

# Welcome

Welcome to the online Public Information Centre (PIC) #2

## Dixie-Dundas Flood Mitigation Project

### Schedule C Municipal Class Environmental Assessment

<http://www.mississauga.ca/flooding>



# Land Acknowledgement

We acknowledge the lands which constitute the present-day City of Mississauga as being part of the Treaty and Traditional Territory of the Mississaugas of the Credit First Nation, The Haudenosaunee Confederacy, and the Huron-Wendat and Wyandot Nations. We recognize these peoples and their ancestors as peoples who inhabited these lands since time immemorial. The City of Mississauga is home to many global Indigenous Peoples.

As a municipality, the City of Mississauga is actively working towards reconciliation by confronting our past and our present, providing space for Indigenous Peoples within their territory, to recognize and uphold their Treaty Rights and to support Indigenous Peoples. We formally recognize the Anishinaabe origins of our name and continue to make Mississauga a safe space for all Indigenous Peoples.

# Project Information and Contacts

If you would like to be included on the project mailing list and/or provide input, please complete the project comment form available at

<http://www.mississauga.ca/flooding>

and submit by email to either of the project contacts outlined on this slide

Input from Public Information Centre No. 2 will be received until

**June 23, 2023**

**Thank you for participating!**

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# PIC #2 Presentation Agenda

1. Project Overview
2. Preferred Alternative Solution (Phase 2 of Municipal Class EA)
3. Design Concepts Considerations
4. Alternative Design Concepts for the Preferred Solution (Phase 3 of the Municipal Class EA)
5. Evaluation of Design Concepts
6. Preliminary Preferred Alternative Design Concept & Next Steps



Little Etobicoke Creek (Matrix 2020)



Upstream of Dixie Road

# Project Overview

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# Project Overview

The *Dixie-Dundas Flood Mitigation Feasibility Study* and Municipal Class EA process seeks solutions to address flooding from Little Etobicoke Creek to protect existing residences and businesses as well as to enable future growth.

- Over 1,000 residential, commercial, and industrial properties between the Little Etobicoke Creek study area and the Queen Elizabeth Way are at risk of flooding.
- The City of Mississauga has an interest to intensify Dixie-Dundas to fulfill the vision of growth expressed in the *Dundas Connects Master Plan* (City of Mississauga 2018).

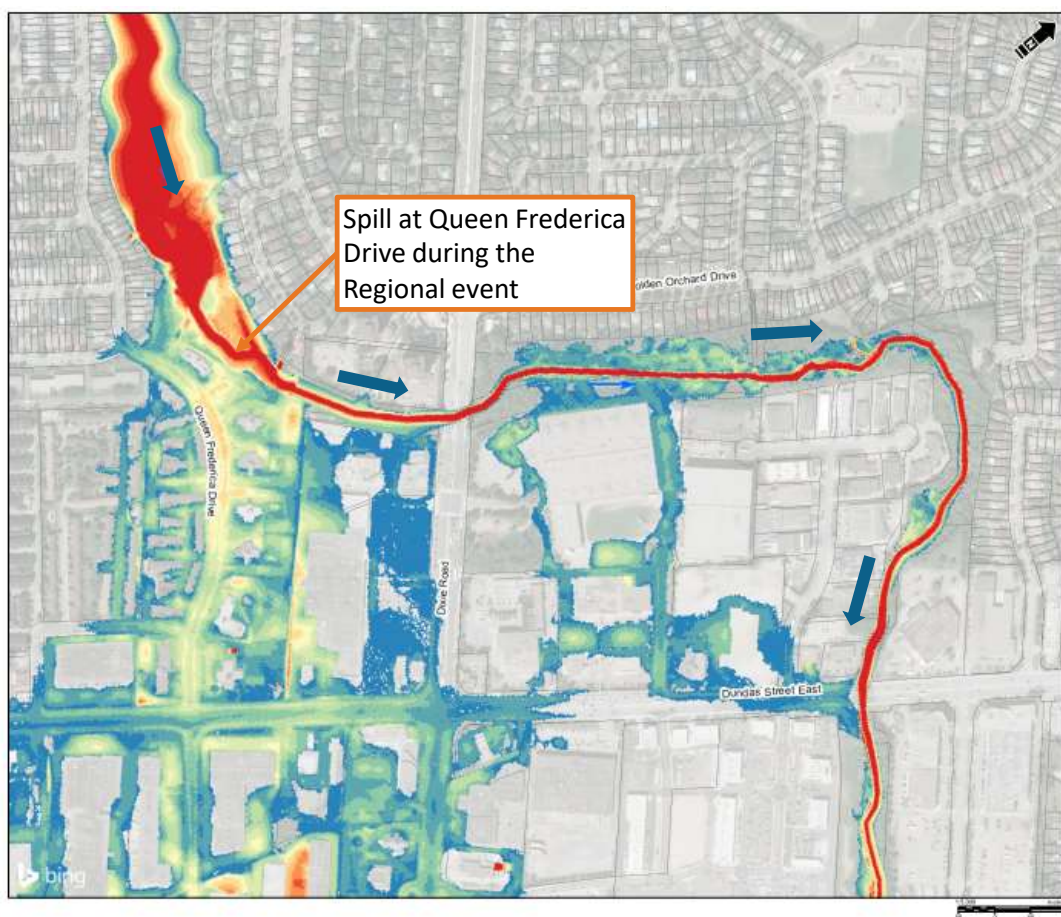
For more information on Dundas Connects, visit:

<https://www.mississauga.ca/projects-and-strategies/city-projects/dundas-connects/>



Dundas Street East at Queen Frederica Drive, July 2013 (source: YouTube)

# Flooding in the Dixie Dundas Area



- Approximately 130 m<sup>3</sup>/s of the total 200 m<sup>3</sup>/s Regional event flow currently spills at Queen Frederica Drive and exits the Little Etobicoke Creek valley corridor.
- The Regional event (Hurricane Hazel (1954) for this study area), is established by the Ministry of Natural Resources and regulated by TRCA.

# Objectives of EA Project

## Summary Statement

Residences and businesses in the Dixie-Dundas community are currently highly vulnerable to flooding from Little Etobicoke Creek. *The Dixie-Dundas Flood Mitigation Feasibility Study* and Class EA will assess solutions to provide flood protection to residences and business as well as to enable future growth.



Address riverine and urban flooding issues



Protect and enhance the natural environment



Build resilient and adaptable solutions



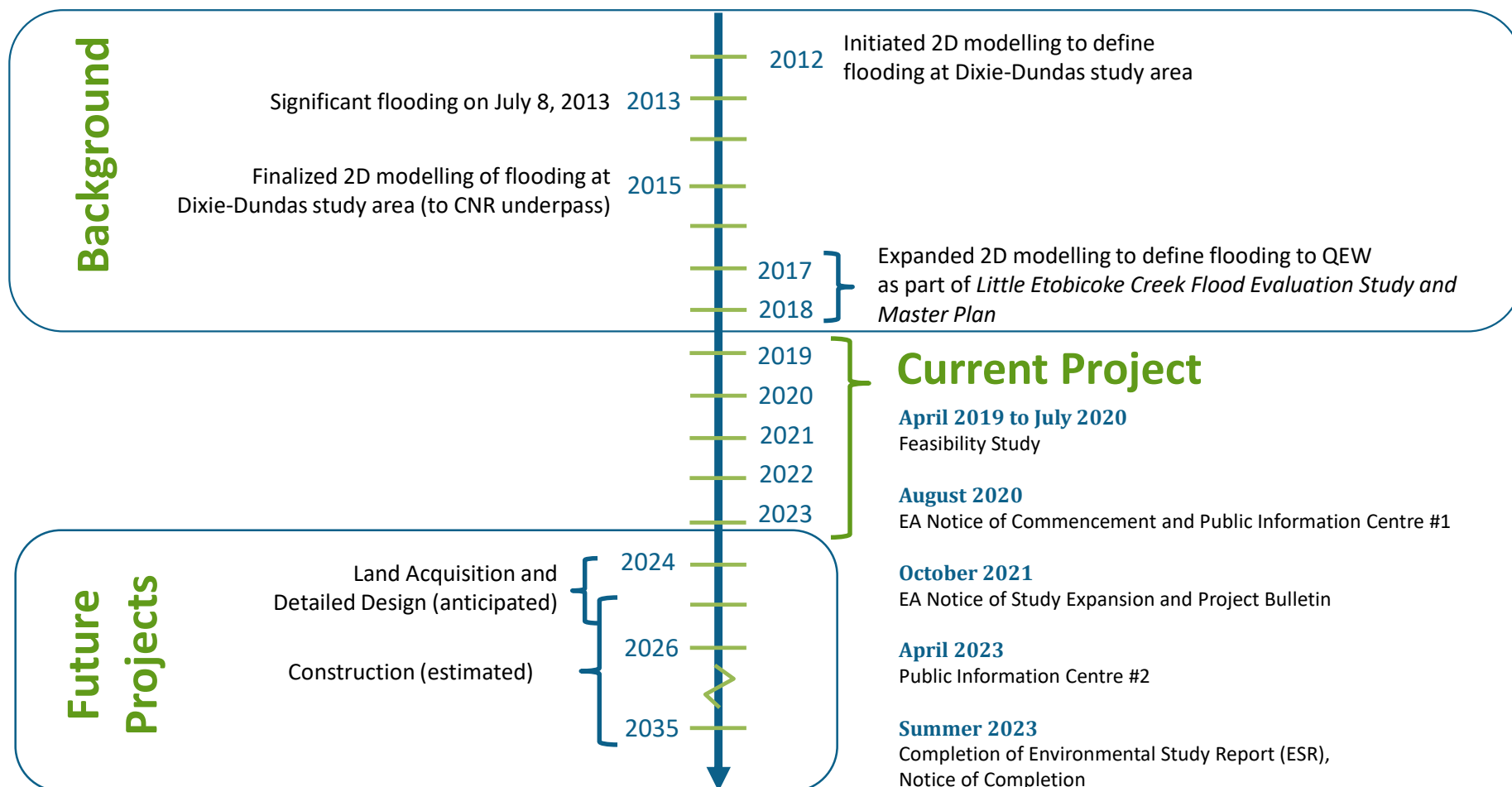
Plan and design feasible infrastructure solutions



