

# Policies, Guidelines, and Standards for Trails in Alberta Highway Rights-of-way

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## Abstract

In 2004, Alberta Transportation issued Guidelines for Trails in Highway Right-of-way. Under this policy, Alberta Transportation permitted over 40 trails in the highway right-of-way; however, due to safety concerns with the mixing of high speed highway traffic and low speed trail users, Alberta Transportation did not promote or encourage the practice of placing trails in the highway right-of-way.

In 2011, the Government of Alberta released the 'Active Alberta' policy, which focused on the importance of active living and recreation for Albertans. One aspect of active living and recreation is the provision of trail systems for both recreational and utilitarian purposes. As an enhancement to the experience, the majority of trails will be located in independent alignments through natural areas; however, there is interest from trail proponents and instances where placing a trail in the highway right-of-way may be the most appropriate solution to help create a functional and connected system of trails.

In support of the 'Active Alberta' policy, Alberta Transportation recognized the need to review and update their policy on trails in highway right-of-way to reflect the commitment to active living and recreation, while highlighting safety as the most important factor in determining if a trail may be constructed within the highway right-of-way. Therefore, Alberta Transportation launched a study to develop comprehensive policies, guidelines, and standards for trails in highway rights-of-way. The development of "Policies, Guidelines, and Standards for Trails in Alberta Highway Rights-of-way" will be finalized in 2013. This document will provide direction, tools, and clear guidance to Alberta Transportation, other government agencies, municipalities, trail proponents, and consultants when seeking trail facilities in the highway rights-of-way.

This paper summarizes the key policies, procedures, planning considerations, guidelines, and standards developed by Alberta Transportation when considering and developing a trail facility in Alberta highway rights-of-way.

# Background

In 2011, the Government of Alberta released the 'Active Alberta' policy, which reaffirmed its commitment to recreation, active living, and sport for Albertans. The vision of this new policy is for Albertans to "enjoy a high quality of life, improved health and wellness, strong communities, economic benefits and personal fulfillment, through recreation, active living and sport".

One aspect of active living and recreation is the provision of trail systems within the Province of Alberta. The Government of Alberta is currently working to define a provincial trail network in the Province.

In general, the highway right-of-way is not the most desirable location for a trail because of:

1. Safety – Potential mix of high speed motorists and vulnerable, low speed trail users
2. Trail User Experience – A diminished user experience due to roadway traffic and lack of a natural setting

However, there are situations when locating a portion of a trail in the highway right-of-way may be the most appropriate solution. When a trail is constructed in the highway right-of-way it is important that it be constructed to meet standards and guidelines, with safety in mind.

In recognition and support of the 'Active Alberta' policy, Alberta Transportation has developed comprehensive policies, guidelines, and standards for providing trails in highway rights-of-way. The intent of this document is to provide Alberta Transportation staff, other government agencies, municipalities, consultants, and other proponents with the necessary information and tools for considering and developing trails in highway rights-of-way.

The "Policies, Guidelines, and Standards for Trails in Highway Rights-of-way" addresses:

- Alberta Transportation's Policy on Trails
- Planning Considerations
- Application Procedures
- Guidelines and Standards
  - Non-Motorized Trails
  - Motorized Trails
  - Mixed-Use Trails
  - Signing and Markings

# Study Process

The development of the “Policies, Guidelines, and Standards for Trails in Highway Rights-of-way” involved a multi-stage approach as shown in Figure 1.

Prior to developing any policies, guidelines, and standards, a jurisdictional review and literature review was undertaken to gauge how other jurisdictions addressed trails in the highway right-of-way including the opportunities/issues surrounding such trails.

Many existing provincial government policies on trails in the highway right-of-way are quite restrictive; however, it is clear that many jurisdictions are looking to revise their policies to be more supportive of active transportation.

It also became clear that trails in the highway right-of-way need to be considered carefully. Although Alberta Transportation is interested in being more supportive of other modes of transportation, constructing trails adjacent to or crossing high speed highways pose some operational and safety concerns that will need to be addressed.

Recognizing the balance between opportunities for and issues of trails in the highway right-of-way, Alberta Transportation embarked on developing a new trails policy. A draft policy was developed by the project steering committee and vetted through Alberta Transportation’s Executive as well as other Provincial Departments. With support of the draft policies received, the study focus shifted to the development of planning considerations, application procedures, and guidelines and standards.

Initial stakeholder engagement through the form of one-on-one meetings was conducted by Stantec at two intervals: during Stage I and again the beginning of Stage III. Initial stakeholders included Alberta TrailNET, Alberta Off-Highway Vehicle Association, and Alberta Snowmobile Association. At the time of this paper, a final draft of the “Policies, Guidelines, and Standards for Trails in Highway Rights-of-way” has been completed, and approval by Alberta Transportation’s Executive is being sought. Once approved by the Executive, Alberta Transportation will undertake additional stakeholder consultation seeking feedback on the document.

Figure 1  
Study Process



## Policies

Alberta Transportation's previous policy regarding trails in the highway right-of-way was quite restrictive and, in general, did not support opportunities to develop trails in the highway right-of-way. Prior to the development of guidelines and standards for trails in the highway right-of-way, Alberta Transportation developed a new policy that would better match their support of the 'Active Alberta' policy. This new policy includes a vision statement and five guiding principles, which are presented below.

