

Meeting Agenda



City of Guelph

River Systems Advisory Committee

June 20, 2018

City Hall, Meeting Room B

From 4:00 to 6:00 p.m.

Meeting Chair: Mariette Pushkar

Agenda Items

Welcome to all

Item 1, 2 and 3

Item 1, Roll call and certification of quorum

Item 2, Declaration of Conflict of Interest

Item 3, Approval of Minutes of May 16, 2018

Item 4

Niska Road Bridge Design

- Information from City staff and project team (staff report attached)
- Hearing of delegations
- In Committee discussion – motion

Item 5

Other business

Next Meeting:

Special Joint Meeting with the Environmental Advisory Committee

August 8, 2018 from 7:00 to 9:00 p.m. City Hall, Meeting Room C

February 21, 2018
River System Advisory Committee

Item	Niska Rd Class EA Report provides a status update regarding the project and shares new/updated information in relation to the design studies that are proceeding currently.
Proposal	The City of Guelph (City) initiated a Class Environmental Assessment (EA) study to investigate opportunities for improvements to Niska Road from the City limits to Downey Road. Segments of the roadway and the bridge over the Speed River are nearing the end of their operational life and require a solution to address their deterioration and increasing maintenance costs. The EA was completed earlier in 2017 following a decision from the MOE. The project is proceeding now with detailed design for the bridge.
Location	The study area includes areas adjacent to Niska Rd from the City limit to the intersection of Niska at Ptarmigan, including the crossing of the Speed River.
Background	<ul style="list-style-type: none">• The study area for the Niska Rd EA includes portions of the Hanlon Creek subwatershed, as well as the Speed River subwatershed.• There are also known natural heritage features and areas within the study area that are part of the City's Natural Heritage System (NHS) as identified within the Official Plan.• The City's Official Plan recognizes Niska Road as a two-lane collector road which collects vehicle trips from the area and provides for through movement for vehicular travel to/from arterial roadways and expressways. A secondary function is to serve land access and to link the Townships of Puslinch and Guelph-Eramosa.• The preferred solution from the EA includes:<ul style="list-style-type: none">◦ The reconstruction of Niska Road from the City limits to the Downey Road intersection and provision of operational improvements to Niska Road◦ Replacement of the existing Bailey Bridge with a new two lane structure• Additional field studies were completed through 2017 to collect additional information via an environmental addendum study to address gaps and recommendations for additional field study through the detail design process as recommended by the EA. Updated information was summarized at the RSAC meeting held December 6, 2017. That staff report and summarizing information can be found online as part of the December 6 meeting agenda.• RSAC received a report regarding the road design in February of 2018 which included a review and discussion on the: updated field studies, tree removals, mitigation recommendations, wildlife passages, species at risk and the road design. That staff report and summarizing information can be found online as part of the February 21 meeting agenda.

Project Update

The bridge design and mitigation plan is being brought forward now, in order to advance construction this fall within the DFO timing windows.

Staff have provided an additional summary and comments below for areas where information is new or has been updated.

Comments

Geomorphological Assessment (Water's Edge)

Table 1 provides a summary of the reach characteristics for the Speed River, including:

- A flood prone width ranging from approximately from 30 to 47m;
- A bank full width ranging approximately from 21 to 46m and an average of 35m; and,
- A mean depth of 0.28 to 0.9m with a max depth 0.44 to 2.15m

A primary focus for the new bridge construction is the maintenance of refuge pools downstream from the bridge. The widening of the abutment span will result in changes to the hydraulics which can influence the ability for the river to erode and transport sediment. Appropriate mitigation should help avoid refuge pools from filling with sediment or resulting in a scoured, featureless, bed post construction.

The report notes that the existing scouring under the existing abutments shows that the existing span is not ideal since it is much narrower than the average bankfull width elsewhere in the reach. Due to the large sediment size found within this reach, the bed is not susceptible to erosion as boulders and cobbles act as an armouring layer.

The report also notes that a conservative estimate of the average migration rate is 10cm per year toward the East bank of the River, meaning that the 100-migration tolerance would be 10m and a 10% bank full width factor of safety added to that – resulting in a meander belt width analysis of 111.2

The report contemplates 4 options (page 8) for bridge span width, concluding that a 40m span, which is greater than the average but less than the maximum bankfull width offers the most benefit with respect to reducing flow velocity and depths, allow for naturalized banks to be installed against the bridge abutments providing some space for stream adjustments in meander while also avoiding risk of undercutting of the new abutments.

