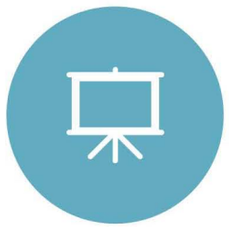
Biehn Drive Extension and Sanitary Trunk Sewer Extension

PUBLIC INFORMATION CENTRE PRESENTATION

NOVEMBER 17, 2021

BT ENGINEERING

Meeting Overview



Project Introduction

Background Information

Preliminary Design Alternatives

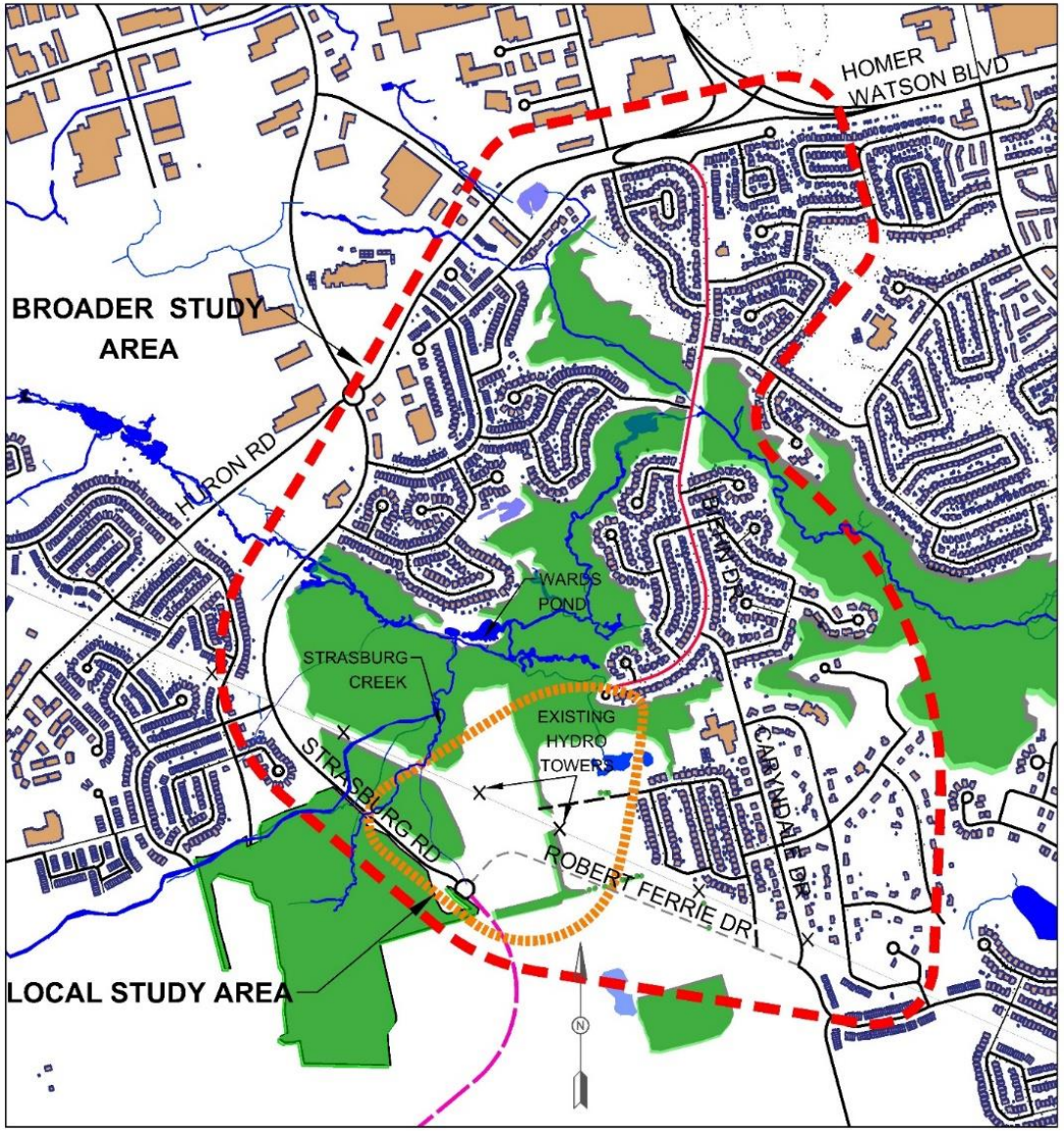
Next Steps

Questions and Answers

Project Introduction

Project Introduction

- This Study is being undertaken as a Schedule C Municipal Class Environmental Assessment for the extension of Biehn Drive from its current terminus to the future Robert Ferrie Drive Extension
- The Study includes the extension of the trunk sanitary sewer, watermain and storm sewers



Legend

Local Study Area

Broader Study Area
Based on comments from PIC No. 1

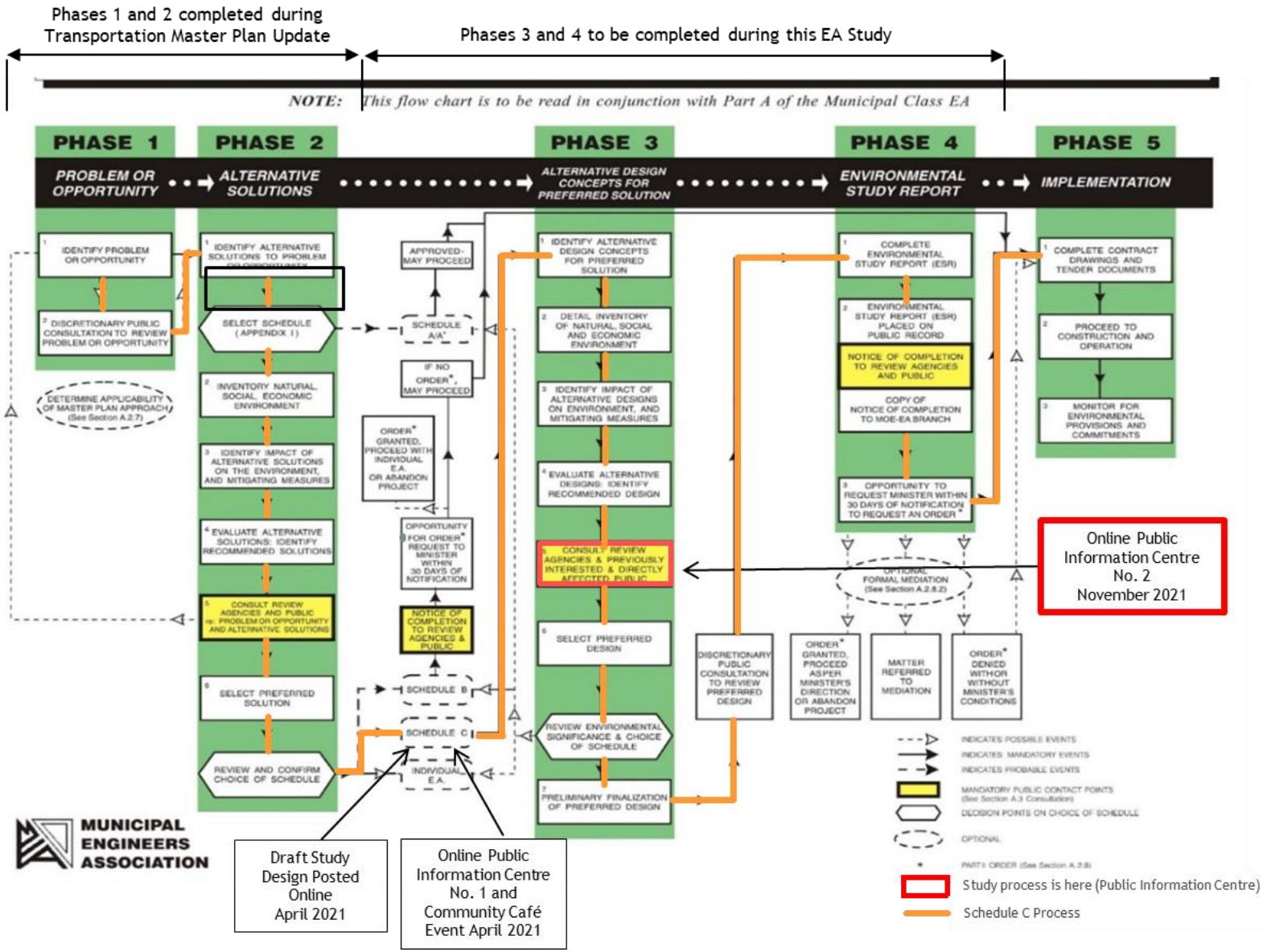
Why is this Project Needed?

- Needed to evenly distribute traffic to the arterial road network.
- Multiple connections to arterial roads reduce the traffic volumes in any one neighbourhood and the travel time, and improve access for emergency services.
- Currently, existing traffic from Biehn Drive must travel through adjacent neighbourhoods.
- To provide a sanitary and water service corridor.

Class EA Process

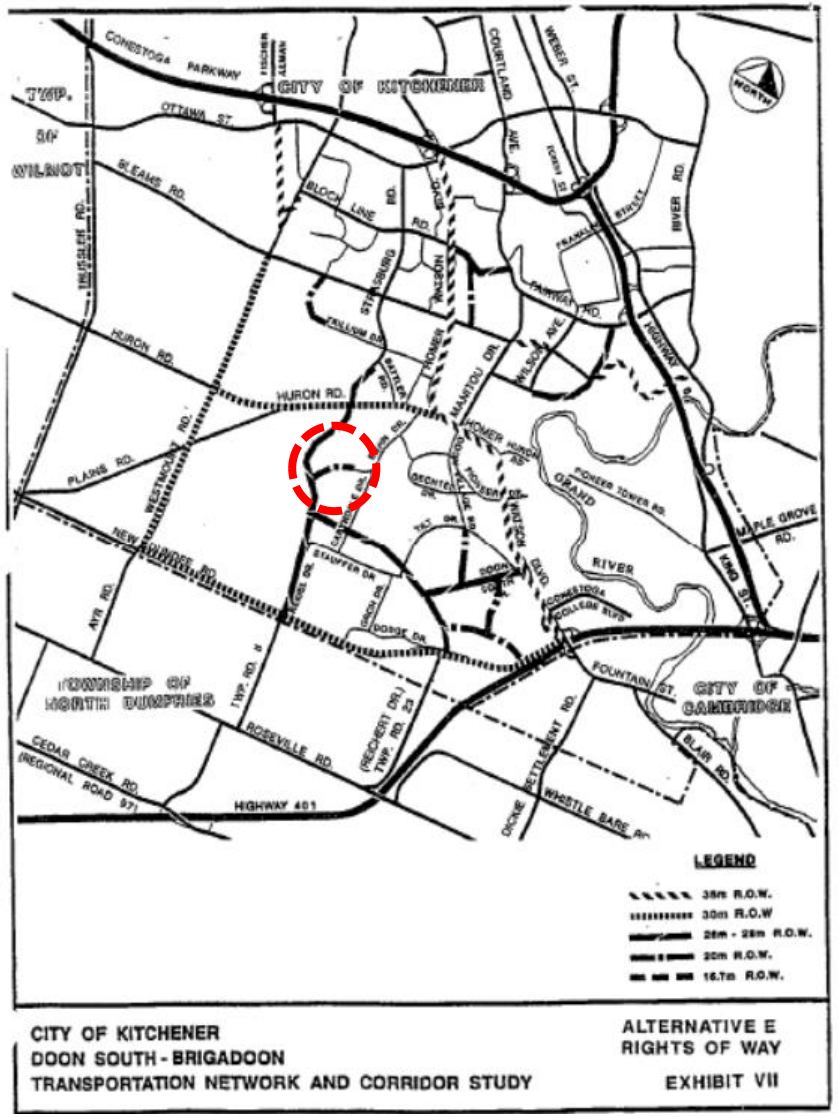
Biehn Drive Extension

"Construction of new roads or other linear paved facilities (e.g. HOV lanes)" > 2.4 m – Schedule C



