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2004 TRAFFIC SAFETY IMPROVEMENT PROGRAM

The Transportation and Works Committee recommends the adoption of the recommendations contained in the following report, April 21, 2004, from the Commissioner of Transportation and Works:

1. RECOMMENDATIONS

It is recommended that:

1. This report be received for information.
2. Further reports be submitted to the Transportation and Works Committee, outlining the results of the Traffic Safety Improvement Program.

2. PURPOSE

This report outlines the 2004 Traffic Safety Improvement Program. The Traffic Safety Improvement Program will provide staff with a list of intersections and roadway links where statistical analysis have indicated a potential for a significant reduction in collisions through the application of various road safety improvement measures. These intersections and roadway links will be reviewed during 2004 to identify and/or to confirm suitable roadway improvement measures that will be effective in reducing collisions at these locations.

3. BACKGROUND

The Traffic Safety Section was established in the fall of 1999 within the Roads Transportation Branch of the Transportation and Works Department. The primary goal of the Traffic Safety Section is to interact with all road traffic functions undertaken by York Region's Transportation and Works Department by bringing safety explicitly and formally to existing and future programs. Strong business partnerships have been developed with York Regional Police and Public Health. These partnerships, together, have contributed to the reduction in the severity of collisions occurring on the Regional road network.

The first step in developing a Traffic Safety Improvement Program is to "screen" the network, using appropriate statistical methodologies, to identify roadway links and intersections where collisions in total, or particular collision types e.g. right-angle collisions, rear-end collisions etc., occur more than expected, and would therefore have a high potential for cost-effective safety improvements.

The second step is to conduct special investigations, operational safety reviews and economic feasibility analyses to identify and select suitable countermeasures to address identified safety concerns.

The final step is to implement the selected countermeasure by integrating the identified road safety improvements into existing Transportation and Works programs and budgets.

Minor road safety improvements such as improved signage, pavement markings and vegetation management can be implemented by using existing maintenance resources and budgets. More extensive road safety improvements that for example involve construction, resurfacing, traffic signal system upgrades etc. can be integrated into the following Transportation and Works programs.

- Roadway Resurfacing Capital Projects
- Traffic Signal System Upgrades
- Capital Intersection Improvements
- 10-Year Improvement Capital Program
- Road Improvements

The Traffic Safety Section maintains a collision database of all collisions that occur on Regional Roads. York Regional Police, in support of Save-a-Life safety initiatives, relies on the expertise within the Traffic Safety Section to analyze collision data to identify locations where focussed law enforcement activities have the potential to reduce the following collision types to improve safety:

- Speed related i.e. exceeding the speed limit or driving too fast for road and weather conditions.
- Disobey traffic signal e.g. red-light running.

York Regional Police have recently implemented a public complaint database system. This database system is directly accessible by patrol officers in their vehicles and allows focussed law enforcement efforts to be directed at roadway links and intersections identified by Regional staff.

4. ANALYSIS AND OPTIONS

4.1 Methodology

To develop the 2004 Road Safety Improvement Program state-of-the-art network screening methodologies were used to identify signalized intersections and roadway links where the number of collisions exceeds the average number of collisions for similar locations (taking into consideration traffic volumes) and therefore has a potential for cost effective safety improvements.

York Region is the first jurisdiction in Ontario and in Canada that has employed the improved network screening methodologies that have recently been developed by Canadian academics for the United States Federal Highway Administration (FHWA).

Different network screening approaches were adopted. The first approach, based on the use of collision prediction models, aimed to identify locations where collisions of all types occur more than reasonably expected. Locations selected using this approach are suitable candidates for detailed operational safety reviews. The second approach, based on target collision proportions, aimed to identify locations where specific types of collisions (e.g. wet weather, left-turn etc.) are over represented. The advantage of this approach is that it facilitates the selection of locations where specific countermeasures, for which there are already Transportation and Works budgets, can be applied e.g. exclusive left-turn signal phases, resurfacing etc. or where law enforcement activities by York Regional Police are likely to be effective.

4.2 2004 Road Safety Improvement Program

4.2.1 Corridor Improvements

Table 1 lists two corridors (links and intersections combined) that are expected to have the highest potential for safety and operational improvements based upon the results of the network screening exercise.

During 2004 York Regional staff will conduct operational safety reviews along each of these corridors to identify cost-effective measures to improve operations and safety. The implementation of cost effective safety improvement measures identified and selected through these reviews will be integrated into various Transportation and Works programs and budgets.

