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BICYCLE LANES ON HIGHWAY 7

The Transportation and Works Committee recommends the following:

- 1. Receipt of the presentation by Loy Cheah, Manager, Transportation Planning, Planning and Development Services; and**
- 2. Adoption of the recommendations contained in the following report dated January 28, 2009, from the Commissioner of Transportation Services and the Vice President, York Region Rapid Transit Corporation.**

1. RECOMMENDATIONS

It is recommended that:

1. Regional Council reconfirm the recommended solution shown in Figure 2 and Attachment 5 for bicycle lanes on Highway 7 as previously endorsed by Regional Council as part of the Pedestrian and Cycling Master Plan.
2. Staff make a presentation to the Town of Markham on this report.
3. Staff develop formal guidelines for the selection of bike facilities on Regional roads.
4. The Regional Clerk forward a copy of this report to the Clerks of the Towns of Markham and Richmond Hill and City of Vaughan.

2. PURPOSE

This report addresses a resolution from the Town of Markham requesting that York Region “incorporate segregated bicycle lanes within the Highway 7 right-of-way from the property line to the curb”.

It seeks Regional Council to reconfirm the typical design for the inclusion of bicycle lanes on Highway 7 as was previously endorsed in the Pedestrian and Cycling Master Plan.

3. BACKGROUND

REGIONAL PLANS AND POLICY

Regional policy for six-lane Regional roads has on-street bicycle lanes

In October 2006, Regional Council adopted a policy under the “Towards Great Regional Streets – A Path to Improvement” initiative for six-lane Regional roads. The “Regional Standard for Six-Lane Roads” policy provides for a road cross-section that includes on-street bike lanes next to the curb on both sides of the road.

York Region Pedestrian and Cycling Master Plan recommends on-street bicycle lanes on Highway 7

The Pedestrian and Cycling Master Plan adopted by Regional Council in April 2008 recommends on-street bicycle lanes on Highway 7 from Highway 50 to Don Cousens Parkway. This is a general recommendation and may change depending on factors such as property availability and other physical constraints identified during implementation.

The York Region Pedestrian and Cycling Master Plan is intended to address utilitarian cycling firstly and recreational cycling secondarily. In essence, it treats cycling as a viable mode of transportation.

Of course, encouraging recreational cycling is still important. However, recreational cycling facilities should generally be located on other corridors where local municipalities and other agencies play a larger role.

Highway 7 Transitway Environmental Assessment includes a 3m bike path on the south-side boulevard from Warden Avenue to Sciberras Road

York Region’s Highway 7 Corridor & Vaughan North-South Link Public Transit Improvements Environmental Assessment was completed for a proposed rapid transit line. As such, it is generally silent on bicycle facilities.

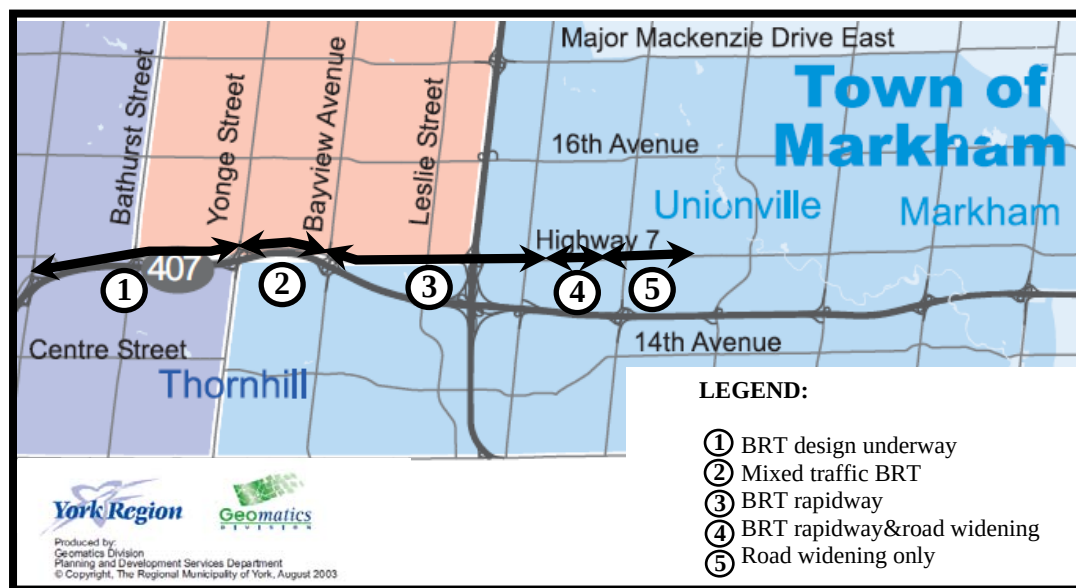
However, the EA included a road widening component for the segment of Highway 7 from Montgomery Court to Sciberras Road in Markham. The approved EA showed a preliminary design for Highway 7 with a 3m boulevard bike path on the south side from Warden Avenue to Sciberras Road as a result of a Town of Markham request for an off-road path. At the time of this EA, York Region had no policy or Council direction on bike lanes.

