# Appendix M Details of Public Consultation (Part 1 of 2)

# Appendix M-1 Public Consultation Report

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Yellow Creek Geomorphic Systems Master Plan – Creek Restoration and Water Infrastructure Protection Study

## **Consultation Report**

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### **Executive Summary**

The City of Toronto has conducted a study to identify storm sewer and watermain infrastructure within Yellow Creek that is at risk of damage due to erosion impacts as a result of high flows from storms and snow melt.

This study looks at how the City's storm sewer and watermain infrastructure can be protected within the creek using recommended solutions to help reduce or prevent future impact to City infrastructure resulting from erosion. This will ensure the City's infrastructure continues to operate and service residents and businesses. The solutions will be part of a Yellow Creek Geomorphic Systems Master Plan (GSMP) for the creek that is implemented over a multi-year period.

This report details the activities and feedback received during consultation on the Yellow Creek Study that took place between November 13, 2023, and December 17, 2023. Members of the public and interest groups were provided with information about the risks to City water infrastructure and a summary of the recommended solutions. People were invited to ask questions and provide feedback on the recommended solutions for creek restoration and water infrastructure protection.

Summary of engagement:

- One virtual public event with 51 participants
- One community interest group meeting with 10 participants
- Twelve comment submissions received from the public via telephone and email
- One hundred and forty-five completed survey responses

Overall, there was a high level of concern for erosion along the creek. There were no specific concerns raised with the recommended solutions. However, there was some concern with the indicated timeframes for implementation. Many people who provided feedback were concerned that the scope of the study was too limited in its focus on the watercourse and wanted the study to address the impacts of erosion on the trails and ravine slopes.

#### **Study Summary**

In Yellow Creek there are ten City of Toronto water infrastructure sites at risk of erosion. Following a risk analysis of each site, and detailed evaluation of alternative solutions, four projects greater than 100 metres in reach are recommended to protect all ten infrastructure sites. The risk to water infrastructure was determined low for most of the infrastructure sites except for one site just south of the St Claire Avenue bridge. This site has been identified as having a higher priority level and the project will be identified for implementation in the next 5 - 2 10 years. All other projects were identified as low priority for long term implementation. Ultimately, the prioritization of GSMP projects will be done city-wide and will include the review of sanitary sewers, storm sewers and watermain supply infrastructure.

#### Study Area

The study area is the 1.3 km aboveground length of Yellow Creek from south of Mount Pleasant Cemetery, east of Yonge Street at Heath Street, to the southern part of David A. Balfour Park, south of Summerhill Avenue near Mount Pleasant Road.

The study area is in between a residential area on the east and a business area with retail shops, restaurants, services and a public school with a playground and soccer field on the west.

Within the ravine, there are several interconnected trails that connect from north of the project area to south-east of the project area and the Belt Line trail. The trails are used regularly by the community for leisure and to access the business area and school.



The area is under the joint responsibility of Toronto Water for the water infrastructure sites, Parks Recreation and Forestry (PF&R) which is responsible for the walking trails and City recreational facilities and Toronto Region Conservation Authority (TRCA) which is undertaking erosion control projects related to the ravine slopes and private property.

Recent and on-going projects in or near to the study area include:

- Yellow Creek Outfall repair just downstream of St. Clair Avenue East (Toronto Water)
- Yellow Creek Below Summerhill Gardens (TRCA)
- Yellow Creek Near Heath Street East Erosion Control and Slope Stabilization Project (TRCA)

There are several active local resident associations in the neighbourhood. Many of the members volunteer as part of a midtown ravine working group to monitor the creek and assist with the removal of invasive plant species in the area.

### Notification & Consultation Activities

Members of the public, community groups and interested parties were provided with information about the study at the study onset and at the beginning of the public consultation period. Public Consultation took place between November 13, 2023, and December 17, 2023.

#### Notification

A variety of communication tools were used to notify the public and interested parties about the Yellow Creek Restoration and Water Infrastructure Protection Study, public consultation, and opportunities to provide feedback.

A Notice of Commencement, announcing the study and provide information on the study process was circualted in January 2021 by email to First Nations, Agencies and Utilities. A printed Notice of Commencement was circualted to 8,107 local residents and businesses by Canada Post.

The following communications were issued the week of November 13, 2023 at the onset of the public consultation period:

- The project website, toronto.ca/YellowCreek, was updated to include public consultation materials and a link to the feedback survey
- Notices were sent via Canada Post direct mail to 11,360 addresses in the study area
- Where the recommended projects intersect with private property, letters were sent via addressed mail to private property owners
- Email was circualted to community groups including 28 residents' associations, community groups, organizations, institutions and elected officials
- Email was circualted to 63 government agencies and utility companies
- Individual emails were sent to First Nations identified by the Ministry of the Environment, Conservation and Parks:
  - Haudenosaunee Confederacy Chiefs Council
  - Huron-Wendat Nation
  - o Mississaugas of the Credit First Nation
  - o Six Nations of the Grand River

### **Consultation Activities**

Public consultation activities included a virtual public meeting, a meeting with interested community groups, follow-up with First Nations, agencies and utilities. There were opportunities to provide feedback during meetings, through an on-line survey, via email and by phone.

#### **Public Meeting**

A virtual public meeting took place on Monday, November 27, 2023 from 6:00 p.m. - 8:00 p.m. and was attended by 51 people. The meeting included a presentation by the City of Toronto project team followed by an opportunity for questions and feedback.