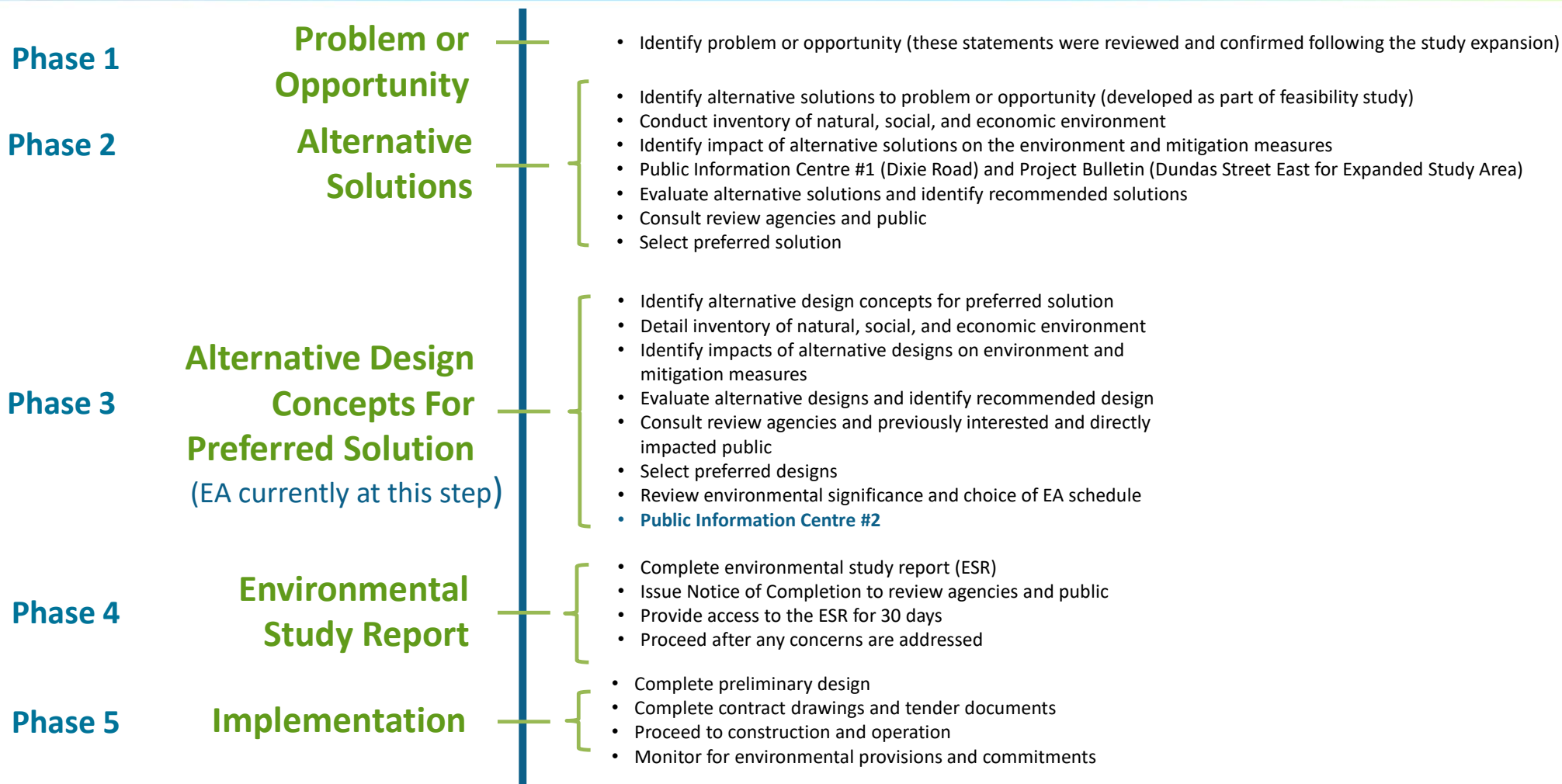
Enable future growth and development



# Project Timeline



# Schedule C Municipal Class Environmental Assessment



# Outline of Public Information Centres (PICs)

## PIC #1

- Introduce the project and the identified problem
- Describe the environmental context
- Present alternative solutions to address the problem
- Outline evaluation criteria
- Provide opportunity for interested parties to offer input



## Project Bulletin

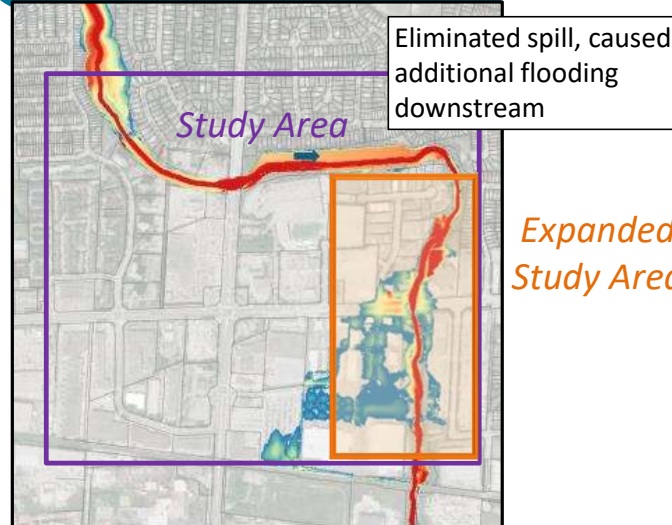
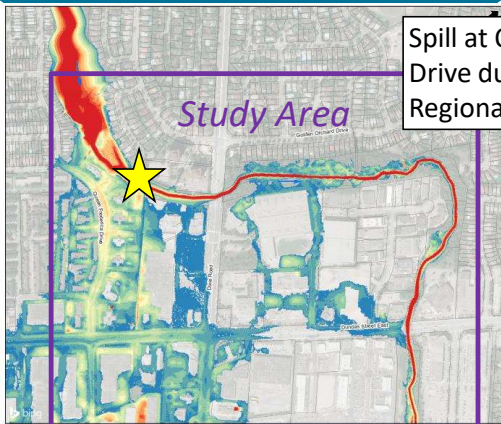
- Outline the need for an expanded study area
- Describe the environmental context
- Present alternative solutions to address the problem
- Outline evaluation criteria
- Provide opportunity for interested parties to offer input



## PIC #2

- Present the evaluation and preferred alternative solutions
- Present and evaluate alternative design concepts
- Provide opportunity for interested parties to offer input

We are here



# Alternative Solutions and Evaluation

## Dixie Area + Dundas Area

# Alternative Solutions - Recap

## Dixie Area

Each alternative represents a different approach to keep flow within the Little Etobicoke Creek valley corridor combined with a Dixie Road Bridge replacement

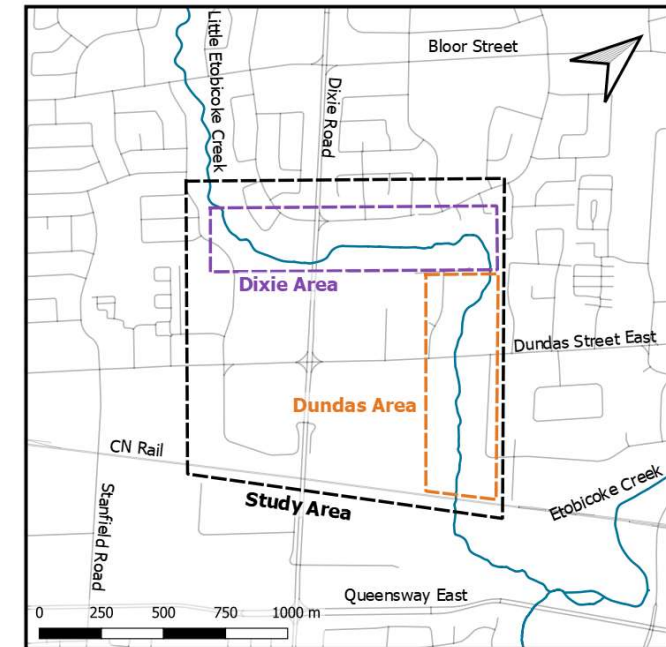
- Alternative #1 – Improved Conveyance with Minimized Footprint
- Alternative #2 – Improved Conveyance by Making Room for the Creek
- Alternative #3 - Flood Containment with Mitigation for Upstream Impacts
- Alternative #4 – Do Nothing



