

#	TRCA Comments November 18, 2010
<b>Environmental Project Report</b>	
1.	Please provide a brief summary response as to why integration with the existing Highway 407 is not an option.
2.	The EA has included areas identified as "potential TOD" (transit oriented development) in association with a number of proposed station locations. The feasibility of these elements has not been confirmed and staff cannot support them in concept as part of this EA as they are unrelated to the Transitway itself. Reference to these should be excluded from the EA generally, and from figures entirely. While the potential can be considered in locating of stations, in no way should it appear as a component of the overall project.
3.	The station envelopes should be subject to review under TRCA policies for new development where they have potential to impact on Regulated Areas. Specifically from an ecological perspective, defining of the developable portion of a site should be undertaken at the earliest planning stages to ensure that valley and stream corridors are appropriately delineated and protected. Further, consideration of the TRCA's Natural Heritage System Strategy and watershed plans needs to be integrated into the overall assessment of station locations, sizing and design. Preliminary assessment and discussion of site constraints based on Provincial, municipal and TRCA planning policies should be completed at the EA stage to ensure adequate developable area is available for all station locations.
4.	A screening by the MNR for Species at Risk should be completed for the entire study area, with results included within the EA.
5.	<p><b>Section 4.1.3 - Groundwater</b> Staff notes that significant and potentially difficult groundwater conditions are present in the area around the East Don Crossing. This was identified at previous meetings, but there appears to be no mention of this in the ESR. Staff would like to note that there should be a significant amount of geotechnical data available for this reach either through MTO-407 or York Region (Sewer section).</p> <p>From the available information and previous project reviews, the possible bridge foundation construction over the Little Don River (between Bathurst Street and Yonge Street) represents the most potential area for impacts to occur to a watercourse. The impacts would be a consequence of groundwater control requirements for abutment installation activities due to reported high groundwater levels.</p> <p>TRCA hydrogeology staff concurs that further site-specific testing / studies will be required at the proposed crossing locations. The selection of appropriate crossing structures and construction methodology will be made. Appropriate construction methods should minimize groundwater impacts to the watercourses spanned.</p>
6.	<p><b>Section 4.1.4 – Fish and Aquatic Habitat</b> A coolwater category is defined for several watercourses. The proponent is advised that the classification by the Ministry of Natural Resources (MNR) has been revised, with the following changes: Crossing D12 is classified as coldwater ; Crossings R8, R6 and R7 are all classified as warmwater systems (MNR, 2008- TRCA screening mapping).</p> <p>It should be noted that classification of the thermal regime of watercourses is provided to TRCA from the MNR. The MNR is the responsible agency for the management of fisheries resources within the Province. Classification identifies the management objectives for the system and provides recommendations for construction timing for the protection of the local fish community during its reproductive phases. They are provided as guidelines, and reflect both existing and future management direction.</p>