#### Meeting with community groups

A virtual meeting with community groups in the study area was held on Friday November 24, 2023. Ten participants from local organizations participated, including representatives from:

- 1. Avoca Residents Association
- 2. Deer Park Residents Group
- 3. Midtown Ravines Group
- 4. Moore Park Residents Association
- 5. North Rosedale
- 6. Summerhill Residents Association

The presentation panel included representatives from Engineering & Construction Services, Toronto Water, PF&R, and the TRCA.

#### Phone & Email Comments

Members of the public and interested groups were invited to share comments and ask questions via phone, email, or written letter. Comments were received from 13 people between November 13 and December 17, 2023. All comments were recorded and reviewed for consideration and responded to by the project team.

#### **Outreach to First Nations Communities**

Consultation with First Nations by the project team is by delegated authority through the Provincial Ministry of Environment, Conservation and Parks (MECP) and fulfills the Crown's legal duty to consult "Aboriginal communities" where there is a possibility that treaty rights could be impacted.

Communications with First Nations identified by the MECP were circualted by email at various stages of the consultation process including a Notice of Commencement, a Stage 1 Archaeology Report and a Public Consultation Notice.

A Stage 1 Archaeology Assessment was completed with the purpose of identifying whether or not the lands under study potentially contained archaeology value or evidence. The report was shared with First Nations in January 2021 with an invitation to provide feedback.

In October 2023 the Public Consultation notice was circualted to provide information about the study outcomes and recommendations and invite feedback as part of the public consultation process.

### **Outreach to Agencies and Utilities**

Communications with agencies forms part of the study review process. Communication with utilities ensures there are no infrastructure conflicts within the study area or provides the project team with an opportunity to mitigate impacts. Agencies and utilities received the Notice of Commencement and the Public Consultation notice with an opportunity to provide feedback.

#### Survey

An online survey was used to collect feedback on the study and recommended projects. The survey was available from November 13, 2023, to December 17, 2023, and received 145 responses. Participation was anonymous.

### Feedback Summary

Many people are concerned about increasing erosion along the creek and the impact of erosion on the trails and ravine slopes. The need for creek restoration was emphasised. There was very little feedback on the specific project recommendations to protect Toronto Water infrastructure, and no objections raised.

Feedback beyond the scope of the study focused on the need for trail improvements and the prevalence of invasive plant species in in Yellow Creek, and the need for water infrastructure maintenance city-wide.

### Public Event

Questions and comments from the November 27, 2023 event are themed and summarized below.

#### Participants asked questions about:

- Overall water infrastructure maintenance needs across the City, and the anticipated funds required to address the issues.
- Where the responsibility lies, and what approach would be taken to ensure a coordinated approach among multiple departments and agencies at the City for creek restoration, surrounding green space, and trail repairs.
- The timeline for project roll-out based on infrastructure site risk and the identified priority of the recommended projects.
- TRCA's time frame to address the eroding gabion baskets near Mount Pleasant Cemetery.

#### Participants provided observation on current conditions

- Staircases at the ravine entrances are deteriorating as a result of erosion.
- There is concern for further erosion along the slopes in the future.
  - There have been previous ravine slope adjustments in the past 10 years due to erosion and the steep ravine slopes.
- Erosion along the watercourse near Inglewood Drive is severe.

#### Study and project details

- Participants expressed concern that the scope of the study is too limited and does not acknowledge the impacts of erosion on the ravine slopes and surrounding infrastructure such as the trails, and the stairs at Heath Street.
- There are concerns with the implementation timeframe; participants commented that erosion could get worse with future storms, and delaying the work in the creek could be more costly in the future.

#### Additional feedback

- Completing work in the creek and surrounding ravine area should be given greater urgency.
- It has been reported that certain erosion areas in the ravine are losing one foot of soil each year.
- There are concerns for the degradation of ravines across the city and the need for a citywide plan to address this.

#### Meetings with community groups

Questions and comments from the meeting with neighbourhood groups are themed and summarized below.

#### Participants asked questions about:

- Coordination among city departments and divisions, specifically for the working group of City divisions responsible for the ravine area and the City's Ravine Strategy.
- Further details on the working relationship between Toronto Water, PF&R, and TRCA.
- Whether public comments and the study report will be shared with the joint working group, and who is ultimately responsible for implementation of the recommended projects.
- Where the responsibility for maintenance of the trail network lies.
- The relationship between Toronto Water and TRCA for the work at the bottom of Summerhill Gardens.
- How projects were prioritized and the implementation time frames, with an interest in knowing what factors would increase the priority of work in Yellow Creek.
- Whether erosion issues beyond the watercourse could be included in the study scope
- How to address erosion on private property.
- The potential total cost for creek restoration including rehabilitation of Toronto Water infrastructure and trail repairs, with the aim of securing private funding.
- Whether there will be further consultation for the Yellow Creek GSMP.

#### Participants provided observations on current conditions

- Erosion is impacting the slopes, the trails, bridges and private property.
- There is erosion near the trails and in the areas surrounding sites #1 and #4.
- Erosion near Inglewood Drive has been recorded as resulting in 6 ft of bank loss since 2016.
- Concerns that erosion in the creek is affecting infrastructure in the ravine and on private residential property.

