



Newtonbrook Creek Restoration and Water Infrastructure Protection Study Geomorphic Systems Master Plan

Public Consultation: October 2023

Newtonbrook Creek Geomorphic Systems Master Plan

In 2021, the City of Toronto initiated the Newtonbrook Creek Geomorphic Systems Master Plan (GSMP) Environmental Assessment (EA), as one of five GSMPs across the City to identify and assess water and stormwater infrastructure in Newtonbrook Creek and Blue Ridge Creek that is at risk of damage due to erosion impacts as a result of high flows from storms and snowmelt runoff.

Study Purpose:

- To identify concerns related to erosion that may damage the City's water and stormwater infrastructure
- To develop solutions that protect the City's sewer and water infrastructure from excessive erosion processes within the stream
- To improve stream functions, such as increasing stream bank stability, reducing erosion, enhancing stormwater conveyance, and improving aquatic and terrestrial habitats

i

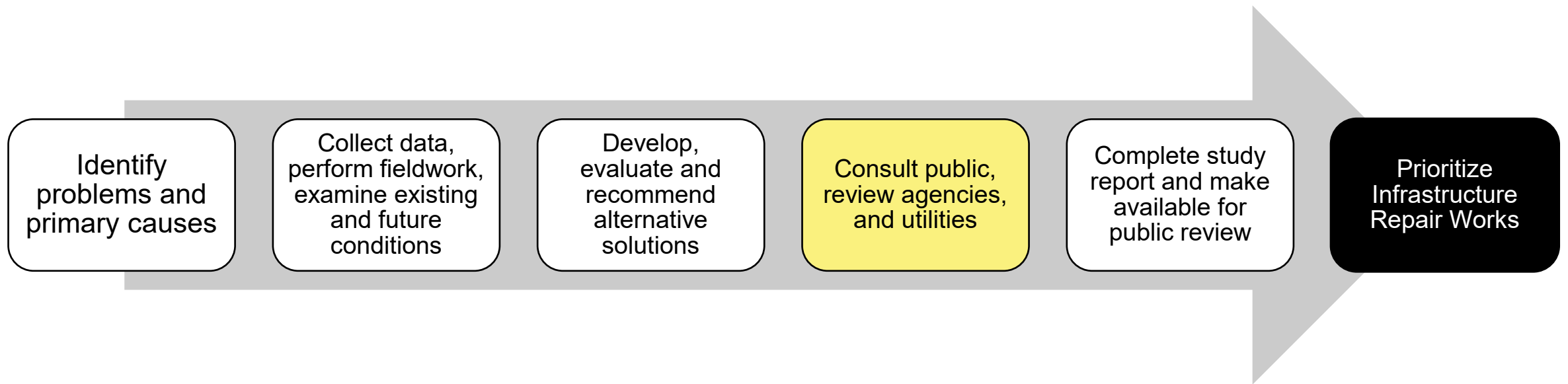
The City's sewer and water infrastructure in and alongside streams include:

- **Watermains** to supply drinking water to homes and businesses
- **Storm sewers** to collect rain and snowmelt from streets and properties and discharge it into streams (via outfalls)
- **Sanitary sewers** to collect and transport sewage from homes and businesses for treatment

This study is not focused on trails, trail access, trees, invasive species or other park features.

Study Process

This study is being undertaken as a Master Plan which is a long-range plan that examines the needs within a geographic area and provides a framework and vision for recommended improvements. The study will follow the Municipal Class Environmental Assessment study process, an approved planning process under the Ontario Environmental Assessment Act, which includes providing opportunities for public input.



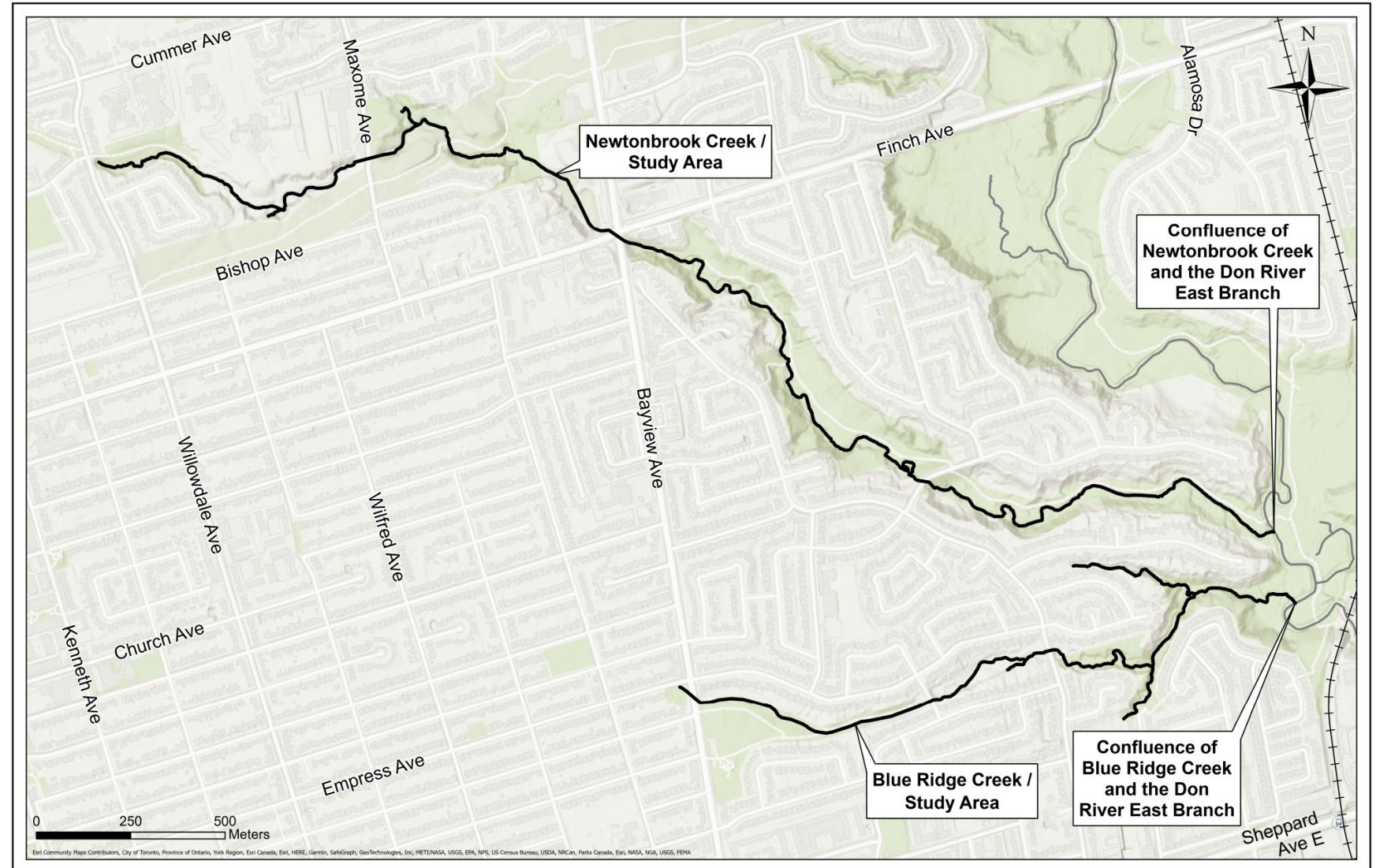
After the study completion the City will:

- Prioritise projects from all five GSMPs based on a city-wide approach for creek and river restoration and erosion control work.

Study Area

The study area includes:

- The entirety of Newtonbrook Creek from Willowdale Avenue to the confluence with the Don River (~4km)
- The entirety of Blue Ridge Creek from Bayview Avenue to the confluence with the Don River (~2km)



Level of Erosion Risk

The level of erosion risk to the City's sewer and water infrastructure was characterized based on a technical assessment which evaluated the likelihood of exposure and/or failure at 72 erosion sites identified within the study area

Very Low Risk Sites

- Infrastructure and site conditions are very stable

Low Risk Sites

- Infrastructure and site conditions are stable; Limited monitoring is required

Medium Risk Sites

- Infrastructure and site conditions are relatively stable; Limited/some monitoring may be required

High Risk Sites

- Infrastructure is not exposed but exposure is expected within near the future;
- Regular monitoring required

Very High Risk Sites

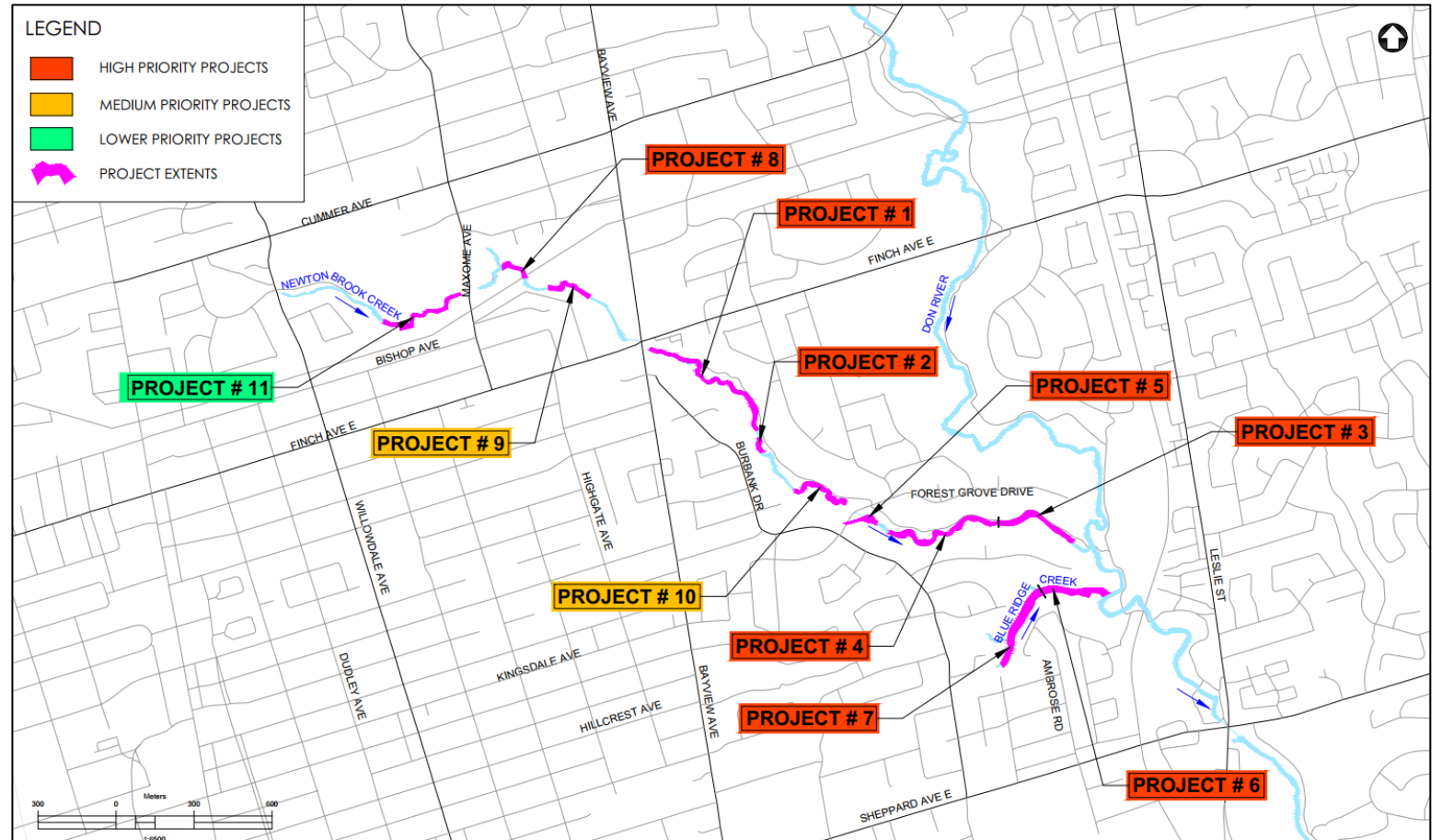
- Infrastructure is exposed and/or at significant risk of failure; requires immediate attention
- Regular monitoring and improvements to the infrastructure are required