7.	<p><b>Section 6.2.2.2 Go Barrie – Concord Station</b></p> <p>The station is proposed on lands currently designated as part of the natural heritage system within the Don Watershed Plan and TRCA's Regulated Area. The limits of the existing natural features, specifically the valley and stream corridor as defined by TRCA, need to be established. The proposed station design needs to respect the limits of the natural feature and the EA should demonstrate that this can be achieved.</p> <p>Staff notes that there has been a recent report of the presence of a species protected under the ESA 2007 in this area (Blandings Turtle; <i>Emydoidea blandingii</i>). Please consult the Ministry of Natural Resources directly with regard to issues related to endangered species.</p>
8.	<p><b>Section 6.2.2.5 – Leslie Station</b></p> <p>The limits of development in relation to the watercourse need to be established to ensure parking area is appropriately sited.</p>
9.	<p><b>Section 6.2.2.6/7– Woodbine Station</b></p> <p>There appears to be a watercourse/drainage feature across this property that has not been identified or discussed within the Natural Heritage Report. Details regarding this tributary are needed as the transitway is proposed to cross it. There also appears to be a drainage feature paralleling the transitway and woodlot edge. The form and function of these features needs to be investigated. Limits of development for the station and parking facilities needs to be established, with station and parking areas appropriately designed to protect these features. Wetland habitats on site need to be identified for protection, and impacts mitigated to the extent possible.</p>
10.	<p><b>Section 6.2.2.8 – Kennedy Station</b></p> <p>The existing drainage features should be identified on plans. It appears that transit oriented development is proposed that would remove these features. Staff does not support this, and request that the potential future development locations be removed from plans. As noted previously, the limits of development for the station and parking facilities need to be established to ensure natural features are protected. Further detailed assessment of the form and functions of these features will be required.</p>
11.	<p><b>Section 6.3.2 – Bridge Sizing</b></p> <p>TRCA staff would like to ensure that ecological functions are maintained or improved at all crossing locations. Bridge sizing should include assessment of long-term channel movement (via meander belt) and provide for wildlife as well as fish passage. This issue can be addressed at detailed design, but understanding of expectations and commitments to address TRCA issues should be identified in EA.</p>
12.	<p><b>Table 7-1</b></p> <p>Impacts to fish and fish habitat will result from the construction of both bridges and culverts, but this does not appear to be identified. While the most damaging effects can be mitigated to avoid a HADD, it is not accurate to assume no impacts in either the short or long terms when watercourses are covered, and the impacts are cumulative. Also, it is staff opinion that impacts to wildlife and wildlife habitat can be negatively affected by additional watercourse crossings, particularly if passage is further impaired. Vegetation, wildlife habitat and fish habitat are also potentially affected by the proposed maintenance and storage facilities, as well as for stations. Despite being predominantly "cultural" landscapes, they provide habitat, including potential habitat for species at risk in the case of cultural meadow habitats. These are permanent impacts related to the project footprint, and it is staff opinion that this has been understated in the EPR.</p> <p>There also appears to be potential impacts to fish and fish habitat at the proposed Woodbine Station as there are watercourses illustrated on mapping, but not addressed in the background report (NHR – Appendix 4).</p>

13.

**Table 7-2**

a) The footprint total area is identified in Table 7-2 as 73.06ha. While the areas affected may already have been disturbed historically (thus the cultural label), the impacts to the existing communities directly affected is permanent and significant at the local level. The overall net loss of greenspace, wetlands, and TRCA's defined Natural Heritage System should be identified, and opportunities to provide for improvement within the Parkway belt lands to offset impacts should be provided. Specifically, losses of wetland and tree cover should be mitigated/compensated for, and opportunities to improve meadow habitats considered. Based on the information presented, staff can concur that impacts are not likely to be significant provincially, but the cumulative effects and local impacts need to be more carefully considered and evaluated.

b) It should be identified that impacts will be further assessed and mitigated or compensated for at the detailed design stage. A key mitigation factor for impacts to fish habitat is design. While a preliminary design is described in table 7-2, this may not be acceptable, and the need to revise to address all issues (including fluviogeomorphic processes, wildlife passage, hydrology, fish habitat) should be clearly identified.

c) With regard to species at risk, staff advises that Bobolink has been recently uplisted under the ESA 2007. This species is noted as recorded within the study area. Implications will need to be addressed. There are also a significant number of meadow dwelling species recorded within the study area that utilize the cultural meadow habitats that dominate the Parkway lands. Implications to these species should be noted.

d) Within table 7-2, the need to address TRCA issues related to dewatering and dewatering discharge should be identified for Groundwater, under Monitoring and Recommendation. TRCA requires that an Environmental Management Plan be prepared where dewatering has potential to negatively impact fish habitat, wetlands or forests. A TRCA draft guideline is provided for further information.

e) Within table 7-2, related to vegetation communities, the need for invasive species management should be identified as a mitigation measure where appropriate, since the impacts anticipated include increased opportunity for non-native species establishment.