#### Comments on the study and project details

- Many participants felt that the study scope should include an assessment, and provide recommended solutions, for the slopes, trails and access points to the ravine area.
  - Erosion adversely impacts use of the creak and ravine area for recreation and travel.

- Further deterioration will make the problems more expensive to repair later on
- There is concern the medium term and long term priority level for restoration work in the creek will lead to further deterioration of the creek and ravine.

#### Additional Feedback

- The slope at site #4 is eroding and needs to be addressed during project implementation, including repair of the trail above site #4
- Feedback emphasised the need to maintain and repair the last remaining pedestrian bridge that crosses the creek.
- The Yellow Creek trail is a vital part of the Beltline Trail connection and there is concern that access between the Beltline Trail and the waterfront will be lost if erosion of the trails continues.
- Local groups are interested in looking at the potential for private funding to support restoration work in the creek.
- There is support for a coordinated work approach in Yellow Creek between TRCA, PF&R,and ECS (the latter on behalf of Toronto Water).

### Phone & Email

Questions and comments received via phone/email from members of the public are themed and summarized below:

#### **Concerns for current conditions**

- There are several sites outside the scope of the study where erosion is worsening.
- Erosion is a concern near trails, the ravine slopes and private property.
- That erosion of the slopes could impact access points to the ravine and potentially street connections at the top of the ravine.
- There is concern that Yellow Creek is treated as an open storm sewer and that the flow rate during storms is high and getting worse with climate change.
- There are invasive plant species, including phragmites which need to be removed.
- Wildlife habitats need to be protected.

#### Comments and feedback related to project implementation and construction

- There should be greater urgency to complete work.
- There is an interest in daylighting more of Yellow Creek. This includes exposing more of the creek upstream and downstream of the study limits.

- Creek restoration, to address erosion, around the old sawmill dam site, near Inglewood Drive, should be a higher priority.
- Ensuring soft infrastructure is used along the creek.
- Restore as much natural habitat as possible.

#### Expanding the scope of the study

- There are requests to expand the study scope to include the broader impacts of erosion on the trails and ravine slopes;
  - Trails are deteriorating and maintenance is needed.
  - There is worsening erosion near the pedestrian bridge, where the City has temporary barricades to cordon off erosion beside the trail.
  - Previously there was a second pedestrian bridge, which should be brought back.
  - The wooden staircases that are part of the trail in the ravine are deteriorating.
  - Specific areas of concern are the east entrance to the creek near Heath Street E., the stairs from Mount Pleasant Road south of Inglewood Drive, the trail on the west side of the creek, north of the railroad tracks, and the old sawmill dam site.
- Residents identified a possible initiative among community groups to pursue private fundraising for work, such that work within, and outside of, the scope of the water infrastructure assessment could happen sooner

#### **First Nations**

Feedback requested that soft infrastructure be used along the bed of the creek.

All communication has been shared with the project team. Feedback will be address and all comments will be included in the Study Report.

### Agencies and Utilities

Several utilities have responded with technical feedback. All communication has been shared with the project team. Feedback will be address and all comments will be included in the Study Report.

### Survey

Responses received to each question in the online survey are described in this section.

#### About You

This section of the survey asked respondents about their relationship to the project area which provides context for the responses received.

#### Which statements best describe your relationship to the study?



Most of the survey respondents visit Yellow Creek for leisure and recreation (95%). A large number live near the study area (80%), and a significant number of respondents (44%) use the Yellow Creek trail to travel to specific destinations.

Those who selected 'Other' include property owners, those who previously lived near the creek and those with an interest in celebrating or conserving the natural heritage of urban areas and ravine systems.

#### How did you review project information?

It was recommended that respondents review the project information on the webpage or at the public event prior to giving feedback.



More than half of respondents read through the Public Meeting presentation deck (51%) and almost half read the Understanding Streams information deck (48%). Twenty-six per cent (26%) of respondents completed the survey without reviewing the project materials.

### **Study Details**

This section of the survey asked respondents to provide feedback on the recommended projects. The project map was provided as a reference in the survey. The image on the right, was in the presentation deck, indicates a higher priority for the up-stream half of Project #1.



#### Do you have specific comments about any of the recommended projects?

Many of the responses received to this question included feedback that was outside of the specific scope of erosion impacts on water infrastructure. Many comments focused on the trail alongside Yellow Creek.

The following comments were relevant to the general study area:

- Support for recommended projects, but a greater sense of urgency is needed.
- Expand project scope to include repair and maintenance to trails and pedestrian bridges and access points. The trail is used by many and is important to the community.
- Access to the west side of the creek (Project #3 area) is needed for children to get to school.

- Protection is needed for native tree species and wildlife habitats.
  - Trail maintenance would protect the ravine's natural habitat from human destruction.
- Recognition that projects to protect sanitary sewers, which aren't in Yellow Creek, take precedence city-wide.
- Maintaining access to the trail during construction is important.

Detailed feedback on trail improvements was shared in 20 of the 40 comments received. Responses were similar, and in some cases identical, which is indicative of an organized group effort to bring attention to this concern.

The common and repeated feedback referenced the need for improvements at three locations along the trail:

- 1. The trail on the west side of the creek from the base of the St Clair Ave. bridge to the Avoca Trail
- 2. The Heath Street staircase
- 3. The pedestrian bridge at the bottom of Reservoir Park

While improvements beyond the creek and banks are outside the scope of the study, this feedback is documented to note concerns that could be addressed as part of future projects in the ravine.

