



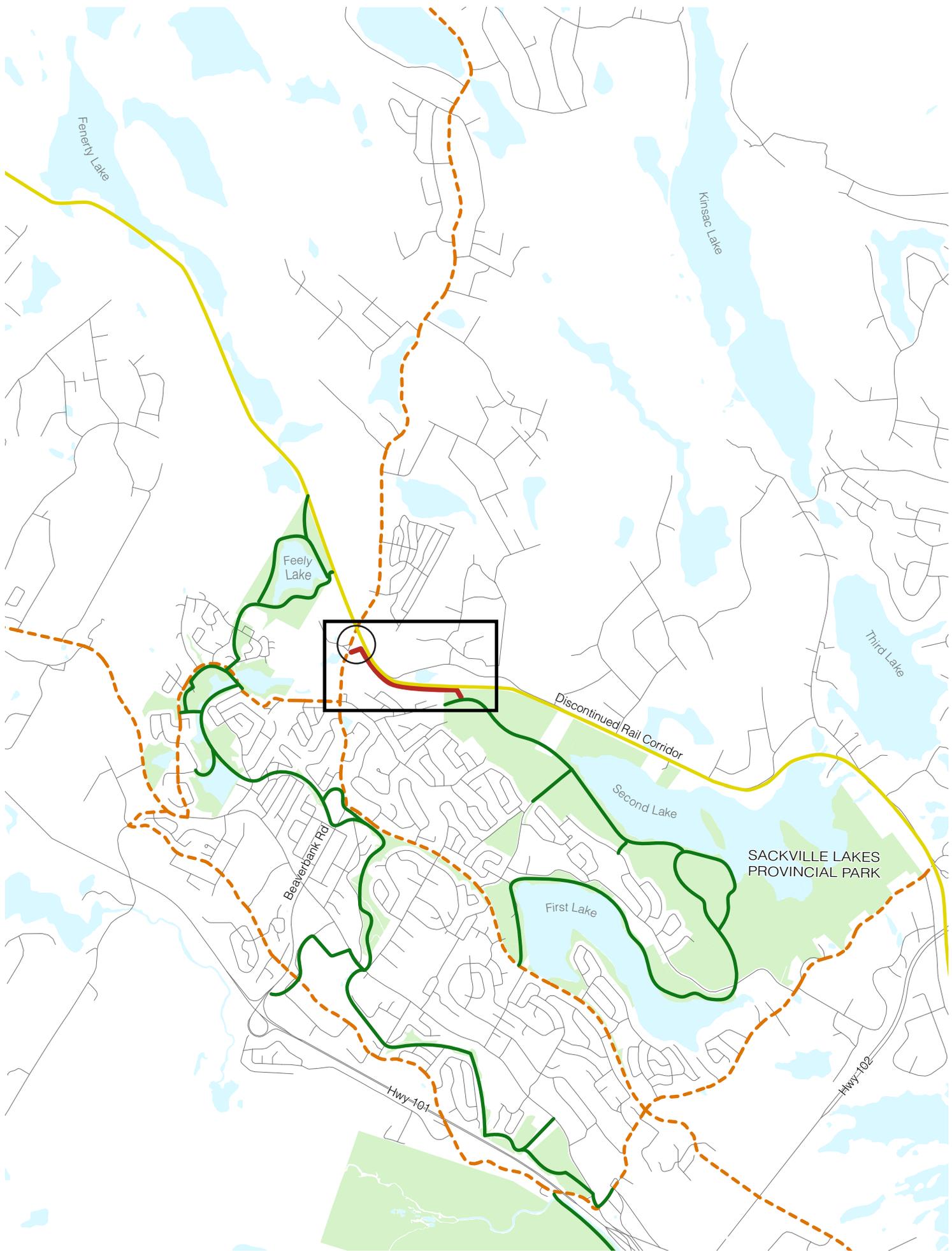
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Canopy Creek Trail Extension and Entrance Node Design

