

**MEETING DATE:** DECEMBER 15, 2004

**SUBJECT:** Bus-Only Lanes (Bus Rapid Transit), Downsview Subway Station To York University – Keele Street Corridor

### **RECOMMENDATIONS**

It is recommended that the Commission:

1. Receive this report for information, noting that:

- as requested, staff evaluated the alternative of a separate bus right-of-way in the centre of Keele Street and have confirmed that, while this alternative would provide buses with a controlled operating environment which is protected from changing traffic conditions on that roadway, it would locate this proposed premium transit service on the periphery of York University's developable lands, rather than making it an integral part of future development;
- the design for the Keele Street option discussed in this report would cost about \$6.5 million and would result in a widening of Keele Street by about three metres in the vicinity of the York Boulevard/Canarctic Drive intersection and the Murray Ross Parkway/Shell Canada intersection, and by up to five metres on the section between Murray Ross Parkway and the Petro-Canada Driveway;
- the road widenings on Keele Street could be accommodated within the existing public road right-of-way without affecting the ceremonial trees on the west side of the road, north of The Pond Road, however, the widenings would make this already-wide roadway even less pedestrian-friendly;
- the Environmental Assessment's original recommendation for a bus-only roadway through York University lands would also provide a traffic-free environment for transit, and, if established in advance of planned future development, could attract and facilitate development in this area, and would allow such future development to be located and designed compatibly with the transit-only road, which would include stops to serve such development;
- as discussed in this report, a modified design concept for a bus-only roadway on York University lands was developed in response to the university's concerns and would cost \$3.2 million-to-\$3.7 million to construct;

- overall, from the perspectives of construction cost, and the mutually-supportive relationship between higher-order transit and land development, the original EA-recommendation of a bus-only roadway on York University property is superior; and

- these comments represent the consensus view of staff of City Planning, City Transportation, and the TTC; and

2. Forward this report to York University and the City of Toronto Council.

## **FUNDING**

This report will not result in any changes to the overall cost of this project, as originally reported to, and approved by, the Commission on July 14, 2004.

## **BACKGROUND**

At its meeting of July 14, 2004, the Commission approved the staff report entitled, *Bus-Only Lanes (Bus Rapid Transit) Downsview Subway Station to York University*, and requested York University, ...”to respond to the Commission by its meeting on September 10, 2004, with approval in principle for the use of the lands; and that the Commission’s support be conditional on that approval in principle.”

At the September 22, 2004 Commission meeting, Dr. Ted Spence, of York University, presented a proposal which would entail locating the bus lanes on Keele Street, instead of the EA-recommended bus-only roadway on York University property. The Commission requested that ...”staff be requested to continue to consult with York University on the new alternative brought forward as part of their deputation.”

At the Commission meeting of October 20, 2004, staff presented a comparison of three options for bus-only lanes in the Keele Street/York University corridor:

- i) York University’s proposal for a physically-separated northbound bus lane in the middle of Keele Street, and a new curb lane on the west side of Keele Street for both southbound buses and right-turning mixed traffic;
- ii) a bus-only right-of-way in the middle of Keele Street for both northbound and southbound buses; and
- iii) the EA-recommendation of a new bus-only roadway on York University lands, west of Keele Street.

At that meeting, the Commission approved a motion to,... “*defer consideration of the options until the next meeting and request a further report on a separate bus right-of-way in the centre of Keele Street, subject to the following conditions:*

- *the expansion not taking down any trees;*
- *using land the City currently owns;*
- *the cost to the City being no more than the cost for the bus-only roadway on York University lands; and further*
- *that the property owners on the east side of Keele be consulted on this matter as well.”*

At its meeting on November 17, 2004, the Commission deferred consideration of this matter until the December 15, 2004 meeting.

This report responds to the Commission’s requests.

## **DISCUSSION**

The City of Toronto and the Toronto Transit Commission are completing an Environmental Assessment study of ways to improve the bus connection between Downsview Subway Station and York University in advance of a subway extension. After evaluating in detail a number of alternatives for each section of the bus rapid transit (BRT) facility, the study concluded that the best alternative would be separate bus-only lanes on Dufferin Street, from Downsview Station to north of Finch Avenue, a new bus-only roadway in the hydro corridor between Dufferin Street and Keele Street, and a new bus-only roadway on vacant York University lands west of Keele Street.

York University has said that it is opposed to the bus-only roadway being on their lands. As a result, the Commission requested a further evaluation of the alternative of a physically-separated bus right-of-way in the middle of Keele Street, from Murray Ross Parkway to York Boulevard/Canarctic Drive. This section of Keele Street is shown in Exhibit 1.

