Document 6

Environmental Implications and Recommended Mitigation Measures

1.1 BUILT-IN MIGITATION MEASURES

For this project, “built-in mitigation” is defined as actions and design features incorporated in the pre-construction, construction, and operational phases, which have the specific objective of lessening the significance or severity of environmental effects which may be caused by the project. They include standard construction practices and Best Management Practices (BMPs).

The realignment and widening of Leitrim Road will be designed and implemented with the benefit of contemporary planning, engineering, and environmental management practices. Regard shall be had for the legislation, policies, regulations, guidelines, and best practices of the day. Where possible, mitigation measures will be prescribed in the construction contracts and specifications. Examples of practices that should be employed, based on current standards, are described below. These measures can be considered “built into” the preferred design for the roadway. They will be updated and refined during the pre-construction, construction, and operation phases of the project.

1.1.1 EROSION AND SEDIMENT CONTROL PLAN

A detailed plan will be prepared by the Contractor to manage the flow of sediment into storm sewers and watercourses. The plan will be based on best management practices.

1.1.2 ENVIRONMENTAL PROTECTION PLAN

It will be the responsibility of the contractor to ensure that no contamination, waste or other substances, which may be detrimental to aquatic life or water quality, will enter a watercourse as either a direct or indirect result of construction. In this regard, any floating debris resulting from construction which accumulates on watercourse beds and watercourse banks is to be immediately cleaned up and disposed of. Any spills or contamination, waste or other substances which may be detrimental to aquatic life or water quality will also be immediately cleaned up.

Any work which will cause or be the cause of discharge to watercourses is to be prohibited. At all times, construction activities are to be controlled in a manner that will prevent entry of deleterious materials to watercourses. In particular, construction material, excess material, construction debris and empty containers are to be stored away from watercourses and the banks of watercourses.

1.1.3 AIR QUALITY, NOISE AND VIBRATION

Varied construction activities along the existing Leitrim Road and the realignment of Leitrim Road are expected to create isolated and short-term noise, air quality and vibration impacts on the environment. The construction manager will be required to develop a strategy for mitigating the effects according to good practices intended to satisfy, as feasible, the fugitive dust limits specified in O.Reg. 419, the noise limits specified in MOE NPC-115 and NPC-118 and City of Ottawa By-laws for Noise; and MOE NPC -119 and NPC-207 for ground vibrations or the regulating standards of the time. A list of common mitigation strategies adapted to the current project includes, but is not limited to, the following:

Air emissions BMPs:

- Monitor wind conditions, and plan operations to take advantage of calm wind periods;
- Minimize site storage of granular material in height and extent;
- Locate storage piles in sheltered areas that can be covered;
- Provide movable wind breaks;
- Use water spray and suppression techniques to control fugitive dust; and,
- Cover haul trucks and keep access routes to the construction site clean of debris.

Noise and vibration BMPs:

- Limit speeds of heavy vehicles within and approaching the site;
- Provide compacted smooth surfaces, avoiding abrupt steps and ditches;
- Install movable noise barriers or temporary enclosures, around blast sites for instance;
- Keep equipment properly maintained and functioning as intended by the manufacturer; and,
- If required, implement a blast design program prepared by a blast design engineer.

1.1.4 UNEXPECTED DISCOVERY OF ARCHAEOLOGICAL RESOURCES

If during the course of construction archaeological resources are discovered, the site should be protected from further disturbance until a licensed archaeologist has completed the assessment and any necessary mitigation has been completed.

1.1.5 EMERGENCY RESPONSE PLAN

The preparation of an Emergency Response Plan to be used by the contractor is included to allow full emergency service access during the construction period, such that anytime there is a method to access all residential, commercial and other land uses in the event of an emergency. Additionally, the Emergency Response Plan should include provisions for providing temporary services to end users in the event of a construction related service outage or other service disruption.

1.1.6 SPILLS RESPONSE AND REPORTING PLAN

A Spills Response and Reporting Plan will be prepared and adhered to by the contractor. Spills or discharge of pollutants or contaminants will be reported immediately. Clean up shall be initiated quickly to ensure protection of the environment.