Summary of transit and road improvements planned for Highway 7

Figure 1 summarises Regional improvements currently planned for Highway 7:

- Yonge Street to Bayview Avenue – BRT in mixed traffic; no road improvements planned and no cycling facilities proposed at the current time
- Bayview Avenue to Town Centre Boulevard – BRT rapidway in the centre of Highway 7 with six general purpose lanes and separate on-street bike lanes planned at the curb in both directions
- Town Centre Boulevard to Sciberras Road – road widening only to six traffic lanes with separate on-street bike lanes planned at the curb in both directions

Figure 1
Proposed Transportation Improvements on Highway 7



MARKHAM PLANS

Markham Council has requested York Region to implement bicycle lanes on the boulevard of Highway 7

On December 16, 2008, Town of Markham Council adopted the following resolution:

“That the correspondence from Mr. Paul W. Young, Unionville resident, be received; and,
That the staff report entitled “Highway 7 Cross Section Between Montgomery Court and Sciberras Road”, dated December 9, 2008, be received; and,
That the six-lane cross section from Montgomery Court and Sciberras Road be endorsed as outlined in the report; and,

That the Region of York be requested to incorporate segregated bicycle lanes within the Highway 7 right-of-way from the property line to the curb; and,
That Town and Regional staff report back to Council on the detailed design of the cross-section, including upgraded medians and boulevards commensurate with the Regional Centre context; and further,
That a copy of this report and resolution be forwarded to the Region of York.”

The full Markham report and resolution (Attachment 1) was received and referred to staff by Transportation and Works Committee on January 7, 2009.

Markham Cycling Master Plan recommends on-street bicycle lanes on Highway 7

The Town of Markham is in the process of finalising a Cycling Master Plan. The draft Markham Cycling Master Plan received by Markham’s Development Services Committee in March 2008 shows on-street bike lanes on Highway 7 from Yonge Street to Don Cousens Parkway, consistent with York Region’s Pedestrian and Cycling Master Plan.

4. ANALYSIS AND OPTIONS

This report analyses and recommends the appropriate design for bike lanes on Highway 7 in response to the above Markham resolution.

SPEED LIMITS ON HIGHWAY 7

Traffic speed limits on Highway 7 will be reduced

The speed limit on Highway 7 is currently at 70 or 80 km/hr with short sections at 50 or 60 km/hr. At 70 to 80 km/hr speeds, on-street bike lanes with widths of 2 m or more is recommended for safe cycling.

However, as part of the VivaNext BRT design and Regional Standard for Six-Lane Roads policy, traffic lane widths on Highway 7 will be reduced. In conjunction with these lane width reductions, the speed zone bylaw will be revised to reduce the speed limit on the corresponding sections of Highway 7 to 60 km/hr to allow for safe traffic operations. At these reduced speeds, on-street bike lanes of 1.5 m widths are appropriate.