Final Report

02.23.2017

Prepared for
the Sackville Lakes Park
and Trails Association



Project Objective

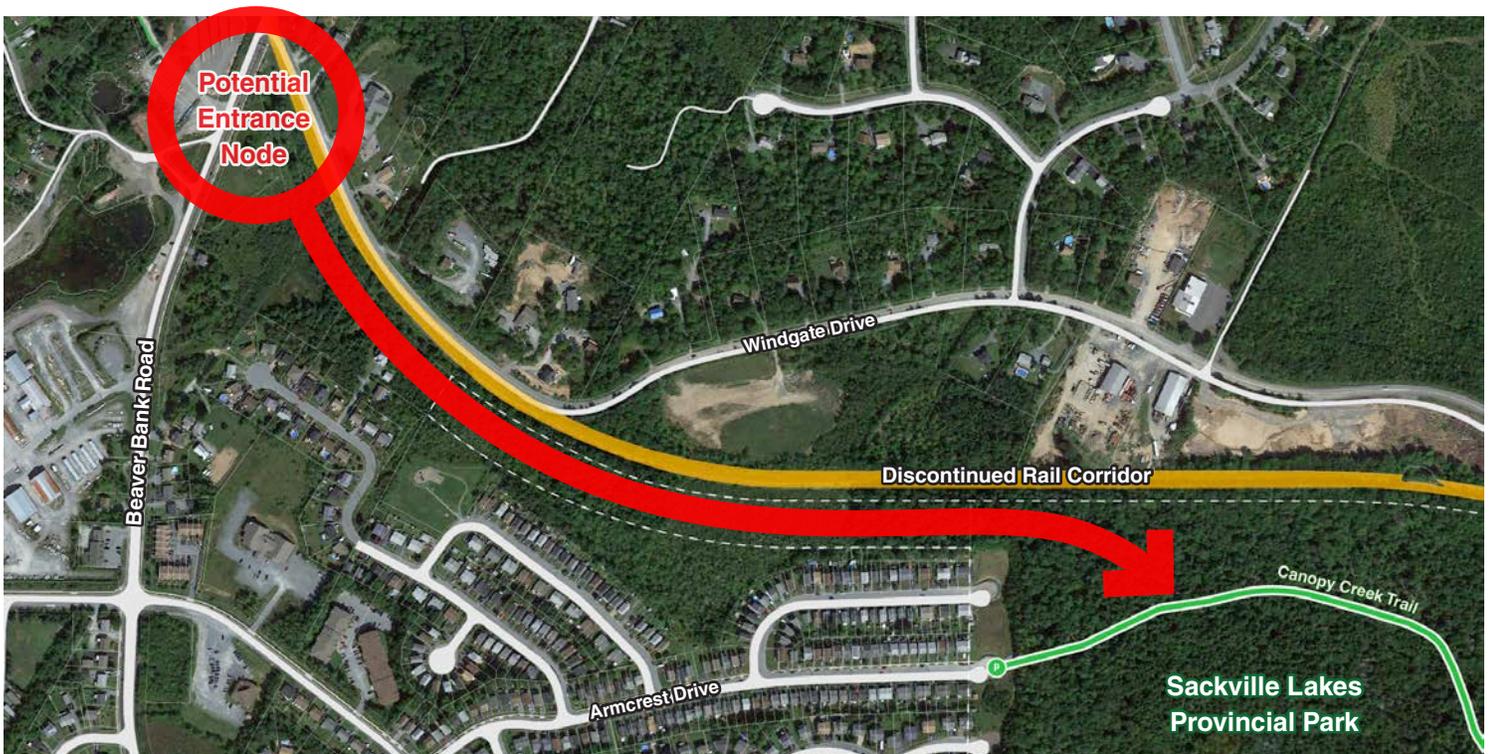
For almost fifty years, community members have been hard at work creating, managing and constantly improving the Sackville Lakes Provincial Park, a regional greenspace that lays between Second Lake and First Lake. In its current state, the park consists of 300 hectares of lake shoreline, kilometres of trails, old-growth forest, pristine wetlands, and several unique drumlins. The park also has a rich cultural heritage that includes early homesteads and forestry and farming activities, some of which are still visible and protected from disturbance.

While so much work has been done already in the Park by the community, there remains an important piece that remains to be done. The park has a main entrance off First Lake Drive, as well as several smaller neighbourhood access points. There is a great opportunity, however, to add a second major entrance on Beaver Bank Road. This road is a high traffic area and offers high visibility and exposure. Placing an entrance node along the street would be a great addition for the Park and bring in many more potential visitors. The Sackville Lakes Park and Trails Association (SLPTA), in association with the Department of Natural Resources (DNR) and Halifax Regional Municipality (HRM), together seek to complete this connection to help achieve its goal of maintaining “a natural setting while providing passive recreation trails that, where feasible, are accessible to all segments of society.”

Before an entrance node can be built, however, a connection to the existing park must be provided. The Canopy Creek Trail, which currently terminates at the end of Armcrest View Drive, is the closest trail in the Park. A new trail would be required to connect the new Beaver Bank Road entrance node to the Park.

The objectives of this project are as follows:

1. Identify the best way to connect Canopy Creek Trail to Beaver Bank Road
2. Identify the best location for a new entrance node along Beaver Bank Road
3. Prepare concept plans and drawings that describe the designs and costs of a new trail connection and entrance node



Report Organization

This report identifies how best to accomplish these objectives. It is simply organized into two sections: 1) Trail Connection and 2) Entrance Node.

Section 1 - Trail Connection identifies the opportunities and constraints, potential options and the identification of a preferred trail connection. A series of drawings and diagrams that describe the key design elements of the preferred trail connection, as well as Class D cost estimates, are also provided in this section.

Section 2 - Entrance Node first identifies potential parcels of land that can accommodate an entrance node along Beaver Bank Road. A conceptual design of the new entrance node is described for the preferred parcel of land, including site plans, drawings, and Class D cost estimates.

This report is accompanied by a set of full sized concept drawings and site plans that demonstrate the approach of all design solutions proposed in this report.

1 Trail Connection



Opportunities and Constraints

Canopy Creek Trail is a multi-use trail connecting at Armcrest Drive and leading into the heart of the Park. The trail is a 3 metre wide crusher dust trail that weaves through tall hemlocks and hardwoods. Assuming an entrance node near the intersection of Beaver Bank Road and Windgate Drive, a potential trail connection encounters several opportunities and constraints. The park boundary features a long and narrow parcel that extends towards, but not all the way to, Beaver Bank Road. The parcel terminates at a private residential property. The parcel is flanked by residential development to the south and an inactive railroad parcel to the north.

Opportunities

The discontinued rail parcel provides a potential direct connection from the Park to the Entrance Node. The rail line is currently under lease and would require the land to be purchased or sub-leased to accommodate a trail.

Constraints

The long park parcel that extends toward Beaver Bank Road is divided by a large wetland. A boardwalk will be required in order to provide a trail across the wetland and, recognizing that the wetland is within a provincial park, it would be considered a "Wetland of Special Significance (WSS)." These types of wetlands are provincially protected and would require an Environmental Assessment with public review or other approvals such as a Wetland Alteration Approval.