## Dundas Area

Each alternative represents a replacement of the existing Dundas Street Bridge to keep flow within the Little Etobicoke Creek valley corridor

- Alternative #1 – 25 m Single Span Bridge with Downstream Floodplain Conveyance Improvements
- Alternative #2 – 38 m Double Span Bridge without Downstream Floodplain Conveyance Improvements
- Alternative #3 – 38 m Double Span Bridge with Downstream Floodplain Conveyance Improvements
- Alternative #4 – Do Nothing



# Evaluation Criteria

## Technical

- Flood risk improvement
- Urban Drainage
- Erosion Potential
- Construction approaches
- Climate Change Resiliency

## Economic

- Capital costs
- Operation and maintenance
- Urban development
- Municipal servicing

## Environment

- Aquatic Ecology
- Terrestrial Ecology
- Geomorphology

## Social

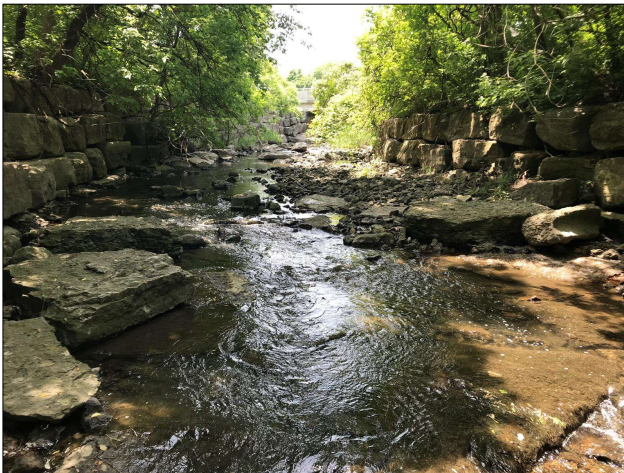
- Planning and Policy
- Public input
- Property impacts
- Public disruption
- Parks and Recreational Amenities
- Cultural Heritage / Archaeology
- First Nations

A preferred solution was selected using this evaluation criteria in collaboration with key stakeholders (i.e., City of Mississauga, Region of Peel, and TRCA). The preferred solution was advanced through Phase 3 of the EA – Alternative Design Concepts.

# Feedback from Public Consultation























Little Etobicoke Creek (Matrix 2019)



Downstream of Dixie Road

- The online PIC #1 and Project Bulletin had over 200 views.
- The comments received to date from the public expressed support for a flood mitigation solution at Dixie-Dundas.
- Project collaboration and input provided by the Toronto and Region Conservation Authority and Region of Peel.
- Cambium Indigenous Professional Services continues to lead project engagement with Indigenous communities.
- Ongoing consultations with interested landowners.
- Ongoing coordination with other City of Mississauga initiatives including the BRT.

# Evaluation of Alternative Solutions – Dixie Area

Criteria	#1 - Improved Channel Conveyance with Minimized Footprint	#2 - Improved Channel Conveyance by Making Room for the Creek	#3 - Flood Containment with Floodplain Landform	#4 – Do Nothing
Technical				
Economic				
Environment				
Social				
Evaluation Outcome				

The evaluation of the alternative solutions recommends *Improved Conveyance by Making Room for the Creek*.



# Preferred Alternative Solution – Dixie Area

## Improved Conveyance by Making Room for the Creek

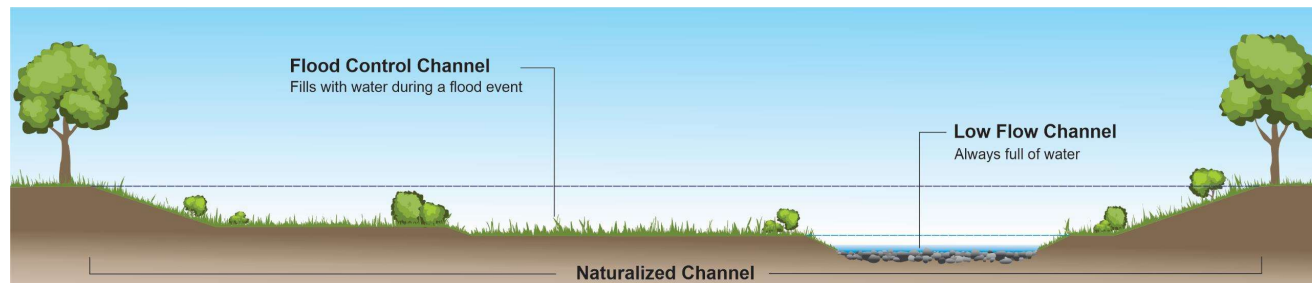
### Design Summary

- incorporates natural channel design concepts
- creates a wider and better-connected floodplain
- replaces Dixie Road bridge with larger span structure





















### Evaluation Summary

- **Technical:** eliminates the spill at Queen Federica Drive, reduces water levels upstream of Dixie Road, reduces erosion during typical flow conditions, provides resiliency to protect against climate change
- **Economic:** enables future removal of the special policy area, similar cost to Alternative #2 and less than Alternative #3 with reduced road raise and lower cost bridge replacement, some impacts to municipal servicing requires relocations
- **Environment:** most opportunity for long-term improvements to fish habitat and terrestrial-aquatic interface, improves sediment transport processes
- **Social:** most opportunity for recreational and trail improvements, aligns with planning/policy initiatives, some property acquisition required, some disruption during construction at Dixie Road anticipated

*Preferred because it contains the spill, provides the most improvements from a social and long-term environmental perspective compared to the other alternatives, and is a similar cost to Alternative 1.*



# Evaluation of Alternative Solutions – Dundas Area

Criteria	#1 - 25 m Single Span Bridge with Downstream Floodplain Conveyance Improvements	#2 - 38 m Double Span Bridge without Downstream Floodplain Conveyance Improvements	#3 - 38 m Double Span Bridge with Downstream Floodplain Conveyance Improvements	#4 - No Mitigation to Increased Flows
Technical				
Economic				
Environment				
Social				
Evaluation Outcome				

The evaluation of the alternative solutions recommends *25 m Single Span Bridge with Downstream Floodplain Conveyance Improvements*

# Preferred Alternative Solution – Dundas Area

## 25 m Single Span Bridge with Downstream Floodplain Conveyance Improvements

### Design Summary

- replaces Dundas Street bridge with a wider, single span bridge
- creates a wider and better-connected floodplain downstream of Dundas Street

### Evaluation Summary

- **Technical:** Contains the flood within the valley corridor, with lower water levels downstream of bridge than Alternative #2. Least challenging to implement with ongoing infrastructure initiatives on Dundas Street.
- **Environment:** Single span provides the most ecological and geomorphic benefits compared to Alternatives #2 and #3. Provides some terrestrial connectivity improvement downstream.
- **Economic:** Least expensive bridge replacement with less O&M than Alternatives #2 and #3. Enables future removal of the Special Policy Areas, allows future urban development plans to move ahead. Least impact to concurrent infrastructure projects.
- **Social:** Some impacts to adjacent property owners and businesses during construction, requires temporary easements and some property acquisition.



Existing Dundas Street East Crossing (Matrix 2021)

*Preferred because it effectively conveys the Regional flow, with the most improvements from an environmental perspective and the lowest cost, with similar social impacts as Alternatives #2 and #3*

# Phase 2 - Alternative Solutions Recap

## Dixie Area

Alternative #2– Improved Conveyance by Making Room for the Creek

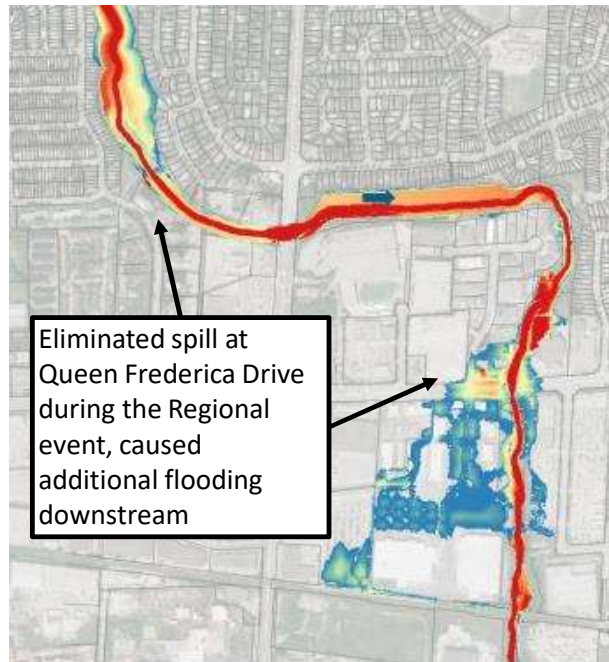
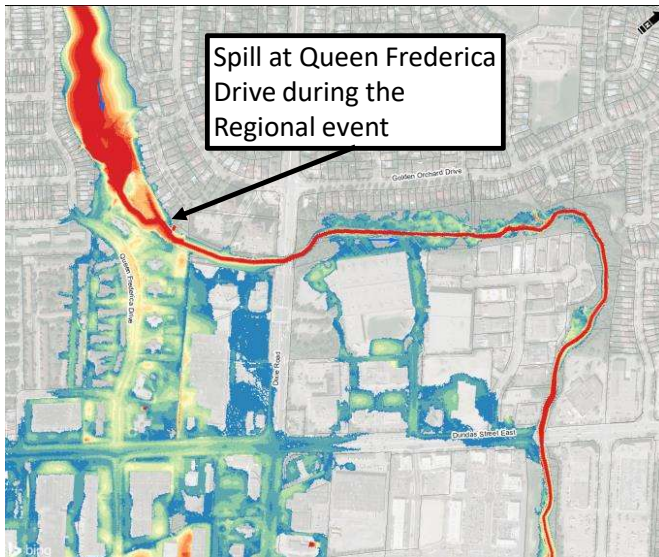