### **General Concept**

If a separated right-of-way were to be constructed for buses in the middle of Keele Street, it would be designed, and would operate, in a manner similar to the streetcar right-of-way on Spadina Avenue, south of Bloor Street. As shown in Exhibit 2, a curb or, where possible, a grassed median, would be provided on each side of the bus right-of-way to physically separate buses from other traffic. Buses would proceed through intersections when the signal is green for north-south traffic. Separate left-turn lanes for mixed traffic would be provided beside the bus right-of-way, and northbound and southbound left turns would be made on a separate signal phase while all other bus and traffic movements are stopped.

## **EXITING AND ENTERING THE BUS RIGHT-OF-WAY AT THE MURRAY ROSS BOULEVARD/SHELL CANADA DRIVEWAY**

As recommended in the EA study, westbound buses would exit the hydro corridor a short distance east of Keele Street and share the Shell Canada driveway to take advantage of the existing traffic signals at the Murray Ross Parkway/Shell Canada Driveway. If a separate bus right-of-way were developed in the middle of Keele Street, the Shell Canada Driveway would be widened to provide a separate right-turn lane for exiting traffic and buses. During peak traffic conditions, these buses would wait in the Shell Canada driveway until the special left turn phases were provided for southbound traffic. They would then cross the two northbound traffic lanes and enter the bus right-of-way. They could also do so during the east-west green signal phase, but would have to yield to any eastbound motorists on Murray Ross Parkway making the left-turn onto northbound Keele Street.

In the southbound direction, an advanced left-turn signal would be provided for southbound buses to turn into the Shell Canada Driveway and then access the new bus-only roadway in the hydro corridor. This phase for buses would be followed by a second left-turn phase for traffic in the adjacent southbound left-turn lanes, when required. There is not enough room for buses and general traffic -- which can include large tanker trucks -- to make the southbound left turn at the same time.

## **EXITING AND ENTERING THE BUS RIGHT-OF-WAY AT YORK BOULEVARD**

There are currently two northbound left-turn lanes for general traffic on Keele Street at York Boulevard. As shown in Exhibit 3, if a separate bus right-of-way were introduced on Keele Street, the inner left-turn lane would be reserved for buses; the outer left-turn lane would be available for general traffic. At present, traffic in both lanes can make the left-turn on a special left-turn signal phase. The analysis in this report assumes that the current operation can continue, even though buses would be making their turn from the inner left-turn lane and not the outer lane as they do today.

In the reverse direction, there would be two options for allowing eastbound buses on York Boulevard to access the bus right-of-way in the middle of the road. As shown in Exhibit 3, under the first option, the current eastbound right-turn channel would be reserved for buses. Buses would be required to wait for a gap in traffic to cross the southbound traffic lanes on Keele Street and enter the bus right-of-way or, in a worst case, wait for the northbound left-turn signal phase when southbound traffic is stopped. In this scenario, other eastbound motorists on York Boulevard, wishing to make the right turn onto Keele Street, would no longer be permitted to use the right-turn channel as they do today; they would, instead, be required to continue straight to Keele Street, and make their right turn in a conventional manner. Under the second option, eastbound traffic on York Boulevard would continue to use the right-turn channel to access the southbound lanes on Keele Street, and buses would wait in a separate curb lane on York Boulevard until the northbound left-turn signal phase allowed them protected access to the centre bus right-of-way. This would avoid the problem of buses being blocked if traffic volumes increase on Keele Street and southbound traffic queues back up from The Pond Road, on a red traffic signal, and block access from the right-turn channel to the bus right-of-way.

## **OPERATIONAL CHANGES AT TRAFFIC SIGNALS**

Northbound and southbound left-turns at the signalized intersections on this section of Keele Street could be made only on a separate left-turn phase. Left-turns could not be made on the green signal for north-south through traffic, during gaps in opposing through traffic, as they can today.

## **PHYSICAL MODIFICATIONS TO KEELE STREET**

The conceptual design that was developed by the EA Team for this section of Keele Street would entail replacing the existing grassed median, shown in Exhibit 1, with two lanes for exclusive bus use. The left-turn lanes for general traffic that are now located within the grassed median, would be relocated beside the bus right-of-way. A road widening of up to three metres would be required between The Pond Road and York Boulevard/Canarctic Drive. By widening on the east side of the road, it would be possible to avoid endangering or eliminating the ceremonial row of trees on the west side of Keele Street. However, this widening would result in several trees on the east side of Keele Street being removed and replaced.