Table 1
2004 Operational Safety Reviews: Corridors

Corridor	Municipality
Davis Drive (Y.R. 31) between Highway 404 and Yonge Street (Y.R. 1)	Newmarket
Highway 7 (Y.R. 7) between Jane Street (Y.R. 55) and Islington Avenue (Y.R. 17)	Vaughan

4.2.2 Signalized Intersection Improvements

Table 2 lists the signalized intersections that are expected to have the highest potential for safety and operational improvements based upon the results of the network screening exercise. Operational Safety Reviews will be conducted at these intersections during 2004.

The design and implementation of the operational and safety improvement measures identified and selected through these reviews will be integrated into various Transportation and Works programs and budgets.

Table 2
2004 Operational Safety Reviews: Signalized Intersections

Intersection Name	Municipality
Yonge Street (Y.R. 1) @ Carrville Road (Y.R. 73)	Richmond Hill
Highway 7 (Y.R. 7) @ Edgeley Boulevard	Vaughan
Major Mackenzie Drive West (Y.R. 25) @ Jane Street (Y.R. 55)	Vaughan
Kennedy Road (Y.R. 3) @ Clayton Drive	Markham
Bathurst Street (Y.R. 38) @ Clark Avenue	Vaughan
Highway 7 (Y.R. 7) @ Leslie Street (Y.R. 12)	Richmond Hill
Yonge Street (Y.R. 1) @ Green Lane (Y.R. 19)	East Gwillimbury
Yonge Street (Y.R. 1) @ Clark Avenue	Richmond Hill/Vaughan

4.2.3 Traffic Signal Systems Upgrades

Table 3 lists the signalized intersections with a significant over representation of left-turn collisions. These intersections will be reviewed during 2004 for the feasibility of traffic signal system modifications and upgrades to reduce left-turn collisions. The safety improvements that will be considered to reduce the left turn collisions at these intersections include but are not limited to:

- The addition of far side and/or near side traffic signal heads.
- Signal timing/phasing adjustments.
- Fully protect (separate) the left turn movements from the through movements.

In those instances where the left-turn collision problem can only be alleviated through physical improvements to the intersection, the intersection will be considered for inclusion in the Miscellaneous Capital Intersection Improvements program.

Table 3
2004 Safety Related Traffic Signal System Upgrades

Location	Municipality
Bathurst Street (Y.R. 38) @ Townsgate Drive	Vaughan/Richmond Hill
Carrville Road (Y.R. 73) @ Avenue Road	Richmond Hill
Highway 7 (Y.R. 7) @ Centre Street (Y.R. 71)	Vaughan
Highway 7 (Y.R. 7) @ Helen Street	Vaughan
Highway 7 (Y.R. 7) @ Leslie Street (Y.R. 12)	Richmond Hill
Highway 7 (Y.R. 7) @ West Beaver Creek Road	Richmond Hill
Keele Street (Y.R. 6) @ McNaughton Road	Vaughan
Keele Street (Y.R. 6) @ Snidercroft Road	Vaughan
King Road (Y.R. 11) @ Dufferin Street (Y.R. 53)	King
Langstaff Road (Y.R. 72) @ Weston Road (Y.R. 56)	Vaughan
Major Mackenzie Drive West (Y.R. 25) @ Dufferin Street (Y.R. 53)	Vaughan
Markham Road (Y.R. 68) @ Fourteenth Avenue (Y.R. 71)	Markham
McCowan Road (Y.R. 67) @ Bullock Drive	Markham
Mulock Drive (Y.R. 74) @ Bathurst Street (Y.R. 38)	Newmarket
Sixteenth Avenue (Y.R. 73) @ McCowan Road (Y.R. 67)	Markham
Stouffville Road (Y.R. 14) @ Woodbine Avenue (Y.R. 8)	Whitchurch-Stouffville
Weston Road (Y.R. 56) @ Rowntree Dairy Road	Vaughan
Woodbine Avenue (Y.R. 8) @ Davis Drive (Y.R. 31)	Whitchurch-Stouffville
Yonge Street (Y.R. 1) @ Bathurst Street (Y.R. 38)	East Gwillimbury
Yonge Street (Y.R. 1) @ Glen Cameron Road	Markham
Yonge Street (Y.R. 1) @ Meadowview Avenue	Markham

4.2.4 Resurfacing Capital Projects

Table 4 lists the intersections and corridors with an over representation of wet weather and rear-end related collisions, that are to be reviewed during 2004 for possible inclusion in the 2005 Resurfacing or Micro Surfacing program.

