

# About the Study

The E&N Rail Corridor is a key multi-modal transportation corridor. The City of Nanaimo's long term goals include the construction of a multi-use trail along the corridor for the full length of the City, supporting the vision of a complete Vancouver Island trail corridor. To date, 8 km of the E&N Trail has been built between Caledonia Street and Mostar Road, connecting downtown and the north end of the City.

To continue this connection south, the City is studying alignments for the Downtown South section between Franklyn and Seventh Streets – a section just under 2 km in length.

The outcome of this study will be a recommended alignment based on technical analysis and public input.





# **Study Process**



# The Nanaimo Region Rail Trail Partnership



The NRRT is a partnership of various community groups interested in moving the E&N Trail forward. Presently, the Partnership is comprised of the Downtown Business Improvement Association (DNBIA), Tourism Nanaimo, Regional District of Nanaimo, The City of Nanaimo, Greater Nanaimo Cycling Coalition (GNCC), and the Island Corridor Foundation (ICF).

The NRRT is a key contributor to the Downtown South Alignment & Costing Study. Visit: www.nanaimoregionrailtrail.ca



# 2 The Route

# **Overview Map**



# Overview

The downtown south section begins at the existing E&N Trail that was recently developed between Fitzwilliam and Franklyn. From Franklyn the route travels south running diagonally through the road network crossing Prideaux, Albert, Milton, Hecate and Kennedy Streets.

After Hecate physical barriers create more separation between the corridor and adjacent land uses and at Pine the Corridor widens from 50' to 100'.

After crossing Fifth, the corridor runs parallel to Railway Avenue, with no road crossings for 1 km until it reaches Seventh. The recently completed Bing Kee Trail provides a mid-way pedestrian crossing over the tracks.

# Why this Section?

A long-term goal is completion of the E&N Trail through Nanaimo. This section was identified as the next priority because:



» The Downtown has higher levels of walking and cycling relative to other neighbourhoods within the City; more than 33% of Downtown residents do not use a car to travel to/from work compared with 15% for the City overall.

» The circuitous street network results in pedestrians and cyclists using the existing rail corridor.

» Multiple plans, including the South End and Harewood Neighbourhood Plans, have identified this link as a priority.

» The NRRT has identified, as their top priority, the development of this section.

# Have you used the E&N Corridor between Fifth & Seventh?

Tell us your likes and concerns about the route. Do you see a comment you agree with up already? Add a dot to it.





# 3 The Challenges of the Corridor

# Key Challenges

The downtown south section of the E&N is complicated. Urban development, short road blocks, multiple crossings and existing buildings, utilities and vegetation all require consideration for planning a trail within the active rail corridor.

Three challenges require particular consideration when planning for this section of E&N Trail.





Number of Grade Crossings Grade crossings account for 45% to 65% of the overall trail development costs in this section (see the following poster for more information about grade crossings)

# Where are the Key Challenges?







# 50' **15m**

# **Corridor Width**

Typical rail corridors are 100' wide. Between Franklyn and Pine, the corridor is only 50' wide. Fitting a trail within the narrow corridor is a challenge



# **E&N TRAIL | Downtown South Alignment & Costing Study**



# **Challenging Grades**

While the rail tracks are flat, in places there are steep side slopes that will require grading or retaining in order to fit a trail

# **Regulations & Grade Crossings**

# Safety Regulations for Rail Trails

Because the E&N is an active railway there are a number of regulations that must be followed. The following diagrams illustrate key current regulations that affect alignment and costing for the trail.

# How Railway Safety is Regulated

Provincially-Regulated Railways such as the E&N are guided by BC's Railway Safety Act

> Railway Safety Act (British Columbia, Apr. 1, 2004)

BC's Railway Safety Act adopts the regulations, rules and standards of the federal Railway Safety Act

**Railway Safety Act** (Federal)

The Island Corridor Foundation, owner of the E&N, follows current federal safety regulations for development of trails on the corridor

New trail development requires approval by the corridor owner (ICF\*), rail operator (SVI) and trail owner (CoN)

> \* ICF = Island Corridor Foundation (corridor owner) SVI = Southern Rail Vancouver Island (rail operator) CoN = City of Nanaimo (trail owner)

Grade Crossing Regulations (Nov. 27, 2014)

The new mandatory Grade Crossing Regulations replace the 2002 RTD 10 Standards and form part of the federal Railway Safety Act



# What is a Grade Crossing?

A grade crossing is where a road crosses railroad tracks at the same level (ie. one is not elevated over the other). Most railway crossings on Vancouver Island, including the 7 in the study area, are grade crossings.