Some survey respondents provided feedback on the recommend projects and future implementation of the projects:

#### Project #1 Alternative 3, Sub-Reach Works

- Support for both the project and the priority level within the creek to repair the upstream half, near site #4, in the medium term.
- Concern for the erosion and clean up at the old sawmill site.

#### Project #2 Alternative 3, Sub-Reach Works

- Concerns for erosion in this area. The impact of damage from storms is noticeable.
  - Concern that there is potential risk of creek erosion worsening here.
  - Consider increasing the priority level of this project.
  - Concern that the pedestrian bridge that crosses the creek is at risk.
- There are native plant species along the creek and west slopes which are considered to be the original vegetation in the ravine.

#### Project #3 Alternative 3, Sub-Reach Works

 Native species along the creek and west slopes are considered to be remnants of original vegetation.

#### Project #4 Alternative 3, Sub-Reach Works

• The recommended project is not considered urgent, but is necessary to prevent erosion near Mount Pleasant Road.

#### Do you have any general feedback about the study recommendations?

Support for the recommendations:

- Proactive work is needed to protect the creek, the natural environment and surrounding infrastructure.
- Recognition of the need for multi-year planning and budgeting.
- Support for recommendations, but a greater sense of urgency is needed.

#### **Current Conditions**

- An observed increased water flow in the creek during storms over the past 50 years.
- The length of ravine has different states of deterioration due to neglect over a long period of time.
- The broader area is in danger of collapse as a result of erosion. The slopes and the City's walkable ravine sites need to be protected.
- The ravine has large tracts of mud and swamp following previous tree removals. The City should only carry out work where necessary and ensure restoration efforts are maintained.
- A concern that recent work on the Rosehill Reservoir project increased slope erosion.

Feedback on the study and recommendations

- Increased urgency is needed to address erosion in Yellow Creek.
- The study scope is too narrow, it should include a larger area and should include trails and ravine slopes.
  - The Vale of Avoca is one of eight priority areas in the Ravine Strategy.
- With the increase in water flow, consider including mitigating measures such as a pond or well to hold water and lessen the flow during storm events.
- A holistic approach should be taken to restoration:
  - The narrow scope of the study limits a holistic analysis of what is needed to remediate the whole creek, which will under-value the cost of the work.

- TRCA should be involved in the work to address all issues (for the watercourse and the ravine slopes)
- Mitigate erosion through the planting of native plant and tree species and remove invasive plants.

Construction concerns

- Concerns for impacts to vegetation:
  - There has been 20+ years of removing invasive trees. Take care in preparing for construction and remediation.
  - There are significant individual trees that will need protection.
- Concern for construction impacts is based on the recent experience with the Rosehill Reservoir project, including the length of time for construction, trail closures, and slope erosion.
- Minimise trail closures during construction to keep the ravine accessible.

#### Implementing creek restoration

- Concerns that the City is not directing sufficient funds to creek restoration projects.
- Concerns that the City's Ravine Strategy needs greater funding; the City should explore private-public partnerships.
- Concerns that the inter-divisional approach to the creek does not seem to be working; there needs to be better coordination for implementation of all needed improvements
- Comments identified that there is the potential for private funding to be used to undertake a master plan that includes all the work that residents would like to see done to restore the creek.

#### Requests for trail restoration

- Repair trails at the same time as creek work project implementation; make most use of the equipment and labour.
- Access from the east side of the creek is needed to connect students to Deer Park Public School and to connect residents to the business area for shopping.
- Many of the existing guardrail fences, paths, stairways, and other trail elements are failing or have failed.

### Appendix A – Survey Respondent Profile



What are the first three digits of your postal code?

Postal code data is requested to understand where in the city respondents who have an interest in the project are coming from. The responses indicate that most respondents live close to the project area.



How did you hear about this study?

Most of the respondents heard about the study via email and word of mouth. Over 25% of respondents heard about the study from the flyer which was circulated through Canada Post.

### Demographics

#### What is your age category?



#### What is your gender-identity?



### Do you identify as a person with a disability?



This information is used to help City staff recognize general trends among those who participate in public consultations.

# Appendix M-2 Environmental Assessment Study Notices

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### January 5, 2021

### Yellow Creek Geomorphic Systems Master Plan



The City of Toronto has initiated a study to identify sewer and watermain infrastructure in Yellow Creek that is at risk of erosion from high flows due to storms and snow melt runoff. The study will evaluate and recommend solutions to reduce these erosion risks through an assessment of Yellow Creek's geomorphology (stream processes).

The geomorphology of a creek examines how natural and human factors have shaped its form and function over time. For example, how erosion can affect the path a creek follows (form) and the aquatic and terrestrial habitats the stream supports (function).

The study will focus on:

- Identifying sewers, watermains and outfalls located within Yellow Creek that are at risk from erosion caused by flows from storms and snow melt runoff
- Developing, evaluating and recommending solutions to reduce erosion impacts on sewers and watermains, while improving aquatic and terrestrial habitats

The study will not examine trail conditions or recommend improvements to trails, forestry or ravine amenities. The City will undertake separate efforts in the future to address these features.