Table 4
2005 Micro Surfacing Projects

Location	Municipality
Kennedy Road (Y.R. 3): Steeles Avenue to Highway 7 (Y.R. 7)	Markham
Leslie Street (Y.R. 12): Holborn Road to Ravenshoe Road (Y.R. 32)	East Gwillimbury
Stouffville Road (Y.R. 14): Yonge Street (Y.R. 1) to Leslie Street (Y.R. 12)	Richmond Hill
Sixteenth Avenue (Y.R. 73): Strathearn Avenue to Leslie Street (Y.R. 12)	Richmond Hill
Sixteenth Avenue (Y.R. 73) @ Normandale Road	Markham
Rutherford Road (Y.R. 73) @ Greenock Drive	Vaughan

Table 5 lists the corridors and intersections that recently received micro surfacing treatment and will be evaluated during 2004 to determine the safety effectiveness of the micro surfacing treatment.

Table 5
Evaluation Projects

Location	Municipality
Stouffville Road (Y.R. 14): Yonge Street (Y.R. 1) to Leslie Street (Y.R. 12)	Richmond Hill
Yonge Street (Y.R. 1) @ Major Mackenzie Drive (Y.R. 25)	Richmond Hill
Sixteenth Avenue (Y.R. 71) @ Village Parkway	Markham
Bathurst Street (Y.R. 38) @ Gamble Road	Vaughan
Wellington Street (Y.R. 15) @ Leslie Street (Y.R. 12)	Aurora
Bathurst Street (Y.R. 38) @ Milner Gate	Vaughan

4.2.5 Law Enforcement

One of the primary goals of the Traffic Safety Section is to interact with York Regional Police by providing them with the results of collision data analysis to support law enforcement efforts and initiatives.

4.2.5.1 Red-Light Running

Table 6 lists the intersections with an over representation of collisions where the at-fault driver disobeyed a traffic signal (e.g. red-light running). York Regional Police will be requested to add these intersections to their Traffic Complaints Database.

Regional staff will provide York Regional Police with information relating to the time-of-day, day-of-week and month of the year when these red-light running collisions tend to occur at each intersection. In addition, Regional staff will also review these intersections to determine if there are any external factors relating to the design or surrounding environment that could contribute to the high incidence of red-light running at these intersections.

Table 6
Red Light Running: Signalized Intersections

Location	Municipality
Bayview Avenue (Y.R. 34) @ Crosby Avenue	Richmond Hill
Davis Drive (Y.R. 31) @ Ashton Road	Newmarket
Davis Drive (Y.R. 31) @ Barbara Road	Newmarket
Davis Drive (Y.R. 31) @ Forhan Avenue	Newmarket
Davis Drive (Y.R. 31) @ George Street	Newmarket
Davis Drive (Y.R. 31) @ Harry Walker Parkway	Newmarket
Davis Drive (Y.R. 31) @ Main Street	Newmarket
Davis Drive (Y.R. 31) @ Prospect Street (Y.R. 34)	Newmarket
Eagle Street (Y.R. 5) @ Lorne Avenue	Newmarket
Gorham Street (Y.R. 5) @ Leslie Street (Y.R. 12)	Newmarket
Green Lane (Y.R. 19) @ 2nd Concession	East Gwillimbury
Highway 7 (Y.R. 7) @ Ansley Grove Road	Vaughan
Highway 7 (Y.R. 7) @ East Beaver Creek Road	Richmond Hill

Location	Municipality
Highway 7 (Y.R. 7) @ Jane Street (Y.R. 55)	Vaughan
Highway 9 (Y.R. 31) @ Eagle Street West	Newmarket
Major Mackenzie Drive East (Y.R. 25) @ Leslie Street (Y.R. 12)	Richmond Hill
Major Mackenzie Drive East (Y.R. 25) @ McCowan Road (Y.R. 67)	Markham
Major Mackenzie Drive East (Y.R. 25) @ Newkirk Road	Richmond Hill
Major Mackenzie Drive East (Y.R. 25) @ Bathurst Street (Y.R. 38)	Vaughan
Major Mackenzie Drive West (Y.R.25) @ Dufferin Street (Y.R. 53)	Vaughan
McCowan Road (Y.R. 67) @ Denison Street	Markham
Rutherford Road (Y.R. 73) @ Dufferin Street (Y.R. 53)	Vaughan
Sixteenth Avenue (Y.R. 73) @ Ninth Line (Y.R. 69)	Markham
Wellington Street West (Y.R. 15) @ Yonge Street (Y.R. 1)	Aurora
Woodbine Avenue (Y.R. 8) @ Bloomington Road (Y.R. 40)	Whitchurch-Stouffville
Woodbine Avenue (Y.R. 8) @ Denison Street	Markham
Woodbine Avenue (Y.R. 8) @ John Street	Markham
Yonge Street (Y.R. 1) @ London Road	Newmarket
Yonge Street (Y.R. 1) @ Mulock Drive (Y.R. 74)	Newmarket

4.2.5.2 Speeding

Table 7 lists the roadway links with an over representation of collisions where excessive speed was a likely factor in the cause of the collision. York Regional Police will be requested to add these locations to their Traffic Complaints Database. Regional staff will provide York Regional Police with information relating to the time-of-day, day-of-week and month of the year when these speed related collisions tend to occur on each roadway link. In addition, these locations will be reviewed by Regional staff to determine if there

are any modifications and/or enhancements that could be made to the road and/or the roadside environment to reduce travel speeds.

