

Rocky Mountain Legacy Trail



Photo Courtesy: Banff Lake Louise Tourism / Paul Zizka Photography



Transportation Association of Canada Sustainable Urban Transportation Award

Nominee:

Town of Canmore
on behalf of
Bow Corridor Regional
Mobility Partnership



Submitted by:

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PROJECT BACKGROUND

The Rocky Mountain Legacy Trail is a multi-modal paved trail connecting the Town of Canmore to Banff National Park. Completed in September 2013, the Trail spans 4.5 km from the Travel Alberta Visitor Information Centre in Canmore to the east gate of Banff National Park, where it ties in to the Banff Legacy Trail, extending an additional 26 km west to the Bow Valley Parkway. The Legacy Trail network now provides full linkage between the Towns of Canmore and Banff, promoting safe and sustainable travel for both commuters and recreational users. Additionally, it forms part of the larger Trans Canada Trail, a 17,000 km trail network that connects 1,000 communities across Canada.

The Town of Canmore coordinated the Rocky Mountain Legacy Trail on behalf of the Bow Corridor Regional Mobility Partnership, a joint venture between the Town of Canmore, the Town of Banff, the Municipal District of Big Horn, and Parks Canada. Additional stakeholders included Alberta Transportation; Alberta Tourism, Parks and Recreation; Alberta Sustainable Resource Development; ATCO Pipelines; and Canadian Pacific Railway. Collaborating with such a diverse stakeholder group required creative thinking as well as innovative and equitable financing arrangements, to manage contributions from the various municipalities and agencies involved in the project.

Although not directly involved in design or construction of the Rocky Mountain Legacy Trail, the Alberta TrailNet Society and the Trans Canada Trail Foundation were also important stakeholders in the project. The Alberta TrailNet Society supports the ongoing development of Alberta's trail network, and the Trans Canada Trail Foundation promotes the development and use of the Trans Canada Trail in all provinces and territories. The Rocky Mountain Legacy Trail is a shining example of what these organizations are striving to achieve. At the grand opening in September 2013, Peter Barr, past president of the Alberta TrailNet Society, said, "Studies throughout North America show that trails are the most desired recreational amenity. This new Legacy Trail is a critical link between Canmore and Banff and is a shining example of how various levels of government and the trail community can work in partnership to achieve great things. Today, everybody is a winner."

ENHANCEMENT OF SUSTAINABLE URBAN TRANSPORTATION

As set out in the Trans Canada Trail Foundation's mission statement, one of the five core benefits of the Trans Canada Trail is that it creates "a sustainable gift for future generations." The concept of sustainability is typically defined as having social, economic, and environmental elements. Only when all three are in balance with one another can something truly earn the honour of being called sustainable.

SOCIAL DEVELOPMENT AND ENHANCEMENT

Even before construction had begun on this final leg of the Legacy Trail, peak usage of the existing segment had been recorded at approximately 1,200 trips in a single day, and 46,624

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trips were recorded between May 4, 2012, and September 5, 2012. Considering that the permanent populations of Canmore and Banff combine to just under 20,000 residents, the usage level on the Trail is incredible. The popularity underscored the critical need for completion of the link to Canmore, where trailhead facilities, parking, amenities, and connections to bus routes and other trails were available.

The Rocky Mountain Legacy Trail promotes multi-modal transportation, including walking, running, cycling, rollerblading, and roller skiing. It provides users of all levels with a unique way to experience the outdoors and/or commute. Some outdoor activities, such as hiking and mountain biking, require an advanced level of skill or fitness. However, riding on a paved trail is a very attainable goal for a wide variety of users, from novices to experts. Two days after the grand opening, McElhanney's project manager cycled the Trail with three generations of his family, including a two-year-old. Besides inspiring active living and transportation at the individual level, the Trail shows that outdoor adventures can transcend gaps between generations as grandparents try to keep up with their grandchildren.

Similar sentiments were echoed by Dr. Richard Starke, Alberta's Minister of Tourism, Parks and Recreation, at the grand opening in September 2013. Dr. Starke said, "Completing the Rocky Mountain Legacy Trail will help us welcome even more Albertans and visitors to enjoy these breathtaking landscapes. Whether it's used for cycling, running, hiking or roller skiing, this scenic route is set to become one of the most popular trails in the Rockies — if not our entire province."

