



Hamilton

**WATERDOWN TRUNK WATERMAIN TWINNING
SCHEDULE 'B' CLASS ENVIRONMENTAL ASSESSMENT
AND CONCEPTUAL DESIGN**

Public Information Centre No. 3

Harry Howell (North Wentworth) Arena and Community Centre
27 Highway 5 West, Hamilton ON

Wednesday, June 5, 2024
6:00 pm – 8:00 pm

Why are we here?

Public Information Centre (PIC) No. 3

Key Dates

June 5, 2024



PIC No. 3 materials posted to project website (access via link or scan the QR code with a smart-phone):

<https://engage.hamilton.ca/waterdown-watermain-ea>

June 5 to June 19, 2024

If you have any questions or wish to provide your input, please speak with one of the project team members, and/or contact the Project Manager at udo.ehrenberg@hamilton.ca.

July 3, 2024

Responses to questions and comments related to PIC No. 3 posted to project website.

Public Information Centre (PIC) Objectives



Review the project study area and objectives.



Present environmental and technical background relevant to the evaluation of alternative routes.



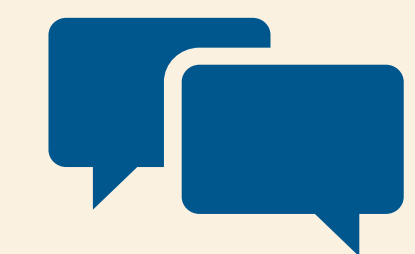
Present the preferred preliminary route.



Receive feedback on the study and the selected alternative route.

This is the final PIC for this study.

Stay Engaged!



- ✓ Please sign in and take a comment sheet.
- ✓ Have a look at the project information on display and chat with the Project Team.
- ✓ Provide your feedback regarding the information presented.
- ✓ Visit the EngageHamilton Website.

Land Acknowledgement

The City of Hamilton is situated upon the traditional territories of the Erie, Neutral, Huron-Wendat, Haudenosaunee and Mississaugas. This land is covered by the Dish With One Spoon Wampum Belt Covenant, which was an agreement between the Haudenosaunee and Anishinaabek to share and care for the resources around the Great Lakes. We further acknowledge that this land is covered by the Between the Lakes Purchase, 1792, between the Crown and the Mississaugas of the Credit First Nation.

Today, the City of Hamilton is home to many Indigenous people from across Turtle Island (North America) and we recognize that we must do more to learn about the rich history of this land so that we can better understand our roles as residents, neighbours, partners and caretakers.



What Is This Study About?

Study Purpose and Objectives

The City of Hamilton is undertaking a Schedule 'B' Class Environmental Assessment (EA) to investigate alternatives and select a preferred route for a new trunk watermain to service the community of Waterdown.

The need for a new watermain from Pumping Station HD016, located at York Road and Valley Road, to Waterdown was identified in the City's Drinking Water Quality Management System (DWQMS) Infrastructure Review to:

- ✓ Support projected growth in the Waterdown Community; and,
- ✓ Provide security of supply to the existing Waterdown Community.

This Class EA study will determine the preferred alignment and design concept of the new trunk watermain.



Key Study Objectives

- ✓ Provide an appropriate level of redundancy and security while considering growth within the service area
- ✓ Limit total capital, operation and maintenance, and lifecycle costs
- ✓ Limit and mitigate potential natural, socio-cultural, and technical environmental impacts
- ✓ Promote engagement with Indigenous Communities and interested community partners such as regulatory agencies and local residents that may be directly affected by potential impacts
- ✓ Align with the overall servicing requirements indicated in the City's Water and Wastewater Master Plan

Why Are We Here?

Project Background and Process

Spring 2019
Project Initiation

Key Activities

- ✓ Review of baseline data and information
- ✓ Identify stakeholder list

October 2019
PIC No. 1

Key Activities

- ✓ Defined problem/opportunity statement
- ✓ Desktop inventory of natural, hydrogeological, social / cultural, and archaeological environments
- ✓ Development and evaluation the preferred preliminary strategy

April 2022
PIC No. 2

Key Activities

- ✓ Development of the long list of route alternatives
- ✓ Development of the evaluation criteria for the long list of route alternatives to create the short list of route alternatives

June 2024
PIC No. 3

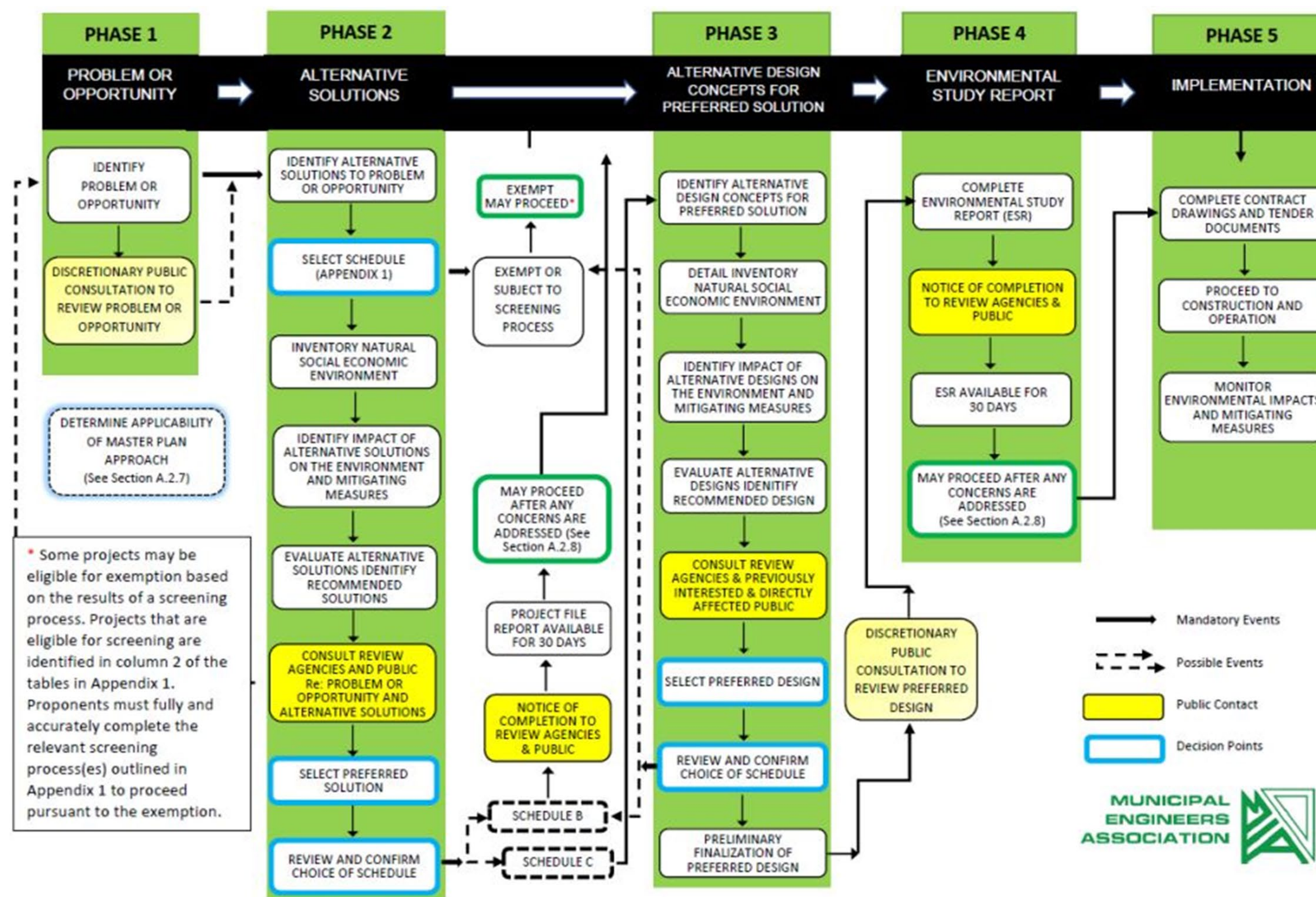
Key Activities

- ✓ Present the updated long list and the final short list of route alternatives
- ✓ Complete field investigations for natural environment, cultural heritage, and archaeological impacts specific to the preliminary preferred route
- ✓ Evaluate and select the most preferred route alternative from the short list
- ✓ Refine and develop the sub-route options and select the preliminary preferred route