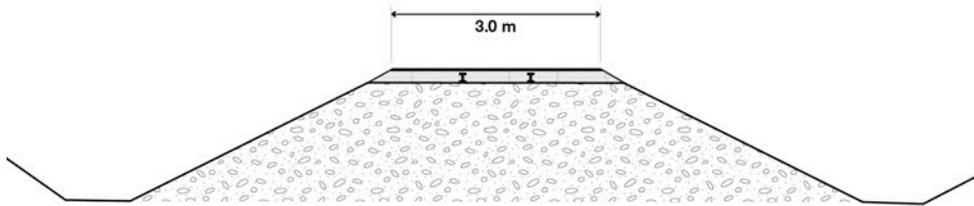
Aside from the rail parcel, the park is surrounded by privately owned residential parcels to the south and west.



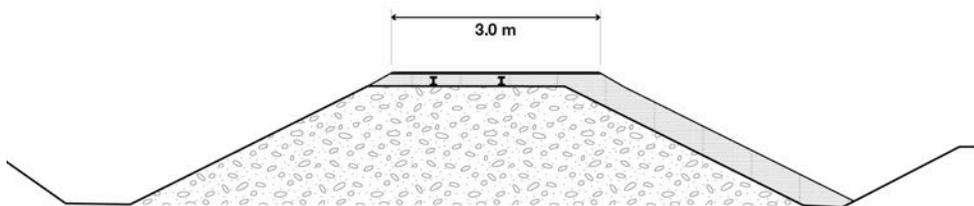
Railbed Option 1

The first option to accomplish a trail connection between Canopy Creek Trail and Beaver Bank Road is simply via the discontinued rail corridor. The trail connection would be approximately 1,100 metres in length. It would intersect the Canopy Creek trail just south of a watercourse at around the 64 metre contour line. From here a new 90 metre multi-use trail would be built connecting to the railbed. The trail would run northwest / southeast running along the 64 and 65 metre contour line, ascending at a 1% slope. The trail along this alignment would connect with the rail corridor at the 65 metre contour line.

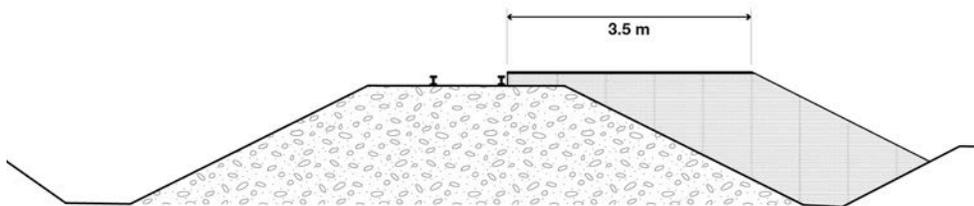
The trail would then continue along the discontinued railbed for 900 metres. This will require either a lease agreement with the current lease holder, or an acquisition of the rail corridor by the Halifax Regional Municipality or the Province. The type of trail that will be built depends on whether the land is leased or acquired.



Option 1 **Rails Under Trails**



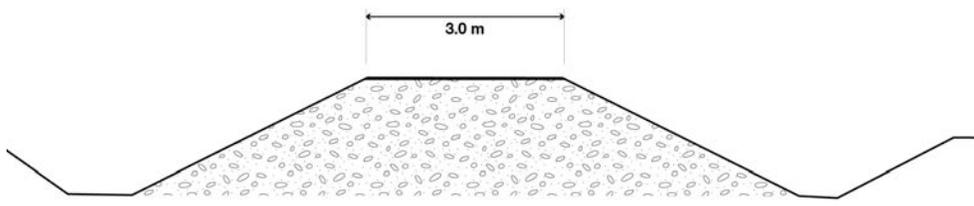
Option 2 **Rails Under Trails**
(where railbed is too narrow)



Option 3 **Rails Abutting Trails**
(conversion)

Lease Scenario

If the land is leased, the current rails will need to remain in place, but can be covered with material to operate as a trail. Alternatively, the rails can be abutted by a trail to allow for the coexistence of both an operating train corridor and a trail if train transport becomes desirable by the owner in the future. The preferred option here is a Rails Under Trails approach, where the rails are buried with 125 mm of gravel and topped with 75mm of crusher dust (OPTION 1) to allow for a 3.0 m wide pathway. In some areas, the railbed may need to be widened to ensure that the finished trail is a minimum of 3.0 m wide (OPTION 2). If rail operation is resumed in the future, granular fill can be added to one side of the rail bed to extend the width to 3.5 or 4.0 m, which will allow for the coexistence of both train operation and active transportation use (OPTION 3).