### Vision Statement

*"In support of the Active Alberta policy on recreation, active living, and sport, Alberta Transportation will enable opportunities for non-motorized use trails in highway rights-of-way, and allow motorized use trails in highway rights-of-way with certain restrictions, where they can be implemented with necessary regard for safety, cost-effectiveness, and the guiding principles herein."*

Non-motorized use trails can consist of various human powered modes of active transportation and recreation including, but not limited to, cycling, walking, inline skating, and skateboarding. From a recreation perspective, many Albertans also enjoy activities involving off-road motorized vehicles such as snowmobiles and all-terrain vehicles. Both human powered and motorized use trails help Albertans "enjoy a high quality of life, improved health and wellness, strong communities, economic benefits and personal fulfillment, through recreation, active living and sport".

With respect to the guiding principles below, it is noted that the Alberta Government is in the process of defining a provincial trail system. The provincial trail system will be under the jurisdiction of the Alberta Government. Any trail not part of this provincial trail system will be considered non-provincial and the responsibility of the local municipality.

### Guiding Principles No. 1 and 2

*"Alberta Transportation will work with other provincially mandated agencies (i.e. Sustainable Resource Development; Tourism, Parks and Recreation) in the development of a provincial trail system and implement trails in highway rights-of-way when guidelines can be met."*

*"Alberta Transportation will work with local municipalities to enable development of other trail systems in the highway right-of-way when guidelines can be met."*

Alberta Transportation is committed to working with other provincial government departments in the development of a provincial trail system and to consider opportunities for trails in the highway right-of-way when guidelines and standards can be met.

For trails that will not be part of the provincial trail system, the trail proponent must first approach the local municipality for support. If the municipality concurs, the municipality will make application and enter into discussions with Alberta Transportation. Taking into consideration the guidelines and standards, Alberta Transportation will work with the municipality to approve, where possible, the application and enter into a trails agreement with the local municipality.

### Guiding Principle No. 3

*Trails in highway rights-of-way may serve the purpose of:*

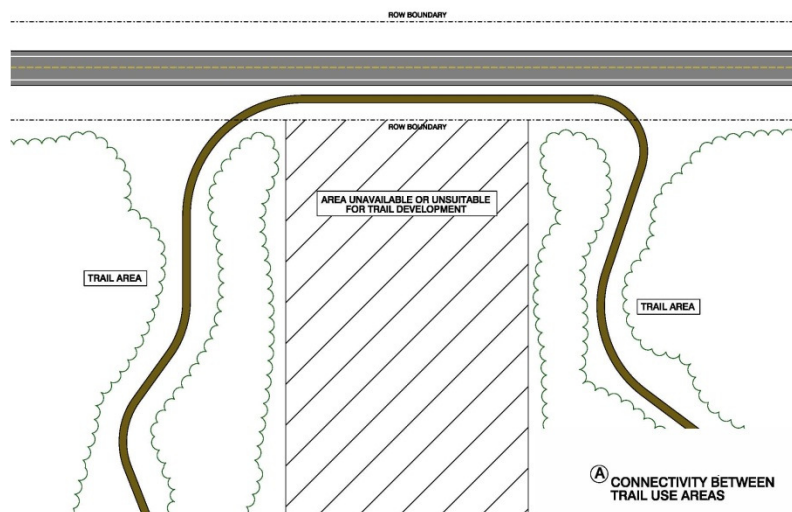
1. *Providing connectivity between trails outside the right-of-way*
2. *Facilitating movement across a major barrier (i.e. river, controlled roadway)*
3. *Crossing a highway*
4. *Providing connectivity between areas of trail user demand by offering a more direct and/or publicly accessible route*

The following provides a further description of the four situations listed above.

#### Providing Connectivity between Trails Outside Highway Right-of-way

There are instances when, either due to topography or landowners unwilling to sell land, the continuity of a trail is disrupted. Under these circumstances, a trail in the highway right-of-way may be considered to provide the connectivity between trails. This concept is illustrated below in Figure 2.

Figure 2  
Connectivity Between Trail Use Areas

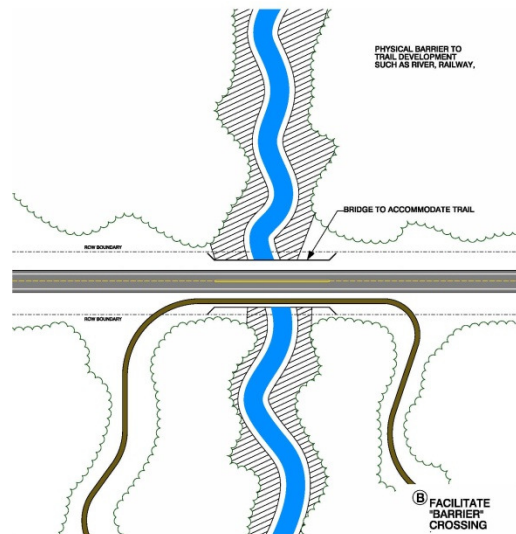


## Facilitating Movement Across a Major Barrier

Continuity of trails can be affected by major barriers such as rivers, railways, and grade-separated roadways, which is illustrated in Figure 3. When trails encounter such a barrier, Alberta Transportation will consider opportunities to tie a trail into an existing highway bridge structure. This will require a review of the existing bridge cross-section. The bridge should have enough width to include a trail with physical barrier separation while maintaining highway travel lanes.

The reality is that most existing highway bridges will not have sufficient width to accommodate a trail; however, it should still be considered an option. When Alberta Transportation is considering upgrades to an existing bridge or planning a new bridge, they will consider the need for and opportunities to accommodate a trail.