# What are the challenges with grade crossings?



# To improve the safety for scenarios like these, signals + gates at grade crossings are required. How do crossings with signals + gates work?



**E&N TRAIL** | Downtown South Alignment & Costing Study

**Sight Lines:** Vehicle drivers at a grade crossing must be able to see a train approaching on the tracks.

In this scenario, by adding a crosswalk for the trail, the blue car must now stop further from the rail crossing, making it more difficult to see an approaching train.

### Vehicles cannot stop on the tracks.

In this scenario, if the bus starts crossing, but must stop for people in the crosswalk, it is in an unsafe position – stuck on the tracks until the pedestrians have crossed.

As a train nears the grade crossing, a pedestrian crossing signals trail users to stop from proceeding into the crosswalk. This allows vehicles to clear out of the crossing, avoiding a vehicle being stuck on the tracks.

The gate lowers and signals flash to stop vehicles before the train arrives. In order for the signal timing to work, new sensors must be installed up the tracks. Costs to install this railway infrastructure can be \$500,000 to \$1,000,00+ per grade crossing. 5 The Route Alternatives

# Why Consider Route Alternatives?

The City is looking at alternatives to identify a route that balances cost, experience, safety and function. Because the E&N is an active rail corridor, safety requirements at grade crossings must be met. Estimated costs to meet these standards account for 50% to 65% of the overall trail costs. Alternatives are considered to reduce these costs.

# **Alternatives Overview**

Two alternative routes have been developed for evaluation:

- » **Route A: On-Corridor** follows the corridor as closely as possible. Most of this route is on the west side of the track and has more grade crossings and associated costs.
- » Route B: On/Off-Corridor includes a combination of on and offcorridor sections to reduce costs by avoiding some grade crossings. Most of this route is on the east side of the track.

The Section Summaries and large overview maps provide details about the alternatives. We invite you to review them and provide your comments.





# How Will Alternative be Evaluated?

While costs are important, the E&N Rail Trail needs to be functional and appealing to users if it is going to be a success. Below are criteria that are used to evaluate the alternatives.



Do you have other suggestions for evaluation criteria? Write them on a sticky note and post them below.





Albert to



# SECTION 1: FRANKLYN TO ALBERT

Section 1: Franklyn to Albert

Section 2: Section 3: Kennedy/Hecate Kennedy/Hecate to Fifth

Section 4: Fifth to Seventh



Length = 340m

ROW\* Width = 15m(50')

# of Grade Crossings: » Option A = 1 to 3 » Option B = 0

Estimated Cost: (see the Evaluation Criteria below for more details) » Option A Trail = \$760,000 Option A Crossings = \$820,000 - \$2.90M » Option B Trail = \$520,000 Option B Crossings = \$0





w from lane near Alb



# **OPTIONS NARRATIVE**

\* ROW = Right of Way

This section will extend the existing E&N Trail at Franklyn Street to Albert Street.

**Option A** is 3.0 m multi-use trail on the west side of the rail tracks, within the rail ROW. The route includes a grade crossing at Franklyn, then crosses Prideaux 30 m from the tracks, potentially avoiding the need for signals + gates at this location. Near Albert the corridor becomes too narrow to fit the trail, so the trail joins with an existing lane for a short period. At Albert, a grade crossing with signals + gates would be required.

**Option B** is a 2.4 m to 3.0 m multi-use trail that follows the street grid crossing at the corner of Franklyn and Prideaux. The trail then follows Prideaux to Albert. A pedestrian/cyclist grade crossing mid-block is required over the tracks at mid-block.