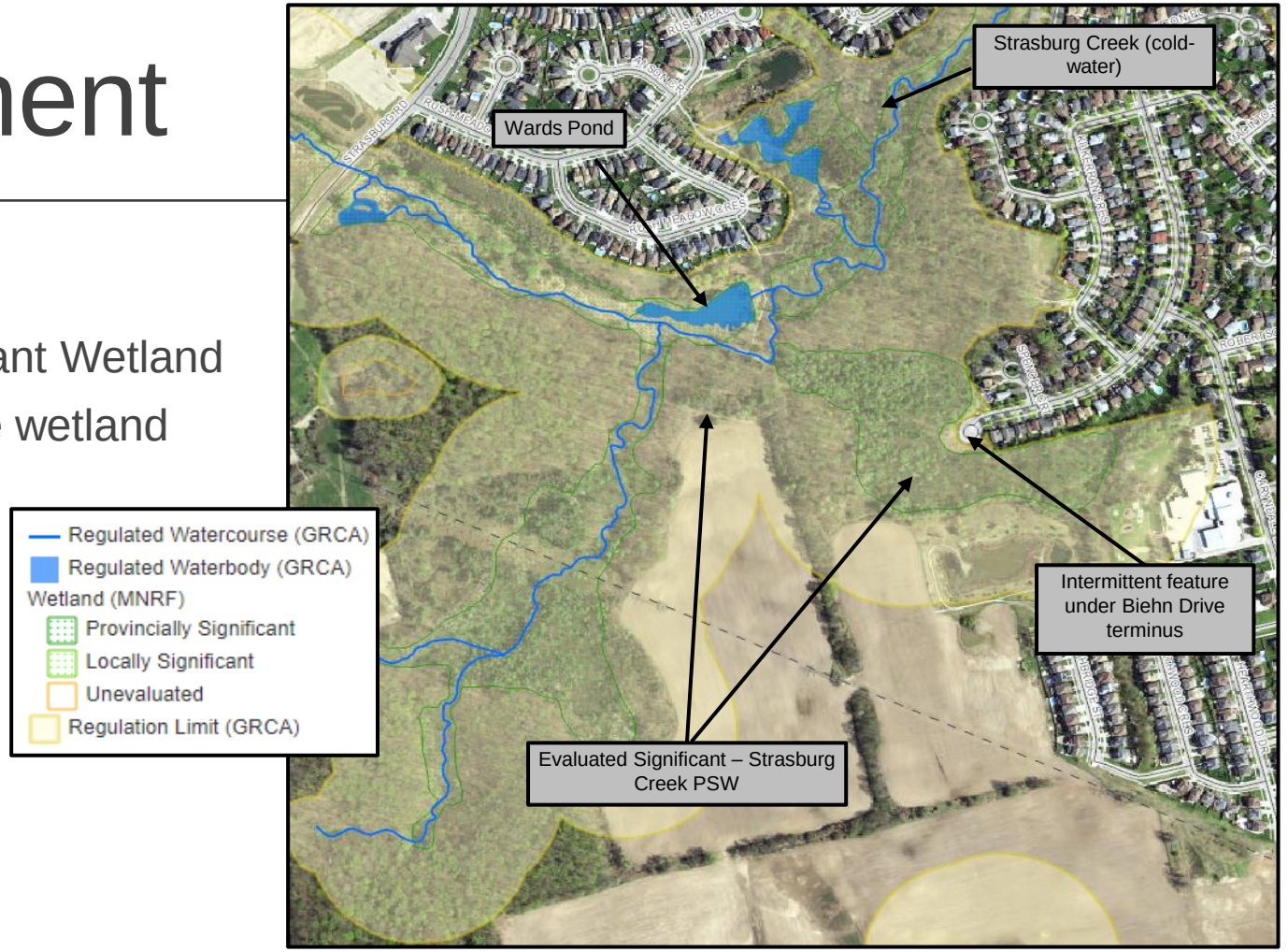
Background Information

- Community Plans for the Doon South and Brigadoon areas have established the need for the extension of Biehn Drive
- This has been documented in the Official Plan and Transportation Master Plan
- The new road link will accommodate all modes of transportation (vehicles, trucks, pedestrians and cyclists)



Natural Environment

- Overview:
  - Strasburg Creek Provincially Significant Wetland
  - Intermittent overland flow through the wetland
  - Strasburg Creek
  - Wildlife habitat
  - Specimen trees



Wellhead Protection Area

- Regulated Watercourse (GRCA)
- Municipal Well (GRCA)

WHPA Vulnerability (GRCA)

- 10
- 8
- 6
- 4
- 2

- Regulated Waterbody (GRCA)

https://maps.grandriver.ca/web-gis/public/?theme=MYP&bbox=542091,4802909,545343,4804695

Summary of Community Café/ PIC No. 1

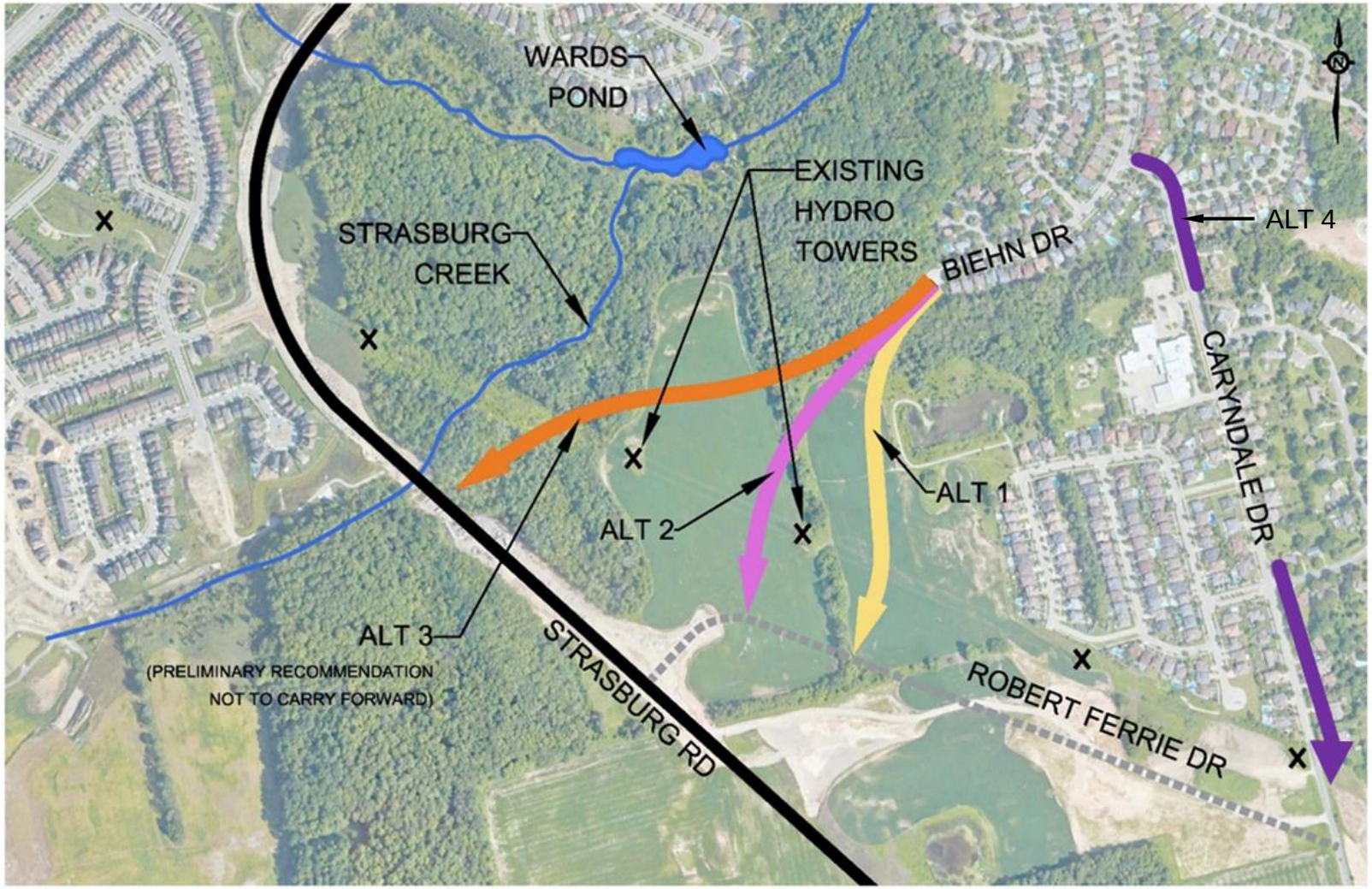
- Preliminary alternatives and needs analysis presented to the public
- Community comments were to consider an alternative without the extension of Biehn Drive for vehicular traffic
- PIC No. 1 Summary Report is available for review on the project website
- A new alternative was added based on community comments (Alternative 4)