Figure 3  
Facilitate Barrier Crossing



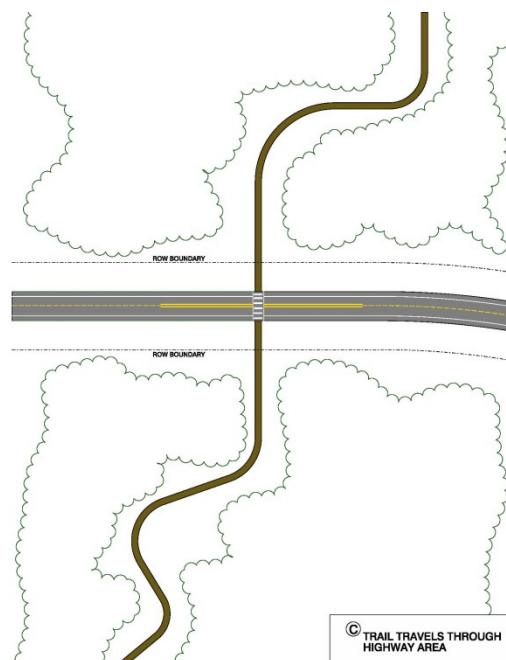
## Crossing a Highway

As illustrated in Figure 4, in order to provide trail continuity, crossing of the highway will be considered by Alberta Transportation. The type of highway, geometrics, traffic volumes, and the trail user demand will play a significant role in determining what type of crossing is required.

All crossings of freeways and expressways will need to be grade separated. These highways are high speed, free flow facilities carrying large traffic volumes, and unsignalized at-grade trail crossings are considered unsafe while signalized at-grade crossings are not permissible.

While multi-lane highways, typically found in semi-urban and urban areas, still carry large traffic volumes, the speeds are generally lower and may include signalized intersections. Therefore, at-grade crossings, preferably signalized, can be considered on multi-lane highways. Alberta Transportation will consider on a case by case basis whether a grade separated or at-grade crossing is required. This will be highly dependent on the highway traffic volumes and the trail user demand.

Figure 4  
Trail Crosses Highway

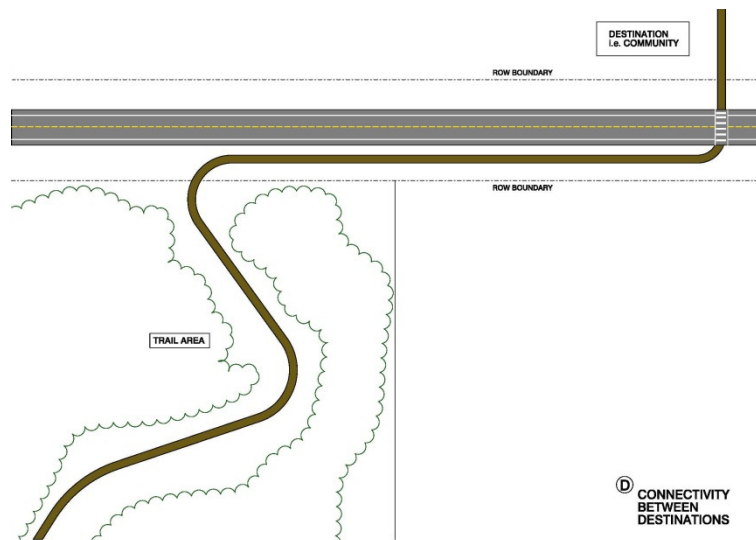


On two-lane highways, which make up the majority of the Alberta Provincial Highway Network, at-grade crossings are likely; however, as with multi-lane highways this needs to be looked at on a case by case basis. One concern regarding at-grade crossings of two-lane highways, specifically those located in isolated rural areas is that highway motorists do not typically anticipate pedestrians and other trail users crossing the highway.

### Providing Connectivity Between Areas of Trail User Demand

If connectivity between areas of trail user demand (i.e. parks, areas of employment, etc.) is circuitous or remote, a more direct and/or publicly accessible route may be considered to promote active transportation and recreation. This is illustrated in Figure 5.

Figure 5  
Connectivity Between Destinations



### Guiding Principle No. 4

*A trail in the highway right-of-way will be the responsibility of the local municipality unless it is part of the provincial trail system, in which case it will be the responsibility of the mandated provincial authority.*

Alberta Transportation will not act as the owner/operator of trails in the highway right-of-way. This responsibility will fall to the local municipality in the case of non-provincial trails and the mandated provincial authority in the case of provincial trails. This includes construction, maintenance, and liability. If Alberta Transportation approves a trail in the highway right-of-way, the local municipality where the trail resides (non-provincial trails) or the mandated provincial authority (provincial trails) will be required to enter into a memorandum of agreement/understanding.



## Guiding Principle No. 5

*Funding of trails in the highway right-of-way may be supported by Alberta Transportation if safety or utilitarian transportation is the primary reason for implementing the trail. If part of the provincial trail system, funding may be cost-shared among Alberta provincial ministries and/or the trail proponent.*

Alberta Transportation will consider opportunities for cost-sharing a trail in the highway right-of-way if safety or utilitarian transportation is the primary reason. For example, if the highway shoulder is being used by a large amount of pedestrian traffic, thereby increasing potential conflicts between motorists and pedestrians, the construction of a paralleling trail offset from the roadway could improve safety. In such a case, Alberta Transportation will consider cost-sharing the construction of the trail.

## Planning Considerations

### Eligible Trail Types

In May 2009, the Government of Alberta published the *Alberta Recreation Corridor & Trails Classification System* as part of the Alberta Recreation Corridor and Trails Designation Program under development by Alberta Tourism, Parks and Recreation. This document identifies five primary trail classifications and three sub classifications as the basis of the system. These classifications are summarized below.

