

COMMITTEE OF THE WHOLE - OCTOBER 24, 2005

**HIGHWAY 7 CORRIDOR & VAUGHAN NORTH-SOUTH LINK PUBLIC TRANSIT IMPROVEMENTS -
INDIVIDUAL ENVIRONMENTAL ASSESSMENT
REGION OF YORK
COMMENTS TO THE MINISTRY OF THE ENVIRONMENT
EA FILE NO. NO. 02-06-02**

Recommendation

The Commissioner of Engineering and Public Works and the Commissioner of Planning, in consultation with the City Manager, recommend:

1. That the Ministry of the Environment be advised that the City of Vaughan supports the approval of the "Highway 7 Corridor & Vaughan North-South Link Public Transit Improvements" Environmental Assessment Report, dated August, 2005, as submitted by the Regional Municipality of York;
2. That the Region of York:
 - a) Be advised that the report entitled, "Design Concept for Avenue 7 Including Rapid Transit Through the Vaughan Corporate Centre" also forms part of the City's comments on the "Highway 7 Corridor & Vaughan North-South Link Public Transit Improvements Environmental Assessment" and that the recommendations contained in that report be implemented as requested;
 - b) Be requested to proceed with the amendment to the subway extension component of this Environmental Assessment ("Vaughan North-South Link Ultimate Conversion to Subway Technology") at first opportunity, once the TTC Spadina Subway Environmental Assessment is approved, in order to finalize the subway alignment north of Steeles Avenue.
 - c) Be advised that the City of Vaughan is currently completing a number of land use studies (e.g. the Highway 7 Futures Study and the Steeles Avenue Corridor Study) along Highway 7 and along the Vaughan North-South Link. It is requested that the Region of York work with the City in refining the transitway and boulevard treatments in response to the land use and design policies that may result from the studies in order to optimize the attractiveness of the urban environment and support the Region's and the City's development objectives; and that such consultation take place during the detailed design phase for the transitway and associated road allowances.
3. That this report be forwarded to the Region of York and to the Town of Markham and the Town of Richmond Hill for information purposes.

Economic Impact

There are no immediate economic impacts resulting from the adoption of this report.

Purpose

The purpose of this report is to provide the Ministry of the Environment with the City of Vaughan's comments on the Region of York's Highway 7 Corridor & Vaughan North-South Link Public Transit Improvements Individual Environmental Assessment, as requested by the Ministry by letter dated September 2, 2005.

Background - Analysis and Options

a) Background

The Regional Official plan provides for a series of Regional Centres in Markham, Vaughan, Richmond Hill and Newmarket, which are to be linked by higher order transit services. In 2002 the Region approved the *Transportation Master Plan*. It confirmed the need to develop a balanced transportation system, by establishing a rapid transit system, which focuses on the Yonge Street and Highway 7 corridors, including a link from the Vaughan Corporate Centre to the Spadina Subway and a connection from the Markham Centre to the Sheppard Subway.

In June 2002, Regional Council endorsed a proposal by the York Consortium 2002 to establish a public-private partnership to implement the York Rapid Transit Plan. In August 2002, planning studies were initiated for the Highway 7 Corridor & Vaughan North-South Link Environmental Assessment. In July of 2004, the Ministry of the Environment approved the Terms of Reference for the EA and in August of 2005, the Region submitted the EA to the Ministry for approval.

By letter dated September 2, 2005, the Ministry of the Environment has requested comments from affected agencies and municipalities. The comments are required by October 26, 2005. The Region of York previously submitted the "Yonge Street Corridor Public Transit Improvements Environmental Assessment Report" (July 2005) to the MOE for approval. The Ministry requested the submission of comments from affected municipalities/agencies in September. The City's comments on the Yonge Street EA were approved by Council on September 26, 2005 and were forwarded to the Ministry of the Environment.

b) Focus of the Report

This EA study encompasses the entire breadth of southern York Region, through Vaughan, Richmond Hill and Markham. This report will focus on the areas that are within or abut the City of Vaughan, generally from Yonge Street to Highway 50. The EA study examines the potential for a rapid transit service in dedicated transitways in the Highway 7 Corridor and the Vaughan North-South Link from the Corporate Centre to Steeles Avenue opposite York University. A separate section of the EA will establish the alignment for the future extension of the Spadina Subway from Steeles Avenue to the Corporate Centre. The latter builds on the work done by the City and the Region to preserve a subway route through the adoption of OPA No. 529.

c) Overview of the Environmental Assessment

The Purpose of the Undertaking

The undertaking responds to two main objectives. They are:

- To improve accessibility to current and planned development by providing a high quality public transit alternative to reduce automobile dependence;
- To contribute to the achievement of the Regional OP objectives of a sustainable natural environment, economic viability and healthy communities, by making the Region's urban centres more liveable, pedestrian-oriented and economically viable by providing a tool for structuring and achieving land use and social objectives.

The purposes of the undertaking are to:

- Improve public transit infrastructure in the Regional network's primary east-west corridor and western north-south corridor, in order to increase transit ridership both within the corridor and across the network and the regional boundary, supported by linkages with other corridors and GTA transit systems like GO and the TTC;

- Integrate public transit facilities in a manner that improves streetscapes with new amenities, by using a holistic urban design approach to support the Region's goals for a higher density mixed-use, transit-oriented development along the corridor in accordance with the approved official plan.

The Study Area

The study area used to evaluate the route alternatives extends across the entire width of south York Region. The boundaries are as follows (See Attachment 1):

- South: Steeles Avenue – City of Toronto;
- West: Highway 50, Brampton – Peel Region;
- North: Major Mackenzie Drive; and
- East: York-Durham Line, Pickering – Durham Region.

Need and Justification

In 2002 the Region of York completed the *Highway 7 Transitway Environmental Assessment Need and Justification Study* (December 2002). It examined the need for improved transit services to the year 2021 in the context of a projected growth in the Region's population from 800,000 to 1,200,000 and an increase in employment 400,000 to 655,000. The study investigated a range of transportation solutions for the corridor. The potential solutions were defined for evaluation as alternatives to the undertaking in accordance with the EA Act.

The Selected Alternative to the Undertaking

A total of five alternatives to the undertaking were developed including:

- The "do nothing" option;
- Proceed on the basis of current commitments for road and transit improvements, including priority transit, plus demand management;
- Rely solely on road expansion going beyond current commitments;
- Enhance the Richmond Hill commuter rail and inter-regional bus services; and
- Employ a multi-modal solution characterized as the "York Region Rapid Transit Corridors Initiative" strategy.

The alternatives were assessed on the basis of four main criteria. They were:

- Effects on the social environment;
- Effects on the natural environment;
- Effects on the economic environment and smart growth; and
- The effectiveness of the transportation solution in meeting the projected travel demand.

