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PROGRESS REPORT ON MANAGING TRANSPORTATION CONGESTION

(Regional Council at its meeting on October 27, 2005 amended the following clause by adding the following recommendation:

- 2. Staff provide a further progress report as of year end, with more detail and implementation plans, in January or February of 2006.**

The Transportation and Works Committee recommends:

- 1. The presentation by Paul May, Director, Infrastructure Planning be received; and**
- 2. The recommendation contained in the following report, September 16, 2005, from the Commissioner of Transportation and Works and Commissioner of Planning and Economic Development be adopted:**

1. RECOMMENDATION

It is recommended that:

1. The Regional Clerk forward this report to the Clerks of the local municipalities.

2. PURPOSE

This report presents the progress achieved to-date following the April 2005 Council workshop on Managing Transportation Congestion.

3. BACKGROUND

In York Region, traffic congestion has been identified in public surveys as one of the top public issues for the last few years. This is following the unprecedented population and employment growth in the Greater Toronto Area in recent years. York Region, in particular, has been leading the GTA with growth averaging 37,000 new residents per year over the last four years. Today, York Region is a large urban area approaching a population of 1 million people. Some level of congestion is to be expected for a municipality of this size and for being part of the GTA metropolitan area, among the top five largest urban regions in North America.

It is important to note that congestion cannot be totally eliminated for the following fundamental reasons:

- It is not possible (nor desirable) to build roads to a sufficient width to eliminate congestion. Generally, arterial roads in York Region cannot be built wider than 6 through lanes for a number of reasons such as safety, property availability, pedestrian crossing times, cost, urban design constraints, etc. Due to other reasons such as property constraints, some roads are already at their maximum width of 4 through lanes. Therefore, road widenings are only part of the solution.
- Some level of congestion is desirable in that it may help to encourage people to use more environmentally friendly alternatives such as transit, ridesharing (car/van-pooling), relocation to reduce trip length, variable work hours, walking or cycling, etc. Without congestion, many people will still choose to drive single occupant vehicles during peak times over increasingly longer distances.

Congestion exists because of the presence of economic activity. In some ways it is indicative of the economic success of the municipality. In order to maintain that success and remain economically competitive, travel times for passenger and freight movements must be minimised. Therefore, the key is to find a balanced and acceptable level of congestion.

3.1 Traffic Congestion

There are two types of congestion: recurring and non-recurring. Non-recurring congestion is caused by temporary disruptions to the operation of the road network like traffic collisions, road construction, inclement weather, special events, stalled vehicles, presence of emergency vehicles, etc. Studies have shown that about half of all traffic delays are non-recurring congestion.

Recurring congestion is caused by traffic volumes exceeding the capacity of the roadway and occurs at the same time every weekday. The practical capacity of an urban roadway is determined by a number of factors, including:

- Number of signalised and un-signalised intersections.
- Number of property entrances, particularly commercial entrances.
- Distances between intersections and between entrances.
- Number of through traffic lanes.
- Provision of left and right turn lanes.
- Width of lanes.

It should be noted that increasing the capacity of a roadway by changing some of these factors could have potentially negative impacts on the urban design of the roadway and adjacent land uses and on the density of the adjacent land uses and, therefore, on the pedestrian and transit-friendliness of those land uses.

High traffic volumes are in turn caused by a number of factors including:

- Rapid growth rate.

- Traditional car-oriented development.
- Un-balanced land use pattern where large areas of employment and residential land uses are separated by long distances.
- Unsustainable lifestyle choices of residents and workers where convenience outweighs environmental impacts.
- Lack of alternatives to car use.

3.2 Council Workshops on Congestion

Managing transportation congestion was the subject of two Regional Council workshops in October 2004 and April 2005. The result of the second workshop is a list of action items for staff to pursue. The actions to be pursued are broadly categorised into nine technical areas and presented in Table 1.

