We acknowledge the land we are standing on is the traditional territory of nations including the Mississauga's of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee and the Wendat people and is now home to many diverse First Nations, Inuit and Métis peoples.
HISTORY OF FLOODING

- Before the dykes were constructed the adjacent residential areas flooded frequently.

- **1980’s (approximately) Special Policy Area (SPA) Designation** for Village East and Notion Road Pickering Village communities.

- **1984-1985 Pickering and Ajax Dykes constructed**
  Designed to provide flood protection for the communities up to the 500-year storm flood.

WHAT IS A DYKE?

A flood control dyke is a long wall or embankment built to prevent flooding from a river course.

WHAT IS A SPECIAL POLICY AREA?

A Special Policy Area is a land use planning designation. It acknowledges that there is already development in a flood-vulnerable area, and that only limited changes can be made to the development in the flood plain.
WHAT IS THE PROBLEM?

THE DYKES ARE AT RISK OF FAILURE

• The dykes do not meet the current engineering design standards

• Significant erosion of the creek banks in areas adjacent to the Pickering Dyke

• Other issues
  - Tree growth and root systems compromising integrity
  - Narrow crest width limits access for maintenance

Creek bank erosion repair.

Narrow dyke crest and tree growth on dyke.
WHAT IS THE OPPORTUNITY?

• Meet current design standards
  - Ensure performance of flood protection at the current crest levels at minimum.

• Protect the dykes against channel bank erosion

• Enhance the natural environment

• Allow for future improvements

Potential extent of flooding without dykes (100 year storm event).
The Pickering and Ajax Dykes Rehabilitation Project is following the Class EA process for Remedial Flood and Erosion Control Projects outlined by Conservation Ontario.

Project Tasks Completed:
- Define the problem & opportunity.
- Prepare initial stakeholder list. Publish Notice of Commencement.
- Inventory of baseline conditions within study area.
- Develop alternatives solutions the address the problem.
- Evaluate alternative solutions.
- Stakeholder consultations including meetings with various committees.
• The dykes were divided into segments based on unique characteristics of the dyke and surrounding area.
• Segmentation allows for a solution unique to each segment.

### NOTABLE CONDITIONS

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>PICKERING DYKE</strong></td>
<td><strong>AJAX DYKE</strong></td>
</tr>
<tr>
<td>Does not meet engineering standards</td>
<td></td>
</tr>
<tr>
<td>Space limitations – property impacts</td>
<td></td>
</tr>
<tr>
<td>Channel erosion</td>
<td></td>
</tr>
<tr>
<td>Excessive vegetation / root systems</td>
<td></td>
</tr>
<tr>
<td>Trails</td>
<td></td>
</tr>
<tr>
<td>Utilities</td>
<td></td>
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<tr>
<td>Protected terrestrial and aquatic species</td>
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WHAT ARE ALTERNATIVE SOLUTIONS?

Alternative Solutions must:

• Provide at minimum, the level of flood protection associated with the current dyke crest elevations
• Meet current engineering standards
• Include the Do-Nothing alternative

This project will not change current limitations on development. The Special Policy Area designation and planning permit requirements will remain in effect.
1 ‘Soft’ Engineering Solution (Embankment)

Rehabilitation of the existing flood protection structure with a softer, more natural looking, stable berm.

**Example:** earth embankment with stable slopes.

<table>
<thead>
<tr>
<th>ADVANTAGES</th>
<th>DISADVANTAGES</th>
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<tbody>
<tr>
<td>• Less costly to construct</td>
<td>• Generally will require a larger footprint to accommodate embankment slopes</td>
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<tr>
<td></td>
<td>• Generally will disrupt a larger area during construction</td>
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</table>
2 ‘Hard’ Engineering Solution (Structural)

Rehabilitation of the existing flood protection structure with a highly engineering structural solution.

Example: retaining walls and/or seepage-cutoff methods.

<table>
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<tr>
<th>ADVANTAGES</th>
<th>DISADVANTAGES</th>
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<tbody>
<tr>
<td>• Generally will require a smaller footprint (than the embankment alternative)</td>
<td>• More costly to construct</td>
</tr>
<tr>
<td>• Generally will disrupt a smaller area during construction</td>
<td>• More complex design and construction</td>
</tr>
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<td>• Interaction with underground utilities</td>
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Example Cross-Section (not the exact solution)
PRELIMINARY ALTERNATIVE SOLUTIONS

3 “Do Nothing”

Does not mitigate current risk of flooding that would occur during a dyke failure.

Ongoing repair works required as conditions degrade.

Impacts of a dyke failure are included in the evaluation.

<table>
<thead>
<tr>
<th>ADVANTAGES</th>
<th>DISADVANTAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>• No immediate capital cost</td>
<td>• Potential of dyke failure</td>
</tr>
<tr>
<td>• No immediate disturbance to existing environments</td>
<td>• Risk to human life and property</td>
</tr>
<tr>
<td></td>
<td>• Ongoing repair works required</td>
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</tbody>
</table>
PRELIMINARY PREFERRED ALTERNATIVE SOLUTION

SEGMENTS 1 AND 2: ‘Hard’ Engineering Solution to a 100 year level of flood protection

- Engineered wall
- Impervious Fill
- Existing Dyke
- Cut-Off wall

Erosion Protection

DRY SIDE

WET SIDE

AJAX

PICKERING

SEGMENTS 3, 4 AND 5: ‘Soft’ Engineering Solution to a 100 year level of flood protection

- Granular Filter
- Impervious Fill
- Existing Dyke

DRY SIDE

WET SIDE
SEGMENTS 6 'Soft' Engineering Solution to a 100 year level of flood protection

Existing Dyke
Granular Filter
Impervious Fill

DRY SIDE

WET SIDE
NEXT STEPS

- Refine Evaluation and Preferred Alternative Solution based on feedback received.

- Consider Alternative Design Concepts which includes:
  - Refining the Preferred Alternative Solution to minimize impacts.
  - More detailed consideration of changes to infrastructure including underground utilities.
  - More detailed modeling to refine design of flood protection works to withstand flooding.

- Alternative Design Concepts and Evaluation Criteria will be brought back to the committees and public for comment in January and February 2020.

- On-going consultation with agencies, landowners and other stakeholders.
THANK YOU

We appreciate the time you have taken to learn more about the Pickering and Ajax Dykes Rehabilitation EA. Your input is important for the success of the EA process. Please provide your input.

HOW TO STAY CONNECTED:

• Next PIC: February 2020 *(tentative date)*

• Join our mailing list – leave us your email or mailing address of you would like to be kept up to date as the study progresses

• Send us your comments or questions. Email us at PADR@trca.ca

Contact the Project Team:
Pickering and Ajax Dykes Rehabilitation Project Coordinator
EMAIL: PADR@trca.ca
WEBSITE: www.trca.ca/PADR
PHONE: 416-661-6600 ext. 5948

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Thank you.

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