Provincial Process

This study is being planned as a Schedule “B” Class Environmental Assessment (EA), satisfying **Phases 1 and 2** of the Municipal Engineers Association (MEA) Class EA process, which is a planning process approved under Ontario’s Environmental Assessment Act.

The **Class EA** process is a decision-making process that all Ontario municipalities follow for building new infrastructure. This process involves public consultation throughout the study



Long List of Route Alternatives

● Route 1A - Valley Road to Rock Chapel Road to Highway 5

Trunk watermain along Valley Road, Rock Chapel Road and Highway 5 to distribute water from the HD016 Pumping Station to the existing watermain at Highway No. 5 and Algonquin Avenue.

● Route 1B - Valley Road (behind resident properties) to Rock Chapel Road to Highway 5

Trunk watermain along Valley Road, moving behind resident properties, Rock Chapel Road and Highway 5 to distribute water from the HD016 Pumping Station to the existing watermain at Highway No. 5 and Algonquin Avenue

● Route 1C - Valley Road to York Road to RBG lands to Rock Chapel Road to Highway 5

Trunk watermain along Valley Road, York Road, through RBG lands, Rock Chapel Road and Highway 5 to distribute water from the HD016 Pumping Station to the existing watermain at Highway No. 5 and Algonquin Avenue.

● Route 1D - York Road to RBG lands to Rock Chapel Road to Highway 5

Trunk watermain along Valley Road, York Road, through RBG lands, Patterson Road, Rock Chapel Road and Highway 5 to distribute water from the HD016 Pumping Station to the existing watermain at Highway No. 5 and Algonquin Avenue

● Route 1E – York Road to RBG lands to Algonquin Avenue

Trunk watermain along Valley Road, Chapel Road, Algonquin Avenue and Highway 5 to distribute water from the HD016 Pumping Station to the existing watermain at Highway No. 5 and Algonquin Avenue

● Route 1F – York Road to Rock Chapel Road via Borer’s Falls Conservation Area

Trunk watermain along Rock Chapel Road and Highway 5 through the Borer’s Falls Conservation Area to distribute water from the HD016 Pumping Station to the existing watermain at Highway No. 5 and Algonquin Avenue.

● Route 2 - York Road to RBG lands to Patterson Road to South Drive

Trunk watermain along York Road, through RBG lands, and Patterson Road to distribute water from the HD016 Pumping Station to the existing watermain at Highway No. 5 and South Drive.

● Route 3 - York Road to Cartwright Nature Sanctuary to Patterson Road to South Drive

Trunk watermain along York Road, through Cartwright Nature Sanctuary, and Patterson Road to distribute water from the HD016 Pumping Station to the existing watermain at Highway No. 5 and South Drive.

● Route 4 - York Road to Sovereign Avenue to South Drive

Trunk watermain along York Road, Sovereign Avenue, and South Drive to distribute water from the HD016 Pumping Station to the existing watermain at Highway No. 5 and South Drive.

● Routes 5A - York Road to Old Guelph Road to South Drive

Trunk watermain along York Road, Old Guelph, and South Drive to distribute water from the HD016 Pumping Station to the existing watermain at Highway No. 5 and South Drive.

● Routes 5B - York Road to Old Guelph Road to Highway 6

Trunk watermain along York Road, Old Guelph, and Highway No. 6 to distribute water from the HD016 Pumping Station to the existing watermain at Highway No. 5 and Highway No. 6.

● Routes 5C – York Road to Old Guelph Road to Innovation Drive via Utility Corridor

Trunk watermain along York Road, Old Guelph and Innovation Drive to distribute water from the HD016 Pumping Station to the existing watermain at South Drive and Highway No. 5.

● Route 6A - York Road to Highway 6

Trunk watermain along York Road, and Highway 6 to distribute water from the HD016 Pumping Station to the existing watermain at Highway No. 5 and Highway 6.

● Route 6B - York Road to Highway 6 via Utility Corridor

Trunk watermain along York Road, and Highway 6 to distribute water from the HD016 Pumping Station to the existing watermain at Highway No. 5 and Highway 6.

