

# Chapter 7 – Implementation



**407 TRANSITWAY - KENNEDY ROAD TO BROCK ROAD**

**MINISTRY OF TRANSPORTATION - CENTRAL REGION**

## 7. IMPLEMENTATION

### 7.1. Project Activities

Implementation of each phase of the 407 Transitway project will encompass three distinct steps: Pre-construction (including design); Construction; and Operation and Maintenance. A description of each phase and the activities associated with them are discussed and listed below:

Implementation for each stage outlined in the following subsections will be revised and confirmed during the Detail Design stage in consultation with the other transit agencies.

#### 7.1.1. Pre-Construction

This phase includes the Detail Designs, and preparation of contract drawings and specifications. It is noted that design and construction may be procured as one contract. Although this TPAP includes the EA as well as the conceptual, functional and preliminary design of the preferred alternative, it was developed based on forecast growth projections. These parameters, as well as any environmental, and design guidelines/standards variation will be reviewed, confirmed or revised when necessary as part of the Detail Design of the facilities. Aspects to be addressed and resolved during the design stage include but are not limited to:

- Review of commitments stated in the EPR and development of a plan to meet the commitments;
- Further consultation with applicable stakeholders as described and details in Chapter 9;
- Review updated regulations, design guidelines and standards and revise the preliminary design accordingly;
- Potential funding sources for construction of the project;
- Update traffic impact analysis in area of influence;
- Detailed archaeological and excess soil contamination investigations, as required;
- Property acquisition;
- Runningway Detail Design;
- Detailed cut and fill requirements;
- Utility relocation strategy and design;
- Station design including passenger amenities;
- Station access design
- Structural design;
- Drainage design (including agricultural tile drainage);
- Illumination design;
- Landscaping materials and design;
- Public art and heritage element design;
- ITS design;
- Phasing requirements for infrastructure implementation;
- Staging of the infrastructure construction;
- Vehicle types and operational service plans;
- Obtaining MTO and 407 ETR approvals for runningway design and any interchange modifications;

- Obtaining environmental approvals/permits/exemptions, as required;
- Coordination with local transit agencies and passenger transfer strategies and facility designs;
- Fare collection strategies; and,
- Pavement design for running ways and roadways.

Other related pre-construction activities include:

- Site surveying (including field investigation regarding avian field species such as Bobolink and Eastern Meadowlark) as required;
- Obtaining approvals for construction access and working areas;
- Geotechnical investigations including drilling of boreholes to determine existing soil and groundwater conditions;
- Advance utility relocation or burying contracts;
- Coordination with other projects in the vicinity of the corridor; and,
- Agency permits/approvals where required.

#### 7.1.2. Construction

Physical construction activities will include:

- Installation of traffic accommodation measures as required by staging plan;
- Clearing and grubbing of trees and vegetation within the grading limits for construction of the project;
- Stripping of topsoil within the grading limits;
- Excavation of runningway, station and access road surface;
- Trenching and installing new or relocated above and below grade utility infrastructure;
- Removing existing asphalt and disposing at approved facility;
- Removing redundant structures and disposing of debris;
- Installing SWM system components;
- Preparing Transitway and Station access road bed including cutting and filling and laying granular;
- Potentially salvaging existing granular/asphalt for reuse;
- Placing concrete or erecting fabricated steel or precast elements for bridges or culverts;
- Placing concrete for curb, barriers, retaining walls, planters and sidewalks;
- Constructing station buildings and ancillary facilities;
- Constructing storage and maintenance facility buildings and support facilities;
- Fabricating and erecting station elements including amenities;
- Laying granular and application of hot mix asphalt;
- Installing lighting, ITS equipment and traffic signals;
- Final site grading and topsoil application;
- Runningway and parking lot line painting;
- Installing landscaping features such as sod, shrubs, trees, paving stones, irrigation systems, station amenities and platform furniture;
- Installing corridor landscape features and replacement vegetation;
- Managing excess soil will be done in accordance with the MOECC's current guidance document titled "Management of Excess Soil – A Guide for Best Management Practices" (2014); and,

- Maintaining Rouge Urban National Park trail and other multi use path access through construction areas as much as possible.

Throughout the construction stage, various associated activities, such as noise and air quality control and excess soil disposal, which can have potentially adverse environmental effects will be mitigated, as outlined in **Chapter 6**.

There will be opportunities to stage the sequence of activities during the construction phase. Adequate construction staging will be crucial to maintain the best possible level of service during construction, including providing adequate traffic management; maintaining safe pedestrian and cycling routing; maintaining access to all properties; and, maintaining city/town and utility services such as water, sewer and hydro; etc.

Although specific plans to stage the project will not be determined until the Detail Design phase, an outline of recommended staging methods aiming to reduce negative impacts during construction is provided below.

