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# VIVA RAPIDWAY DESIGN STANDARDS

**The Rapid Transit Public/Private Partnership Steering Committee recommends the adoption of the recommendation contained in the following report, May 3, 2007, from the General Manager, Transportation and Works - Roads and the Vice President, York Region Rapid Transit Corporation:**

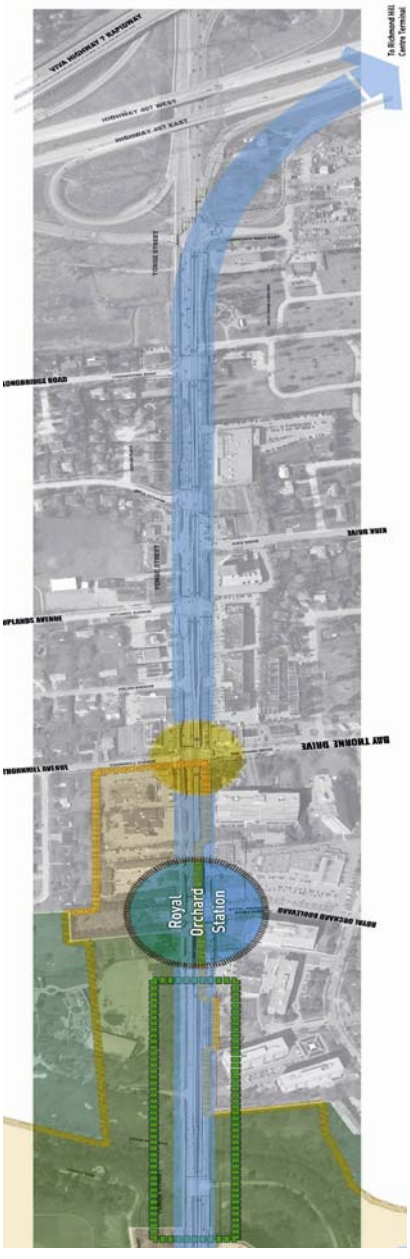
## 1. RECOMMENDATION

It is recommended that Council adopt the rapidway design standards to deliver the key streetscape and place-making design elements for Phase 2 of the Viva rapid transit system as outlined in this report.

## 2. PURPOSE

The purpose of this report is to define the design standards for the look, feel, identity and functionality of Viva Phase 2 rapidways. These standards will also provide the basis for York Consortium 2002 (YC2002) to develop designs sufficient for the purpose of establishing a Guaranteed Maximum Price (GMP) for Phase 2 – Stage 1 in the fall of 2007, with a goal to entering into negotiations and moving to construction no later than the Spring of 2008.

The report also focuses on the ongoing consultation and design efforts with all affected stakeholders to design boulevard-specific solutions along the length of the Yonge Street corridor, developing place-making solutions, and within the heritage area, ensuring that all stakeholders are actively engaged in arriving at design solutions over the next several months through an active, open community consultation process.



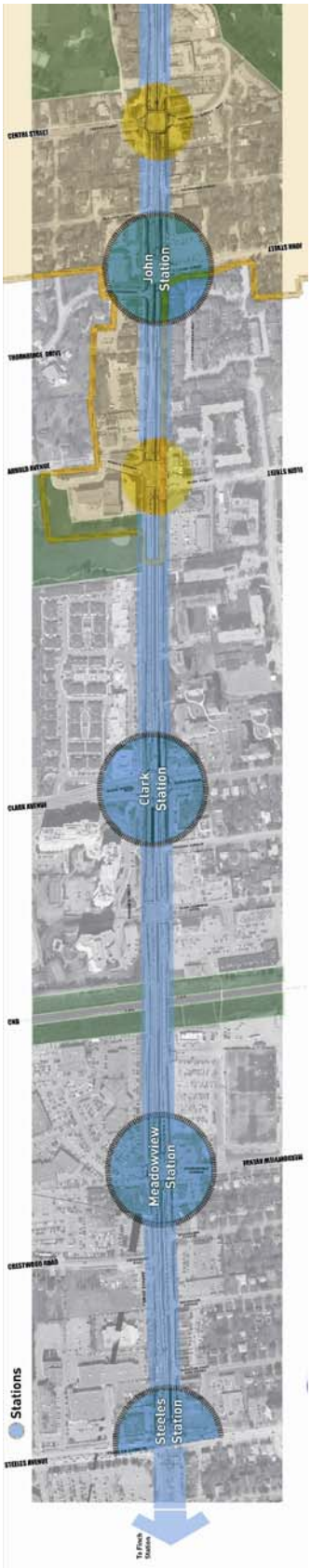

## 3. BACKGROUND

On September 10, 2003 Council endorsed the Network Configuration Plan for the Viva rapid transit system. That plan contemplated a six step staged approach to the future development of the rapid transit network which is addressed in a separate item on this agenda.