The "York Region Rapid Transit Corridor Initiatives" strategy was determined to be the best response. The strategy includes the following measures: Completing all the of the current transportation commitments plus public transit improvements such as the Region's planned rapid transit network comprising bus and light rail service in dedicated transitways on the surface and assuming the extension of the TTC subway system into York Region. This alternative was determined to best meet the long-term growth needs and planning objectives of the Region while offering the opportunity to mitigate high costs and local environmental impacts by maximizing the use of existing corridors.

Alternative Methods of Carrying Out the Undertaking – Surface Rapid Transit Alignment Alternatives

For the purposes of evaluating the alignment alternatives for the Highway 7 Corridor and the north-south link, Vaughan was divided into two segments. Segment A takes in the area from

Highway 50 to Highway No. 400. Segment B is divided into two sections. Segment B West extends from Highway 400 to Centre Street and Segment B East encompasses the area from Centre Street to Yonge Street. (See Attachment 1, Figure E-4)

- Segment A – Highway 50 to Highway No. 400
 - It was determined that the only feasible alternative was for the transitway to locate within the Highway 7 right of way, with the existing traffic lanes being retained;
- Segment B West – Highway No. 400 to Centre Street

A total of three alternatives were evaluated in this segment, which includes the Vaughan North-South Link between the Corporate Centre and York University.

- **B1:** Along Highway 7 from Highway No. 400 to Centre Street, with a connecting north-south link from to Jane Street, south to the Hydro Corridor, then east along the south edge of the Hydro Corridor and then south to York University at the Regional Bus Terminal facility;
 - **B2:** Along Highway 7 from Highway No. 400, south on Jane Street to the Hydro Corridor, east on the Hydro Corridor and south into York University, returning north from York University to the Hydro Corridor and then northeast in the Hydro Corridor to Centre Street;
 - **B3:** Along Highway 7 from Highway No. 400, south on Jane Street to the Hydro Corridor, east on the Hydro Corridor to York University, returning north from York University to the Hydro Corridor over to Keele Street, north on Keele Street to Highway 7 and then east on Highway 7 to Centre Street.
- Segment B East: Centre Street to Yonge Street

Three alternatives were evaluated within this segment.

- **B4:** Along Highway 7 from Centre Street to Yonge Street;
- **B5:** Along the Hydro Corridor from Centre Street to mid-way between Bathurst and Yonge Streets and then onto Highway 7 to Yonge Street;
- **B6:** Along Centre Street from Highway 7, then north on Bathurst Street returning to Highway 7 and then across Highway 7 to Yonge Street.

The Preferred Surface Rapid Transit Alignment

The alternative alignments were evaluated on the basis of five main objectives. These include:

- Improve mobility and the attractiveness of public transit;
- Protect and enhance the social, cultural and heritage environments;
- Protect the natural environment;
- Promote smart growth and economic development; and
- Maximize the cost effectiveness of rapid transit system.

The preferred alignment was determined to be the combination of the following alternatives:

- **Segment A:** The sole alternative (Highway 7 road allowance) from Highway 50 to Highway No. 400;
- **Segment B West:** Alternative B1, from Highway No. 400 to Centre Street;
- **Segment B East:** Alternative B6, from Centre Street to Yonge Street.

Attachment 2 (Figure E-5) illustrates the resulting alignment and the location of the station sites. The preferred alignment relies heavily on the existing arterial road system. From Highway 50 to Centre Street the transitway is located within the Highway 7 road allowance. At Centre Street the alignment proceeds to the east within the Centre Street road allowance and then swings to the north along Bathurst Street, running within the road allowance. The service returns to Highway 7, at a planned station (and future park and ride facility in conjunction with the Highway No. 407

Transitway) at the northeast corner of Highway 7 and Bathurst Street and then proceeds to Yonge Street in the Highway 7 road allowance, partially in mixed traffic. The Vaughan North-South Link runs south from Highway 7 on Jane St and then turns east on the planned collector road that will parallel Steeles Avenue to connect with the Region of York's intermodal terminal facility.

Reasons for the Selection of the Preferred Alignment by Individual Segment

- **Segment A:**
 - The Highway 7 road allowance was determined to be the sole opportunity to provide for the transitway.
- **Segment B West, (400 to Centre Street on Highway 7), Alternative B1:**
 - Projections show that a direct connection from Markham and Richmond Hill to both York University and the Vaughan Corporate Centre will generate the highest ridership;
 - The route corresponds to the Regional Official Plan's Nodes and Corridors policies;
 - It allows for the continuation of the Quick Start service to York University on Keele Street, between Highway 7 and Steeles Avenue;
 - The route supports Vaughan's vision for the Highway 7 corridor, including service to the major redevelopment area south and east of the Jane/7 intersection;
 - A connection to a future Highway No. 407 Transitway service is possible at either the Jane or Keele Street interchanges;
 - A connection to a future station on the GO Rail Bradford line is possible;
 - Adverse effects on the social and natural environment are either minimal or able to be mitigated.
- **Segment B East, (Centre Street to Yonge Street on Centre to Bathurst to Highway 7), Alternative B6:**
 - Has the potential to attract ridership from existing commercial and residential development on both sides of the alignment, as well as future transit oriented intensification at the Dufferin and Bathurst nodes on Centre Street;
 - The route serves existing community facilities and a major shopping area while providing for urban design improvements in the rights-of-way;
 - A connection to a future Highway No. 407 Transitway service can be provided at the Bathurst-Highway 7 intersection;
 - Connections to local transit serving large residential areas north of Highway 7 (e.g. the Carrville Community) can be made at the Bathurst and Dufferin nodes on the alignment. Local bus services will need to be configured as feeders to the rapid transit stations;
 - The effects on the natural environment are negligible or minor and traffic management measures and improved transit vehicle technology can mitigate social and environmental impacts.

The Undertaking

The form of the undertaking recommended by the Environmental Assessment is summarized below.

i. System Capacity

As part of the EA study, ridership projections were conducted to the year 2021. Given the breadth of the system, ridership levels vary as to area and segment. The following results were derived.

Vaughan North-South Link:

- For the morning peak hour in the peak direction, heading south from Steeles Avenue: 2200 passengers per hour;
- For the morning 3 hour peak period, heading south from Steeles Avenue: 5250 passengers; and heading north from Steeles Avenue: 2660;
- If the North-South Link were converted to subway technology, a 20% increase in rapid transit ridership would be anticipated.

Highway 7:

- For the morning peak hour in the peak direction, in the Highway 27 to Islington Link: 800 passengers per hour;
- For the morning peak hour in the peak direction, in the Islington to Highway No. 400 Link: 1500 passengers per hour;
- For the morning peak hour in the peak direction, in the Highway No. 400 to York University Link: 1500 passengers per hour;
- For the morning peak hour in the peak direction, at Keele Street to Yonge Street Link: 1600 passengers per hour;

ii. System Technology

Candidate technologies identified in the EA include Bus Rapid Transit (BRT), Light Rail Transit (LRT) and heavy rail, in the form of an extension to the Spadina Subway, as the ultimate form of service in the Vaughan North-South Link. All of the alignment alternatives developed can accommodate both LRT and BRT systems and the EA is seeking approval to use either technology, subject to receiving the approval of Regional Council for conversion to LRT.