Both options would require mid-block closure of the existing lane to Prideaux to avoid full signals + gates at the Prideaux crossing. Lane access/egress would be at Franklyn.



Tell us what you know about this section of trail or your questions or concerns about this route. Write your



comment on a sticky note and add it to the plans or Add your comment... in the space below.

# **EVALUATION OVERVIEW**

The table below summarizes strengths and challenges of each option based on technical review.

| Evaluation Criteria   | Option A   | Option B   |
|---|--|--|
| Cost Estimate - Trail   | \$760,000  | \$520,000  |
| Cost Estimate - Grade Crossings<br>* There is potential to avoid a grade crossing at Prideaux by moving<br>the crossing 30 m from the tracks. This potential would be confirmed<br>at the detailed design stage.<br>** The grade crossing at Albert could be built with Section 1 or 2,<br>depending on which is built first. | \$820,000 - Franklyn (required)  |  |
|   | \$1.14 M - Prideaux*   | \$0  |
|   | \$940,000 - Albert**   |  |
| Pedestrian Experience   | Good - flat grades, direct route   | Moderate - mostly flat grades, departure from corridor |
| Cyclist Experience  | Good - flat grades, direct route   | Moderate - mostly flat grades, requires 90°<br>turns   |
| Vehicle Impacts   | Moderate - multiple crosswalks   |  |
| Railway Impacts   | Minimal  | Moderate - new mid-block pedestrian crossing           |
| CPTED (Crime Prevention Through Environmental Design)   | Good - passive surveillance, well lit                                      |  |
| Infrastructure Requirements<br>(retaining, drainage, utilities)<br>CB = Catch basin   | Good - no retaining needed; relocation of a few CBs                        | Good - no retaining needed; relocation of a few CBs    |
| Environmental Impacts   | Good - Minimal tree impacts  |  |
| Compatibility with Neighbouring Land<br>Use   | Poor - narrow rail corridor means close<br>proximity to private properties | Moderate - existing road corridor is tight in places   |

## PUBLIC OPINION

Combined with technical analysis, public input will help identify the recommended route. Which option do you believe is the better route for this section? Use a dot to mark your preference.

| Option A | Option B | Either Option |
|----------|----------|---------------|
|          |          |               |
|          |          |               |





# SECTION 2: ALBERT TO KENNEDY/HECATE

Section 1: Franklyn to Albert

Section 2:Section 3:Albert toKennedy/HecateKennedy/Hecateto Fifth

Section 4: Fifth to Seventh



### Length = 280m

ROW Width = 15m(50')

Estimated Cost: (see the Evaluation Criteria below for more details)
» Option A Trail = \$570,000 Option A Crossings = \$0 - \$3.49M
» Option B Trail = \$670,000 Option B Crossings = \$0 - \$1.24M







Pedestrian crosswalk with flashers over Milton - min. 30m from grade crossing (potential to avoid gates + signals)



# **OPTIONS NARRATIVE**

\* ROW = Right of Way

to simplify

(re-opened

at Victoria)

grade

crossing

This section includes three potential grade crossings at Albert, Milton and Hecate/Kennedy.

**Option A** is 3.0 m multi-use trail that follows the west side of the tracks. It includes a grade crossing with signals + gates at Albert. A large existing tree and steep slopes at the Superette Grocery parking lot will be challenges. The trail crosses Milton at a pedestrian crossing with flashers set 30 m from the tracks, potentially avoiding the need for signals + gates. The trail then follows the street for a short distance before rejoining the corridor to Hecate/Kennedy where there is a complicated diagonal grade crossing requiring signals + gates.

**Option B** is a 2.4 m to 3.0 m multi-use trail that starts at a pedestrian crosswalk with flashers at the comer of Albert and Prideaux. From Prideaux, there is a steep climb up to the rail corridor that connects to Milton. At Milton there are two options. The first is continuation of a multi-use trail to Hecate that would replace the existing on-street parking on the east side of Milton. At Hecate, the trail turns and carries on to the Hecate/Kennedy intersection. The second option is a mid-block pedestrian crosswalk with flashers over Milton and a trail along the corridor through the future development site to Hecate/Kennedy.

