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TO/DEST. The Chair and Members of Council

FROM/EXP. Director Mobility Services and Corporate Fleet Services
Environment and Transportation Department

SUBJECT/OBJET **TRANSIT PRIORITY TASK FORCE PROGRESS REPORT**

<u>Information Previously Distributed</u> To be Listed on the Transportation Committee Agenda 18 Mar 98

BACKGROUND

The Transit Priority Task Force, established in 1991, is a joint OC Transpo/RMOC staff team responsible for the identification, development and implementation of transit priority measures in Ottawa-Carleton.

With the approval last summer of the Region's Official Plan, and the Transportation Master Plan (TMP), transit priority measures have been identified as one of the key elements to achieve the aggressive targets which are the cornerstone of the Regional Official Plan transportation strategy. The Official Plan's Schedule E identifies a preliminary list of transit priority corridors for the period to the year 2021. The Transportation Master Plan calls for the development of a rolling five-year transit priority programme. It also identifies that, within a capital investment plan that proposes 50% of transportation infrastructure spending to be transit related, at least \$60 million should be earmarked for transit priority measures over the life of the plan.

The five-year programme is now under development. This is being done through a careful analysis of the current situation in terms of the operational difficulties experienced by transit in the corridors identified in the Transportation Master Plan, and a review of the possible measures available to mitigate the worst problems.

This report outlines some of the recent achievements of the Transit Priority Task Force to date and discusses future opportunities for increasing the impact of the programme.

RESERVED BUS LANES

- a) In 1997, the major part of the eastbound Queensway bus shoulder lanes between Blair and Place d'Orleans Transitway stations was constructed. This will be opened in the spring 1998, and will complete the rapid transit link between Place d'Orleans and the Central Area. The westbound lane was introduced in 1991.

The Transit Priority Task Force was also instrumental in the implementation of shoulder bus lanes on Highway 417 between the Eagleson Park and Ride lot and Moodie Drive. The shoulder lanes have been successful in reducing both the travel time and its variability on the Queensway and have made the Park and Ride lots at Orleans and Eagleson very popular. Orleans is frequently filled to capacity and Eagleson, which was opened with 460 spaces in 1995 and expanded to 720 in 1996, now regularly accommodates close to 500 vehicles.

All that remains now for the completion of the linkage between Kanata and the Transitway system is the construction of the West Transitway between Acres Road and Woodroffe Avenue, which is identified as the highest priority project in the recently adopted Official Plan.

- b) Nineteen ninety-seven also saw the introduction of a bus queue-jump lane on Woodroffe Avenue between Meadowlands Drive and the CNR line. This was designed to give northbound buses an advantage in this very congested section of Woodroffe Avenue prior to the introduction of the Southwest Transitway extension. It was opened in early November and is providing relief from congestion to the 1500 bus passengers per hour in this corridor.

TRAFFIC SIGNALS

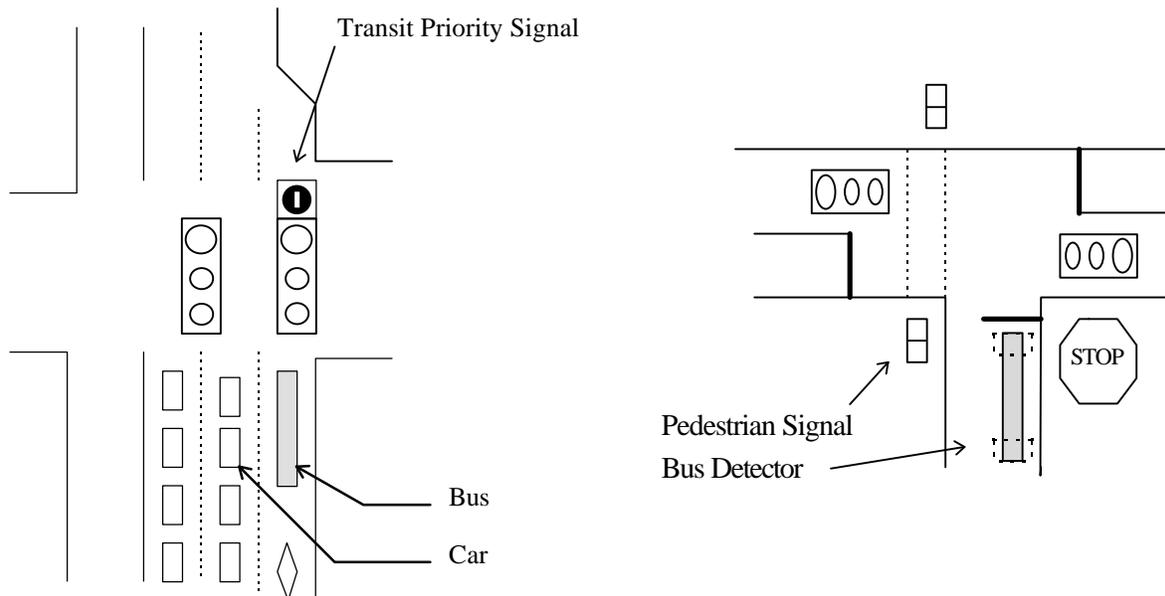
- a) A number of techniques are being used to give buses priority at traffic signals. Some are not very obvious to the casual observer; however, they are an important element of the overall transit priority strategy since the benefits accumulate over transit routes which pass through many traffic signals.

