



Mimico Creek Restoration and Infrastructure Protection Study Geomorphic Systems Master Plan

Public Consultation: June 2024



Mimico Creek Geomorphic Systems Master Plan

In 2021, the City of Toronto initiated the Mimico Creek Geomorphic Systems Master Plan (GSMP) Municipal Class Environmental Assessment (MCEA), as one of five GSMPs across the City to identify and assess water and sewer infrastructure in Mimico Creek that is at risk of erosion from high flows due to storms and snowmelt runoff.

Study Purpose:

- To identify concerns related to erosion that may damage the City's water and sewer 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



- 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.

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 includes:

- The entirety of Mimico Creek within the city of Toronto, from Highway 427 north of Highway 409 to its outlet at Lake Ontario (~20 km).
- 203 infrastructure sites:
 - Over 17 km of sanitary sewer lines and 93 sanitary sewer sites, including 80 sewer crossings
 - **27** watermain sites, including 25 watermain crossings
 - 83 storm sewer outfalls



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 each of the sanitary sewer and watermain crossings, storm sewer outfalls, and adjacent infrastructure (203 sites in total) 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 the near future
- Regular monitoring required

Very High-Risk Sites

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



Priority Sites

Of the 203 sites assessed, the 25 most at-risk water infrastructure sites were identified as priority sites.





most at-risk water infrastructure sites identified for protection through creek restoration

Alternative Solutions

Three potential solutions to address the priority erosion sites have been proposed. The alternative solutions have been evaluated for each of the top 25 priority sites.

Alternative 1: Do Nothing

• No improvements

Alternative 2: Local Works

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

Alternative 3: Sub-Reach Scale Works

- Single or multiple phase construction over a long section of channel subject to City-wide priority and budget availability
- Project sites generally 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



Local Works Compared to Sub-Reach Scale Works

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



Alternative 3 – Example of Sub-Reach Scale Works

Solution Extent

- Generally, Alternative 2 is less than 100 m and Alternative 3 is greater than 100 m.
- Alternative 3 consists of extensive channel work and in some cases allows for connectivity between priority sites to address multiple water infrastructure sites.
- The specific extent of the recommended solutions will be confirmed after the study is completed.

M TORONTO

Example of Alternative 2 – Local Works, from Taylor-Massey Creek



Taylor-Massey Creek Sanitary sewer maintenance hole within the creek channel (During-construction) Taylor-Massey Creek Creek has been realigned away from the 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)



Examples of Stream Restoration Methods

Both local works (Alternative #2) and sub-reach scale 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.



Mimico Creek: Armourstone incorporated along the banks with large stone placed in the channel to protect sanitary sewer infrastructure



Mud Creek: Stream bank constructed with a vegetated stone buttress



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 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 and assesses long term benefits for the community, minimum or shortterm 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 and Prioritization

- Water infrastructure protection for the 25 most at-risk sites is recommended through 14 proposed projects.
- The projects consist of 5 local works (Alternative 2) and 9 sub-reach works (Alternative 3) solutions.
- The 14 projects were assigned priority levels for implementation.
 - Projects 1-9 are high priority
 - Projects 10-12 are medium-priority
 - Projects 13 and 14 are low-priority
- Exposed sanitary sewers rank as the highest priority projects as they pose greater negative impacts if broken as compared to broken storm sewer outfalls or watermains.



Project #1	High-Priority Project	
Infrastructure at- risk	 1 high-risk sanitary sewer crossing 3 storm sewer outfalls, including 1 very high-risk 	
Description of conditions and risk analysis	 Concrete encasement of a sanitary trunk sewer crossing is exposed Failed storm sewer outfall 	Exposed sanitary sewer encasement
Recommended Solution	 <u>Alternative 3 – Sub-Reach Works</u> Engineered natural channel works for approximately 390 m. Includes adjusting the channel bed and banks, and installing stone, to reinstate protection over the sewer crossing and create a more stable channel form. Replace failed or at-risk storm sewer outfalls. Creek work overlaps with private property on Beaucourt Rd., Berl Ave. and Delroy Dr. as well as Jeff Healey Park and the Hydro Green Space. TRCA are planning a project for the watercourse in this area and is in communication with the City. 	Nimico Creek Storm Sewer Outfall Repair Sanitary Sewer Crossing Protection Solution Area Etobicoke Hydro Green Space Storm Sewer Outfall Repair



N

Project #2	High-Priority Project
Infrastructure at- risk	 2 high-risk sanitary sewer crossings 2 storm sewer outfalls
Description of conditions and risk analysis	 Concrete encasements for 2 sanitary trunk sewer crossings are exposed
Recommended Solution	 <u>Alternative 3 – Sub-Reach Works</u> Engineered natural channel works for approximately 300 m. Includes adjusting the channel bed and banks, and installing stone, to reinstate protection over the sewer crossings and create a more stable channel form. Replace and improve at-risk storm sewer outfalls. Creek work overlaps with private properties on Humbervale Blvd. and Royal York Rd. as well as Reid Manor Park.