#### **Arterial and 407 ETR Highway Ramp Traffic Management during Construction**

The construction of underpasses along the entire route of the 407 Transitway will have an effect on general purpose traffic on several regional arterial roads and directional ramps between these roads and the 407 ETR. The construction staging sequence for the arterial road underpasses will aim to provide two traffic lanes per direction on the arterial road in the peak direction and one in the off-peak. Temporary detours of the existing 407 ETR ramps, determined in consultation with 407 ETR and the Regional Municipalities, will be constructed where the ramps are being affected by the underpasses. A recommended typical construction sequence of an interchange crossing is illustrated in **Figures 7.1 to 7.3** which can be found at the end of the chapter. A detailed staging plan and temporary traffic management plan for each interchange crossing will be developed during the Detail Design stage.

#### **Emergency Response Plan**

The preparation of an Emergency Response Plan to be used by the Contractor, will be included to allow full emergency services access during the construction period, such that, at all times, there is a method to access all residential, commercial and other land uses in the event of an emergency. Additionally, the Emergency Response Plan will include provisions for providing temporary services to end users in the event of a construction related service outage or other service disruption. A spills response and reporting plan will be prepared and adhered to by the contractor. Spills or discharges of pollutants or contaminants will be reported immediately to the MOECC's Spills Action Centre, the municipality in which the spill occurred, and to the person in control of the substance if known and who is not already aware of the spill. Clean up will be initiated quickly to ensure protection of the environment.

#### **Management of Contaminated Materials**

During the Detail Design stage, studies will be completed to determine any potential for the project to interact with contaminated soil or groundwater. Where the potential is confirmed, a plan to remediate the environment to the applicable standards will be prepared. The MOECC would be notified immediately upon discovery of any contaminated material encountered within the construction area. If contaminated materials or contaminated groundwater are encountered within the construction limits, these will be removed and

disposed of in accordance with all applicable acts and regulations. Treatment and discharge of contaminated groundwater are also to be in accordance with applicable legislation and regulations.

#### **Construction Excess Materials Management Plan**

During construction there will be some excess materials requiring disposal off the site of the project. These could include concrete rubble, asphalt, earth and road ROW appurtenances such as signs and lighting and utility poles. During the Detail Design stage an Excess Materials 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.

#### **Geotechnical Investigations**

During the Detail Design, final, comprehensive geotechnical investigations will be required to confirm groundwater and subsurface geotechnical conditions and potential impacts that will be considered in developing the Detail Design of the project.

#### **Archaeological Assessment and Monitoring**

From an assessment of the existing conditions, areas having archaeological potential have been identified. Accordingly, it is recommended that a Stage 2 Archaeological Assessment be conducted by a licensed archaeologist, prior to construction. A number of archaeological sites have been identified that require Stage 3 Site Specific Assessment and Stage 4 Mitigation of Impacts during Detail Design. The 407 Transitway will be cleared of all archaeological concerns prior to construction. During actual construction, it may be necessary to monitor deep excavations, by a licensed archaeologist. If during the course of construction, archaeological resources are discovered, the site will be protected from further disturbance until a licensed archaeologist has completed the investigation, implementing any necessary mitigation measures.

#### **Stormwater Management Strategy**

The post-development SWM strategy includes the design of several enhanced swales and dry ponds, as a part of a treatment train approach as discussed in **Section 5.4** to provide quality and quantity treatment of runoff generated by the Transitway sub-areas where drainage areas are less than 5 ha. In addition, five SWM ponds have been designed for all proposed station sites where the drainage area was greater than 5 ha (details included in **Chapter 5 of Appendix C**). All ponds were designed for quantity, quality and erosion control providing Level 1 protection at the outlet.

#### **Erosion and Sediment Control Plan**

In advance of the Construction Stage, a detailed plan will be prepared to manage erosion and the flow of sediment into watercourses, wetlands and storm sewers. This plan will be based on the Environmental Guide for Erosion and Sediment Control during Construction of Highway Projects (MTO 2007) and the Erosion and Sediment Control Guideline for Urban Construction (GGHA Conservation Authorities 2006). Best management practices will be identified and implemented based on Ontario Provincial Standard Specifications (OPSSs) and standard industry practice. Provision for inspection of erosion and sediment control measures during

construction will be identified in permit approvals and will follow the Construction Administration and Inspection Task Manual (MTO 2007) as a minimum.

### Landscape Design Plan

During the Detail Design stage, and building on the concepts outlined in this report, a detailed Landscape Design Plan will be prepared to guide the species selection, location and planting details for all proposed plantings along the runningway and at stations, where applicable. The plan will be prepared by a professional landscape architect with experience in plantings along arterial highways and public areas such as the station precincts, in coordination with Parks Canada. Consultation with local municipalities and affected agencies will be undertaken during development of the plan.

### Lighting Treatment Design Plan

A Lighting Treatment Design Plan in accordance with local and regional municipal standards will be prepared prior to the initiation of construction. The Lighting Treatment Plan will include lighting fixtures and illumination at stations and along the various sections of the corridor. A lighting audit of the preferred lighting design plan will be conducted to ensure clear sight lines and appropriate illumination.