Rails To Trails

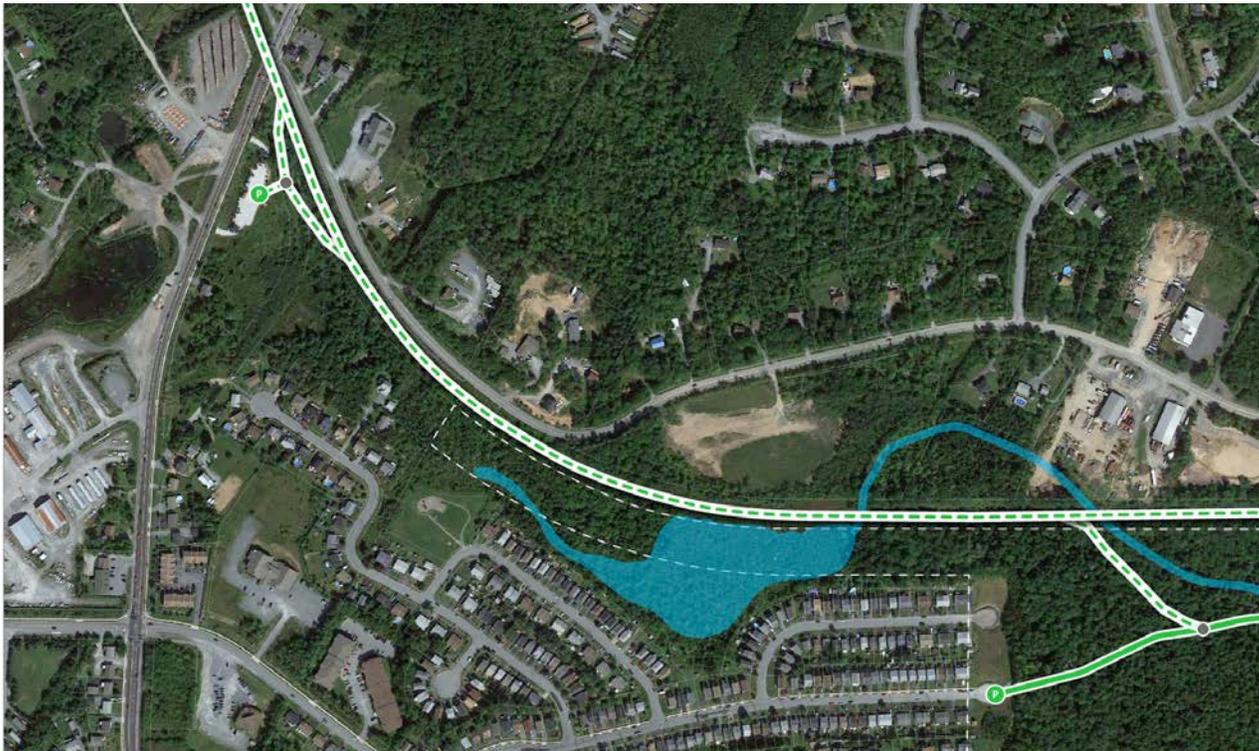
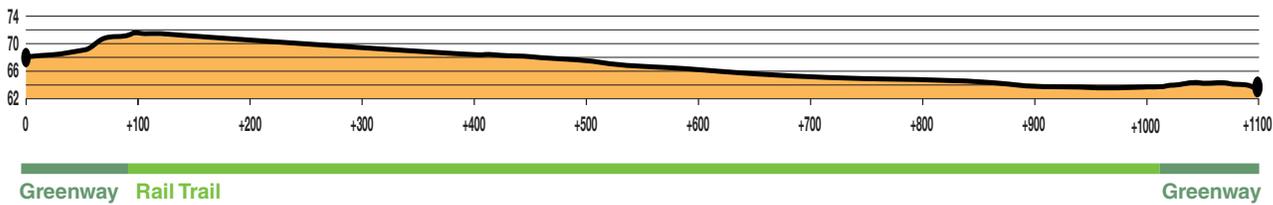
Acquisition Scenario

If the rail corridor is eventually acquired by Halifax Regional Municipality or the Province, a rails to trails conversion would be possible. In this scenario, the rails and ties are removed and a 75 mm crusher dust surface is added to the existing bed. In this option, train traffic is no longer supported.

After the trail continues for 900 metres along the railbed, the trail will peel off along a new 100 metre multi-use trail toward a future entry node along Beaver Bank Road.

Presumably, the rail trail will continue on (in both directions) in the future, but for the purposes of this project, which is to connect a new entrance node to Canopy Creek Trail, it is not considered in terms of costing or design.

