

Welcome

Public Information Event

Dufferin Sanitary Trunk
Sewer (STS) System
Improvements Municipal
Class Environmental
Assessment Study

Please sign in to be
added to the study
mailing list and receive
project updates



Why are we here?

We want to hear from you!

The purpose of tonight's Public Information Event (PIE) is to provide:

- An overview of the study, including project background and reasons for the study;
- A description of the Municipal Class Environmental Assessment Process (Class EA);
- A description of the alternatives considered, evaluation process, impact assessment, preliminary recommendations; and
- Next steps.

We want your input on:

- The alternatives considered, evaluation process, and preliminary recommendations;
- Impacts the project may have on the community (environmental, transportation, recreational, etc.); and
- Proposed mitigation measures.

Please complete a Comment Sheet and leave it in the box provided, or return to the City by December 22nd, 2017

Project Purpose and Objectives

- **The purpose of the Study is to:**
 - Identify and assess system improvements for the Dufferin Sanitary Trunk Sewer.
- **The study will recommend solutions to:**
 - Bring the Dufferin Sanitary Trunk Sewer into a state of good repair;
 - Reduce inflow/infiltration and risk of a potential sewer collapse below the reservoir; and
 - Improve accessibility for future operations and maintenance of the Dufferin Sanitary Trunk Sewer within the Study Area.

This Class EA is not related to basement flooding. Basement Flooding is being addressed separately by the *Basement Flooding Protection Program*. This study will consider the information collected by the Basement Flooding study within the study area.

Problem & Opportunity Statement

The Problem and Opportunity Statement provides the framework and objectives for the outcome of the study.

Dufferin Sanitary Trunk Sewer:

- Was built in the early 1960s
- Is part of the City's Don Sanitary Trunk Sewer Collection System
- Has sections located under the G. Ross Lord Reservoir
- *The reservoir was built on top of the sewer and due to poor condition of the sewer significant infiltration and inflow of stormwater is observed.* The maintenance holes (MH) and the sewer are in the reservoir and *cannot be accessed for maintenance.*

The Dufferin Sanitary Trunk Sewer System Improvements at G. Ross Lord Reservoir Municipal Class EA is being undertaken to identify preferred solutions to address the deterioration of the system under the reservoir as they relate to the ***safety, structural condition, performance and applicable design standards.***

This Class EA will be undertaken in accordance with the Municipal Class Environmental Assessment process (Municipal Engineer's Association 2000, as amended in 2007, 2011 and 2015).

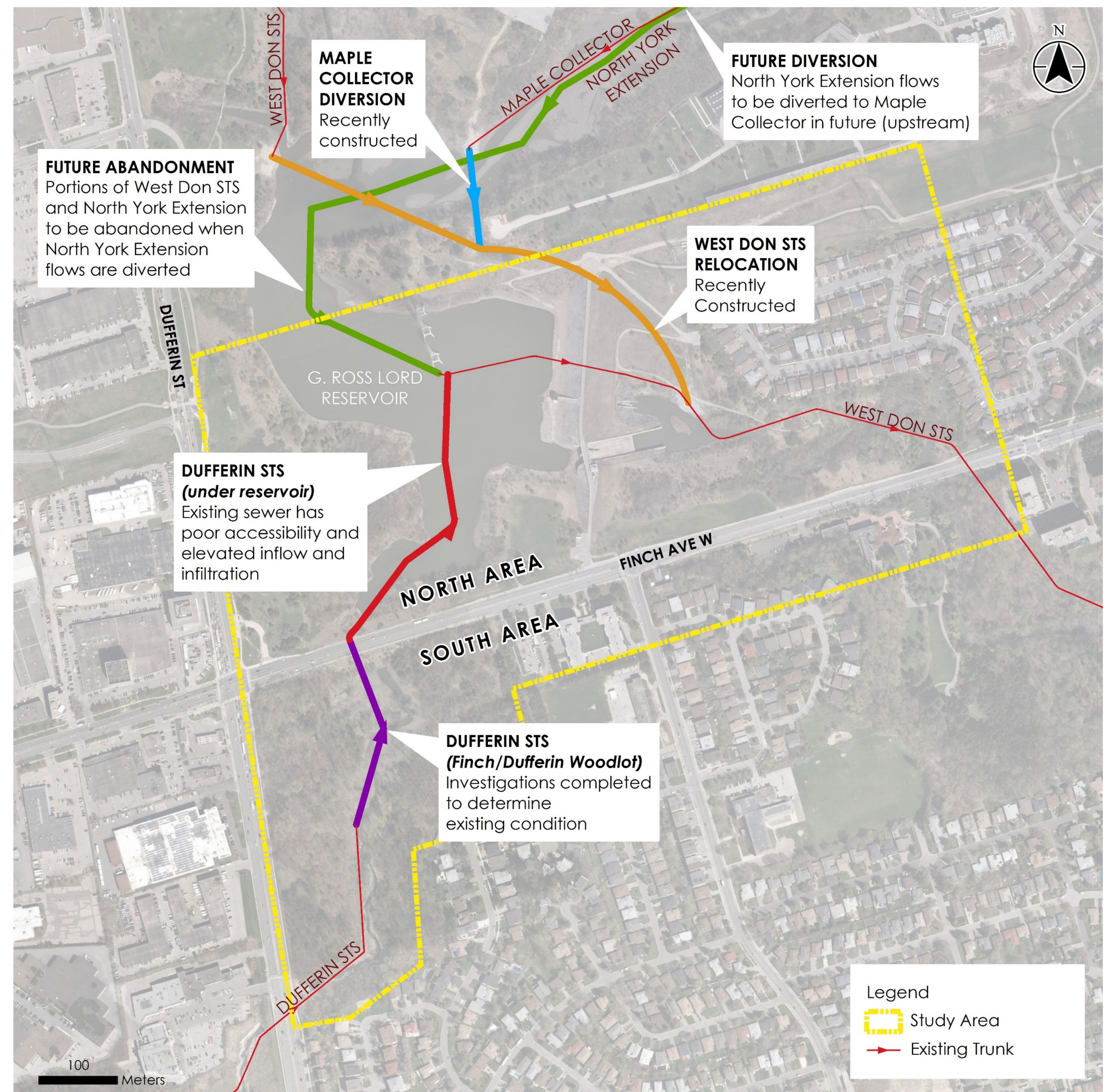
Study Area

The Study Area has been divided into two areas:

- North Area (north of Finch Ave)
- South Area (south of Finch Ave)