At The Pond Road intersection, the existing grassed median is wide enough that it could be replaced with a separate bus right-of-way and left-turn lanes, with very little widening of Keele Street.

The bus right-of-way also requires a road widening of three metres at the Murray Ross Parkway/Shell Canada Driveway. North of the intersection, to the Petro-Canada driveway, the design incorporates a grassed median on each side of the bus right-of-way and this would require a road widening of up to five metres. This widening could be evenly split between the east and west sides of the road.

The public road right-of-way is sufficient to accommodate these widenings, however, they would make this already-wide roadway even less pedestrian-friendly.

The estimated cost to construct this separate bus right-of-way design in the middle of Keele Street is \$6.5 million.

This design concept was presented and discussed at a public meeting held on this issue, at the Commission's request, on November 15, 2004.

## **Public Meeting on November 15, 2004**

On November 15, Chair Moscoe and Commissioner Li Preti hosted a public meeting, with staff of the TTC and the City of Toronto, to discuss the Keele Street alternative. The meeting was attended by several representatives of York University, and four others with interests on Keele Street: one who listed his residence as on Keele Street, two representing the company currently developing the lands on the east side of Keele Street, north of The Pond Road, and the terminal manager of the Shell Canada "tank farm" opposite Murray Ross Parkway. During the discussion, the developer and the Shell Canada terminal manager advised that their preference would be for the bus right-of-way to be incorporated on Keele Street in a manner that would allow the bus lanes to be easily converted to additional traffic lanes when the subway is extended because this would improve the capacity for motorists on this section of Keele Street in the future.

## **YORK UNIVERSITY'S PROPOSED ALTERNATE DESIGN FOR KEELE STREET**

In a letter to Chair Moscoe dated November 16, 2004, York University suggested that the design be modified to reduce its cost and impact. They suggested that the northbound lanes be kept in their current location, that the amount of road widening be reduced by eliminating any wide medians, wherever possible, and that all of the widening be kept on the west side of the road, accepting that this may require the removal of the first row of ceremonial trees on the west side of Keele Street, south of York Boulevard. The University also requested that the design include a new bike path on the west side of Keele Street.

The EA Team developed a modified design concept, based on these suggestions. This design would result in a greater widening -- up to three metres -- at The Pond Road intersection and there would be a three metre widening required in the vicinity of York Boulevard. There would be a significant reduction in the amount of widening required on that section of Keele Street between the Petro-Canada driveway and Murray Ross Parkway. By incorporating a raised curb, instead of a grassed median, on either side of the bus right-of-way, the only substantial road widening on this section would be a three-metre widening for the length of the southbound left-turn lane at Murray Ross Parkway. With this reduction in the required widening, and by removing the first row of "ceremonial" trees south of York Boulevard, all of the widening could be kept to the west side of Keele Street and still remain within the public road right-of-way. The cost for this alternative would be reduced to \$5.5 million.

This alternate design was discussed with City Planning staff and they do not support removing the first row of trees on the west side of Keele Street, south of York Boulevard, given that there is sufficient right-of-way to widen on the opposite side of the road with far fewer trees affected. Also, from an urban design perspective, they recommend maintaining the grassed median on each side of the bus right-of-way, between the Petro-Canada driveway and Murray Ross Parkway.

The City staff responsible for bicycle paths would be pleased to investigate options for a bicycle path on the west side of Keele Street, but are not able to do that work in advance of the December 15, 2004 Commission meeting.

#### **Comparison with the EA-Recommendation for a Bus-Only Roadway on York University Lands, West of Keele Street**

The environmental assessment study concluded that westbound buses should exit the hydro corridor just east of Keele Street, using the Shell Canada driveway, and cross Keele Street onto Murray Ross Parkway. They would then turn onto a new bus-only roadway constructed on York University lands, between Murray Ross Parkway and York Boulevard, following the alignment of a future City roadway that is included in the current secondary plan for this area. Buses would turn west onto York Boulevard to reach the existing transit stops in the area known as "the Common". They would return via this same routing.

This proposed new bus-only roadway would be within the developable York University lands. This routing was identified in the EA as the best option based largely on urban planning principles which dictate that, for land to be developable to its highest and best uses, and for high-capacity transit to have the travel demand it needs to be viable, then that transit service must be located centrally and easily-accessibly on that land. The secondary plan for York University's developable lands calls for mixed-use development between The Pond Road and Murray Ross Parkway, and the University has said that, subject to funding availability, they plan to establish new academic and/or residence buildings between The Pond Road and York Boulevard. The proposed bus-only roadway would be designed in such a way as to be compatibly integrated with this development, with stops strategically located to provide the most convenient and central access.

