OAKVILLE

REPORT

COMMUNITY SERVICES COMMITTEE

MEETING DATE: SEPTEMBER 16, 2019

FROM: Development Engineering department

DATE: August 19, 2019

SUBJECT: **Munn's Creek Flood Mitigation Opportunities Municipal Class Environmental Assessment Study**

LOCATION: Munn's Creek between Upper Middle Road and the Morrison-Wedgewood Diversion Channel

WARD: 5

RECOMMENDATION:

1. That the Munn's Creek Flood Mitigation Opportunities Municipal Class Environmental Assessment Study Report and the preferred alternatives to reduce flood risk within Munn's Creek as outlined in the staff report from the Development Engineering department dated August 19, 2019, be received; and

2. That the Notice of Completion for the Munn's Creek Flood Mitigation Opportunities Municipal Class Environmental Assessment Study be published commencing the mandatory 30 day public review period.

KEY FACTS:

The following are key points for consideration with respect to this report:

- In 2008, the Town-wide flood study identified numerous flood sensitive locations across several sub-watersheds within Oakville, including three (3) flood-sensitive locations along Munn's Creek; specifically:
  - Recreational trail culvert crossing of Munn's Creek within Oakdale Park
  - McCraney Street West/Munn's Creek culvert crossing
  - Miller Street/Munn's Creek culvert crossing.
- Flood risks at these locations are associated with culverts that do not have sufficient capacity based on today's standard of practice. During significant rainfall/runoff events, flows are expected to exceed the culverts' capacity, resulting in localized flooding upstream of the culverts.

- A Municipal Class Environmental Assessment (*MCEA*) has been undertaken to develop and assess flood mitigation options to reduce the flood risk at these locations.
- Mitigation options were evaluated based on environmental/physical; social, and economic considerations.
- An overview of the issues, alternatives, evaluation and preliminary preferred alternative solutions were presented at two Public Information Center (PIC) on April 11, 2018 and April 30, 2019.
- The preferred alternative includes replacement of the culvert crossings at McCraney Street West, Miller Road, and under the recreational trail that connects Oakdale Drive and Onslow Court, with larger culverts/bridge.
- The recommended solution reduces flood risk to the public (removes six (6) homes from the Regional flood plain area) and offers improvements to fish passage and terrestrial connectivity.
- It is recommended that the roadway culverts be replaced when their structural condition warrants their replacement.
- The town's 2016 Biennial OSIM (Ontario Structure Inspection Manual) Inspections indicates that these two culverts (McCraney Street West and Miller Road) should be replaced in approximately 6 to 10 years.
- The replacement of the recreational culvert between Oakdale Drive – Onslow Court, will be timed with either the McCraney Street or Miller Road projects.
- An Environmental Study Report has been compiled; documenting the selection of a preferred solution and preliminary design plans. This report, subject to Council's endorsement, will be made available for the mandatory 30 day public review period.

BACKGROUND:

In 2008, the town undertook a town-wide flood study to identify areas of concern for flooding. The study compiled the findings from a long list of historical studies into one comprehensive document which was used to quantify the magnitude of flood risk exposure in Oakville. Over 40 flood-sensitive sites were identified and documented in the 2008 *Town-Wide Flood Prioritization Study Review* report (Philips Engineering Ltd., 2008). The report contains details on each flood sensitive area, mapping details, mechanisms for flooding and options for mitigation.

For Munn's Creek specifically, the following three (3) flood-prone sites warrant consideration for flood mitigation works, specifically:

- Site 17 – Miller Road culvert crossing.
- Site 18 – McCraney Street West culvert crossing.
- Site 19 – Recreational Trail culvert crossing in Oakdale Park.

It is important to note that prior flooding concerns along Munn's Creek, south of Culham Street were mitigated in 2001 when a long section of culvert was removed and replaced with a new open channel and two new bridges on Culham Street and Osborne Crescent. This work, including substantive work within the Oakville Golf Club was completed following an earlier Environmental Assessment

Study that focused on the area between Culham Street and the Morrison Wedgewood Diversion Channel

This Environmental Assessment study acknowledges the completion of these earlier works and focuses on the area north of Culham Street. A *MCEA* is required if it is expected that the municipal culverts under McCraney, Miller and the recreational trail, are to be replaced with a culvert/bridge of increased size/capacity. Given that this is the expectation for these culverts, a *MCEA* has been undertaken to determine the most viable and responsible mitigation option.

A map of the study area is provided in Appendix A.

COMMENT/OPTIONS:

The Munn's Creek Flood Mitigation Opportunities Study was initiated in November 2017 and managed by the Development Engineering department. The consulting firm of Aquafor Beech Limited was retained to carry out the study assignment.