### 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 activity. Residents and other stakeholders will be made 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 detail how to communicate the information to the public, what information should be disseminated, contact information and at what project stages the communications will take place.

### 7.1.3. Operations and Maintenance

Once construction is complete, operation and monitoring of 407 Transitway revenue service will be initiated. Activities during this stage will include:

- Testing and commissioning of vehicles, fixed facilities and ITS;
- Training of operators and transit support personnel;
- Public relations and communications prior to and during revenue service;
- Monitoring traffic and transit ridership volumes to determine the potential for future enhancements;
- Accident/incident investigations to analyze and improve safety conditions;
- Monitoring of ITS equipment performance;
- Monitoring access road traffic signals timing; and,
- Landscape health.

Routine maintenance activities include:

- Spring sweeping of runningway, access roads, parking lots, sidewalk and boulevards;
- Snow and ice removal in the winter;

- Landscape maintenance including grass cutting, shrub and tree pruning in the summer;
- Replacement of any landscaped material;
- Stormwater pond maintenance, and,
- On-going scheduled vehicle, runningway, station and ITS maintenance.

## 7.2. Project Implementation Strategy

### 7.2.1. Potential Staged Implementation

The 407 Transitway is a Provincial transit initiative. The MTO continues to be responsible for the planning, design, environmental approvals and property protection for this project. Implementation of early Transitway station sites at Trafalgar Road in the Town of Oakville and Hurontario Street in the City of Brampton were carried out by Metrolinx in cooperation with the MTO in support of the existing GO 407 Express Bus Service. It is likely this process will continue for the staged implementation and operation of the 407 Transitway into the future including the Kennedy Road to Brock Road section. Key stations may be added over time with buses operating on the 407 ETR. The Big Move, Regional Transportation Plan has identified the Kennedy Road to Brock Road segment of the Transitway in Phase Three of its investment plan to be completed after 2033. Beyond this decision a specific implementation date has not been identified. A decision on the delivery mechanism will be made in the future.

In establishing the objectives for phased implementation of the Transitway, the current availability of the 407 ETR to Metrolinx services is assumed as a baseline phase. Phasing strategies assessed are based on a combination of part or parts of the existing 407 ETR service. From this starting point, the following objectives were adopted in defining candidate phasing strategies:

- Each phase implemented should not result in a significant increase in travel time through the East Section. Preferably, segment lengths should yield a travel time saving greater than the time penalty to divert from and to, the 407 ETR and phase limits selected must minimize the time to transfer from 407 ETR lanes to the new Transitway;
- Ideally, the sequence of implementation should correspond to the likely distribution of traffic congestion in the 407 ETR lanes;
- Phase sequencing should be responsive to the zones with highest ridership potential to maximize benefits and exposure of dedicated Transitway service. Ideally, segment phasing should respond to the timing of adjacent developments (particularly UGCs) and provide access to the Transitway by all modes (local transit, park and ride, pick up and drop off, walk-in);
- Phase sequence should be responsive to bus interlining opportunities;
- Phase costs should result in a contract cash flow that MTO (or the funding agency) can accommodate in annual budgeting; and,
- Construction staging associated traffic diversion and delays that arterial road users will tolerate.

With a view to meeting the above objectives, potential Phasing Strategies being investigated include:

- A Baseline Strategy – Cross-regional Rapid Transit Service on the 407 ETR in mixed traffic;
- An Enhanced Baseline Strategy – Cross-regional Rapid Transit Service on 407 ETR with enhanced access to and/or additional off-line stops; and,

- Bus Transit Service on newly-constructed 407 Transitway in specific segments, combined with service still operating on the 407 ETR.

Acceptance of this TPAP will enable the MTO, or the proponent at the time, to pursue any one or more of the above strategies, or variations of them, within the limits of this TPAP.

#### **Potential Conversion to Light Rail Transit**

Based on demand forecasts, implementation flexibility, bus interlining opportunities, operation and maintenance concerns, and cost, among other reasons, the 407 Transitway will initially be built in an exclusive, fully grade separated two lane road and operated with buses. However, this preliminary design of the runningway alignment has been developed to accommodate conversion to LRT technology; the road bed will need to be replaced by track bed, and special track works (e.g.: track crossovers; pocket tracks) and associated electrical light rail system elements will be installed.

Should it be decided to convert the 407 Transitway to LRT operation, the Transit Regulation will apply following consultation with MOECC.

#### **7.2.2. Cost Estimate**

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Due to multiple possible variations of a staged implementation plan, and the uncertainty of construction timing, capital cost of the proposed complete 407 Transitway facility at the time of initiating operation is not possible to estimate; however, an average cost of \$30 to \$40 million per kilometer of runningway and an average of \$40 to \$50 million per station facility (2016 dollars) can be used for information purposes