Peak passenger loads at 2021 indicated that either a BRT or LRT system would be capable of serving the projected volumes. From a system perspective, a number of qualitative and quantitative criteria were developed to assess the alternative technologies and their potential mix. As a result, an all BRT system was preferred in the initial phase. The decision to convert to Light Rail Transit would be based on the need to any overcome potential deficiencies in the BRT service or to obtain the benefits of the use of LRT technology.

It is being proposed that the all BRT system be in place by 2010. Conversion of portions of the system to Light Rail would be considered subject to the results of a monitoring program. However, current indications are that that the best candidates for conversion to Light Rail would occur in the Yonge Street Corridor, especially if the Yonge Subway is not extended; and along Highway 7 from Yonge Street to the Markham Centre.

At 2021 the anticipated level of service required for surface rapid transit on Highway 7 and on the Vaughan North-South Link would be on the order of 30 buses (standard or articulated) per hour per direction. The Light Rail equivalent is eight 2-car trains per hour.

iii. System Infrastructure

The recommended system is composed of the following infrastructure:

- A 41 km two lane, median transitway on the preferred alignment between Highway 50 and the Markham By-pass designed to both BRT and LRT standards;
- A surface transitway forming the Vaughan North-South Link between Highway 7, at the Vaughan Corporate Centre and York University, as well as the eventual replacement of the transitway by an extension of the Spadina Subway from Steeles Avenue at York University to Highway 7;
- Short sections of transit operations in mixed traffic through constrained sections of the right of way and existing underpasses of major north-south arterial roads (e.g. Bathurst Street and Bayview Avenue);

- Stations at approximately 1 kilometre spacing, located generally at major intersections;
- Access to an intermodal facility in the Langstaff area and at Markham Centre to provide connection to GO Transit and the proposed Yonge Street Transitway;
- Development of a Terminal Facility (York Region's current site) at the northwest corner of Steeles Avenue and North West Gate at York University and a park-and-ride lot in the hydro corridor to provide connection to the proposed Spadina Subway extension;
- Access to a maintenance facility for transit vehicles; potentially located south of Highway 407 on the east side of Yonge Street;
- Access facilities at stations to encourage and support pedestrian and bicycle modes of transportation.

The plan is described below, focusing on the implications surrounding the proposed service.

d) Description of the Transitway (BRT Service) and Implications for the City of Vaughan

i. Transitway/Road Allowance Design

The Highway 7 Transitway and the Vaughan North-South Link will help define the land use and urban design future of large parts of the city. They will be a major presence in Thornhill, the Corporate Centre, Woodbridge and in the intervening Employment Areas. Of the 41 kilometres of transitway, approximately half is in the city. Generally, the plan works within the existing road allowances, and where possible provides for median landscaping to improve and soften the visual impact on the arterial roads.

The form of the transitway will be described in two parts. The Highway 7 section and the Vaughan North-South Link will be presented below. Attachments 3.1 through 3.29 illustrate the Highway 7 Transitway portion of the project. The Vaughan North-South Link section is shown in Attachments 4.1 through 4.9). Attachments 5.1 through 5.4 illustrate the standard transitway configurations that will be used throughout the corridor. Each will be applied in the appropriate circumstances.

The Highway 7 Transitway

- **Highway 50 to Highway 27 (Attachments 3.1 – 3.4):**
 - The Transitway operates on centre median between Highways 50 and 27;
 - The westerly terminus at Highway 50, uses Highway 50 and Huntington Road as a turnaround loop operating in mixed traffic, with a curbside stop on the widened Highway 50;
 - 4.0 m landscaped centre median is provided between Highway 50 to just west of the planned north-south collector road for the Block 57/58 area (east of Highway No. 427).
 - The centre landscaped median may be reduced if a continuous rapid transit service is extended into Brampton and when the Block 57/58 north-south collector is introduced (for turning lanes);
 - A 5.2 m wide boulevard is consistently applied in this area (2.0 m sidewalk, 3.2 m landscaping) along with three continuous through lanes in both directions;
 - A future connection to a potential Highway No. 427 transitway is identified, including a median station;
 - The bridge over Highway No.427 will need to be widened, 4.75 m on the south side and 10.89 m on the north side;
 - A pedestrian sidewalk over the bridge can only be provided on the north side;
 - A median station will be provided at Highway 27 (eastbound on east side of the intersection; westbound on the west side of the intersection);
 - It is expected that most of the lots fronting onto Highway 7 will have alternate access (i.e. internal subdivision roads) so the need to accommodate left turns will be much diminished.

- **Highway 27 to Islington Avenue (Attachments 3.4 – 3.8)**
 - East of the Highway 27 station, the 4.0 m landscaped median is reintroduced and continues to just to the east of the north-south Hydro Corridor, which crosses Highway 7;
 - To the east of the Hydro Corridor, the median is limited to one metre in width;
 - A median station is provided at Martin Grove Road (eastbound on east side of the intersection; westbound on the west side of the intersection);
 - From Highway 27 to just to the east of Plunkett's Creek Bridge, the standard 5.2 m boulevard is maintained; retaining walls will be required adjacent to the residential lots on the north side of Highway 7 from Martin Grove Road to the east of Parkfield Court;
 - East of Plunkett's Creek, the road allowance enters one of its narrowest sections due primarily to the character of the existing development and the separation of the bridge abutments for the CP Rail bridge, between Kipling and Islington Avenues;
 - The road section contracts from three through lanes to two through lanes in both directions starting at Woodstream Boulevard, just west of the Creek;
 - Due to the narrow right of way, the rapid transit services enters mixed traffic at Kipling Avenue and runs in mixed traffic from Kipling to Islington;
 - Curbside stations are provided at Kipling (east of the intersection) and at Islington (west of the intersection).