Proposed Priority Projects

- Of the 72 erosion sites, 24 priority sites were selected for improvement
- These 24 high priority sites were grouped into 11 projects, due to their close proximity
- These 11 projects were grouped into 3 priority levels

Legend

- High Priority Projects 1-8
- Medium Priority Projects 9 -10
- Lower Priority Projects 11
- Project Extents



Risk Assessment - Project #1

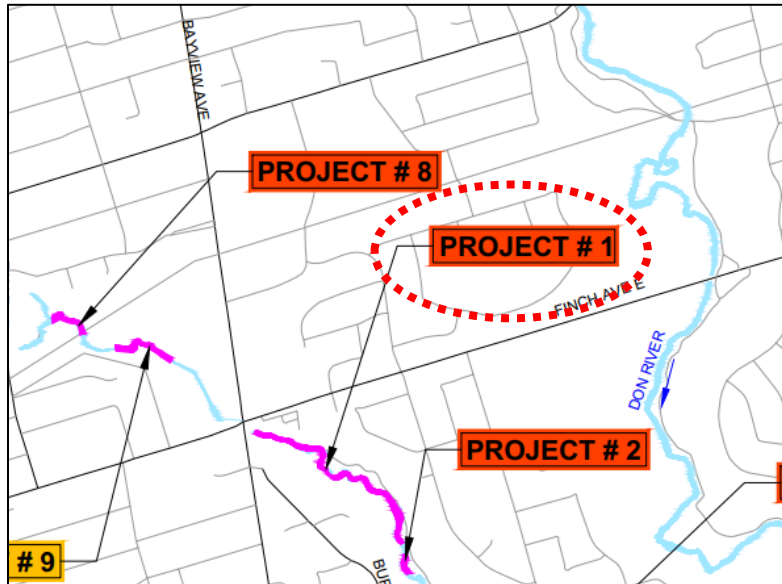
Multiple sanitary sewer infrastructure risks downstream of Bayview and Finch

Priority level

High Priority

Description of conditions

- x4 Exposed sanitary sewer crossings
- x1 Exposed sanitary sewer maintenance hole
- x4 Sanitary sewer laterals (where the bank is eroding towards the sewer)
- x2 Degraded storm sewer outfalls



Risk Assessment - Project #2

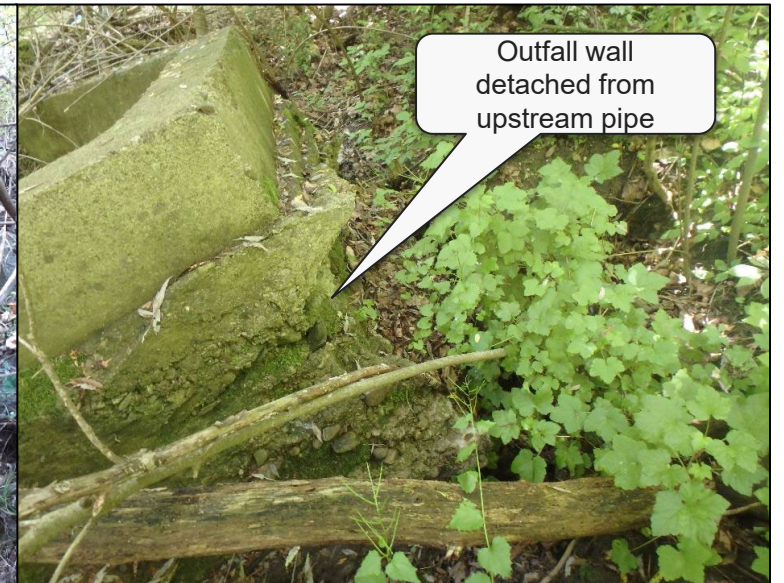
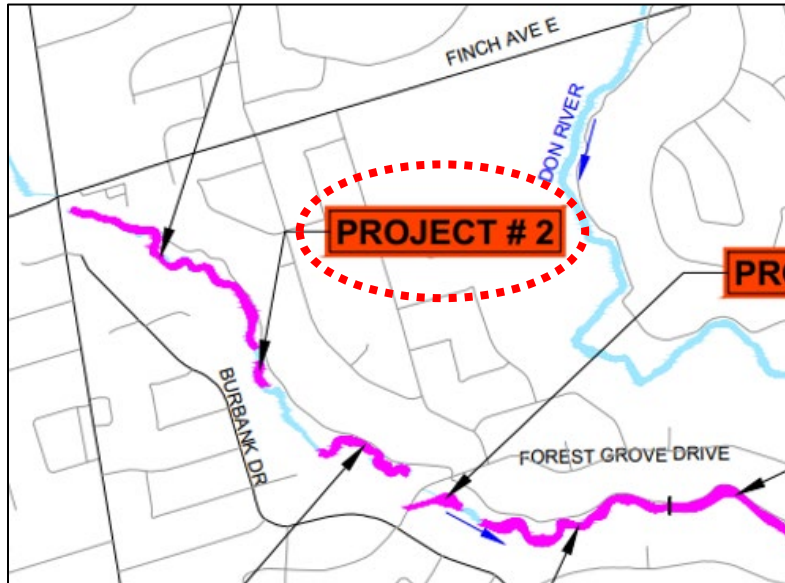
Failed storm sewer outfall by Canary Crescent

Priority level

High Priority

Description of conditions

- x1 Failed storm sewer outfall
- Slope erosion/failure observed along the upstream pipe alignment
- Ongoing bank erosion



