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MANAGING CONGESTION - UPDATE

The Transportation and Works Committee recommends the adoption of the recommendations contained in the following report, June 7, 2006, from the Commissioner of Transportation and Works:

1. RECOMMENDATION

It is recommended that this report be received for information.

2. PURPOSE

The purpose of this report is to provide the Transportation and Works Committee and Regional Council with an update on accomplishments related to the "Managing of Transportation Congestion" initiative. Specifically, this report will present initiatives that have been implemented since the last update that have had a direct effect on traffic capacity and reducing travel delays on the Regional Road network.

3. BACKGROUND

Two Regional Council workshops were held in October 2004 and April 2005 to discuss managing transportation congestion. The result of the second workshop was a list of action items, categorized into nine technical areas, which staff were to pursue. The nine areas were as follows:

- Development Approval.
- Transportation Demand Management.
- Efficiency.
- Parking.
- Communication and Education.
- Sidewalks.
- Streetscaping.
- Transit.
- Road Expansion.

A report was presented to Regional Council on October 27, 2005 that provided an update on progress on many of these initiatives. Some of the more notable ones included:

- York Region lead on Smart Commute Initiative the largest transportation demand management program of its kind in Canada.
- $11.6 M budgeted for intersection improvements in 2005.

- $4.0 - $6.9 M per year budgeted for intersection improvements in our 10-Year Construction Program.
- Implementation of a Pilot Traffic Responsive Control (TRC) System that is capable of initiating changes to signal timing plans along the Jane Street and Weston Road corridors, parallel to Highway 400.
- Transit ridership increase of an average of 9.5% per year.

At the April 5, 2006 Transportation and Works Committee meeting, staff presented a report entitled "Managing Congestion – Setting Priorities for Roads Capital Programming". This report received Council endorsement in principle of revised criteria that are to be used to develop the 2007, 10-Year Roads Capital Construction Program. The revised criteria reflect changes that have occurred since the original development of the priority-setting model (PSM) in 2001. The model is used by staff to prioritize Regional road capital projects on an annual basis. This report is currently being reviewed by each local municipality and staff will report back in the fall 2006 with a summary of their comments.

An additional recommendation was added to the April 5, 2006 report in which "staff be requested to provide a report in response to issues raised at the April 28, 2005 "Managing Transportation Congestion Council Workshop". This report focuses on the major accomplishments that have occurred since the last update.

4. ANALYSIS AND OPTIONS

Although there has been progress on many of the initiatives noted in the section above, this report will primarily focus on initiatives that have had a direct or immediate effect on increasing road capacity and reducing travel delays in York Region. These initiatives include intersection improvements, intelligent transportation systems (ITS), transit initiatives and road expansions.

4.1 Intersection Improvements

As noted in the October 2005 report to Council, delays at intersections are the primary cause of recurring congestion on our arterial roads. Regional Council, through its approval of the annual budget and 10-Year Capital Roads Construction Program, has placed an increased emphasis on improving intersections. In fall 2005, staff reported to Council as part of our regular update on the status of the construction program a list of key intersection improvements that have been completed in 2005 as noted in Table 1.

Table 1
Intersection Improvements Completed

No	Intersection	Nature of Improvements
1.	16th Avenue and Vogel/Muriel	Double left turn lanes added
2.	Warden at Aurora Road	Addition of turn lanes and signals
3.	Queensville Sideroad at 2nd Concession	Addition of turn lanes and signals
4.	Lloydtown Aurora Road at Jane Street	Addition of turn lanes and signals
5.	Lloydtown Aurora Road at Weston Road	Addition of turn lanes and signals
6.	Dufferin at 18th Sideroad	Addition of turn lanes and signals

Adding an exclusive left turn lane on an approach to a typical Regional signalized intersection, with more than 100 left turn vehicles per hour, could reduce the average delay for vehicles on that approach by more than 30 seconds per vehicle. This occurs because left turn vehicles, waiting for a gap, are no longer impeding through moving vehicles. As a result, such an improvement provides the ability for an average of an additional 450 vehicles to move through the intersection in the peak direction of each peak hour of each day. This represents about 30 to 40% additional capacity in the peak hour.

Also, as part of the Region's 2005 Minor Capital Program, which consists of construction of new traffic control signals or modification to the existing signals, improvements to many other intersections have been completed. These improvements include:

- Construction of eight new traffic control signals.
- Improvements to 18 existing traffic control signals.

Regional Council has also approved in the 2006 budget over $4.0 M for intersection improvements including turning lanes and signals on the following intersection:

- Woodbine Avenue and Old Homestead Road.
- Woodbine Avenue and Church Street.
- Warden Avenue and Mount Albert Road.
- Kennedy and Birchview Road.

These improvements will result in similar travel time reductions and resulting capacity increases similar to those as noted above.

The 2006 Minor Capital Program also identifies $3.5 M in expenditures towards the installation of 11 new traffic signals and geometric improvements at four more intersections. The details of these projects were presented to the Transportation and Works Committee Meeting in April 2006, as part of the 2006 Roads Minor Capital Program report.

4.2 Transit Initiatives

York Region Council's significant increase in public transit investment, both conventional (YRT) and rapid transit (VIVA) is resulting in record setting transit ridership increases. The following is a list of successes to date:

- Since amalgamation (2001), ridership has more than doubled (2001 – 7.6 million versus 2005 - 15.2 million).
- Average annual rate of ridership increase since amalgamation 9.5% per year (average population growth 4.5%).
- As of November, 2005 (YTD) ridership is up 10.2%. Average ridership growth in the GTA is in the 3-8% range.
- As of November 2005, ridership in the Yonge corridor is up 16% (including local YRT routes, Viva Blue and GO 'B').
- Since amalgamation, revenue service hours have increased significantly (average 20% per year).
- Expect to carry 19.5 million revenue passengers in 2006 versus 15.2 million in 2005.