An additional social benefit of the Rocky Mountain Legacy Trail is that it provides a continuous, safe transportation corridor between Canmore and Banff National Park that is separate from the Trans-Canada Highway. This resolved a major safety issue by eliminating the need for Trail users to cross two or four lanes of traffic travelling at speeds of up to 110 km/h.

ECONOMIC DEVELOPMENT AND ENHANCEMENT

Tourism is a critically important component of the economy in both Canmore and Banff, with over four million annual visitors spending time experiencing the Canadian Rockies. The Rocky Mountain Legacy Trail has become a "bucket list" activity for many visitors, and ridership stimulates tourism to promote economic growth in the region. Tourists use the Trail for recreational purposes, and many require peripheral services such as bike rentals and shuttles. Several Trail users have noted that riding the Legacy Trail was the highlight of their trip. Those sentiments will travel back home with those happy campers and encourage other visitors to come and experience the Trail as well.

Another economic benefit is that the location of the Trail, alongside one of the nation's busiest highways, provides free advertising for its use. With a summertime daily traffic load of

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approximately 14,000 vehicles, passersby will surely notice the large numbers of smiling riders on the Rocky Mountain Legacy Trail. This will inspire them to exchange their cars and trucks for bikes, and to take some time to enjoy the scenery at a slower pace.

ENVIRONMENTAL DEVELOPMENT AND ENHANCEMENT

The Rocky Mountain Legacy Trail reduces dependence on motorized travel. The Trail is used for commuting, recreation, athletic training, and accessing parks and wilderness areas, which decreases the number of trips made by vehicle. Using Transport Canada's Urban Transportation Emissions Calculator (UTEC), it is estimated that each vehicle round-trip that is eliminated between Canmore and Banff prevents 12.6 kg of greenhouse gas pollution.

At the trailhead in Canmore, where the Legacy Trail meets the municipal trail system, a bus stop for the new ROAM intercommunity transit system was incorporated into the design. The ROAM buses are equipped with bike racks allowing users to bring bikes with them. This provides Trail users with an opportunity to use public transit instead of relying on passenger vehicles. The integration of the Rocky Mountain Legacy Trail into the municipal trail network and public transit system also provides a social benefit by giving residents and tourists a variety of travel options when making a round trip from either town.

The development of the Rocky Mountain Legacy Trail was constrained by a relatively narrow corridor adjacent to the highway. Once the jurisdictional issues associated with the final alignment were sorted out, the result was a world-class cycling experience located almost entirely within the existing highway right-of-way. This shows that multi-modal transportation networks can be successfully implemented between communities without the need for land acquisition. Within a national context, the Rocky Mountain Legacy Trail has shown the untapped potential of Canada's highway right-of-ways to provide another type of transportation system while also minimizing the use of raw land. Additionally, tourists' usage of the Trail results in less vehicle traffic and parking congestion in both Canmore and Banff while tourists are exploring the area using non-motorized modes of transportation.

During construction, one of the environmental risks that needed to be considered was the potential for importation of weed seeds via topsoil. Typically, organic materials are stripped from a construction site and exported as waste; new screened topsoil is then brought back in. The site's proximity to Banff National Park and other provincial parks and wilderness areas required a higher level of care to protect the ecosystem from invasive species that may be present in the imported topsoil. Therefore, instead of hauling out organic strippings as waste, the contractor screened the strippings on site and hauled the screenings to a local landfill for composting. The freshly screened topsoil was then redistributed on the location it originated from, greatly reducing the chance that foreign weeds would germinate in the rehabilitated areas alongside the new Rocky Mountain Legacy Trail.

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DEGREE OF INNOVATION

TECHNICAL

During the design stage, it was necessary to create a set of accurate plan view drawings, complete with legal lines, existing ground contours, and infrastructure-related constraints. To reduce costs and increase efficiency, a combination of high-resolution orthophoto imagery and LiDAR data was used to create base drawings of the corridor in which the Trail would be constructed. This enabled a 4.5 km length of land several hundred meters wide to be inexpensively converted to an AutoCAD drawing. McElhanney had proactively collected orthophoto imagery and LiDAR data of the area during previous aerial sorties in the Bow Valley, and was able to provide high-quality survey information without interfering with traffic on the highway or the Canadian Pacific Railway line. A detailed GPS ground survey was completed at the Canmore trailhead, where tie-ins to existing infrastructure and drainage for curbs and gutters required more precision than was available in the LiDAR contours. This innovative approach provided a highly accurate base map at a very low cost per hectare of land surveyed. The orthophoto underlay in the final drawings was helpful for third-party reviews and approvals and for helping the contractor visualize the project during construction.