### **City infrastructure within Yellow Creek**

The City's storm sewer drainage system is designed to manage rainwater and snow melt runoff by conveying storm-water runoff to nearby watercourses.



Map Point	Label
1	Source Storm Sewer Outfall
2	Storm Sewer Outfall
3	Storm Sewer Outfall
4	Storm sewer outfall
5	Discharge Outfall – Rosehill Reservoir
6	Watermain Crossing
7	Storm Sewer Outfall
8	Watermain Adjacent Creek
9	Storm Sewer Outfall
10	Storm Sewer Inlet
	Yellow Creek Stream/Channel
А	Monitoring Site
В	Monitoring Site

### What is a Master Plan?

A Master Plan is a long-range plan that examines the needs within a geographic area and provides a framework and vision to implement 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 at key stages. A study report will be prepared at the end of the process.



### Other Works in Yellow Creek

**Storm Sewer Outfall Repair south of St Clair Avenue East**: Work to rehabilitate a storm sewer outfall has started and will be completed this winter. A public notice for this work can be found at <a href="http://www.toronto.ca/improvements/ward11.htm">www.toronto.ca/improvements/ward11.htm</a>

Yellow Creek Emergency Works east of Summerhill Gardens: Toronto and Region Conservation implemented works to address significant channel erosion and slope instability east of Summerhill Gardens starting in August 2019 with completion in May 2020. TRCA is planning to undertake maintenance of the newly created erosion control structures in Winter 2021. The goal of this project is to protect structures at the top of slope while addressing stream erosion concerns that threaten public safety and aquatic habitat. Please visit this webpage to learn more:

https://trca.ca/conservation/erosion-risk-management/restore/yellow-creek/

Yellow Creek west of Heath Street East Erosion Control and Slope Stabilization Project: TRCA has proposed to undertake remedial flood and erosion control works on the slope and within the stream channel west of Heath Street East and just south of the Mt. Pleasant Cemetery. The purpose of this project is to provide long-term protection to essential structures identified to be at-risk from the hazards of erosion and slope instability. Please visit this webpage to learn more: https://trca.ca/conservation/erosion-risk-management/restore/heath/

### Help us monitor erosion and flows

As you walk through Yellow Creek, we ask you to share photos at two monitoring locations shown on the map, points A and B (reverse side). Your photos can help us to track the water flow changes and effects of stream bed and bank erosion that may impact storm sewer outfalls and aquatic habitat. Click on the interactive map link on the project webpage or send your photos directly to <u>yellowcreek@toronto.ca</u>. Please avoid taking photos that include personal identifiable features.

### For more information, contact:

Public participation is an important part of this study. We welcome your feedback via participation at public events, or by phone, mail and email. Contact us to receive updates by email.

#### Kate Kusiak

Senior Public Consultation Coordinator Metro Hall, 19th Floor, 55 John Street Toronto, ON M5V 3C6 E-mail: **yellowcreek@toronto.ca** Tel: 416-392-1932 TTY: 416-338-0889

## www.toronto.ca/yellowcreek

Information will be collected in accordance with the Municipal Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record.

# M Toronto

### November 13, 2023

# Yellow Creek Restoration and Infrastructure Protection Study

The City of Toronto is carrying out a study to identify sewer and watermain infrastructure within Yellow Creek that is at risk of damage due to erosion impacts as a result of high flows from storms and snow melt.

This study looks at how the City's storm sewer and watermain infrastructure can be protected within the creek using recommended solutions to help correct existing impacts and reduce or prevent future impact. This will ensure the City's infrastructure continues to operate and service residents and businesses. The solutions will be part of a Yellow Creek Geomorphic Systems Master Plan (GSMP) for the creek that is implemented over a multi-year period.

The public is invited to learn more about the study, ask questions and provide feedback on potential impacts of the recommended solutions.

### **Study Area**

The study area is the 1.3 km aboveground length of Yellow Creek from south of Mount Pleasant Cemetery east of Yonge Street at Heath Street and north of St. Clair Avenue, to the southern part of David A. Balfour Park, south of Summerhill Avenue near Mount Pleasant Road.



Learn More	Attend the Virtual Event	Provide Feedback
View project information on the website and provide feedback.	Monday November 27, 2023 6:00 p.m. to 8:00 p.m.	Complete an online survey or request a printed copy. Submit comments by email, mail or phone.
	Join online or by phone. See page 2 for details.	Comment deadline: Sunday December 17, 2023

### **Study Details**

The geomorphology of a creek examines how natural and human factors have shaped its form and function over time. Erosion can affect the path a creek follows (form) and the aquatic and terrestrial habitats the stream supports (function). Erosion results in gradual changes to the form and function of the creek and creek bed. Significant changes to water levels during storms have contributed to increased erosion, which poses risks to the City's sewer and watermain infrastructure located in or adjacent to the creek.

Impacts from erosion can be corrected and further prevented through natural channel design by reconstructing the bed and bank of a stream with natural rock and/or vegetation, which allows for a new stable path for the creek. The following alternative solutions for natural channel design were evaluated for the water infrastructure sites at risk of erosion in the study area:

Alternative 1: Do nothing (no planned interventions, only ongoing monitoring) Alternative 2: Improvements through local works less than 100 metres Alternative 3: Improvements to a segment of the creek greater than 100 metres

### toronto.ca/YellowCreek

### **Study Recommendations**

Based on a risk assessment of the water infrastructure sites and following a detailed evaluation of the alternative solutions, the City is recommending four projects to stabilize the creek bed and banks of the creek through natural channel design. All four recommended projects would involve improvements to a segment of the creek greater than 100 metres (Alternative 3).

