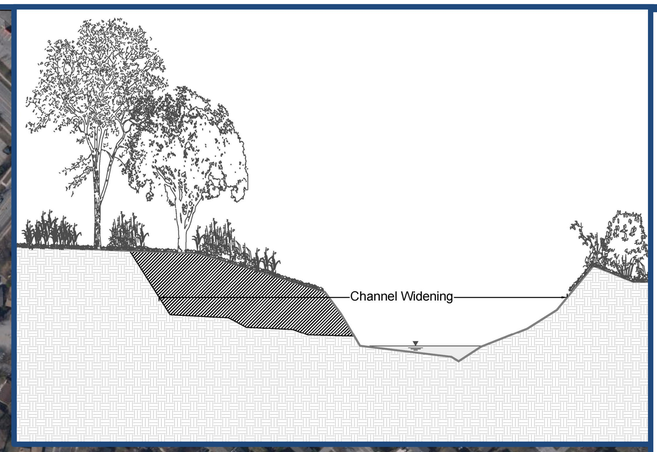
Alternative 3

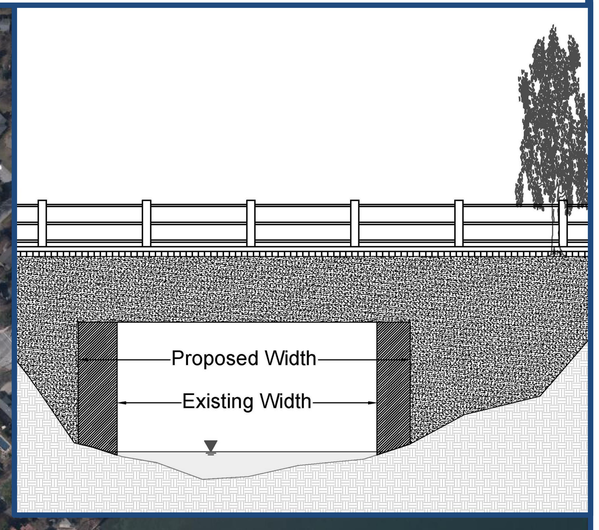


Bridge Upgrades and Channel Widening

This alternative looked at the combined effect of upgrading the bridges (as per Alternative 1) combined with widening the channel within the study area.

Number of buildings in floodplain

- Regional storm – 54+ (45% reduction)
- 100 year storm – 3 (95% reduction)