One of the biggest technical challenges facing the project was that 1 km of the Trail was located in a narrow strip running between the Canadian Pacific Railway line and the Trans-Canada Highway. Due to the heavily treed, irregular terrain, it was not possible to keep the Rocky Mountain Legacy Trail out of the standard clear zone for a 110 km/h highway. Although concrete highway barriers and w-beam barriers were considered for the project initially, they were ruled out because of their high installation and maintenance costs. In addition, w-beam barriers would not have provided enough protection from vehicles due to the proximity of the Trail to the travelled lanes of the highway. Instead, a high-tension cable barrier was incorporated at the edge of the asphalt that would keep the barrier deflection within required limits based on the trail's proximity to the highway.

PROCESS

Although primarily a bike trail, the multi-use trail also sees a fair share of walking, running, rollerblading, roller-skiing, and other user types. An innovative element of the Trail is a user tracking system that can not only count the number of users, but also differentiate between different user types so that usage can be monitored and analyzed. Eco-Counter, a Montreal-based company, developed a trailhead LED display that shows the trail usage in total, annual, and daily categories for the general public; however, the data collected can be analyzed in many ways to determine the exact mix of users, timing of peak periods, and other trail user trends. The counter uses optical sensors and underground detectors at both ends of the trail to

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determine how many trail users have passed by. Using cellular technology, the battery powered remote sensor communicates with and updates the Eco-Totem trailhead counter to screen out “false-starts” and other anomalous counts. This is the first installation of this type of system in Western Canada.

FINANCIAL

Alberta Transportation was the primary contributor of project funding (59%); however, Alberta Tourism (13%), the Town of Canmore (17%), the Town of Banff (10%), and the MD of Bighorn (1%) provided contributions as well as assistance with administration and coordination to make the project a success. For example, the Town of Canmore took the lead on behalf of the Bow Corridor Regional Mobility Partnership to coordinate McElhanney’s work. In addition, the Town of Canmore’s Engineering Department provided staff resources to collaborate with McElhanney on contract administration.

TRANSFERABILITY TO OTHER CANADIAN COMMUNITIES AND ORGANIZATIONS

Canada is known for its large land mass and small population, and has tens of thousands of kilometers of highways to connect communities to one another. It is commonly accepted that the only way to travel from one urban pod to another is to get in a passenger vehicle, burning millions of calories of fossil fuel to arrive at your destination in the shortest time. The lesson that is being learned by many users of the Rocky Mountain Legacy Trail is that it is completely possible for almost anyone to leave their car keys behind, jump on a bike, and arrive at their destination at their own pace — even burning a few calories in the process. After experiencing the Rocky Mountain Legacy Trail, users from other parts of Canada will return home thinking about how intercommunity trails could improve the quality of life within their own regions and learn a new definition of what is possible.

Although the Trans Canada Trail is a national project, the specific routes are developed and overseen at the provincial or territorial level. In the case of the Rocky Mountain Legacy Trail, the provincial organization is the Alberta TrailNet Society. One of the fundamental reasons for the success of this project is the idea of connecting Canmore and Banff with a portion of the Trans Canada Trail. It is expected that the various provincial organizations will share stories of their successes (and failures) while working toward the goal of completing the Trans Canada Trail by 2017. The Rocky Mountain Legacy Trail provides an excellent example of a trail that is socially, economically, and environmentally successful.

During preliminary design of the project, many different routes were considered due to Alberta Transportation’s reluctance to include a multi-use trail within the highway right-of-way. The Rocky Mountain Legacy Trail development team worked very hard for several years to obtain the necessary permissions and approvals to provide the various stakeholders with the confidence they needed in the final alignment. Other communities and organizations looking to build similar types of trails can

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readily point to the Rocky Mountain Legacy Trail as living proof that multi-use trails can be accommodated within a highway right-of-way. If a trail can sit comfortably next to one of the nation's busiest highways, it can be done anywhere.

ADDED VALUE

Prior to the completion of the Rocky Mountain Legacy Trail, there were three land-based ways to travel between Canmore and Banff:

- 1) The Trans-Canada Highway – One of the nation's busiest highways; not recommended for bike travel due to safety concerns.
- 2) The Goat Creek Trail – An 18 km non-motorized trail on abandoned roadbeds that is recommended only for mountain bikers in high physical condition. The route suffers from awkward trailheads, a lack of cell phone coverage, and a feeling of isolation that many tourists are not comfortable with given wildlife concerns in the Rocky Mountains. Accessing the Goat Creek Trail from the Town of Canmore requires a 9 km bike ride with an elevation gain of approximately 400 m on a busy, dusty gravel road.
- 3) The Rundle Riverside Trail – A tree root-infested slog approximately 18 km in length that is recommended only for experienced riders with full suspension mountain bikes. Besides the challenging terrain, this wilderness route is relatively isolated over its entire length due to its location behind the Bow River.