Conceptual Map of the Long List of Route Alternatives

Long List of Alternative Alignments

	1A		1F		5B
	1B		2		5C
	1C		3		6A
	1D		4		6B
	1E		5A		

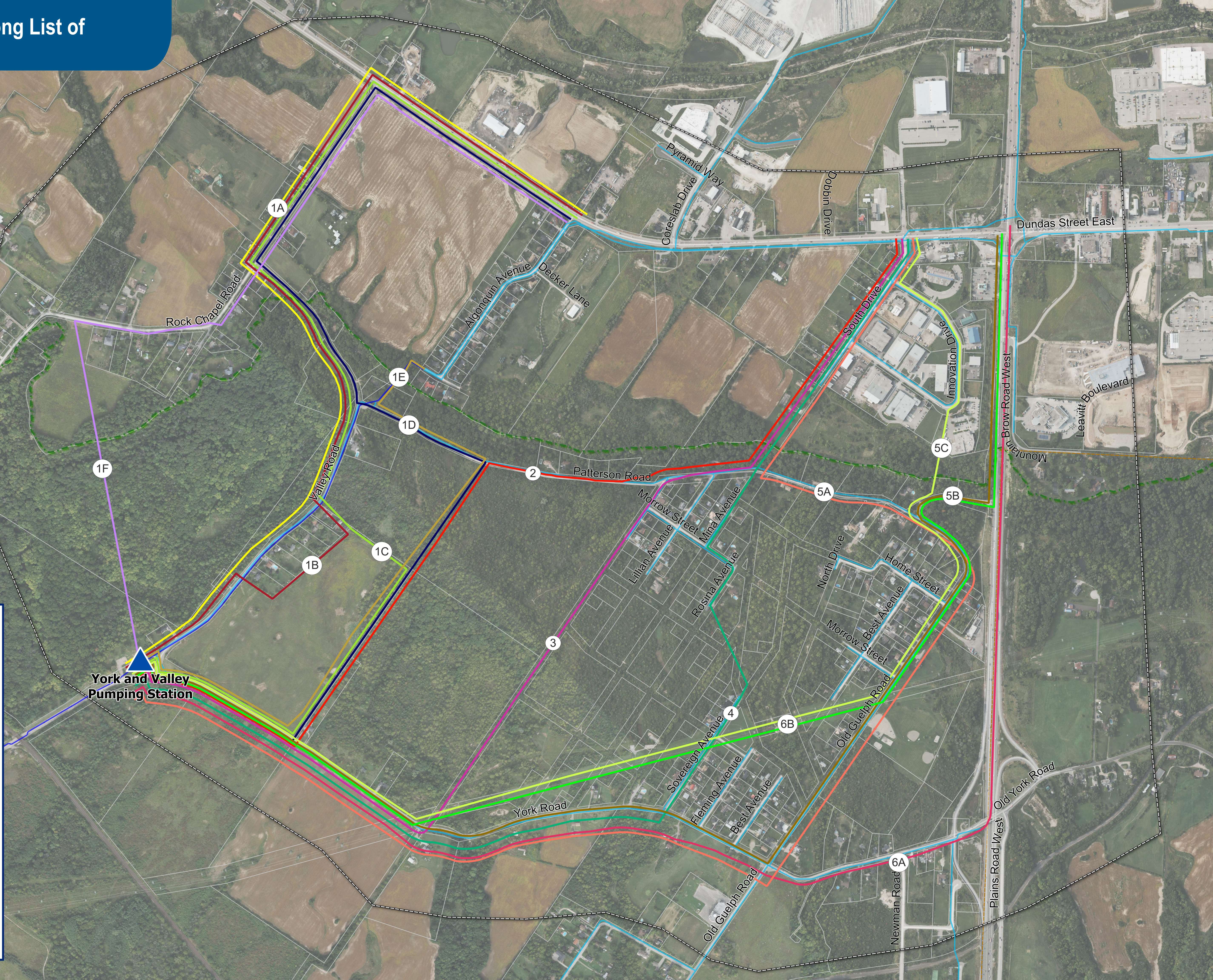
Water Infrastructure

- Pumping Station
- Trunk Water Mains (>400mm)
- Distribution Water Mains (<=400mm)

General Features

- Study Area
- Parcel
- Niagara Escarpment
- Municipal Boundary

0 250 500 m



Which Preliminary Strategies Were Selected?

Screening of the Long List of Route Alternatives

High-level screening criteria was developed to carry forward viable alternatives for each of the general connection points to the Waterdown system. The following high-level screening criteria were used:

- Are there good opportunities for trenchless construction and available area for tunnel shaft sites?
- Can conflicts with existing infrastructure be avoided or mitigated?
- Are significant natural features avoided and can impacts be mitigated?
- Will there be significant impacts to residents/businesses and/or traffic disruption?

Route	Opportunity for Trenchless Technology	Avoids or Mitigates Existing Infrastructure	Avoids or Mitigates Sensitive Environmental Features	Avoids or Mitigates Significant Traffic Disruptions	Screening Result
1A	✗ – limited	✗	✗	✗	Screened out
1B	✗ – limited	✗	✗	✗	Screened out
1C	✗ – limited	✗	✗	✗	Screened out
1D	✓	✓	✓	✓	Carried forward
1E	✓	✓	✓	✓	Carried forward
1F	✓	✓	✗	✓	Screened out
2	✗ – limited	✓	✓	✓	Screened out
3	✓	✓	✓	✓	Carried forward
4	✗ – limited	✓	✓	✓	Screened out
5A	✗ – limited	✓	✓	✗	Screened out
5B	✗ – limited	✗	✗	✗	Screened out
5C	✗ – limited	✗	✗	✗	Carried forward
6A	✗ – limited	✗	✗	✗	Screened out
6B	✓	✓	✓	✓	Carried forward

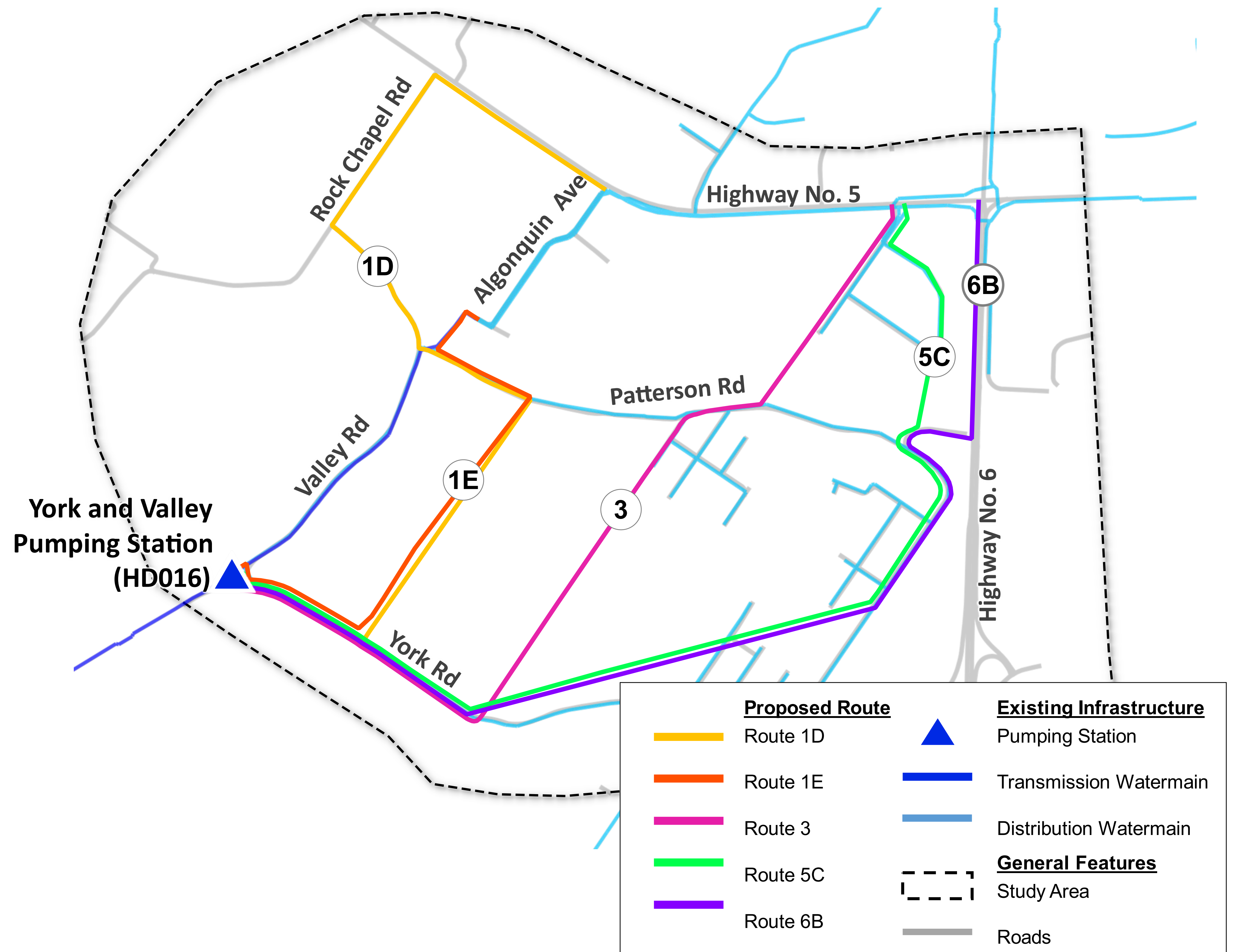
✓ Meets Criteria ✗ Does Not Meet Criteria

Which Preliminary Strategies Were Selected?