Risk Assessment - Project #3

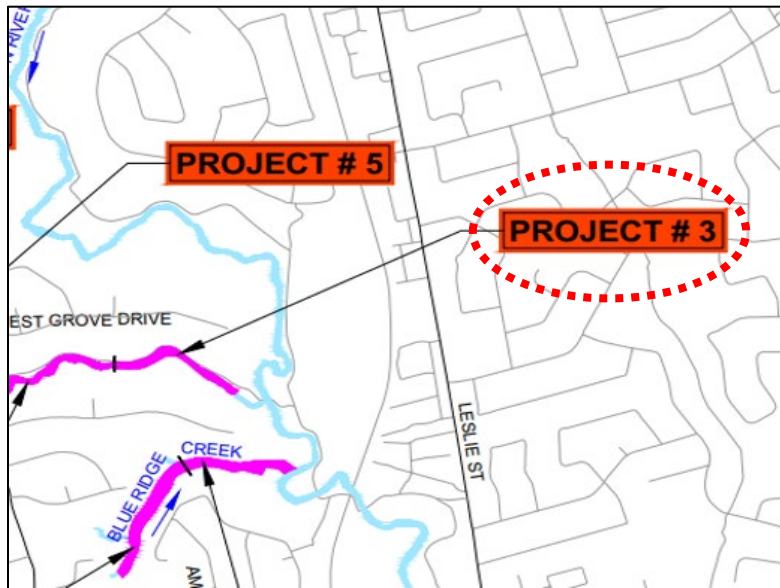
Exposed sanitary sewer maintenance hole near Don River confluence

Priority level

High Priority

Description of conditions

- x1 Exposed sanitary sewer maintenance hole
- x1 Exposed sewer crossing
- x1 Additional crossing with less than 1.0 m cover
- x2 Sanitary sewer laterals (where the bank is eroding towards the sewer)



Risk Assessment - Project #4

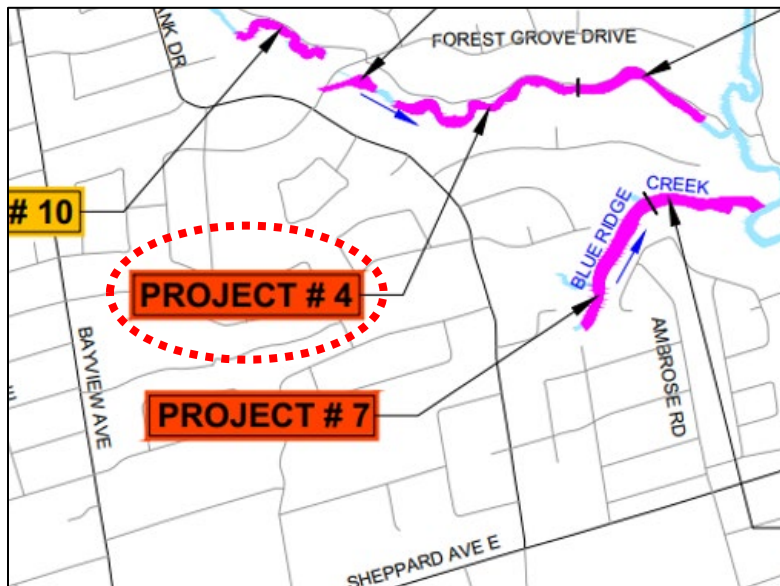
Exposed sanitary sewer crossing downstream of Forest Grove Drive

Priority level

High Priority

Description of conditions

- x1 Exposed sanitary sewer crossing
- x1 Additional crossing with less than 1.0 m cover
- x2 Sanitary sewer lateral risks (where the bank is eroding towards the sewer)



Risk Assessment - Project #5

Failed storm sewer outfall downstream of Forest Grove Drive

Priority level

High Priority

Description of conditions

- x1 Failed storm sewer outfall
- x1 Sanitary sewer lateral risk (where the bank is eroding towards the sewer)
- Slope erosion/failure observed along the upstream pipe alignment



Risk Assessment - Project #6

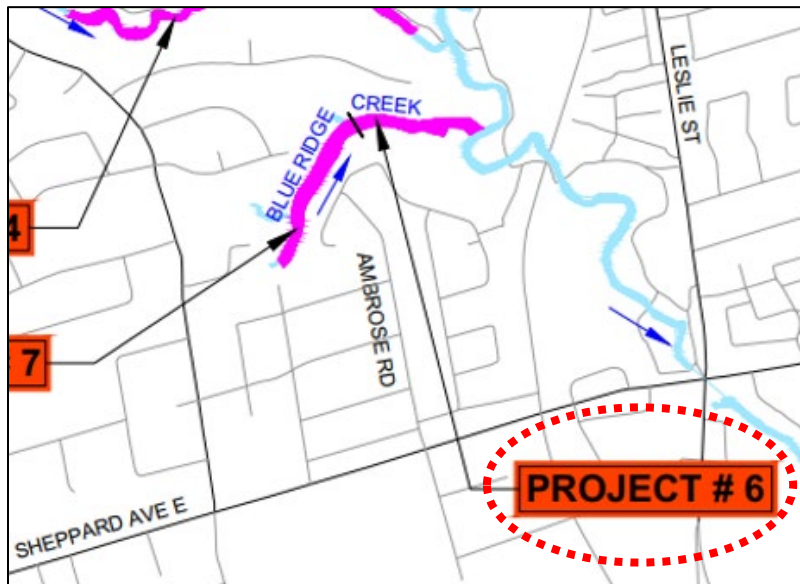
Failed storm sewer outfall by Hi-Mount Drive

Priority level

High Priority

Description of conditions

- x1 Failed storm sewer outfall
- x2 Sanitary sewer lateral risks (where the bank is eroding towards the sewer)
- Slope erosion/failure observed along the upstream pipe alignment