- **Islington Avenue to Weston Road (Attachments 3.8 – 3.13)**
 - The transitway returns to the centre median to the east of Islington Avenue;
 - The boulevard width varies between Islington Avenue and Pine Valley Drive due to the effects of topography and existing development. Sidewalks are provided on both the north and south sides of Highway in this segment;
 - Two through lanes are provided in each direction between Islington Avenue and Pine Valley Drive;
 - A median station is located at Pine Valley Drive (eastbound on east side of the intersection; westbound on the west side of the intersection);
 - Three through lanes are provided in each direction between Pine Valley Drive and Weston Road;
 - Median landscaping is discontinuous throughout this section;
 - A 4.0 wide median landscaped strips are provided east (100 m long) and west (150 m long) of the Helen/Wigwoss intersection;
 - From Pine Valley to Weston the boulevards become more regular, generally returning to 5.2 m in width;
 - The landscaping median reappears flanking Aberdeen Avenue, approximately 250 m long west of the intersection and 100 m long east of the intersection;
 - Aberdeen Avenue is identified as a future station site;
 - In order to accommodate the transitway, retaining walls will be required on the north side of Highway 7 adjacent to the residential area, from Pine Valley Drive to approximately 350 m east of Aberdeen Avenue;
 - The 4.0 m landscaped median reappears and continues for approximately 350 m, ending where the commercial development commences on the north side of Highway 7;
 - Stations are provided at Ansley Grove Road and Weston Road (eastbound on east side of the intersections; westbound on the west side of the intersections);

- **From Weston Road across the Highway No. 400 Bridge (Attachments 3.13m – 3.14)**
 - Throughout this segment, the transitway remains in a centre median configuration;
 - Three through lanes are provided in each direction;
 - The Highway No. 400 bridge will need to be widened by .8 m on the north and south sides to accommodate pedestrian sidewalks and ramp realignment will be required;

- **Highway 400 Bridge to the CN McMillan Yard Bridge - The Vaughan Corporate Centre Segment of the Transitway (Attachments 3.15 – 3.17)**
 - This area includes the Highway 7 frontage of the Vaughan Corporate Centre node;
 - The transitway treatment identified for this area is inconsistent with the objective identified in a number of City planning documents (e.g. Corporate Centre Secondary Plan and Design Guidelines);
 - The City is currently completing the Vaughan Corporate Centre Streetscape and Open Space Master Plan Study, which will provide detail on the preferred design treatment for the transitway and road allowance;
 - The EA Report acknowledges this study and includes language describing how the results of the study may be incorporated into the proposed design;
 - On October 11, 2005 Committee of the Whole approved the recommendations of a staff report, advising the Region of a preferred design for the road allowance and transitway and that the design should be implemented either through the detailed design process or as an amendment to the EA and that the costing of the project be based on this treatment;
 - The treatment proposed in the EA relies on the centre median concept, with three through traffic lanes in each direction, with stations at Edgeley Boulevard, Jane Street with a potential station identified at Creditstone Road;
 - The identification of a potential station site at Creditstone Road is supported due to potential for major development in the immediate area;
 - Limited landscaping is provided through this area, with no continuous median landscaping away from the station locations;
 - The EA plan uses a maximum 43 m wide road cross-section. In this area the existing right of way is approximately 60 m. There is sufficient right of way available to achieve the City's streetscape objectives;
 - Currently, the station locations and configurations do not support a future subway extension to Highway 7, which would follow the planned Millway Avenue route; there is no station located at Millway and changes would have to be made to relocate the station. The study acknowledges this fact in Section 12.5, proposing that the station relocation may be dealt with through a local amendment to the EA for the subway extension;
 - The alternative concept identified in the City's study shows how this can be achieved;
 - Current language in the EA identifies the need for flexibility in order to incorporate the results of the Vaughan study on the streetscape regime for the Corporate Centre area;
 - This approach is satisfactory;

- **CN McMillan Yard Bridge to Centre Street (Attachments 3.18 – 3.21)**
 - The centre median transitway continues along the bridge and through to Keele Street;
 - To accommodate the transitway the north and south sides of the bridge will have to be widened by approximately 2.5 m on both sides;
 - No median landscaping is provided between the bridge and Keele Street;
 - Three through traffic lanes are provided in each direction;
 - A station is provided at Keele Street, with both the eastbound and westbound platforms located on the east side of Keele Street;
 - Minimal median landscaping through the Keele-Centre section;
 - The north side boulevards largely reflect the standard 5.2 m and south side boulevards are constrained by the existing development, particularly east of Keele Street;
 - The centre median transitway continues from Keele Street to just past Bowes Road, where the right of way narrows for the GO Rail overpass;
 - Three through lanes in each direction are maintained, however the rapid transit service moves into mixed traffic east of the bridge;

- The potential for a future GO Rail station is identified at this location, should a new station be implemented at Highway 7;
- **Centre Street from Highway 7 to Bathurst Street (Attachments 3.21 – 3.25)**
 - Coming onto Centre Street eastbound the rapid transit service remains in mixed traffic on Centre Street until it returns to the median just to the east of the Highway No. 407 bridge;
 - Westbound rapid transit remains in a median transitway, flanked by a landscaped strip, from just east of the Highway 407 bridge, to where it makes the westbound turn onto Highway 7, ultimately emerging in mixed traffic;
 - The two lane centre median configuration runs from east of the 407 overpass to Dufferin Street where there is a station, where both the east and westbound platforms are located to the east of the Dufferin St./Centre Street intersection in the centre median;
 - Centre Street maintains two continuous through lanes from Highway 7 to Bathurst Street;
 - A landscaped strip a maximum of six metres in width, approximately 150 m in length, flanks the north side of the westbound rapid transit lane west of Dufferin Street;
 - East of the Dufferin Street station, the two rapid transit lanes continue in the median to Bathurst Street;
 - Approximately 150 m east of Dufferin, the 4.0 m median landscape strip is reintroduced, continuing past the Concord Road/Wade Gate intersection; beyond that point the landscaped median is discontinuous;
 - A future station site is identified at the Vaughan Boulevard/Carl Tenen Street intersection. Provision for the station has been included in the median configuration. Land potentially devoted to the station is currently identified as landscaping;
 - To accommodate left in-bound and out-bound turns to the commercial properties on the north side of Centre Street, west of New Westminster Drive, a mid-block left and U-Turn signalized intersection has been identified, with the final location to be determined in consultation with the property owners during the design phase;
 - A station is located at North Promenade and the future Disera Drive intersection, with both platforms to the east of the intersection, diagonally opposite to the YRT Promenade Bus Terminal;
 - The median transitway makes the transition northbound onto Bathurst Street;
 - The plan provides for landscaped medians on all four legs of the Bathurst Street/Centre Street intersection;
- **Bathurst Street from Centre Street to Highway 7 (Attachments 3.25 – 3.29)**
 - From Centre Street to Beverly Glen Boulevard, the transitway maintains a consistent configuration, with the median lanes separated by a four metre wide landscaped strip;
 - North of Beverly Glen, the landscaped strip narrows and is eliminated to allow the transit lanes to run side by side into the station at the Atkinson Avenue/New Westminster Drive intersection;
 - The southbound platform is on the south side of the intersection and the northbound platform is on the north side of the intersection;
 - Proceeding north of the Atkinson/New Westminster station, the 4 m median landscaped strip reemerges and continues to Worth Boulevard;
 - North of Worth Boulevard, the bus lanes taper directing the service into mixed traffic, which continues north of the Highway 407 and Highway 7 bridges and into a station site on the access ramp to Highway 7;
 - The station is co-located with a future Highway 407 Transitway Park and Ride Facility at the northeast corner of Bathurst Street and Highway 7.