The Rocky Mountain Legacy Trail filled an important need for a non-motorized route that can be used by a wide range of users of varying levels of ability. The trail provides numerous safety benefits for users with a route that is separate from the Trans-Canada Highway and wilderness lands in the Bow Valley while also keeping riders close to the roadway and cell phone coverage in case of emergency. In addition, the trail reduces pressure on the existing mountain bike routes noted above.

As noted earlier in the Environmental Development and Enhancement section, local topsoil was screened onsite for this project. Excess screened topsoil from the Rocky Mountain Legacy Trail project was used for other rehabilitation work in the Town of Canmore following the devastating flooding and erosion in late June 2013. That provided the Town of Canmore with cost savings and reduced environmental risks in a variety of locations in the community.

It is also important to note the significance of this project within the context of the Trans Canada Trail. When it began in 1992, the Trans Canada Trail created a vision to connect communities with approximately 23,000 km of trail linkages over a 25-year period, ending in 2017 with Canada's 150th anniversary. At present, the overall goal is estimated to be 72% complete; however, the trail still requires over 6,000 km of additional trail to close over 200 gaps in the longest recreational trail system in the world. With the completion of the Rocky Mountain Legacy Trail in the fall of 2013, the

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missing link between Canmore and Banff was completed, bringing Canada one step closer to meeting the goal set in 1992.

An interesting way to look at the added value economics of trail development is to consider the increased health benefits of trail users within the context of reduced health care costs. In *A Cost-Benefit Analysis of Physical Activity Using Bike/Pedestrian Trails* (Wang, G. et al., 2004), it was estimated that for each dollar spent on building, maintaining, and using trails, nearly three dollars were realized in reduced health care costs by the trail users due to improvements in their health.

After a summer marked by the largest flood event in Alberta's history, the grand opening of the Rocky Mountain Legacy Trail was a special event, with many municipal and provincial politicians in attendance. Ric McIver, Alberta's Minister of Transportation, described the project as a "clear signal to Albertans that we are continuing to invest in infrastructure, road safety, and tourism. This trail will provide cyclists, hikers, and other recreational users with a safe off-highway path, making the Trans-Canada Highway safer for both individual motorists and commercial users."

CLOSURE

Many communities likely already recognize that trails are an important amenity within their municipal boundaries. However, they may not have reached out to neighbouring urban and rural municipalities to begin the process of working together to create trails that cross those boundaries and bring those communities closer together. The Rocky Mountain Legacy Trail leads by example in showing how the creation of the Bow Corridor Regional Mobility Partnership forged an important link between the various stakeholders to work toward a common goal. These types of partnerships or alliances are the first steps in working from dreams to realities when it comes to trail development. John Borrowman, Mayor of Canmore, reflected at the grand opening, "We couldn't be more pleased seeing this long-term dream of the Legacy Trail extension become a reality... We can accomplish a lot when we have local groups and our three levels of government working in partnership."

Philosophically, there is a debate as to whether infrastructure is a reflection of society or society is a reflection of infrastructure. The 20th century saw an explosion in the number of road networks dedicated to the automobile, which created a society that was, and still is, overly dependent on motorized travel. Regional trail networks encourage alternative, active modes of transportation and provide an outstanding example of sustainable transportation infrastructure. The success of the Rocky Mountain Legacy Trail demonstrates the wide range of tangible and intangible benefits that can be realized by communities that embrace, and are connected by, sustainable transportation networks.



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Appendix A: Photos

Construction – Trail



Screening local topsoil on site for rehabilitation work



Fingerprinting the trail into the forest with minimal disturbance



Trail routing took advantage of natural openings to provide users with views of the Rocky Mountains



Asphalt paving was completed in one lift for improved efficiency



In wider portions of the highway right-of-way, the trail was separated from traffic by existing trees

Construction – Trailhead



Installation of new concrete sidewalk to connect to parking lot expansion at the Travel Alberta Visitor Information Centre in Canmore



Construction of trailhead bus stop plaza using synthetic fiber-reinforced concrete



Workers paving up to the trailhead in Canmore, where the trail ties into the municipal trail network and the ROAM intercommunity transit system

Trailhead in Canmore



Grand Opening



Darin Langhorst, McElhanney's project manager, at the trailhead in Canmore



Government representatives including John Borrowman, Mayor of Canmore, and Ric McIver, Alberta's Minister of Transportation

Photo Courtesy: The Association for Mountain Parks Protection & Enjoyment. Used with permission.