Preliminary Design Alternatives

Preliminary Design Alternatives

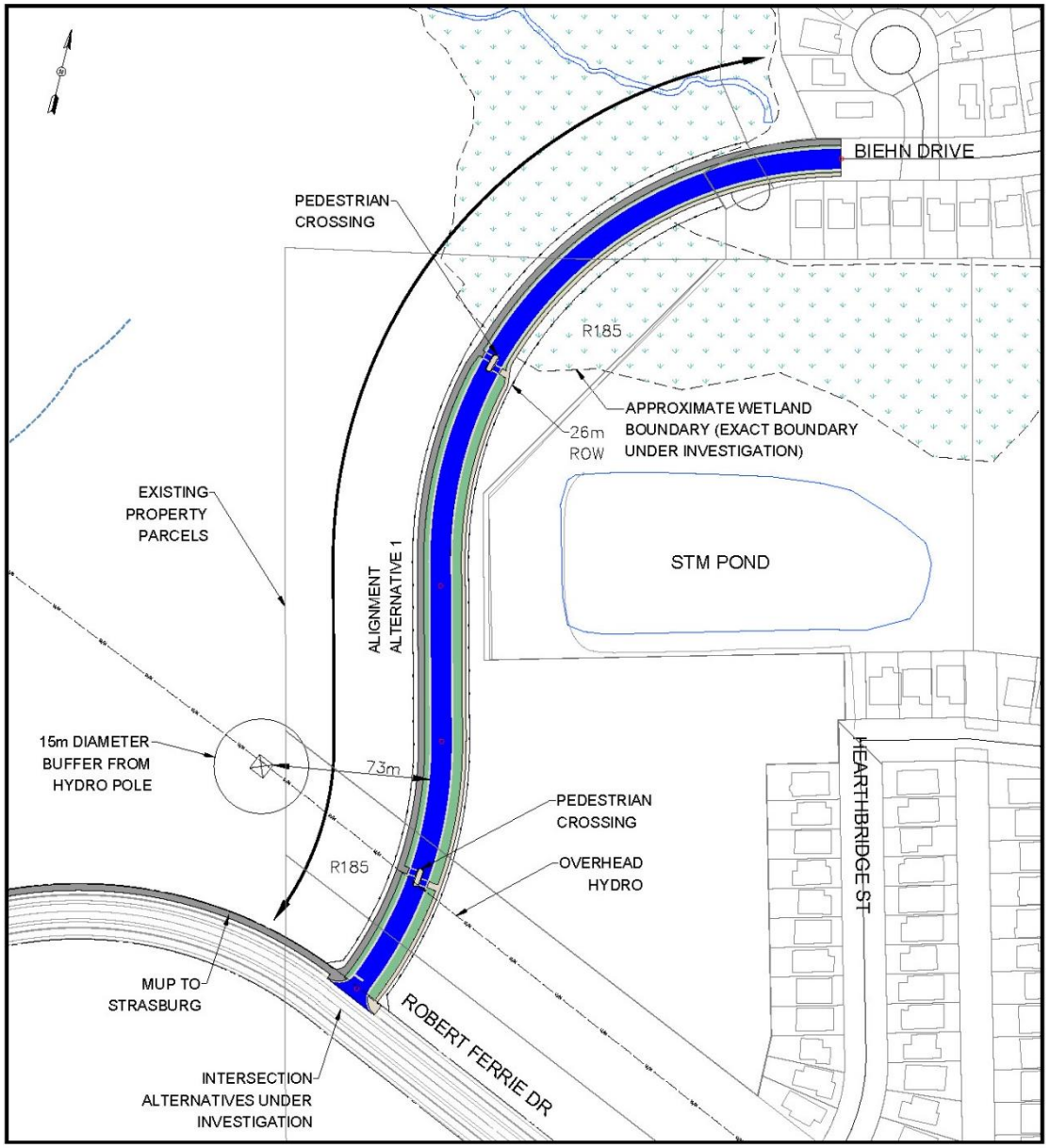
Alignment Alternatives

- Alignment Alternative 4 was added following the Community Café / PIC No. 1
- Alignment Alternative 3 was coarse screened due to impacts to the natural environment, cost and non-compliance with planning documents



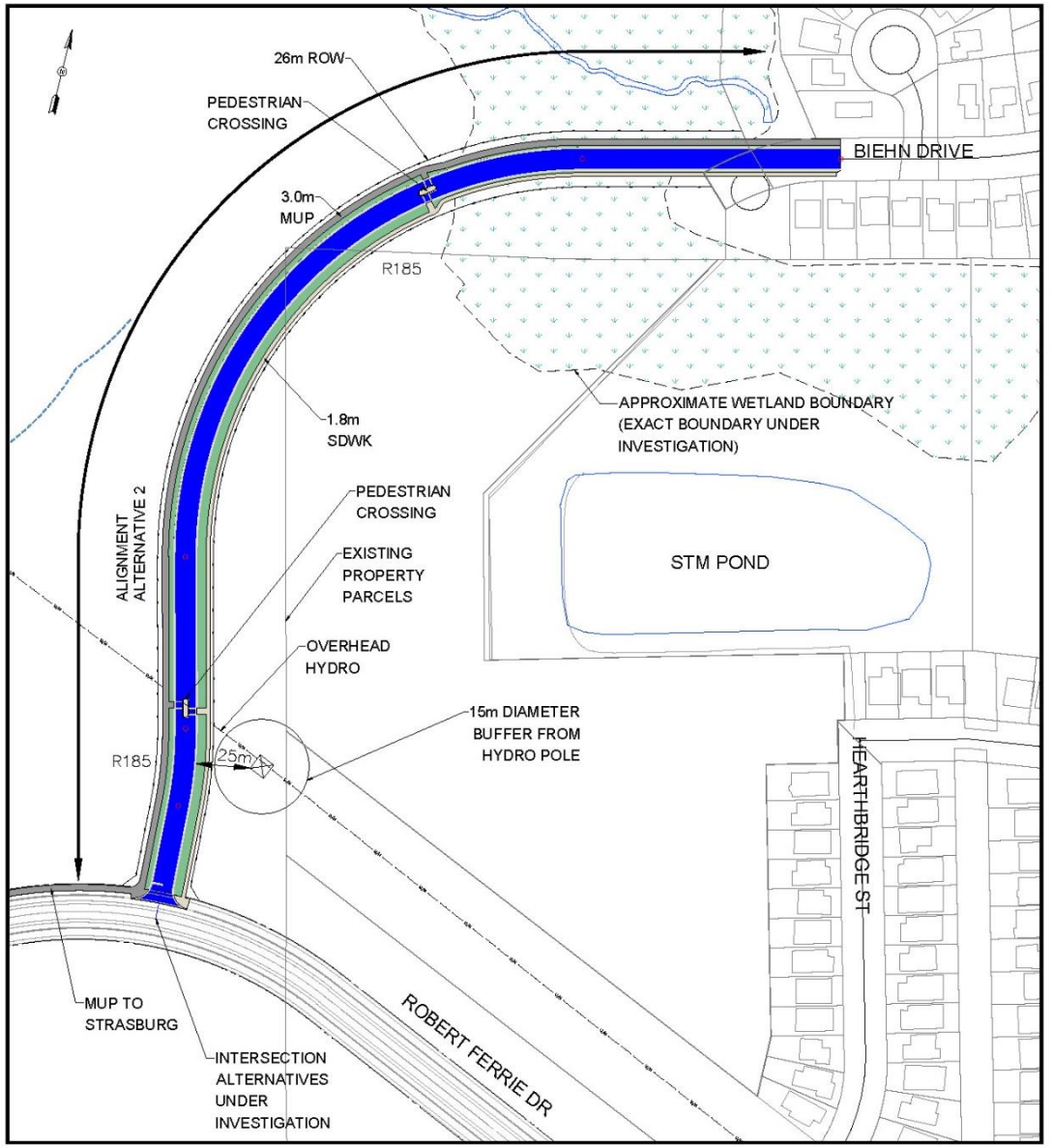
Alignment Alternative 1

Connect Biehn Drive to Robert Ferrie Drive – East Alignment



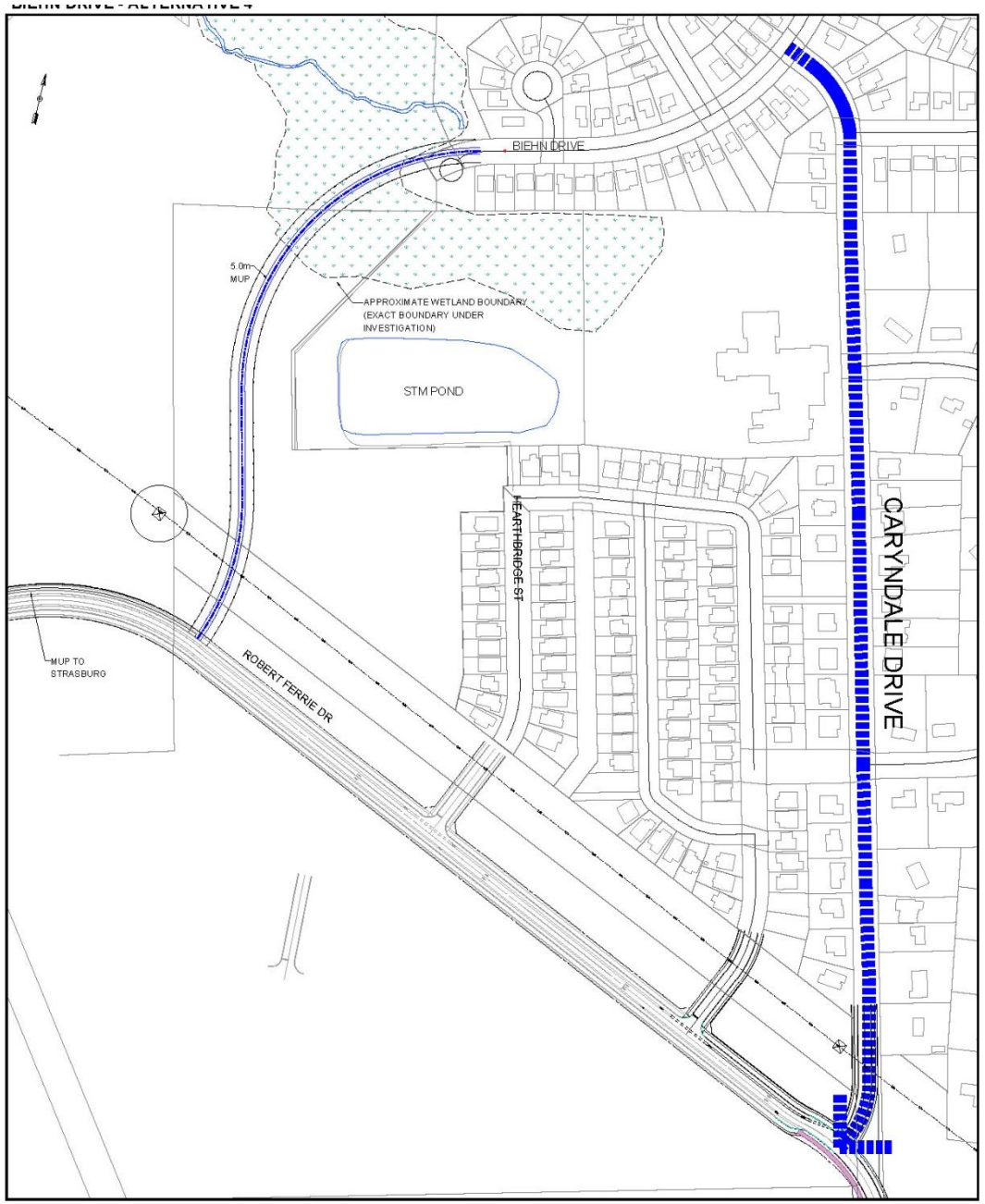
Alignment Alternative 2

Connect Biehn Drive to Robert Ferrie Drive – Central Alignment



Alignment Alternative 4

Connect Biehn Drive to Robert Ferrie Drive – Via Caryndale Drive



Analysis and Evaluation of Alternatives

The analysis and evaluation of the alternatives has been undertaken using a quantitative evaluation methodology. Seven global evaluation factor were considered:

- Transportation
- Natural Environment
- Cultural Environment
- Socio-Economic Environment
- Land Use and Property
- Cost
- Engineering

The factor groups are made up of measurable criteria (sub-factors) used to identify relevant benefits and impacts.