f) Within table 7-2, staff requests that implications to milk snake and snapping turtle be further evaluated. The loss of over 5ha of wetlands, including some complete removals, is likely to have implication to snapping turtles, as well as to amphibians. Given the general rarity of wetlands locally, this is a significant loss, justification of which has not been sufficiently demonstrated. Within this section, please identify if the records for either species is within the proposed construction footprint, and the date of the records. The rationale for the statement that impacts are not anticipated should be made clear.

g) Within table 7-2, under wildlife and wildlife habitat, mitigation measures should include implementation of habitat creation or enhancement to off-set losses that will result. While replacement of area is not usually possible (except for wetlands), the functionality of habitats may be improved, including improvements to connectivity.

h) Within table 7-2, and within section 7.2.1, generally, there should be some discussion of TRCA's defined Natural Heritage System. While not a provincially designated natural area, the System was established to address the "systems approach" to management of natural heritage as identified within the Provincial Policy Statement, and to replace the antiquated "areas" approach.

14.	<p><b>Table 7-5</b></p> <p>a) Please include reference to the need to address staff issues surrounding dewatering and its implications to natural features and fish habitat, as well as the efforts to achieve a no harmful alteration, disruption or destruction (HADD) as a result of dewatering operations. Commitment to the preparation of an EMP as necessary should be provided. Monitoring for compliance and performance should be anticipated.</p> <p>b) While staff supports the proposed mitigation measures generally, it should be noted that mitigation is not restricted only to the measures stated, but may include additional measures as deemed necessary by regulatory agencies. It is during detailed design that clarity regarding the full scale of impacts is resolved, and this needs to be acknowledged within the EA. The full suite of mitigation and compensation options identified within this report should be carried forward into the main body of the Environmental Project Report.</p> <p>c) Please identify that additional mitigation measures may be required based on detailed design, and that compensation requirements will also be established at detailed design. A commitment to try and achieve an ecological gain should be identified, with details to be addressed during detailed design.</p>
<b>Draft Natural Heritage Report (Appendix 4)</b>	
15.	<p>a) Figure 2b and Table 1 do not identify the drainage feature that appears to be present between site D15 and R8. Please provide information regarding this feature.</p> <p>b) In Table 1, staff suggests that under flow conditions, the overall flow pattern be identified rather than based on single state condition. For example, flows should be identified as ephemeral, intermittent or permanent as this is more significant in terms of fish and fish habitat form and function.</p> <p>c) In section 3.3.1 or 2, staff recommends further discussion regarding the status of redbside dace within the relevant reaches. While they have been present historically, MNR must be contacted to confirm if the species is still present and if review and permitting under the ESA 2007 is required. The date of collections should be noted.</p> <p>d) Figure 3b: German Mills Creek is mislabeled as Beaver Creek.</p> <p>e) Screening by MNR for all species under the ESA2007 should be completed for this project.</p>
<b>Plan and Profile Plates</b>	
16.	<p>a) There are some preliminary descriptions of preferred structure sizes – this would be good information to add to the plates for ease of review. The preliminary descriptions as provided in the Fluviogeomorphic preliminary assessment should also include station locations rather than site numbers that are not referenced or mapped elsewhere (as far as staff could see anyway)</p> <p>b) Plate 31 is not correctly depicting the existing channel location at station 21+650 (approx). The channel to the north has been realigned, and is connected to the existing culvert under Hwy 407 via an open drainage feature (fish habitat) which runs parallel to the 407 for some distance, until it reaches the created wetlands to support the new channel. Alignment as shown will have significant implications to this feature, and TRCA requests that the alignment be provided on the south side of the 407 to the extent possible.</p> <p>c) Plate 28 does not identify the crossing of a watercourse feature that appears to be present at station 18+970. This needs to be revised. This feature appears to have been overlooked generally.</p>

**Stormwater Management**

17.

a) Please be advised that the Authority manages incremental changes to the watershed, which is why stormwater management is required for all sites. The analysis provided indicates that quantity control may not be required due to the impacts from the watershed scale; impacts should always be assessed from a site scale. For example the contributing drainage area of the 407 Transitway is quite small compared to the entire drainage area of the watersheds it resides in. From that scale the increase in impervious cover, and resulting peak flows may not be an issue. Conversely from a site by site scale the impact is quite significant. As such appropriate quantity criteria will apply to the transitway right of way.