The report recommends riverstone should be used to help stabilize the new banks below the abutments with a minimum sizing off 300-500mm for stability purposes. With a live bank treatment above the stability zone. Plant species select should consider the amount of sunlight available. A coconut matting is also recommended posted construction to

provide stability while plant establishment is occurring.

Proper ESC measures are also recommended through construction.

Natural Sciences Report & Bridge Design

A removal of 166 sq.m of road edge and natural area (see Figure 3, page 26) as a result of the new abutments and associated wing walls/side slopes is proposed. The removal of the old abutments will create 119 sq.m of shoreline to be restored and enhanced.

A series of general mitigation measures are being recommended, including:

- Staging will occur on the existing roadway to avoid disturbing the natural environment beyond the Project footprint.
- Prohibit access to the extent possible to the natural shoreline and areas adjacent to the Speed River, to ensure protection and the structural integrity of these environmentally sensitive areas. Silt fence will be installed around the perimeter of the work area to provide a visual barrier to construction staff and equipment operators.
- Operate, store, and maintain equipment, vehicles, and associated materials in a manner that prevents the entry of any deleterious substance from entering the Speed River (the roadway will be used as the staging area/entry/exit zone).
- Implement drip pans under machinery (i.e. generators, pumps, etc.) in operation within the work areas.
- Any re-fuelling is to be undertaken at least 30 m from the Speed River and any other surface drainage feature; to the greatest extent possible given the limitations imposed by the site layout.
- Temporarily store, handle and dispose of all materials used or generated (e.g. organics, soils, construction waste and debris, etc.) during site preparation, construction, and cleanup in a manner that prevents their entry to the Speed River.
- Timing windows with respect to species (fish, birds, etc. are being followed)
- No activities will interfere with fish passage and a LCFSP is being obtained to removed fish from the areas that will be subject to the cofferdams (as required).

A combination of ESC measures are also being recommended including:

- Installation of effective ESC measures before starting work to prevent sediment from entering the Speed River. Heavy-duty silt fence barrier will be installed along the toe of slope where upgradient areas have been disturbed or exposed as a result of site access requirements or construction activities.
- Silt fence barrier will also be installed around any staging/storage areas where material with the potential to result in sediment

mobilization into the Speed River is present.

- Silt fence barrier will be installed as per City standards
- Impermeable cofferdams, pea gravel bags or meter bags fill with clear stone, wrapped in a poly liner are to be utilized to isolate the work area from the watercourse during removal of the existing abutments. The height of the cofferdams shall be at an evaluation of 299.50 masl, consistent with a 2-year storm event. Cofferdams are to be construction as per OPSS 805.
- Use of a filter bag to remove suspended sediment from dewatering activities. The filter bag will be located in an area where vegetation is present to sufficiently provide a stabilized flow path. Monitor flow discharge path for evidence of erosion and implement additional measures as required.
 - Staff note that discharge should not be directly into the wetland areas adjacent to the roadway either and may need to be discharged into vegetated upland areas on the GRCA lands.
- Regular inspection and maintenance of ESC measures and structures during construction.
- Removal of non-biodegradable ESC materials once site is stabilized.
- Stabilization will include the application of a City seed mix as [per SS-22 page 114 of the City specifications](#) (either the upland mix or the SWM mix)
- For disturbed areas within the ESC limits but below the wing walls additional plantings should be recommended beyond a seed mix only approach.

Design recommendations include:

- general embankment grading following removal of the existing abutments and placement of 300 mm and 500 mm diameter rounded riverstone to a depth of 300 mm from the wetted edge of the Speed River to the face of the new abutment.
- A maximum 2:1 slope will be created from the stream edge to the new abutment.
- Topsoil will be added to the riverstone mix as well as plantings of live willow/dogwood sp. stakes. Specifications for this detail are provided in the design drawings (Appendix G).
- Should alternative species to a willow/dogwood live stake mix be considered?

Suggested Motion **Staff recommends that the River System Advisory Committee provide the following as it relates to the Niska Rd EA:**

THAT the River System Advisory Committee support the following in relation to the mitigation plans design options:

- **That the City incorporate tree and shrub plantings within the disturbed areas below the wing walls of the new**

abutments.

- **That the City seek opportunities to reduce dewatering and disturbance of the riverbed as much as possible through construction;**
- **Implement an effectiveness monitoring program for the ESC measures and enhancement plantings post construction.**