

Nomination for
the 2010 TAC
Sustainable
Urban
Transportation
Award



March 2010



By 2031, it is estimated that York Region will be home to 1.5 million residents



Development and Enhancement of Sustainable Urban Transportation

York Region is located in the heart of the Greater Toronto Area (GTA) in Southern Ontario. York Region consists of nine municipalities covering a total of approximately 1800 square kilometres, spanning from the Toronto Region boundary in the south and north to Lake Simcoe. The predominant geographical features of the region are Lake Simcoe and the Oak Ridges Moraine, a government protected natural moraine running east-west encompassing old growth forests, wetlands and kettle lakes.

York Region's diverse communities, emerging urban centres, competitive industries, attractive natural environment, and strategic location in the GTA create a perfect formula in attracting economic growth. By 2031, it is projected the region will offer 750,000 jobs and be home to 1.5 million residents.

As the population and employment grows rapidly in the southern urban municipalities of York Region, the corresponding growth in vehicular traffic is exerting considerable strain on York Region's transportation system. While the growth in population and employment will continue, York Region's approach to sustainable transportation is to achieve a fine balance in catering to transportation needs, accepting some level of congestion as a reality of an urban environment and integrating our streets into our communities in a context-sensitive manner.

Besides dealing with growth pressures in a rapidly urbanizing region, the perception of the Regional transportation network is changing in concert from roads that move vehicles to that of urban streets accommodating multiple modes of transportation (cars, buses, bicycles and pedestrians), enhancing and animating communities while creating a sense of community. Sustainable and attractive streets play an important role in serving as gateways to our communities and addressing the needs of our most vulnerable road users (pedestrians and cyclists) by creating safe and pleasant connections to urban amenities, spaces and destinations.

York Region is actively taking steps to address the additional growth in the Region by considering the future transportation needs in a sustainable and integrated manner. While it was acknowledged that York Region needs to maintain arterial roads as vital corridors for people and goods, it was realized that increased emphasis needs to be placed on expanding their functions to integrate reliable transit facilities, and encouraging pedestrian and cyclist use. Therefore, our transportation mandate is to provide safe, well designed and accessible mobility systems that prioritize pedestrians and cycling connections, support a reliable and efficient public transit network, promote multi-occupant travel and enhance community character.

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Dufferin Street – Another Step Towards Sustainability

York Region's 2010 10-Year Road Construction Program, identifies numerous roads that need capacity improvements and have a potential of being widened to six lane cross-sections between 2010 and 2020. Therefore, the Region undertook a study to review the Region's current standards for six-lane roads and compared them to the best practices of other jurisdictions in order to determine a consistent cross-sectional treatment to be used on all future six-lane projects.

The 'Towards Great Regional Streets – A Path to Improvement' (TGRS) study undertaken for York Region by the MMM Group examined both the existing requirements and objectives of the Region's sustainability strategy to recommend a cross-section that accommodates the competing needs of the various elements of the road cross-section (general purpose lanes, multi-occupant lanes, bike lanes, curbs, space for median streetscaping, illumination, utilities, street tree planting and sidewalks).

Dufferin Street is the first transportation project in York Region to be designed and constructed with the key objective of reducing the number of single occupant autos by providing alternatives such as walking, cycling, transit and high occupancy vehicles. This is in accordance with the Region's objectives to harmonize road improvement efforts and to align them with our Official Plan, Transportation Master Plan, Pedestrian and Cycling Master Plan, and the recommendations of the TGRS Study. In late 2009, York Region completed the reconstruction of Dufferin Street between Steeles Avenue and Langstaff Road. This model project features the following elements:

Transit/HOV Lanes

A 1.6 km section (Section 1) of Dufferin Street from Steeles Avenue to Glen Shields Avenue North was widened from 4 to 6 lanes for two general purpose lanes (GPLS) and a Transit/HOV lane in each direction and an existing 2.5 km six-lane section (Section 2) from Glen Shields Avenue to Langstaff Road was converted from three existing GPLS in each direction to two GPLS and one Transit/HOV lane in each direction.

Reduced Lane Widths

All lane widths have been reduced to two 3.3m wide lanes and one 3.5m wide Transit/HOV lane that replace the standard two 3.5m lanes and one 3.75m curb lane. Reduced lane widths contribute to a narrower road cross section which integrates well in urban areas and also influences driving behaviour by reducing driving speed and also increasing greater awareness for pedestrians.

...must
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Dedicated On-street Bike Lanes

Section 1 includes 1.5m wide on-street bike lanes at the curb on both sides of Dufferin Street and Section 2 was modified by reducing existing lane widths and minor widening at intersections to accommodate new 1.2m wide on-street bike lanes on both sides.

Sidewalk and Illumination

Continuous sidewalks and illumination are provided along both sides of the street.