1.1.7 MANAGEMENT OF CONTAMINATED MATERIALS

Studies will be completed to confirm the potential for the project to interact with contaminated soil or groundwater, where existing conditions are not known. Where the potential has been confirmed, a plan to remediate the environment to the applicable standards will be prepared. The Ontario Ministry of the Environment and Climate Change and Construction Project Manager would be notified immediately upon discovery of any contaminated material encountered within the construction area. If contaminated material or contaminated groundwater is encountered within the construction limits, these are to be removed and disposed of in accordance with all applicable Acts and Regulations. Treatment and discharge of contaminated groundwater are to be in accordance with applicable legislation and regulations.

The alignment of the Recommended Plan is known to cross over a portion of the southernmost part of lands referred to as the Gloucester Landfill, owned by Transport Canada. Site-specific studies completed as part of this environmental assessment provide a preliminary understanding of the nature, location and potential risks associated with potentially impacted soils and groundwater that might be encountered during the construction and operation of the project. Additional studies of these potential

risks should be undertaken in the future when completing the detailed designs for the project, understanding that the soil and groundwater conditions and the associated environmental regulations are subject to change.

1.1.8 LIGHTING TREATMENT PLAN

A Lighting Plan in accordance with City of Ottawa standards will be prepared as part of the detailed design. The Lighting Plan will include lighting fixtures and illumination along the various sections of the corridor.

1.1.9 CONSTRUCTION WASTE MANAGEMENT PLAN

During construction, there will be some excess materials that will require disposal off the project site. These could include concrete rubble, asphalt, waste steel/metal structural components, earth, and road right-of-way appurtenances such as signs, lighting and utility poles. During the detailed design stage, a Construction Waste Management Plan will be developed to ensure that surplus material is recycled wherever practical and to describe the methods to be used by the Contractor for disposal of all other surplus material in accordance with provincial or local municipal practices and guidelines.

1.2 SITE SPECIFIC MITIGATION MEASURES

Once potential effects were predicted, mitigation measures were identified. Often these mitigation measures were sufficient to reduce potential negative effects to an insignificant or negligible status. Mitigation included environment rehabilitation and replacement. Localized site-specific mitigation measures are summarized below for the transportation, natural, and social environments.

1.2.1 PROPERTY IMPACT ASSESSMENT

Costs associated with acquiring property and property rights on which to build or provide construction easements for the construction of the project will need to be estimated. These will include, in addition to actual property value, the cost of right-of-way preparation, legal and appraisal services and land survey.

1.2.2 PUBLIC COMMUNICATIONS PLAN

The requirement for a Public Communications Plan stems from the need to keep the public informed about the work in progress and the end result of the construction activities. Businesses, institutions, residents and other stakeholders including emergency service vehicle providers must be aware of scheduled road closings and

other disruptions to normal service ahead of time in order that their activities can be planned with minimum disruption. The Public Communications Plan will follow the standard set by the City including detail on how to communicate the information to the public, what information should be disseminated, and at what project stage the communication should take place.

1.2.3 ARCHAEOLOGICAL ASSESSMENT

Areas adjacent to the corridor and identified as having archaeological potential will be subject to subsequent (Stage 2/3/4) Archaeological Assessment prior to construction should these lands be required to be disturbed through implementation of the Recommended Plan.

1.2.4 CULTURAL HERITAGE IMPACT STATEMENT

Identified cultural heritage resources adjacent or within the corridor need to have a Cultural Heritage Impact Statement (CHIS) completed by a qualified person, as per the City of Ottawa's Guide to Preparing Cultural Heritage Impact Statements.

1.2.5 CONSTRUCTION AND TRAFFIC MANAGEMENT PLAN

A Construction and Traffic Management Plan will be developed to manage the transportation function for all travel modes including equipment and material deliveries at various times during the construction period. The objective will be to maintain clear walking routes and to maintain as much functionality for traffic as possible. The plan will also outline the road signage program.

1.2.6 STORMWATER MANAGEMENT PLAN

The purpose of developing and implementing stormwater management (SWM) strategies is to provide adequate systems for the development in place and planned for the area. The purpose of the stormwater management plan is twofold; it identifies the rate and volume of anticipated stormwater runoff and the means to accommodate it, and also identifies the means of achieving Ministry guidelines for water quality of stormwater runoff.