Of the infrastructure sites, one infrastructure site has been identified as moderate-high risk of damage from erosion. The project which addresses this site will be prioritised over other recommended projects for Yellow Creek. Future implementation of the recommended projects will require tree and vegetation removal, followed by native species replanting. A restoration plan will be developed prior to construction as part of a future design phase after the study.

Temporary construction impacts will be communicated prior to construction.

### 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.



### **Next Steps**

A Master Plan report will be prepared with the final study recommendations. The study report supporting the Master Plan will be posted on the project webpage for a 30-day public comment period.

Following a successful comment period, the recommended solutions will be included in the City's Stream Restoration and Erosion Control Program and implementation will be prioritized across all GSMPs city-wide.

### How to Join the Event



### **More Information**

Aadila Valiallah, Senior Coordinator Public Consultation Unit Metro Hall, 19th Floor, 55 John Street Toronto, ON. M5V 3C6 Email: <u>YellowCreek@toronto.ca</u> Tel: 416-338-2985



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### toronto.ca/YellowCreek

# Appendix M-3 Public Information Centre Materials

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# Yellow Creek Restoration and Water Infrastructure Protection Study Geomorphic Systems Master Plan

**Public Consultation: November 2023** 



# Yellow Creek Geomorphic Systems Master Plan

In 2020 the City of Toronto initiated the Yellow Creek Geomorphic Systems Master Plan (GSMP) Municipal Class Environmental Assessment (MCEA), as one of five ongoing GSMPs across the City, to identify and assess water and storm sewer infrastructure in Yellow Creek that is at risk of erosion from high flows due to storms and snow melt runoff.

### **Study Purpose:**

- To identify concerns related to erosion that may damage the City's water and storm sewer infrastructure
- To develop solutions that protect the City's water and storm sewer 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 habitats



- 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 snow-melt 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.

# Watercourse studies across the City



# **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.





# **Study Area**

The study area is the 1.3 km aboveground length of Yellow Creek from south of Mt. Pleasant Cemetery to the southern part of David A. Balfour Park near Mount Pleasant Road.

Sites	Stormwater Infrastructure
1	Source storm sewer outfall
2, 3, 4, 7 & 9	Storm sewer outfalls
10	Storm sewer inlet
Sites	Watermain Infrastructure
5	Reservoir outlet
6	Watermain crossing
8	Watermain parallel to stream



# Level of Erosion Risk

The level of risk to water infrastructure caused by erosion was based on a technical assessment characterizing risk probability (time to exposure), existing bank protection, and risk severity should damage occur.

### **Low-Risk Sites**

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

### **Moderate-Risk Sites**

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

### **High-Moderate-Risk Sites**

- Infrastructure and site conditions show signs of erosion
- Regular monitoring is required

### **High-Risk Sites**

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





# **Risk Assessment Example – Site 4**





Site Location	Site 4 – Storm Outfall (South of St Clair)
Description	<ul> <li>Erosion has put the storm sewer outfall at risk</li> <li>Erosion of stream channel and valley wall</li> <li>Overall: Poor condition</li> </ul>
Level of Erosion Risk to City infrastructure	High-Moderate Risk



# **Sites Based on Risk**

Of the 10 City of Toronto storm sewer and watermain infrastructure sites, only the storm sewer outfall at Site 4 was identified as a highmoderate risk.

The remaining sites were identified as low or moderate-risk.

There were no high-risk sites identified





# **Alternative Solutions**

Three potential solutions to address erosion risks have been evaluated.

### **Alternative 1: Do Nothing**

• No improvements

### **Alternative 2: Local Works and Protection**

- Single phase construction over a short section of channel, subject to City-wide priority and budget availability
- Project sites less than 100 metres
- Local bed and/or bank work in the stream to protect Toronto Water infrastructure

### **Alternative 3: Sub-Reach Based Works**

- Single or multiple phase construction over a long section of channel, subject to City-wide priority and budget availability
- Project sites greater than 100 metres
- Engineered channel design consisting of bed and bank work in the stream and floodplain to protect Toronto Water infrastructure
- Channel will be regraded or locally realigned to improve creek flow by reducing water velocities and erosion



# Alternative Solutions, with the threshold difference at 100 m

### Local Works and Sub-Reach Based Works differ in their geographic extent.

Alternative 2 – Example of Local Works Local channel works less than 100 m



Alternative 3 – Example of Sub-Reach Based Works Extensive channel works greater than 100 m





# **Example of Alternative 2 – Local Works and Protection**

In 2021, the storm sewer outfall at Site 3, south of St. Clair Avenue East, was repaired. Photos on this slide show a before-and-after example of local works and protection where natural stone was used for erosion control.

### Before



After





# Example of Alternative 3 – Sub-Reach Based Works, from Duncan Creek





Duncan Creek Phase 2 Deteriorated Gabion Lined Channel (Pre-Construction) Duncan Creek Phase 2 Rehabilitated Creek Corridor (Post-Construction)



# **Examples of Stream Restoration Methods**

Both Local Works (Alternative #2) and Sub-Reach Based Works (Alternative #3) will require reconstruction of the stream bed and banks using methods like what is shown in the photos on this slide. These erosion control methods integrate Natural Channel Design guidelines and principles.