Design and posted speeds

Design and posted speeds were limited to 60 km/h. The posted speed on Section 2 was reduced from 70 km/h to 60km/h.

Streetscaping

Signature streetscaped medians with decorative raised planters and automated irrigation system were installed in 5m wide centre medians. The widened median provides a large area for sustaining plant material and improves the character of the overall road by breaking up the expanse of asphalt. The height of the raised planter will prevent salt spray from impacting the planting material. Hardy and tolerant planting material was carefully selected to minimize maintenance requirements. Existing boulevard trees were transplanted in the boulevard wherever space permitted.

The project included patterned concrete retaining and parapet walls, coloured concrete splash pads and banner poles.

Through the Dufferin Street project, the Region has taken another step in enhancing the sustainability of its transportation system by addressing the following key elements of sustainability.

Social – York Region has taken the unprecedented step to ensure that any street widening to six lanes must incorporate dedicated Transit/HOV lanes and bike lanes and that no street will be widened beyond 6 lanes. This is a clear commitment to building infrastructure to support and encourage those users that are prepared to support environmental measures related to transportation such as taking the bus, carpooling, riding a bike and walking. Furthermore, by building infrastructure specifically for this group of commuters, the Region is showing that it is prepared to improve transportation for the wide demographic and socio-economic population. Until recently, the Region was investing primarily in roads for those that own cars. This current project is shifting the balance to provide benefits for a much wider cross section of commuters, thus bringing “mobility equity” in our corridors.

Economic – The dedication of the new lanes specifically for multi-modal users will provide benefits by moving more people in fewer vehicles. These lanes will reduce congestion and travel times for vehicles that carry more people and those prepared to ride bicycles (no GHG generation). As a result,

The provision of bicycle lanes will encourage cycling...



the additional pavement width will serve to move more people and ultimately, the Region will benefit economically by reducing the amount of additional street widenings that may be required. Overall, the Region will be moving more people per square metre of road widening compared to road widening for the traditional single occupant lane.

Environmental – The dedicated lanes for Transit/HOV will require fewer vehicles to move more people compared to the traditional single-occupant lane. With fewer vehicles, there will be less GHG emitted. The provision of bicycle lanes will encourage cycling and thus promote a mode of travel that has no GHG emissions and will help to promote active transportation. By increasing the number of people per vehicle, the project will help to reduce the need for new road construction, thereby reducing the production of GHG during construction from machinery, paving, heating, etc. The re-use of asphalt grindings in new asphalt pavement and less road pavement also reduce the need for additional road material such as gravel, asphalt, concrete and the overall environmental impacts of extracting this material, and depleting non-renewable resources.

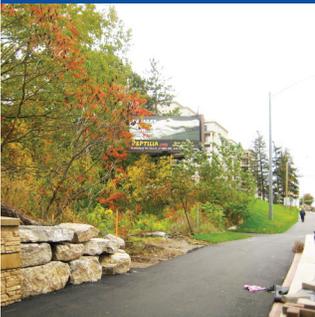
Degree of Innovation

The Transit/HOV lane design is intended to evolve over time as transit ridership increases. Initially, the curb lanes will be shared by carpoolers and transit vehicles while transit ridership is low. During this initial period, it was felt that carpoolers should be allowed to use the lane to start building the culture of reduced single-auto travel. In addition, it is important to avoid the “empty lane” syndrome. If transit use is low, and the lane remains empty, there could be public backlash regarding the benefits of the project. Over time, as transit ridership increases, the curb lanes could be dedicated for buses only as a Reserved Bus Lane. This would only be undertaken when the critical mass of transit vehicles is reached and there is a need to provide more benefit to transit. Ultimately, it is envisioned that the corridor could be converted to a centre median reserved busway concept as is currently planned on selected Regional Rapid Transit routes. The innovation of this design allows the ultimate curb locations to be set and then provides for the transition and evolution of the corridor as transit demands change over time.

Some of the other specific components of innovation criteria are addressed as follows:

Technical – Some of the key technical components of the project included the reduction of lane widths to more urban standards. The reduced lane widths and increased plantings in the centre median and boulevards create a more “constrained” environment, thus contributing to slower speeds and a greater sense of urbanism. Furthermore, the road was built based on a design speed of 60 km/h and also posted at this speed to demonstrate a movement towards a more urban design. Additional technical features include irrigation in the centre median to reduce labour costs for

...sustainable policies that will achieve more with less...



maintenance and also to improve safety by reducing the need to close lanes for watering purposes.

Process – This project is a good fit with the Region’s ongoing Smart Commute Program. Smart Commute is a program that encourages the businesses community to promote and sustain Travel Demand measures by working with various Chambers of Commerce and Business Improvement Areas. In addition to the marketing and promotion of transit and carpooling, Smart Commute helps to monitor carpooling and transit use in the business community via regular surveys. This ongoing marketing, promotion and monitoring process complements and works directly with this project to create a balance between the hard delivery of infrastructure and the soft delivery of communication.