## Dundas Area

Alternative #1 – 25 m Single Span Length with Downstream Floodplain Conveyance Improvements



**Preferred Alternative Solution**



\*slight differences upstream are due to timestep export

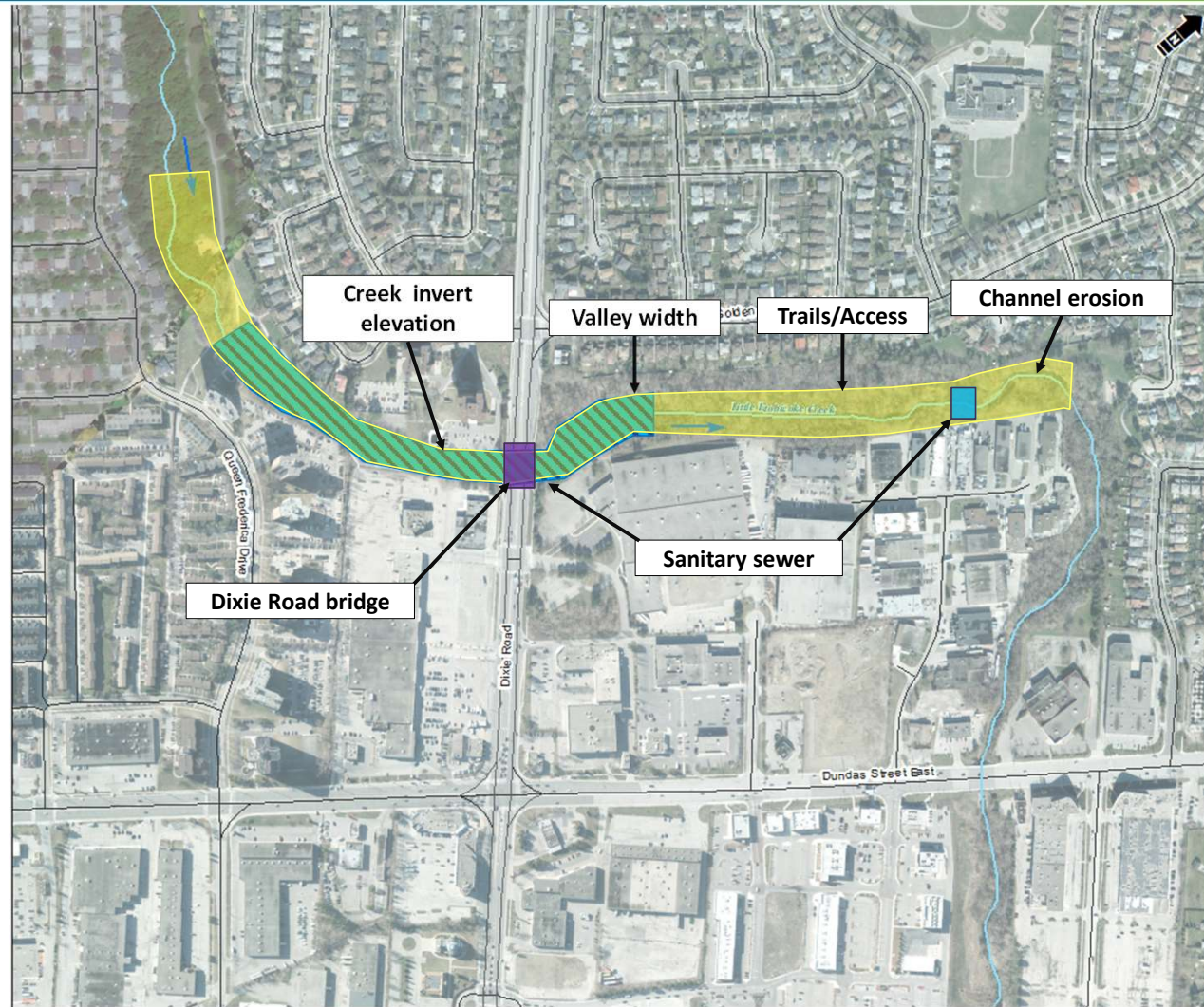
# Considerations for Alternative Design Concepts

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# Dixie Area - Design Considerations

Key design considerations for the Dixie Area included:

- creek invert elevation
- municipal servicing
- Dixie Road bridge span
- minimizing Dixie Road raise
- optimizing valley widths
- minimizing property impacts
- trail/access improvements
- addressing existing channel erosion

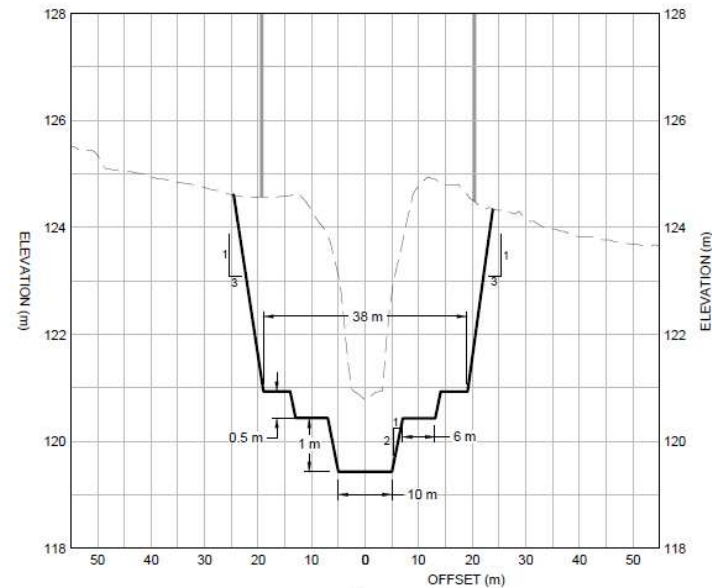


# Dixie Area – Creek Invert Elevation

Component	Brief Description	Carried Forward/ Screened Out	Comments
Channel Elevation at Dixie Road	Maintain the existing channel invert elevation at Dixie Road	Screened Out	Assessed the amount of channel lowering required through Dixie Bridge to achieve the free board objective (0.5 m) at the spill point; a minimum channel lowering of 0.5 m is required.
	Lowering the channel invert elevation 0.5 m – 1.0 m at Dixie Road	Carried Forward	



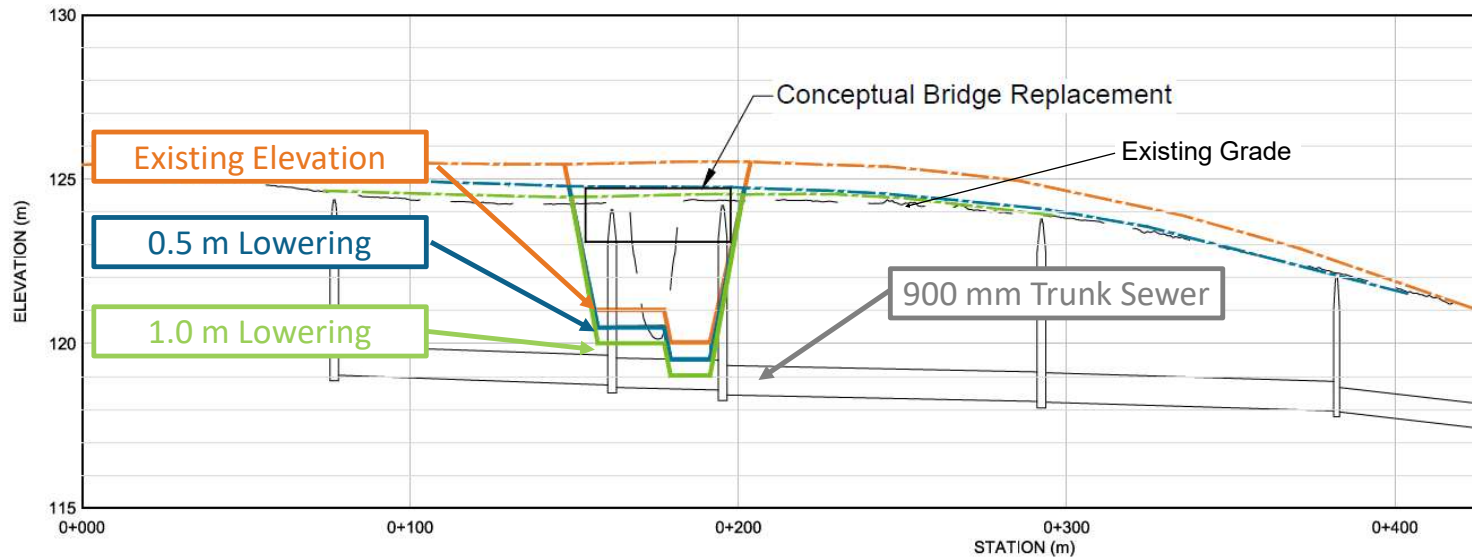
Dixie Road Bridge Crossing (Matrix 2020)



