

Highway 401 Widening to Express/Collector System From Whites Road to Brock Road

Highway 401 Express Lanes Widening From Brock Road to Westney Road

LEA Consulting Ltd. was retained to prepare the final design of the Express/Collector system for Highway 401 from east of Whites Road to Westney Road, in the Town of Pickering - a total length of some 4 kms.

The Highway 401 widening which was carried out within this work project consists essentially of widening from the existing basic six-lane configuration to a twelve lane express collector configuration, with additional auxiliary lanes, from east of the Whites Road interchange to east of the Brock Road interchange. In addition, configuration of the existing six east and westbound lanes to form the new express lanes within the same limits was required. Rehabilitation of these lanes was included in this work. Between Brock Road interchange and Westney Road Highway 401 was widened to provide for 4 continuous traffic lanes in the eastbound direction.

Significant aspect of the project involved construction staging and generating a safe detour system, that would handle the increased traffic demands in this section of the freeway. A detailed contract staging plan was developed to construct the necessary structures and roadwork to allow interim openings of the express/collector system prior to the completion of the entire roadway. This required a study of the most practical and economical ways of constructing the project in stages, and then



developing a detour system that would maintain 3 through lanes in each direction using existing pavement wherever possible, to handle traffic at operating speeds of 100 kph.

Aside from the design of the new pavement, the project included:

- the new stormwater drainage system(s) required in conjunction with the ultimate highway facility, the appropriate stormwater management analysis and the implementation of an acceptable, appropriate overall stormwater management strategy. This included the design of pond, provision of enhanced grassed swales and other mitigating measures,
- design and incorporation of the structural design for drainage structures, retaining walls, culvert extensions identified during the course of the study,

- an appropriate landscaping strategy, plan, and detail design was carried out for the section of Highway 401 within the project limits.

PROJECT SUMMARY

Client:

**Ministry of Transportation,
Ontario**

Location:

**Town of Pickering, Ontario,
Canada**

Services Provided:

Final Design

Completion Date:

1994-1995



Antiglare screens were incorporated on top of retaining walls and traffic barriers to provide for highway traffic protection from the opposing GO-Transit traffic which parallels Highway 401.

The project involved the coordination and integration of structural, electrical, freeway

traffic-management system, signing, into the detail design package, which was incorporated into contract documentation package.

The major part of the project was carried out using CADD. All topographical data was scanned and vectorized to create a digital

base map. The work was designed using in-house Softdesk engineering modules, and MTO's design system which also facilitated the calculation of quantities.