Study Limit

Study Limit

SPILL

SPILL

SPILL

LEGEND

Existing 100 Year Floodline

Proposed 100 Year Floodline and Floodplain

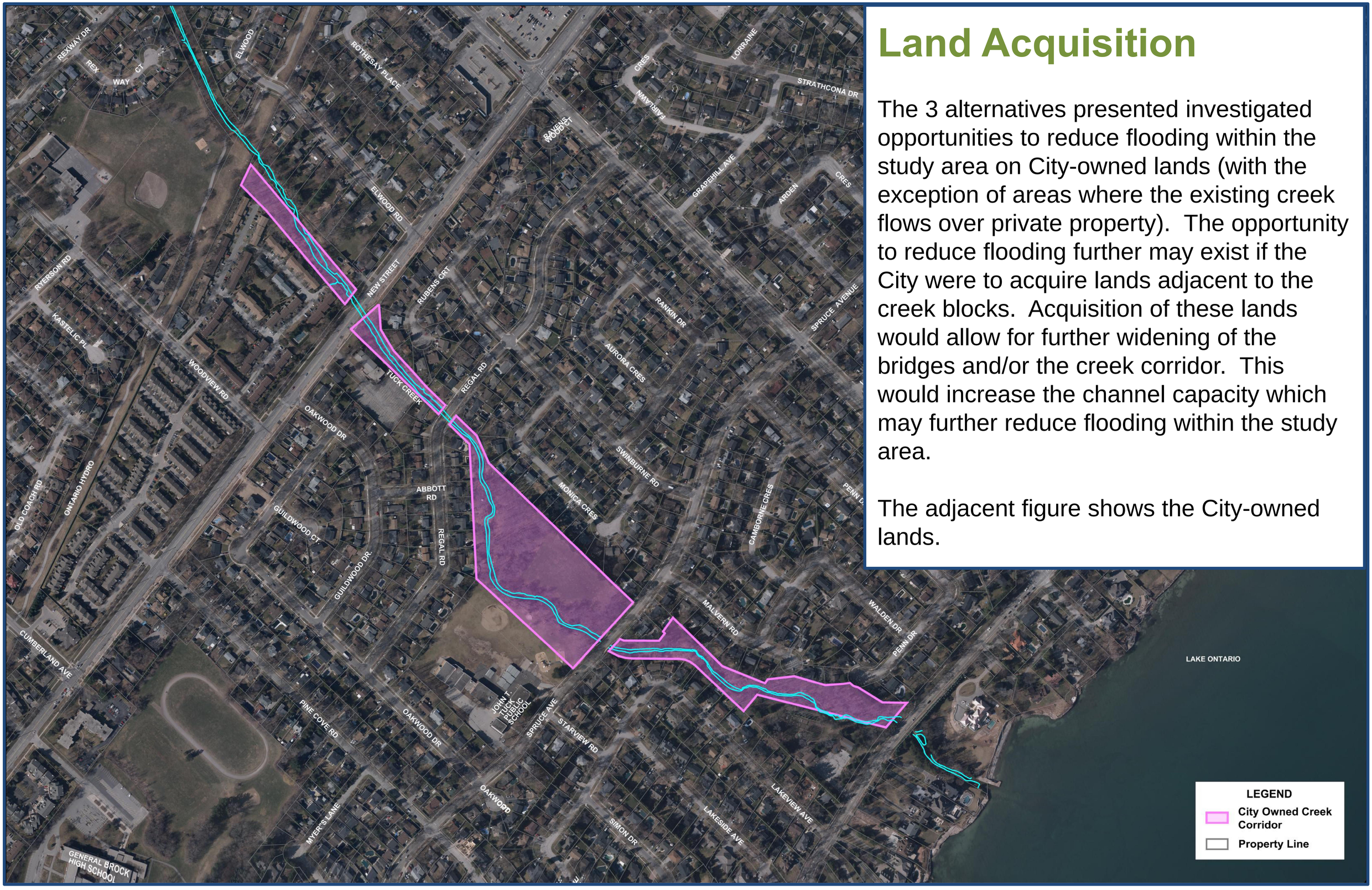
100-Year Floodplain

Land Acquisition

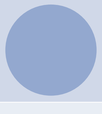
Land Acquisition

The 3 alternatives presented investigated opportunities to reduce flooding within the study area on City-owned lands (with the exception of areas where the existing creek flows over private property). The opportunity to reduce flooding further may exist if the City were to acquire lands adjacent to the creek blocks. Acquisition of these lands would allow for further widening of the bridges and/or the creek corridor. This would increase the channel capacity which may further reduce flooding within the study area.

The adjacent figure shows the City-owned lands.



Preliminary Evaluation

Evaluation Criteria	Do Nothing	Alternative 1	Alternative 2	Alternative 3	Land Acquisition
Natural Environment • Terrestrial Habitat • Aquatic Habitat	• Continued loss of trees through bank erosion and Emerald Ash Borer • Rip rap remaining in fish habitat	• Minor additional loss of trees at bridge work sites • Compensation with native tree plantings • Rip rap remaining in fish habitat	• Minor additional loss of trees at bridge work sites and along existing creek corridor • Compensation with native tree plantings • Increasing creek entrenchment will degrade fish habitat	• Minor additional loss of trees at bridge work sites • Significant loss of trees in creek corridor upstream of New Street and downstream of Regal Road • Compensation with native tree plantings • Opportunity to replace ash trees succumbing to the Emerald Ash Borer • Opportunity for low flow channel to promote fish passage	• Additional loss of trees for increased bridge and/or channel capacity • Compensation with native tree plantings • Opportunity to replace ash trees succumbing to the Emerald Ash Borer • Opportunity for low flow channel to promote fish passage
Economic • Construction Costs • Operation & Maintenance (O&M) Costs • Flood damage	• No construction cost • Highest O&M costs • Highest potential flood damages costs	• Lowest construction costs • Mid-range O&M costs • Higher-end potential flood damages costs	• Higher-end construction costs • Mid-range O&M costs • Higher-end potential flood damages costs	• Higher-end construction costs • Mid-range O&M costs • Lower-end potential flood damages costs	• Highest construction costs • Lowest O&M costs • Lowest potential flood damages costs
Social/Cultural • Effect on Flooding • Aesthetics • Community Disruption	• No reduction in flooding • Mature trees maintained unless at risk from erosion or Emerald Ash Borer • Disruption during O&M activities	• Least potential reduction in flooding • Mature trees maintained in creek corridor unless at risk from erosion or Emerald Ash Borer • Disruption during bridge replacements • Disruption during future erosion restoration works	• Low potential reduction in flooding • Some loss of mature trees but opportunity for replacement as well as replacement of ash succumbing to Emerald Ash Borer • Disruption during works throughout corridor but no subsequent erosion works	• High potential reduction in flooding • Loss of mature trees but opportunity for replacement as well as replacement of ash succumbing to Emerald Ash Borer • Disruption during works throughout corridor but no subsequent erosion works	• Greatest potential reduction in flooding • Loss of mature trees but opportunity for replacement as well as replacement of ash succumbing to Emerald Ash Borer • Disruption during works throughout corridor but no subsequent erosion works
Technical • Feasibility • Implementation Time	• Low feasibility as it does not address flooding • No time required to implement	• High feasibility since works would be within City-owned lands • Bridges can be upgraded one at a time	• Low feasibility as further incising channel can lead to erosion issues • Works can be implemented in phases	• Higher feasibility since works would be within City-owned lands • Works can be implemented in phases	• Lower feasibility since works would occur on lands not currently owned by City • Time required to acquire land • Works can be implemented in phases
Preliminary Overall Rank					