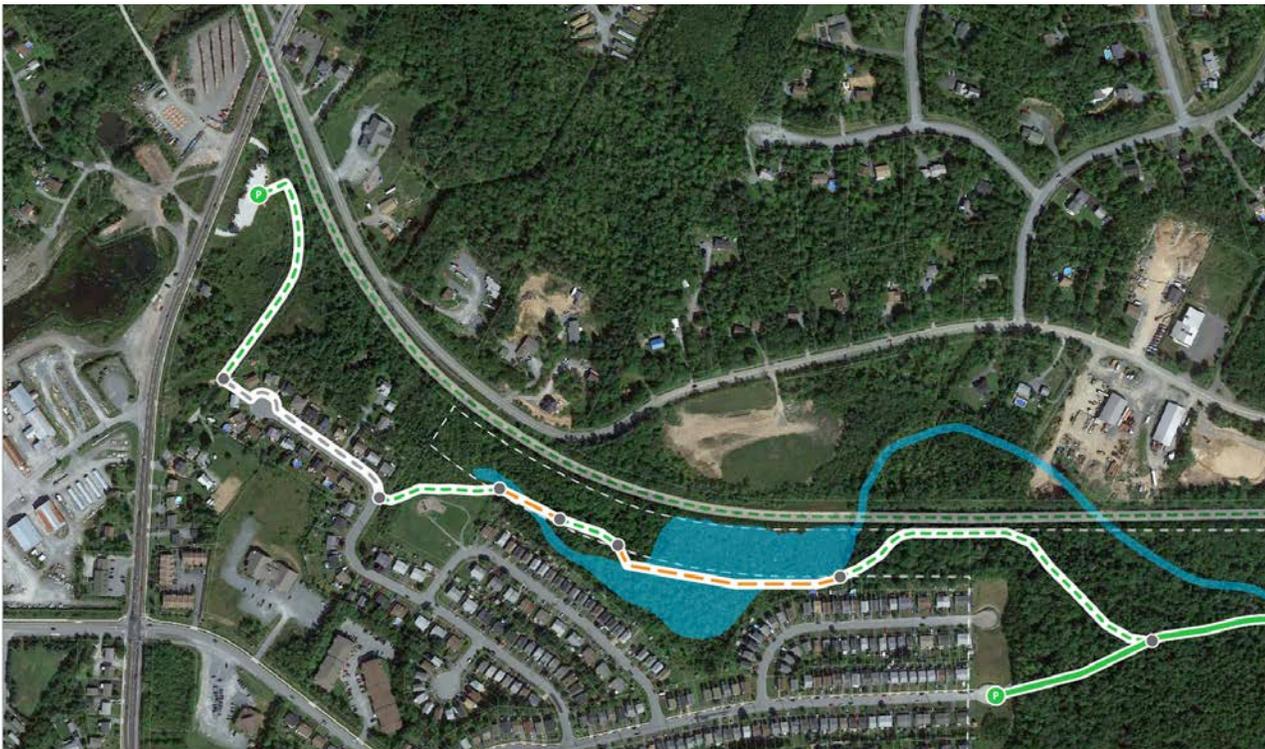
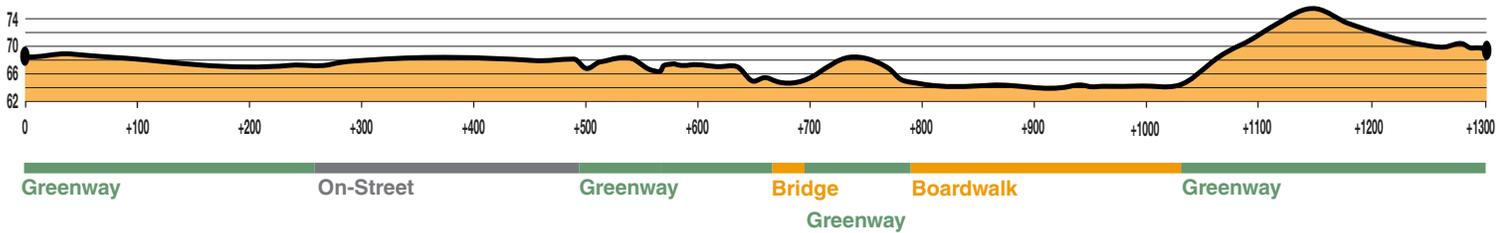
In total, this trail option is approximately 1,100 metres long and provides a direct and easy connection between Beaver Bank Road and the Canopy Creek Trail.



Boardwalk Option 2

Another option to accomplish a trail connection is to develop a route over a combination of parkland, local streets, and privately owned land. This trail extension would intersect the Canopy Creek trail at around the 70 metre contour line. From here a new 270 metre multi-use trail would be built that ascends to the 74 metre contour and runs parallel to the rail corridor before descending down a hill toward a wetland. This wetland, where it is on DNR land, cannot be altered due to provincial regulations. As a result, a 250 metre long, 3 metre wide boardwalk would need to be built over the wetland over privately owned land to the south. This solution is only possible if the current landowner provides a conservation easement to the Sackville Lakes Park and Trails Association (or the Department of Natural Resources) or the land is purchased. The boardwalk converts into a short 100 metre greenway at a small raised portion of land on DNR land. Another 15-25 metre bridge or boardwalk would be required again to cross a wetland.

From here, the trail converts back again to a greenway and ascends the side of a hill and loops around an existing playground. The trail then overlaps with a local cul-de-sac (Haddad Drive). The street does not currently have sidewalks, so trail users would be required to travel within the street. In order to prevent confusion among trail users, directional signage would be required in several locations, particularly where the trail overlaps with Haddad Drive. The trail overlaps with Haddad Drive for 225 metres, and terminates at the end of an existing walkway at the end of the cul-de-sac. From here, the trail converts into a greenway again for another 260 metres, connecting trail users to a future entrance node.



Evaluation

The table below summarizes the positive and negative characteristics of each option identified.

Option 1: Railbed

Pros

- Direct and logical connection
- Shorter connection
- Much cheaper to build
- Easier to maintain
- More accessible (flat) grades
- Would potentially overlap with a regional trail

Cons

- Dependant on private rail owner and ongoing negotiations
- Timing is uncertain

Option 2: Boardwalk

Pros

- Features a boardwalk experience
- Provides a guaranteed non-motorized route for trail users

Cons

- Very indirect and confusing route
- Longer than Option 1
- Much more expensive than Option 1
- Timing is uncertain
- High ongoing maintenance cost with boardwalk and signage
- Alignment features steeper grades that may need staircases in areas
- Trail becomes redundant if the rail corridor converts to a regional trail
- Would require building on private land, which would need to be acquired or leased
- Proposed route would rely on local streets to make the connection, which is not desirable by both trail users or nearby homeowners
- Would not be considered an HRM active transportation corridor due to the indirect route and lack of sidewalks on Haddad Drive

Preferred Option

After consultation with both the Sackville Lakes Park and Trails Association and stakeholders at HRM and DNR, it was unanimous that Option 1 is clearly the preferred option. Both options are constrained by external factors related to the timing of constructing the trail, however, Option 2 is more expensive, less direct and requires more ongoing maintenance in the future. Furthermore, because the route would not be eligible to be classified as an HRM active transportation corridor, it also would not be eligible for HRTA/HRM funding support (however, other options may be available).

