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PROPOSED FLEET ADDITIONS AND 5-YEAR FLEET FORECAST

The Rapid Transit Public/Private Partnership Steering Committee recommends the adoption of the recommendations contained in the following revised report December 6, 2004, from the Vice President, York Region Rapid Transit Corporation:

1. RECOMMENDATIONS

It is recommended that:

1. Council affirm its authorization of the purchase agreement between York Region and Van Hool N.V. of Belgium ("**Van Hool**"), for the purchase by the Region of sixty 40 foot and twenty-five 60 foot rapid transit vehicles for the YRTP *Quick Start* services, in an initial amount not to exceed \$57.6M.
2. Council now authorize staff to exercise the option in the purchase agreement between the Region and Van Hool which allows for procurement at current unit prices of three additional 18 metre articulated rapid transit vehicles and five additional 12 metre standard rapid transit vehicles, at a further total cost of \$5,360,000.00, plus applicable taxes.

2. PURPOSE

This report outlines the need and justification to exercise the option in the Vehicle Procurement Contract with Van Hool to acquire 3 additional 18-metre and 5 additional 12-metre rapid transit vehicles at the per unit price of the balance of the fleet, along with projected year-by-year fleet requirements to 2011 (including 20% spares).

3. BACKGROUND

On September 18th, 2003 Regional Council authorized the Regional Chair and Clerk to execute on behalf of the Region a Design-Build Agreement (which included the purchase of rapid transit vehicles) and an Initial Release Agreement and Notice to Proceed (for the vehicle procurement), all subject to the execution of both the Federal and Provincial Funding Agreements.

On January 22nd, 2004, Regional Council endorsed the award for the supply of sixty 40 foot and twenty-five 60 foot bus rapid transit vehicles from Van Hool, in an amount not to exceed \$57.6 million, subject to the execution of the Federal and Provincial Funding Agreements and the negotiation of an appropriate bus procurement contract. Subsequently, on February 19th, 2004 Regional Council amended the September 18th, 2003 Council authorization, to authorize that the vehicle procurement contract be directly between the Region and Van Hool, subject to confirmation that Federal and Provincial

Funding was forthcoming, notwithstanding that formal agreements may not have been executed.

On March 24, 2004 a purchase contract for 22 articulated and 55 standard rapid transit vehicles was signed by the Region and Van Hool, which included an option allowing for the procurement of additional vehicles at current unit prices provided the option was executed by December 31, 2004. If the option is exercised at a later date then the contract provides for a cost escalation.

While the Federal and Provincial Funding Agreements were executed earlier in 2004, the Region could not unilaterally publicly announce the Funding Agreements or special information about major elements of the Agreement(s) until a formal public ceremony and joint media conference involving the Federal Government, the Provincial Government and the Region was held. The formal public signing ceremony was held on May 7th, 2004.

Staff, commencing in June 2004, have publicly kept Committee and Council fully informed of progress on the vehicles in regular progress reports on the status of the production of the Van Hool rapid transit vehicles and are now reporting out on the initial and subsequent exercise of an option under the bus procurement contract that brings the total purchase of vehicles to the authorized limits of sixty 40 foot vehicles and twenty-five 60 foot vehicles.

Initial *Quick Start* planning indicated a need for a vehicle fleet comprised of 25 articulated and 60 standard rapid transit vehicles. This fleet requirement was approved by the Rapid Transit Board on December 17, 2003.

Subsequent to this approval, various measures were considered to reduce costs as part of the efforts to fine tune the *Quick Start* budget. Through service reductions, reduced recovery times and a lower number of spare vehicles (for maintenance) it was believed the number of vehicles required for service could be reduced for a savings to the Region.

4. ANALYSIS AND OPTIONS

4.1 Initial Vehicle Order (2005-2006)

Although the service, recovery time and spare ratio reductions used in the justification for reducing the vehicle fleet requirements are feasible and provide additional savings, they are somewhat aggressive compared to industry and YRT standards and included a service reduction in the Woodbridge area. The service design, recovery times and spare ratio allowances and route planning have been revisited and reviewed and the following adjustments are recommended.

4.1.1 Recovery Time

Recovery time is a planned time allowance between the arrival time of a just completed trip and the departure time of the next trip. This allowance serves two major functions: recovery time for the schedule to ensure on-time departure for the next trip and, in some circumstances, operator rest or break time between trips. Recovery time can also be considered reserve running time, and allows trips to return to schedule if traffic, loading, or other conditions have made the trip arrive late.

With the implementation of *Quick Start* including its ITS features including Transit Signal Priority and queue-jump lanes, the need to accommodate late arriving trips is reduced and allows for a more aggressive recovery time policy. However, until *Quick Start* is fully implemented and monitored these savings cannot be quantified for specific runs. As a result, a conservative approach to the establishment of recovery times is preferred.

