

EEPAC's BRT EIS review and recommendations
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April 2018

- Site 1 – Oxford and Mud Creek
- Site 2 – North Thames (downtown)
- Site 3 – Western Road crossing of Medway Creek
- Site 4 – University Drive Bridge
- Site 5 – Wellington Road crossing of the Thames
- Site 6 – Adjacent to Westminster Ponds
- Site 7 – Exeter Road OPP station (Murray Drain)

RECOMMENDATIONS

Existing Conditions

Highlights:

- Terrestrial flora surveys should be conducted in early May in order to see the full spring ephemeral community additionally we recommended survey be performed throughout the summer to identify and transplant regionally rare species if present as based on your responses to our previous comments. The surveys are incomplete.
- Additional fish surveys should be conducted during the spring of the year (March–May) to determine what fish species are present within the BRT study area during the spring spawning season. The document indicates surveys were only performed in the late summer and early fall of each year.
- No access to hydrological existing conditions, benthic invertebrate sampling, water balance, etc....
- No benthic sampling past 2014?
- the reporting on existing and future hydraulics/hydrological conditions, including water balance (surface, subsurface water and groundwater conditions) and evaluate any potential adverse impacts on the environment and ecology the project infrastructure lands function and features, if these water resources conditions will be altered;
- the required correlation/coordination of these existing and future water resources conditions together with soil conditions on the evaluations of potentially adverse impacts, mitigation measures associated with the assessment of changes of environmental/ecological conditions of the system that will be impacted by the proposed BRT infrastructure system.
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Additional comments:

- A timeline showing the restrictions of work for various habitats and species (Migratory Bird, turtle nestings, spawning, etc) be included in all bid documents. (It is not included in the EIS and it should be as well as there are a number of “blackout” times given the variety of terrestrial and aquatic species affected).

- Although habitat enhancement strategies are an admirable goal, it is unclear what strategies have been successful for the SAR species identified in this study. More clarity is required.
- The EIS must include dates aquatic surveys were carried out and if the surveys were done in the areas of BRT work. (There are no dates for work undertaken by agencies!)
- Where Queensnake is noted (p. 7), the EIS be updated to reflect the finding of a Queensnake by a member of the public and confirmed by the SAR biologist at UTRCA in 2012/13 west of the Medway bridge (site 3). Queensnake surveys must precede work at this location. This should include the mowed back yard adjacent to the “station” south of Windemere, between the Medway bridge and the residence bridge. This back yard is actually Huron University College property.
- Chimney Swift and Cavity tree surveys for bats be required at detail design stages when works may negatively impact SAR species. Swift Watch be consulted during the detail design stage. (Was there a reply to Erin’s May 8, 2017 e-mail to Claire Paller at the MNR regarding Swifts and detailed nest surveys?)
- Mollusc surveys be required at the detail design stage for in water works and works at site 3. Any SAR species found must be removed and relocated away from the construction site rather than held and relocated to the site later.
- The Awareness and Encounter Protocols be reviewed at each site with the SAR biologist from the UTRCA where turtles and their habitat may be affected by work. A fisheries expert from UTRCA or UWO provide the review where SAR aquatic species may be encountered and their habitat affected. This is particularly relevant as female turtles travel many Km.
- All water balance reports, particularly for the project near site 6, must be reviewed by the hydrologists at the City and the UTRCA.
- Agree that SAR status be reviewed prior to detail design and/or construction. It is noted that Figure 27 is wrong as Spiny Softshell Turtles were listed as Endangered (from Threatened) in Ontario in Dec 2016.
- EEPAC would appreciate knowing who checks the Overall Benefit Permit and who checks if there has been an overall benefit? For Turtles, the SAR biologist at UTRCA must review the application before submission. If you hope to achieve an overall benefit, the permit must include how much money will be provided to ensure there is a benefit. Furthermore, who actually determines if the conditions of the permit have been met and what are the consequences if the benefits are not achieved?
- The EIS notes the thermal regime for Site 3 but not for any of the other relevant sites such as 2, 4, 5, and 7. This information should be included in the final EIS.
- Regarding Site 1, EEPAC provided extensive notes to SWM staff regarding the restoration plans for Mud Creek and that restoration for fishery habitat is less important than restoration for other species as there is a perched culvert at the Thames outlet and that fish are likely not found upstream.

- Assessment of soil quality (SQ) indicators that detect soil degradation in different land use and soil management systems (LUSMS) is desirable to achieve sustainable management strategies. Can we include soil quality (Physical, chemical and microbial) assessment and monitoring procedure in place for all sites in 300 m buffer zone?
- Is initial screening and element being absent is sufficient to make decisions on SAR? Better to have comprehensive survey for SARs at least in natural heritage sites (site 1 and 6)
- Field notes indicate that they have found several invasive species. Is there a protocol defined to handle invasive species?

System based design

Highlights:

- Current flow regime including velocity and depth at site 3. Pier design must try to minimize impacts to these hydrological factors and minimize immediate downstream impacts.
- Impacts to species at risk. Need to maintain the current riffle, pool sequences at site 3. This is known spawning site of castotomids including the threatened black redhorse (*Moxostoma duquesnei*) and the wavy-rayed lampmussel (*Lampsilis fasciola*).