Cross-section immediately upstream of Dixie Road

# Dixie Area – Municipal Servicing

Component	Brief Description	Carried Forward/ Screened Out	Comments
<b>Municipal Servicing</b> 900 mm Sanitary Trunk Sewer at Dixie Road	Leave 900 mm sanitary trunk sewer at Dixie Road in place	Screened Out	Current cover on the sewer is less than 0.6 m and lowering the creek elevation by a minimum of 0.5 m necessitates relocation.
	Lower 900 mm sanitary trunk sewer at Dixie Road	Carried Forward	





# Dixie Area – Municipal Servicing

Component	Brief Description	Carried Forward/ Screened Out	Comments
<b>Municipal Servicing</b> 450 mm Sanitary Sewer at Jarrow Avenue	Leave current 450 mm sanitary sewer in place (open to environmental risk) and provide protection	Screened Out	The Region does not consider keeping the sewer as is for an undetermined amount of time as a feasible option. Limits the opportunity for improved floodplain and channel design.
	Realign sewer through floodplain and connect to lowered Dixie Road sanitary truck sewer	Screened Out	Requires additional lowering of 900 mm diameter sanitary trunk sewer. Issues with future maintenance and access within the floodplain. Logistics are more difficult and expensive than other available options.
	Lower 450 mm sanitary trunk sewer and connect to Jarrow Ave near Dundas Street	Carried forward	Most feasible solution, maintains the same sewer alignment, supported by the Region.



# Dixie Area – Dixie Road Bridge Span

Component	Brief Description	Carried Forward/ Screened Out	Comments
<b>Dixie Road Bridge + Channel Lowering</b>	45 m, double span bridge with lowered 0.5 m invert	Evaluated as Design Concept	Carried forward from the Phase 2 alternatives
	38 m, double span bridge with lowered 1.0 m invert	Evaluated as Design Concept	Minimum span that would meet hydraulic requirements
	45 m, double span bridge with lowered 1.0 m invert	Evaluated as Design Concept	Phase 2 alternative with lowered 1.0 m channel invert
	50 m, triple span bridge with lowered 1.0 m invert	Evaluated as Design Concept	Technically feasible triple span bridge option
	55 m, triple span bridge with lowered 1.0 m invert	Screened Out	No additional benefits and higher cost than 50 m, triple span bridge option



Dixie Road bridge

# Dixie Area – Additional Considerations

## Additional considerations for all alternative design concepts

### Trails/Access Improvements

- Landscaping will restore construction disturbance including tree/vegetation removal, particularly to Willowcreek Park, and contribute to long-term improvements to fish habitat and terrestrial-aquatic interface.
- Enhancing the City's multi-use pathway by:
  - Formalizing the existing trail downstream (east) of Dixie Road connecting to Fieldgate Drive
  - Enhancing the multi-use pathway upstream (west) of Dixie Road
  - Potentially connect the upstream and downstream pathways through the Dixie Road bridge opening (~2.5 m height required, approve water level tbd).

### Additional Municipal Servicing

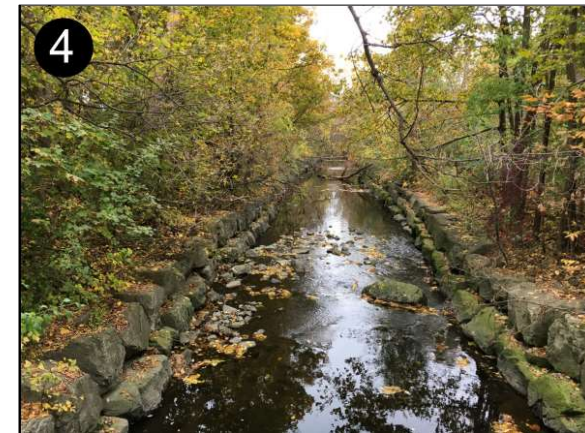
- 400 mm watermain at Dixie Road Bridge with ~1.9 m of cover will require re-location
- 2,400 mm feeder main with 20 m of cover will not be disturbed
- exposed concrete utility box will require relocation
- 10 stormwater outlets discharging into Little Etobicoke Creek will be adjusted as needed

### Creek Width/Floodplain/Property Considerations

- Optimizing creek width, grading, erosion control, and vegetation to best fit design for "Making Room for the Creek"
- Limit property requirements, some existing infrastructure are recognized constraints



Trail near Little Etobicoke Creek (Forrec 2020)

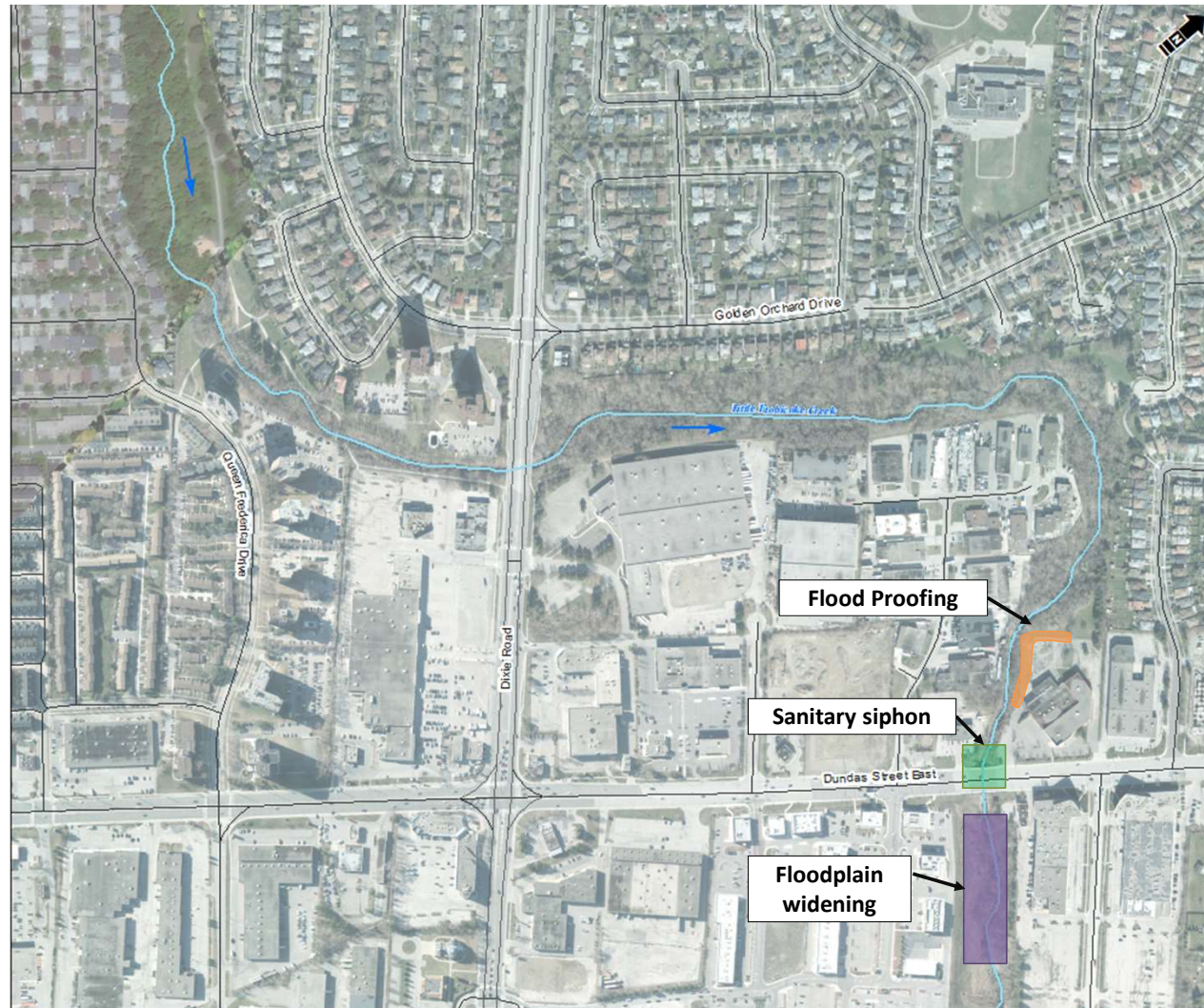


Little Etobicoke Creek (Forrec 2020)