The Vaughan North-South Link to York University and the Continuation of the Quick Start York University Service via Keele Street

- **Jane Street from Highway 7 to the East-West Road Paralleling Steeles Avenue (Attachments 4.1 – 4.4)**
 - The Vaughan North-South operates as a BRT service and proceeds south from Highway 7 on Jane Street. It is located within a centre median from Highway 7 to Interchange Way.
 - There is no median landscaping in this section but the 5.2 m wide boulevards are maintained on both the east and west sides of the street, two through travel lanes in each direction;
 - South of Interchange Way the same configuration is maintained to the entrance to Beechwood Cemetery, which is proposed to be signalized;
 - The Jane Street Bridge over Peelar Road will have to be widened by 1.43 m on the east side and the Jane Street bridge over Highway 407 will have to be widened by 5.35 m on the east side and .25 m on the west side;
 - South of the Beechwood Cemetery Driveway, the median bus lanes taper and the service merges into mixed traffic, and continues under the CN Halton rail bridge to the proposed East-West Collector Road, located on the southerly edge of the Hydro Corridor;
 - A bus-only inbound left turn lane is provided at East-West collector, which is planned to be signalized;
 - South of this access is a landscaped centre median, ranging in width from 5.93 to 6.0 m;

- **East-West Collector Road to York Regional Bus Terminal/Commuter Parking, Steeles Avenue and York University (Attachments 4.4 – 4.6)**
 - The rapid transit service continues in mixed traffic along the east-west collector road, which is planned to have a four lane section, with the road allowance being partially located within the south portion of the Hydro Corridor and on the developable lands that have frontage on Steeles Avenue;
 - A small commuter parking lot is identified in the Hydro Corridor, north of the east-west collector, with additional terminal facilities to be identified in the Spadina Subway extension Environmental Assessment;
 - The east-west collector road reaches the proposed York Region Intermodal Terminal, which is approximately one third of the distance between Jane and Keele Streets. The configuration for the terminal will be finalized during the TTC/Toronto Spadina Subway Environmental Assessment;
 - Abutting the east side of the Region's Transit Terminal is the north-south road that will provide the connection to Steeles Avenue. It is an extension of North West Gate on the York University Campus and they will meet at a signalized intersection on Steeles Avenue;
 - The north-south collector will have a four lane section, with a left turn lane for general traffic and dedicated left turn lane for buses;
 - The rapid transit service would then proceed along Steeles Avenue in mixed traffic to a new signalized intersection that would give it access to the York University Campus, between Founders Road and Keele Street;
 - The route through the York University Campus would be determined by the Bus Rapid Transit Environmental Assessment that the TTC/Toronto is doing to establish a connection to the Downsview Subway Station;

- **Continuation of the Keele Street York University Service (Attachments 4.7 – 4.9)**
 - The Quick Start program currently provides a York University service into the campus, from the east, by way of Keele Street;

- This service will be maintained and will continue to run in mixed traffic from Highway 7, while retaining the bus priority measures which are part of the Quick Start program;

ii. Implications for the City of Vaughan

The introduction of a rapid transit service will be a major catalyst in the transformation of the current Highway 7 and Centre and Bathurst Streets from a Provincial Highway to an urban arterial road. The City is looking to build on and support this initiative through the Centre Street Study and the Highway 7 Futures Study. An assessment of the preferred undertaking was conducted examining the positive and negative impacts of the pre-construction, construction and operational phases of the project. It then looked at proposed mitigation measures, the level of impact after mitigation and any additional monitoring requirement and recommendations. The evaluation is set out in matrix format in Section 10 of the study, under "Analysis of Environmental Effects and Mitigation". The following criteria were used.

- To improve mobility by providing a fast, convenient and efficient rapid transit service;
- To protect and enhance the social environment in the corridor;
- To protect and enhance the natural environment in the corridor; and
- To promote smart growth and economic development in the corridor.

Generally, the impacts were positive or could be mitigated to a minimal level of significance. Given the diversity of the corridor and the form of the transitway, there will be impacts on traffic operations and urban design. The following are noteworthy.

Urban Design

The plan shown in the EA for the Corporate Centre does not reflect the City's ultimate preference as illustrated in the report to Committee of the Whole on October 11, 2005. The plan currently shows minimal landscaping. The recommendations contained in this report should reaffirm the City's desire to see the streetscaping/transitway plan revised either by amendment to the EA or at the time of detailed design to reflect the City's ultimate intentions. It is noted that the Subway extension portion of the EA deals specifically with this issue by stating that, "Transit intermodal facilities will be developed in consultation with Vaughan as part of the introduction of a comprehensive landscaping and streetscaping plan for the VCC and station precinct". These measures will need to be taken into account in the original transitway design.

In addition, the plan shows a "VCC Transit Square Concept" at the northwest corner of the intersection of Millway Avenue and Highway 7, which is identified as a transit terminal facility in Section 12. It is recognized that there will be the need for some surface intermodal facilities at a future subway terminal station. However, there is minimal information available on the facility identified in the EA study. It will have to be addressed further with the City in accordance with the statement quoted above, including the basis for the selection of this location.

The study acknowledges that there are areas that have insufficient road allowance width to permit significant landscaping. An example is the section of Highway 7 between Martin Grove Road and Pine Valley Drive. For such areas, the plan suggests that redevelopment be monitored and that property be acquired through redevelopment. An alternative would be to incorporate sufficient setbacks to allow for landscaping to be provided on the private lands, between road allowance and the building.

The City is currently conducting several land use studies in areas that will be directly affected by the transitway. These include the Highway 7 Futures Study and the Steeles Avenue Corridor Study – Jane Street to Keele Street. Both studies are nearing conclusion. Each will have land use and urban design implications for these areas. In order to optimize the opportunities for aesthetic improvements along Highway 7 and in the Vaughan North-South Link, the outcomes of these studies should be taken into account during the detailed design of the transitway and the

surrounding road allowance. Improving the urban and aesthetic environment will support both the Region's and City's development objectives and improve the chances of their being achieved.

Therefore, a recommendation has been included requesting that the Region work with the City during the detailed design phase for the transitway to take into account the results of these studies.

Road Operations

Notwithstanding the introduction of rapid transit, traffic volumes on Highway 7 will continue to grow. The introduction of the centre median will have a number of effects, which include:

- **A prohibition on left turns in and out from driveways and minor roads due to the transitway;**

The EA indicates that alternative access can be obtained by way of another site or an adjacent roadway. Users will have to adapt and find alternative routes. The introduction of "U-turns" at signalized intersections is also provided;

- **Impact of the introduction of "U-turns" to accommodate left in and left out turns;**

In some instances there might be conflicts between "U-turns" and right turn movements onto Highway 7 from side streets when the traffic signal is red. It may be necessary to restrict right turns on red lights from side streets. This should be monitored and measures taken to reduce any potential conflicts. It is noted that some of the intersections with four lane road sections may not permit "U-turns" by large trucks. Restrictions may have to be imposed where warranted.

