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REQUEST FOR PROPOSAL VIVA PHASE 2 RAPID TRANSIT VEHICLE PROCUREMENT

The Rapid Transit Public/Private Partnership Steering Committee recommends the following:

- 1. The presentation by Terry Gohde, Project Manager, York Consortium 2002 and Rick Takagi, Manager, York Region Transit, be received; and**
- 2. The recommendation contained in the following report, January 9, 2008, from the Vice-President, York Region Rapid Transit Corporation and the General Manager, Transit, be adopted:**

1. RECOMMENDATION

It is recommended that:

1. Council authorize staff to issue a Request for Proposal for the purchase of up to 51 Phase 2 rapid transit vehicles (RTV's) including an option to purchase further RTV's, for the planning period 2009 to 2013.

2. PURPOSE

The purpose of this report is to seek authorization to issue a Request for Proposal (RFP) for the acquisition of Viva Phase 2 rapid transit vehicles (RTV's) for the planning period 2009 to 2013. The report provides background on the previous 2004 procurement process; information on the number of RTV's needed; an update on the current state of the rapid transit vehicle industry; and information on the procurement process.

3. BACKGROUND

The 2004 procurement process was successful

In 2004, following an extensive procurement process, the Region acquired a fleet of innovative, state-of-the-art rapid transit (40 and 60 foot) vehicles from Van Hool BV of Belgium for Viva Phase 1. These vehicles met design criteria that placed emphasis on:

- Interior and exterior aesthetics to differentiate the rapid transit vehicles from conventional public transit vehicles to capture a whole new generation of riders.
- Exceptional quality of external and internal finish to portray a high-quality image for the new rapid transit system.
- Exceptional ride quality to enhance the experience of travelling in a Viva vehicle.

- Low noise to enhance the ride experience and minimize impact on the community.
- Low emissions to emphasize the environmental benefit of using public transit.

Additional vehicles have been acquired under the original purchase agreement with Van Hool

The 2004 agreement with Van Hool contained provision for the supply of additional vehicles at the same per unit price as the original order, provided that an order was placed prior to the end of 2004. On December 16, 2004, Council authorized staff to exercise the option in the purchase agreement for three additional 18 m. and five additional 12.2 m. vehicles.

The Region's agreement with Van Hool contained provisions for the supply of additional vehicles after December 31, 2004 at the original vehicle price plus a cost adjustment for inflation. In February 2006, Council approved a further purchase of five additional 18 m. articulated transit vehicles in response to additional ridership and congestion growth in the Yonge Street corridor.

The original agreement with Van Hool provided an option to purchase additional vehicles for a period of two years on the same general terms, subject to negotiation of price, delivery schedule and specifications. Van Hool agreed to extend the expiry date of this provision so that the purchase of additional buses would be governed by the terms of the original contract on matters such as warranties and delivery protocols. Staff was also able to negotiate enhancements to the standard conditions that would apply to the new vehicles. On June 21, 2007, Council authorized the purchase of eleven additional articulated vehicles from Van Hool to enable Viva to meet projected ridership growth, maintain and improve operating schedules to meet these demands, and extend Viva Purple route service to the Cornell area as envisioned in the original Viva network plan. These eleven vehicles are currently on order and are scheduled to be delivered in December 2008.

4. ANALYSIS AND OPTIONS

Vehicles are required over the period of 2009 to 2013

Based on current ridership projections and the build-out of Phase 2, 51 additional RTV's are required over the next 5 years as illustrated in Table 1. As the system is implemented, the final number of vehicles to be ordered per year will be adjusted to reflect ridership capacity, congestion on the system, and the actual implementation of the Phase 2 infrastructure.