Table 1
Workshop Action Items

Area	Actions
Development Approval	• Tie allocation of traffic capacity to approval of development • Develop appropriate approval conditions and policies
Transportation Demand Management	• Establish TMAs • Establish telework policy • Promote and educate school kids and general public on public transit and other alternatives
Efficiency	• Examine feasibility of double-left lanes at congested intersections • Examine feasibility of roundabouts on Regional roads • Identify corridors for review of access control/management and review with interested parties • Develop ITS work plan • Reconfigure capital program to emphasize intersection improvements first
Parking	• Encourage and support area municipal efforts in developing parking management strategies • Develop VIVA park & ride strategy
Communication and Education	• Communicate with the public early and review their expectations • Provide better reporting of successes, e.g. before/after studies of road projects to Regional Councillors and public • Provide summary results on regular basis
Sidewalks	• Work with area municipalities to build comprehensive sidewalk network to improve pedestrian access to & from transit
Streetscaping	Complete the “Making Great Regional Streets – A Path to Improvement Study” and present to Council for approval

Transit	• Continue to participate in GTA fare integration initiatives such as Smart Card project • Need better transit communications/marketing
Road expansion	• Continue with current capital program • Provide sufficient resources to deliver capital program

4. ANALYSIS AND OPTIONS

No single solution will eliminate traffic congestion. As noted above, having some level of congestion is advantageous. Strategies developed to manage traffic congestion should be three pronged. Collectively, they must provide traffic relief in the areas of increasing supply or capacity of the network, maximising the efficiency of the network, and finally, reducing or shifting travel demand from single occupant vehicles to other more environmentally sustainable forms of transportation.

It should be noted that the built land use pattern that currently exists in York Region is here to stay for some time. Therefore, the effectiveness of the programs and services being pursued by the Region to manage congestion is to a large degree constrained by it.

The following sub-sections present the progress on each of the nine action areas identified above as well as our growth management strategy and the advocacy efforts for Provincial actions.

Road expansion and Provincial and Federal advocacy initiatives (sub-sections 4.9 and 4.10) will expand the road network and, thus, the capacity of the road network. Efficiency initiatives (sub-section 4.3) deals with operational improvements in the areas of road operational reviews, intelligent transportation system and incident management that will improve the efficiency of the road network. These operational improvements will also increase the road network capacity.

Transportation demand management (TDM), parking, sidewalk, streetscaping and transit initiatives (sub-sections 4.2, 4.4, 4.6, 4.7 and 4.8) collectively will provide alternative travel options to encourage a shift to more environmentally sustainable forms of transportation. They deal primarily with improving public transit, both local and rapid transit services, and the supporting infrastructure and services that enhance and promote public transit. Finally, growth management initiatives (sub-section 4.11) together with development approval and TDM initiatives (sub-sections 4.1 and 4.2) such as the Centres and Corridors Strategy and the Smart Commute Initiative will help to manage travel demand with the aim of reducing the amount of travel while increasing the opportunities for alternative travel options to be competitive.

4.1 Development Approval

- Staff is in the process of developing an annual monitoring and short-term capacity forecast report. A draft report for senior management review will be available in 2006. The monitoring report will establish a basis for the approval of the transportation plans of development applications.
- An update of the Region's Transportation Master Plan (TMP) is planned to begin later this year. Development of a policy on how transportation capacity is to be tied to development approval could be a component of the TMP update.

4.2 Transportation Demand Management

- York Region is the lead agency on the Smart Commute Initiative, a GTA+H transportation demand management (TDM) project and the largest trip reduction program of its kind in Canada; promoting alternative modes of transportation and educating public and school kids are part of the project.
- York Region is an integral partner with the Towns of Richmond Hill and Markham in establishing the Smart Commute 404-7 (Richmond Hill-Markham) Transportation Management Association (TMA), the second operating TMA in Ontario.
- Staff from the Region and Towns of Newmarket and Aurora are developing a Newmarket-Aurora area TMA with launching of the TMA planned for later this year.
- Smart Commute North Toronto Vaughan (formerly Black Creek TMA) has expanded its service area to cover the entire City of Vaughan.
- Staff is developing an employee trip reduction (ETR) program for Phase 1 implementation across the Fall 2005 to Spring 2006 period. A separate report on the ETR is on the October 2005 Planning and Economic Development Committee agenda. A telework policy is to be reviewed and proposed as part of the ETR.