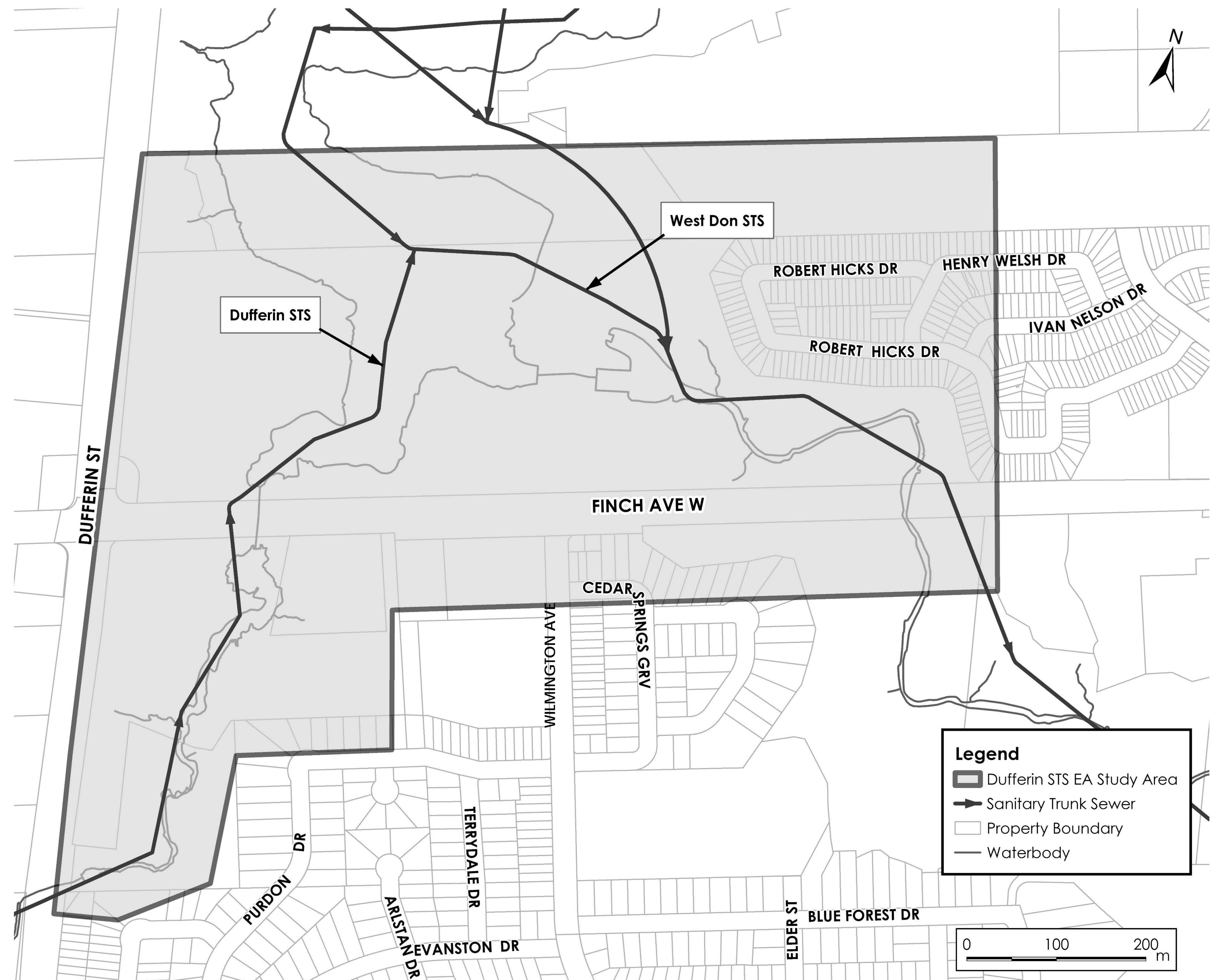
Existing infrastructure within the Study Area includes the reservoir and sewers constructed at different times over the past 70 years; some of which have since been relocated or abandoned, and include:

- G. Ross Lord Reservoir built after the sewers
- Sanitary Trunk Sewers
- Collector sewers



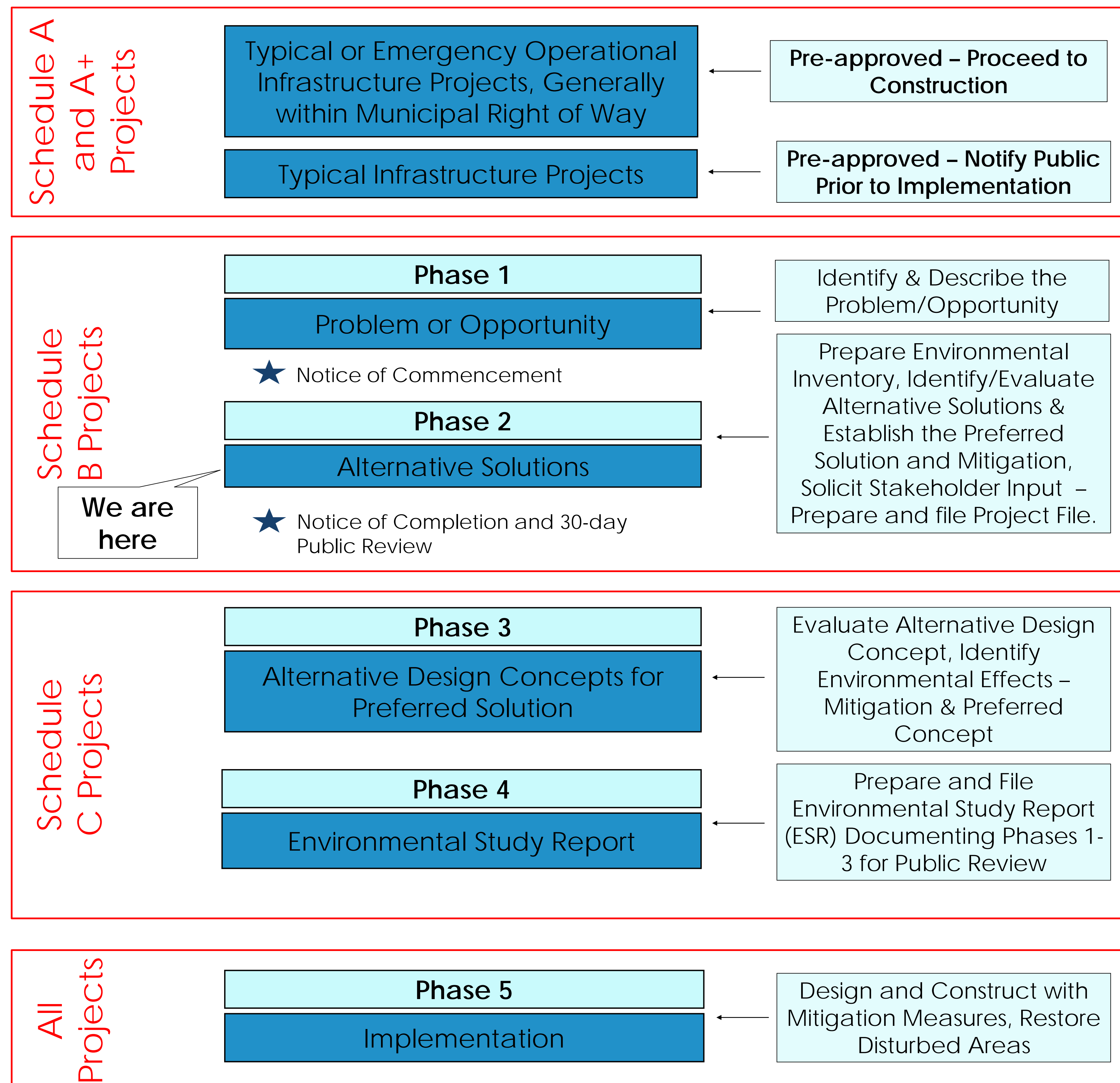
Dufferin Sanitary Trunk Sewer and G. Ross Lord Reservoir – Development History