This includes the identification, in the detailed design phase, of the overall stormwater management system requirements, methods of detention and filtration, and any control mechanisms necessary to achieve runoff quantity and quality targets. Drainage systems and their components are sized and designed in conjunction with the overall project, and retention or detention systems are then incorporated into the design to achieve

Ministry guidelines for runoff quantity, quality, and total suspended solids. This plan, when prepared during the detailed design phase, will take into account the opportunity that exists to use existing locations within the identified right-of-way as retention areas to assist in the objective to improve stormwater runoff quality prior to further off-site (i.e., outside the right-of-way) treatment.

1.2.7 GEOTECHNICAL INVESTIGATIONS

Geotechnical investigations were completed to advise on groundwater and subsurface conditions and potential impacts that will need to be considered in the detailed design of the project. Additional investigations will be completed as required during the detailed design phase.

1.2.8 PHASE I/II ENVIRONMENTAL SITE ASSESSMENT

A scoped Phase I ESA was completed to assist with the evaluation of alternatives and potential impacts that will need to be further considered in the detailed design of this project. The scoped Phase I ESA identified four (4) areas that have some level of risk for contamination. These areas will require further Phase I work and depending on the results, Phase II work prior to project implementation.

1.2.9 STRATEGY FOR THE PROTECTION OF THE NATIONAL CAPITAL GREENBELT AND OTHER NATURAL HERITAGE FEATURES

Built into the Recommended Plan are measures to minimize the environmental impacts on these sensitive natural heritage features including:

- Minimizing the footprint of the facilities;
- Rehabilitation/naturalization of adjacent lands/features; and
- Incorporating recommendations for eco-crossings including exclusionary fencing through future study.

The project results in the displacement of and land requirement from the National Capital Greenbelt. The study recommendations provide a strategy that considers the policy directions of the National Capital Commission for “No Net Loss” of Greenbelt lands and the requirement for a net environmental gain in ecological function. While detailed mitigation measures will be fully developed during detailed design, the study has identified some lands that could be considered as part of future land exchanges,

along with recommendation for restoration and enhancement of adjacent Greenbelt lands in the form of:

- Improvements to aquatic and terrestrial habitats;
- Slope stabilization in the vicinity of Mosquito Creek;
- Enhanced road edge treatments in keeping with the adjacent character of the lands; and,
- Providing Opportunities for eco-crossings within Greenbelt areas at appropriate locations.

To further mitigate the potential impacts to terrestrial and aquatic habitats, it is recommended that construction-based best management practices be implemented to reduce dust, sedimentation control, compensation/restoration, avoidance and construction timing restrictions be implemented.

1.2.10 LANDSCAPE PLAN

A detailed Landscape Plan will be prepared to guide the species selection, location and planting details for all proposed plantings and other streetscape elements within the corridor. The plan will be prepared by a professional landscape architect with attention paid to creation of gateway features into Ottawa, the Greenbelt, and the Airport Sector.

1.2.11 ECOLOGICAL SITE ASSESSMENT

An Ecological Site Assessment should be carried out to more thoroughly determine the presence and extent of natural heritage features, Significant Wildlife Habitat, Species at Risk (SAR), and habitat suitable for SAR located along the preferred alignment. Protection afforded to any identified species shall be in accordance with appropriate provincial and federal jurisdiction. Various potential Natural Heritage Features and potential Species at Risk habitat were identified in the general study area.

The Ontario Endangered Species Act (ESA, 2007) is updated twice yearly. Prior to construction, the ESA, 2007 should be reviewed and an update of the potential species present and their associated habitat should be completed. A SAR determination should be included in an Ecological Site Assessment for any affected areas. If a SAR is observed during the works within the construction zone, the MNRF is to be immediately contacted and operations modified to avoid any negative impacts to the species or their

habitat until they leave the area or further direction is provided by the MNRF. If necessary, permits will be obtained under the ESA.

The Species at Risk Act (SARA) is a federal government commitment to prevent wildlife species from becoming extinct and secure the necessary actions for their recovery. The Act establishes Schedule 1, as the official list of wildlife SAR. If the works include an activity involving species listed under the federal SARA on federal NCC and/or TC lands, a permit may be required.

