN	USE
STOP BAR		STOP LINE
STANDARD CROSSWALK		STANDARD CROSSWALK
ZEBRA CROSSWALK		ZEBRA CROSSWALK FOR ADDED VISIBILITY

No.	DESCRIPTION	BY	DATE
2		---	
1	Dwg. no. changed from TCS-C-3.01	B.B.	Mar/03

Alberta TRANSPORTATION

FIGURE TCS-C-301

Date: MAY 1999

TRANSVERSE PAVEMENT MARKINGS

DIMENSIONS AND DEFINITIONS

Prepared By: R.M.	Checked By: S.J.M.	Scale: N.T.S.	Section C3