- *Dufferin Sanitary Trunk Sewer and West Don Sanitary Trunk Sewer* built in 1960's as part of the City's Don Sanitary Trunk Sewer Collection System;
- *G. Ross Lord Reservoir* built in 1973 to reduce flooding risks;
- Sections of the Dufferin and West Don Sanitary Trunk Sewer are now located *under the Reservoir*, making access for maintenance/repairs difficult;
- Significant amount of stormwater entering the trunk sewer (*inflow and infiltration*), impacting the sewer's capacity and treatment operations.



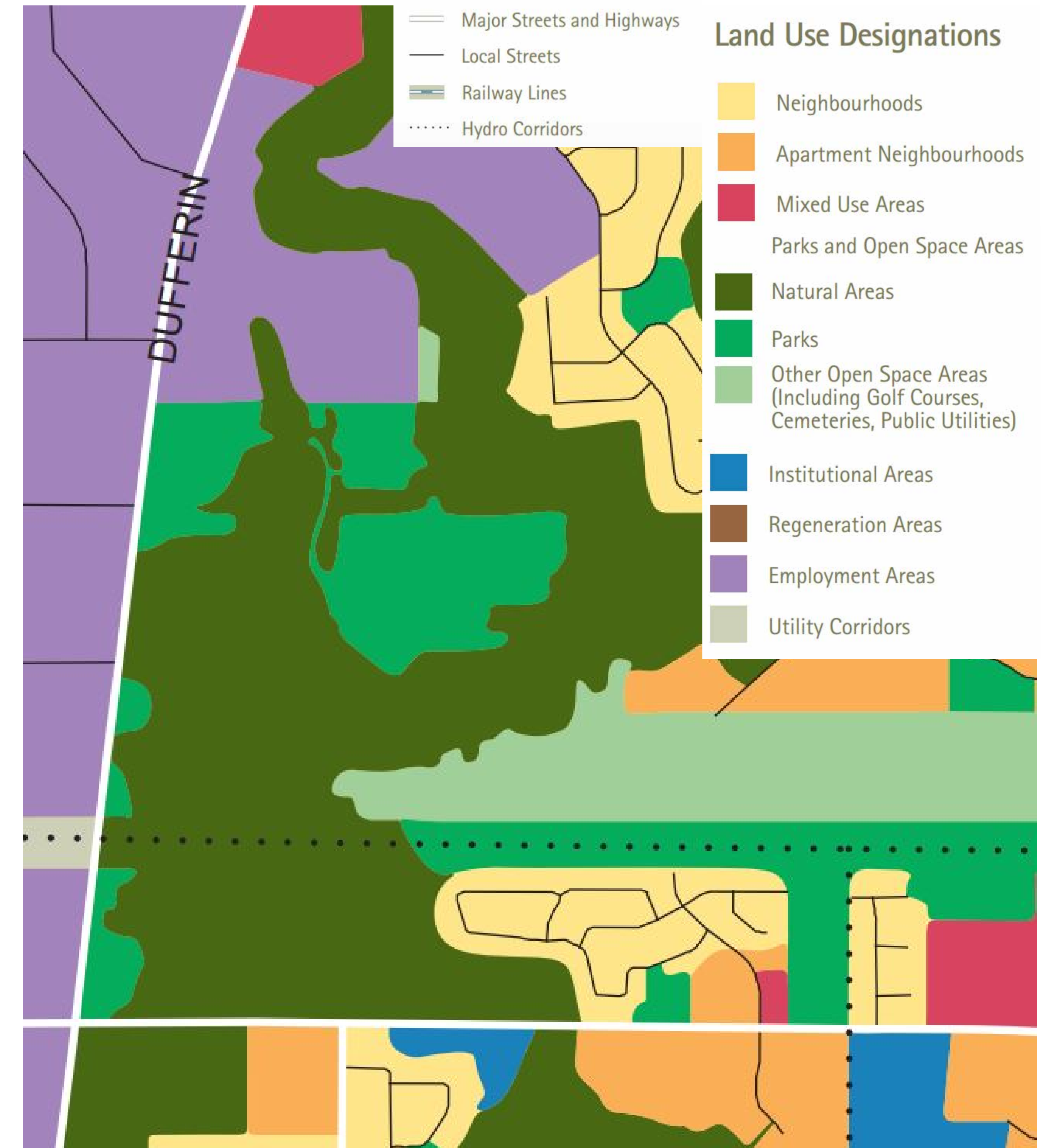
What is a Municipal Class Environmental Assessment (Class EA) ?

- The Class EA process is a five phase planning process that:
 - identifies *reasonable solutions* to the Problem;
 - considers *advantages and disadvantages* including net environmental effects;
 - requires *public consultation*; and
 - provides clear documentation that describes the *decision making process*.
- This study will:
 - Follow the *Schedule 'B'* Class EA requirements;
 - Complete *Phases 1 & 2* of the planning process; and
 - Document the decision making process in a Project File to be filed for a *30 calendar day review period*.



Social/Cultural Environment

- Located in Ward 10 – York Centre;
- Land use consists primarily of Parks and Natural Areas (G. Ross Lord Reservoir) with bike trails, a cricket patch field, an off-leash dog area, and riding stables;
- Lands in the study area are owned by the City of Toronto, and the Toronto and Region Conservation Authority (TRCA);
- A Stage 1 Archaeological Assessment was conducted to identify areas of archaeological potential. Further assessments will be completed where proposed construction activities may impact identified areas of archaeological potential; and
- 1 Heritage Property was identified adjacent to the study area. A Cultural Heritage Assessment was completed by Stantec in 2017.