A major aspect of the Network Configuration Plan was the premise that the system would evolve from rapid transit vehicles operating in mixed traffic, to a system of dedicated rapidways. The rapidways would be implemented incrementally in all corridors, commencing with the most heavily travelled and congested routes.

The first step in the network plan was to implement *Quick Start* in four corridors. That service commenced operations during the period September through December 2005. During network planning, the Yonge Street corridor had been forecast to experience the heaviest ridership and also some of the heaviest traffic congestion of all corridors. Operating experience has confirmed that this in fact the case.

Upon the completion of the *Quick Start*, York Region Rapid Transit Corporation (YRRTC) and York Consortium 2002 (YC2002) staff immediately commenced Step 2 of the rapid transit strategy (the planning for Phase 2), which contemplated the introduction of dedicated rapidways. Segment Y1 on Yonge Street between Steeles Avenue and the Richmond Hill Centre Terminal was identified as the route that would benefit the most from the introduction of a dedicated rapidway. A funding arrangement struck between York Region and the Province enabled preliminary design work to commence in January 2006. That work included the development of a rapidway cross-section that is to be generally applied in all corridors when dedicated lanes are implemented.




## 4. ANALYSIS AND OPTIONS

Preliminary Engineering work has been underway for some time to identify key engineering and design elements of the Yonge Street Corridor Rapidway. The elements described in this section are the major components of the system and will dictate technical requirements and the major image of the Viva brand. The development of the design will represent new standards for the rapidways as they are rolled out over the 67 kms of dedicated right-of-way in the rapid transit network. The standards have been developed to reflect BRT technologies; however, they will also accommodate the conversion, if and as required over time, to LRT technologies. It is fundamental to the standards that they deliver a consistent technological backbone and image for the system. In that regard they are, at one level, generic in nature, but in each

section of the rapid transit network those standards will be adapted to the specifics of the various corridors.

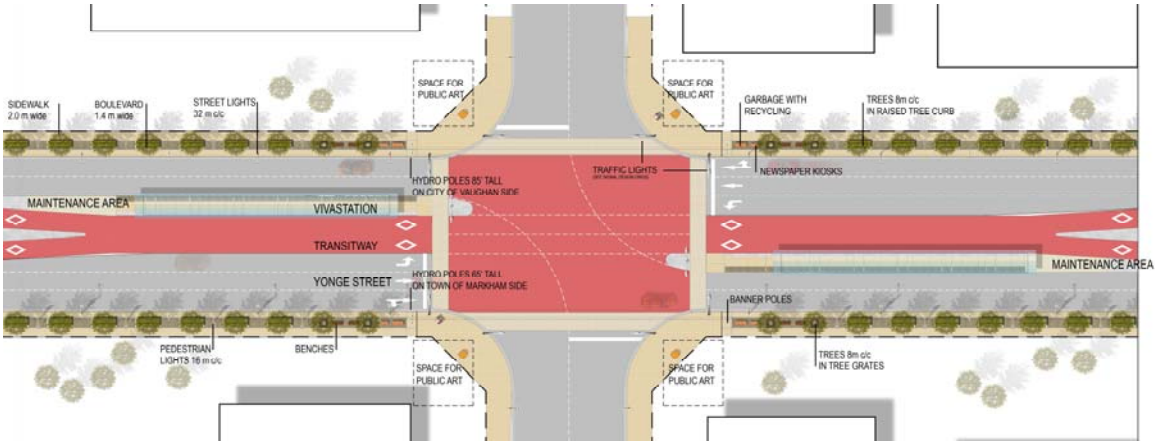
During months of design and evaluation, all key design elements and standards were arrived at through a design evaluation process that contained 32 categories of criteria under the following five major headings:

- Operational Efficiency and Reliability.
- Design for User Experience.
- Environmental Benefits and Sustainability.
- Corridor Enhancement.
- Cost-Effective Rapid Transit.