#### Primary Trail Classification:

- Non-Motorized Use Trails – Trails designated for users who do not use an external source of power for locomotion such as pedestrians, cyclists, inline skaters, skateboarders, etc.
- Motorized Use Trails – Trails designated for users who operate a motorized vehicle to provide power for locomotion such as all-terrain vehicles, utility terrain vehicles, off-road motorcycles, snowmobiles, etc.
- Mixed Use Trails – Trails designated for shared use between non-motorized and motorized users
- Extreme Use Trails – Trails specifically intended to draw users desiring competition or an element of danger
- Water Trails – A water route that accommodates passage by a watercraft

#### Sub Classifications:

- Developed Trail – A trail with the characteristics of easy access, a high level of use, a high level of development (i.e. washrooms, benches, garbage cans, rest areas), wider trail, and paved or aggregate surfaced
- Semi-Developed Trail – A trail with the characteristics of moderate access, level of use, and level of development, with an aggregate or hard packed natural surface
- Primitive Trail – A trail with difficult access, technically challenging, low levels of use, little development, and a natural unimproved surface

Alberta Transportation will consider opportunities for non-motorized, motorized, and mixed use trails. Extreme use and water trails will not be considered by Alberta Transportation. With respect to the sub classification, Alberta Transportation will consider developed or semi-developed trails, but not primitive trails.

## Eligible Trail Users

The *Alberta Recreation Corridor and Trails Classification System* also defines users within the trail types described above.

For non-motorized use trails, the types of potential users defined are:

- **A<sub>1</sub> – Pedestrian (i.e. walking, hiking, backpacking, running, orienteering)**
- **A<sub>2</sub> – Cyclist (i.e. mountain biking, trail touring, freestyle riding)**
- **A<sub>3</sub> – Small Wheeled User (i.e. inline skates, roller skis, skateboards, wheelchairs, scooters)**
- **A<sub>4</sub> – Equestrian (i.e. horseback riding)**
- A<sub>5</sub> – Horse Drawn Vehicle (i.e. horse and buggy/cart, covered wagon, horse drawn sleigh)
- **A<sub>6</sub> – Cross-County Skiing (i.e. track skiing, skate skiing, backcountry skiing)**
- **A<sub>7</sub> – Snowshoeing**
- A<sub>8</sub> – Dog Sledding (i.e. sleds pulled by 3 to 16 dogs, cross-country skis pulled by 1 or 2 dogs)

\*Bold represents users supported by Alberta Transportation

While Alberta Transportation supports numerous non-motorized users on trails in the highway right-of-way, not all trails can/will accommodate all types of users. The strongest determining factors for which types of non-motorized users can/will use the trail is the type of surface material used and the width of the path. For trails in the provincial trail system, the types of users will be defined by the mandated government agency responsible for the trail. For trails not part of the provincial trail system, the type of user(s) will be defined by the proponent and the municipality. However, due to the limited available space in highway rights-of-way, Alberta Transportation encourages the development of multi-use trails rather than single use trails.

Alberta Transportation does not support horse drawn vehicles, dog sledding, or skijoring as an approved day-to-day user of trails in the highway right-of-way because of the reduced stopping control of these users. Currently, these users are considered under temporary special event permits, and will continue to be considered as such.

For motorized use trails, the types of potential users defined are:

- B<sub>1</sub> - Two-wheeled (one front, one back) motorized vehicle (i.e. power bicycle, mini bike, off-road motorcycle)
- B<sub>2</sub> - Motorized vehicle with width less than 1.27 m (i.e. ATV)
- B<sub>2</sub>(S) – Snow vehicle with width less than 1.27 m (i.e. Snowmobile)
- B<sub>3</sub> – Motorized vehicle with width between 1.27 m and 1.65 m (i.e. side by side two seater off-road vehicle)
- B<sub>3</sub>(S) – Snow vehicle with width between 1.27 m and 1.65 m (i.e. side by side two seater snowmobile)
- B<sub>4</sub> – Motorized vehicle with width greater than 1.65 m (i.e. full-sized vehicle suitable for off-road use)
- B<sub>4</sub>(S) – Snow vehicle with width greater than 1.65 m

\*Bold represents users supported by Alberta Transportation

When a trail is located in the highway right-of-way, not all motorized user types will be allowed to access it. For example, Alberta Transportation will not consider motorized trails in the highway right-of-way for use by vehicles classified as B<sub>4</sub> or B<sub>4</sub>(S), with the exception of snow grooming equipment categorized as B<sub>4</sub>(S) for the purposes of maintaining a winter-use trail.