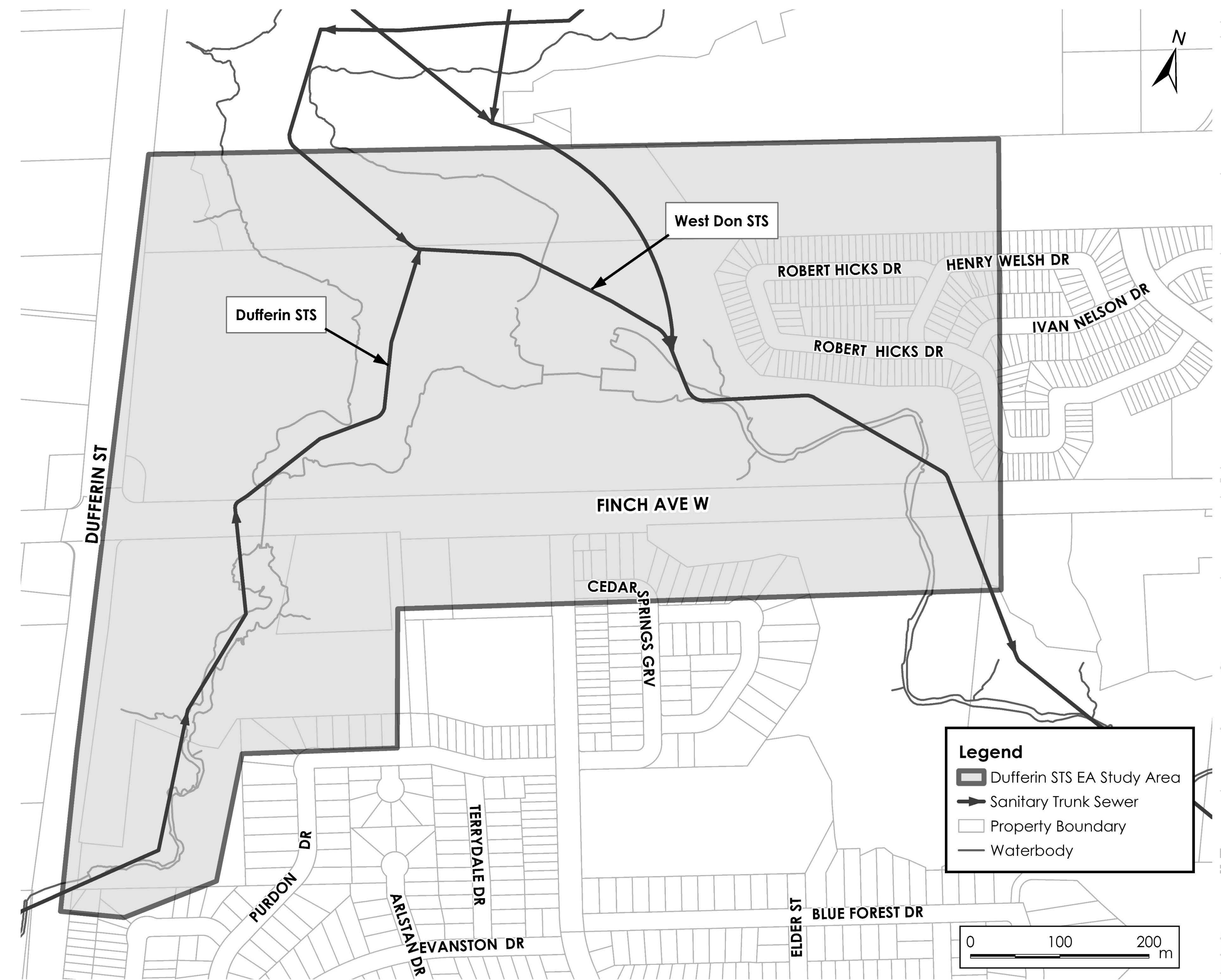


City of Toronto Official Plan
Map 16 – Land Use

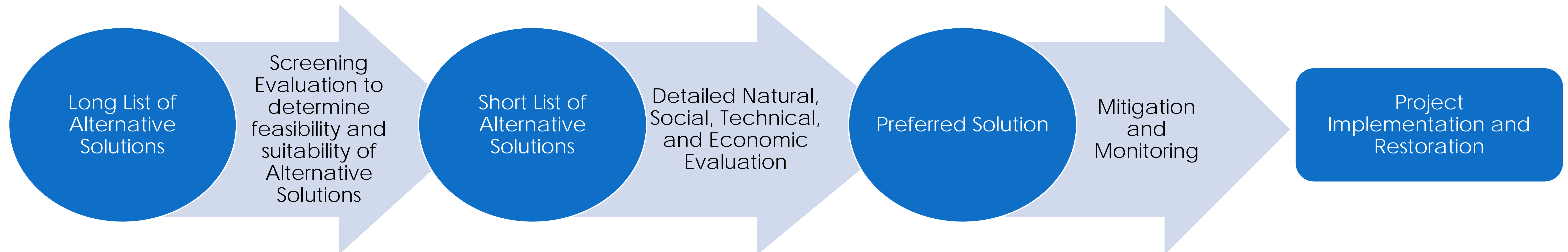
Natural Environment

A Natural Environment Review was conducted to document the existing environmental conditions and significant features within the Study Area. For any potential impacts, mitigation measures will be identified for each alternative, to be carried through to detailed design and construction.

- There are a number of Significant Woodlands within the Study Area;
- There are Significant Valleylands located along the south of the G. Ross Lord Reservoir, and along Dufferin Creek south of Finch Avenue;
- The Reservoir Dam, and the steep exposed bank along the east side of Dufferin Creek provides nesting opportunities for Barn Swallow (Species at Risk);
- A number of Woodland communities provide potential habitat for endangered bat species;
- There are a number of other candidate significant wildlife habitats within the study area. Butternut tree surveys are to be completed prior to construction, work within 25 m of any Butternut trees will be avoided; and
- The Reservoir, Dufferin Creek, and the West Don River provide habitat for a number of warmwater fish species.



Development of Alternative Solutions



- For the purpose of developing alternatives, the Study Area was divided into two areas: North and South of Finch Ave.
- Alternative solutions have been identified for North and South sections of Dufferin Sanitary Trunk Sewer, which impact both the Dufferin and West Don Sanitary Trunk Sewer.

Long List of Alternative Solutions and Pre-Screening

Alternative 1 Do Nothing

The Dufferin and West Don Sanitary Trunk Sewers would remain in place, without any improvements.

The 'Do Nothing' alternative does not address the Problem and Opportunity Statement for the study.

Alternative 2 Rehabilitation

The existing sections of the Dufferin Sanitary Trunk Sewer in need of repairs would be repaired in place. The following rehabilitation methods were reviewed:

- 2A – Dry Rehabilitation
- 2B – Flow Controlled Rehabilitation
- 2C – Wet Rehabilitation

Rehabilitation technology alternatives were screened based on the advantages and limitations of each.