Short List of Route Alternatives

Route alternatives 1D, 1E, 3, 5C and 6B were carried forward to the short list of route alternatives. These were carried forward because:

- ✓ Routes were overall straighter and wider, providing more opportunity for trenchless construction and available sites for shafts.
- ✓ Routes that were along the utility corridor may be achievable with further coordination with TransCanada and Hydro One.
- ✓ Routes avoided the Ministry of Transportation (MTO) planned works along Highway 6.
- ✓ Routes avoided majority of significant natural features (e.g., Areas of Natural and Scientific Interest (ANSI) along Valley Road).
- ✓ Routes limited/avoided the majority of residential roads (e.g., Valley Road, Patterson Road) as well as limited/avoided the majority of highly trafficked roads (e.g., York Rd)



How is the Short List Evaluated?

Short List Detailed Evaluation Criteria

The short list of route alternatives have undergone a detailed evaluation using key evaluation criteria to determine the best solution that will minimize overall impacts to the study area.



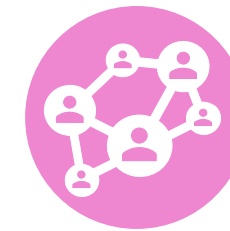
Technical

- Meet existing and future servicing needs
- Ease of operation
- Provides water supply redundancy and security
- Compatibility with existing water supply system
- Avoids conflicts with existing infrastructure (water, wastewater, stormwater, utilities and roads)
- Ability to reduce and manage risks associated with geotechnical and hydrogeology
- Ability to adapt to climate change



Natural Environment

- Terrestrial habitats, species and systems
- Aquatic habitats, species and systems
- Groundwater quality and quantity
- Minimizes climate change impacts



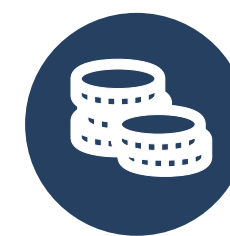
Social and Cultural Environment

- Residential properties and owners
- Local businesses
- Agricultural lands
- Recreational uses and users
- Cultural heritage
- Archaeological resources



Regulatory and Jurisdictional

- Ease of receiving permits and approvals
- Ability to limit property acquisition and easements
- Ability to meet Source Protection Area requirements



Economic

- Capital costs
- Annual operations and maintenance costs
- Life cycle costs

Detailed Criteria	Route 1D	Route 1E	Route 3	Route 5C	Route 6B
Technical	Less Preferred	Most Preferred	Less Preferred	Least Preferred	Least Preferred
Natural Environment	Less Preferred	Most Preferred	Less Preferred	Least Preferred	Least Preferred
Socio-Cultural Environment	Less Preferred	Most Preferred	Less Preferred	Least Preferred	Least Preferred
Regulatory and Jurisdictional	Less Preferred	Most Preferred	Less Preferred	Least Preferred	Least Preferred
Economic	Less Preferred	Most Preferred	Less Preferred	Least Preferred	Least Preferred



Carried forward for refinement and evaluation.

Which Route was Carried Forward?

Preferred Conceptual Route 1E

Route 1E was identified as the preferred route as it scored the highest for all four criteria:

Technical:

- ✓ Overall straighter and wider, providing more opportunity for trenchless construction and available sites for shafts.

Social-cultural:

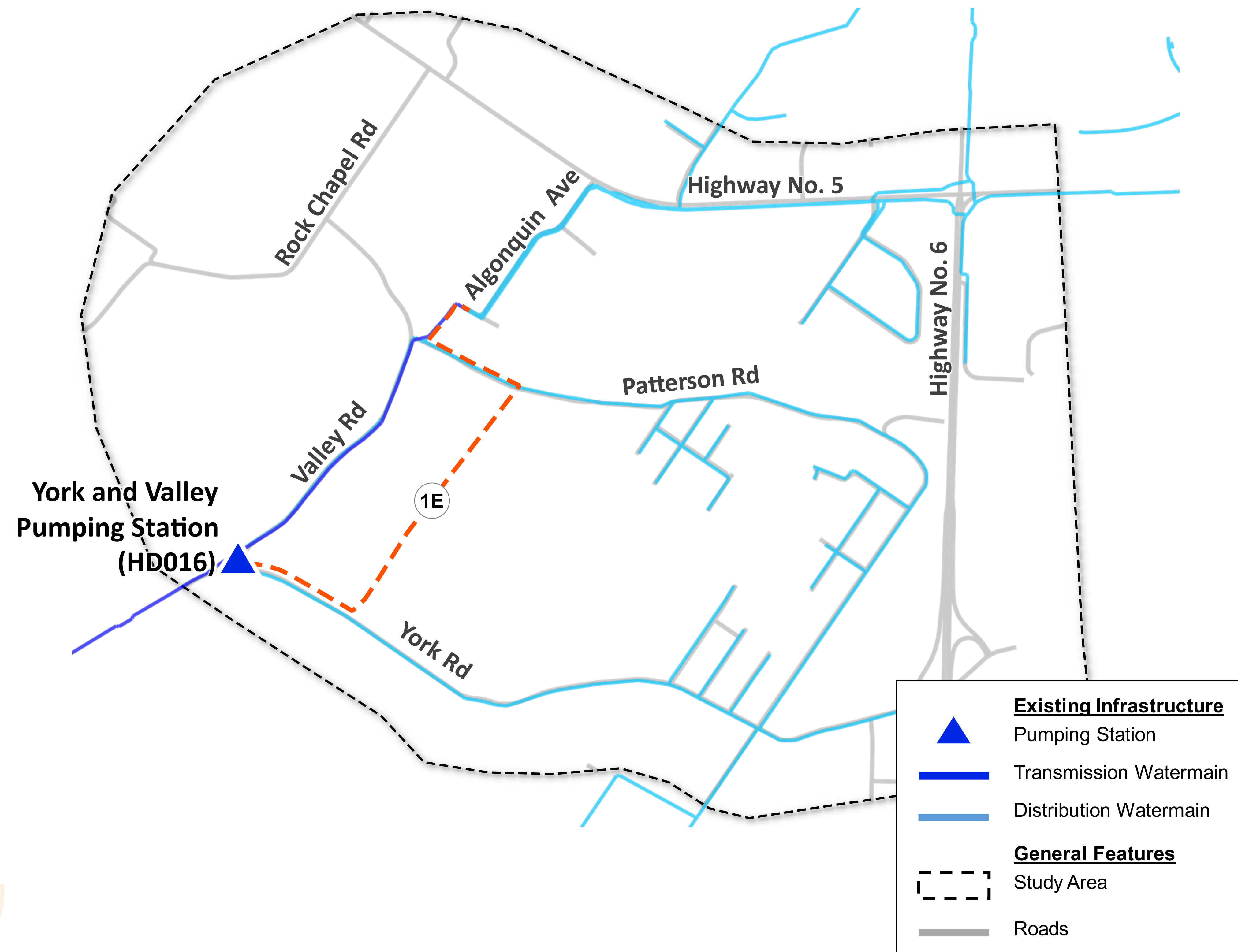
- ✓ Avoids the utility and Ministry of Transportation of Ontario (MTO) corridors.
- ✓ Limits the use of residential roads (e.g., Valley Road, Patterson Road) as well as avoids the majority of highly trafficked roads (e.g., York Rd).