The railbed option is affordable and aligns with long term regional active transportation goals. HRM has been recently directed by Council to work with neighbouring municipalities to both monitor the changes in ownership and operation of the rail corridor and send a letter to CN and the Canadian Transportation Agency that expressed HRM's interest in acquiring the land. The timing of this process is uncertain. CN and the current lease holder are currently in negotiations to determine the value of the land and whether the lease holder has an intention to use the corridor as an active rail line. At the time of this report, it is likely that the current lease holder will be successful in maintaining a lease of the rail corridor. The SLPTA should monitor this situation closely and inquire with local stakeholders and elected officials about this situation to ensure that the proper use of the railbed occurs in the future. The key concern is that the current lease holder is using their lease status with CN as a means to make profit off of trail building and subleasing segments to municipalities and trail groups, rather than running a sustainable train services.

In the meantime, if the SLPTA determines that the current rail lease holder has honest and concrete plans to use the corridor for rail purposes, it should then approach HRM about the possibility of leasing the portion of land (900 metres) required to complete the desired connection.

Cost Estimates

The following Class D costs estimates will be similar regardless of whether the land is acquired or leased for the construction of a trail. This is because the Rails Under Trails option is very similar in terms of labour cost to the Rails To Trails option. The major difference is that the Lease Scenario will have an annual lease payment of \$2,250 per km (current proposed lease arrangement as of 2018).

Trail Construction Cost

| Trail Type | Length | Cost/m | Total Cost |
|--------------------------------------|--------|--------|------------------|
| Greenway Trail (gravel) | 90 | \$120 | \$10,800 |
| Rails Under Trails / Rails to Trails | 900 | \$100 | \$90,000 |
| Greenway Trail (asphalt) | 100 | \$150 | \$15,000 |
| Sub Total | 1090 | | \$115,800 |
| Contingency (10%) | | | \$11,580 |
| Total | | | \$127,380 |

* Add \$2,250 per km, per year for Lease Scenario.

2 Entrance Node



Entrance Node Site Options

The location criteria for a new entrance node are as follows:

- 1) Must front on Beaver Bank Road
- 2) Must be within reasonable distance to the trail extension
- 3) Must be large enough to accommodate a 30 car parking lot
- 4) Must be located on publicly owned land

Based on these criteria, there is one piece of land that stands out as an obvious choice. PID 40443285 is a lot owned by NS Transportation and Public Works near the intersection of Beaver Bank Road and Windgate Drive. It features 160 metres of frontage on Beaver Bank Road and is over 5,000 m² in size. The lot is bordered

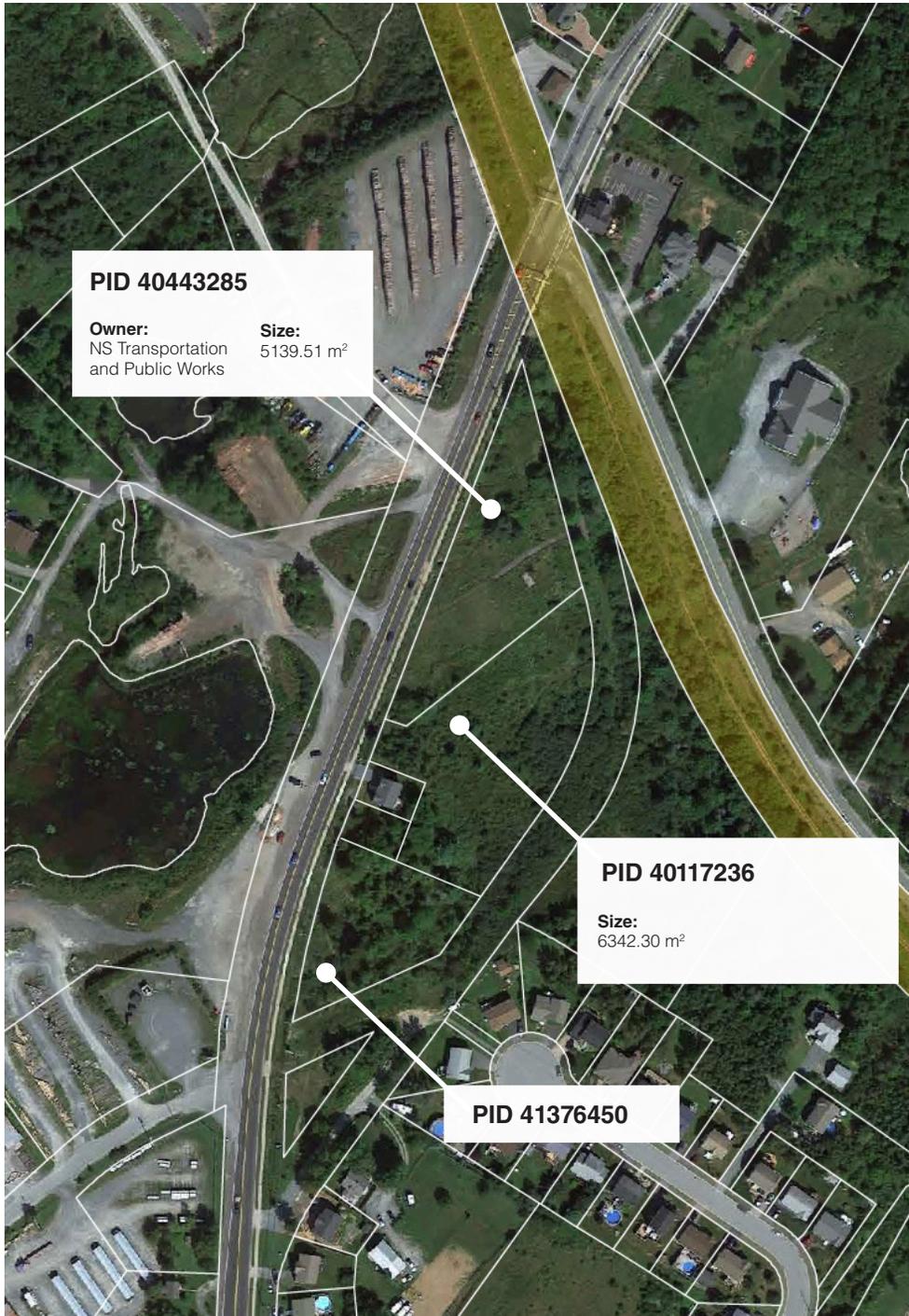
by the Beaver Bank Road right-of-way to the west, and another inactive right-of-way to the east. It is flanked by a privately owned lot to the south. The lot is currently vacant, featuring remnants of an old right-of-way. Some concrete pads and a small wall are found on the site. Some attractive large trees are located on the lot.