Project #3	High-Priority Project
Infrastructure at- risk	 1 high-risk sanitary sewer siphon crossing 1 watermain 2 storm sewer outfalls
Description of conditions and risk analysis	 Concrete encasement of a sanitary sewer siphon crossing is exposed
Recommended	Alternative 3 – Sub-Reach Works
Solution	 Engineered natural channel design works for approximately 170 m.
	 Includes adjusting the channel bed and banks, and installing stone, to reinstate protection over the sewer crossing and create a more stable channel form.
	 Proposed work would tie into the recent upstream works at Van Dusen Blvd. and protect a watermain and storm sewer outfalls.
	 Creek work overlaps with private property on Springbrook Gdns. as well as Spring Garden Park.
TORONTO	



Project #4	High-Priority Project
Infrastructure at- risk	 1 high-risk sanitary sewer crossing
Description of conditions and risk analysis	 A sanitary trunk sewer crossing is exposed
Recommended Solution	 <u>Alternative 3 – Sub-Reach Works</u> Engineered natural channel design works for approximately 150 m. Includes adjusting the channel bed and banks, and installing stone, to reinstate protection over the sewer crossing and create a more stable channel form. Addresses an abandoned watermain under the Dundas/Islington bridge and along Islington Ave. The project overlaps with private property on Dundas St. W. as well as Tom Riley Park. The City has implemented emergency repair works for the exposed sanitary sewer crossing as the pipe condition requires immediate attention





Project #5	High-Priority Project
Infrastructure at- risk	 4 sanitary sewer crossings, including 3 high-risk 2 high-risk storm sewer outfalls
Description of conditions and risk analysis	 Concrete encasements for 3 sanitary trunk sewer crossings are exposed Failing storm sewer outfalls
Recommended Solution	 <u>Alternative 3 – Sub-Reach Works</u> Engineered natural channel design works for approximately 350 m. Includes adjusting the channel bed and banks, and installing stone, to reinstate protection over the sewer crossings and create a more stable channel form. Restore failing storm sewer outfalls. Work is within the Islington Golf Course.





Project #6	High-Priority Project
Infrastructure at- risk	 3 sanitary sewer crossings, including 1 high-risk 3 storm sewer outfalls, including 1 high-risk
Description of conditions and risk analysis	 Concrete encasement of a sanitary sewer crossing is exposed Failing storm sewer outfall
Recommended Solution	 <u>Alternative 3 – Sub-Reach Works</u> Engineered natural channel design works for approximately 350 m. Includes adjusting the channel bed and banks, and installing stone, to reinstate protection over the sewer crossings and create a more stable channel form. Rehabilitation and replacement of storm sewer outfalls. The proposed work is within West Deane Park.





Project #7	High-Priority Project
Infrastructure at- risk	1 high-risk lateral sanitary sewer1 very high-risk storm sewer outfall
Description of conditions and risk analysis	 Sanitary sewer maintenance hole is at risk of exposure Failed storm sewer outfall
Recommended Solution	 <u>Alternative 2 – Local Works</u> Engineered natural channel design works for approximately 40 m. Includes adjusting and regrading the channel bed and banks, and installing stone, to protect the sanitary sewer and create a more stable channel form. Restore failed storm sewer outfall. The proposed work is within Hampshire Heights





Project #8	High-Priority Project
Infrastructure at- risk	 1 very high-risk storm sewer outfall 1 sanitary sewer 1 watermain
Description of conditions and risk analysis	 Failed storm sewer outfall is putting multiple water infrastructure assets at risk
Recommended Solution	 <u>Alternative 2 – Local Works</u> Engineered natural channel design works for approximately 20 m. Replacement of a failed storm sewer outfall. Includes vegetated buttress wingwalls and bank stabilization works. The proposed work overlaps with private properties on Carlingview Dr. and Disco Rd. as



Disco Rd





Project #9	High-Priority Project
Infrastructure at- risk	 4 sanitary sewer crossings, including 1 high-risk 6 high-risk lateral sanitary sewers 1 storm sewer outfall
Description of conditions and risk analysis	 The lateral sanitary sewer along the watercourse is at risk of erosion and exposure.
Recommended Solution	 <u>Alternative 3 – Sub-Reach Works</u> Engineered natural channel design works for approximately 370 m. Includes minor channel realignment away from the lateral sanitary sewer, reinstating protection over the sewer crossings and adjusting the channel bed and banks, by installing stone, to create a more stable channel form. The proposed works is within West Deane Park.