Any decision to locate the bus-only lanes on Keele Street would move this significant public investment and municipal service to the periphery of the developable lands, where the service would remain outside of convenient access of new development on York's lands and adjacent to the petro-chemical tank farms on the east side of Keele Street. Buses operating on Keele Street, on the periphery of York University's property, would be of limited benefit to the development which is projected to occur on the more-westerly sections of York University's developable lands.

The fundamental issue of designing and locating the proposed new busway in a way which allows it to be fully integrated into future development on York's lands is supported by City Planning and Transportation staff.

The cost of the EA-recommended two-lane bus-only roadway on the alignment of the future collector roadway in the secondary plan for this area is \$4-to-\$4.5 million. This includes the cost of a new general-traffic roadway, parallel to the bus-only roadway, between The Pond Road and York Boulevard as York University had requested as an appropriate component in such a design alternative.

#### **AN ALTERNATE DESIGN IN RESPONSE TO YORK UNIVERSITY'S CONCERNS**

York University and City Planning staff are planning to review specific elements of the secondary plan for this area. These discussions will include the location and extent of the north-south collector roadway shown in the current secondary plan. York University is particularly concerned about the effects of the bus-only roadway between The Pond Road and York Boulevard, the area shown in Exhibit 4. They would like to develop James Gilles Street as the principal north-south auto roadway in this area; the alignment recommended in the Environmental Assessment study, shown in Exhibit 5, is inconsistent with that plan. They are also concerned about the effect of the originally-recommended alignment on the corner of the native-species woodlot.

In response to these concerns, the EA Team had developed a design concept which would modify James Gilles Street to incorporate the bus-only lanes. However, York University indicated that they do not want buses generating noise immediately adjacent to the classroom on the east side of the Schulich School of Business.

In response to these further concerns, an EA Team recently developed another design, as shown in Exhibit 6. As with the previous design, a two-lane bus-only roadway would be constructed between Murray Ross Parkway and The Pond Road. It would intersect The Pond Road at the James Gilles Street intersection and parallel that section of James Gilles adjacent to the parking structure. The two-lane bus-only roadway would then divert to the east so that it would veer away from the Schulich School of Business and intersect York Boulevard at about the same location as the previous design.

This design would significantly reduce the number of trees that would be affected in the woodlot, although the EA would continue to be premised on replacing any trees lost. This design would also cost less to construct: \$3.2-to-\$3.7 million.

York University has expressed concern about the potential conflicts of the bus-only roadway with future development, primarily a new academic building(s) envisaged for the development parcel east of James Gilles Street. However, by working co-operatively together on a plan for both the roadway and possible future development sites, the University and the City can ensure that these facilities are complementary and mutually supportive, not in conflict. By establishing an acceptable alignment for a transit road, future development could be located and designed to mitigate any perceived or actual negative effects from a transit roadway.

York University has indicated that they plan to review, with City Planning staff, specific elements of their secondary plan for this area. If the location of this future secondary plan roadway is changed, then the design of the bus-only lanes could be altered accordingly. York University could provide their approval-in-principle now for this bus-only roadway on their lands, and the final design and construction of this segment of the bus-only roadway could be delayed, within reason, to allow this more-detailed review to be completed.

The proposed bus-only roadway would help to generate and secure the ridership base which is needed to justify the future extension of the Spadina Subway to York University. The bus-only roadway would be a relatively low-cost investment which could be removed entirely upon opening of the subway extension.

## **SUMMARY**

The Downsview Station - York University Bus-Only Lanes project would allow excellent, reliable, high-capacity transit, and could be constructed in a relatively short time-frame. It would serve both the existing campus travel demand and the increasing demand which will be generated by growth in the University's student and employment population, potential new development on York's lands, and would support the University's initiatives to encourage people to take transit, instead of private automobiles, to travel to and from campus. It is also a critical facility for the provision of effective transit service to York's new sports stadium.



Keele Street could be widened to provide a separate right-of-way for buses in the middle of the roadway and provide fast and reliable transit service between the hydro corridor and York University, but this high quality transit facility would be located on the periphery of future development on the vacant lands west of Keele Street. The EA-recommended bus-only roadway would cost less to construct and, because it would integrate high quality transit within any future development on the adjacent lands, it would be a better way to generate and reinforce the ridership base needed to justify the future extension of the Spadina Subway to York University.

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December 3, 2004

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Attachments: Exhibits 1 – 6