The results of the review suggest that it is desirable to adjust recovery times to more closely match industry standards. This will result in a minimum of 10% overall recovery, and 5 minutes on all individual trips during peak periods being provided in the initial implementation of *Quick Start* service. This recovery adjustment results in a peak scheduled vehicle requirement for the initial implementation as follows:

- 18-metre articulated – 21
- 12-metre standard – 49

4.1.2 Spare Ratios

Industry standards for spare ratios range between 15%-20%, based on a number of factors, including age of the fleet and service requirements. It is expected that a spare ratio of 15% is sufficient to provide required maintenance and servicing for an entire fleet of new vehicles. The current spare ratio, assuming the unadjusted recovery times associated with a 77 vehicle fleet, is about 15% for both standard and articulated vehicles.

However, for the existing order of 22 articulated, and 55 standard rapid transit vehicles to achieve the desired peak recovery times, the resultant spare ratio would be only 5% for articulated vehicles and 12% for standard vehicles. This would be insufficient to meet proper operations and maintenance requirements.

To obtain the desired peak recovery times with sufficient spares (applying a minimum spare ratio of 15%) would require the following additional vehicles:

- 18-metre articulated - 3, for a total of 25, resulting in 4 spares (19%)
- 12- metre standard - 2, for a total of 57, resulting in 8 spares (16%)

These additional vehicles will facilitate the necessary increased recovery times, and will also provide a workable spare ratio for both vehicle types, which would not be achieved with a 77 vehicle fleet. This will allow for greater flexibility in maintenance scheduling and reduce potential service interruptions as a result of accidents and damage to vehicles.

4.1.3 Retention of Full Service Levels

To meet the earlier reduction to 77 vehicles, the service schedule had to be reduced with alternate Highway 7 peak trips short-turning at York University, resulting in only a 20-minute peak Highway 7 service to Woodbridge. To run the full 10-minute peak service to Woodbridge, as was originally intended (and still desired), would require an additional 3 standard vehicles, including spares. This and the other above-noted additions to improve recoveries and spare ratios requires a total fleet increase of:

- 18-metre articulated - 3, for a total of 25, resulting in 4 spares (19%)
- 12- metre standard - 5, for a total of 60, resulting in 8 spares (15%)

This fleet size is consistent with the original recommendation of 25 articulated and 60 standard vehicles that was approved by the Rapid Transit Board in December 2003 and with the numbers identified in the Provincial and Federal Agreements.

4.2 Fleet Requirements to 2011

Future fleet requirements for full rapid transit implementation through 2011 are outlined in Table 1. These requirements are based on the most recent YRTP ridership forecasts and the anticipated GO Transit express levels along the Yonge Street corridor from Newmarket and Aurora to Finch Station (and beyond). The recommended addition of eight vehicles to the fleet ordered in March 2004 should be sufficient to meet YRTP's fleet needs for 2006.

The values in Table 1 reflect the anticipated phasing towards the rapid transit network by 2011. Any delay in this phasing will result in increased vehicle requirements as the service is exposed to greater traffic congestion while operating in mixed traffic for a longer period of time. This exposure would offset the reduction in ridership associated with the delay in implementation of the 2011 rapid transit network.

Table 1
2011 Rapid Transit Network
 (assumes GO Express Service on Yonge Street)

Year	18 metre	12 metre	Total	Additional Fleet Requirements
2005	25	57	82	-
2006	25	60	85	3
2007	41	60	101	16
2008	55	60	115	14
2009	69	60	129	14
2010	83	60	143	14
2011	95	60	155	12

5. FINANCIAL IMPLICATIONS

The cost of each 18 metre articulated rapid transit vehicle is \$850,000 and the cost of each 12 metre standard rapid transit vehicle is \$580,000. Hence, the total cost associated with 3 additional 18 metre and 5 additional 12 metre rapid transit vehicles is \$5,360,000.

The total \$150 million *Quick Start* budget included approximately \$10.2 million for various contingencies and potential project enhancements. These were funds that were reserved within the budget to deal with any potential additional costs due to unforeseen circumstances. A recent review of potential contingency items has estimated that only approximately \$3.8 million will be needed to address contingency items. In addition, a review of all of the potential change orders to both the Design Build contract and the Vehicle contract indicates an estimated under-expenditure of about \$1.2 million. Therefore, sufficient funds for the purchase of these 8 additional vehicles are available from the *Quick Start* contingency and anticipated contract under-expenditure. Even after allocating funds for the purchase of the additional vehicles, \$2.3 million will still be available to address any future unforeseen contingencies.

These additional 8 rapid transit vehicles are anticipated to arrive towards the end of 2005 / early 2006. Therefore, there will be no operating budget impact in 2005.

6. LOCAL MUNICIPAL IMPACT

There are no local municipal implications associated with this report.

7. CONCLUSION

This report recommends exercising the option in the Vehicle Procurement Contract with Van Hool to acquire 3 additional 18-metre and 5 additional 12-metre rapid transit vehicles at the per unit price of the balance of the fleet. The additional vehicle needs are a result of adding peak period recovery to a minimum of 10% overall and 5 minutes on all individual peak trips, maintaining a minimum 15% spare ratio and retaining the full 10-minute peak service to Woodbridge, as was originally intended. The total cost of \$5,360,000 can be funded from the *Quick Start* contingency. This report also projects *Quick Start* fleet requirements year-by-year to 2011.