Evaluation Results

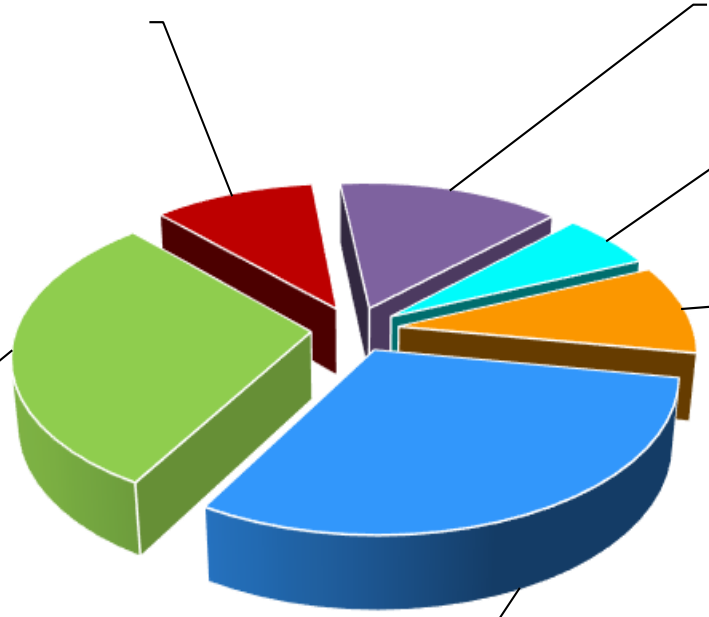
Global Factor Weights and Sub-factor Weights

SOCIO-ECONOMIC ENVIRONMENT 10%
- Community Disruption to Biehn Drive North 21.0%
- Community Disruption to Biehn Drive South 50.0%
- Community Disruption to Caryndale 29.0%

LAND USE AND PROPERTY 14%
- Supports the City of Kitchener's Official Plan 56.0%
- Efficient Utilization of Land 29.5%
- Crossing of the Hydro Corridor 14.5%

COSTS 6%
- Capital Costs 100.0%

ENGINEERING 9%
- Accommodating Stormwater Management 23.3%
- Biehn Drive Stormwater Enhancement 23.8%
- Sanitary Sewer Alignment 34.6%
- Overland Stormwater Route 18.3%



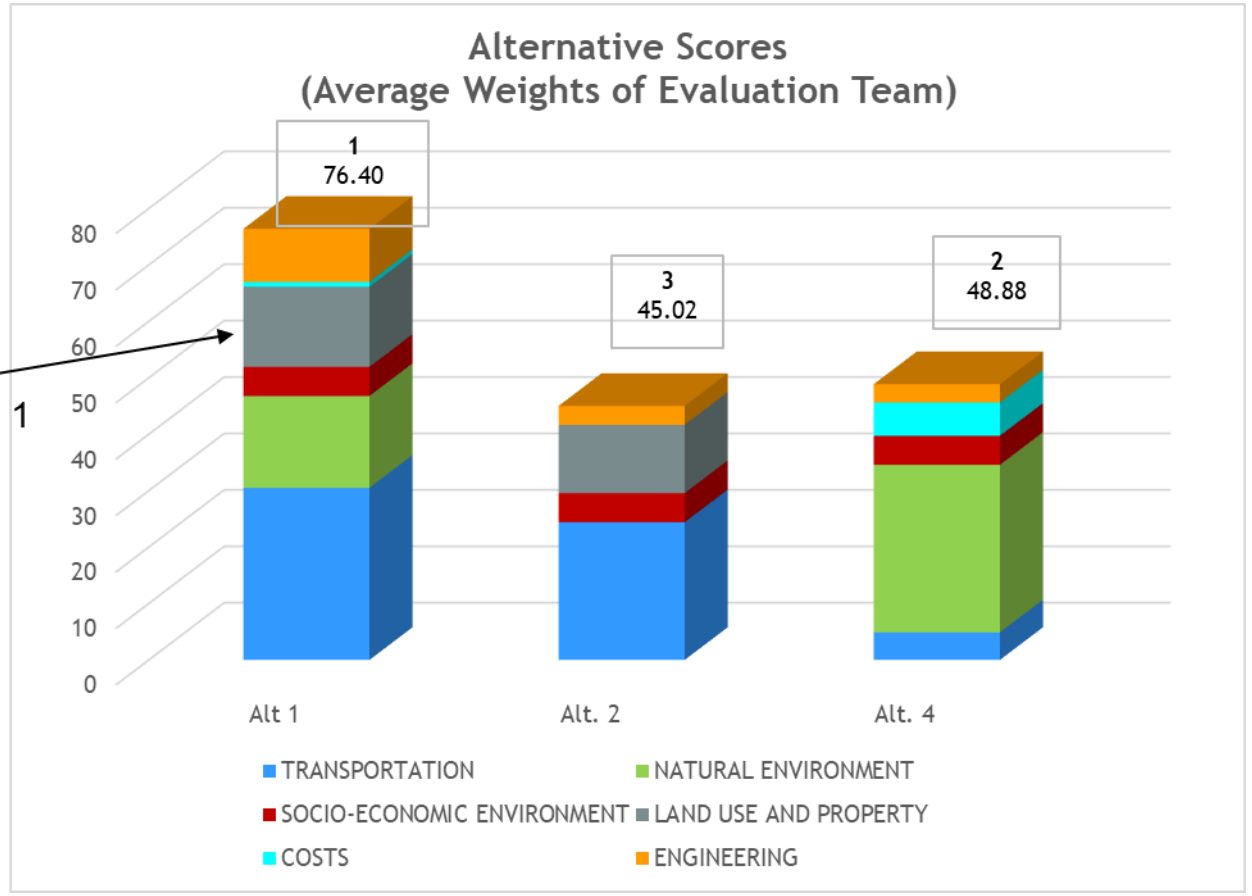
NATURAL ENVIRONMENT 30%
- Wildlife Habitat 15.1%
- Accommodating Wildlife Movement 11.9%
- Provincially Significant Wetlands (PSW) Removed 49.5%
- Groundwater Infiltration 23.5%

TRANSPORTATION 31%
- Supports Urban Transit Service 7.9%
- Improved Emergency Response 6.5%
- Roadway Safety – Supports Area Traffic
- Calming Measures 16.9%
- Efficiency of Travel 19.3%
- Compatibility with Integrated Transportation Master Plan 7.7%
- Safety of School Zone 14.1%
- Bicycle and Pedestrian Safety - Conflicts with Planned Hydro Corridor Multi-Use Trail 4.9%
- Personal Security of Pedestrians and Cyclists 6.7%
- Intersection Spacing 16.0%