Additional comments:

- The two lane multi use pathway adjacent to the PSW be reduced to one lane in order to reduce the impact on the PSW. (site 6)
- EEPAC agrees with permanent barriers to prevent the public from accessing sensitive river bank and shoreline habitat. For example, we agree with the exclusion fencing at Site 6 at detailed design and construction and then made permanent.
- EEPAC notes there is little if any data on Silver Shiner. Avoidance of habitat loss is the best approach to protecting this SAR fish.
- EEPAC supports enhancement of habitat around the Murray Drain at Site 7 and the protection of the adjacent meadow for Meadowlark.
- Bridge work at Site 3 has the potential to be very deleterious to fish habitat, particularly to habitat for castomids (suckers) including the SAR Black Redhorse (*M. duquesnei*). Hydrological modelling will need to be performed for this site to see how modification of the bridge and construction in the permanently wet sections of Medway Creek will influence the hydrological regime of the stream. Great care must be taken to minimize in water impacts to both the substrate, the flow and the thermal regime of the stream. Critical environmental factors for Black Redhorse spawning areas has been identified as streams and smaller rivers short distances away from their mouths (Bowman, 1970; Smith 1977). Black redhorse have been seen spawning on in the spring in riffles of rubble and gravel in 15-60 cm of water (Bowman, 1970) with flow rates of 1.4 m³/sec and surface velocities of 0.24 m/sec (McSwain and Jennings, 1972).

Mitigation and monitoring

Highlights

- Creation of monitoring plan overseen by multiple agency groups including pre-, during, and post-construction. Compensatory mitigation plans shall be reviewed by City staff, EEPAC, MNRF, DFO, and UTRCA staff before being finalized. Approval of the MNRF, DFO and UTRCA shall be required.
- Habitat replacement should also be considered for the impacted aquatic environment. Having compensatory habitat replacement in terrestrial systems is not enough to replace lost aquatic habitats. Improvement of stream/river banks and riparian areas could help with this. Additionally, development of new spawning areas and enhancement of current ones along the watercourse for species such as Black Redhorse (*Moxostoma duquesnei*) should be considered.

Additional comments:

- Given how much of the compensatory mitigation is in the future and is noted to take 20-40 years for woodland recovery, the city shall consult with the UTRCA, MNRF, DFO and EEPAC on sufficient project budget for compensatory mitigation which will be required beyond the study area at various points in time.
- The compensatory mitigation plans must have suitable budgets because only the standard three-year warranty for plantings is included in the EIS. The Plans must also include who is responsible for monitoring, who is specifically to receive monitoring reports and frequency. It is not enough to say, for example, "The city will get annual reports." EEPAC's concern is that it is unclear how much review is done at the detail design stage having almost never been involved at the detail design stage!
- Consideration be given to start funding compensatory mitigation in the Ponds now by implementing the buckthorn removal plan recommended by N-S Environmental in the Master Plan for this ESA.
- Better than 1:1 replacement be considered replacement of mass rather than replacement of individuals when considering compensatory mitigation for tree removal.
- Removal of phragmites be included in each project budget where this invasive plant occurs in the work area of each project such as Site 6.
- Is there a plan to create new turtle nesting habitat? If so, this must be reviewed by the SAR biologist specialist at UTRCA.
- When construction starts, this could cause further disturbance in micro climate –disturbance in soil and hydrology. Is there assessment and monitoring procedure in place. Specially disturbance in soil could attract invasive species in buffer zones (300m)

Construction window

Highlights

- Clarification of wording when mentioning in water works. For Black Redhorse, in water works should be performed from early summer to late fall (June–November) to avoid construction during the spring spawning migrations and on the spawning grounds.

Additional comments

- Consider moving and replanting the Kentucky Coffee Tree near the University Bridge. The assumption is that moving while the tree is youngest is better. Continue to work with Dr. Greg Thorn with regards to the movement of this tree and the Butternuts at site 4.
- Support requiring Clean Equipment Protocol

Comments on responses to previous comments issued by EEPAC following the review of the London RT SLSR (WSP, 2017)

1. Continue to work with MNRD during the detailed design to minimize the impacts to Kentucky Coffee Trees. Dr. Greg Thorn should be consulted when dealing with the Kentucky Coffee Trees on site 4. Also, how will this be followed? We recommend monitoring of Kentucky Coffee Trees be implemented in the monitoring plan.
2. We support the additional surveys to be performed throughout the summer. Further comments on this are included on page 1 of the document.
3. We support the additional surveys to be taken for occupancy of at-risk birds at site 4. This should also be included in the mitigation and monitoring plan.
11. We support the continued consultation and recommend that if potential turtle nesting and overwintering sites be lost that the construction of new nesting and overwintering sites be included in the mitigation plan.

References:

- Bowman, M. L. 1970. Life history of the black redhorse, *Moxostoma duquesnei* (LeSuer) in Missouri. *Transactions of the American Fisheries Society* **99**:546–559.
- McSwain, L. E. and R. M. Jennings. 1972. Spawning behavior of the spotted sucker *Minytrema melanops* (Rafinesque). *Transactions of the American Fisheries Society* **101**:738–740.
- Smith, C. A. 1977. The biology of three species of *Moxostoma* (Pisces-Catostomidae) in Clear Creek, Hocking, and Fairfield counties, Ohio, with emphasis on the golden redhorse, *M. erythrurum* (Rafinesque). Doctoral dissertation, Ohio State University, Columbus. 158 p.