4.3 Efficiency

- Delay at intersections is the primary cause of recurring congestion on arterial roads. Intersection improvements are generally an effective way to reduce congestion on arterial roads. York Region's 10-Year Roads Capital Program includes \$11.6 million for intersection improvements in 2005 (including \$1 million for ITS). For 2006 to 2014 the program includes \$5.0 to \$6.9 million per year for intersection improvements. A review of the intersection improvement program will be conducted to prioritise intersections that will yield the greatest benefits for the least cost. It may also be possible to advance some intersection improvements in exchange for delaying some larger road widening projects.
- Regional staff is conducting detailed annual review of Regional road sections. These arterial reviews analyse existing traffic control signal timing and progression with a view to reduce congestion along the Regional road network. A traffic operations software is used to analyse operational changes and before and after traffic studies are conducted to determine the effectiveness of the changes. During this process, capacity restrictions and potential geometric improvements are identified.
- Staff is developing a draft policy for Council consideration of double left turn lanes at intersections and also determining which locations meet the double left turn criteria.
- Consideration is being given to the use of roundabouts along Regional roads.

- A working group is being set up consisting of Planning, Development Approvals, and Roads staff to develop a draft Regional road control access policy.
- Plans are being put in place to develop an intelligent transportation system (ITS) master plan for Regional traffic operations. This would enable the Region to strategically develop specific ITS programs. During 2005/06 staff will be designing and implementing an adaptive traffic control system. Adaptive traffic control continually monitors traffic patterns and recommends optimal signal timing parameters in response to changing on-street traffic volume patterns. This functionality is effective over a wide range of traffic demands, including peak hour periods, to provide quick responses to the dynamic situations, thereby reducing congestion. If successful this system will be expanded to other parts of the Region.
- The Region recently designed and implemented a pilot Traffic Responsive Control (TRC) system that is capable of initiating changes to signal timing plans (selected automatically from among a predetermined library of timing plans) for the arterial(s) in the corridor that is appropriate for the field traffic conditions as registered from a system of detectors and seven strategically placed closed circuit television (CCTV) cameras. The TRC system is implemented along the Jane Street and Weston Road corridors parallel to Highway 400, and the Highway 7 corridor between Woodbine Avenue and Bayview Avenue.
- Staff will continue to work with York Region Police to improve the response time and clearance of Regional roads following traffic incidents.

4.4 Parking

- A plan will be developed which will identify where, when, how and what commuter parking lot requirements and needs of the Region will be for the next 20 – 30 years.
- This work will involve the local municipalities as well as the private sector.

4.5 Communication and Education

- In 2005, Corporate Communications has produced three major communication/education pieces for the public concerning gridlock reduction, including:
 - Two issues of York Works – released in early February and July – with a focus on major road projects, transit updates and rapid transit updates
 - A two-page paid advertisement in July in the York Region Newspaper group featuring all major roads construction projects with details of each project
- Additional Corporate Communications activities include:
 - issued 25 media releases to date on York Region transit, Viva rapid transit and roads/infrastructure upgrades.
 - involved in the launch of the new Viva Vehicle as well as the Small Bus Strategy.
 - facilitated more than 65 media interviews concerning transit, rapid transit, infrastructure planning and roads/construction updates.
- Future communications will be in the form of a series of pamphlets or briefs focusing on one area of transportation at a time.

4.6 Sidewalks

- A Pedestrian and Cycling Master Plan study is being proposed for Council endorsement and is also on the October 2005 Planning and Economic Development Committee agenda. A draft Terms of Reference for the study has been developed. This study will coordinate the pedestrian and cycling plans developed by the local municipalities and facilitate network connectivity and consistency to help increase the level of walking and cycling across the Region.
- Consultation with the local municipalities will be a key component of this work since sidewalks and bike paths have traditionally been local municipal responsibilities.