Evaluation Results

Alignment Alternatives - Scores

Technically Preferred Alternative Alternative 1

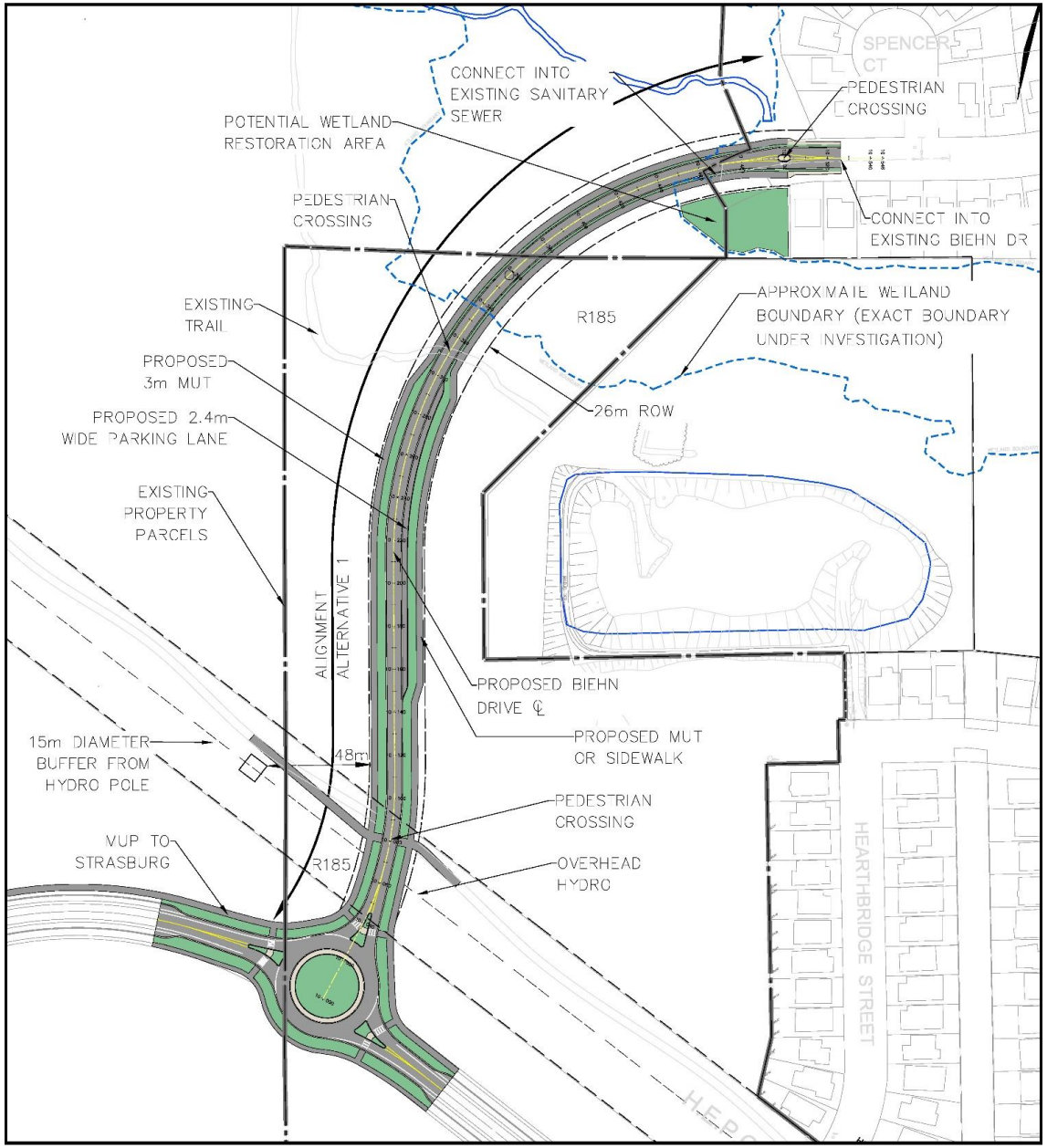


Evaluation Results

Sensitivity Testing

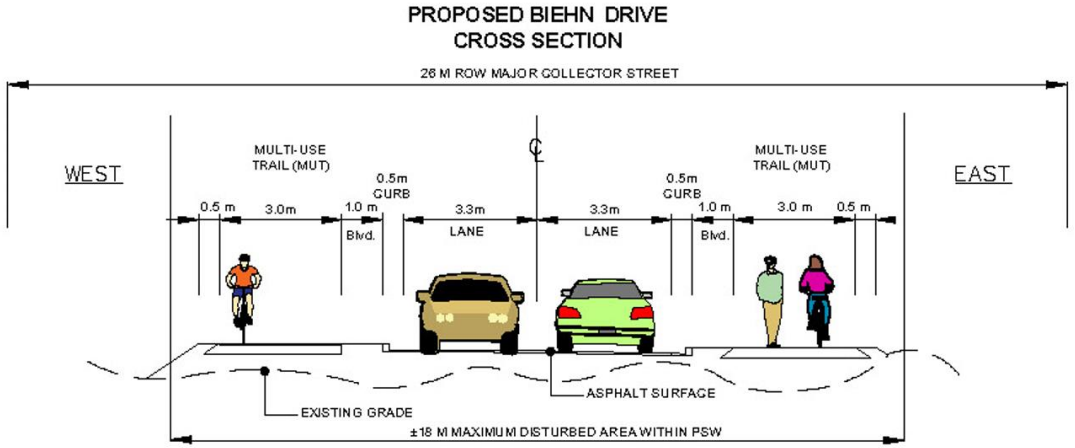
Alternatives			Alt 1	Alt. 2	Alt. 4
FACTORS	WEIGHT	Score:	76.40	45.02	48.88
Ranking			1	3	2
TRANSPORTATION	High	45.00%	1	2	3
	Low	20.00%	1	3	2
NATURAL ENVIRONMENT	High	40.00%	1	3	2
	Low	20.00%	1	2	3
SOCIO-ECONOMIC ENVIRONMENT	High	15.00%	1	3	2
	Low	10.00%	1	3	2
LAND USE AND PROPERTY	High	20.00%	1	2	3
	Low	10.00%	1	3	2
COST	High	10.00%	1	3	2
	Low	2.00%	1	2	3
ENGINEERING	High	15.00%	1	3	2
	Low	5.00%	1	3	2

Technically Preferred Alignment Alternative



Technically Preferred Cross Section

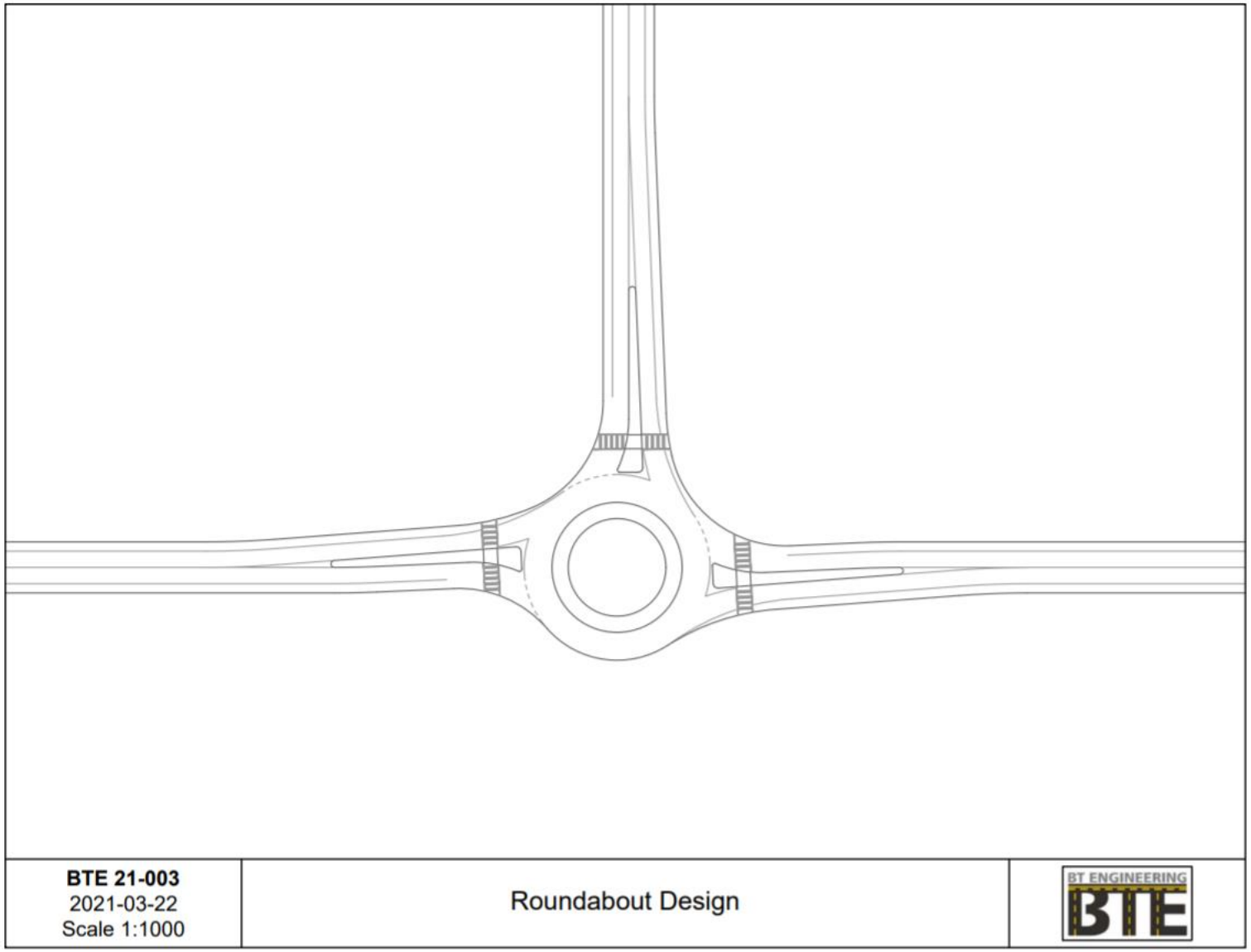
CROSS SECTION
ALTERNATIVE 1



TYPICAL PSW SECTION

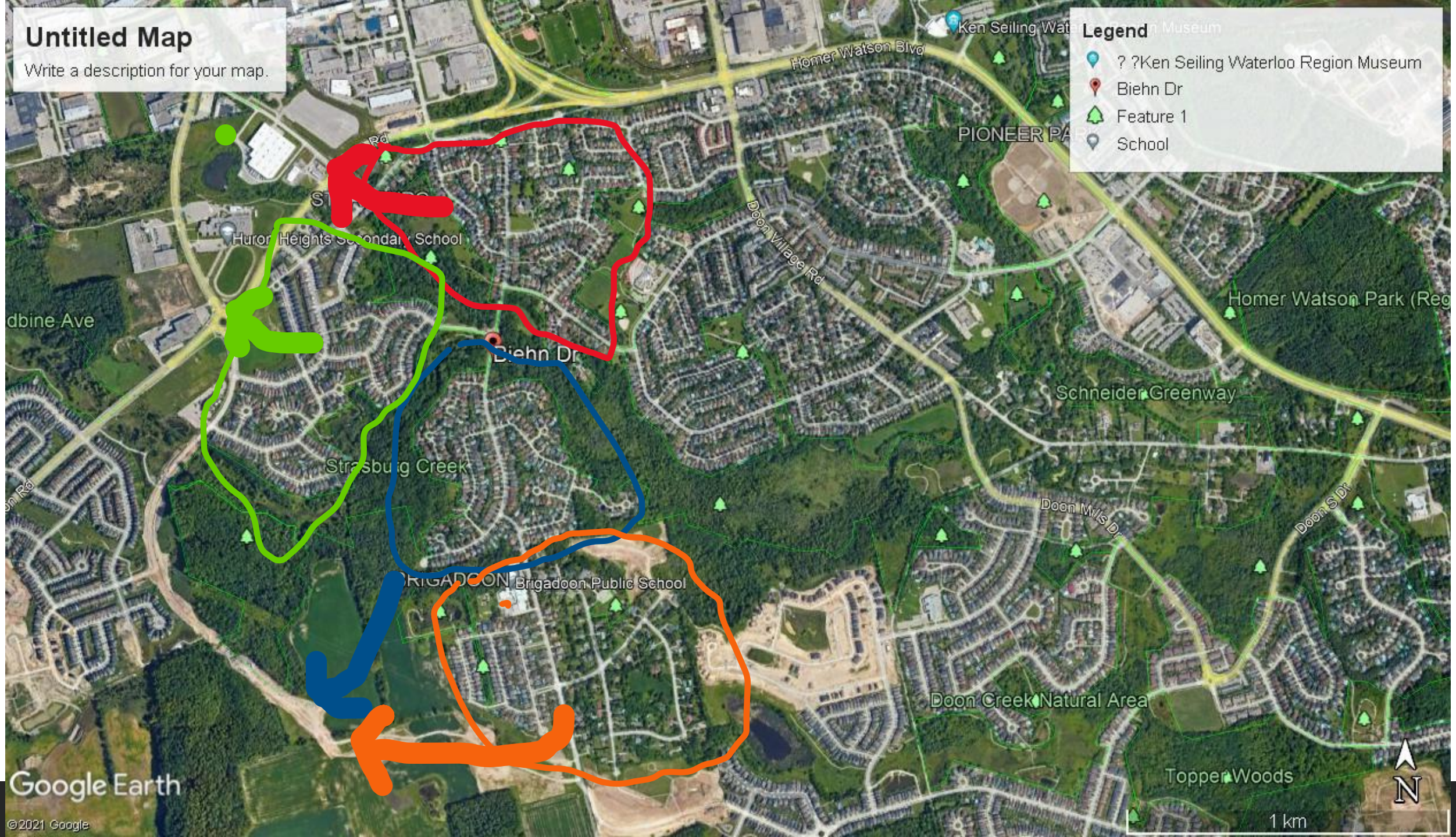
Technically Preferred Intersection Alternative

- A roundabout is proposed at Biehn Drive and Robert Ferrie Drive



Hierarchy of Roads and Streets and Functions

- Local Street – Access to land (low speeds, pedestrians, parking)
- Collector Street – Collects traffic from several local roads to each an arterial road (separates pedestrians and vehicles with moderate volumes)
- Arterial Street – Larger volumes of traffic and truck traffic
- Provincial Highways and Freeways – Accommodates largest volume of traffic at high speeds and accommodates inter regional trips
- **In the broader study area there are 4 neighbourhoods, all planned with collector roads to reach the arterial road network**