Quantity control criteria is as follows:

- Black Creek – Unit Release Rates
- Don River – sites greater than 5ha apply unit release rates as defined in “Unit Flow Rates for Stormwater Control Upper Don River Watershed”, sites less than 5 ha apply the 2 to 100 post to pre control
- Rouge River – From a watershed management perspective no quantity control is required. However local Municipalities may have requirements, should drainage be directed to municipal infrastructure.

Please note that water quality control to the Enhanced Level (i.e. 80% TSS removal) is required across TRCA jurisdiction. Please note that Table 5.1 notes water quality control as being only required for the Don and Rouge River watersheds.

Erosion control criteria is as follows:

- Sites greater than 5 ha, detain and release a 25mm over a 24h period
- Sites less than 5 ha, detain a rainfall depth of 5mm (across all impervious areas) through infiltration or rain water reuse.

b) Please note that the City of Vaughan is in the process of finalizing the “Black Creek Stormwater Optimization Master Plan Class Environmental Assessment” which included a detailed hydrologic assessment of the Black Creek north of Steeles Avenue. Staff recommends MTO obtain a copy of the hydrologic model developed by City and utilize it as part of the Transitway assessment.

In addition to the above the City of Vaughan should be consulted on the proposed Stormwater management plan, ensuring the targets and intent of the “Black Creek Stormwater Optimization Master Plan Class Environmental Assessment” are achieved for the transitway site.

c) Where the proposed transitway is to tie into existing SWM ponds, the ponds need to be assessed to ensure they are appropriate for use (ensure they can accommodate additional drainage/impervious surfaces, and provide stormwater control to today’s standards). Since the majority of the SWM scheme depends on the use of existing ponds, they should be assessed during the EA phase, opposed to waiting to detailed design. Where ponds do not have sufficient volume (permanent pool, extended detention, and active storage), the lack of SWM control should be addressed through means (source and conveyance) within the proposed right of way.

c) Further to the above, from a quantity control perspective the 407 SWM ponds should be included in the hydrologic modeling to ensure quantity control volumes meet the watershed objectives, as well as assessing the ponds impact to the receiving systems.

d) Please explain why the STANDHYD command has been used to model the transitway catchments for pre-development conditions. The text in the report notes a majority of the right-of-way as being undeveloped; as such a NASHYD should have been used. Please revise accordingly.

**Hydraulic Assessment**

18.

a) Please note that the proposed Jane Station and associated maintenance yard is within the Regional Flood plain. Should MTO wish to proceed with the development plan a comprehensive flood remediation plan for the area will be required. This will require MTO to provide a hydrologic and hydraulic assessment of the area to ensure no adverse impacts to flood line elevations upstream and downstream of the subject site. The assessment shall include hydrologic, hydraulic modeling to assess impacts to downstream areas (erosion and quantity), due to the flood remediation option (most likely the removal of the CNR crossing, which is a major cause of the flood plain). Since the intent of an Environmental Assessment is to assess feasibility, this assessment should be provided as part of the EA package.

Discussions related to the Jane Station should also occur with the City of Vaughan as the "Black Creek Stormwater Optimization Master Plan Class Environmental Assessment" was developed specifically to deal with flood concerns along the Black Creek.

b) Please note that the access route for the proposed GO Barrie Station is located within the Regional Flood plain (191.13 masl, 190.69 masl). Access to and from the site will become an issue during a Regional event, as such please ensure ingress and egress is "safe" pursuant to Provincial floodproofing guidelines.

c) Staff has concerns with relocating the watercourse to accommodate the proposed pond at Woodbine Station. Please provide additional assessments, ecological, fluvial and hydraulic appropriateness of channel relocation at this location. To assess the feasibility the noted assessments should be included as part of the EA.

