

1992, CHAMPLAIN BRIDGE ONE DIRECTIONAL FLOW IMPACT ASSESSMENT

Executive Summary:

This traffic operational and planning study provides an assessment of a proposal submitted to the National Capital Commission (NCC) by the City of Aylmer involving the Champlain Bridge. The proposed traffic operational strategy would have both of the two lanes of the Champlain Bridge operate in the same (peak flow) direction during the morning and afternoon peak periods. Thus, both lanes of the Champlain Bridge would accommodate southbound traffic from Quebec to Ontario during the morning peak period, and northbound traffic from Ontario to Quebec during the afternoon peak period.

The implementation of this strategy would require operational changes, modifications to the bridge approaches, and modifications to other roadways and intersections effected by the proposal.

To determine the extent of the impact associated with one-directional operation of the Champlain Bridge;

The current (1991) and future (1996) traffic patterns both with and without, one directional operation of the Champlain Bridge were assessed in the context of existing, diverted and projected traffic volumes on the Portage, Chaudiere, and Champlain Bridges.

The impacts of the traffic volumes and patterns associated with the proposal on the transportation facilities within the study area were determined and an assessment of available travel time information was undertaken.

The impact of High Occupancy Vehicle (HOV) lanes on the Portage Bridge and the potential for HOV lanes on Tache Boulevard were determined.

Modifications required to implement the strategy were identified. These took the form of both road and intersection modifications and the introduction of traffic management measures and devices. As well, estimated capital and maintenance costs associated with the implementation of the proposal were determined, a proposed staging schedule for the required modifications was established and an initial environmental screening (Screening I) of the impacts was undertaken. The following presents a summary of the findings from the traffic operational assessment.

Travel Time

The travel time benefits associated with the peak-flow direction of travel under one directional operation of the Champlain Bridge are estimated to be offset by the additional travel time delays associated with the diverted traffic and the delays associated with the deterioration in the level of service at various intersections which are anticipated to experience an impact from the traffic diversion.

High Occupancy Vehicle Lanes

The impact of full compliance with the high occupancy vehicle lane regulations on the Portage Bridge when combined with the additional traffic travelling in the counter-peak direction

associated with one directional operation of the Champlain Bridge will result in congested conditions for the intersections of Laurier Boulevard and Maisonneuve Boulevard.

An intersection capacity analysis which assumed the presence of HOV lanes on Highway 18 (Tache Boulevard) in the vicinity of Place Samuel-de-Champlain indicated unsatisfactory levels of service for the critical non-HOV traffic movements assuming one directional operation of the Champlain Bridge in 1996. However, HOV lanes cannot be introduced between Montcalm Street and St-Dominique Street as Tache Boulevard is only a two lane facility.

Requirements for One Directional Operation of the Champlain Bridge

To provide for safe and efficient operation of the Champlain Bridge in one direction during the morning and afternoon peak periods and different directions during off-peak hours, the approaches to the Champlain Bridge will require modification. These approaches include the intersections of Place Samuel-de-Champlain/Highway 148 (Tache Boulevard), Lucerne-Brunet Boulevard/Place Samuel-de-Champlain and Ottawa River Parkway and Island Park Drive. The proposed operational modifications would include the following measures:

-Ottawa River Parkway and Island Park Drive South Approach

- realign the westbound right turn ramp connecting the Ottawa River Parkway with the Champlain Bridge.

- add a northbound through lane by modifying the median on Island Park Drive on the Champlain Bridge approach.

- install overhead changeable message signs coordinated with the traffic signals and traffic gates.

-Lucerne Boulevard and Place Samuel-de-Champlain Approach

- widen the Southbound approach, construct a channelization island in the North-west corner of the intersection, and construct medians on Lucerne Boulevard and Brunet Boulevard.

- install traffic signals.

- install overhead changeable message signs, overhead lane direction signals and traffic gates coordinated with traffic signals

-Highway 148 (Tache Boulevard) and Place Samuel-de-Champlain

- Modify the pavement markings south of the intersection to provide two lanes of traffic in southerly direction.

As well, overhead changeable message signs and traffic gates will be required on the Champlain Bridge itself. The traffic gates will operate in the vicinity of Bate Island restricting access to right-in and right-out traffic on the west side during morning peak period and on the east side during the afternoon peak period.

The (class 'D') costs of these modifications required for one directional operation of the Champlain approaches have been estimated to be approximately \$ 1,200,000.

Other Requirements Associated With one Directional Operation

One directional operation of the Champlain Bridge would result in a deterioration, or further aggravation, of the traffic conditions at the intersections on the approaches to the Chaudiere Bridge and the Portage Bridge as well as along Tache Boulevard between St. Dominique Street and Montcalm Street.

The intersection capacity analysis indicated that the intersections on the bridge approaches which include Booth Street/Albert Street, Ottawa River Parkway/Portage Bridge and Eddy Street/Tache Boulevard would have insufficient capacity assuming the existing intersection geometry to be in place.

Several modifications were identified as being necessary prior to, and as a consequence of, the implementation of one directional operation of the Champlain Bridge. These modifications include:

- widen Albert Street and Booth Street, in the vicinity of the Albert Street/Booth Street intersection.

- widen Tache Boulevard from St-Dominique Street to Montcalm Street.

- create a westbound through lane and westbound right turn lane within the existing paved area and provide related traffic signals at the Ottawa River Parkway/Portage Bridge intersection.

The (Class 'D') costs of the modifications recommended to be in place prior to the implementation of one directional operation of the Champlain Bridge have been estimated to be approximately \$ 2,800,000 assuming a 4 lane urban arterial configuration on Tache Boulevard.

Subsequent to implementation and prior to 1996, additional modifications will be required which include improving the intersection design at Island Park Drive and Richmond Road and installing traffic signals at Coallier Street and Tache Boulevard.

The study also identified the intersections Lyon Street/Wellington Street and Bay Street/Wellington Street as operating at or near their capacity, during the morning and afternoon peak hours. This situation is not directly attributed to traffic volumes resulting from one directional operation of the Champlain Bridge but will, in any event, require improvement.

The (class 'D') costs of these supplemental modifications has been estimated to be approximately \$ 300,000.

Environmental Screening

It is proposed that this project involving one directional operation of the Champlain Bridge be referred to an initial Environmental Assessment and Review Process. It is anticipated that controversy could develop from the proposed implementation of this project, focused on both environmental issues as well as public concerns.

City of Aylmer Concerns

When the analysis described in this report was completed and a documented draft report (which was presented to the Joint Administrative Committee on Planning and Transportation), the City of Aylmer requested a response to a number of concerns about the findings. The responses to these concerns were provided to the Steering committee in a Technical Memorandum which was reviewed and adopted. The Technical Memorandum is provided in an appendix to this report.