- **Pedestrian crossings given the additional road width in some areas;**

Given the introduction of the transitway and the station facilities, there is a substantial increase in the paved portion of the road allowance, especially at major intersections. Some pedestrians may not be able to cross in one signal phase. The transitway will have pedestrian refuge areas built into the design to allow them wait at mid-crossing. A further alternative would be to have a two-stage crossing system to accommodate heavier traffic. Before proceeding to a two-stage system, monitoring should occur under operating conditions to determine if it is warranted.

- **The potential for traffic infiltration in some areas;**

Traffic infiltration has been identified as a possible problem in certain neighbourhoods, resulting from drivers trying to avoid Highway 7. This may increase as a result of the constraints introduced by the transitway. The following neighbourhoods may be affected: Monsheen Drive; Willis Road/Chancellor Drive; New Westminster Drive; and Beverly Glen Boulevard. The EA recommends that these neighbourhoods be monitored before and after the implementation of the transitway to determine if additional mitigation measures are required.

e) The Vaughan North-South Link Ultimate Conversion to Subway Technology

Background

The EA study's terms of reference includes the requirement for an assessment of a potential extension of the TTC's Spadina Subway from Steeles Avenue to the Vaughan Corporate Centre. Undertaking this examination is consistent with the official plan policies of both the Region of York (Transportation Plan and Centres and Corridors Strategy) and the City of Vaughan (OPA 500 – Corporate Centre Secondary Plan and OPA 529 – Higher Order Transit Corridor Protection).

The Corporate Centre is defined in the York Official Plan as a "Regional Centre". Regional Centres are intended to provide a diverse, mixed use style of development in a form that is compact, transit supportive, pedestrian friendly and well-designed. Vaughan's policy regime builds on these concepts through a series of approved and evolving policy documents including the Corporate Centre Secondary Plan, the Highway 7 Futures Study and the Vaughan Corporate Centre Streetscape and Open Space Masterplan Study. Embedded in the policy documents is

the need to provide a rapid transit service between the Corporate Centre and the TTC system in Toronto.

Respecting these objectives, the City of Vaughan prepared the "Higher Order Transit Corridor Protection Study – Vaughan Corporate Centre to York University" (January 2001). The study identifies a rapid transit alignment between the Corporate Centre and Toronto, which is capable of accommodating an underground subway connection from Steeles Avenue. This alignment was incorporated into the Vaughan Official Plan through the adoption and approval (July 11, 2001) of OPA No. 529.

A study was also undertaken to establish the range of terminal facilities that would be required to support a subway station at Steeles Avenue. This resulted in the "Property Protection for Steeles Rapid Transit Terminal Facilities" study (January 2001), which identified the property requirement for a terminal. This site was identified in OPA 529 and was later acquired by the Region of York.

The Higher Order Transit Corridor Protection Study was informed by the TTC's concurrent "Rapid Transit Expansion Study" (August 2001). This study recommended that the Spadina Subway Extension to Steeles Avenue be adopted as one of its two priorities for rapid transit expansion, should funding come available. The Commission adopted this recommendation. The conceptual alignment that was carried forward from the Rapid Transit Expansion Study was consistent with the alignment shown in OPA 529. It is noted that the Planning Act approval of an alignment does not entail an approval under the Environmental Assessment Act. The EA process may accept, reject or alter the alignment.

In October 2004, the TTC initiated an individual Environmental Assessment for an extension of the Spadina Subway from Downsview Station to Steeles Avenue by way of York University. The terms of reference for the study limited the subway alignment alternatives to the corridor between Downsview Station and the York Region Terminal on the north side of Steeles Avenue, opposite the University. The TTC is targeting the completion of the EA study for the end of 2005, with MOE approval occurring in 2006.

The Spadina Subway Extension Environmental Assessment has identified three alignment alternatives within the preferred corridor. One of the alignment alternatives closely replicates the route identified in OPA No. 529, providing a subway station oriented east-west, within the Steeles Avenue right of way. The other two alternatives approach the Steeles Avenue Bus Terminal from the southeast, crossing Steeles Avenue at an angle. Adoption of either of the latter routes would be at variance from the OPA 529 alignment. This would necessitate the adoption of a new alignment north of Steeles Avenue between Steeles Avenue and the south side of the Highway 407 right of way.

The alignment alternative ultimately adopted for the extension of the subway into Vaughan will have to be compatible with the candidate alignments being developed through the TTC's EA process.

Basis for Proceeding with the EA for Converting the North-South Link to Subway Technology

Ridership forecasts prepared for the analysis of potential transit technologies assumed that the Spadina Subway would be extended to York University before 2021. The results indicated that bus rapid transit would be the appropriate technology for the Vaughan North-South link to the end of the planning period at 2021. There is a good probability that the subway will be extended to York University and Steeles Avenue within this time horizon.

Given the close proximity of York University to the Vaughan Corporate Centre, a major regional node, consideration of a short extension of the subway beyond Steeles Avenue to the Corporate Centre was considered to be a logical part of the Highway 7 Corridor Public Transit Improvements undertaking. The maximum transportation benefits and efficiencies would be

achieved by linking subway technology to surface rapid transit at the Corporate Centre and would support the development objectives of the City and the Region.

The conversion of the North-South Link to subway technology has been included in the EA study. This part of the EA study describes and updates the recommendations of Vaughan's "Higher Order Transit Corridor Protection Study – Vaughan Corporate Centre to York University" (Consult Limited and Tranplan Associates, January 2001).

The Analysis

When conducting the studies that led to the rapid transit alignment identified in OPA 529, it was the intent that they closely replicate the procedures and techniques used in an Environmental Assessment. Two studies were the basis for this work, being the "Vaughan Corporate Centre Transportation/Transit Planning and Functional Design Study", which examined options for a preferred rapid transit alignment within the Corporate Centre (north of Highway 407); and the "Higher Order Transit Corridor Protection Study – Vaughan Corporate Centre to York University", which identified the preferred alignment between York University and the Corporate Centre.

The Transportation/Transit Planning Functional Design Study for the Corporate Centre examined three alternative alignments for a rapid transit service to Highway 7. These alternatives ran north-south perpendicular to Highway 7 extending from Jane Street on the east to Edgeley Boulevard on the west. The study recommended that Millway Avenue be selected as the preferred alignment through the Corporate Centre. The alternatives were revisited and new ones were tested through the Corridor Protection Study. The Millway alignment remained the preferred alternative.