Untitled Map
Write a description for your map.
Legend
? ?Ken Seiling Waterloo Region Museum
Biehn Dr
Feature 1
School
Homer Watson Blvd
Doon Village Rd
Huron Heights Secondary School
Biehn Dr
Strasburg Creek
Brigadoon Public School
Homer Watson Park
Schneider Greenway
Doon Creek Natural Area
Topper Woods
Google Earth
©2021 Google
1 km
N

Traffic Projections

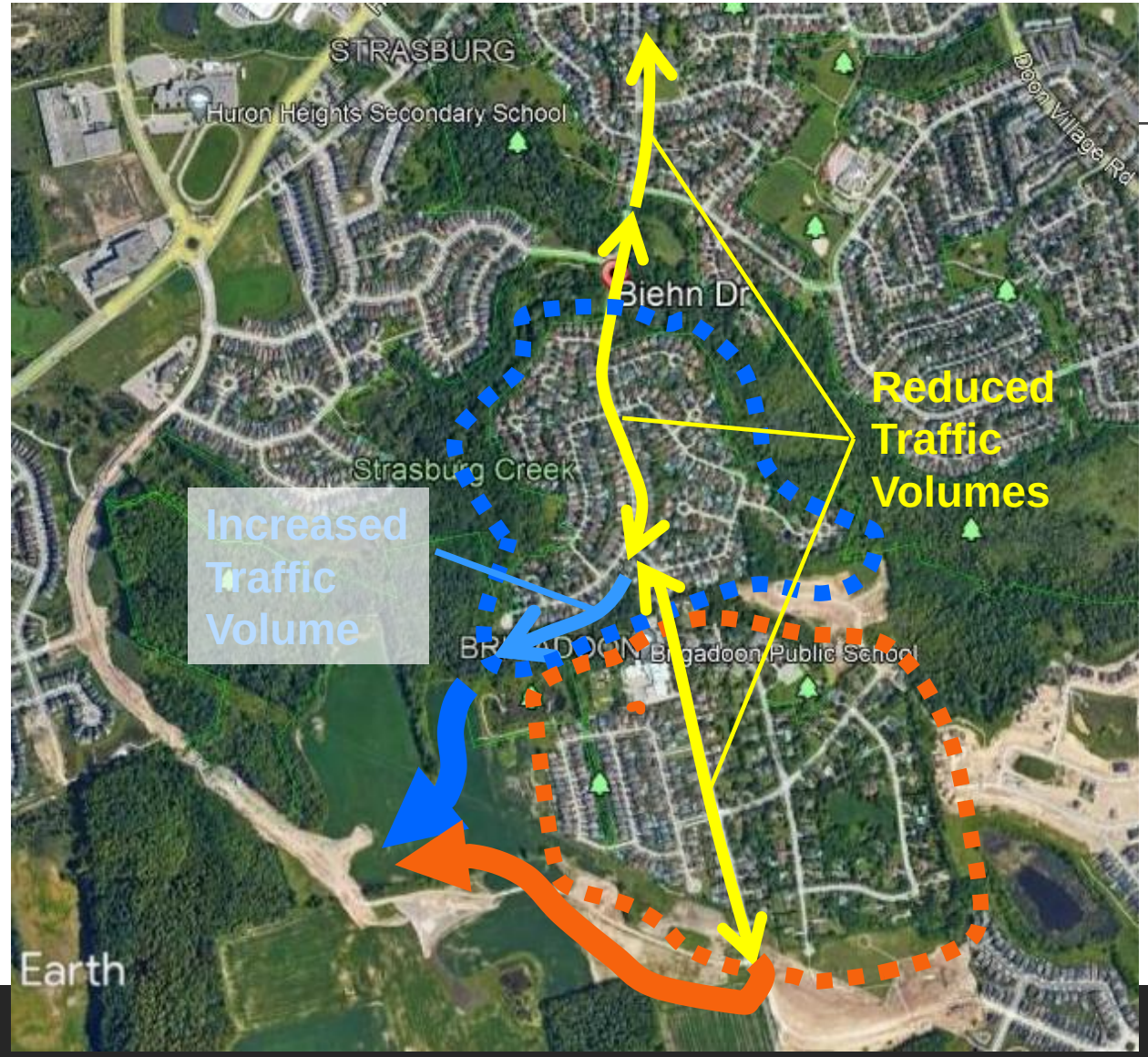
The proposed extension of Biehn Drive:

- Is projected to carry an average of 2500–3000 vehicles/day, well within its capacity as a major collector road. This would:
  - Be the equivalent of approximately 4 - 5 vehicles a minute during peak hours; and
  - Compare to an existing weekday average of approximately 5500 vehicles/day on Biehn Drive at Marl Meadow Drive.
- Result in a more balanced redistribution of area traffic volumes, providing relief (reducing the traffic volumes) on other area roads including Caryndale Drive and the north segment of Biehn Drive.
  - The houses along a **275 m long section of Biehn Drive** would experience an increase in traffic, consistent with its classification as a major collector;
  - However, the houses along a **2,200 m long section of Biehn Drive and Caryndale Drive** would experience a decrease in traffic.
  - The changes in traffic volumes along Biehn Drive and Caryndale Drive will better reflect their function as major and minor collector roads respectively.

A roundabout is proposed at the intersection of Biehn Drive and Robert Ferrie Drive:

- Consistent with the approved plan identified in the Robert Ferrie Drive Class Environmental Assessment.
- Due to the proximity to Strasburg Road (to limit queuing) and to accommodate pedestrian crossings.
- To accommodate access to future development south of Robert Ferrie Drive.

Traffic Projections



- At Black Walnut Drive, Biehn Drive traffic volumes would be reduced by an average of approximately 2,500 vehicles/day.
- On Caryndale Drive, south of Biehn Drive, the traffic volumes would be reduced by an average of approximately 500 to 1,000 vehicles/day.
- The houses along Biehn Drive, between Caryndale and the existing cul-de-sac will experience an increase in traffic ranging from 2,000 to 3,000 vehicles/day.

Why is this Project Needed?

- Needed to more evenly distribute traffic to the arterial road network.
- Multiple connections to arterial roads reduce the traffic volumes in any one neighbourhood and the travel time, and improve access for emergency services.
- Currently, existing traffic from Biehn Drive must travel through adjacent neighbourhoods.
- To provide a sanitary and water service corridor.

Why is it being implemented now?

- Strasburg Road has been constructed and will provide a western arterial road to service the community.
- With implementation of the proposed Biehn Drive extension, traffic will not have to take a circuitous route through neighbourhoods to reach the arterial road network.
- Required to accommodate future development and sanitary servicing.

Next Steps

Next Steps

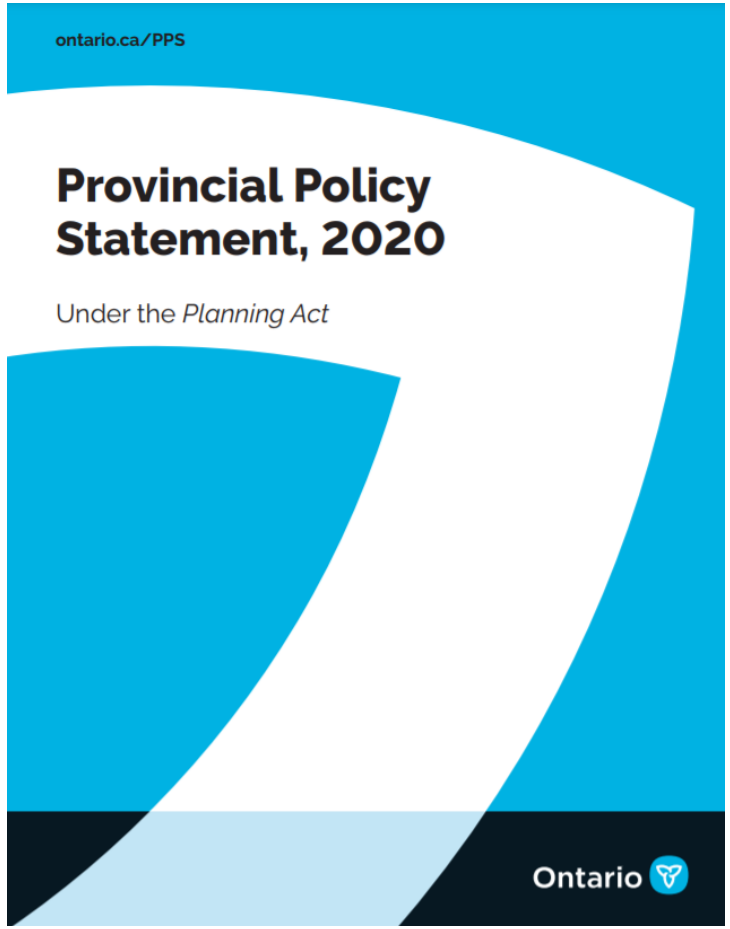
Following this Public Information Centre we will:

- Review all online Public Information Centre comments and prepare a Summary Report
- Develop refinements to the Technically Preferred Alternatives (if required) based on public comments
- Prepare the Environmental Study Report (ESR)
- Commence the 30-day public review period of the ESR

Questions and Answers

Question: Are the wetlands not protected?

Answer: Yes, provincially significant wetlands are protected from “development”. However, the Provincial Policy Statement defines that new infrastructure is not development. Infrastructure is exempted from the restrictions where it is implemented through an Environmental Assessment (as is being undertaken by the City for this project).



PROTECTION OF NATURAL HERITAGE

2.1 Natural Heritage

2.1.1 Natural features and areas shall be protected for the long term.

2.1.2 The diversity and connectivity of natural features in an area, and the long-term *ecological function* and biodiversity of *natural heritage systems*, should be maintained, restored or, where possible, improved, recognizing linkages between and among *natural heritage features and areas*, *surface water features* and *ground water features*.

2.1.3 *Natural heritage systems* shall be identified in Ecoregions 6E & 7E[1], recognizing that *natural heritage systems* will vary in size and form in *settlement areas*, *rural areas*, and *prime agricultural areas*.

2.1.4 *Development* and *site alteration* shall not be permitted in:

a) *significant wetlands* in Ecoregions 5E, 6E and 7E[1]; and
b) *significant coastal wetlands*.

Protection from Development
Road Projects are not Development

2.1.5 *Development* and *site alteration* shall not be permitted in:

a) *significant wetlands* in the Canadian Shield north of Ecoregions 5E, 6E and 7E[1];
b) *significant woodlands* in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)[1];
c) *significant valleylands* in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)[1];
d) *significant wildlife habitat*;
e) *significant areas of natural and scientific interest*; and
f) *coastal wetlands* in Ecoregions 5E, 6E and 7E[1] that are not subject to policy 2.1.4(b)

unless it has been demonstrated that there will be no *negative impacts* on the natural features or their *ecological functions*.