Both options consider closure of Kennedy Street at Hecate (and reopening of Kennedy at Victoria) to reduce the complications and potential costs of the

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12.5m 25m



### Hecate/Kennedy grade crossing.

Tell us what you know about this section of trail or your questions or concerns about this route. Write your comment on a sticky note and add it to the plans or in the space below.

# EVALUATION OVERVIEW

50m

The table below summarizes strengths and challenges of each option based on technical review.

| Evaluation Criteria  | Option A   | Option B   |
|--|--|--|
| Cost Estimate - Trail  | \$570,000  | \$670,000  |
| Cost Estimate - Grade Crossings<br>* The grade crossing at Albert could be built with Section 1 or 2,<br>depending on which is built first                                   | \$940,000 - Albert*  |  |
| ** There is potential to avoid a grade crossing at Milton by moving<br>the crossing 30 m from the tracks. This potential would be confirmed<br>at the detailed design stage. | \$1.41 M - Milton**  | \$1.24 M - Hecate/Kennedy***   |
| *** The grade crossing at Hecate/Kennedy could be built with Section 2 or 3, depending on which is built first.  | \$1.14 M - Hecate/Kennedy***   |  |
| Pedestrian Experience  | Good - flat grades, direct route   | Moderate - hill at Albert, departure from corridor   |
| Cyclist Experience   | Good - flat grades, direct route   | Moderate - hill at Albert, requires 90° turns  |
| Vehicle Impacts  | Moderate - signalized pedestrian crossings<br>at Albert and Milton   | Significant - signalized pedestrian crossings<br>at Albert and Milton; potential removal of<br>on-street parking on one-side of Milton and<br>Hecate |
| Railway Impacts  | Minimal  |  |
| Infrastructure Requirements<br>(retaining, drainage, utilities)<br>CB = Catch basin  | Poor - retaining likely required near Albert<br>and Kennedy; changes to curb line and<br>relocation of CBs on Milton | Moderate - changes to curb line and relocation of a CBs on Milton and Hecate   |
| CPTED (Crime Prevention Through Environmental Design)  | Good - good sightlines, passive surve  | illance (if development occurs), well lit  |
| Environmental Impacts  | Moderate - potential tree removals due to grades near Albert and Kennedy   | Good - minimal impacts to existing vegetation  |
| Compatibility with<br>Neighbouring Land Use  | Moderate - narrow rail corridor means close proximity to private properties  | Moderate - existing road corridor and<br>narrow rail corridor means close proximity to<br>private properties   |

Strength

Neutral/Moderate

Challenge

# PUBLIC OPINION

Combined with technical analysis, public input will help identify the recommended route. Which option do you believe is the better route for this section? Use a dot to mark your preference.



Albert to



# SECTION 3: KENNEDY/HECATE TO FIFTH

Section 2: Section 1: Franklyn to Albert Kennedy/Hecate

Section 3: Kennedy/Hecate to Fifth

Section 4: Fifth to Seventh



### Length = 335m

ROW Width: » 15 m (50') Kennedy to Pine

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» 30 m (100') Pine to Fifth

# of Grade Crossings: » Option A = 0 to 2 » Option B = 0 to 2

Estimated Cost: (see the Evaluation Criteria below for more details) » Option A Trail = \$650,000 Option A Crossings = \$0 - \$2.23M» Option B Trail = \$700,000 Option B Crossings = \$0 - \$2.32M







## **OPTIONS NARRATIVE**

\* ROW = Right of Way

Both options for this section are within the rail corridor and face similar challenges including CPTED (ie. low visibility, limited ambient light), steeper slide slopes and existing drainage ditches that would need to be converted to underground pipes if a trail is added in the corridor. The options in this section have similar costs and would likely require gates + signals at the grade crossings at Hecate/ Kennedy and at Fifth.

**Option A** is 3.0 m to 4.0 m multi-use trail located on the west side of the tracks, following an existing desire line. Steep existing side slopes will likely require retaining (near the Boys and Girls Club). Existing vegetation includes bramble and blackberries, so no significant vegetation removal is required.