# Dundas Area – Design Considerations

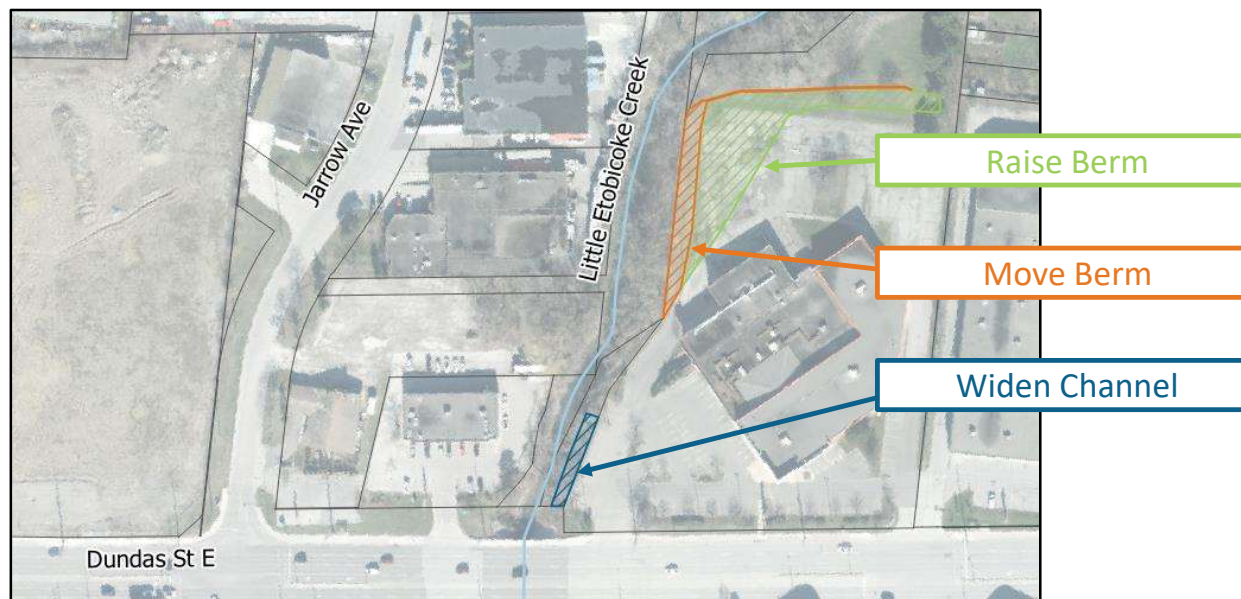
Key design considerations in the Dundas Area included:

- channel improvements
- upstream flood proofing
- floodplain widening
- municipal servicing
- minimizing property impacts
- addressing existing erosion
- Dundas BRT



# Dundas Area – Upstream Flood Proofing

Component	Brief Description	Carried Forward/ Screened Out	Comments
<b>Upstream Flood Proofing</b> 1607 Dundas Street East Property	Raise the berm to prevent overtopping	Carried Forward	Contains flow within the valley corridor under Regional storm providing resiliency to flood risk and protects property from flooding
	Widen the channel immediately upstream Dundas Street East	Screened Out	Does not reduce water levels sufficiently to prevent property flooding
	Move the berm back 20 m and widen channel	Screened Out	



# Dundas Area – Floodplain Widening

Component	Brief Description	Carried Forward/ Screened Out	Comments
<b>Downstream Floodplain Conveyance Improvements</b>	Floodplain has been maximized on the City own land along the west side of the creek. The concept provides 25 m of floodplain adjacent to a 1 m channel.	Evaluated as Design Concept	Intended to reduce energy and water levels during high flow conditions to improve geomorphic and aquatic habitat conditions.
	Existing conditions downstream of Dundas Street remain in place.	Evaluated as Design Concept	If floodplain conveyance improvements are not carried out, erosion mitigation can be carried out as isolated works as required.

The downstream floodplain conveyance improvements may be of limited value hydraulically due to confined valley setting upstream and downstream.

More detailed evaluation of the design concept was completed during Phase 3 to determine potential geomorphic benefits related to the required channel transition works associated with the bridge replacement.



Little Etobicoke Creek (Matrix 2021)

# Dundas Area – Additional Considerations

## Additional considerations for all alternative design concepts

### Channel Improvements

- Improve habitat connectivity and geomorphology through the larger bridge structure.
- Address existing erosion sites (bed and bank erosion)

### Property Considerations

- Limit encroachment on properties, confined valley upstream and downstream of Dundas Street East

### Municipal Servicing

- Sanitary siphon will require relocation at Dundas Street with easements
- Coordination with a planned construction of a 200 mm diameter watermain along Dundas Street
- 6 stormwater outlets discharging into Little Etobicoke Creek will be adjusted as needed



Dundas Street East Bridge (Matrix 2021)

# Evaluation of Alternative Design Concepts

## Dixie Road Bridge



# Dixie Bridge – Alternative Design Concepts

Alternative Design Concepts	45 m, double span bridge with lowered 0.5 m invert	45 m, double span bridge with lowered 1.0 m invert	38 m, double span bridge with lowered 1.0 m invert	50 m, triple span bridge with lowered 1.0 m invert
Freeboard during Regional Event	Provides 0.5 m of freeboard at spill point, less than 0.5 m at Dixie Road Bridge	Provides 0.5 m of freeboard at spill point and Dixie Road Bridge	Provides 0.5 m of freeboard at spill point and Dixie Road Bridge	Provides 0.5 m of freeboard at spill point and Dixie Road Bridge
Road Elevation	Road raise required	Maintains the current road elevation	Maintains the current road elevation	Maintains the current road elevation
Approximate Cost	\$6,360,000*	\$5,300,000	\$4,800,000	\$5,900,000
Notes	<i>Phase 2 bridge and channel elevation</i>	<i>Phase 2 bridge with lowered 1.0 m channel invert</i>	<i>Smallest hydraulically feasible bridge</i>	<i>Smallest practical triple span bridge</i>



12 m span Dixie Road Bridge (Thurber 2019)

\*20% increase from 2020 estimate to account for inflation

# Dixie Bridge - Evaluation Criteria

## Technical

- Impacts to upstream and downstream water levels
- Impacts to urban drainage
- Effect on erosion potential downstream of works
- Resiliency to climate change
- Construction complexity and constraints

## Economic

- Capital costs
- Operation and maintenance costs
- Effect on municipal servicing / private utility infrastructure

## Environment

- Effect on aquatic ecology
- Effect on terrestrial environment
- Effect on channel morphology

## Social

- Conformity to local and provincial planning and policy
- Public input
- Impact to private property
- Impact to cultural heritage or archaeological resources
- Disruption to public/businesses during construction
- Effects to parks and recreational amenities
- Level of acceptance of proposed works by First Nations

This criteria was used to evaluate the Design Concepts and will be refined based on comments received. The preferred alternative design concept will be advanced through the EA and Environmental Study Report and into 30% Design.





















# Dixie Bridge - Design Concept Evaluation

Criteria	Design Concept #1	Design Concept #2	Design Concept #3	Design Concept #4
	45 m, double span bridge with lowered 0.5 m invert	45 m, double span bridge with lowered 1.0 m invert	38 m, double span bridge with lowered 1.0 m invert	50 m, triple span bridge with lowered 1.0 m invert
Technical	<ul style="list-style-type: none"> <li>Higher upstream water levels</li> <li>Lowest opportunity for climate change resiliency and adaptability</li> </ul>	<ul style="list-style-type: none"> <li>Provides 0.5 freeboard during Regional storm at Dixie Road crossing</li> <li>High opportunity for climate change resiliency and adaptability</li> </ul>		
	<ul style="list-style-type: none"> <li>Most complex construction due to road raise</li> </ul>	<ul style="list-style-type: none"> <li>Highly constructable, fits within the valley corridor</li> </ul>		
Economic	<ul style="list-style-type: none"> <li>Typical O&amp;M costs associated with regular clean out.</li> <li>Single pier may result in increased maintenance cost due to debris and ice jams.</li> </ul>			<ul style="list-style-type: none"> <li>Typical O&amp;M costs</li> </ul>
	<ul style="list-style-type: none"> <li>Highest cost due to road raise</li> </ul>	<ul style="list-style-type: none"> <li>Medium cost</li> </ul>	<ul style="list-style-type: none"> <li>Lowest cost</li> </ul>	<ul style="list-style-type: none"> <li>Highest cost bridge, less than Design Concept #1</li> </ul>
	<ul style="list-style-type: none"> <li>All alternatives impact municipal servicing and require re-location of the 900 mm trunk sanitary sewer, the 400 mm watermain and various utilities.</li> </ul>			<ul style="list-style-type: none"> <li>May require additional relocation adjustments to 400 mm watermain</li> </ul>