### The specific restoration methods will be determined after the completion of this study.



Mud Creek: Stream bank constructed with a vegetated stone buttress Berry Creek: Stream realigned and bends to move away from previously exposed sanitary sewer crossing West Highland Creek: Rock weirs allow for grade control that reduces flow speed, provides pool and riffles, and stabilizes stream bed material

# **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 50 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 Projects**

Based on the risk assessment and evaluation of alternatives, improvements to the creek in segments greater than 150 metres are recommended for four separate subreach projects (Alternative 3).



### Sub-Reach Based Works (Alternative 3) is the best option for all projects, as it:

- Protects water infrastructure and reduces the risk of damage.
- Limits the release of suspended solids into the creek which helps maintain the functionality of the City's downstream sewers and reduces City maintenance needs.
- Provides a greater length of natural creek banks and bed.
- Improves geomorphic and slope stability, as well as aquatic habitat and floodplain connectivity.
- Creates a stable channel for establishing native trees along the creek.



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# **Recommended Solution: Project #1**

### Project #1 addresses priority Site 4

**Recommended Solution**: Alternative 3 – Sub-Reach Works

- Project #1 consists of channel engineering works for approximately 340 m of channel. It has been divided into Project #1A and Project #1B to reflect the higher priority need of the Site 4 storm sewer outfall
- Project #1A is 85 m and will retrofit the storm sewer outfall at Site 4 and provide a local realignment to protect the outfall.
- Project #1B is 255 m and will remove the failed concrete spillway at the historic sawmill site.



Valley Wall

Outfa

# **Recommended Solution: Project #2**

Project #2 addresses priority Site 5, 6, 7, 8 and 9 Recommended Solution: Alternative 3 – Sub-Reach Works

- Channel engineering works for approximately 245 m.
- Engineered natural channel design to protect storm sewer outfall and watermain infrastructure.
- Channel alteration will require that the upstream pedestrian bridge be replaced.
- Includes lowering banks and reconnecting the floodplain.

TRCA is undertaking separate work to address Yellow Creek near Sites 7, 8 and 9 and is in communication with the City.





# **Recommended Solution: Project #3**

### Project #3 addresses priority Site 2

**Recommended Solution**: Alternative 3 – Sub-Reach Works

- Channel engineering works for approximately 170 m.
- Engineered natural channel design and retrofit of the storm sewer outfall at Site 2.
- Creek work at the northern limit overlaps with private property.

TRCA is undertaking a separate Class

Environmental Assessment study to address the conditions at Site 1 and is in communication with the City.







# **Recommended Solution: Project #4**

### Project #4 addresses priority Site 10

**Recommended Solution**: Alternative 3 – Sub-Reach Works

- Channel engineering works for approximately 180 m.
- Includes retrofitting the storm sewer inlet to update the trash rack intake structure at Site 10.
- Involves lowering the banks and regrading the floodplain.







# **Creek Restoration and Protection Work Requirements**

### Future implementation of the recommended projects require:

- Tree and vegetation removal followed by native species replanting. A restoration plan will be developed prior to construction as part of a future design phase after the study.
- Possible trail closures to accommodate construction activities. Details will be confirmed as part of a future design phase after the study.

Residents will be notified prior to any construction.



# **Next Steps**

- Complete the Study and make the study report available for a 30-day public comment period.
- Following a successful public comment period, the recommended solutions will be included in the City's Stream Restoration and Erosion Control Program. Implementation will be prioritized across all GSMPs city-wide.
- Share study results with the City's Parks, Forestry and Recreation division and TRCA for coordination and collaboration to advance a long-range plan for Yellow Creek.





# **Prioritization and Timing**

## **Prioritization of Critically Exposed Sanitary Sewers**

- Toronto Water has numerous critically exposed sanitary sewers across the City, such as in Highland Creek, Humber Creek, Mimico Creek, Newtonbrook Creek and Taylor-Massey Creek.
- In addition to this study, the City is undertaking numerous similar studies for other watercourses across the City.
- Exposed sanitary sewers are the highest priority sites to repair as there are greater negative impacts due to a broken sanitary sewer when compared to a broken storm sewer outfall or watermain.
- There are no sanitary sewers in Yellow Creek.
- Exposed sanitary sewer sites in other City watercourses will take precedence when planning, budgeting and undertaking future work to repair Toronto Water infrastructure.
- The Yellow Creek recommended projects are anticipated to be implemented in the medium to long-term because the City must first address other more urgent water infrastructure protection work in other City creeks.



Exposed sanitary sewer in Humber Creek



Exposed sanitary sewer in Mimico Creek



# **Prioritization of Yellow Creek Projects**

- Project #1A is the highest priority project for Yellow Creek and will be implemented in the medium-term to address the most at-risk water infrastructure site, storm outfall Site 4.
- The remaining projects are identified for implementation in the long-term.
- Shorter lengths of Yellow Creek projects may be implemented ahead of #1B, 2, 3, or 4.