LAND USE CONDITIONS ALONG HIGHWAY 7

Urban context of Highway 7 varies from Highway 50 to Don Cousens Parkway

Highway 7 stretches across three local municipalities, City of Vaughan and the Towns of Richmond Hill and Markham, and is over 40 km long. It connects the three Regional Centres of Vaughan Corporate Centre, Richmond Hill Centre and Markham Centre. A centre median transit rapidway is being implemented on Highway 7.

Land uses along Highway 7 include residential, commercial, retail, institutional and industrial uses. From Centre Street to east of Bayview Avenue, there are no land uses on the south side of Highway 7 due to the proximity of Highway 407.

The right-of-way width of Highway 7 is designated generally in the 45 m range. While this is the desired width, property, heritage features and other constraints reduce this width at some parts of Highway 7.

TRAFFIC ACCESS CONDITIONS ALONG HIGHWAY 7

Density of local road and driveway access to Highway 7 varies as well

In some stretches of Highway 7, the commercial and retail land uses there have direct property access to Highway 7. Therefore, there would be many driveways cutting through the boulevards along these stretches of Highway 7.

Along other stretches of Highway 7, access to Highway 7 is managed through local roads which generally means a limited number of intersecting roads and driveways with Highway 7.

ON-STREET AND BOULEVARD BIKE FACILITIES

Current research points to on-street bike lanes as being safer for cycling

Attachment 2 is the summary of a 2004 technical report prepared for Austroads, an association of Australian and New Zealand road transport and traffic authorities. The report presents the findings of an investigation of conflicts between cyclists and pedestrians and best practices to minimise the conflicts.

Attachment 3 is an excerpt from the Ministry of Transportation's Ontario Bikeways Planning and Design Guidelines and Attachment 4 are excerpts from the American Association of State Highway and Transportation Officials's Guide for the Development of Bicycle Facilities. They describe in some detail the advantages and disadvantages of on-street bike lanes and boulevard bike paths in terms of cycling safety on these facilities.

In summary, from a cycling and pedestrian safety perspective, current research consistently indicates that on-street bike lanes are generally safer than boulevard bike paths for cycling. On-street bike lanes are also easier and less costly to maintain.

Boulevard bike paths have higher number of vehicle-cyclist conflict points at intersections and driveway crossings

A key difference between on-street bike lanes and boulevard bike paths is in the number of vehicle-cyclist conflict points at intersections and driveway crossings.

According to the Highway Traffic Act, bicycles are vehicles and, are therefore, required to follow the same traffic rules as other vehicles, as long as they are operating within the right-of-way of the road, either on-street or on the boulevard.

When a separate path is installed on the boulevard of a road for cycling, the bike path is like a parallel road to the main road, albeit offset by a few metres. That means that when the main road intersects with another road or driveway, two very closely spaced intersections are created rather than one intersection as in the case of on-street bike lanes.

More collisions at boulevard bike path intersections

When a boulevard bike path intersects at the intersection of roadways, navigation for cyclists becomes more complex. Not only is there the normal traffic flow on the road, but there is also the two-way bike path traffic heading in any one of three directions to contend with. Intersections are where the largest number of vehicle/bike collisions occurs. The addition of a boulevard bike path at an intersection explains why more vehicle/bike collisions occur on bike paths than on the adjacent roadway.

On-street bike lanes also have other advantages over boulevard bike paths

By not installing bike paths on the boulevard, planners have an easier task in planning for features on the boulevard, particularly with regard to pedestrian sidewalk and streetscaping elements. Table 1 summarises the advantages of each of the facilities.