With this order the total rapid transit fleet will be as follows:

40 footers - 60 vehicles

60 footers - 92 vehicles

Table 1
Bus Rapid Transit Vehicle Requirements
(Number of Vehicles)

Project Segment	2009-10	2010-11	2011-12	2012-13	Total
H4 - Cornell Terminal Service	7				7
H2/H3 - Hwy 7 – Pine Valley to Kennedy			6	11	17
Y1 - Yonge Street	2	16	1		19
Y2 - Yonge Street – RHC to 19 th				4	4
Y3 - Yonge Street – Mulock to Green Lane			4		4
Total	9	16	11	15	51

At this time the vehicle fleet order anticipates that only 60 foot articulated RTV's are required for the rapid transit system expansion. This assumption will continue to be monitored to ensure that any requirements for 40 foot vehicles in addition to articulated vehicles can be accommodated in the RFP. Staff will ensure that the RFP addresses the need for this flexibility.

A new generation of rapid transit vehicles has begun to emerge

Since the original procurement process in 2004, the vehicle marketplace has evolved with manufacturers introducing new or re-styled models with Bus Rapid Transit (BRT) services in mind.

York Consortium 2002 (YC2002) undertook a worldwide review, or “environmental scan”, of current products in the marketplace to identify state-of-the-art trends in vehicles, product designs and emerging technologies.

The focus of the scan was generally limited to 18-metre (60 foot) articulated vehicles since this is the vehicle size needed to carry ridership loads in Phase 2.

A larger number of rapid transit vehicles are being used around the world than was the case in 2003; however, the majority of these vehicles, with the exception of Van Hool, are not certified at this time for use in Canada.

- Nova Bus unveiled at the November 2007 Canadian Urban Transit Association meeting in Quebec City, its new 60 foot vehicle. In 2004 Nova Bus manufactured only 40 foot vehicles.
- New Flyer has remodelled the 60 foot vehicle that was available in 2004 to have more rapid transit characteristic looks.
- A new 60 foot rapid transit vehicle design has emerged from Wright, an Irish manufacturer, and is being tested for use in the United States, but has not yet been certified for use in Canada.

Within the newly emerging market for rapid transit vehicles are moves to improve the quality and styling of interior finishes. By way of example, American Seating has introduced new, more stylish seat designs.

ITS features have become more commonplace on transit vehicles

Intelligent Transportation System (ITS) features are becoming more commonplace. All vehicle manufacturers offer the various IT systems, such as automatic vehicle location (AVL), Voice Annunciators (internal and external), internal Variable Message Signs, vehicle diagnostics, passenger counting technology and security cameras.

New Hybrid Drive Systems are becoming available

New Flyer, Nova Bus, and Van Hool are now offering hybrid drive systems, primarily diesel-electric. Gasoline-electric systems are also available. The available hybrid drive systems and bus manufacturers for Canadian-available buses are summarized in Table 2.

Table 2
Systems and Suppliers of Hybrid Drive Systems

Hybrid System	Bus Manufacturer
Allison (diesel)	New Flyer, Nova Bus, Van Hool
ISE Corporation (diesel)	New Flyer, Nova Bus (one vehicle)
ISE Corporation (gasoline)	New Flyer

Unavailable in the original vehicle purchase, Van Hool has confirmed that in addition to having developed a hybrid drive product for their new 9.1m (30 foot) vehicle, they will also have hybrids available in their articulated vehicles in 2008.

The key advantage of a hybrid drive system is the ability to lower exhaust emissions and improve fuel economy. It is expected that diesel technology will advance by 2010 to meet stringent emission standards required by that time.

Hybrid drive systems are also being marketed primarily in the United States as the preferred alternative to compressed natural gas (CNG) technology because of their simplicity, proven reliability and ability to use existing diesel technology.

Hybrid drive systems reduce fuel consumption for the same level of power output over the duty cycle and thereby reduce emissions. Fuel savings of approximately 25% are commonly

quoted, depending on application and type of hybrid system. However, experience with hybrid drive systems is not, as yet, extensive enough to confirm the reliability of fuel savings estimates.

An articulated BRT-styled vehicle with diesel propulsion costs approximately \$750,000 to \$840,000, plus taxes. A hybrid drive system for an articulated bus carries a cost premium of approximately \$250,000 over a standard diesel system. Variances in the strength of the Canadian dollar will impact the price. For budgeting purposes with our funding partners, we utilize a per unit figure of \$1,250,000, which accommodates the potential acquisition of hybrid vehicles, required ITS equipment, and PST.