Risk Assessment - Project #7

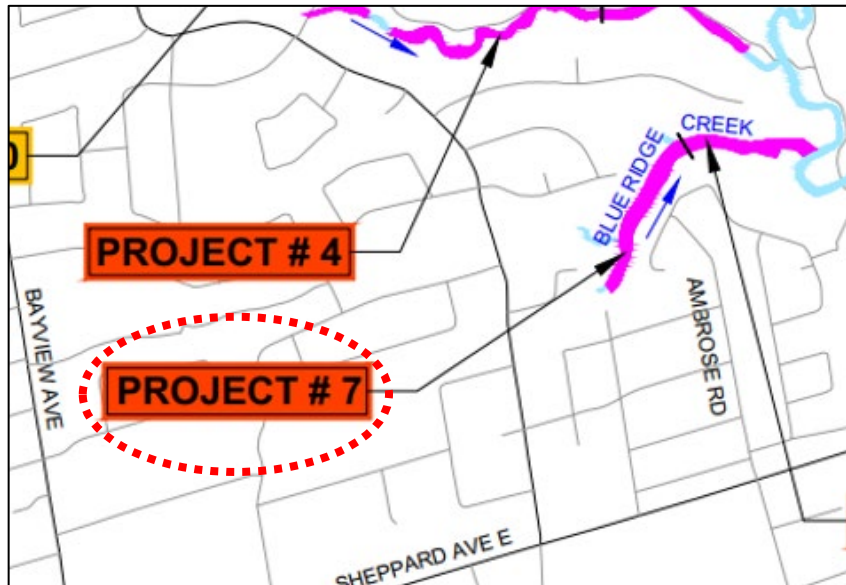
Exposed sanitary sewer crossing and failed storm sewer outfall by Sifton Court

Priority level

High Priority

Description of conditions

- x1 Exposed sanitary sewer crossing
- x1 Failed storm sewer outfall
- Slope erosion/failure observed along the upstream pipe alignment
- x4 Sanitary sewer laterals (where the bank is eroding towards the sewer)



Risk Assessment - Project #8

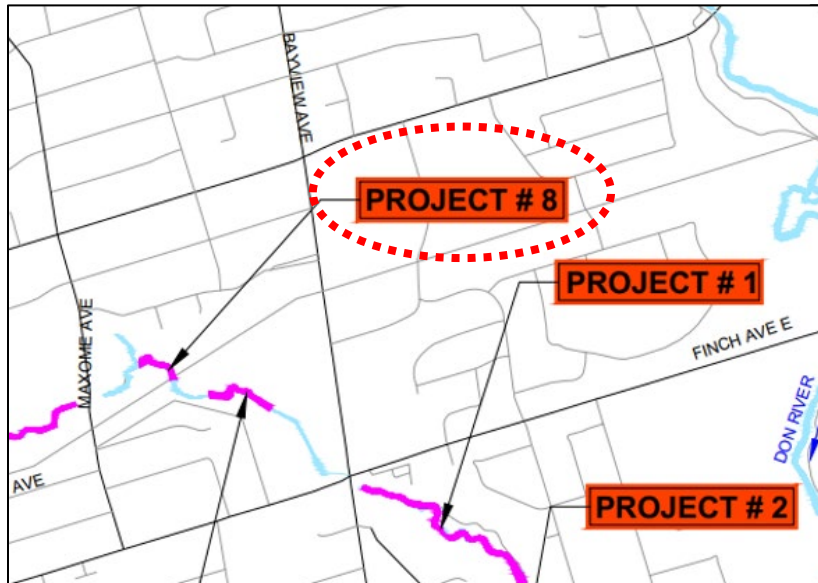
Exposed sanitary sewer crossing downstream of Maxome Avenue

Priority level

High Priority

Description of conditions

- x1 Exposed sanitary sewer crossing
- x1 Additional crossing with less than 2.0 m cover
- x1 Degraded storm sewer outfall
- x3 At risk oil pipeline crossings



Risk Assessment - Project #9

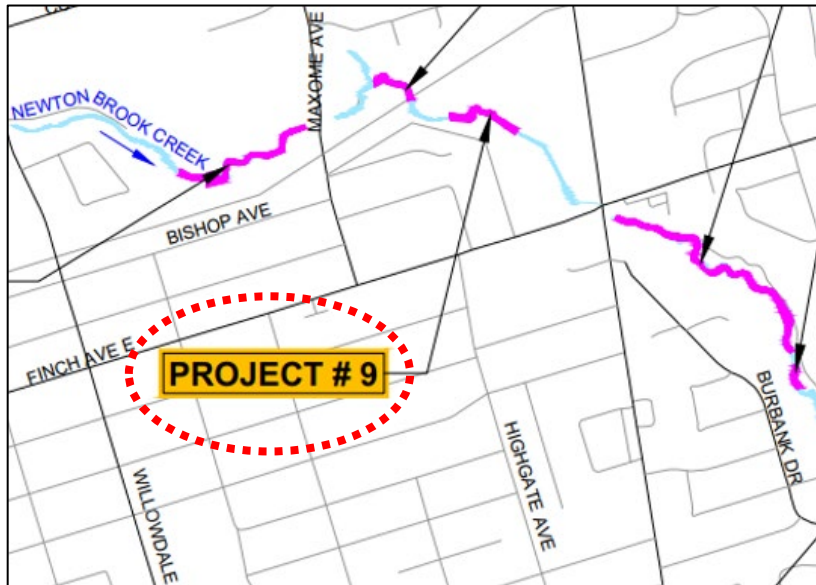
Exposed watermain chamber upstream of Finch and Bayview

Priority level

Medium Priority

Description of conditions

- x1 Exposed watermain chamber
- x1 Watermain crossing with less than 1.0 m of cover
- x1 Sanitary sewer crossing with less than 2.0 m of cover
- x1 Degraded storm sewer outfall