## Paralleling Trails

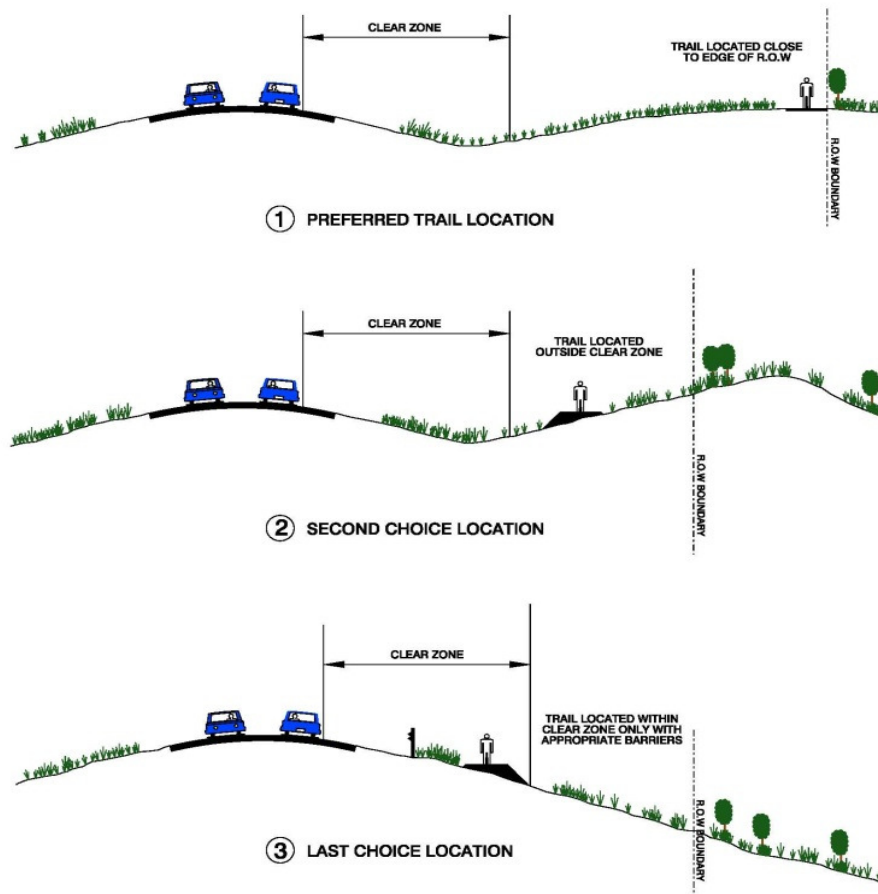
### Location

Before Alberta Transportation will consider a trail in the highway right-of-way, reasonable attempt should be made by the proponent to locate the trail outside the highway right-of-way. If and when a trail is to be located within the highway right-of-way, the best location, in order of preference is:

- At the edge of the right-of-way and outside the highway clear zone
- Outside the highway clear zone
- Within the highway clear zone, but no closer than 2.0 m from the edge of the shoulder and with a mandatory physical barrier separating the trail from the highway

This is further illustrated in Figure 6.

Figure 6  
Parallel Trail Location



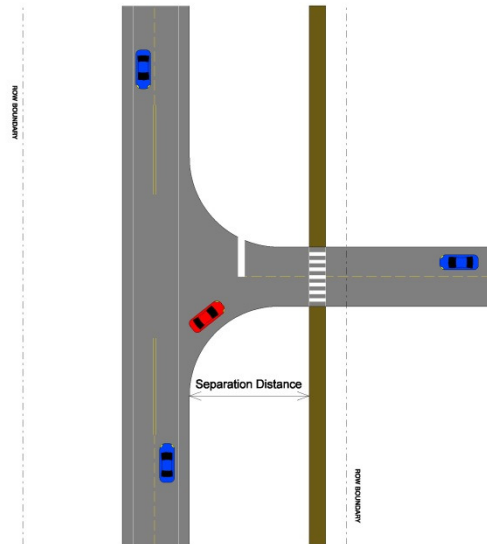
As defined in Alberta Transportation's *Highway Geometric Design Guide*, clear zone is the border area starting at the edge of the travel lane, which should be clear of hazards and available for use by errant vehicles. In other words, this is the typical space needed for an errant vehicle to recover and come back onto the road. Locating a trail outside the clear zone is desirable as it reduces the potential for errant roadway vehicles colliding with trail users. The further the trail is located from the edge of the clear zone the more it reduces the potential of errant vehicles colliding with trail users, which makes this the most desirable solution.

If a trail is to be located within the clear zone, a physical barrier (i.e. guardrail) separating the trail and highway is required. While a physical barrier acts as a safety measure for trail users, it is also considered a hazard to highway motorists. Careful consideration should confirm that no acceptable alternate location for the trail exists. When a physical barrier is required, the length of trail requiring barrier separation should be minimized to reduce the length of hazard.

## Crossings

A major determining factor in identifying a suitable location for a paralleling trail in the highway right-of-way is how many accesses/roadways the trail will cross, as each crossing increases the potential for conflicts between motorists and trail users. As a general rule, the number of access roads crossed should be minimized, but there is no defined allowable number of accesses that can be crossed. This needs to be considered on a case by case basis and is highly dependent on the type of roadway/access being crossed. For example, a trail that crosses three private driveways may be less of an issue than a trail that crosses one high volume local road. Crossings of field accesses (i.e. minimal traffic and not used on a daily basis) and private driveways (i.e. low daily traffic volumes) pose the lowest concern; while crossings of highways, busy local roads, and commercial accesses pose the highest concern.

Figure 7  
Separation Distance  
Between Trail & Highway



Regardless of the type of roadway/access being crossed, the separation distance between a paralleling trail and highway is an important consideration when a trail crosses a roadway/access. Separation distance is measured from the edge of the highway to the edge of the trail, which is illustrated in Figure 7.