This location is also ideal in that it will provide a node to service other planned trails in the area, including the Sackville Greenway that will extend up the Little Sackville River to the Feely Lake greenspace, and future trails extending north on the railbed.

The lot would need permission or an easement from NS Transportation and Infrastructure Renewal prior to any construction.

Alternative Option

If, for some reason, the preferred lot is unavailable, the privately owned to the south could be considered (PID 40117236). This land would need to be purchased and acquired from the current landowner. The cost of this lot is unknown, however, another nearby lot (PID 41376450) that is slightly smaller and was owned by same landowner was recently sold for \$275,000 in 2015 and will be used for a pharmacy soon.





Site Photographs (October 2017)

Entrance Node Concept Design

The preferred lot on Beaver Bank Road is the ideal parcel for an entrance node. It is relatively flat, features a long piece of frontage on Beaver Bank Road, and most of the lot has been recently cleared of large vegetation.

Vehicular Access + Parking

The site can easily accommodate a two-bay parking stall that can host up to 40 vehicles at a time. The parking lot can be accessed at either end with two short access points connecting to Beaver Bank Road. Each access point will feature a Park Entrance sign, which will improve the sense of arrival for visitors and also help increase exposure to the park to motorists passing by on Beaver Bank Road. The parking lot is laid out in two bays to help keep the space well organized. Given the urban context of the entrance node, the surface will be asphalt to eliminate gravel spillage onto Beaver Bank Road and keep noise and dust down.

Pedestrian Access

A pedestrian access point is provided to offer access for those who will walk or bike to the Park. A concrete pathway connects perpendicular to the existing sidewalk and offers a dedicated route into the entrance node and trail system. The pathway intersects the two parking bays via a crosswalk and continues into the welcome area and greater trail system.

Welcome Area

After visitors have arrived, they will enter into a welcome area. The welcome area includes a four-legged kiosk that will host information about the Park, a map of the trail network, and any other important information or community notices. The welcome area will include a waste and recycling bin to ensure that trail users can dispose of their waste, and can be easily emptied.

Picnic Area

A small picnic area is provided where visitors can stop, relax and perhaps eat a meal before or after their visit. The area will be a mowed lawn with three picnic tables. The open grass areas will be able to be used for passive outdoor activities, such as throwing a frisbee, playing bocce, kicking a ball around, etc. Providing a space like this at what will be a popular entrance node will help encourage even more physical activity in the Park.

Public Washroom

An accessible (barrier-free) vault toilet facility will be provided at the end of the parking lot. It's location at the end of the parking lot will help limit smells in areas where people will congregate, and will also be easy to empty.

Landscaping

A handful of landscaping beds will be provided throughout the site to improve the aesthetic quality of the entrance node, and to help manage circulation in the parking lot. Large boulders (rather than bollards or fences) will be used to ensure vehicles stay on the asphalt and not in the picnic area. Tall grasses, perennials and low-lying evergreen shrubs will be used elsewhere.

Trail Approach

A 3.0 metre wide asphalt trail begins at the welcome area and extends toward the rail trail. From here, a ramp will be built at a 5% maximum slope to provide an access route southbound onto the rail trail toward the greater Park. When a regional trail is built along the rail trail that extends north toward the Sackville Greenway and Feely Lake, another ramp should be provided that heads northbound and a staircase that provides a direct connection up onto the railbed.



Windgate Drive

Proposed Trail

Future wooden steps

Future accessible connecting trail (5% grade)

Washroom

Accessible connecting trail (5% grade)

Trail

Trail

Trail

Welcome Area Kiosk

Asphalt car park for 40 cars

Crosswalk

Entry signage

Entry signage

Pedestrian entrance

Bioswale with native perennials, grasses, and low native shrubs, boulders and rocks to receive and infiltrate run off