Natural Environment:

- ✓ Avoids majority of significant natural features (e.g., Areas of Natural and Scientific Interest (ANSI) along Valley Road, least number of watercourses impacted).

Economic:

- ✓ Shortest route with less shaft compounds and may be lower in construction cost compared to other routes.



How Will This Be Constructed?

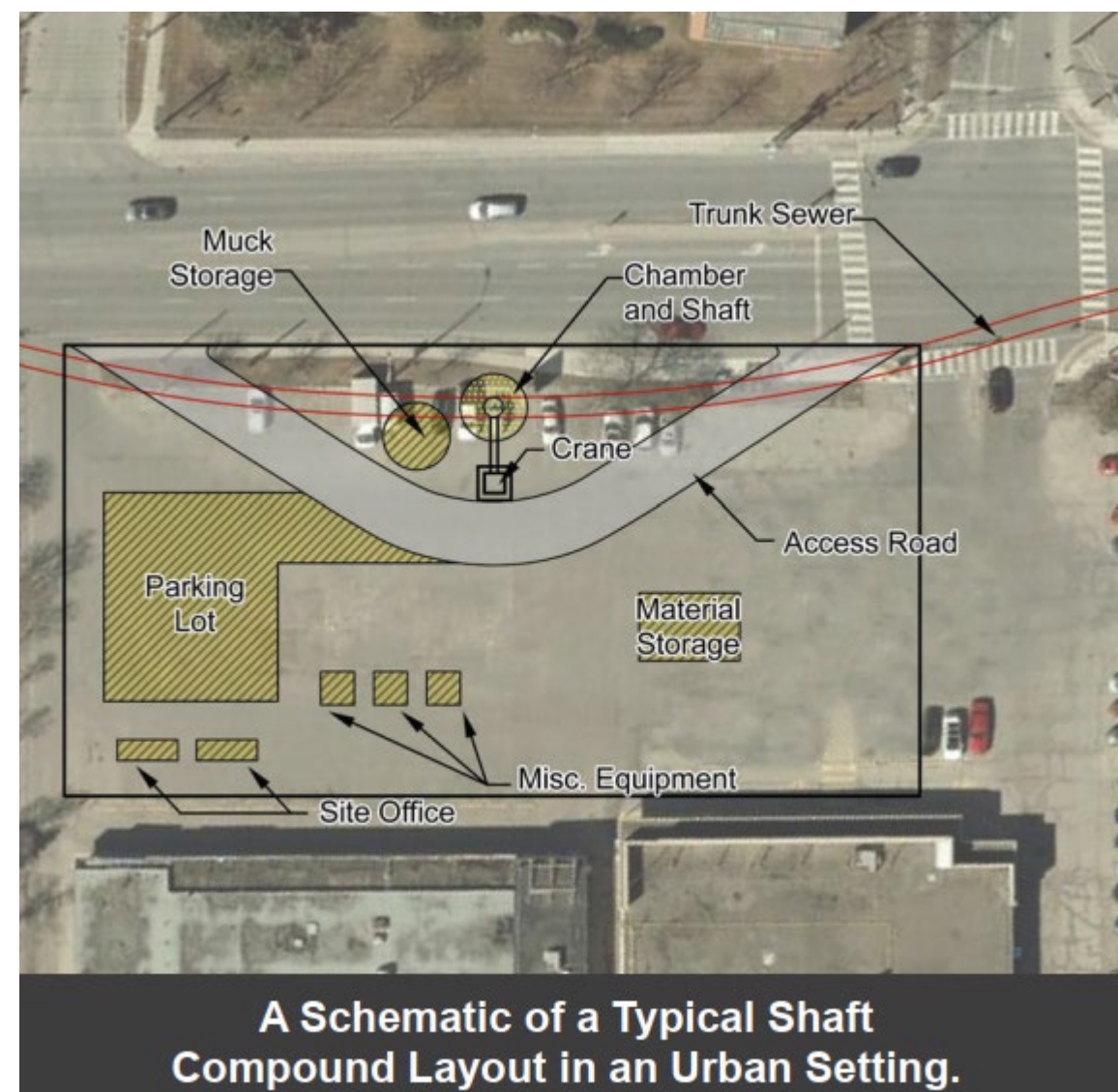
Construction Methodology

There are two main construction methodologies:

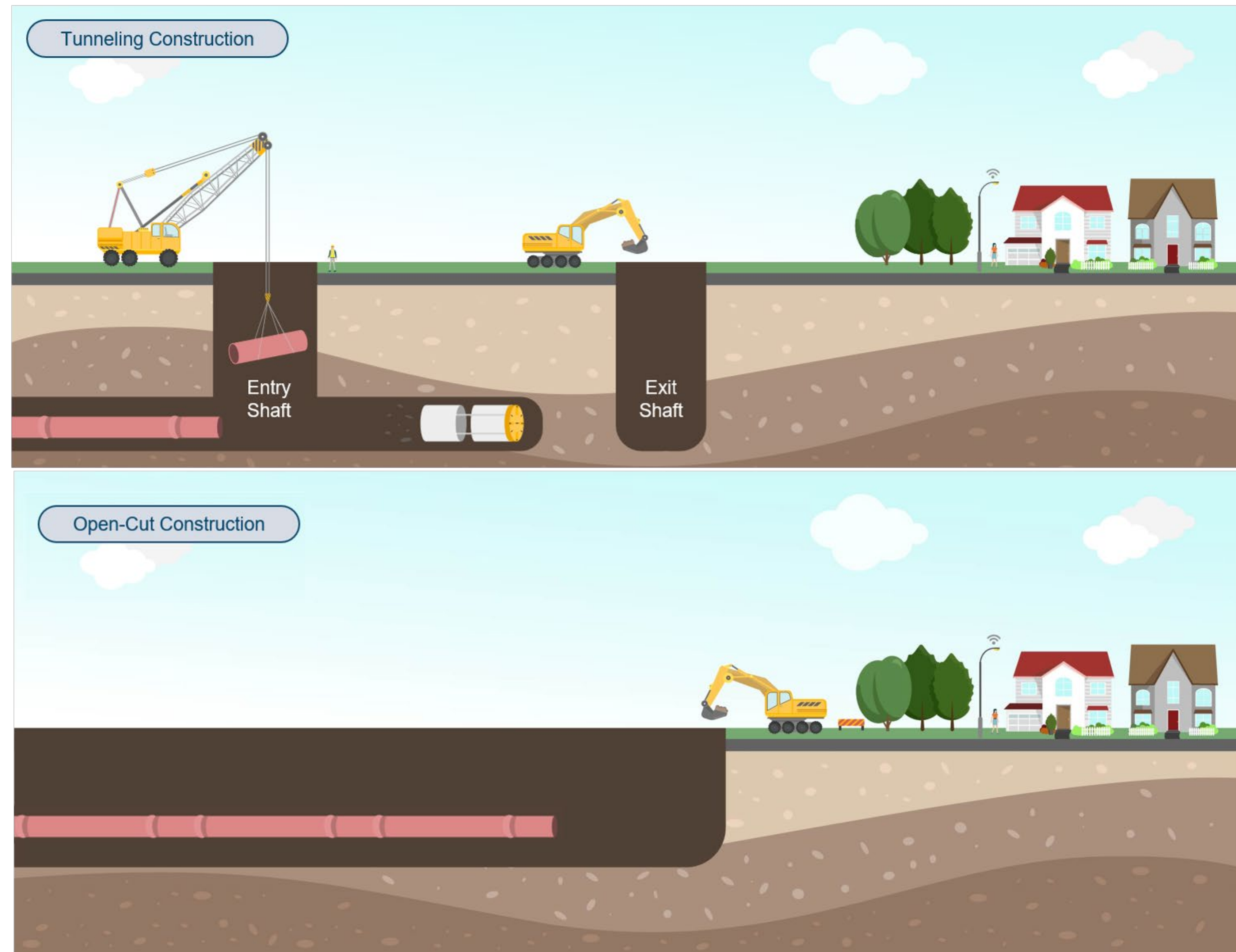
1. Trenchless (includes microtunnelling) involves digging entry and exit shafts (pits) and constructing an underground tunnel slightly larger than the proposed new watermain. The watermain is installed within the tunnel, while the surface remains unaffected (except at the shaft locations).
2. Open-Cutting involves the process of digging a trench to install infrastructure. Because construction occurs on the surface over a stretch of time, open cut construction has the potential to increase local disruption.