Dr. Richard Starke, Alberta's Minister of Tourism, Parks and Recreation, speaks at the grand opening

Photo Courtesy: The Association for Mountain Parks Protection & Enjoyment. Used with permission.

The Completed Trail



Photo Courtesy: Bike Pirate. Used with permission.



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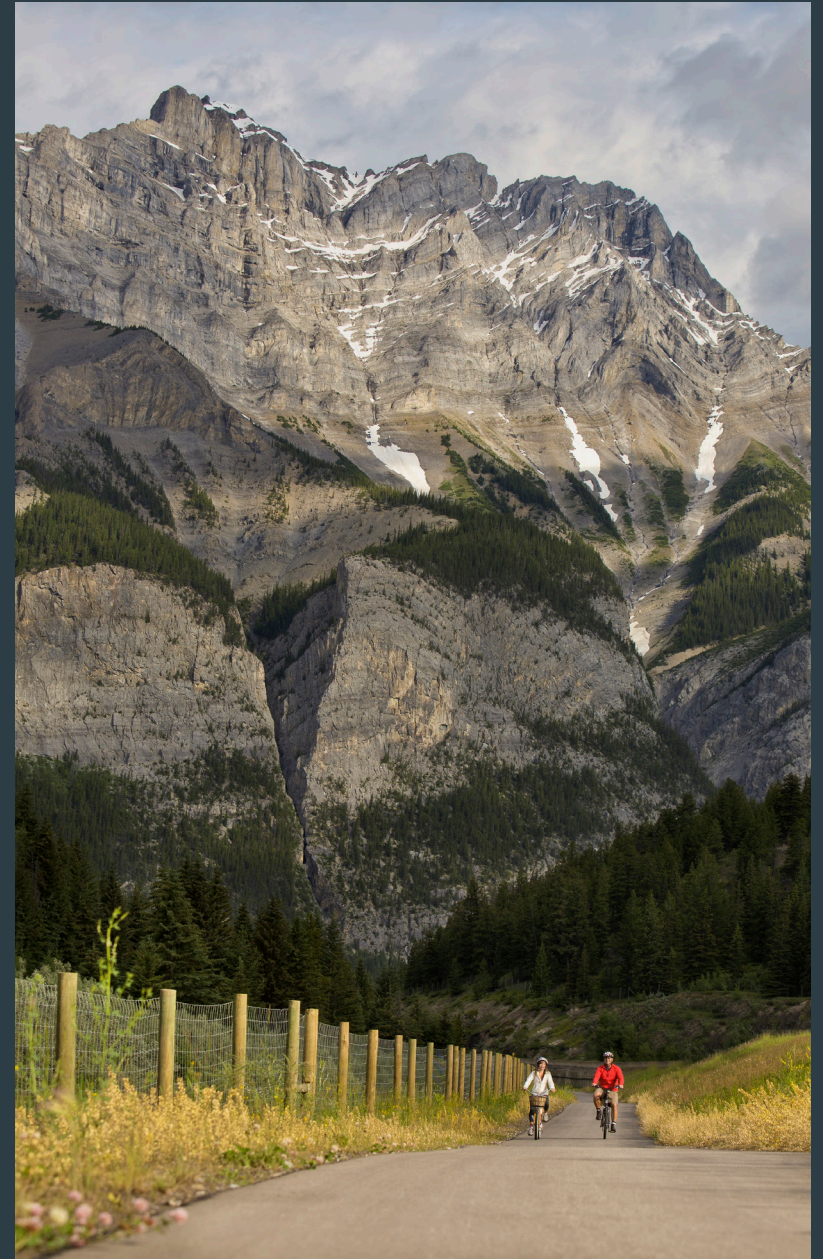


Photo Courtesy: Banff Lake Louise Tourism / Paul Zizka Photography. Used under licence.

Route Map



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- 1** Banff National Park East Gate
- 2** Pedestrian Crosswalk
- 3** Trailhead in Canmore
- 4** Travel Alberta Visitor Information Centre