Most Preferred  Least Preferred

Additional Considerations

Non-Traditional Alternatives

The 3 alternatives presented explored the opportunities to increase channel and bridge capacity. As can be seen on the floodline mapping presented, these alternatives reduce but do not eliminate flooding within the study area. An additional opportunity exists to reduce flow entering the creek. Alternatives to achieve this goal include the following:

- Upstream storage
- In-channel storage
- Conveyance control measures
- Source control measures
- Relief storm sewer

These alternatives can be considered in a subsequent study. In concert with the increases to channel and bridge capacities, these non-traditional alternatives can be used to further reduce the risk of flooding within the study area.

Conveyance Control Measures

- These measures are implemented within the municipal right-of-way and include bioretention units or perforated pipes. The measures encourage infiltration or evapotranspiration thereby reducing runoff and peak flows.

Source Control Measures

- These measures are implemented on private property and include roof downspout disconnection, rain barrels, pervious driveways, and rain gardens. The measures encourage infiltration or evapotranspiration thereby reducing runoff and peak flows.

Upstream Storage

- Storage within parks or vacant properties upstream of the study area could be used to reduce peak flows in Tuck Creek.

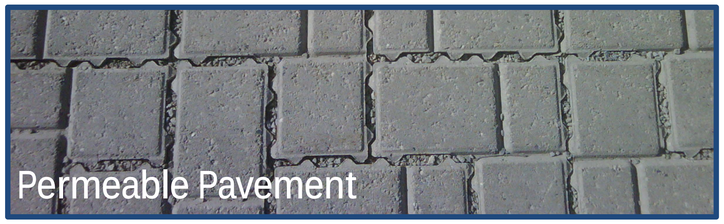
In-Channel Storage

- In upstream drainage areas where Tuck Creek is contained in a valley, storage in the channel could be used to reduce peak flows.


Bioretention unit


Downspout disconnection


Rain barrels


Permeable Pavement


In-channel storage

Next Steps

Thank you for your participation!

After tonight's meeting, the study team will undertake the following steps:

- Gather your comments
- Review your feedback
- Finalize the alternative ranking
- Complete the EA document
- Prepare a notice of completion
- Have the EA document available for review

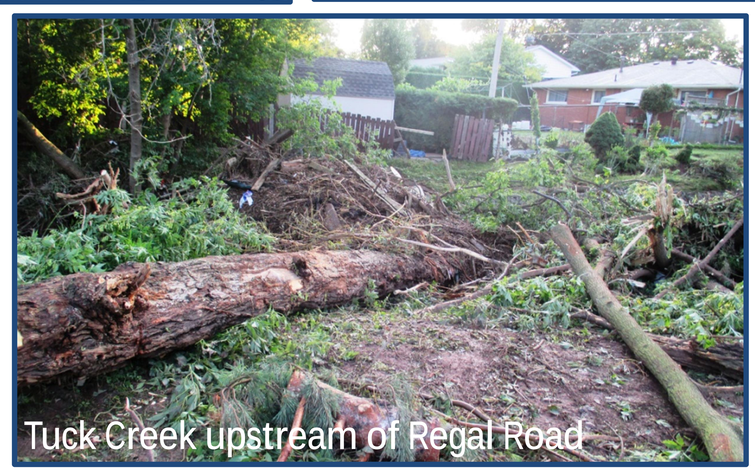

Debris Clean Up

For additional information, please contact one of the study team members

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Clean Up


Tuck Creek upstream of Regal Road


Tuck Creek upstream of Regal Road