Alternative 3 Realignment

Realign the sewer outside the Reservoir.
Various realignment options were considered (see separate drawings).
A number of construction technologies were reviewed, and the following were identified as feasible alternatives:

- Horizontal Directional Drilling (HDD)
- Microtunnelling (MT)
- Handtunnelling considered for tie-in connections only (HT)

Alternative realignments were screened based on their impacts to land use, staging area requirements, utility or other infrastructure conflicts, traffic impacts, and environmental impact including tree/vegetation removal requirements.

Short Listed Alternatives

The long list of alternative rehabilitation technologies, realignment concepts, and realignment construction technologies were screened based on their impacts to land use, staging area requirements, utility or other infrastructure conflicts, traffic impacts, and environmental impact including tree/vegetation removal requirements to arrive at the following:

North Area

- Do Nothing
- Realignment Alternative 3b – Microtunnelling (MT)
- Realignment Alternative 3d – Microtunnelling (MT)
- Realignment Alternative 3d – Horizontal Directional Drilling (HDD)
- Realignment Alternative 3f – Microtunnelling (MT)

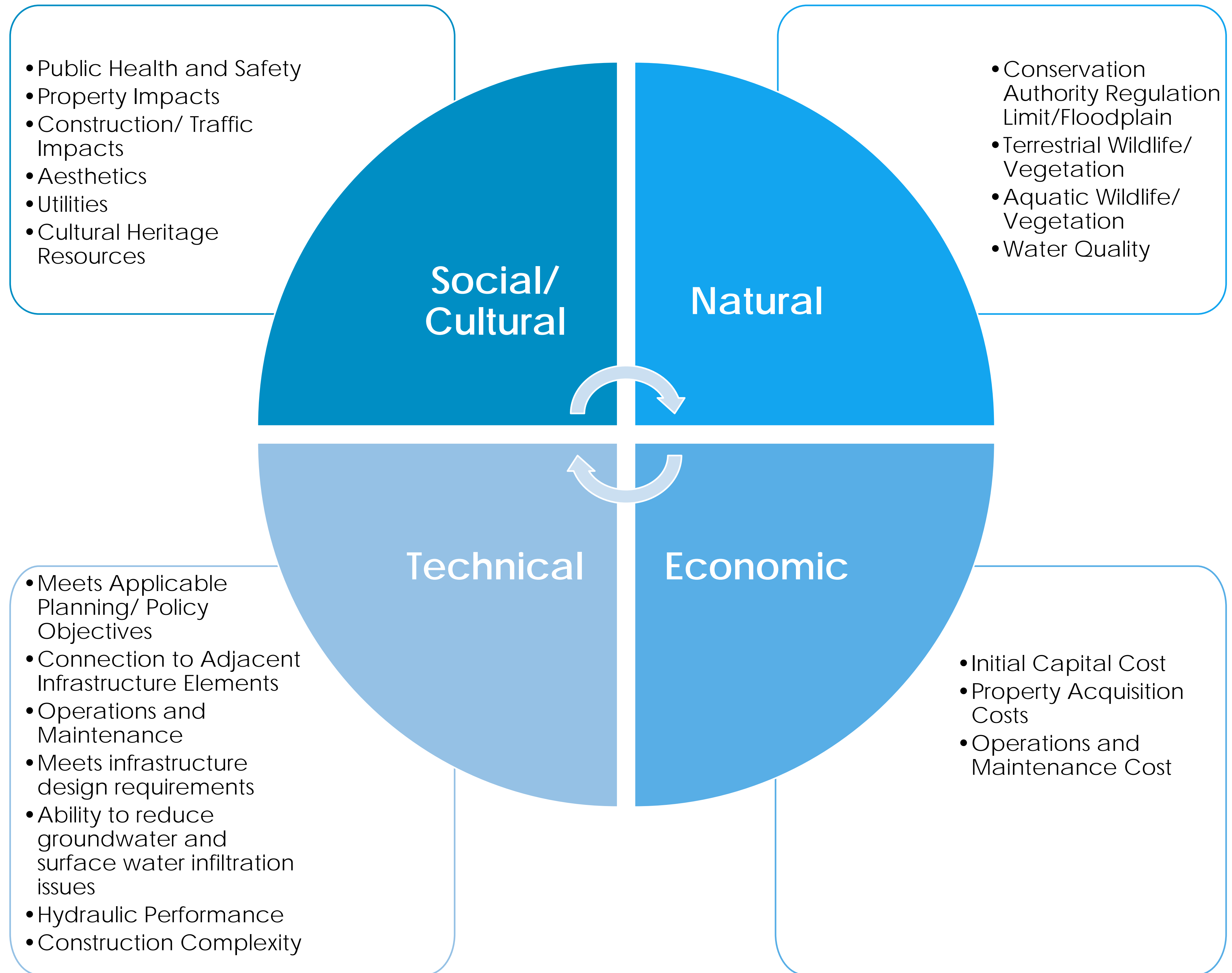
South Area

- Do Nothing
- Rehabilitation Alternative 2a – Rehabilitate Dry using Cure-in-Place Pipe (CIPP)
- Rehabilitation Alternative 2b – Rehabilitate Flow Controlled using Steel Reinforced Polyethylene (SRP PE) to Reline

Evaluation Criteria

The shortlisted alternatives were evaluated based on these criteria to identify the most preferred alternative, with the least overall net environmental impact.

The evaluation considered impacts to the Social, Natural, Technical, and Economic Environments.



Evaluation Results

| Criteria | North Area Alternatives | | | | | South Area Alternatives | | |
|------------------------------------------------------------------|-------------------------|----------------------------|----------------------------|-----------------------------|----------------------------|-------------------------|---------------------------------|-----------------------------------------------|
| | Alt 1: Do Nothing | Alt 3b - MT: New Alignment | Alt 3d - MT: New Alignment | Alt 3d - HDD: New Alignment | Alt 3f - MT: New Alignment | Alt 1: Do Nothing | Alt 2a - CIPP: Rehabilitate Dry | Alt 2b - SRP PE: Rehabilitate Controlled Flow |
| Social/Cultural | | | | | | | | |
| Public health and safety impacts | | | | | | | | |
| Property impacts | n/a | | | | | n/a | | |
| Impacts of construction activities on surrounding neighbourhoods | n/a | | | | | n/a | | |
| Aesthetic impacts | | | | | | | | |
| Utility impacts | n/a | | | | | n/a | | |
| Impacts to cultural heritage resources | | | | | | | | |
| Natural Environment | | | | | | | | |
| Impacts to floodplain/TRCA regulation limit | | | | | | | | |
| Impacts to Terrestrial wildlife and vegetation | | | | | | | | |
| Impacts to aquatic wildlife/vegetation | | | | | | | | |
| Water quality impacts | | | | | | | | |
| Technical and Planning Considerations | | | | | | | | |
| Meets policy and connectivity requirements | | | | | | | | |
| Meets operational standards | | | | | | | | |
| Infrastructure performance and effectiveness | | | | | | | | |
| Constructability | n/a | | | | | n/a | | |
| Construction complexity and availability of local expertise | n/a | | | | | n/a | | |
| Economic | | | | | | | | |
| Capital cost | | | | | | | | |
| Property acquisition cost | | | | | | | | |
| Operation and maintenance cost | | | | | | | | |
| Overall Evaluation | | | | | | | | |

| Legend | |
|--------|-----------------------------------|
| | Poor |
| | Fair |
| | Good |
| | Excellent |
| | Preliminary Preferred Alternative |