Consider Table 1 below which is from the Florida DOT *Trail Intersection Design Handbook*, Table 3 and summarizes the effects of trail-roadway separation distance on crossings (1):

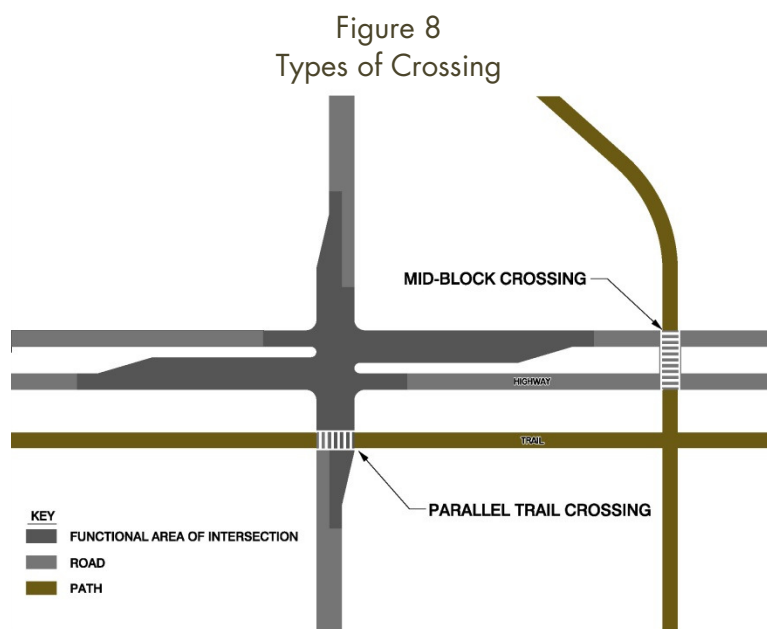
Table 1  
Effects of Separation Distance Between Trail & Highway

Parameter	Separation Distance		
	<1-2 m	4-10 m	>30 m
Motor vehicle turning speed	Lowest	Higher	Highest
Motor vehicle stacking space	None	Yes	Yes
Driver awareness of trail user	Higher	Lower	High or Low
Trail user awareness of motor vehicles	Higher	Lower	Highest
Chance of trail right-of-way priority	Higher	Lower	Lowest

Separations between 4 m and 10 m are the least desirable for parallel trail crossings as it is neither close enough to the intersection to take advantage of the traffic controls or far enough away from the intersection to act independently. Most crossings will be located in the 1 to 2 m range from the edge of highway as few highway right-of-ways will provide sufficient width to locate the trail 30 plus metres away.

## Mid-Block Highway Crossings

A mid-block trail crossing of a highway is an independent crossing located outside the functional area of an intersection as illustrated in Figure 8. Mid-block crossings are simpler than crossings at intersections as less information needs to be processed by the motorist/trail user approaching the crossing.



Alberta Transportation highways can be broken into the following categories:

- Freeways – High speed, free flow, divided highway with access via interchanges and no at-grade intersections
- Expressways – High speed, free flow, divided highways with access via interchange, two-way stop controlled at-grade intersections, but no signalized at-grade intersections
- Multi-Lanes – Divided highways, typically found in urban and semi-urban areas, that may contain both unsignalized and signalized at-grade intersections
- Major Two Lanes – Typically high speed, undivided highways with traffic volumes in excess of 5,000 vehicles per day and access via at-grade intersections
- Minor Two Lanes – Undivided highways with traffic volumes less than 5,000 vehicles per day and access via at-grade intersections

Table 2 below summarizes the type of crossings required when a trail crosses a highway.

**Table 2**  
**Crossing Requirements by Highway Classification**

Highway Classification	Type of Crossing
Freeway	Grade Separated
Expressway	Grade Separated
Multi-Lanes	Likely At-Grade; May require Grade Separation
Major Two-Lanes	Likely At-Grade; May require Grade Separation
Minor Two-Lanes	Likely At-Grade

Due to the high speed, free flow nature, and intent of freeways and expressways, all trail crossings of these facilities will require grade separation. Because grade separations are costly, Alberta Transportation will consider opportunities to retrofit existing roadway grade separations to include a trail.

On multi-lane highways, which may already have at-grade signalized intersections, the inclusion of at-grade trail crossings will be considered. In addition, along major and minor two-lane highways, which make up the majority of the Alberta highway network, at-grade crossings will be considered. While the majority of crossings of multi-lane and major two-lane highways will be at-grade, grade separated crossings may still be required depending on the highway traffic volumes and trail user demand. This will need to be considered on a case by case basis.

At a minimum, all at-grade trail-highway crossings must include marked crosswalks and advanced warning signs. In addition, nighttime usage of a trail can be prohibited; however, this is difficult to enforce, especially in isolated rural areas, and there is no guarantee that the trail will not be used at night. Therefore, regardless of whether nighttime use is permitted or not, illumination of trail-highway crossings should be strongly considered. Other measures to consider, when warranted, include pedestrian signals, speed reductions (urban areas only), and traffic calming measures (urban areas only).

### Who has the right-of-way?

With respect to motorized and mixed-use trail crossings, in all cases the motorized trail user will be required to stop at the crossing and wait for a safe opportunity to cross. At mixed-use trail crossings, in order to provide consistency, non-motorized users will also be required to stop at the crossing.

For non-motorized trail crossings, the user with the right-of-way will be dependent on the type of highway being crossed, the posted speed, the context of the area (i.e. rural, urban, semi-urban), and the trail user demand. On high speed two-lane undivided highways, typically located in rural areas, highway motorists will generally have the right-of-way, and the trail users will be required to stop at the crossing and wait for a safe opportunity to cross. On trails that have high user volumes, the right-of-way may be given to the trail user over the highway motorists, but this should be considered carefully.