Risk Assessment - Project #10

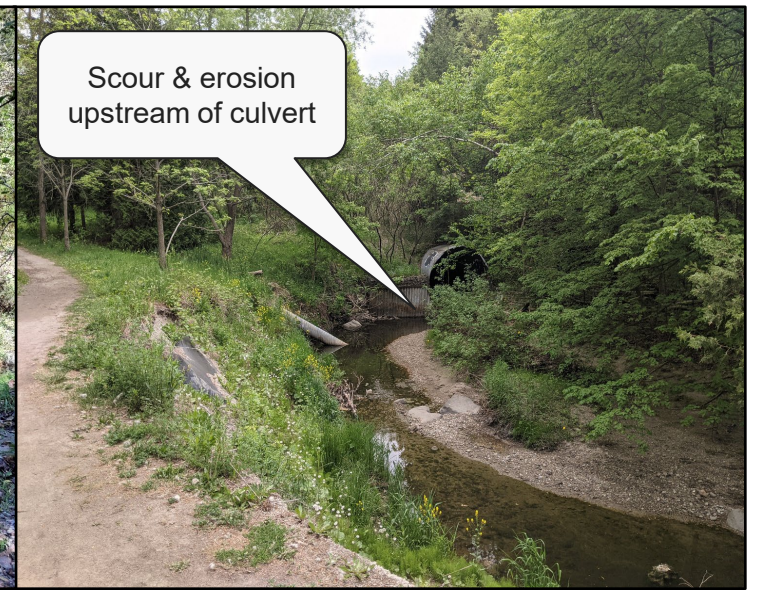
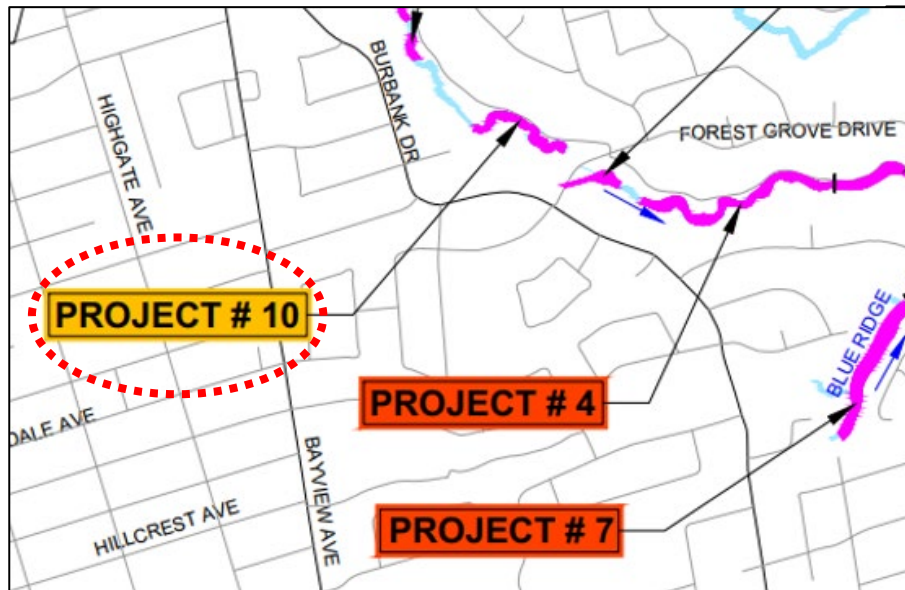
Lateral erosion risks to sanitary sewer infrastructure upstream of Forest Grove Drive

Priority level

Medium Priority

Description of conditions

- x2 Sanitary sewer lateral risks (where the bank is eroding towards the sewer)
- Actively eroding channel banks
- Scour and erosion upstream of the Forest Grove Drive culvert



Risk Assessment - Project #11

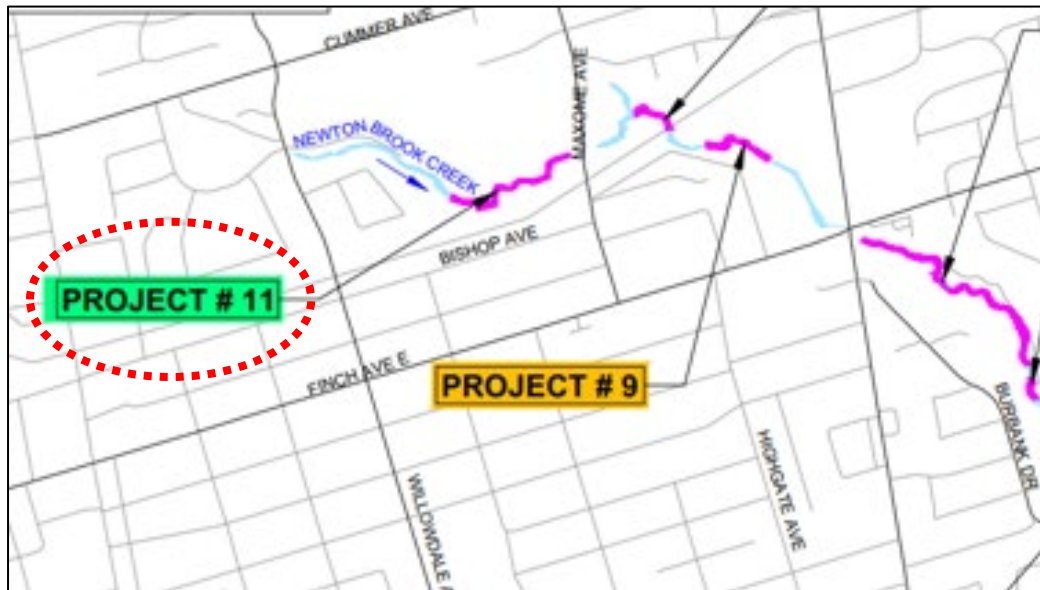
Lateral erosion risks to sanitary sewer infrastructure upstream of Maxome Avenue

Priority level

Low Priority

Description of conditions

- x2 Sanitary sewer lateral risks (where the bank is eroding towards the sewer)
- x2 Sanitary sewer crossings with less than 1.0 m cover
- Actively eroding channel banks



Alternative Solutions Descriptions

Three potential solutions to address these erosion risks have been proposed. The alternative solutions have been evaluated for each of the 11 projects encompassing the 24 high risk erosion sites.