**Option B** is a 3.0 m to 4.0 m multi-use trail located on the east side of the tracks. This route has steep side slopes near Hecate and again near Fifth that could require retaining. Near Hecate, there are existing trees that would be affected by trail development.



Potential closure of Kennedy at Hecate to simplify grade crossing (re-opened at Victoria)

Existing trees potentially

Tell us what you know about this section of trail or your questions or concerns about this route. Write your



pédestriar

connection to

### comment on a sticky note and add it to the plans or Add your comment... in the space below.

# 0m 12.5m 25m

### **EVALUATION OVERVIEW**

The table below summarizes strengths and challenges of each option based on technical review.

| Evaluation Criteria  | Option A   | Option B   |
|--|--|--|
| Cost Estimate - Trail  | \$650,000  | \$700,000  |
| Cost Estimate - Grade Crossings<br>* The grade crossing at Hecate/Kennedy could be built with Section 2<br>or 3. depending on which is built first | \$1.14 M - Hecate/Kennedy*   | \$1.24 M - Hecate/Kennedy*                           |
| ** The grade crossing at Fifth could be built with Section 3 or 4,<br>depending on which is built first.   | \$1.09 M - Fifth**   | \$1.08 M - Fifth**                                   |
| Pedestrian Experience  | Good - flat grades, direct route   |  |
| Cyclist Experience   | Good - flat grades, direct route   |  |
| Vehicle Impacts  | Moderate - signalized pedestrian crossing at Fifth   |  |
| Railway Impacts  | Minimal  |  |
| <b>CPTED</b> (Crime Prevention Through Environmental Design)   | Poor - limited passive surveillance and ambient light, isolated, high adjacent banks limit potential "escape" routes |  |
| Infrastructure Requirements<br>(retaining, drainage, utilities)  | Poor - retaining needed; underground drainage infrastructure needed  |  |
| Environmental Impacts  | Good - minimal tree impacts  | Moderate - some tree removal required near<br>Hecate |
| Compatibility with<br>Neighbouring Land Use  | Moderate - close proximity to some adjacent residential  | Good - little to no impact on adjacent land uses     |

# PUBLIC OPINION

Combined with technical analysis, public input will help identify the recommended route. Which option do you believe is the better route for this section? Use a dot to mark your preference.

| Option A | Option B | Either Option |
|----------|----------|---------------|
|          |          |               |
|          |          |               |
|          |          |               |

Strength

Neutral/Moderate Challenge

Albert to



# SECTION 3: FIFTH TO SEVENTH

Section 1: Franklyn to Albert

Section 2: Section 3: Kennedy/Hecate Kennedy/Hecate to Fifth

Section 4: Fifth to Seventh



Length = 950m ROW Width: 30m (100')

# of Grade Crossings: » Option A = 0 to 2 » Option B = 0 to 2

Estimated Cost: (see the Evaluation Criteria below for more details) » Option A Trail = \$1.68 M Option A Crossings = \$0 - \$1.91M» Option B Trail = \$750,000 - \$1.56M Option B Crossings = \$0 - \$1.90M









### **OPTIONS NARRATIVE**

Between Fifth and Seventh there is a 1 km stretch of corridor without crossings. The Bing Kee pedestrian crossing is midway through this section. For both options grade crossings with signals + gates would be required at Fifth and Seventh.

**Option A** is 3.0 m to 4.0 m multi-use trail located on the west side of the tracks. Because the corridor is 100' there is opportunity to locate the trail to manage grades, vegetation and drainage. The low point between Bing Kee and Seventh would need to be addressed.

**Option B** has two options. The first option follows the tracks to Columbia where it joins the street as a bicycle boulevard with speed humps and a traffic circle. At the end of Columbia, trail users are directed down a City ROW to View before traversing ICF land to connect back with the corridor at Seventh.

The second option is a 3.0 m to 4.0 m multi-use trail located on the east side of the tracks. Layout, vegetation and grading issues would be similar to those described in Option A.