In those cases, further measures will be required in addition to signing such as:

- Advanced warning signs or flashing signals/beacon to indicate crossing ahead; and/or
- Flashing signals/beacon at cross walk to indicate trail user presence in the crossing

On low speed two-lane undivided highways, such as those located in towns and villages throughout Alberta, motorists are more expectant of non-motorized trail users; therefore, the right-of-way will typically be given to the trail user.

Finally, on multi-lane highways with signalized intersections, which are typically located in urban areas, the right-of-way at mid-block crossings will generally go to the trail user. Again, this type of operation is common in urban areas, and highway motorists are more expectant of pedestrians and other trail users. However, as these roads typically carry large traffic volumes, pedestrian activated crossing signals/beacons will likely be required.

## Application Procedures

Alberta Transportation's procedure for application and consideration of a trail in the highway right-of-way will be a three-stage process, which is summarized below:

- **Stage I – Preliminary Screening:** Intended as a high level application and review by Alberta Transportation to determine whether a trail in the highway right-of-way may be feasible.
- **Stage II – Detailed Planning:** Upon initial review, Alberta Transportation may request additional information in order to reach a conclusion.
- **Stage III – Detailed Design and Agreement:** If Alberta Transportation approves a trail proposal in principle; detailed design should be completed and submitted to Alberta Transportation for final approval. Alberta Transportation will then enter into a Memorandum of Understanding/Agreement with the appropriate party, which will depend on whether the trail is provincial or non-provincial.

Prior to submission of a preliminary screening application to Alberta Transportation, three questions must be answered: Is the proposed trail provincial or non-provincial? Is the Alberta Government or Municipality in agreement with the proposed trail? Is any portion of the trail to cross or be located within a highway right-of-way?

If the proposed trail is part of the provincial trail network, the trail would fall under the jurisdiction of the Alberta Government. At the time of this report, it is unclear which Government Department will be responsible for the provincial trail network; however, Tourism, Parks and Recreation appear a likely candidate. In addition, it is also possible that the provincial trail network could fall under a yet to be formed Delegated Administrative Organization (DAO), which is a quasi-government organization. Regardless, the appropriate authority will need to be approached for their support prior to submitting application to Alberta Transportation.

When a proposed trail is a non-provincial trail, the trail will fall under the jurisdiction of the local municipality where the proposed trail resides. All proposed non-provincial trails must first be supported by the local municipality before making application to Alberta Transportation.



If the Alberta Government/DAO (for provincial trails) or local municipality (for non-provincial trails) is not in support of the trail, Alberta Transportation will not consider application for trails in the highway right-of-way. If the appropriate authority, as noted above, is in support of a proposed trail, and if any portion of the trail is to cross or be located within a highway right-of-way, a preliminary screening trail application must be submitted to Alberta Transportation. It is noted that all trail applications must be submitted by the appropriate Alberta Government Department, DAO, or local municipality. If a trail proposal is initiated by a club/trail group, it must first be accepted by the municipality or government agency responsible.

## Guidelines and Standards

In the development of guidelines and standards, extensive literature review was conducted to compare the practices of numerous jurisdictions including AASHTO, TAC, provincial/state transportation authorities, cities, and municipalities. This information was used to assist in the development of Alberta Transportation guidelines and standards.

In some cases, an abundance of information exists with similar guidelines and standards across the industry. For example, many documents exist regarding bicycles and shared-use paths. In other cases, such as non-motorized winter-use, and motorized summer and winter-use trails, few resources appear to exist.

Alberta Transportation has developed guidelines and standards for:

- Non-motorized Summer-Use Trails
- Non-Motorized Winter-Use Trails
- Motorized Summer-Use Trails
- Non-motorized Summer-Use Trails
- Mixed-Use Summer-Use Trails
- Mixed-Use Winter-Use Trails

It is noted that these guidelines and standards are specifically related to trails in highway rights-of-way, but in most cases the information is transferable to trails outside the highway right-of-way, and provides guidance on:

- Trail Tread Width
- Cross Slope
- Design Speed
- Horizontal Curvature
- Surfacing
- Vegetation
- Railings and Barriers
- Signage
- Shoulder Width
- Vertical Clearance
- Vertical Grade
- Sight Distance
- Drainage
- Bridges and Underpasses
- Lighting
- Pavement Markings

## Non-Motorized and Motorized Trails

Table 3 provides a summary of some of the key guidelines adopted by Alberta Transportation for non-motorized and motorized trails in the highway right-of-way. It is noted that much of the design parameters are intended as guidelines, not standards, as Alberta Transportation does not intend on constructing, operating, or maintaining trails in the highway right-of-way. Ultimately, Alberta Transportation's focus will be in the context of whether a trail can be implemented with safety in mind by limiting and managing potential interactions between trail users and highway motorists, and maintaining the operations, efficiency, and intent of the highway.