Preferred Technologies

Rehabilitation Technologies



Cured-in-Place Pipe (CIPP) – Existing pipe is lined with flexible tube filled with thermosetting resin. Tube is pulled through pipe, inflated, and heated to begin curing process. This is a dry rehabilitation method (no flow).



Steel Pipe Reinforced Polyethylene (SRP PE) – Steel-reinforced corrugated polyethylene strips with a smooth inner wall are spiral wound by machine into the existing pipe, and grouted in place. This method requires a controlled sewage flow.

CIPP is the preferred rehabilitation method, and Microtunnelling is the preferred Construction Technology for this application, with Hand Tunnelling to be used for short connections only.

Realignment Construction Technologies



Microtunnelling (MT) – Pipe jacking operation that uses a remotely-controlled microtunnel boring machine (MTBM). The MTBM is pushed into the earth by hydraulic jacks.

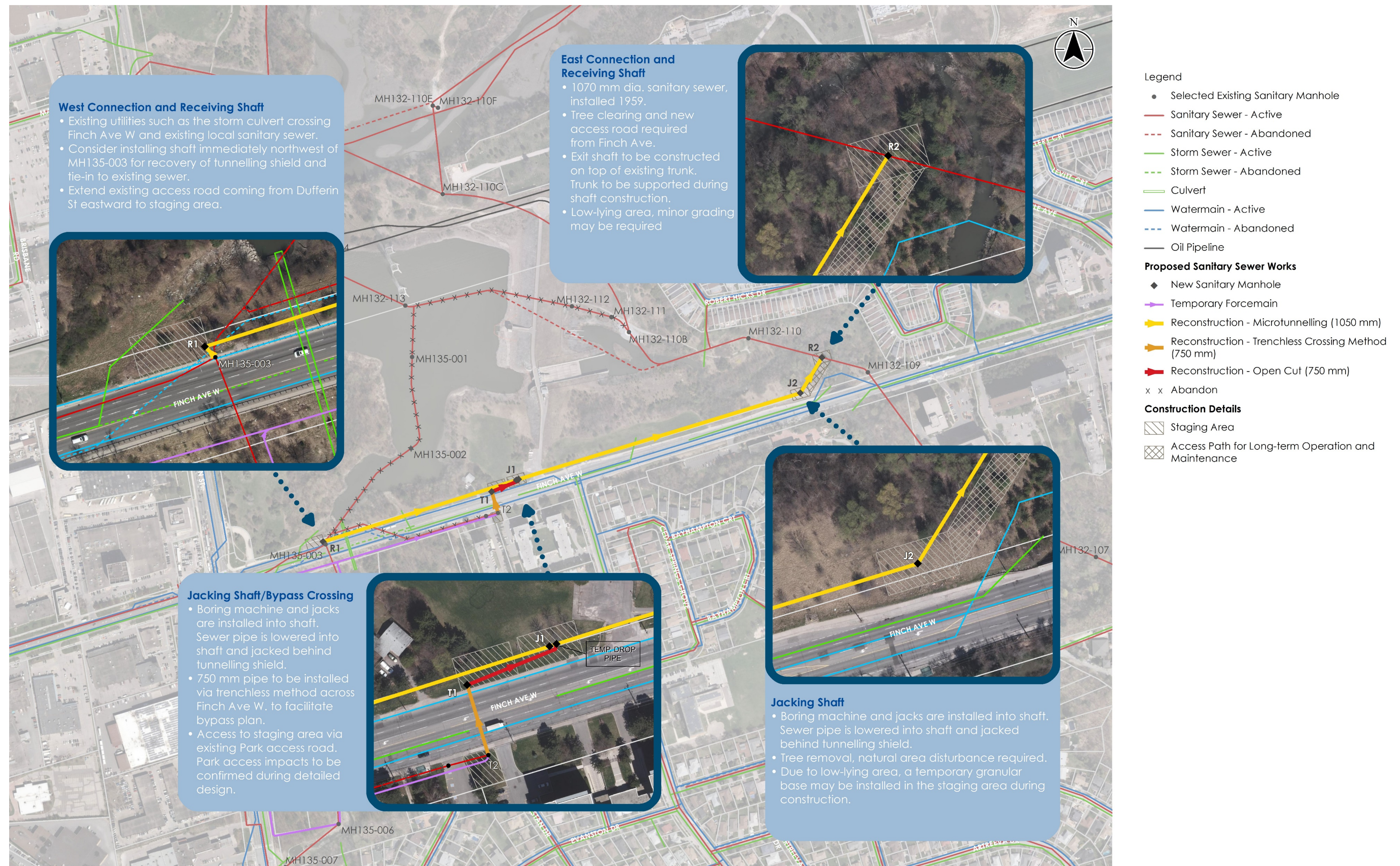


Horizontal Directional Drilling (HDD) – Surfaced launched system often used for installation of pipes under rivers or other surface obstructions. A pilot tube is drilled, which determines the path of the installed pipe.