4.7 Streetscaping

- The “Making Great Regional Streets – A Path to Improvement Study” is being completed and will provide guidelines on how the Regional road right-of-way is to be used for various uses including streetscaping.

4.8 Transit

- Since the amalgamation of transit services in 2001, ridership in York Region has grown by over four million riders, or an average of 10.5% per year. In 2004, YRT carried over 13.8 million passenger trips, an impressive 14.3% increase over the previous year. This figure equates to approximately 55,000 passenger trips on an average weekday and amounts to more than 1.4 million new trips in just one year. YRT experienced the highest growth rate in the GTA and one of the highest in Canada (as per Canadian Urban Transit Association statistics).
- This increase can be attributed to the tremendous rate of population growth and related increases in transit service levels. Since amalgamation, the hours of revenue service have increased by an average of 16% per year. This unprecedented investment in public transit reflects York Region’s commitment to the system’s expansion and the development of a more balanced and transit supportive transportation network.
- The introduction of bus rapid transit services in key corridors within the Region (Yonge St., Highway 7, Markham Centre/Warden Ave, Jane/Keele/Vaughan Corporate Centre) in the Fall of 2005, will further contribute to an even more highly developed public transit network. Thus, the current YRT network will evolve to focus not only on providing convenient local service, but also effectively feed these new rapid transit corridors.
- YRT is currently developing an ITS design and multi-year deployment strategy for its conventional and Mobility Plus fleets which will include GPS based vehicle tracking, real-time schedule adherence monitoring, transit signal priority, intelligent passenger information/trip planning systems. These deployments will build on the ITS technologies in use for the Viva rapid transit fleet.
- A new YRT 5-Year Service Plan is being developed that will set the direction for network growth for the 2006-2010 period. The new Plan includes:
 - Strategies for alternative and innovative service delivery for such target markets as business commuters, GO rail passengers (GO shuttles), secondary and post-secondary markets, express services, low demand areas and rural areas;

- Integration with YRT's ITS full network deployment strategy;
- A review of fare strategy for transit in the Region (including passenger transfers between services), and future GTA Smart Card impacts;
- opportunities for improved service integration between YRT and TTC, GO Transit, Brampton Transit, and transit services in Durham Region;
- Service integration strategy with Viva Phase 1 that sets the basis for the Viva Phase 2.

4.9 Road Expansion

- An accelerated road expansion program continues to be pursued within funding and staffing constraints.
- A priority setting framework is being used to schedule the most critical projects first.
- York Region's 2005 10-Year Roads Capital Plan is a \$1.5 billion road expansion plan. The major components of this plan include:
 - constructing 716 new lane-kilometres of arterial roads.
 - resurfacing 780 lane-kilometres of Regional roads.
 - rehabilitating 70 bridges.
 - improving about 150 intersections.
 - building 2 new 400-series highway interchanges.
 - building 3 new road-rail grade-separations.
 - building 4 new collector road crossings of 400-series highways.

4.10 Provincial and Federal Advocacy

- Provincial freeway improvements have not kept pace with growth.
- Not only has the Province downloaded most of the former King's highways (Highways 7, 9, 11, 27, 48, etc.) but also many freeway improvements have been left to the Region to construct (e.g. Highway 404/Elgin Mills interchange and Highway 400/Teston Road interchange funded 100% by York Region) or required a Regional financial contribution to advance an improvement (e.g. Highway 404/16th Ave. interchange improvements funded 1/3rd by the Region).
- By not implementing Provincial freeway improvements in a timely manner, additional traffic pressures have been placed on Regional roads that must accommodate the overflow.
- Transit funding is not yet at a sustainable level to implement the rapid transit and conventional transit improvements required.
- 30-year infrastructure report (on the April 2005 Planning and Economic Development Committee Agenda) identified the shortfall in required Provincial road and transit funding required to keep pace with growth in York Region.
- Provincial partnering is necessary, but currently absent, in the GTA+Hamilton Smart Commute Initiative as a win-win proposition in light of the pending opening of high occupancy vehicle lanes on Highways 403 and 404.