Table 1
Advantages of on-street bike lane and boulevard multi-use path

On-street (1-way) lanes	Boulevard (2-way) shared path
• Separates cyclists from pedestrians, eliminating conflicts between them • Reduces number of vehicle-bicycle conflict points at local road and driveway crossings • Encourages utilitarian cycling • Helps to increase cycling modal split • Lower maintenance cost • Lower number of maintenance issues such as pavement condition & lighting • Clearer public understanding of rules of lane operation particularly at intersections with local roads and driveways • Allows for easier planning and design of boulevard features (i.e. urban design features such as open-air patios, wider sidewalks, tree or other plantings, street furniture, etc)	• Encourages recreational uses on the path including cycling, inline skating, and jogging, especially among children

Separate trails system for recreational cycling is still an important goal

Cycling is not a homogenous activity. In addition to utilitarian cycling, there is still a need to provide facilities to encourage cycling among children and cycling as a recreational activity. Recreational cycling facilities are also an important element of healthy communities. In this regard, working collaboratively with local municipalities, conservation authorities and trails stakeholders, York Region is completing a study to explore the concept of a Regional natural heritage trails system and to determine the role of the Region in regional trail planning and development including hiking, walking, cross country skiing, snowshoeing, wheelchair, cycling and other uses as appropriate and permitted. A number of local municipalities including the Town of Markham are also conducting their own trails study, or already have a trails master plan in place, to identify local road and greenway corridors where recreational cycling would be a primary use.

RECOMMENDED SOLUTION

Varying the implementation of the bicycle facility along the length of Highway 7 is recommended

As discussed above, Highway 7 is not homogenous in terms of land uses. Table 1 implies that boulevard bike paths are not appropriate where pedestrian activity or driveway access density is high. Therefore, similar to the varying land uses, the proposed bicycle facility should also vary accordingly to complement the urban context of Highway 7 at specific locations. Further details are discussed below.

On-street bike lanes are appropriate at Regional Centres and retail/commercial sections of Highway 7

As Regional Centres are planned to be high density mixed-use nodes, where high pedestrian activities are expected, and Highway 7 is the focal point of the three Regional Centres, it is appropriate to design Highway 7 with on-street bike lanes.

For retail and commercial areas where retail activities would be encouraged to be brought closer to the street and where there is a higher density of driveway access, it would be inappropriate to provide for a boulevard bike path.

Attachment 5 depicts a typical layout of Highway 7 with transit and on-street bike lanes.

Boulevard bike path could be safely Implemented in industrial or controlled access areas of Highway 7

In general, where access to the Regional road is controlled and limited to local roads such that long, continuous and uninterrupted sections of bike paths could be built, it is appropriate to design a bike path on the boulevard that serves both utilitarian as well as recreational cyclists. However, under some circumstances, such as high cycling volumes, boulevard bike paths on both sides of the Regional road may be needed.

It should be noted that boulevard bike paths could end up being maintained to a different standard than the on-street bike lanes as the boulevard paths are under local municipal jurisdiction. This factor should be considered before a decision is made for boulevard bike paths.

HIGHWAY 7 TRANSIT RAPIDWAY DESIGN

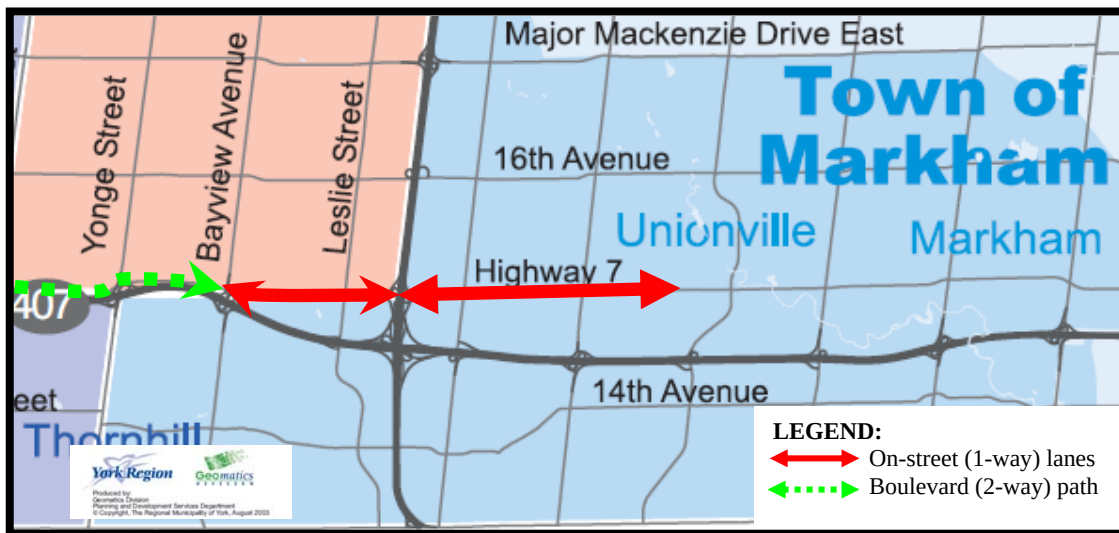
Resolution of this issue is critical to the construction of the transit rapidway on Highway 7