The alignment for the connection from the Corporate Centre to York University was established in the Corridor Protection study. It initially identified six corridors for examination using criteria based on the following headings:

- Transportation Design;
- Transportation Service;
- Social Environment;
- Natural Environment;
- Land Use;
- Implementation; and
- Cost

Two corridors were identified for further analysis. Both used the Millway alignment within the Corporate Centre. However, each accessed the Millway alignment by different means. Emerging from the York campus, Alternative A proceeded to the west along Steeles Avenue, while Alternative B took a northerly route to the west, through the Hydro Corridor. Both corridors turned north on the west side of Jane Street and proceeded into the Corporate Centre along the Millway alignment. Five specific alignments were developed, which were further evaluated. The ultimate comparison was between Alignments A-1 and B-1. A-1 used Steeles Avenue as its east-west route, while B-1 used the Hydro Corridor. Both alignments were completely underground.

Ultimately Alignment A-1 emerged as the preferred alignment. A-1 went north from the proposed York University station and accessed Steeles Avenue approximately 800 m east of Jane Street. It then proceeded to the west past the Region's terminal site and Steeles West station, where it then turned to the north by way of a 360 m radius curve. It then moved north toward Highway 407 along the west side of Jane Street, where a 60 m long, 2000 m radius curve aligns it with Millway Avenue and its ultimate destination at Highway 7. This alignment was incorporated into OPA No. 529.

Alternative A-1 was preferred because it provided an increased level of service to the area because of better station separation and better prospects for implementation. With B-1 running

through the Hydro Corridor there were concerns over obtaining approvals from the relevant authorities.

The Undertaking (Attachment 6)

The EA study confirmed the alignment selected through the Higher Order Transit Corridor Protection Study, which was incorporated into OPA 529, subject to consideration of the results of TTC's current EA process. The undertaking includes the following elements, which comprise the ultimate phase of rapid transit improvement (subway technology) in the Vaughan North-South Link:

- The alignment for a subway right of way from the northerly limit of the tail track at the Highway 7 Station to the north end of the interim tail track at the Steeles West Station, as defined by the TTC's EA;
- Stations at Highway 7 and Highway 407;
- Development of transit terminal facilities on the York Region's site at the northwest corner of Steeles Avenue and North West Gate;
- An initial phase of the proposed park-and-ride lot within the Hydro Corridor north of Steeles Avenue (500 spots);
- A transit terminal facility at the northwest corner of Highway 7 and Millway Avenue.

This Environmental Assessment is seeking the approval of this alignment with the option to amend the portion south of Highway No. 407 to tie into the alignment that may ultimately chosen through the TTC's EA process for the Spadina Subway extension. No change to the alignment to the north of Highway No. 407 is proposed.

An amendment to the EA will include:

- Analysis of tunnel horizontal and vertical alignment options through the "tie in" zone between Steeles Avenue and Highway No. 407;
- Identification of a preferred location for a subway station at the future Highway No. 407 Transitway, on the alignment together with the integration of surface facilities, which have been identified through a 407 Transitway EA;
- Assessment of the effects of construction and operation of the subway on the surrounding environment and the mitigation measures;
- Finalization of the preferred functional design for the Highway 7 Terminal Station and surface facilities including the relocation of the surface rapid transit station on Highway 7 at Jane Street;
- Assessment of the effects of construction and operation of the Highway 7 station facilities on the surrounding environment.

The EA states that the timing of the construction of a subway extension into York Region will depend on the timing and extent of the expansion of the subway system to Steeles Avenue. If expansion into York Region can be funded as part of the Downsview Station to Steeles Avenue project, then two could initiatives could be integrated. If the Toronto project is terminated at Steeles Avenue, the timing of the North-South Link subway conversion will depend on the availability of funding and the need to support growth around the Corporate Centre.

Assessment of the Preferred Subway Design: Analysis of the Environmental Effects and Mitigation

An impact analysis was undertaken to identify and mitigate the potential effects of pre-construction, construction and operational activities required for project implementation. These factors were evaluated on the basis of the following four criteria:

- To improve mobility by providing a fast, convenient, reliable and efficient rapid transit service;
- To protect and enhance the social environment in the corridor;
- To protect and enhance the natural environment in the corridor;
- To promote smart growth and economic development in the corridor.

From the perspective of all four criteria, it was determined that the subway extension would have positive effects and that any negative impacts can be mitigated.

Comment

The recommendations of this portion of the EA study should be supported. Putting in place the EA approvals for a subway extension from Steeles Avenue to the Corporate Centre is a welcomed initiative for a number of reasons. It will clearly establish a commitment to the development concepts that are being put forward in City, Regional and Provincial planning documents; in the interim it will inform investment decisions by both the public and private sectors; it will allow for the necessary property protection; and the project will be design-ready so that the next steps in the process can take place quickly once financing has been committed.

There is a level of uncertainty surrounding the alignment between Steeles Avenue and Highway No. 407 as a result of the TTC's Spadina Subway Extension Environmental Assessment. This is unavoidable due to the timing of the two processes. Of primary concern is maintaining the Millway Avenue alignment through the Corporate Centre, in order to ensure that the Highway 7 station can be built at its planned location and so property protection and acquisition can continue. The TTC has demonstrated that the three alignment alternatives currently under consideration in the Spadina EA will all work in the context of the City's objectives for the Corporate Centre. In addition, all three can provide for the location of an additional station at the planned Highway No. 407 Transitway, on the west side of Jane Street, south of the highway.

In order to overcome this issue, the EA recommends that additional studies take place when the preferred designs for the inter-related facilities have received EA approval. These studies would form the basis for an EA amendment. This is an appropriate response. It is critical that none of the EA approval processes be slowed. Approval of this portion of the EA on the basis of the planned amendment should be supported. In addition, the Region of York should be requested to initiate the amending report shortly after the approval of the TTC's Spadina Subway Extension EA. Failure to proceed expeditiously with the amendment to the EA may be interpreted as a lack of commitment to the project, possibly altering investment decisions and compromising the preservation of rights of way.

Relationship to Vaughan Vision 2007

Implementation of the services envisioned by the York Rapid Transit Plan is consistent with the objectives of Vaughan Vision 2007. Under Section 3 "Transportation and Transit Infrastructure", Subsection 3.1 identifies the need to, "Support the TTC subway extension projects (Spadina and Yonge Street) with the Spadina line as the top priority. Further under Subsection 3.2, "Implement solutions to traffic gridlock", Paragraph 3.2.1 states, "Support the Region of York and other agencies to ensure higher order transit."

Conclusion

The implementation of the York Region Rapid Transit Plan will be a positive step in the evolution of the Region of York and the affected local municipalities. The plan will promote the transformation of southern York Region into a more urban place by shaping the style and intensity of development in the affected corridors, supporting economic development, increasing public mobility and improving environmental quality by offering an alternative to the private automobile. For these reasons the approval of the Environmental Assessment should be supported.