Alternative 1: Do Nothing

No planned interventions in the stream, continued monitoring, infrastructure will continue to be at risk of failure due to channel erosion processes

Alternative 2: Local Works

Channel engineering works less than 150 meters in length (minor local adjustment to the creek bed)

Bank erosion protection (armourstone walls)

Outfall replacement / restoration

Alternative 3: Sub-Reach Scale Works

Natural channel design in channel length greater than 150 meters

Channel realignment at select locations

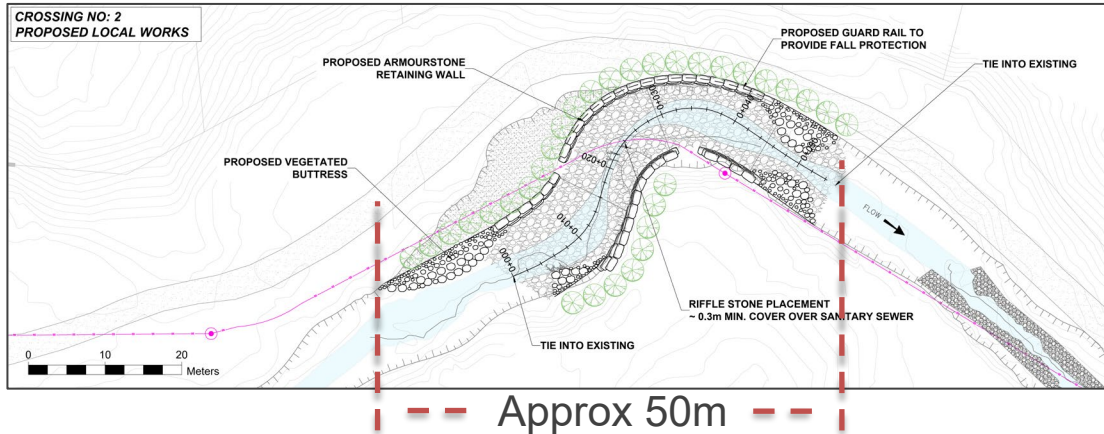
Outfall replacement / restoration

Bank erosion protection (armourstone walls, vegetated buttresses and plantings).

The specific methods and materials for carrying out this work will be determined through detailed design after the Master Plan is completed.

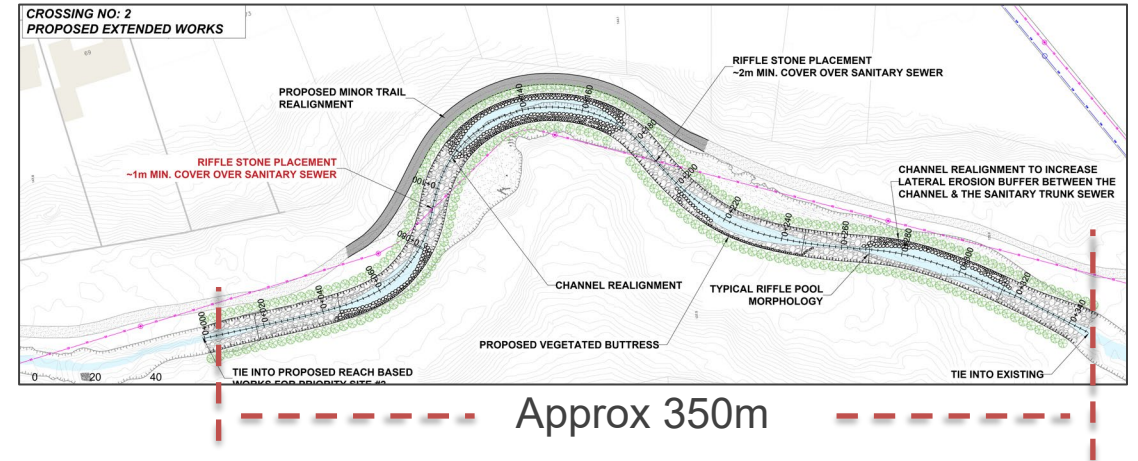
Overview of Alternative Solutions

Alternative 2 – Example of Local Works



- Local channel works (less than 150 metres)
- Engineered protection of water infrastructure
- No work between priority sites
- Fewer sites addressed with this alternative, other sites may need to be addressed separately if they are a priority risk site

Alternative 3 – Example of Sub-Reach Scale Works



- Extensive channel work (greater than 150 metres)
- Partial realignment of trail and channel
- Connectivity between priority sites
- Multiple water infrastructure sites are protected

Example of Alternative 2 – Local Works, from Massey Creek



Massey Creek - Sanitary sewer maintenance hole within the creek channel (during-construction)



Massey Creek – Creek has been realigned away from maintenance hole with Armourstone walls built as bank protection (post-construction but pre-restoration)

Example of Alternative 3 – Sub Reach Scale Works, from Duncan Creek



Duncan Creek Phase 2 – Deteriorated gabion lined channel (pre-construction)



Duncan Creek Phase 2 – Rehabilitated creek corridor (post-construction)

Evaluation Criteria

The following 5 categories of criteria were used to evaluate alternative solutions

Physical & Natural Environment

Improves stability of stream and valley walls, flood conveyance, groundwater quality, vegetation, aquatic and terrestrial habitats including habitat for at-risk species, and minimised tree removals

Economic Considerations

Evaluate total capital costs against recurring costs for maximum improvements and outcomes over a span of 30 years

Infrastructure Risk

Addresses erosion and risk to City's water and sewer infrastructure

Social & Cultural Environments

Protects built and cultural heritage as well as landscape and archaeological resources, long term benefits for the community, minimum or short term negative impacts, and consideration for impacts on private property

Technical & Engineering Considerations

Evaluate regulatory agency standards, availability of staff and technical resources, maximum improvement for ecosystem and infrastructure