**Table 3**  
Key Design Guidelines for Trails in Highway Rights-of-way

Design Parameter	Trail Type			
	Non-motorized		Motorized	
	Summer Use	Winter Use	Summer Use	Winter Use
Trail Tread Width	2.0m (low volume)	2.4 - 3m (Classic/Traditional Skiing)	3.0m (desirable)	3.0m (low volume)
	2.5m (moderate volume)	4.3 - 4.9m (Skate Style Skiing)	3.5 - 4.0m (on bridges)	3.7 - 4.3m (high volume)
	3.0 - 4.3m (high volume)	4.9 - 6.1m (Both)		
Cross Slope	2.0% (paved)	0.0 - 2.0% (desirable)	3.0% (desirable)	2.0% (desirable)
	3.0% (unpaved)	4.0% (max)	5.0% (max)	5.0% (max)
	5.0% (max)			
Shoulder Width	0.6m (typical)	0.6m (typical)	0.6m (typical)	0.6m (typical)
	1.5m (in certain situations)	1.5m (in certain situations)	1.5m (in certain situations)	1.5m (in certain situations)
Vertical Clearance	3.0 - 3.6m	3.0 - 3.6m (not including depth of snow)	3.0 - 3.6m	3.0 - 3.6m
		5.0m (if large snow grooming equipment)		
Design Speed	23 km/h (min)	N/A - Snowshoeing, Winter Hiking and Cross-Country Skiing are generally performed at low speeds; therefore, design speed is not a significant issue	30 - 40 km/h	30 - 40 km/h
	30 km/h (typical)			
	48 km/h (max)			
Vertical Grade	0.6% (min)	4.0 - 10.0% (average)	0.6% (min)	< 8.0% (desirable)
	5.0% (max sustained)	10.0 - 12.0% (max)	12.0% (max sustained)	
	8.0% for 61m			
	10.0% for 9m			
	12.5% for 3m			

## Mixed-Use Trails

A mixed-use trail is a summer or winter-use trail that accommodates both non-motorized and motorized users. There can be compatibility and safety issues with the mixing of non-motorized and motorized users.

Potential conflicts between higher speed motorized users and more vulnerable low speed non-motorized users is a significant concern. Depending on how busy the trail is, the probability of conflicts may be low, but the severity is high. Additional trail width and providing ample sight distance can help reduce the potential for conflicts.

Compatibility between different user groups can also create operational issues. For example, a winter-use, mixed-use trail that accommodates cross-country skiing and snowmobiles can be problematic. The groomed trail required for cross-country skiing can be greatly disturbed by snowmobiles, making the trail difficult for cross-country skiers to use and reducing their level of enjoyment. This is especially true for the set tracks groomed for classic/traditional cross-country skiing. This can result in user frustration, underutilization, and/or increased grooming requirements to keep the trail useful for both snowmobiles and cross-country skiers.

Ultimately, it is the decision of the municipality or other government agency responsible for the trail as to whether the trail is mixed-use, but it is generally suggested that mixed-use trails be avoided unless some sort of separation between the two user groups is provided.

This can be accomplished in a few different ways:

- Two paralleling trails separated by a median, one for motorized users and one for non-motorized users;
- A single trail with a physical barrier separating non-motorized users from motorized users; or
- If there is not enough space to provide a mixed-use trail on one side of the highway, developing two trails, one on either side of the highway should be explored, with one designated for non-motorized users and the other for motorized.

For mixed-use trails, the applicable design parameters are a mixture of motorized and non-motorized guidelines. Some will be based on those of a non-motorized trail (i.e. vertical grade), while others will be based on motorized trails (i.e. horizontal curvature). Table 4 on the following page provides a summary of the recommended design user (i.e. non-motorized/motorized) to use as a guideline when developing a mixed-use trail.

Table 4  
Mixed Use Trails  
Design User Group by Design Parameter

Design User for Mixed Use Trails (Summer or Winter Use)	
<b>Design Parameter</b>	<b>Critical User Group (Non-motorized v. Motorized)</b>
Trail Width	Both if separation is being provided between motorized and non-motorized users.  If separation is not being provided, use engineering judgment for appropriate width based on expected user levels and types of users.
Cross Slope	Both
Shoulder	Both
Vertical Clearance	Both
Design Speed	Motorized
Horizontal Curvature	Motorized
Vertical Grade	Non-motorized
Stopping Sight Distance	Motorized
Sight Distance on Vertical Crest Curve	Motorized
Horizontal Sightline Offset	Both
Intersection Sight Distance	Non-motorized

## All-Season Trails

In theory, when developing a trail in the highway right-of-way it is desirable to maximize the functionality of the trail by developing it for multiple user types through all-seasons, but in reality this creates a number of challenges. As an example, a paved or aggregate surfaced summer-use trail does not make an ideal cross-country ski trail because:

- Paved or aggregate surfaced trails do not retain snow well
- Paved or aggregate surfaced trails readily absorb heat increasing the potential for melting and a shortened cross-country ski season
- Paved or aggregate surfaced trails can cause damage to cross-country skis if there is not enough snow cover
- The width of a summer-use trail may not meet the needs of a cross-country ski trail (i.e. narrower than desired)
- Maintenance costs will likely be higher to provide a consistent and desirable trail surface

Conversely, the ideal surface for any winter-use trail is natural grass, which is not a suitable surface for a summer-use trail. Due to the potential issues noted above, combined summer and winter-use trails should be considered carefully in order to provide a trail that will meet the user's needs and provide an enjoyable experience no matter what the season.

## Conclusion

As the province, cities, towns, and other municipalities mature, active transportation is entering the collective mindset and becoming a focus of many jurisdictions. Traditionally, the provincial highway network has been focused on the movement of people and goods via the automobile, and in reality, this will continue to be a primary focus. However, Alberta Transportation's mission is "to provide a safe, innovative and sustainable world-class transportation system that supports Alberta's economy and quality of life". With safety in mind, providing opportunities for trails in the highway right-of-way supports this mission.

While the main intent of Alberta Transportation's "Policies, Guidelines, and Standards for Trails in Highway Rights-of-way" is to address trails in Alberta highways, much of the information is universal and can be a useful resource for any jurisdiction considering trails inside or outside of highway rights-of-way.

## References

- (1) Florida Department of Transportation, *Trail Intersection Design Handbook*, 1996, p. 3-6