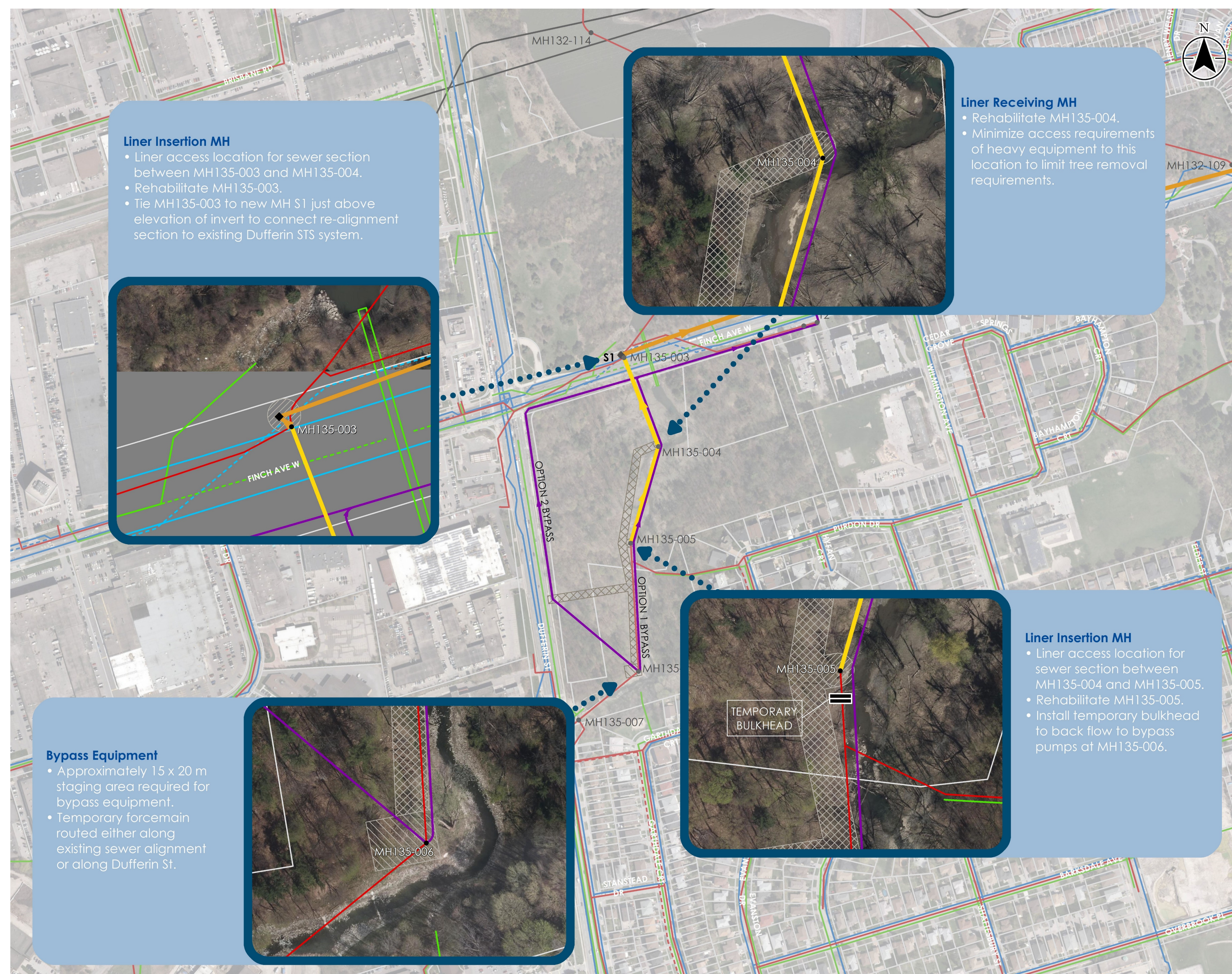


Hand Tunnelling (HT) – Tunnel is sequentially excavated and supported as the installation progresses forward; considered for tie-in connections only.

North Area Recommended Alternative 3f Microtunnelling



South Area Recommended Alternative 2A Rehabilitate Dry



Liner Insertion MH

- Liner access location for sewer section between MH135-003 and MH135-004.
- Rehabilitate MH135-003.
- Tie MH135-003 to new MH S1 just above elevation of invert to connect re-alignment section to existing Dufferin STS system.



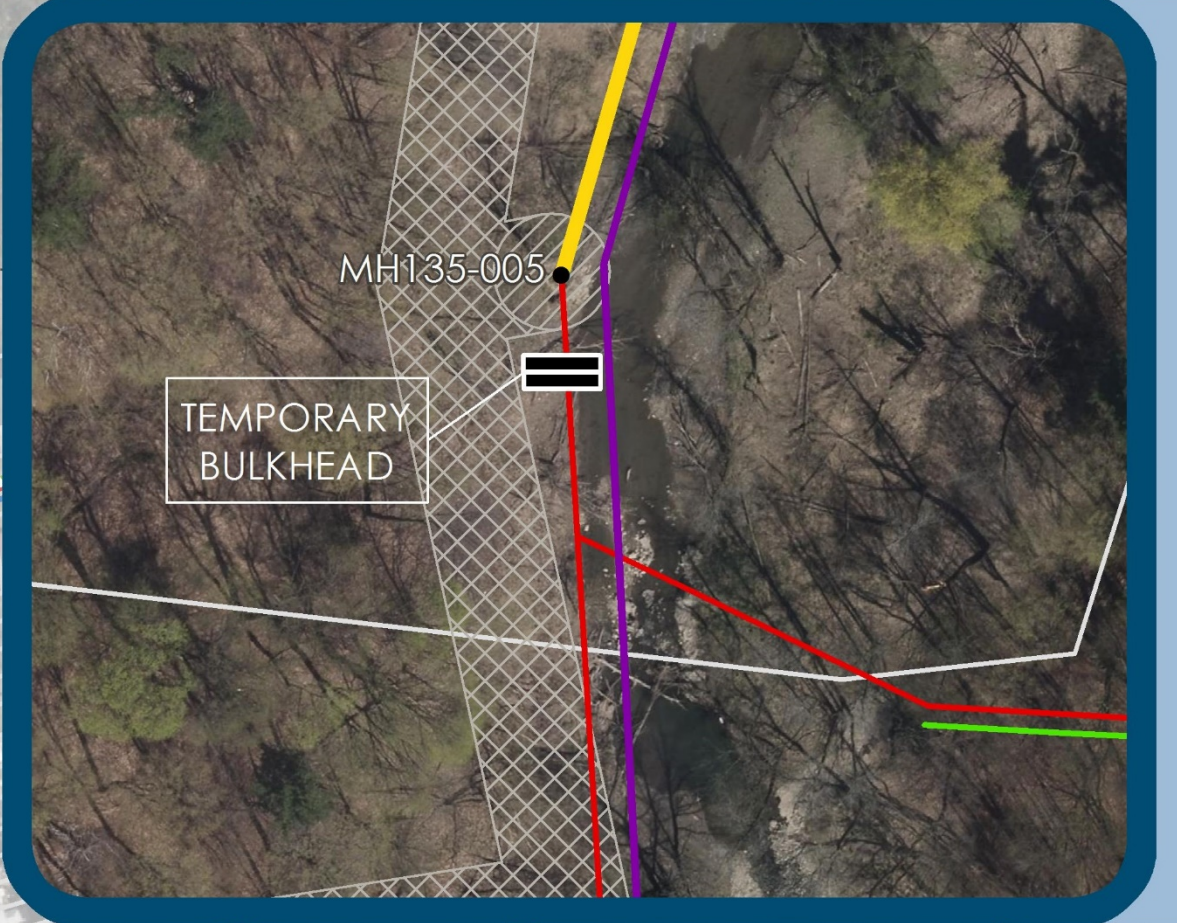
Liner Receiving MH

- Rehabilitate MH135-004.
- Minimize access requirements of heavy equipment to this location to limit tree removal requirements.