Through the design and preliminary engineering process, and in discussion with Regional staff, the following are the key design elements of the Yonge Street Corridor Rapidway Cross-section. Where design standards vary for the Thornhill heritage district there is specific reference to them in the following outline:

**Rapidways**

- Dedicated lanes in the centre of the right-of-way; each 3.5 metres wide each way and 3.3 metres in the heritage areas.
- Distinct red coloured asphalt.
- Rapidways will be designated and signed to denote bus use only.
- Demarcated from general purpose lanes by a 300 mm separator strip that includes textured marking.
- Centre median between the rapidway lanes:
  - Raised landscaped median to provide for planting and to prevent vehicles from crossing the rapidway.
  - 4 metre width in non-intersection areas, tapering to 1 metre at non-station intersections.
  - Minimum width of median is 1 metre in constrained locations.
  - Breaks in raised median at identified locations for emergency services purposes.

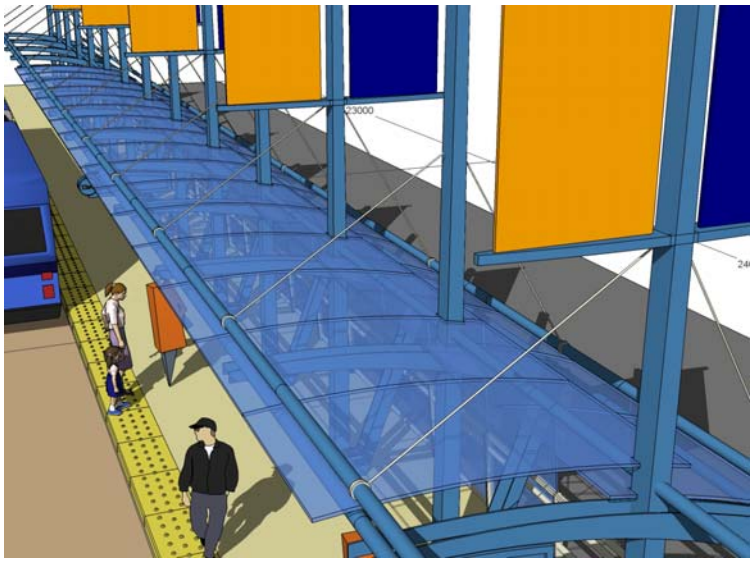


**General Purpose Lanes**

- Curb lane 3.5 metres – standard black asphalt with standard lane markings
- Inside lane is 3.30 metres - standard black asphalt with standard lane markings
- Left turn lane is 3.30 metres - standard black asphalt with standard lane markings
- General purpose traffic lanes are 3.25 metres black asphalt in the Heritage district because of a constrained cross section:
- New poles and luminaries will be installed.

**Stations**

- Located at key intersections, approximately 1 km apart.
- Platforms:
  - Far side (downstream of intersections).
  - 30 cm (12 inch) raised platform to accommodate direct access to low floor vehicles.
  - 4 metres wide by 55 metres long - sufficient to accommodate two double-articulated BRT vehicles.
  - Tactile safety strip to demarcate edge of platform.
  - Railing along back of platform.
  - Fully accessible.
- Platform-width canopy to provide overhead weather protection.
- Canopy is generally ½ platform length and positioned to service 2 vehicles.
- Protected waiting area is provided within the overhead canopy.

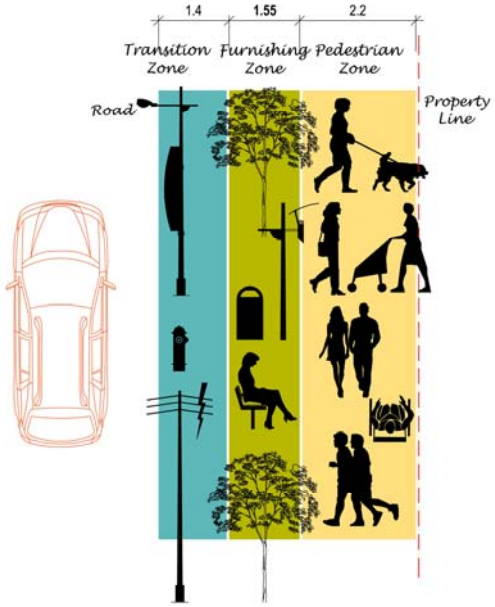


- Fare vending and validating equipment is under the protection of the canopy.
- Variable Message Signs under the overhead canopy.
- Platform lighting to be provided.
- Fully accessible design.
- Canopy design continues to evolve based on the following principles:
  - The rapidway stations will play a very important role in place-making in the heritage areas and along all the communities connected by the rapidway.
  - The canopy plays a very important role in defining the brand – it's a signal of arrival or departure and as such must create a positive visual impact, including vertical elements.

