

Major Mackenzie Drive from Woodbine Avenue to Markham Bypass

LEA provided engineering services associated with the Class Environmental Assessment for the widening of 10 km Major Mackenzie Drive from Woodbine Avenue to the Markham Bypass for the Regional Municipality of York.

The assignment includes the Detailed Design of two separate contracts for Major Mackenzie Drive from Woodbine Avenue to Major Mackenzie Drive from Woodbine Avenue to Kennedy Road and from Kennedy Road to the Markham Bypass including all intermediate intersections and the intersections at each end of the Regional Road. Design includes the new alignment of Major Mackenzie Drive east of Highway 48 to correct existing reversed curve. The electrical design work for the traffic control signal installation on Major Mackenzie Drive (YR 25) includes modification to existing signals at Woodbine Avenue, Warden Avenue, Kennedy Road, McCowan Road and Markham Road and the design of partial illumination for the signalized intersections.

The study is being undertaken in accordance with the requirements of the Class Environment Assessment for Municipal Road Projects, Schedule "C" category. It will address the emerging transportation needs in this corridor required to meet future growth objectives and to reduce the effects of future travel demands on existing communities and the environment. Major Mackenzie Drive will function ultimately as a primary 4-lane rural east/west arterial with a basic 36 metre right-of-way.



Major Mackenzie Drive, rural settings.

The EA process includes submissions to the Town of Markham, MTRCA, MNR and other external agencies. The EA also includes collecting inventories and carrying the detailed analysis of transportation needs, hydrology/hydraulic, fish and wildlife habitat, noise impact, vegetation and wildlife, wetlands and wetland functions, archaeology/heritage, stormwater quantity and quality, property and utilities, groundwater (effects on wells and tile beds), agricultural lands, economic effects, and soils investigation.

Alternative solutions and alternative designs were generated for Major Mackenzie Drive considering the impacts to the existing features such as the Rouge River crossings, woodlots, wetlands, agricultural lands, historical properties, the existing residential, commercial and agricultural properties, and the natural environment. The roadway geometry will be based on the current design speed as per regional requirements and will

consider the widening of the existing platform with minimum impacts to adjacent properties and will respect utility constraints particular to this project.

PROJECT SUMMARY

Client:
Regional Municipality of York

Location:
Town of Markham

Services Provided:
**Environmental Assessment,
Preliminary Design and
Detail Design**

Cost:
\$ 10 Million

Date of Completion:
2000



Consideration will be given to local urbanizing of the cross-section to reduce adverse impacts. Development of alternatives will also consider the location of the widening about the centreline of the road. These considerations will be factored in to the planning process.



Major Mackenzie Drive rolling topography.

Public consultation program includes three public consultation sessions - workshop format, two kitchen table sessions with local groups, and other meetings to satisfy requirements for a Class "C", Environmental Assessment project. Public consultation sessions include the use of a facilitator and senior personnel from LEA to lead the smaller study groups proposed at these public consultation centres.

The ESR will be completed as part of this assignment documenting the alternatives evaluation and selection process, the methods employed, the assumptions made and the findings, design criteria, cost estimates and outstanding issues to be carried into detail design. The report will include the public and external participation issues, environmental effects and mitigation measures associated with the selected design. Upon completion of the filing of the ESR the Preliminary Design will be carried out including the preparation of the horizontal and vertical geometry, typical sections, staging concepts, and identification of utility conflicts and property requirements.

Once the Major Mackenzie Drive widening requirements are identified, then all intersections will be reviewed to determine the best fit within the roadway constraints and the optimum layout will be selected considering the traffic flows and site specific constraints. The Detail Design includes electrical, structural, grading and drainage and tender documents ready for construction. Structural component includes widening of a single 25.3 m span precast concrete girder bridge at Major Mackenzie over Bruce Creek and widening of culverts to accommodate a future four-lane cross-section. The bridge widening designs will be developed by LEA.

The York Regional Official Plan and the Ten Year Road Reconstruction Program (1998-2007) recommends the widening of Major Mackenzie Drive from Woodbine Avenue to Kennedy Road in 2002 and from Kennedy Road to New Markham Bypass in 2003. Close coordination by LEA of all associated disciplines is required to achieve objectives of this plan and schedule.



Bridge site at Major Mackenzie Drive over Bruce Creek.