# Dixie Bridge - Design Concept Evaluation

Criteria	Design Concept #1 45 m, double span bridge with lowered 0.5 m invert	Design Concept #2 45 m, double span bridge with lowered 1.0 m invert	Design Concept #3 38 m, double span bridge with lowered 1.0 m invert	Design Concept #4 50 m, triple span bridge with lowered 1.0 m invert
Environment	<ul style="list-style-type: none"> <li>Some opportunity for improvement to potential aquatic and terrestrial habitat</li> </ul>	<ul style="list-style-type: none"> <li>More opportunity for improvement to potential aquatic and terrestrial habitat</li> </ul>		<ul style="list-style-type: none"> <li>Most potential improvement to aquatic and terrestrial habitat</li> </ul>
	<ul style="list-style-type: none"> <li>Single pier is constraining to the channel morphology</li> </ul>			<ul style="list-style-type: none"> <li>Two piers allows for better channel alignment through the bridge (including long-term)</li> </ul>
Social	<ul style="list-style-type: none"> <li>Temporary easements and property acquisition will be required on the north and south banks.</li> </ul>			<ul style="list-style-type: none"> <li>Potential for more property acquisition on the downstream side of the bridge</li> </ul>
	<ul style="list-style-type: none"> <li>More disruption to adjacent businesses and traffic due to road raise.</li> </ul>	<ul style="list-style-type: none"> <li>Some disruption to adjacent businesses and traffic during bridge replacement.</li> </ul>		
	<ul style="list-style-type: none"> <li>Low potential for trail connections through the bridge</li> </ul>	<ul style="list-style-type: none"> <li>High potential for trail connections through the bridge</li> </ul>	<ul style="list-style-type: none"> <li>Moderate potential for trail connections through the bridge</li> </ul>	<ul style="list-style-type: none"> <li>Highest potential for trail connections through the bridge, options for trail on north and/or south side.</li> </ul>

# Dixie Bridge – Evaluation of Alternative Design Concepts

Criteria	Design Concept #1	Design Concept #2	Design Concept #3	Design Concept #4
	45 m, double span bridge with lowered 0.5 m invert	45 m, double span bridge with lowered 1.0 m invert	38 m, double span bridge with lowered 1.0 m invert	50 m, triple span bridge with lowered 1.0 m invert
Technical				
Economic				
Environment				
Social				
Evaluation Outcome /Score	 2.0	 2.8	 2.6	 3.0

The preliminary evaluation of the design alternatives recommends a *50 m, triple span bridge with a lowered 1.0 m invert*. The preferred design concept will be confirmed after receiving and considering input from the public and shareholders.

# Dixie Bridge – Preferred Alternative Design Concept

## *50 m, triple span bridge with lowered 1.0 m invert*

### Evaluation Summary

- **Technical:** provides 0.5 m freeboard at spill point on Queen Federica Drive, reduces waters levels upstream of Dixie Road, provides resiliency to protect against climate change, most flexible solution to varying design invert between 0.5 and 1.0 m
- **Economic:** most expensive bridge but less than design concept #1, less operation and maintenance costs, some impacts to municipal servicing requires relocations
- **Environment:** most opportunity for long-term improvements to fish habitat and terrestrial interface, improve channel alignment through bridge opening
- **Social:** provides highest opportunity for recreational improvements/trail connections, aligns with planning/policy initiatives, some additional property acquisition on the north side may be required, some disruption during bridge replacement on Dixie Road anticipated



*The Design Concept is preferred because it provides the most improvements from an environmental perspective with similar social benefits to Design Concept 2. It costs more than Design Concepts 2 and 3 but is the most resilient and adaptable solution that provides flexibility to vary the channel invert during detailed design.*

# Alternative Design Concepts

## Dundas Area

# Dundas Area – Alternative Design Concepts

Maximized floodplain area downstream of Dundas Street	No floodplain improvements downstream of Dundas Street
<ul style="list-style-type: none"> <li>Maximized floodplain on the City own land along the west side of the creek.</li> <li>Provides 25 m of floodplain adjacent to a 1 m channel.</li> <li>Addresses erosion site on east bank</li> <li>Channel works are still required upstream and through the bridge area.</li> </ul>	<ul style="list-style-type: none"> <li>Existing floodplain conditions downstream of Dundas Street remain in place.</li> <li>Channel works are still required upstream and through the bridge area.</li> <li>Downstream erosion site not addressed</li> </ul>

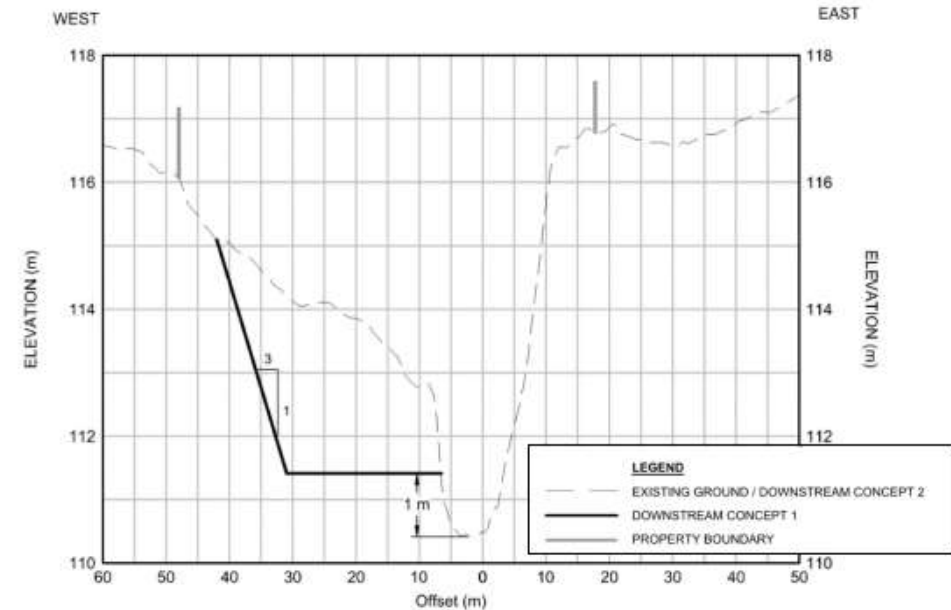


FIGURE 31 Cross-Section - Downstream Concept 1 and Downstream Concept 2











Same evaluation criteria was used as the Dixie Road Design Concepts



# Dundas Area – Alternative Design Concepts

Criteria	Design Concept #1 Maximized floodplain area downstream of Dundas Street	Design Concept #2 No floodplain improvements downstream of Dundas Street
Technical	<ul style="list-style-type: none"> <li>• Minor improvement to water levels upstream</li> <li>• Some improvement to water levels downstream of Dundas Street for approximately 200 m.</li> <li>• Some improvements to erosion potential in the area of widening</li> <li>• Challenging access and steep valley grades will make implement difficult.</li> </ul>	<ul style="list-style-type: none"> <li>• No change in water levels or improvement in erosion potential</li> </ul>
Economic	<ul style="list-style-type: none"> <li>• More expensive due to excavation and removal costs</li> <li>• Stormwater outfall will require adjustments</li> </ul>	<ul style="list-style-type: none"> <li>• Existing erosion repair sites would have to be completed as isolated local repairs</li> <li>• More O&amp;M as the erosion in the confined valley would be left to continue</li> </ul>
Environment	<ul style="list-style-type: none"> <li>• Some improvement to aquatics and riparian ecology, improved channel morphology</li> </ul>	<ul style="list-style-type: none"> <li>• No improvement to existing conditions</li> </ul>
Social	<ul style="list-style-type: none"> <li>• temporary easement required during construction</li> <li>• some disruption to adjacent landowners during construction.</li> <li>• Improved aesthetics and potential access options</li> </ul>	<ul style="list-style-type: none"> <li>• no additional disruption beyond what is required for the bridge replacement</li> </ul>

# Dundas Area – Evaluation of Alternative Design Concepts

Criteria	Maximized floodplain area downstream of Dundas Street	No floodplain improvements downstream of Dundas Street
Technical		
Economic		
Environment		
Social		
Evaluation Outcome	 2.8	 2.4

The preliminary evaluation of the design alternatives recommends *Maximized floodplain area downstream of Dundas Street*. The preferred design concept will be confirmed after receiving and considering input from the public and shareholders.

# Dundas Area – Preferred Alternative Design Concept

## *Maximized floodplain area downstream of Dundas Street*

### Evaluation Summary

- **Technical:** minor reduction in water levels upstream of Dundas Street, some reduction in water levels downstream, reduces erosion in localized area, provides some resiliency to protect against climate change
- **Economic:** higher cost to Design Concept #1, potentially less O&M costs due to decreased erosion, no impacts to municipal servicing
- **Environment:** some opportunity aquatic habitat improvements and terrestrial-aquatic interface on the west side, channel morphology processes
- **Social:** limited opportunity for recreational improvements, some temporary easements required, some disruption during construction, some potential archeological impact in the floodplain area