### Tell us what you know about this section of trail or your questions or concerns about this route. Write your comment on a sticky note and add it to the plans or Add your comment. in the space below.

## **EVALUATION OVERVIEW**

The table below summarizes strengths and challenges of each option based on technical review.

| Evaluation Criteria  | Option A   | Option B   |
|--|--|--|
| Cost Estimate - Trail  | \$1.68 M   | <ul><li>\$750,000 - Columbia Bicycle Boulevard (solid line)</li><li>\$1.56 M - On Rail (dashed line)</li></ul> |
| Cost Estimate - Grade Crossings<br>* The grade crossing at Fifth could be built with Section 3 or 4,<br>depending on which is built first.                       | \$1.09 M - Fifth*  | \$1.08 M - Fifth*  |
| ** Confirmation of the need to built the grade crossing at<br>Seventh with this section or with future trail extension would be<br>confirmed at detailed design. | \$820,000 - Seventh**  | \$820,000 - Seventh**  |
| Pedestrian Experience  | Good - manageable grades, direct<br>route; low point between Bing Kee<br>and Seventh                                     | Moderate (solid line) - manageable grades, direct route;<br>pathway on Columbia Street                         |
|  |  | Good (dashed line) - manageable grades, direct route; low point between Bing Kee and Seventh                   |
| Cyclist Experience   | Good – flat grades, direct route; low<br>point between Bing Kee and Seventh  | Moderate (solid line) - direct route; some grade challenges<br>between Columbia and View; uses street network  |
|  |  | Moderate (dashed line) - direct route; ravine between<br>Bing Kee and Seventh                                  |
| Vehicle Impacts  | Good - minimal traffic impacts   | Moderate (solid line) - traffic calming introduced on<br>Columbia if bicycle boulevard is developed            |
|  |  | Good (dashed line) - minimal traffic impacts   |
| Railway Impacts  | Minimal  |  |
| <b>CPTED</b> (Crime Prevention Through Environmental Design)   | Poor - limited passive surveillance and<br>ambient light, isolated, swales and<br>fences limit potential "escape" routes | Good (solid line) - passive surveillance and street lighting   |
|  |  | Poor (dashed line) - limited passive surveillance and ambient light  |
| Infrastructure Requirements<br>(retaining, drainage, utilities)  | Moderate - drainage swales and culverts required; grade improvements in ravine between Bing<br>Kee and Seventh           |  |
| Environmental Impacts  | Moderate - some trees likely affected<br>by grading at low point and sight<br>lines                                      | Good (solid line) - minimal tree impacts   |
|  |  | Moderate (dashed line) - some trees likely affected by grading at ravine and sight lines                       |
| Compatibility with<br>Neighbouring Land Use  | Good - little impact on adjacent land uses   | Moderate (solid line) - traffic calming introduced<br>Good (dashed line) - little impact on adjacent land uses |

Strength

Neutral/Moderate

Challenge

# PUBLIC OPINION

Combined with technical analysis, public input will help identify the recommended route. Which option do you believe is the better route for this section? Use a dot to mark your preference.



# 10 Priorities & Next Steps

# Which Section Do You Think is a Priority?

Imagine that you are in charge of deciding how to allocate funding for the development of the E&N Trail Downtown South. You have only three sustain-a-bucks (tokens) to spend, but four sections of trail to consider. How would you spend your funds?

Place your tokens in the bins for the segments that you believe should be the highest priority. You can place all of them in one bin or one in each – it's up to you!



# Section 1: Franklyn to Albert



Section 2: Albert to Kennedy/ Hecate



Section 3: Kennedy/Hecate to Fifth







Section 4:



# What's Next?

Thank you for taking the time to participate in planning for the E&N Trail. Your feedback will contribute to the development of a recommended route for the E&N Trail Downtown South Alignment. A recommendation will be presented for Council consideration in July.

Please take a moment to complete a questionnaire and encourage others in your community to do the same. Questionnaires will be available online until June 19<sup>th</sup> at:



www.nanaimo.ca/ goto/enrailtrail