The 4.3 million increase in revenue passengers between 2005 and 2006 has resulted in keeping approximately 5,000 vehicles per weekday off the Regional road network and thus reducing the potential for additional congestion impacts.

Furthermore, as part of the coordinated efforts of the Roads and Transit Branches of the Transportation and Works Department, 186 intersections were modified to include traffic signal priority for VIVA transit. This work was undertaken from March 2005 to August 2005 and the system was operational in September 2005. Studies have shown that signal priority decreases travel times in the primary direction by an average of 7%. This reduction in travel times is very important to the very busy Highway 7 and Yonge Street corridors.

4.3 Arterial Corridor Reviews

Regional staff conducts detailed annual arterial reviews along the Regional road network. These arterial reviews analyze existing traffic control signal timing and progression with a view to manage congestion along the Regional road network. In order to achieve this goal, staff utilize analysis software, and conduct before and after studies to determine the effectiveness, of the timing changes.

Arterial reviews are conducted during the morning, midday, and afternoon peak periods. Through these studies, the following congestion characteristics are determined and analyzed:

- Total delay: Total lost time to travel because of traffic congestion and traffic control signals.
- Average speed: Average speed to travel along a defined Regional road section.
- Number of stops: Number of stops along a defined Regional road section.
- Travel time: Total time per vehicle to travel along a defined Regional road section.

Table 2 illustrates the reductions in travel times during a typical afternoon peak that were observed on three urban corridors in York Region after staff conducted the arterial corridor reviews.

Table 2
Arterial Review Results

Arterial	Location	Travel Time Before	Travel Time After	Travel Time Reduction	% Reduction	Extra Capacity In peak hour
Davis Drive	Harry Walker Parkway to Main Street	226 sec	116 sec	110 sec	48.7 %	600 veh/hr
Bayview Avenue	Major Mackenzie Drive to Highway 7	299 sec	166 sec	133 sec	44.5 %	550 veh/hr
Major Mackenzie Drive	Woodbine Avenue to Bayview Avenue	191 sec	161 sec	30 sec	15.7 %	200 veh/hr

In 2005 staff reviewed approximately 120 kilometres of urban corridors consisting of 228 traffic control signals resulting in an average decrease of 24 % in vehicle delays.

4.4 Road Expansion

The road construction program continues to be one of the key ways that Regional Council addresses transportation capacity requirements for our growing communities.

Since the Council workshops, there were a significant number of major projects that were completed as noted in Table 3 that have had an immediate affect on road capacity.

Table 3
Major Road Expansion Projects

No	Project	
1.	Islington Avenue	Langstaff to Major Mackenzie Drive
2.	Dufferin Street	Rutherford Road to Major Mackenzie Drive
3.	Langstaff Road	Islington Avenue to Weston Road
4.	Teston Road	Jane Street to Keele Street
5.	Rutherford Road	Napa Valley to Highway 50
6.	Markham By-Pass	Phase 1 – Highway 407 to Highway 7 Phase 2 – 16th Avenue to Major Mackenzie Drive
7.	Major Mackenzie Drive	Kennedy Road to Highway 48
8.	Warden Avenue	Highway 407 to Apple Creek Blvd.
9.	Bayview Avenue	Wellington Street to Mulock Drive
10.	St. John Sideroad	Yonge Street to Bayview Avenue
11.	Gamble Road	Yonge Street to Bathurst Street

Each lane that is added provides approximately an additional 800 vehicles per hour capacity to the Regional arterial road. The construction of these projects has added 76km of new lanes to the road network and has provided immediate relief in those communities.

One of the most significant accomplishments that have assisted in addressing traffic capacity is the construction of the new Highway 400 series interchanges. York Region has taken a proactive approach in the construction of certain key critical infrastructure. The opening of the Elgin Mills Road and Highway 404 full access interchange has provided immediate relief by supplying additional direct access to the provincial series highway. Specifically, the widening of Elgin Mills now has the ability to accommodate, on average, 1600 vehicles per hour to/from Highway 404 during the peak hours.

A similar benefit will be realized with the completion of the Highway 400 / Teston Road interchange that has recently been awarded by York Region. Construction of this important infrastructure project is scheduled to start construction in summer 2006 and be complete in early 2008.

5. FINANCIAL IMPLICATIONS

There are no financial implications arising from this report. All projects identified in this report have been funded through the approval of the annual capital and operating budgets.

6. LOCAL MUNICIPAL IMPACT

Congestion has consistently been identified as one of the top public issues over the last few years. It affects all our local municipalities to some degree. The implementation of each of the initiatives noted in this report as well as our capital programs are routinely done in cooperation with our local municipal staff and councils. Staff will continue to work closely with the nine local municipalities to implement programs and projects that both provide a reduction in delays to motorists and provide additional capacity on our road network.

7. CONCLUSION

Two Regional Council workshops were held in October 2004 and April 2005 to discuss managing transportation congestion. A list of action items, categorized into nine technical areas, were developed for staff to implement. This report identifies key initiatives, implemented since the last update to Council that have provided additional capacity and resulted in measurable reductions in travel delays. These initiatives have been primarily focused on intersection improvements, ITS, transit and road expansions. Staff will continue to work on these and all other initiatives identified by Council towards improving the efficiency and effectiveness of our Regional transportation system.

The Senior Management Group has reviewed this report.