The design of the transit rapidway on Highway 7 is well into the detailed design phase. The current design assumes on-street bike lanes along the entire stretch of Highway 7

where exclusive rapidway is planned. On some sections of Highway 7, transit will operate in mixed traffic such as from Yonge Street to Bayview Avenue.

As such, based on the above recommended solution, staff have identified the appropriate bike facility for Highway 7 from Yonge Street to Markham Centre. As shown in Figure 2, on-street bike lanes are recommended from Bayview Avenue to Markham Centre while boulevard bike paths could be considered west of Bayview Avenue.

Figure 2
Bike Facility on Highway 7



SUMMARY

- Current research indicates that on-street bike lanes are safer to use than boulevard bike paths, especially in urban areas where there are more roads and driveways intersecting the bike facility.
- The different land use context and traffic access measures along the length of Highway 7 require different cycling facilities.
- On-street bike lanes are appropriate where pedestrian activities or driveway access density is high.
- Shared boulevard bike paths are appropriate where conflicts with pedestrians and motorists are limited.

NEXT STEP

New guidelines to be developed to standardise bike facility selection

This approach of assessing land use activities and driveway access to the Regional road will be used in developing new guidelines and criteria for the selection of bike facilities

on Regional roads. Staff will draft the new guidelines in consultation with local municipalities.

5. FINANCIAL IMPLICATIONS

On-street bike lanes on Highway 7 are being incorporated into either the VivaNext or road widening projects. Therefore, the capital cost estimates for these projects include the bike lane component.

For sections of Highway 7 where boulevard bike paths are recommended, staff will work with the corresponding local municipality to secure funding to meet the schedule of the Regional project and commitment for on-going maintenance.

Local municipalities can apply for regional funding from the Pedestrian and Cycling Master Plan Partnership Program when implementing eligible bike facilities.

6. LOCAL MUNICIPAL IMPACT

Under current conditions of municipal responsibilities, boulevard bike paths would be under the jurisdiction of local municipalities. The responsibility of local municipalities in this regard would include construction and maintenance.

Town of Markham staff has been consulted and consensus on the recommended solution was achieved for the section of Highway 7 being designed as part of the VivaNext project.

Further consultations with local municipal staff, councillors and stakeholders will be conducted for the other sections of Highway 7 to review the rationale for the recommendations of this report.

7. CONCLUSION

The Town of Markham requested York Region to incorporate boulevard bike paths on Highway 7. This report presents an approach to selecting the appropriate type of bike facility depending on land use and traffic access criteria. A recommended solution that provides for on-street bike lanes and boulevard bike paths for different sections of Highway 7 is presented for Council endorsement.

For more information on this report, please contact Paul May, Director, Infrastructure Planning at 905-830-4444, Ext. 5029 or Paul Jankowski, General Manager, Roads, at Ext. 5901.

The Senior Management Group has reviewed this report.

(The five attachments referred to in this clause are attached to this report.)