Floodplain modelling was carried out based on existing conditions and the following key areas of concern are identified:

1. McCraney Street West: The road crossing is expected to overtop during a Regional storm event. A total of six (6) homes in the area of the culvert crossing, two (2) on the south side and four (4) on the north side are identified as being at risk of flooding if/when flows through the culvert exceed the culverts capacity.
2. Miller Road and the Recreational Trail: The culverts at these two locations are expected to overtop during a Regional storm event. No homes are at risk of flooding due to an overtopping event.

It has also been noted that some rear yard areas (approximately 25) adjacent to the town-owned creek corridor from south of Miller Street to Upper Middle Road are expected to experience nuisance flooding during a Regional storm event, however the home structures are not identified as being at risk.

Flood Mitigation Options
Alternative flood mitigation measures were developed and assessed based on the following evaluation factors:

- Environmental/Physical considerations;
- Social considerations; and:
- Economic considerations (short and long term).

The preferred alternative to address flooding concerns at the McCraney Street West, Miller Road, and the Oakdale Drive – Onslow Court culvert crossings is to replace the existing culvert crossings with larger span structures. The new culverts will also be designed to accommodate fish passage.

Munn's Creek currently passes under McCraney Street, Miller Road and the recreation trail connecting Oakdale Drive – Onslow Court via corrugated steel culverts. It is recommended that the McCraney Street culvert be replaced with a

closed bottom concrete box culvert with baffles for fish passage, the Miller Road culvert be replaced with an open bottom box culvert and the culvert under the recreational trail be replaced with a pedestrian bridge. It is recommended that the road culvert crossings be replaced at the end of their service life and that the replacement of the pedestrian crossing be carried out at the same time as the road projects.

The preferred alternative will address flooding concerns by reducing water surface elevations under flood flows from upstream of Miller Road to McCraney Street West, preventing the overtopping of McCraney Street West and back up of flows during the Regional storm event to provide flood free access and egress, removing six (6) houses from the floodplain, and provide a minor reduction in the level of nuisance flooding on private properties that are situated adjacent to the town-owned creek corridor. The preferred alternative is expected to address flooding concerns, while enhancing the creek's ecologic function by removing impediments to aquatic and terrestrial passage.

An Environmental Study Report has been compiled documenting the selection of a recommended preferred alternative and preliminary design plans. In accordance with a Schedule B undertaking, the project file must be made available for a mandatory 30-day public review period and staff are proposing to do so after this report is received. The report will be made available as of September 24, 2019 for a 30 day duration. Should no Part II Orders be received by the Minister of Environment, Conservation and Parks during the review period, the project will be deemed approved allowing it to proceed to detailed design and implementation.

Appendix B presents the consultant's executive summary report and preliminary design plans for this project.

CONSIDERATIONS:

(A) PUBLIC

The preferred alternative is expected to improve public safety by reducing the level of flooding from upstream of Miller Road to McCraney Street West, preventing the overtopping of McCraney Street West and back up of flows during the Regional storm event to provide flood free access and egress, removing six (6) houses from the floodplain, and provide a minor reduction in the level of nuisance flooding on private property properties that are situated adjacent to the town-owned creek corridor.

All properties adjacent to Munn's Creek, south of Upper Middle Road were notified of the study work and invited to two (2) Public Information Centres, which were held on April 11, 2018 and April 30, 2019.

(B) FINANCIAL

The recommended road crossing upgrades will be delivered through the Engineering & Construction department capital program once the crossing have reached their end of service life. The replacement of these structures are not currently identified in the 2019 Capital Forecast; however the town's 2016 Biennial OSIM (Ontario Structure Inspection Manual)

Inspections, recommends that the culvert crossings at McCraney Street West and Miller Road be replaced within 6 to 10 years, thus it is anticipated that funding will be allocated within the near future. The replacement of the pedestrian crossing is recommended to be carried out at the same time as the replacement of the road culverts.

The estimated costs for implementation of these works are summarized below:

	Estimated Construction Costs	Estimated Engineering and Geotechnical Costs
McCraney Street West Culvert Replacement	$948,000	$150,000
Miller Road Culvert Replacement	$1,380,000	$150,000
Onslow – Oakdale Pedestrian Culvert Replacement	$570,000	$100,000

(C) IMPACT ON OTHER DEPARTMENTS & USERS

The departments of Engineering and Construction and Parks and Open Space were consulted during the course of the study. Conservation Halton also participated in this study.

(D) CORPORATE AND/OR DEPARTMENT STRATEGIC GOALS

This report addresses the corporate strategic goal to:

- enhance our natural environment
- continuously improve our programs and services

(E) COMMUNITY SUSTAINABILITY

This report is in support of the pillars of social (health and well-being), economic responsibility, and environmental sustainability

APPENDICES:

Appendix A - Map of Study Area
Appendix B - Munn's Creek Flood Mitigation Opportunities Municipal Class Environmental Assessment Study Executive Summary.

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