Beaver Bank Road



Cost Estimate

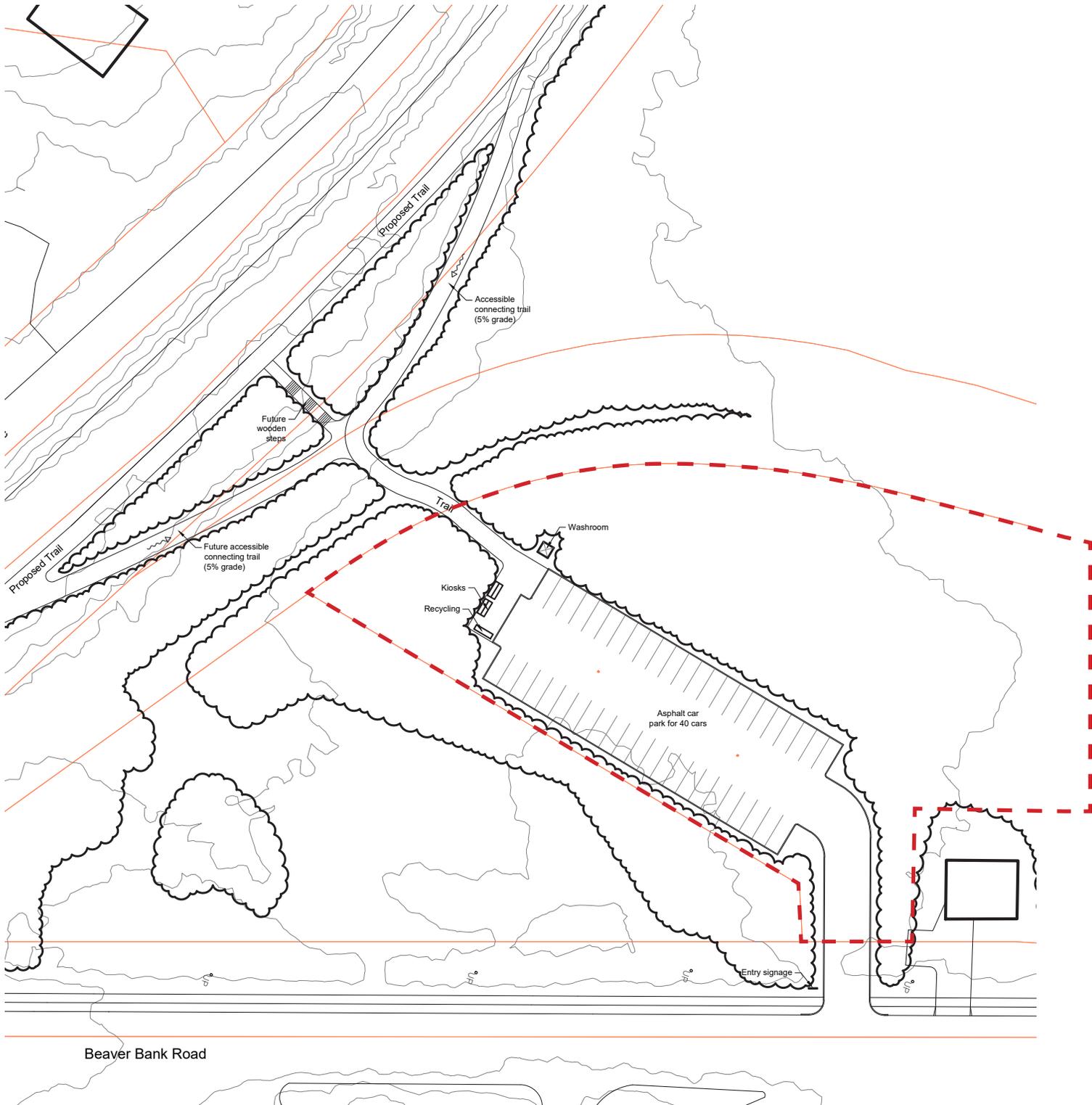
The following Class D costs estimates are based on the preferred conceptual site plan and is for initial budgetary discussions only. These opinions of probable costs are presented on the basis of experience, qualifications and best judgment. Market trend changes, unknown environmental hazards, non-competitive bidding situations, unforeseen labour and material adjustments may have an impact on final costing. All values are provided in 2018 dollars. HST is not included.

Entrance Node Cost Estimate

| Trail Type | Qty | Cost | Total Cost |
|--|---------|---------|---------------------|
| Tree/vegetation removal and site grading | 1 | 3000 | \$3,000 |
| Asphalt parking lot | 1670 SM | 48 | \$80,160 |
| Concrete curb | 295 LM | 75 | \$22,125 |
| Asphalt Trail | 190 LM | 120 | \$22,800 |
| Welcome kiosk w/ maps | 1 | 20000 | \$20,000 |
| Benches, bins and picnic tables | 7 | 1500 | \$10,500 |
| Barrier-free Washroom | 1 | 10000 | \$10,000 |
| Entrance Signs | 2 | 2500 | \$5,000 |
| Traffic Signs, installed | 4 | 500 | \$2,000 |
| Trees (60mm dbh) | 6 | 525 | \$3,150 |
| Hydroseed + 150mm topsoil (picnic area) | 550 SM | 7 | \$3,850 |
| Sod repair where disturbed | 1 | \$1,000 | \$1,000 |
| Culverts and bioswale | 1 | 10,000 | \$10,000 |
| Sub Total | 1090 | 100 | \$193,585.00 |
| Contingency and Design (15%) | | | \$29,037.75 |
| Total | | | \$222,622.75 |

Alternative Option

If the preferred lot is unavailable, another option is to build an entrance node on the neighbouring lot, which may come at a higher cost due to the necessity of having to purchase the lot. The proposed design includes many of the same elements as the preferred concept design, however, the parking lot is oriented at an angle to fit better on the lot and only one access point on Beaver Bank Road is possible. This option would also require permission via easement or acquisition to build the trail connection over another small piece of land that is also owned privately.





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