Further to the above the proposed transitway runs directly through the above noted watercourse between stations 19+600 to 19+800. Based on the proposal a creek realignment would be required in this location as well, the additional analysis (as noted above) would apply in this instance as well.

d) Appendix C, Creek Reference #3, please confirm with the City of Vaughan if drainage is severed by the 407. Additional hydrologic and hydraulic analysis may be required to confirm structure size. The "Black Creek Stormwater Optimization Master Plan Class Environmental Assessment", may have specific requirements for this tributary which may dictate the size of the structure.

e) The proposed Transitway alignment passes through a SWM pond at station 10+400. Based on Figure 6.5 in Appendix C, significant grading would need to occur within the pond to accommodate the transitway. How will Stormwater be treated during construction, and how will the pond function post development? Is this an appropriate transitway alignment?

f) Please explain how the reach boundary conditions were determined for areas where no existing HEC models exist? Critical depth, and known water elevations were used, yet the model only extends a few cross-sections upstream and downstream of the proposed crossings. Please ensure an appropriate method for determining starting water surface elevations are used, and ensure the models are of sufficient length to ensure water levels through the structures are appropriate. Reach lengths should be based on a model sensitivity analysis.

In addition to the above the hydraulic models should be extended a sufficient distance upstream to accurately assess impacts to flood plain elevations upstream of the right of way.

g) Is the intent to have a flyover crossing for creek reference #10? The figures provided indicates there is a crossing, yet no hydraulic assessment has been provided. Please provide clarification as to the transitway crossing at this location. Also please note TRCA has "Final Draft" flood plain mapping and HEC modeling for the area that can be used in the assessment. Please contact Nick Lorrain at ex. 5336 to obtain a copy.

h) There appears to be 2 crossings located at Creek Reference #12, please confirm.

- i) Based on Air Photo's of the area, there appears to be a watercourse located at the proposed Unionville Station. Please confirm if a watercourse exists in this location. If so please include the appropriate analysis.
- j) Please confirm how Stormwater management will be dealt with at the Unionville Station? No discussion or analysis has been included in the "Drainage Hydrology, Stormwater Management, and Floodplain Hydraulics Report".
- k) How do the proposed water crossings compare to the existing Highway 407 crossings, please provide a comparison table.

### **Fluvial Assessment**

- 19.**
- a) Please note that the Fluvial report speaks primarily to extensions of existing culverts, while the "Drainage Hydrology, Stormwater Management, and Floodplain Hydraulics Report" notes multiple new crossings (i.e. Creek Reference #12, Drainage report notes a 37m span, fluvial assessment an extension). Please ensure that where new crossings are proposed a fluvial assessment is provided.
- b) The crossing sizes differ from the "Drainage Hydrology, Stormwater Management, and Floodplain Hydraulics Report", and the Fluvial Assessment. Please ensure consistency between the two reports.
- c) Please ensure that the sizing of each of the proposed structures is justified with a fluvial assessment. This will require a Meander Belt and 100 year Erosion assessment at each of the proposed new crossings. The assessment must be in accordance with TRCA's "Belt Width Delineation Procedures" 2004, which is TRCA's standard protocol for assessing Meander Belt and 100 year erosion limits.
- At a minimum the corridors beneath the structures must be sized to meet the 100 year erosion limit, where no grading, construction is to occur with this zone.
- d) The scope of the fluvial assessment should be expanded to include provisions for channel realignments, and re-established valley corridors where necessary (i.e. Woodbine Station, Jane Station).
- e) During the detailed design phase of the project, fluvial input should be provided for the alignment of each of the structures, relative to the creek (i.e. appropriate skew, pier locations, etc.).
- f) In addition specific channel bank erosion protection should be assessed and designed during the detailed design phase of the project. Bank vegetation tends to die due to lack of light/water under water crossings, once this has occurred it is likely that bank erosion under the structure will commence, potentially impacting the long term stability of the structure.