Bypass Equipment

- Approximately 15 x 20 m staging area required for bypass equipment.
- Temporary forcemain routed either along existing sewer alignment or along Dufferin St.



Liner Insertion MH

- Liner access location for sewer section between MH135-004 and MH135-005.
- Rehabilitate MH135-005.
- Install temporary bulkhead to back flow to bypass pumps at MH135-006.

- Legend**
- Selected Existing Sanitary Manhole
 - Sanitary Sewer - Active
 - - - Sanitary Sewer - Abandoned
 - Storm Sewer - Active
 - - - Storm Sewer - Abandoned
 - Watermain - Active
 - - - Watermain - Abandoned
 - Oil Pipeline
- Proposed Sanitary Sewer Works**
- ◆ New Sanitary Manhole
- Proposed Sanitary Sewer Works**
- Temporary Forcemain
 - Rehabilitation
 - New Trunk (North Area)
- Construction Details**
- ▨ Insertion Shaft
 - ▨ Staging Area
 - ▨ Access Path for Long-term Operation and Maintenance

Rehabilitation Alternatives:
 Alternative 2a Cast-In-Place Pipe
 Alternative 2b Steel Reinforced Pipe PE

Preliminary Preferred Alternatives

North Area

Alternative 3f – Microtunnelling

| Environmental Component | Evaluation Summary |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Social/Cultural | <ul style="list-style-type: none"> • Connection location less disruptive to adjacent residential properties during construction due increased distance from residents and added tree separation and grade separation • Reduced impacts to pedestrian pathways • Minimal impact to traffic. |
| Natural | <ul style="list-style-type: none"> • Reduced risk of a sewer failure to aquatic life due to elimination of sewer within reservoir at east end of study area • Temporary impacts to vegetation and wildlife habitat – construction mitigation to be identified. Replanting and restoration after construction. |
| Technical | <ul style="list-style-type: none"> • Less construction risk than HDD based on subsurface soil conditions • Lower operational risk when compared to Alternatives 3b and 3d due to the elimination of the eastern creek crossing. |
| Economic | <ul style="list-style-type: none"> • Higher construction cost compared to 3b MT and 3d HDD, but less cost than 3d MT due to reduced drive length. |

South Area

Alternative 2a – Cured-in-Place Pipe Rehabilitation

| Environmental Component | Evaluation Summary |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Social/Cultural | <ul style="list-style-type: none"> • Minimal traffic impacts; • Minimal impact to adjacent residential lands – tree cover and grade difference will lessen visual and noise impacts |
| Natural | <ul style="list-style-type: none"> • Impacts similar between alternatives considered • Temporary impacts to vegetation and wildlife habitat – construction mitigation to be identified |
| Technical | <ul style="list-style-type: none"> • Less impact to pipe capacity • Widely-used and reliable technology |
| Economic | <ul style="list-style-type: none"> • Less installation cost |

Opinion of Probable Cost

Opinions of Probable Cost have been developed to provide a basis for Economic Comparison for the preliminary preferred alternative.

Costs represent capital construction costs only.

| OPTION | METHODOLOGY | COST |
|-------------------|--------------------|---------------|
| NORTH AREA | | |
| 1 | Do Nothing | \$ 0 |
| 3f | Microtunnelling | \$ 10,075,000 |
| SOUTH AREA | | |
| 1 | Do Nothing | \$ 0 |
| 2a | Cast-In-Place Pipe | \$ 980,000 |

Note: This is a Class D Cost Estimate which represents an order of magnitude cost opinion (-30%/+50%).

Stakeholder Consultation

- Notice of Study Commencement issued on November 24, 2016.
- Consultation has been undertaken with the Toronto Region Conservation Authority and Metrolinx, and various provincial ministries.
- All input received will be considered as part of the study, and will be documented in the Project File.



Impacts and Mitigation

- **Cultural Heritage** – No impact is anticipated to Cultural Heritage feature.
- **Archaeological Resources** – A Stage 2 Archaeological Assessment will be undertaken for the preferred alternative and will be submitted to the Ministry of Tourism, Culture and Sport (MTCSS). Based on the findings of the Stage 2 Archaeological Assessment, further recommendations for archaeological resources will be implemented during design and construction.
- **Residents and Recreational Users** – Safety fencing and signs should be implemented to separate construction works from recreational users. Activities that create noise should be restricted to daylight hours when possible, and adhere to local noise by-laws.
- **Transportation** – The contractor should implement a traffic management plan for all roads affected by construction.
- **Wildlife Habitat** – Vegetation clearing should occur outside of periods of active bird breeding (April 1 – August 15), except when a nest sweep is completed by a biologist. Pre-construction surveys are recommended to survey for butternut trees and potential bat maternity habitat prior to construction. Further consultation will occur with the Ministry of Natural Resources and Forestry (MNRF), TRCA and City's PF&R during design.
- **Aquatic Resources** – All work in the Dufferin Creek and the Don River West Branch is to be completed during the warm water timing window (July 1 to March 31). Appropriate erosion and sediment control measures are to be implemented. A water-tight coffer dam is to be installed when excavations works are located within the watercourse or reservoir.
- **Hydrogeology** – Protective measures may include dewatering at low velocities, dissipating water energy by discharging into a filter bag or equivalent, and utilizing protective riprap or equivalent.

Next Steps

Information presented here will be made available on the City's website:
www.toronto.ca/dufferinsewer
Comments on the information are received and reviewed by the project team.

Recommendations are confirmed and/or refined, and the Project File documenting the planning process and technical rationale is completed.

The Project File is placed on file for a 30-day public review period, and concerns are addressed by the project team. If concerns remain unresolved, any member may submit a Part II Order within the review period, bumping up the status of the project.*

If no Part II Orders are received during the 30-day review period, the project is complete and the Municipality may proceed to design and implementation

Thank you for your participation. Your comments are important to us. Please fill out a comment sheet, place it in the box provided, or return to the address on the form by December 22nd, 2017. Feel free to contact:

Khatija Sahib
Public Consultation Unit
City of Toronto
55 John Street, Metro Hall 19th Floor,
Toronto, ON M5V 3C6
Email: khatija.sahib@toronto.ca
Visit: www.toronto.ca/dufferinsewer/

*Any member of the public with outstanding concerns may submit a request to the Minister of the Environment and Climate Change to issue an order to comply with Part II of the Environmental Assessment Act, requiring the proponent to undertake a greater level of assessment.