A long list of signal transit priority measures has been implemented in the last two years. These are detailed in Appendix A. Though the effect of each is relatively small, the cumulative effect is highly beneficial for transit in terms of reduced variation in travel times and improved speed.

- b) As the result of the RMOC's and other municipalities' request, the Ministry of Transportation has approved the use of the Transit Priority Signal Indication (TPSI) (white vertical bar) and the Intersection Pedestrian Signal. The Transit Priority Signal (Figure 1) allows the assignment of exclusive right-of-way to public transit vehicles over all other movements within the intersection and may be used in conjunction with a bus lane to enable buses to bypass queues of vehicles stopped at a traffic signal. The Intersection Pedestrian Signal or Half Signal (Figure 2) provides safe crossing to pedestrians and if connected to a bus detector, it can also reduce transit delay.

Figure 1: Transit Priority Signal

Figure 2: Pedestrian Intersection Signal with Bus Actuation



Although, some of the currently used signal controllers provide certain transit priority functions, there are technical and economical difficulties with their wide-spread application. Work is being conducted to integrate the TPSI and other transit priority functions with the Region's traffic control system.

A reliable selective bus detection is essential for the application of most signal priority measures. The Traffic Operations Branch has been testing and evaluating five different bus detectors.

TRANSIT PERFORMANCE MONITORING, ANALYSIS AND EVALUATION

Accurate and continuously collected performance indicators (travel times, variability of travel time, passenger volumes, delays) are essential for the development of an effective and efficient transit priority programme. OC Transpo's Automatic Passenger Counting (APC) System is being upgraded to facilitate systematic monitoring of transit travel times and delays on all transit priority corridors. The transit priority network identified by the TMP has been divided into 35 subsections for the analysis of express bus routes and into 50 subsections for the analysis of regular routes. A ranking procedure for identifying sections of corridors with the poorest performance indicators has been developed. This information will help to select sections for improvement and it will also allow the comparison of performance indicators (speed, variability) between years. Without the upgraded APC System, the above described data collection and analysis would be prohibitively labour intensive.

Established traffic engineering analysis techniques have limited value in the analysis and evaluation of specific transit priority measures. Following the principles defined in the Transportation Master Plan, new analysis procedures, simulation models and evaluation tools have been developed to investigate the likely effects of various transit priority strategies.

PROGRAMME FOR 1998

Traffic Signals

The following locations will be analysed for bus signal pre-emption and/or advanced detection:

- Cahill Drive and Hunt Club Road
- Highway 17 eastbound off-ramp and Montreal Road
- Highway 17 westbound off-ramp and Montreal Road
- West Transitway and Booth Street

The new tools which have become available in 1997 will be exploited to benefit transit. The following locations are being studied for the installation of Transit Priority Signal Indications:

- Bayshore Drive and Richmond Road
- Carling Avenue and Preston Street
- Carling Avenue and Parkdale Avenue
- Carling Avenue and Champagne Avenue
- Carling Avenue and Irving Avenue

The following locations are being studied for the installation of Intersection Pedestrian Signals with bus actuation:

- Baseline Road and Erindale Drive
- Bank Street and Grove Avenue
- Ogilvie Road and Jasmine Crescent
- Hunt Club Road and Esson Street
- Richmond Road and DuMaurier Avenue
- Pinecrest Road and Kelly Avenue

Queue Jump Bus Lanes

The following locations are being studied for the application of potential queue jump bus lanes:

- Woodroffe Avenue northbound between Majestic Drive and Knoxdale Road
- Woodroffe Avenue northbound between Earl Mulligan and Fallowfield Road
- Albert Street westbound between Empress Avenue and Booth Street

Promotion

A key element of Ottawa-Carleton's transit priority programme will be a public awareness program. To translate the aspirations of the Official Plan into reality, strong support will be needed from residents and elected representatives to implement measures which will, in some cases, disadvantage cars.

As well, legislation has been passed by the Province of Ontario giving buses priority when leaving bus bays. The regulations have yet to be written to make this a reality but it is expected that this will happen soon. When it does, it will present an excellent opportunity to draw the attention of the public to transit priority.

Performance Monitoring

The first version of the modified APC System data retrieval software will be tested. Current transit data processing and analysis procedures will be enhanced and new software will be developed to streamline the process. The definition of the priority network subsections (35 + 50) will be re-evaluated, assumptions will be validated and the APC data analysis results will be compared with field observations. At the end of 1998 we will have a developed procedure capable of (i) providing reliable performance indicators (speed, variability of travel time, passenger volumes) for each subsection, and (ii) comparing these values from different booking periods. Also, the upgraded APC report formats will allow electronic data transfer from OC Transpo to RMOC.

Experience Elsewhere

The Task Force has been investigating Transit Priority initiatives and measures in Vancouver, Toronto, Edmonton, Quebec City, Portland (Oregon) and London (England) and will continue to keep abreast of work elsewhere that may have application in Ottawa-Carleton.

*Approved by
Doug Brousseau*

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SIGNAL PRIORITY MEASURES

The following list contains intersections where transit priority measures have been applied during the last two years:

New Signal Installation at:

- Highway 417 eastbound off-ramp and Moodie Drive. New traffic signals on the Ministry of Transportation's right-of-way can be installed only if specified warrants are satisfied. These warrants do not include vehicle delay explicitly. To procure MTO's approval, a number of studies have been carried out, a simulation model has been developed and a joint MTO, OC Transpo and RMOC site visit has been organised.
- Baseline Road at Queensway Carleton Hospital

Additional left-turn phase for buses at:

- Hunt Club Road and Cleopatra Drive

Protected left turn phase actuated only by buses at:

- Rideau Street and Dalhousie Street
- King Edward Avenue and Laurier Avenue

Modified signal operation to reduce delay to buses at:

- Place d'Orleans and Highway 17 eastbound off-ramp
- Carling Avenue and Lincoln Fields Bus Terminal
- Highway 417 westbound off-ramp and Woodroffe Avenue
- Woodroffe Avenue and Baseline Bus Terminal
- Riverside Drive and Transitway

Providing transit priority measures at a number of analysed locations was not feasible. The following list includes these locations:

- Walkley Station and Walkley Road
- Richmond Road & Nanaimo Drive
- Bank Street and Johnston Road
- Knoxdale Road/Medhurst Drive and Woodroffe Avenue (Southbound left-turn phase during AM peak)
- Baseline Road and Morrison Drive - possibility of future pre-emption
- Richmond Road and Stafford Centre Entrance - possibility of future pre-emption
- Terry Fox Drive and Kanata Shopping Centre - possibility of future pre-emption
- Eagleson Road - Park & Ride bus only lane study
- Woodroffe Avenue and Medhurst Drive - AM peak
- Eagleson Park & Ride - advanced bus detection
- Mackenzie King Bridge and Transitway
- Rideau Street and Cumberland Street
- Place d'Orleans and North Entrance to Shopping Centre

- Rideau Street and William Street Mall - transit priority signal
- Lyon Street and Queen Street (transit priority signal)
- Industrial Avenue and Riverside Drive - transit priority signal
- Rideau Street and Waller Street - northbound left turn for buses
- Woodroffe Avenue and Iris Street
- Walkley Road and Baycrest Drive
- Albert Street/Empress Avenue and Transitway - evening off peak