Project #10	Medium-Priority Project
Infrastructure at- risk	 2 sanitary sewer crossings 2 storm sewer outfalls, including 1 very high-risk
Description of conditions and risk analysis	 Channel erosion is endangering the sanitary sewer crossings The storm sewer outfall is fully exposed
Recommended Solution	 <u>Alternative 3 – Sub-Reach Works</u> Engineered natural channel design works for approximately 420 m. Includes adjusting the channel bed and banks, and installing stone, to reinstate protection over the sewer crossings and create a more stable channel form. Replacement and realignment of the storm sewer outfall. Creek work overlaps with private property on Royal
	York Rd. and Grenview Blvd S. as well as Berry Road Park and Reid Manor Park.





Project #11	Medium-Priority Project	
Infrastructure at- risk	 1 sanitary sewer crossing 2 watermains 3 storm sewer outfalls, including 1 very-high risk and 1 high-risk 	
Description of conditions and risk analysis	 Channel erosion is endangering the sanitary sewer crossing Storm sewer outfalls are exposed and eroding 	
Recommended	<u>Alternative 2 – Local Works</u>	
Solution	 Engineered natural channel design works for approximately 60 m. 	
	 Includes adjusting the channel bed and banks, and installing stone, to reinstate protection over the sewer crossing and create a more stable channel form. 	
	 Replacement of a storm sewer outfall. 	L.
	 The proposed work is within Tom Riley Park and Toronto Region Conservation Authority lands. 	
M TORONTO		2



Project #12	Medium-Priority Project
Infrastructure at-risk	 2 sanitary sewer crossings 1 storm sewer outfall
Description of conditions and risk analysis	 Channel erosion is endangering the sanitary sewer crossing Outfall is buried in sediment
Recommended Solution	 <u>Alternative 3 – Sub-Reach Works</u> Engineered natural channel design works for approximately 375 m. Includes adjusting the channel bed and banks, and installing stone, to reinstate protection over the sewer crossings and create a more stable channel form while also improving floodplain connection. Retrofit the storm sewer outfall. The proposed work is within West Deane Park south of Eglinton Ave. W.
DA TORONTO	



Project #13	Low-Priority Project
Infrastructure at- risk	 2 sanitary sewer crossings, including 1 high-risk 1 lateral sanitary sewer
Description of conditions and risk analysis	 Channel erosion is endangering the sanitary sewer crossings The lateral sanitary sewer along the watercourse is at risk of erosion and exposure
Recommended Solution	 <u>Alternative 2 – Local Works</u> Engineered natural channel design works for approximately 70 m along with approximately 90 m of bank work. Includes adjusting the channel, by installing stone, to reinstate protection over the sewer crossings and stabilize the lateral sewer bank to create a more stable channel form. Creek work overlaps with private property on Appleby Ct. and Lorraine Gdns. as well as Hampshire Heights Park and Hydro Green Space.





Project #14	Low-Priority Project
Infrastructure at- risk	 1 high-risk storm sewer outfall
Description of conditions and risk analysis	 Storm sewer outfall is deteriorated and poses a risk to the bank
Recommended Solution	 <u>Alternative 2 – Local Works</u> Engineered natural channel design works for approximately 25 m. Includes the replacement of the deteriorated storm sewer outfall along with bank restoration works. The proposed work overlaps with the Royal We address Oalf Courses





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 park trail closures to accommodate construction activities. Details will be confirmed as part of a future design phase after the study.
- Some work to occur on private property. The City currently has sewer easements in place at some of these properties. Requirements for additional, or new, easements, either permanent and/or temporary, are to be confirmed as part of a future deign phase. Owners of properties that intersect with Mimico Creek that are affected by the recommended projects have been contacted by the City and will be contacted during the future design phase after the study to review and discuss project planning and details.

Construction notices will be distributed to residents prior to any future construction.



Next Steps

- Review feedback received through the public consultation process.
- Complete the study and make the study report available for a 30-day public review.
- Following the review period, the recommended solutions will be included in the City's Stream Restoration and Erosion Control Program. Implementation will be prioritized across all GSMPs citywide.
- Share study results with the City's Parks, Forestry and Recreation and Transportation divisions and TRCA for coordination and collaboration to advance a long-range plan for Mimico Creek.





The public comment period closes June 28, 2024.

To provide feedback, complete an online survey or submit comments by email or phone.



Toronto.ca/MimicoCreek

MimicoCreek@toronto.ca

416-338-2985



Staff Contacts

Project Manager Daniel McCreery

Senior Engineer, 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