Protection from Development
Road Projects are not Development

[1] Ecoregions 5E, 6E and 7E are shown on Figure 1.

Development Definition

Development: means the creation of a new lot, a change in land use, or the construction of buildings and structures requiring approval under the *Planning Act*, but does not include:

a) activities that create or maintain *infrastructure* authorized under an environmental assessment process;

b) works subject to the *Drainage Act*; or

c) for the purposes of policy 2.1.4(a), underground or surface mining of *minerals* or advanced exploration on mining lands in *significant areas of mineral potential* in Ecoregion 5E, where advanced exploration has the same meaning as under the *Mining Act*. Instead, those matters shall be subject to policy 2.1.5(a).

Road Project does not require approval under Planning Act

Road Project is infrastructure under an environmental assessment (if so, it is exempted under the Provincial Policy Statement):

Infrastructure

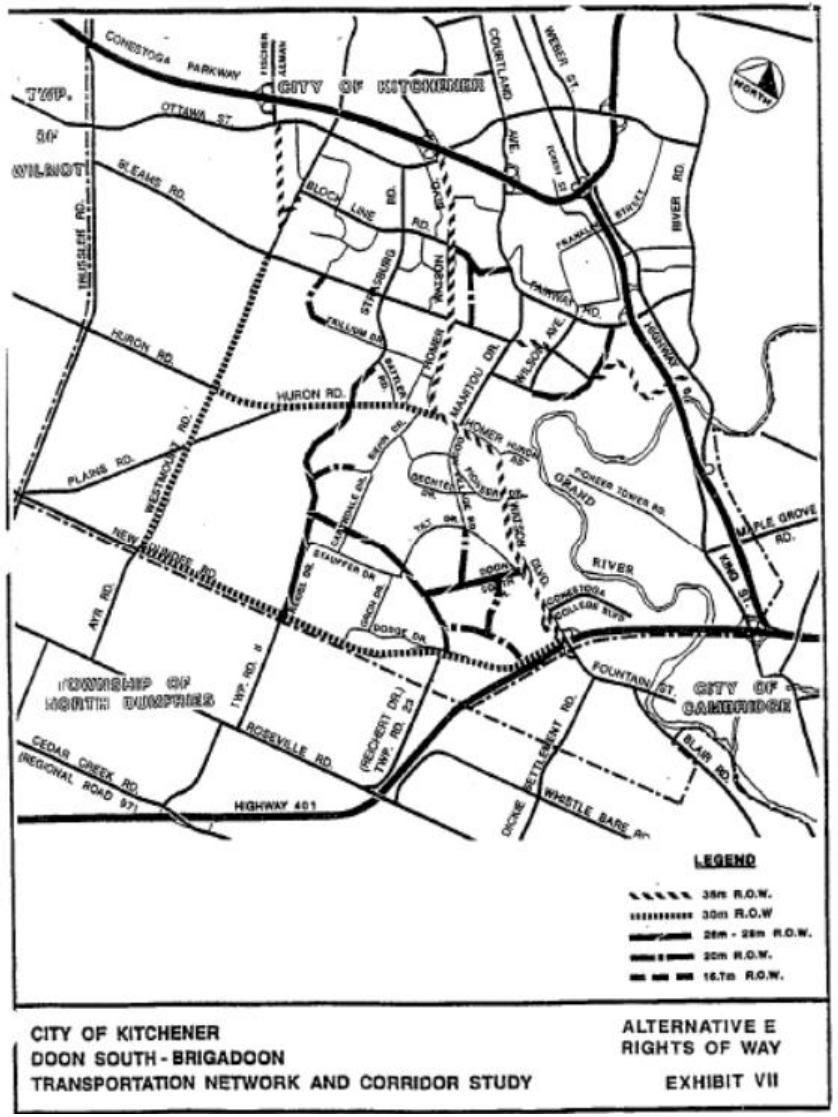
Infrastructure: means physical structures (facilities and corridors) that form the foundation for development. *Infrastructure* includes: sewage and water systems, septage treatment systems, stormwater management systems, waste management systems, electricity generation facilities, electricity transmission and distribution systems, communications/telecommunications, transit and transportation corridors and facilities, oil and gas pipelines and associated facilities.

Road project is Infrastructure (defined in PPS):

Question: Did GRCA and MNRF previously provide input that recommended not crossing the PSW?

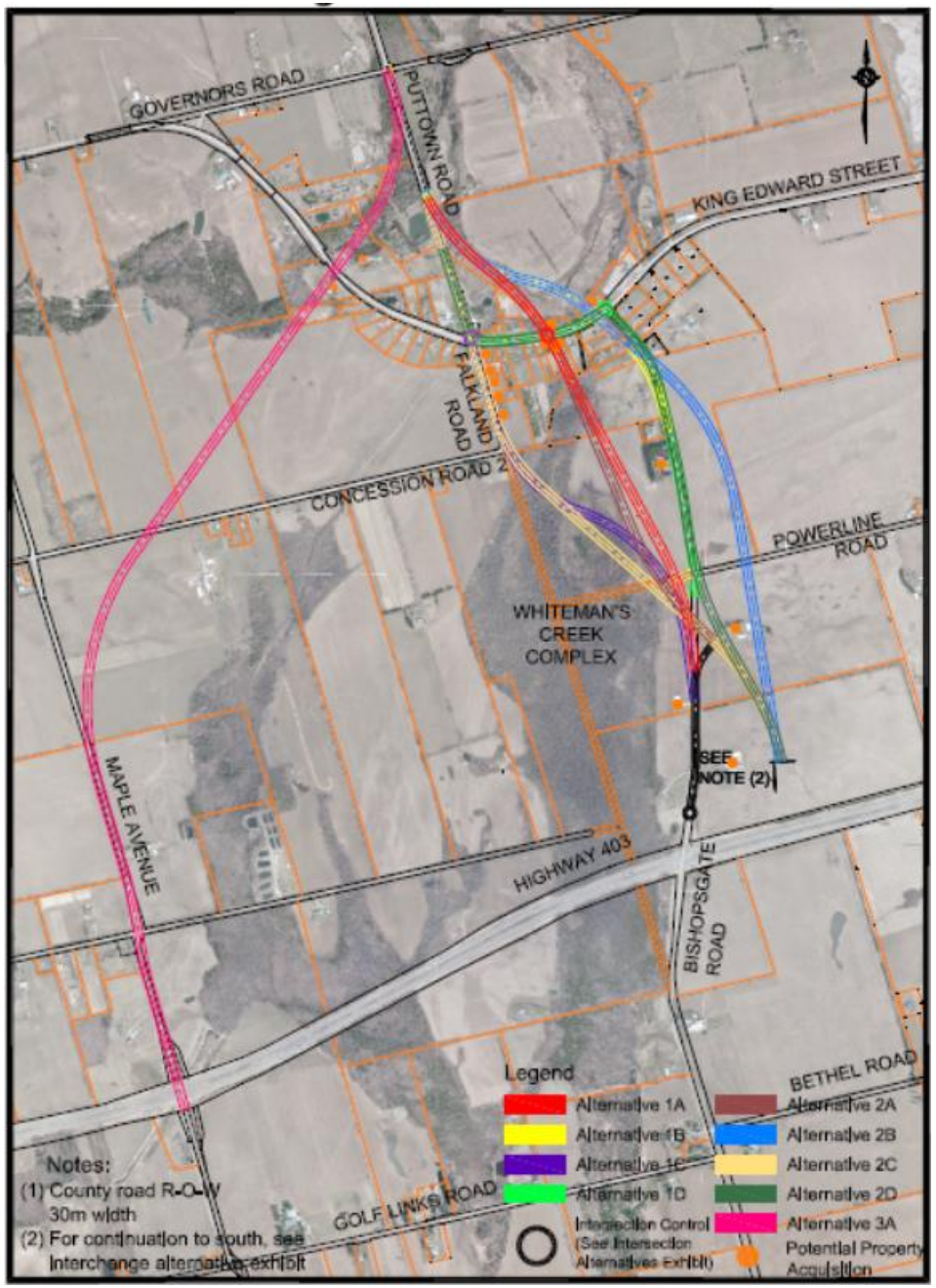
Answer: Any comments were provided historically before the current formal EA. At that time, the alignment was initially considering a direct connection to Strasburg Road with greater effects to the PSW (as shown by Alternative 3 in the EA). This alternative has not been recommended. A lower impact solution is being carried forward. On balance, this solution is one that:

- Achieves the transportation and land use objectives
- Reduces the environmental effects
- Reasonable cost



Example Projects

Bishopsgate Road
Paris, Ontario



Example Project

Black Bridge Road Bridge, Cambridge, Ontario

Question: A Blanding's Turtle (Species at Risk) was seen in the area. Changing habitat through development and road building would be a threat to their survival.

Answer: Our environmental team has found no recorded occurrences for Blanding's Turtle in the Study Area. No Blanding's Turtles were found by WSP during site investigations completed for the Study Area. To reduce any impacts to wildlife, exclusion fencing will be erected prior to and maintained during construction. Additionally, wildlife crossings under the roadway, possible permanent exclusion fencing, and turtle surveys will be considered during Detail Design.

Question: Given the amount of development that has occurred over the past 20 years, are there any environmentally sensitive plants/animals remaining in the surrounding area? Jefferson Salamanders (Species at Risk) were identified as being present at one time. Is there detailed information on local environmental features available?

Answer: Field work completed by BTE and WSP has not identified any Species at Risk (SAR) within the wetland. The only noted SAR, Barn Swallow, was identified by WSP south and east of the wetland. Barn Swallows are listed as Threatened and are therefore afforded protection under the *Endangered Species Act*. This species typically makes their residence in large culverts, bridges, barns and overpasses. No suitable nesting habitat was identified in the proposed Biehn Drive extension Study Area. Based on a review of online resources and field work, no Jefferson Salamanders or habitat capable of supporting that species have been identified in the Study Area.

Question: A 20-year-old plan is an old plan. With the latest developments on Robert Ferrie and the growing devastation of the natural areas in this Ward a revised intelligent, environmentally sensitive plan is required. Wetlands that become altered cannot be easily restored. They serve a purpose to the health of our water system and environment.

Answer: All efforts will be made to ensure minimal impacts on the PSW. Specifically, the road corridor will be narrowed through the wetland, lighting will be minimized so as to reduce impacts on nocturnal wildlife, and low impact development stormwater management features will be included in Detail Design. Offsetting of any wetland loss is required by GRCA as part of permit approvals. This will be further investigated with GRCA.

Question: Is a new trunk line being created in the new subdivisions? Why is the trunk line at the end of Biehn drive the only one, when a supposed protected wetland is in front of it. Any kind of road or access would disrupt this unique area and uproot coyote and deer populations. Where are they supposed to go as their homes are being encroached upon?