Combined with the Yonge Street public transit improvements, the Highway 7 Transitway and Vaughan North-South Link will be one of the largest infrastructure projects in the history of York Region. It will influence growth and development for decades. In anticipation, the City has already undertaken a number of corresponding land use studies including the Highway 7 Futures Study, the Centre Street Study and the Steeles Avenue Corridor Study, from Jane to Keele Street. These studies propose land use policies that will support and build on the opportunities provided by a comprehensively planned and developed rapid transit service.

The Highway 7/ Centre Street/Bathurst St. corridor is characterized by its variety of urban environments. There are alternating areas of residential and employment land, differing traffic challenges, changes in topography, built form constraints (e.g. bridges) and varying road allowance widths. As such, the form of the transitway will vary throughout depending on the circumstances. A number of issues have been identified. Most of the matters have been dealt with satisfactorily. The need for an upgrade to the treatment of the Vaughan Corporate Centre has been noted and the Region of York will be advised of the City's concerns as a result of an earlier report ("Design Concept for Avenue 7 Including Rapid Transit Through the Vaughan Corporate Centre", Committee of the Whole, October 11, 2005). The City's response has been reinforced in this report.

The conversion of the Vaughan North-South Link to Subway Technology is also covered in this Environmental Assessment. It describes and updates the recommendations of the studies done by the City for OPA No. 529, which identified an alignment for a subway extension north of Steeles Avenue to the Corporate Centre. It is opportune that this study is taking place now because the TTC is in the latter stages of its EA for an extension of the Spadina Subway to Steeles Avenue. The Region's EA confirms Vaughan's proposed route but identifies a "tie in" zone south of Highway No. 407, where the ultimate TTC alignment would be able to continue north to the Corporate Centre should it not replicate the OPA 529 alignment. The final alignment north of Steeles Avenue will then be finalized in an amendment to the EA. In addition it will provide for any necessary adjustments to the transitway in the Corporate Centre to accommodate a subway station at Millway Avenue.

On this basis, it is recommended that the Ministry of the Environment be advised that the City of Vaughan supports the approval of the Highway 7 Corridor & Vaughan North-south Link Public Transit Improvements Environmental Assessment (August 2005).

Attachments

Councillors Only

Note: A copy of the Highway 7 Corridor and Vaughan North-South Link Public Transit Improvements Environmental Assessment is available for review in the Clerk's Department.

1. Alignment Alternatives Evaluated: Figure E-4.
2. Summary of Preferred Alignment and Station Locations: Figure E-5.
3. Preferred Transitway Alignment for the Highway 7 Corridor:
 - 3.1 Figure 9-2: Interface at Highway 50;
 - 3.2 Figure 9-3: Western edge of Highway No. 427 (Interface with 427 Transitway);
 - 3.3 Figure 9-4: Highway No. 427 east side;
 - 3.4 Figure 9-5: Highway 27 Intersection;
 - 3.5 Figure 9-6: East of Highway 27m to just before Martin Grove Road;
 - 3.6 Figure 9-7: Martin Grove Intersection to Plunkett's Creek;
 - 3.7 Figure 9-8: Plunkett's Creek to east of McKenzie Street;
 - 3.8 Figure 9.9: Islington Avenue Intersection and Humber Valley;
 - 3.9 Figure 9-10: Bruce Street to Helen Street;

- 3.10 Figure 9-11: East and West of the Pine Valley Drive Intersection;
- 3.11 Figure 9-12: Marycroft Avenue Intersection West;
- 3.12 Figure 9-13: East and West of the Ansely Grove Intersection;
- 3.13 Figure 9-14: Nova Star Drive to Famous Avenue (Weston Road Intersection)
- 3.14 Figure 9-15: Highway No. 400 Interchange;
- 3.15 Figure 9-16: Corporate Centre through to Millway Avenue;
- 3.16 Figure 9-17: Corporate Centre from the Jane St. to Maplecrete;
- 3.17 Figure 9-18: Corporate Centre from Creditstone Road to edge of CN Yard;
- 3.18 Figure 9-19: Bridge over the CN Rail Yard;
- 3.19 Figure 9.20: Keele Street Intersection;
- 3.20 Figure 9-30: Baldwin/Bowes Intersection and GO Bradford Line;
- 3.21 Figure 9-31: Centre Street Intersection (Transitway shifts to Centre St.);
- 3.22 Figure 9-33: Highway No. 407 to Centre St./Dufferin St. Intesection;
- 3.23 Figure 9-34: West of Dufferin St. Carl Tenen Street/Vaughan Boulevard;
- 3.24 Figure 9-35: To New Westminster Drive Intersection;
- 3.25 Figure 9-36: Centre St./Bathurst St. Intesection (Transitway shifts to Bathurst St.);
- 3.26 Figure 9.37: Bathurst St. to the Atkinson Ave. Intersection;
- 3.27 Figure 9-38: North to the Worth Blvd. Flamingo Rd. Intersection;
- 3.28 Figure 9-39: Bathurst St./Highway No. 407 Interchange;
- 3.29 Figure 9-40: Highway 7/Bathurst Intersection – Station and future 407 Transitway.

4. The Vaughan North-South Link and Quick Start Service to York University:

- 4.1 Figure 9-21: Jane Street south to Interchange Way;
- 4.2 Figure 9-22: Jane/407 Interchange;
- 4.3 Figure 9-23: Beechwood Cemetery to Hydro Corridor;
- 4.4 Figure 9-24: Proposed East-West Collector Road to Regional Facility;
- 4.5 Figure 9-25: Regional Terminal and North-South Road to Steeles Avenue;
- 4.6 Figure 9-26: Steeles Avenue to Potential North-South BRT Link to York U.;
- 4.7 Figure 9-27: Continuation of Quick Start York U. Service – Keele/Steeles;
- 4.8 Figure 9-28: Continuation of Quick Start York U. Service – Keele to 407;
- 4.9 Figure 9.29: Continuation of Quick Start York U. Service – Keele to Highway 7;

5. Standard Transitway Configurations:

- 5.1 Figure 9.1-2: Typical Transitway Cross-Section, 6 lane, 4 m median;
- 5.2 Figure 9.1-4: Typical Transitway Cross-Section, 6 lane, 1 m median;
- 5.3 Figure 9.1-8: Typical Transitway Cross-Section, 4 lane, 4 m median;
Figure 9.1-9: Typical Transitway Cross-Section, 4 lane, 1 m median;
- 5.4 Figure 9.1-12: Streetscaping Plan – Typical Station Layout at Intersection.

6. Preferred Alignment for the Spadina Subway Extension: Figure 12.4

Report prepared by:

Roy McQuillin, Manager of Corporate Policy, ext. 8211

Respectfully submitted,

Bill Robinson
Commissioner of Engineering and Public Works

John Zipay
Commissioner of Planning