Fuel Cell technology is being introduced in Canada on traditional buses

There are no articulated buses to date with fuel cell propulsion. A number of fuel cell demonstration buses are either on order or in service in North America and Europe. In Canada, 20 fuel cell buses are to be delivered to Whistler (BC Transit).

An early fuel cell demonstration vehicle from Ballard had been operating for several years in Vancouver but has been removed from service for re-engineering. Fuel cell buses are on order or in service with several California systems, as well as in Chicago, Washington DC and New York City.

Cost estimates for a 12.2 m. fuel cell bus are difficult to pinpoint, but are estimated to be in the range of \$2.1 million, based on the cost for the 20 vehicles being purchased for Whistler, BC.

Viva RTV's remain 'state-of-the-art'

Overall, the BRT vehicle industry has progressed considerably and a wider generation of rapid transit vehicles are now available. The primary attributes of the initial Viva vehicles remain applicable today.

Based on observation and feedback from various sources, the most noteworthy qualities about the Viva vehicles have been their low noise levels and excellent ride. This feedback is consistent with customer surveys and feedback documented in reports prepared by Oxygen Research and customer feedback received through the YRT/Viva Call Centre, Viva Phase 2 Design On-Line questionnaire and comments received through Viva's website between 2005 and 2007.

The original vehicle procurement contract has expired and a new request for proposal is warranted

The procurement process for acquiring the Viva vehicles in 2004 was conducted in two parts:

Part 1 was the issuance of a worldwide Expression of Interest, inviting manufacturers to indicate product availability and their interest in responding to a subsequent vehicle

procurement RFP. The respondents were then short-listed according to pre-determined evaluation criteria.

Part 2 was the issuance of a Request for Proposal to the short-listed manufacturers, which then led to a negotiated procurement with the highest ranked manufacturer, Van Hool of Belgium. The process was overseen by a Fairness Auditor.

The Region has conducted an in-depth environmental scan for articulated rapid transit vehicles. Although buses available in Canada are limited to three vendors; Van Hool, New Flyer and Nova Bus, Regional Staff recommend that an RFP be issued to all known vendors. The barriers to enter the Canadian marketplace can be overcome for vendors with an interest in supplying to Canada.

The same key benchmarks established for vehicle selection in 2004 remain applicable and will form the basis for evaluating vehicles required for Viva in the medium term.

Staff recommend that the procurement contract be structured over a number of years to align delivery over multiple years, guarantee pricing, and contribute to a standardized fleet to reduce on-going operating and maintenance costs. The procurement documents will also ensure that the Region retains flexibility in determining the size and quantity of buses as dictated by the transit network requirements.

5. FINANCIAL IMPLICATIONS

Fifty-one (51) buses are required over the next 5 years to service ridership projections and the build-out of Phase 2. The Region's ten-year capital plan includes the cost of these buses.

The total estimated cost for 51 buses is \$63.75 million, based on current year dollars. Based on the FLOW and MoveOntario 2020 funding announcements, the cost exposure to the Region is somewhere in the range of 0% to 17% of the total cost.

6. LOCAL MUNICIPAL IMPACT

Additional buses will result in better service levels, which will meet the objectives of all municipalities to reduce automobile dependency.

7. CONCLUSIONS

Over the next five years an additional 51 buses will be required to service ridership growth on Phase 1 mixed traffic routes and on new Viva Phase 2 dedicated right-of-way routes. Given the Region's current understanding of the BRT industry, in concert with the limited number of vendors supplying the Canadian market, it is recommended that additional BRT's to meet medium term needs be acquired through a Request for Proposal, using a similar process to that used for the successful 2004 BRT procurement approach. The same key benchmarks established for vehicle selection in 2004 remain applicable and will form the basis for evaluating vehicles required for the medium term.

It is recommended that the procurement contract be structured over a number of years to align delivery over multiple years, guarantee pricing, and contribute to a standardized fleet to reduce on-going operating and maintenance costs. The procurement documents will also ensure that the Region retains flexibility in determining the size and quantity of buses as dictated by the transit network requirements.

The Senior Management Group has reviewed this report.