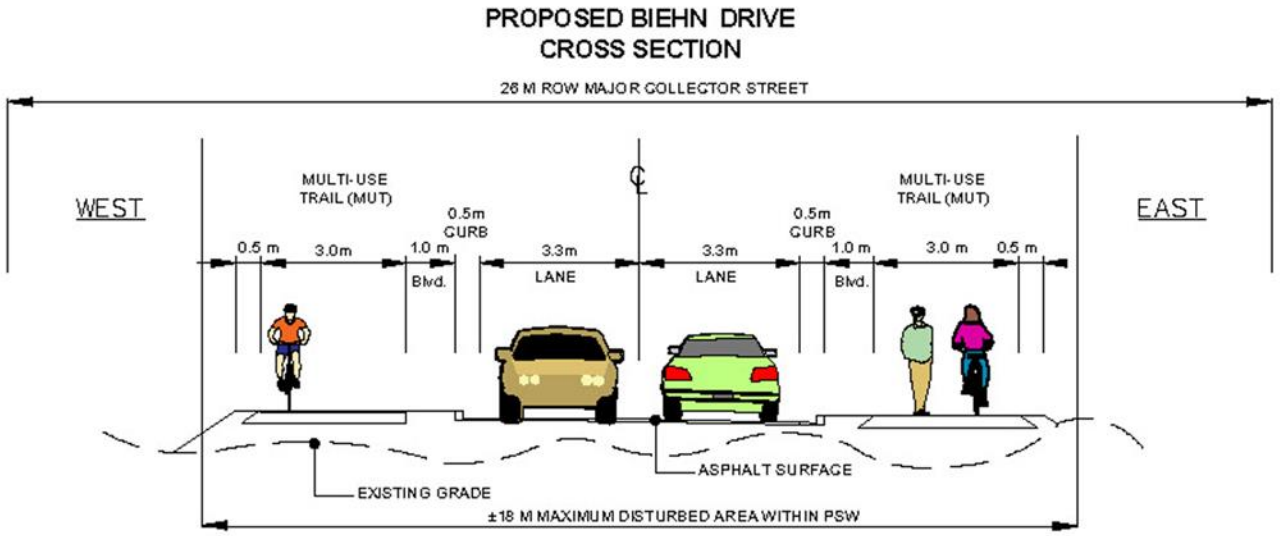
Answer: Retained wildlife habitat to the north and south of the Biehn Drive extension will continue to support species such as Coyotes and White-tailed Deer. Wildlife exclusion fencing will be installed to mitigate and minimize potential impacts to wildlife which may try to cross the road.

Question: Why do you propose to connect the new trunk sewer to the sewer on Biehn Drive?

Answer: The existing trunk sewer under Biehn Drive was designed to receive the sanitary sewage from the entire sewershed shown on the slides. This is the natural outlet because the land drains to that point. Using this approach, the sewage will flow by gravity.

Question: How deep will the new sewer be buried?

Answer: We expect that the new trunk sewer will be buried about 3 m below the existing ground, which corresponds to the depth of the existing trunk sewer pipe.



TYPICAL PSW SECTION

Question: How will you minimize the impacts on the PSW?

Answer: Since the sewer will be constructed along the alignment of Alternative 1, the sewer will be constructed in conjunction with the road and will have not additional surface effects. To remove the possibility of the sewer draining water from the wetland, the backfill in the trench will be provided with dams, designed to prevent longitudinal flow along the pipe backfill. To prevent groundwater flow in the pipe via the joints and defects, the selection of the pipe material will minimize the number of joints, and the pipe bedding (the pipe foundation) will be designed to avoid settlement of the pipe. If necessary, the pipe can be encased, although this is rarely necessary.

Question: Can the trunk sewer be directed to another trunk sewer system, rather than connecting at Biehn Drive?

Answer: Not at a reasonable cost and without major disruption to those other systems. The reason is that the other systems have been designed for their respective sewersheds, and the pipes have hydraulic capacity to convey the sanitary flows for those sewersheds. Adding a completely new sewershed would require replacing existing pipes with larger ones that would be necessary to convey the greater flows. In addition, the relative elevations of other systems would require lifting the sewage (by pumping) due to differences in grades.

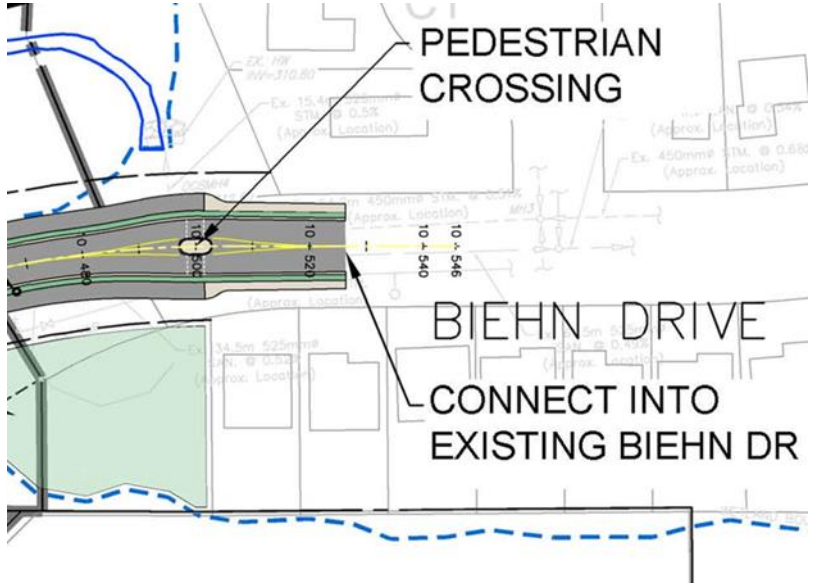
Will sound levels increase?

Answer: The existing sound levels range from approximately 45 dBA to 50 dBA in the community. The lowest sound levels are near the wetland at the end of Biehn Drive. The project will decrease sound levels in areas where traffic is reduced and will have moderate increases for houses at the end of Biehn Drive (near the wetland). Houses at the end of the street will have increases in sound levels of approximately 5 dBA. These sound levels do not trigger the need for attenuation based on Provincial standards. They are reflective of typical sound levels in an urban area.

How will the project control travel speeds on the new corridor?

To control traffic speeds and provide a more pedestrian friendly environment:

- Lane widths will be reduced to 3.3 m – identified as the City's new preferred standard for major collector streets, (Source - Complete Streets Kitchener)
- A centre pedestrian refuge island and crosswalk is proposed at the south end of existing Biehn Drive as a traffic calming measure and to transition to the narrower lane widths on the proposed extension,
- Additional traffic calming measures could be considered which might include the provision of raised crosswalks at each of the pedestrian crossings.



Question: What is the nature of the Indigenous studies and findings?

Answer:

Archaeological studies have been completed for study area. The results of these studies have been shared with three First Nations communities, including: Six Nations of the Grand River Elected Council, Mississaugas of New Credit and the Haudenosaunee Development Institute representing the Haudenosaunee Confederacy Chiefs Council. The reports will be submitted to the Ministry of Heritage, Sport, Tourism and Culture Industries for review to confirm they are compliant with provincial regulations.

No archaeological sites of additional cultural heritage value or interest have been identified within the project limits of the recommended design.

What is the status of technical studies?

Several studies have been completed to date. Others will be completed at later stages of the project.

EA Phase: Fisheries, Botanical, Ornithological, Heritage, Archaeological Noise, Phase 1 ESA, and Geotechnical

Design Phase: Property Request and R-Plans, Environmental Impact Study, Delineation of area of loss of PSW, and Permitting and Approvals for Mitigation

Question: The studies that were done in the 1980's and 1990's are too old to be considered valid at this point in time. During that period there was no discussion on the LRT /ION and planning had only started receiving applications on the Doon South subdivision.

Initial studies were done in the 80's and 90's, but subsequent studies, including the Strasburg Road EA, Robert Ferrie Drive EA and the Doon South/Brigadoon Transportation Study Update are all more recent/relevant and consider the new alignments and development impacts/pressures. The recent studies confirm the need for this link. The impact of the ION is limited in this area given the distance from the LRT system.

The alignment of both Strasburg Road and Robert Ferrie have changed significantly from the original concept which should now mean that we should consider adjustment for the need for Biehn Dr. extension.

Alternative alignments are being considered for Biehn Drive; however, multiple reports and studies have confirmed the need for Biehn Drive extension. The EA is exploring alignments as well as the option of not extending Biehn Drive and only extending infrastructure underground.

If as staff and the consultant continue to state the road is required for development, I present to you the point that trenchless tunneling could be considered instead of adding asphalt to the PSW.

Trenchless tunnelling will be considered by the EA as an alternative to open cut construction. The construction approach will be finalized during the detail design stage.

After speaking with a former City of Kitchener planner, I have learned that no plans for a Robert Ferrie extension was discussed in the 1980's. Now that this road is part way through and will eventually be connected to Strasburg Road the developer has an additional way to connect to trunk sewer and water mains. I believe that those exist under this road from maps that I have from the Robert Ferrie EA. Please confirm what is under that road and will eventually connect to Strasburg Road which will also have a trunk sewer and water mains.

Robert Ferrie Drive contains storm sewer, sanitary sewer and City/ Regional watermains.
Biehn Drive will require storm sewers, City watermain as well as a trunk sanitary sewer. There is currently a 525mm sanitary trunk sewer under Biehn Drive that is required to extend southerly to accommodate additional development lands. There is no trunk sanitary sewer under Robert Ferrie Drive.

Covid has made some significant changes to how and when people now go to work. More and more offices are sitting empty and as a community we hear through various media sources that business are becoming more accepting of their staff working from home. This will dramatically reduce traffic in all areas of the City. Additionally now that the ION is up and running and we are increasing density in the core more people will be encouraged to take transit when they do go into their office space.

It will be some time before we know the longstanding impacts of the pandemic on commuting, however, by November 2020 traffic had already returned to approximately 85% of typical daily volumes. We expect traffic volumes to continue to increase to near normal levels, particularly once schools are reopened. This community is more than 3 km away from the nearest ION station, so while some may choose to use ION as a portion of their trip, there is still the need to commute to the nearest station.

Since the wetland at the end of Biehn is classified as a Class 1 PSW, what did the environmental study results show as it relates to groundwater? Were any ecologically sensitive/ endangered species found? If so what were they?

Groundwater mitigation will involve designing the road profile to not require lowering of the groundwater table, and a commitment for water quality control at the outlet (stormceptor tank). No endangered species have been identified.

Robert Ferrie, Caryndale and Strasburg Road have all seen changes in the original proposed alignments, therefore this is the perfect time to do a review of the transportation networks so that we can have up to date data on transportation routes?

The study is based on the final Strasburg Road and Robert Ferrie Drive alignments.

What is the broader plan for incorporation of nearby commercial and public facilities?

The EA study is not defining the future land uses.

Questions or Comments?