- The architecture therefore must be able to reflect and transfer to the Viva brand experience system-wide as a positive user experience and contribution to not only movement through, but within the community.
- Enhanced user experience and system functionality must be taken into account including the definition of the enclosure under the canopy.
- The transformation of the mid-road location to a comfortable people place must be reflected in the architectural response by helping breakdown the scale of the right-of-way, and contribute to the safety of the pedestrian experience. These are reflected through the design direction for transparency of the elements along the entire distance to provide a feeling of safety and security (handrails, splash walls, sun protection, warmth and shelter from the elements).

- Maintenance area:
  - Area for maintenance parking is located at end of each platform.
  - Distinct pavement marking.
  - Access is via the rapidway over a mountable curb.
  - Area is separated from general purpose lanes by a raised curb.

**Boulevards**




- Generally 5.4 metres wide on both sides of roadway where possible.
- Consistent hard surface continuity transition zone at back of curb – approximately 1 metre in width.
- Expansion of the hard surface materials at the intersection to create place-making opportunities.
- Pedestrian Zone – approximately 2 metres wide.
- Furnishings to be treated with a variety of hard and soft landscaping and positioned to best accommodate street trees and protect existing vegetation.
- Existing healthy trees to be preserved wherever possible. Street tree plantings, landscaping, and street furniture to be placed to visually reinforce the edge of street.
- The specific details of the design of the boulevard setback will be developed and finalized through discussion with landowners, businesses and other stakeholders.

**Signalized Intersections**

- Rapidway coloured asphalt will be used within intersections between all four crosswalks delineated with pavement markings.
- Special treatment for crosswalks.

- Traffic signal equipment to accommodate all movements.
- Accessible pedestrian features such as curb cuts and countdown traffic signals.

The Yonge Street rapidway will be designed to accommodate the transition from Bus Rapid Transit (BRT) to Light Rail Transit (LRT).

Endorsement of the basic rapidway concept will facilitate the development of branding treatments and other specific design features. A branding survey has recently been completed and the results tabulated. The survey was used to identify the features most important or identifiable to both the public that use rapid transit as well as non users of the system. The final results will be brought forward to Committee at a later date.

The rapidway design builds on the great regional streets report approved by Council on October 19, 2006. Endorsement of the rapidway design will provide a basis for YC2002 to develop designs to a level sufficient for the purpose of determining a Guaranteed Maximum Price.

## 5. FINANCIAL IMPLICATIONS

**BRT rapidway takes into consideration future LRT standards**
Analysis reveals that there is no cost savings associated with initially constructing the rapidway to full LRT standards. In fact, this would be very costly and unwarranted for BRT operations. BRT rapidway geomantic design is such that it can be transitioned to accommodate LRT operations by ensuring design, grades and widths is such that it can be transitioned to accommodate LRT operations.

**The actual cost of constructing rapidways will be route specific**
Rapidway costs will vary from route to route and will depend on factors such as property requirements and utility relocation and provision.

**Rapidway's future operating costs**
Future operational budgets will need to reflect any increase in operating costs associated with the rapidway and the enhanced landscaping and boulevard features.

## 6. LOCAL MUNICIPAL IMPACT

**Rapidways will serve as the major urban design catalyst in the rapid transit corridors**
The design and unique landscaping treatment of the rapidways will establish the 'look' of the rapid transit corridors. It is anticipated that the attractiveness of the rapidway will appeal to businesses and residents and provides an excellent holistic structure from which

new transit oriented development (TOD), heritage district enhancement and preservation and community place-making opportunities will emerge in addition to energizing the continued support and growth of the use of the rapid transit system.

Full municipal review of the design standards is being discussed in conjunction with full review with all affected regional departments. The design standards have been developed through a major evaluation matrix and input from Regional and Municipal departments as well as the YRRTC's Owner's Engineer. The task is now to focus on design decisions where specific site conditions and the streetscape relationship to the community must be carefully taken into account. There will also be time and focus in meetings with the municipalities and local communities on the opportunities for place-making along the length of the corridor. Setting the major design standards represents the first stage of a multiple stage consultation process that will seek input on a whole range of detailed design decisions including plant and tree selection, public art installations as well as other opportunities for place-making and interface with proposed new development.

## 7. CONCLUSION

The approval of the rapidway standards will allow the Region and involved stakeholders to focus their energies on the distinctive nature and characteristics of the segments of the rapid transit system along the boulevard and allow the design process leading to the development of a GMP for the construction of the system to proceed as parallel processes. The first segment of the system will deliver a design direction that can be carried forward to determine the look, feel, image and functionality of the Viva Rapid Transit system subsequent segments of the system and will allow for the fast tracking of that design effort.

The Senior Management Group has reviewed this report.