Where possible, microtunnelling will be the preferred construction method to reduce overall impacts to the study area.

What does a shaft compound look like?



Each shaft compound site will require a staging area where construction equipment can be stored, and excavated material can be brought to the surface and hauled away. The layouts of each compound will be optimized for safeguarding natural environmental features, underground utilities, and other mitigation measures as per design needs. Once tunnelling is complete, the staging area will be restored to its previous condition.

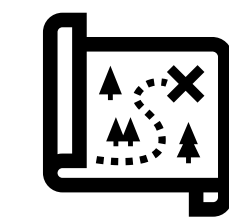


What Investigations Have Been Completed?

Site-Specific Investigation Results



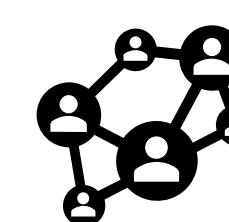
Following the selection of the preferred route sub-option, site-specific reviews and investigations were undertaken to support the evaluation of the design alternatives and to identify mitigation measures, including:



Archaeological

Purpose: to determine where there are sites of archaeological significance within the study area which may impact the construction of the servicing solution. Main objective is to avoid areas of significance.

- Stage 1 and Stage 2 Archaeological Assessment Completed
- **Result: Areas of potential archaeological importance are avoided. No further archaeological investigations required. Sites will be further monitored during construction.**



Cultural Heritage

Purpose: to assess any potential impacts to cultural heritage resources and identify mitigation measures for the preferred solution.

- Cultural Heritage Report (CHR) and Cultural Heritage Impact Assessment (HIA) Completed.
- **Result: Properties, landscapes and other cultural heritage resources have been identified within the study area. Mitigation during construction recommended to further minimize impacts include replacement of native vegetation specifically within the Royal Botanical Garden lands, tree protection measures, and restoration of roadway alignment grade.**



Natural Environment

Purpose: to document the existing natural environment features within the study area and identify any potential impacts and mitigation measures for the preferred solution.

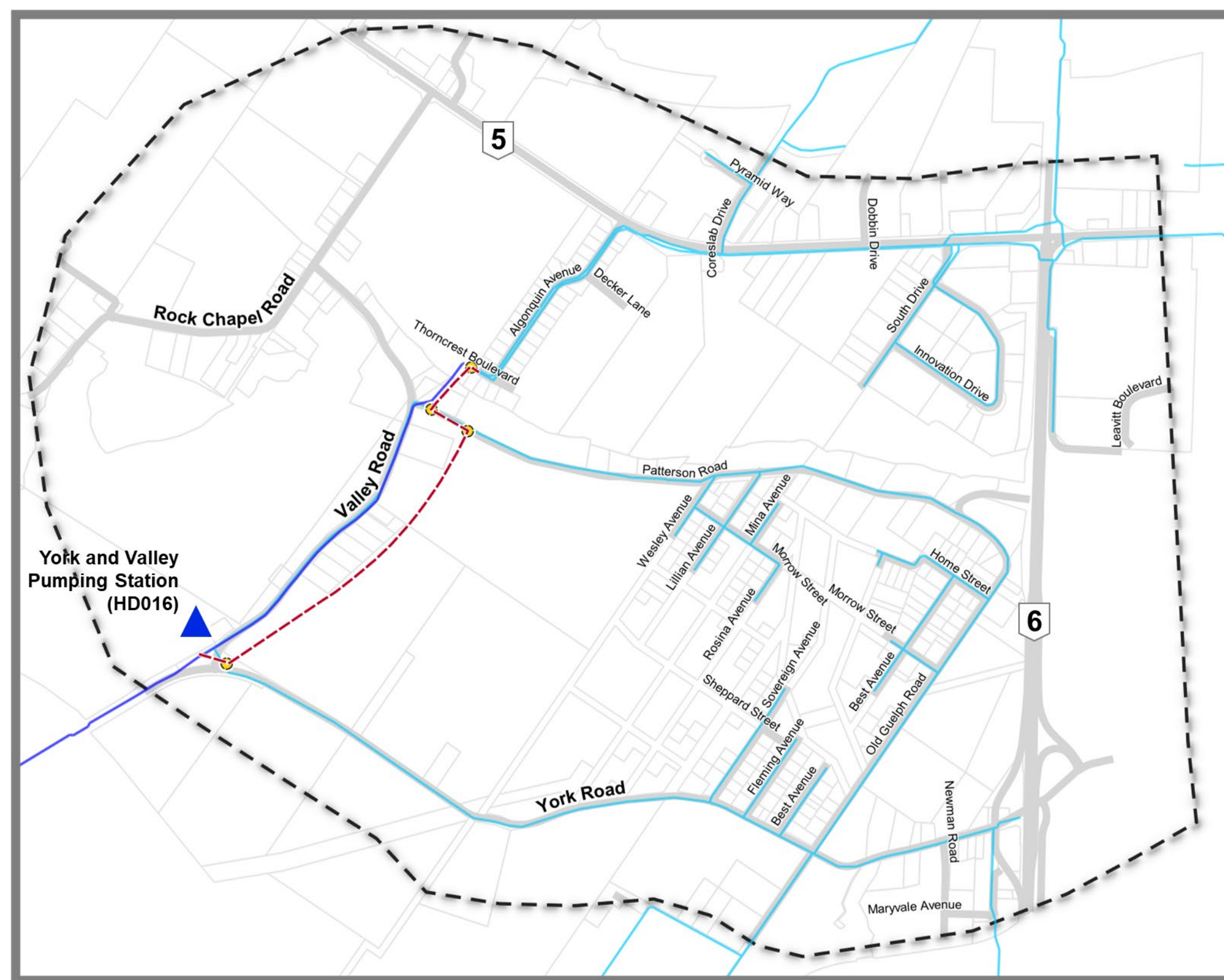
- Baseline assessment and field investigation completed.
- **Result: No impact to the natural environment is expected based on chosen construction methodology (tunnelling). Vegetation remediation will be completed at the shaft sites with a vegetation inventory being conducted during detailed design. Additional bird breeding, bat, and amphibian movement surveys are recommended to be conducted during detailed design.**

How is the Selected Route Further Refined?