The Ecological Site Assessment will also inform or provide guidance on the location, type and size of engineered wildlife crossings as well as the location of associated exclusionary fencing.

1.2.12 TREE CONSERVATION REPORT

The purpose of the Tree Conservation Report is to retain as much natural vegetation as possible, including mature trees, stands of trees, and hedgerows. The Tree Conservation Report will identify and describe the vegetative cover on the site prior to construction, and will provide a professional opinion as to the priority that should be given to the conservation of the treed areas that are beyond the grading limit. This report will also provide an assessment of trees identified for removal.

Together with the Landscape Plan, the Tree Conservation Report will help ensure that trees will be retained where feasible, and that new trees will be planted to contribute to the City's forest cover target and to address net tree loss of a project site. The Tree Conservation Report will be prepared in accordance with the City of Ottawa Guidelines.

1.2.13 CONSTRUCTION TIMING CONSIDERATIONS

All activities related to the construction should avoid certain timing windows dependent on the wildlife that is present. Following SAR review and more in-depth surveys conducted prior to detailed design, there may be additional timing restrictions in addition to those listed below to protect sensitive species and/or habitats. Below presents an outline of timing windows that will be avoided.

1.2.13.1 Breeding Birds (Migratory Birds Convention Act)

In order to remain in compliance with the Migratory Bird Convention Act, 1994 and Fish and Wildlife Conservation Act, 1997, it is recommended that any vegetation removal that may be required take place outside of the breeding bird season for this region (April 1st to August 31st).

In most cases nest searches during the nesting season (April 1st to August 31st) are not recommended within complex habitats, as the ability to detect nests is largely low while the risk of disturbance to active nests is high. Disturbance increases the risk of nest predation and abandonment by adults. Therefore, nest searches are not recommended unless nests are known to be easy to locate without disturbing them. Nests searches may be completed during the nesting period (April 1st to August 31st) by a qualified biologist within 'simple habitats' (CWS 2014). Simple habitats refer to habitats that contain few likely nesting spots or a small community of migratory birds.

Examples of simple habitats include the following:

- an urban park consisting mostly of lawns with a few isolated trees;
- a vacant lot with few possible nest sites;
- a previously cleared area where there is a lag between clearing and construction activities (and where ground nesters may have been attracted to nest in cleared areas or in stockpiles of soil, for instance); or,
- a structure such as a bridge, a beacon, a tower or a building (often chosen as a nesting spot by robins, swallows, phoebes, Common Nighthawks, gulls and others)" (CWS 2014).

Similarly, nest searches can also be considered when investigating the following:

- "conspicuous nest structures (such as nests of Great Blue Herons, Bank Swallows, Chimney Swifts);
- cavity nesters in snags (such as woodpeckers, goldeneyes, nuthatches); or
- colonial-breeding species that can often be located from a distance (such as a colony of terns or gulls)" (CWS 2014).

1.2.13.2 In-Water Works and Fish Relocation (Fisheries Act)

Should there be in-water works such as that associated with culvert extensions for watercourses, confirmation of in–water construction timing windows with MNRF is necessary prior to any construction works. For potential fish relocation work, a License to Collect Fish for Scientific Purposes is required from the MNRF as well. To protect fish spawning activity, there are specific in–water works timing window restrictions. Consultation with MNRF should be continued to provide updated information on the timing restrictions at the time of design.

1.2.13.3 Turtles

Turtles are actively nesting in June and early July. Caution should be taken during the active season (April 1 – October 30) of any given year by thoroughly sweeping the area before works begin to help encourage any turtles within the area to move away. Additional consultation with the MNRF may also provide species-specific mitigation, if required.

1.2.13.4 Fisheries Self-Assessments

As a result of changes to the Department of Fisheries and Oceans Canada (DFO) "Fisheries Act" in 2013, the "Fisheries Act" is now proponent based and any in-water works will require self-assessment. From the self-assessment process, the proposed in-water works are weighed against criteria set out by the DFO. By using this criterion, it can be determined if works cannot avoid serious harm to fish and/or are not included in the criteria listed on the DFO's website. If necessary, a "Request for Review" will be submitted to DFO and, if required, permits will be obtained from the DFO. Any opportunity for improvement to watercourses should be considered.