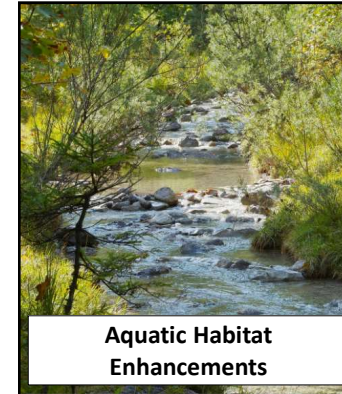
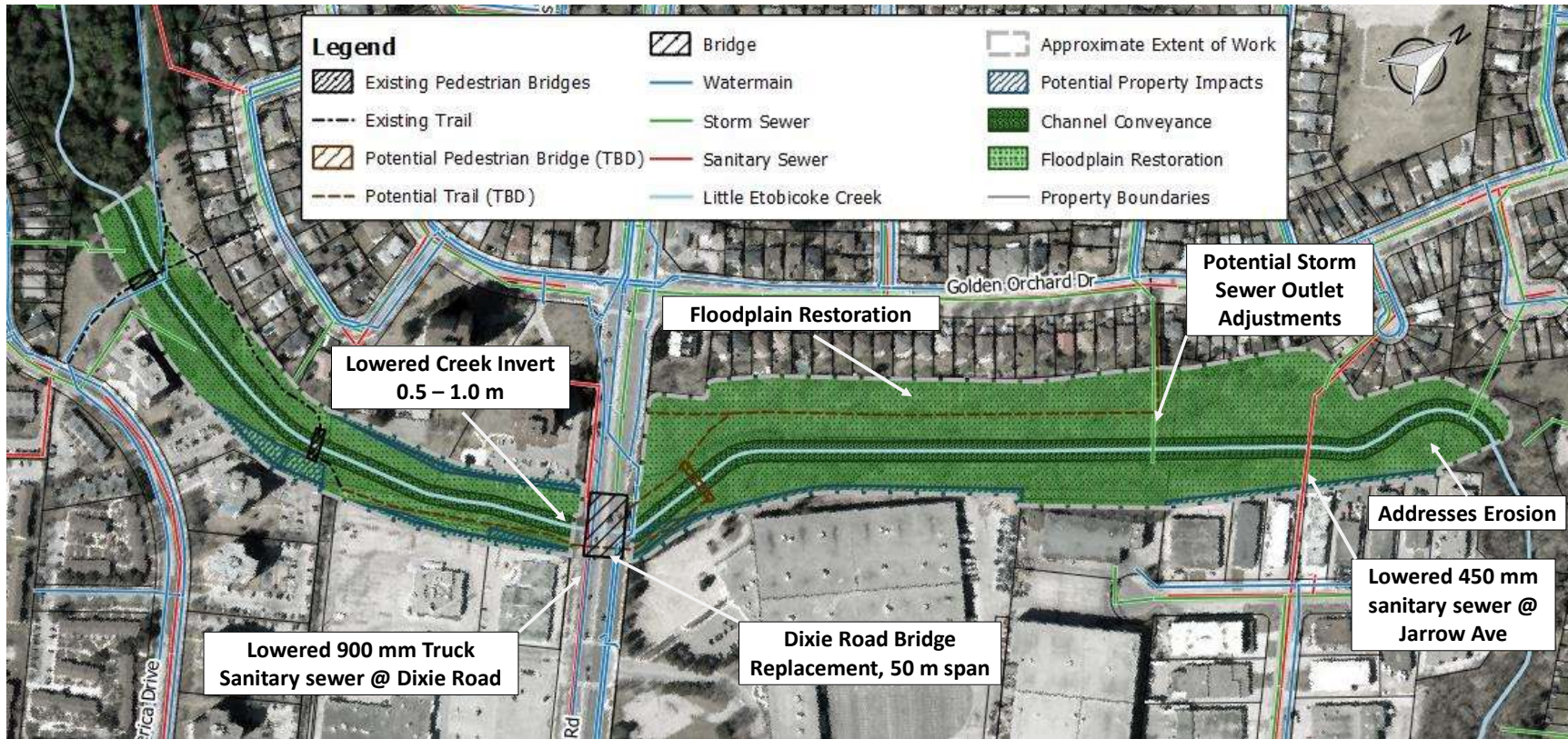


*The Design Concept is preferred because it reduces water levels downstream of Dundas Street bridge and improves the environment including localized erosion issues.*

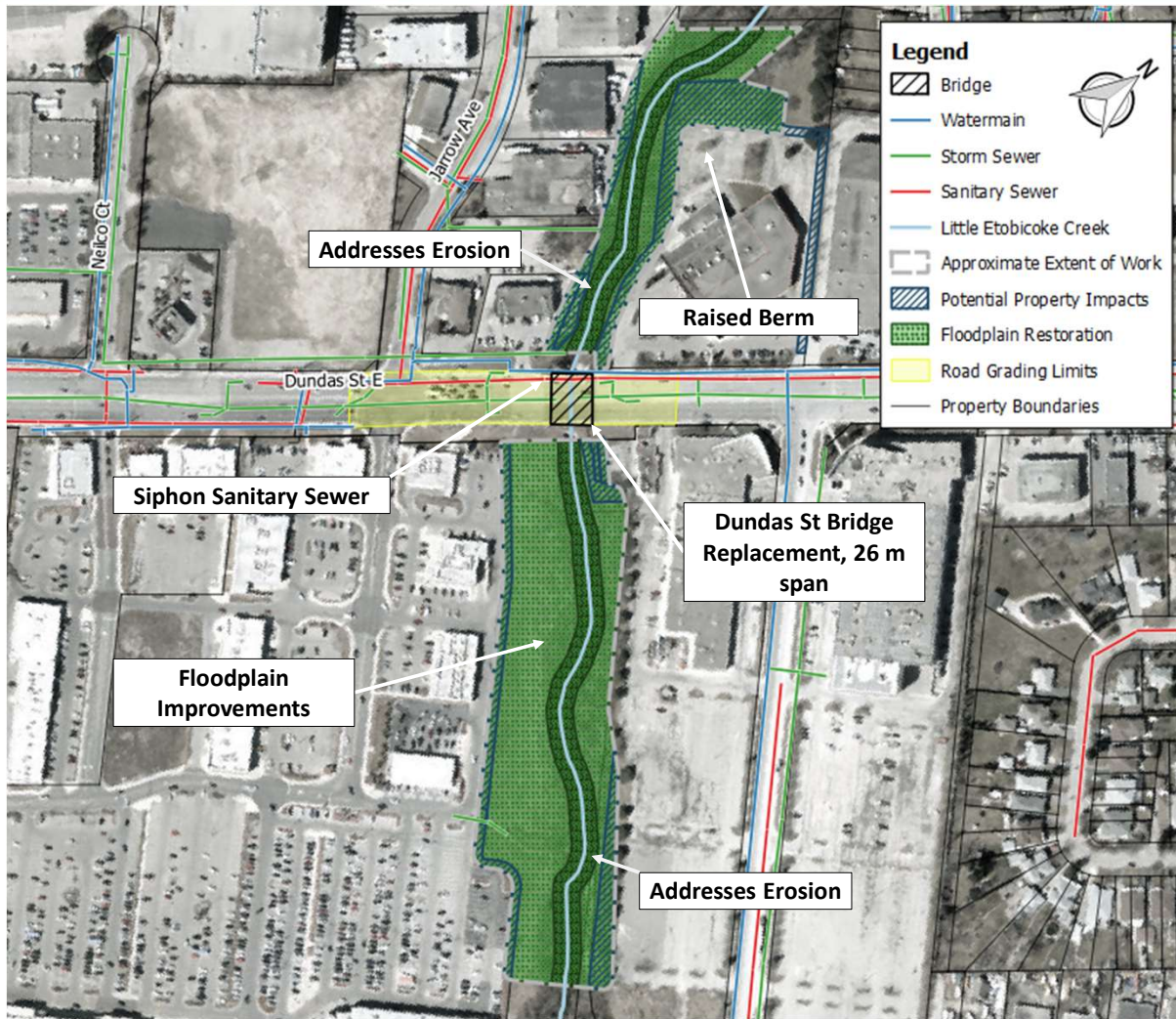
# Summary of Preliminary Preferred Design Concepts & Next Steps

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# Dixie Area - Preliminary Preferred Design Concept



# Dundas Area - Preliminary Preferred Design Concept



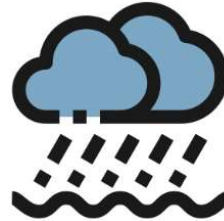
# Benefits of Preferred Design Concept



Addresses riverine and urban flooding issues



Protect and enhances the natural environment



Recommends resilient and adaptable solutions



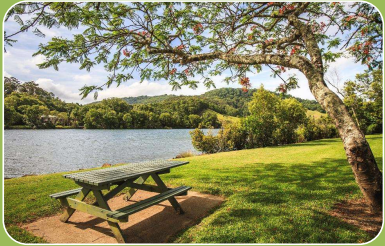
Created a feasible infrastructure solution



Enables future growth and development

- Greatest reduction of riverine and urban flood risk.
- Supports coordination with other Region of Peel and City of Mississauga infrastructure projects.
- Provides resiliency and adaptability to climate change, protects the surrounding community for the future.
- Creates a more naturalized channel and valley corridor, improving the aquatic and terrestrial/riparian interface
- Minimizes impacts to private properties, effects are limited to areas directly adjacent to the valley corridor.
- Provides the greatest opportunity to enhance public amenities such as future new trails.

# Next Steps



## EA Process - 2023

- Integrate input from stakeholders
- Review all alternative design concepts and select preferred
- Complete the Environmental Study Report (Summer 2023)



## Preliminary and Detailed Design – 2023 through 2025

- Preliminary (30%) design of the preferred alternative
- Land acquisition
- Detailed design of the channel, bridges and municipal infrastructure relocations



## Construction – estimated 2025 and through 2035

- Dundas Street Bridge replacement
- Municipal infrastructure relocations
- Channel works
- Dixie Road Bridge replacement



# Project Information and Contacts

If you would like to be included on the project mailing list and/or provide input, please complete the project comment form available at

<http://www.mississauga.ca/flooding>

Input from Public Information Centre #2 will be received until

**June 23, 2023**

**Thank you for participating!**

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