Preferred Route Sub-Options

Once the preferred conceptual route was selected, the project team developed three sub options of the preferred route for further evaluation and screening. The following was considered in the evaluation process:

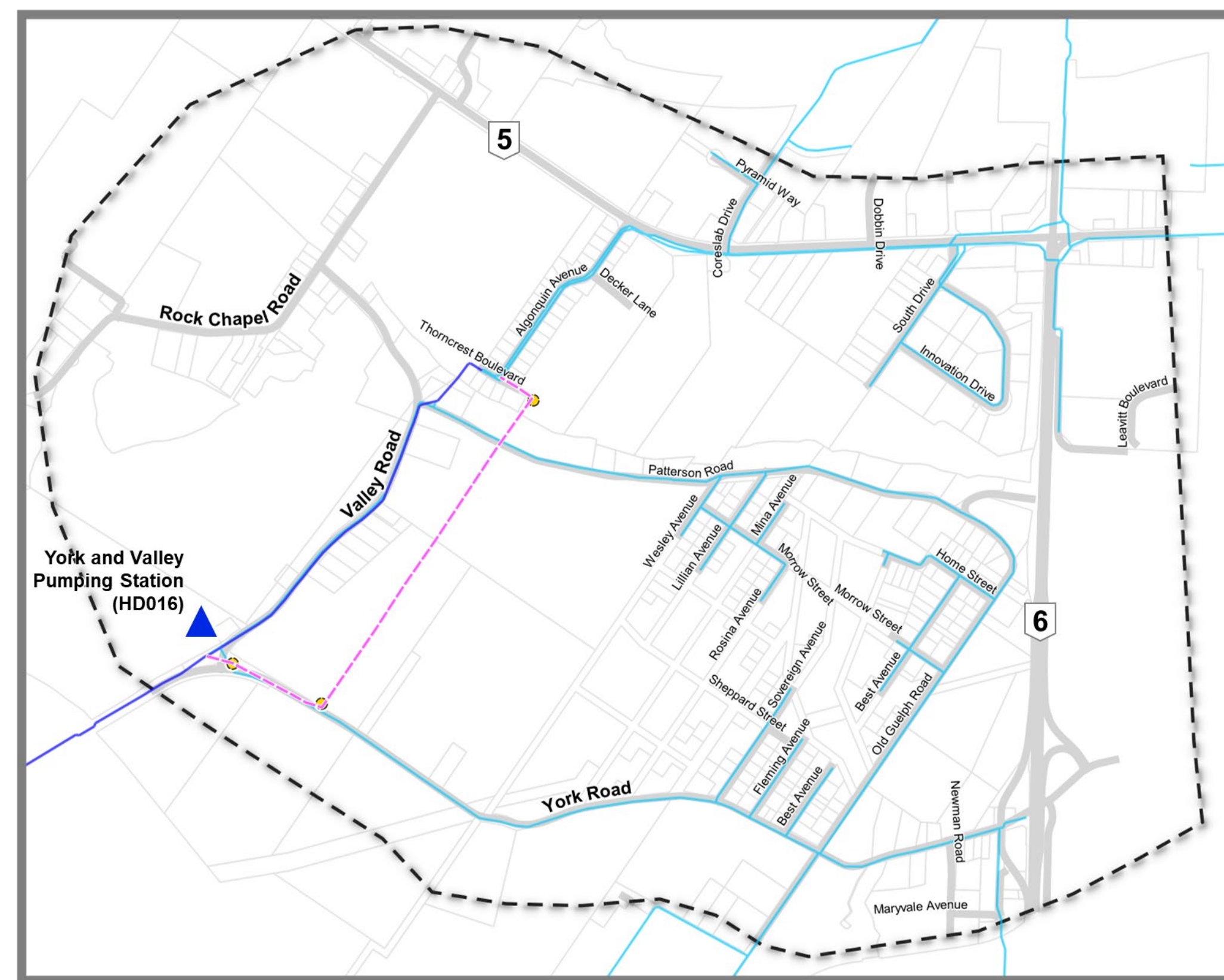
- **Construction technology:** Minimize need for open cut construction technology (surface works),
- **Shaft sites:** Minimize the number of total shaft sites (surface works) required for construction,
- **Natural features:** Minimize surface works near or adjacent to sensitive natural features, and
- **Traffic:** Minimize required surface works that would result in partial or full road closures.



Sub-Option 1

Route: York Road through Royal Botanical Gardens (RBG) to Patterson Road, north up the escarpment through the existing City easement to west end of Thorncrest Boulevard.

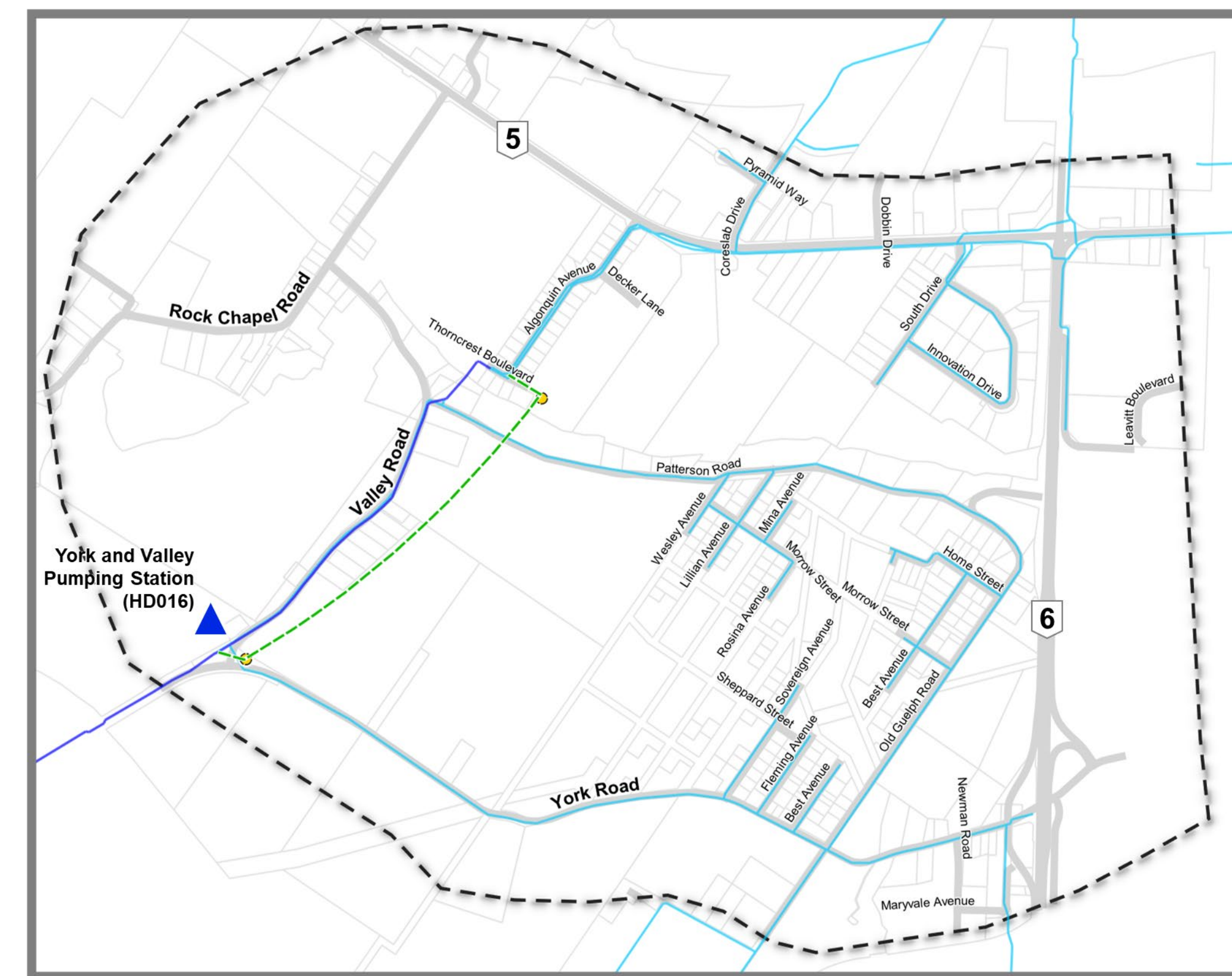
Shafts: one at York Road/Valley Road, two along Patterson Road, and one at the west end of Thorncrest Boulevard.