High-Priority Projects – no projects Moderate-Priority Projects – Project #1A

Low-Priority Projects – Project #1B, 2, 3 and 4





# **Prioritization of Yellow Creek Projects**

# Yellow Creek Block Wall Liner

- Located along most of Yellow Creek
- Is generally in good shape
- The condition of the block wall will be monitored. Deteriorating conditions will be used as an indicator for when lowpriority projects need to be considered in the long-term



# **Public Consultation**



# Public Consultation Closes December 17, 2023

To provide feedback,

Complete an online survey or submit comments by email or phone



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# **Project Staff**

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Photo Sources: Top – Humber River after large storm (Toronto and Region Conservation Authority TRCA) Bottom – Burke Brook armourstone wall (City of Toronto)

**Fluvial Geomorphology** is the study of streams. Streams are studied by:

- Form: width, depth, length, slope
- Function: movement of water and sediment
- How form and function are interrelated and how they change over time



Photo Sources: Rod Anderton (Yellow Creek)

Water and stormwater infrastructure in Toronto works with our streams, rivers, lakes and watersheds.

High flows from past storms have caused erosion damage to sewers and watermains located in and near the City's ravines and watercourses resulting in a need to protect water and sewer infrastructure from further excessive erosion.

Understanding streams helps us to develop solutions to:

- Changing conditions, such as the excessive erosion of water and sewer infrastructure
- Work with the changes in the stream
- Enhance stream functions and habitats in the longterm



- Streams are **dynamic** and follow natural processes of erosion and laying sediment until a stable form is developed and maintained
- **Stressors** can destabilize the stream over the short or long-term causing changes in its shape, location and overall size. These stressors include:



### Historical Land Use and Land Management Changes,

where watershed land use and land management has been altered resulting in the obstruction of infiltration and absorption of rain and snow melt into the ground



**Climate change,** increases the frequency and intensity of precipitation events, including large storms, which increases the flow in streams

### Historical floodplain encroachment and built

**controls,** or adjustments, alter a stream's form in ways that counter-act natural processes, such as channelization, culverts and walls.



Photo Sources: Rod Anderton (Duncan Creek)



How streams respond to stressors

Higher flows enter the stream

The speed and volume of water within the stream increases



Photo Sources: Rod Anderton (Berry Creek)

The stream adjusts and accommodates the higher flows

Excessive erosion "moves" the stream closer to the City's water and sewer infrastructure



Example of High Flows



The photo on the left shows dry weather conditions in Yellow Creek near Yonge Street and St Clair Avenue. The photo below is in the same location with high flows on November 27, 2020, a few hours after a storm.



Photo source: Rod Anderton (left) John Bossons (right)



Common characteristics of natural streams include:

- Stream either meanders and curves, or is a steppool system
- Stream has varying depths
- Diverse stream features and habitats:
  - Boulders, shallow riffles, fish spawning zones, deep pools and point bars
- Trees and vegetation provide:
  - o Stream bank stability
  - o Aquatic habitat
  - o Cover for fish from predators
  - Shade to cool/reduce over-heating of the stream's water temperature
- This study focuses on protecting water and sewer infrastructure using solutions that incorporate natural stream characteristics as much as possible



### Glossary

Bank:	The sides of the stream, also part of the floodplain
Channel:	The water in the stream / creek / river / watercourse
Confluence:	Where two or more streams meet
Erosion:	The movement of soil or rock by wind, water, or other natural processes
Floodplain:	The area surrounding the stream channel which holds increased water flow when the width
	of the stream expands seasonally with spring snowmelt or due to storms
Geomorphology:	The study of the characteristics and history of landforms
Substrate:	The material on the stream bottom / bed

Cross-section of stream channel and floodplain





How we develop a plan to work with a stream's geomorphology

# Identify problems and causes

Identify historical context and existing stream conditions

- To determine how they influence the stream's current and future conditions
- Identify other ecological aspects such as habitats within a stream and along the banks as these are indicators of stability or instability

Collect information and evaluate existing and future conditions

Evaluate changes in the stream's form and function as a response to stressors

- Evaluate how, and at what rate, a stream's form and function changes
- Evaluate how this is impacting water and sewer infrastructure

# **Develop Solutions**

Develop and design an improved stream form that will:

- Protect water and sewer infrastructure
- Improve stream function, such as increasing stream bank stability, reducing excessive erosion and improving aquatic habitats

# Methods of infrastructure protection

Infrastructure protection and stream restoration work can be constructed within the existing stream "footprint" over various stream segments/lengths to protect water and sewer infrastructure.





Photo of an armourstone bank and vegetated stone treatment at the water's edge along the stream bank of Burke Brook.

# Methods of infrastructure protection

Realignment of the stream away from water and sewer infrastructure.





# Methods of infrastructure protection

Move Water & Sewer Infrastructure



Where possible, new water or sewer infrastructure is constructed in a new location further from the stream in the ravine/valley. The original infrastructure is removed or abandoned in place, which is typically less disruptive and less costly than removal.



# Geomorphic Systems Master Plans (GSMPs)

There are numerous ongoing GSMPs across the City in streams to identify and assess water and sewer infrastructure at risk of excessive erosion from high flows due to storms and snow melt runoff.

GSMPs are initiated with a study to observe how the City's water and sewer infrastructure can be protected within the stream along with an evaluation of recommended solutions to help reduce or prevent future impact. This ensures the City's infrastructure continues to operate and service residents and businesses. Solutions from the GSMPs for each stream will be implemented over a multi-year period.

### Purpose of a GSMP study:

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