Financial – In Section 2 of the project (north portion), there was a small financial investment to make minor changes at intersections and to re-mark the roadway and convert the existing 6 lane roadway to four general purpose lanes, two Transit/HOV lanes and two bike lanes. By incorporating this work along with the current project, there were some cost savings from a capital expenditure perspective. This also allowed time savings and reduction in delays to motorists by completing Section 2 during the same time as lane reductions and construction was ongoing in Section 1. The inclusion of this section should not be underestimated as it is very rare that “take away” projects are successful, i.e. taking a lane of traffic away from general purpose traffic and dedicating it to Transit/HOV and bike lanes. This innovative approach of a minor financial investment to extend the Transit/HOV and bike lanes helped to reduce potential future costs and potentially difficult public acceptance in the future.

Transferability to other Canadian Communities and Organizations

York Region is struggling to manage a rapid growth in population and employment and corresponding growth in traffic volumes. It has developed and adopted sustainable policies that will achieve more with less.

York Region’s goal is to provide the services required to support the Region’s residents and businesses to 2031 and beyond, in a sustainable manner. York Region’s approach to transportation planning is focused on making efficient use of existing and future transportation infrastructure with the following objectives:

- To reduce automobile dependence by enhancing opportunities for residents and workers to walk, cycle, take transit, and carpool.
- To create an active transportation system and programs that encourage walking, cycling and the use of public transit.
- To provide transit service that is convenient and accessible to all residents and workers of York Region.

Municipalities continue to deal with escalating costs...

- To ensure streets support all modes of transportation including walking, cycling, transit, automobile use, and the efficient movement of goods.
- To plan and protect future urban and rural streets to accommodate transportation demands.
- To promote a linked and efficient network for goods movement that supports economic vitality and minimizes conflicts with sensitive land uses.

The above goal and the objectives are not unique to York Region but transferable to urban municipalities across Canada. Municipalities continue to deal with escalating costs to build, operate and maintain infrastructure while the funding shortage to address the demand to re-instate and improve crumbling infrastructure is looming.

The recommendations of the TGRS study as adopted on the Dufferin Street project are also transferable to municipalities across Canada:

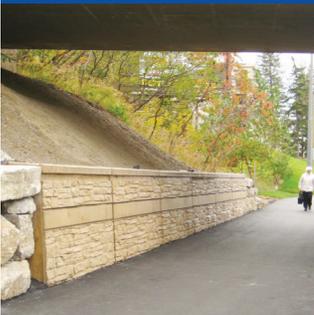
- Converting existing general purpose lanes to transit/HOV lanes
- Bike lanes can be introduced by reducing lane widths on existing roadways or eliminating two-way left turn lanes
- Space occupied by two-way left turn lanes can be replaced with streetscaped centre medians
- Speed can be reduced to support narrow lanes widths, lower vehicular speed adjacent to bike lanes to encourage safe cycling and allow smaller left turn tapers and more median space
- Bike lanes can be introduced on existing shoulders

Added Value

The Transit/HOV and on-street bike lanes being a new concept in the Region, a monitoring program has been established to collect data on how well the facilities are being used during peak hours, off-peak hours and seasonal usage so that adjustments may be made for optimization.

As the Dufferin Street project was the first project in the Region to include Transit/HOV and on-street bike lanes, the Region undertook a campaign to inform the residents of York Region of the new facilities and how to use them (2+ HOV designation, 24/7/365 operation, making right turns – can use lane within 100 m of right turn to enter or exit side street and driveways) through the following:

- Notices in local newspapers
- Messages on site through Portable Variable Sign Boards
- Notice in York Works, a quarterly flyer sent to all households in York Region
- Notice on York Beat, an internal newsletter to staff (Region has over 3,000 staff)
- Notices on York Region's public website
- Hand delivered notices to residents adjacent to the project site
- Police handing out flyers with warnings of HOV infractions



...from single
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CONCLUSION

The implementation of transit/HOV lanes on Dufferin Street is another step taken by York Region towards sustainable transportation practices. The project reflects the changing nature of many of our Regional road corridors as 'main streets' within their communities. These changed parameters include narrow roads, slower speeds, more emphasis on pedestrians, transit, cycling and greater emphasis on effecting improvements to the overall public realm. Undertaking similar other projects in the Region's 10 Year Road Construction Program is expected to influence a shift in travel choice from single occupant vehicles to the more sustainable transit, HOV and cycling travel modes.

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- The TGRS study undertaken by the MMM Group.
- The detailed design of Dufferin Street by Morrison Hershfield Ltd.
- The construction of Dufferin Street by Pave-It Limited.



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