Sub-Option 2

Route: York Road to midway through the RBG lands, then runs north straight through the escarpment to east end of Thorncrest Boulevard.

Shafts: one at York Road/Valley Road, one within RBG lands and, one at the east end of Thorncrest Boulevard.



Sub-Option 3

Route: York Road through RBG lands straight through the escarpment to the east end of Thorncrest Boulevard.

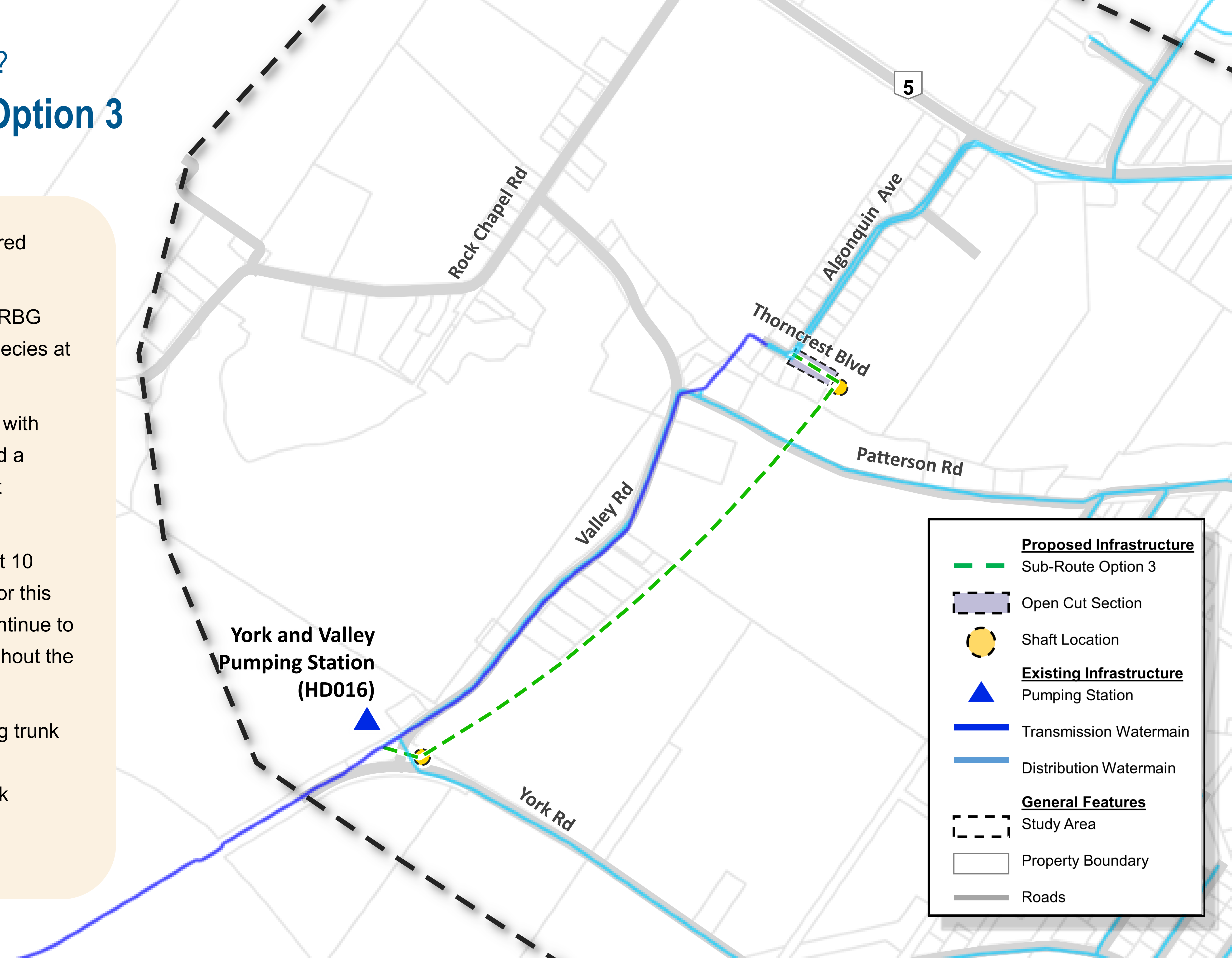
Shafts: one at York Road/Valley Road and one east end of Thorncrest Boulevard.

Which Route is Carried Forward?

Preferred Route Sub-Option 3

Sub-Option 3 was the most preferred because:

- ✓ Route runs underground along RBG lands, minimizing impacts to Species at Risk habitat.
- ✓ Route minimizes surface works with only two shaft sites required and a small section requiring open cut construction.
- ✓ Willingness of property owner at 10 Decker Lane to work with City for this project (the project team will continue to consult with this resident throughout the duration of the project)
- ✓ Improves redundancy of existing trunk watermain by using a different alignment than the existing trunk watermain along west side of Thorncrest Boulevard.



Project Implementation, Timeline and Next Steps

Project Timeline

Summer 2024

- Notice of PIC No. 3
- PIC No. 3 (**We are here!**)

Remainder of 2024

- Notice of Completion
- 30-Day Public Review Period of Project File

Key Project Implementation Steps

1. Address all comments received
2. Undertake additional First Nation engagement
3. Undertake additional engagement with interested community partners
4. Complete the Phase 2 Class EA Documentation
5. File the Phase 2 Project File Documentation for Public Review and Comment (mid-2024)
6. Initiate the Detailed Design of the watermain for 2025
7. Plan for the Construction of the watermain starting 2026/2027

How to Stay Involved



- ✓ Fill out the questionnaire and comment sheet.
- ✓ Sign up for project information updates.
- ✓ Provide your feedback regarding materials presented in this PIC No. 3.

Do you have any questions, comments, or want to stay up to date?

Please connect with us through our project website or the Study's Project Manager.



<https://engage.hamilton.ca/waterdown-watermain-ea>

Udo Ehrenberg, Project Manager
City of Hamilton
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Email: udo.ehrenberg@hamilton.ca

Please note that information related to this study will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. All comments received will become part of the public record and may be included in the study documentation prepared for public review.

If you need any accommodations to provide comments and/or feedback for this study, please contact the Project Manager.