Recommended Solutions – Local Works

Project No.	Evaluation Details
2	<ul style="list-style-type: none"> Addresses identified erosion risks while minimizing the area of environmental disturbance. Lower capital costs and more economically efficient than the sub-reach scale alternative given the isolated nature of the project site. <p>Future implementation of the recommended natural channel design projects requires tree removal, to be followed by restoration and replanting with native trees and shrubs.</p>
5	<ul style="list-style-type: none"> Same as Project No. 2 above
8	<ul style="list-style-type: none"> Same as Project No. 2 above
9	<ul style="list-style-type: none"> Same as Project No. 2 above



Project 2



Project 5



Project 8



Project 9

Recommended Solution – Sub-Reach Scale Works

Project No.	Evaluation Details
1	<ul style="list-style-type: none"> Addresses identified erosion risks through an extended restoration design improving the geomorphic stability of the degraded channel. Achieves resource allocation and costing efficiencies by addressing multiple risks, located in close proximity to each other, through a single construction project. <p>Future implementation of the recommended natural channel design projects requires tree removal, to be followed by restoration and replanting with native trees and shrubs and pedestrian trail realignment to allow the stream to have a natural course and avoid future erosion</p>
3	<ul style="list-style-type: none"> Same as project No. 1 above.
4	<ul style="list-style-type: none"> Same as project No. 1 above.
6	<ul style="list-style-type: none"> Same as project No. 1 above.
7	<ul style="list-style-type: none"> Same as project No. 1 above.
10	<ul style="list-style-type: none"> Same as project No. 1 above.
11	<ul style="list-style-type: none"> Same as project No. 1 above.



Creek Restoration and Protection Work Requirements

Future implementation of the recommended projects requires:

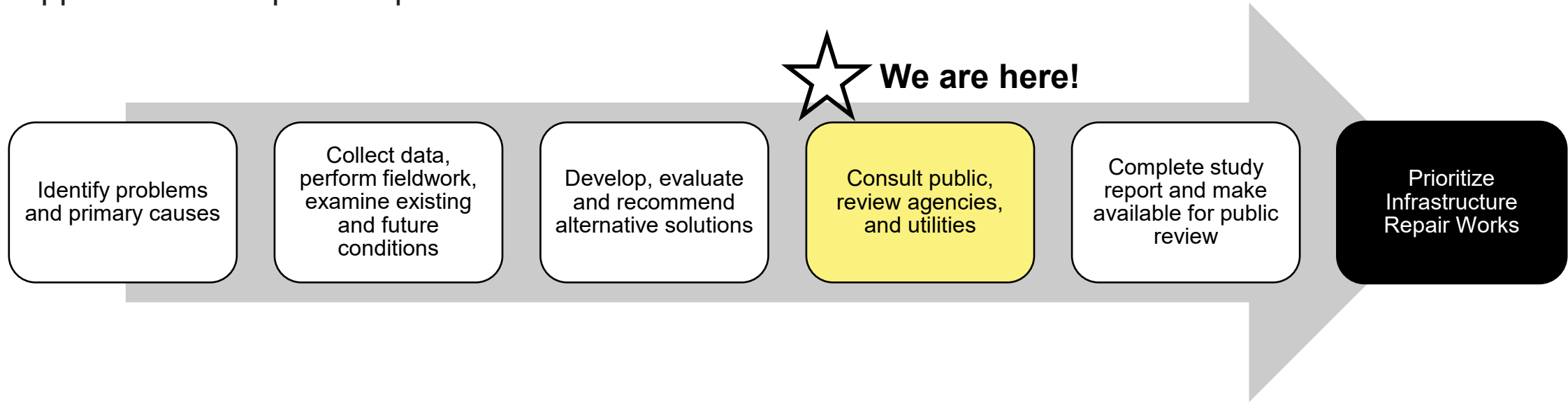
- Tree and vegetation removal – to be replaced with healthy native species, to be further analyzed during detailed design
- Pedestrian trail realignment to allow the stream to have a natural course and avoid future erosion

Construction Impacts:

- Residents will be notified prior to any construction
- A restoration plan will be developed prior to construction

Next Steps in Study Process

The study is following the Municipal Class Environmental Assessment study process for Master Plans, which is an approved planning process under the Ontario Environmental Assessment Act and includes opportunities for public input.






Once a GSMP is approved, recommended solutions will be included in the City's Stream Restoration and Erosion Control Program which will prioritize and allocate budget for detailed engineering design and construction.

Residents will be notified prior to any construction occurring.

Public Consultation

Public Consultation - Activities

Learn More	Attend a Site Walk	Provide Feedback
<p>View project information on the website and provide feedback</p> <p>toronto.ca/newtonbrook</p> 	<p>Visit the study area with the project team to discuss the study recommendations and ask questions</p> <p>Wednesday October 18th, 2023 Drop in 9:00 – 11:00 AM Site Walk at 9:00 AM</p> 	<p>Complete an online survey or request a printed copy. Submit comments by email, mail or phone.</p> <p>Comment deadline: Wednesday November 1, 2023</p> 

Forest Grove United Church 43 Forest Grove Drive, M2K 1Z4

This location is wheelchair/mobility device accessible. If you have a specific accessibility need or require accommodation, please contact us in advance.

Parking is available.

Staff Contacts

Project Manager

Devin Coone

Acting Senior Project Manager, Stormwater Management Infrastructure
Design & Construction - Linear Underground Infrastructure
Engineering & Construction Services

Toronto Water

Bill Snodgrass

Senior Engineer, Infrastructure Planning & Programming
Water Infrastructure Management
Toronto Water

Public Consultation Unit

Aadila Valiallah

Senior Coordinator, Public Consultation Unit
Policy, Planning, Finance & Administration

[Toronto.ca/newtonbrook](https://toronto.ca/newtonbrook)

Email: newtonbrook@toronto.ca

Telephone: 416-338-2985