4.11 Growth Management

- The most effective way of managing traffic congestion is to mix land uses (balance residential and employment opportunities within walking distance of each other) and to intensify those land use densities. The effect of mixed land use intensification from a transportation perspective is reduced travel distances for all purpose trips and increased viability of alternative modes of transportation such as public transit, walking and cycling.
- York Region, in conjunction with the local municipalities, is pursuing a Centres and Corridors growth management strategy to direct future growth into higher density nodes and corridors connecting those nodes. The four Regional Centres being planned are Richmond Hill Centre, Vaughan Corporate Centre, Markham Centre and Newmarket Centre and the two Regional Corridors are Yonge Street and Highway 7.

4.12 Next Steps

As implied in the preceding sections, managing transportation congestion requires a comprehensive package of initiatives that acts to address different aspects of our transportation system or factors affecting travel demand. Over the next year or so, a number of these initiatives will be brought to Committee and Council for consideration including:

- Transportation Master Plan update
- YRT 5-Year Service Plan
- Establishment of the Newmarket area TMA
- Employee Trip Reduction Phase 1 Program Approvals
- Intelligent Transportation System Master Plan
- Making Great Regional Streets – A Path to Improvement Study results
- Pedestrian & Cycling Master Plan
- Budget Approval of 10-Year Road Capital Plan

5. FINANCIAL IMPLICATIONS

There are no financial implications arising from this report. New projects mentioned in Section 4 will obtain approval through reports to Council or through the budget approval process.

6. LOCAL MUNICIPAL IMPACT

Congestion has consistently been identified as one of the top public issues over the last few years. It affects the urban municipalities of Vaughan, Richmond Hill, Markham, Aurora and Newmarket and also the less urban municipalities of King, East Gwillimbury,

Whitchurch-Stouffville and Georgina. Managing transportation congestion requires actions by all levels of government, including the local municipalities.

One of the critical elements of our road network that is under local municipal jurisdiction is the collector road network. Regional and local municipal staff is working together to plan and protect collector roads through the review and approval of development applications.

The Region is working with the urban local municipalities to encourage and promote more mixed use and higher density developments in the Regional Centres and Corridors to reduce growth in congestion and to support rapid transit and other more sustainable modes of transport.

Regional staff will work with local municipal staff to conduct a proposed Pedestrian and Cycling Master Plan study as described in sub-section 4.6.

Finally, local municipalities will be consulted when the commuter parking lot study is conducted.

7. CONCLUSION

Transportation congestion is a very complex issue. There is no single or simple solution to eliminate congestion. Strategies to manage traffic congestion must be three pronged. Collectively, they must provide traffic relief in the areas of increasing supply or capacity of the network, maximising the efficiency of the network, and finally, reducing or shifting travel demand from single occupant vehicles to other more environmentally sustainable forms of transportation like public transit, carpooling, walking or cycling.

Managing transportation congestion must address recurring as well as non-recurring congestion. Non-recurring congestion occurs when there are disruptions to the operation of the road network due to unplanned events. Recurring congestion is due to travel demand exceeding the available capacity of the roadway.

On the commuter side, the key congestion issue relates to the ability to change commuter behaviour and social norms to accept alternative modes of transportation such as public transit, carpooling, walking and cycling as viable and practical in today's terms. After all, they improve the natural environment that we all share and ultimately our quality of life.

The key is to find the balance between an affordable and environmentally sustainable transportation system and an acceptable level of congestion. Thus, managing transportation congestion requires a comprehensive package of initiatives that acts to address different aspects of our transportation system or factors affecting travel demand.

This report identifies initiatives that are already underway as well as additional possible short term and longer term initiatives. They include initiatives in the following areas:

- Traffic incident management.
- Intelligent transportation system.
- Road expansion.
- Road urban design.
- Land use development that supports environmentally friendly transportation modes.

The Senior Management Group has reviewed this report.