Table 7
Speed Related Collisions: Roadway links

Location	Municipality
Bathurst Street(Y.R. 38) from Poplar Bank Sideroad (Y.R. 19) to Graham Sideroad	East Gwillimbury
Davis Drive (Y.R. 31) from Kennedy Road (Y.R. 3) to McCowan Road	Whitchurch-Stouffville
Dufferin Street (Y.R. 53) from 15th Sideroad to 18th Sideroad	King
Green Lane (Y.R. 19) from 2nd Concession to Leslie Street (Y.R. 12)	East Gwillimbury
Highway 27 (Y.R. 27) from Kirby Road to King-Vaughan Road	Vaughan
Highway 7 (Y.R. 7) from Bradwick Drive to Langstaff Road (Y.R. 72)	Vaughan
Highway 7 (Y.R. 7) from Hunter's Point Drive to Yonge Street (Y.R. 1)	Richmond Hill
Jane Street (Y.R. 55) from 16th Sideroad to 17th Sideroad	King
Jane Street (Y.R. 55) from 18th Sideroad to Lloydtown-Aurora Road (Y.R. 16)	King
Kennedy Road (Y.R. 3) from Clayton Drive to Gorvette Road	Markham
King Road (Y.R. 11) from 8th Concession to 7th Concession	King
King Road (Y.R. 11) from 11th Concession to 10th Concession	King
Leslie Street (Y.R. 12) from Holborn Road to Ravenshoe Road (Y.R. 32)	East Gwillimbury
Leslie Street (Y.R. 12) from Bethesda Sideroad to Bloomington Road (Y.R. 4)	Richmond Hill

Location	Municipality
Lloydtown-Aurora Road (Y.R. 16) from Highway 27 (Y.R. 27) to 8th Concession	King
Major Mackenzie Drive East (Y.R. 25) from Warden Avenue (Y.R. 65) to Kennedy Road (Y.R. 3)	Markham
Major Mackenzie Drive West (Y.R. 25) from Keele Valley to Dufferin Street (Y.R. 53)	Vaughan
Rutherford Road (Y.R. 73) from Huntington Road to McGillivray Road	Vaughan
Rutherford Road (Y.R. 73) from McGillivray Road to Highway 27 (Y.R. 27)	Vaughan
Sixteenth Avenue (Y.R. 73) from Quarry Stone Drive to Highway 48	Markham
Warden Avenue (Y.R. 65) from Major Mackenzie Drive East (Y.R. 25) to Eighteenth Avenue	Markham
Warden Avenue (Y.R. 65) from Steeles Avenue East to Masseyfield Gate	Markham
Woodbine Avenue (Y.R. 8) from Davis Drive (Y.R. 31) to Herald Road	East Gwillimbury
Woodbine Avenue (Y.R. 8) from Holborn Road to Boag Road	East Gwillimbury
Woodbine Avenue (Y.R. 8) from Ravenshoe Road (Y.R. 32) to Glenwoods Avenue	Georgina
Yonge Street (Y.R. 1) from Morning Sideroad to Bathurst Street (Y.R. 38)	East Gwillimbury
York-Durham Line (Y.R. 30) from Bethesda Sideroad to Highway 47	Whitchurch-Stouffville
York-Durham Line (Y.R. 30) from Major Mackenzie Drive East (Y.R. 25) to Eighteenth Avenue	Markham

4.3 Existing and Future Partnerships

The Traffic Safety Section is and will continue to be a very active member of the Save-a-Life program. The Save-a-Life program was established in 1999 and is a combined effort by the York Region's Transportation and Works Department, York Regional Police and York Health Services to integrate resources, experience and skills to address growing community concerns about road safety in York Region. The Save-a-Life program goal is: "To Save a Life on the roadways in York Region and to improve the quality of life of the citizens of York Region by being the benchmark of excellence in Road Safety."

As the custodian of Regional collision data the Traffic Safety Section will continue to play an important role in supplying results of collision data analysis and information to York Regional Police and York Health Services to support Save-a-Life program initiatives.

5. FINANCIAL IMPLICATIONS

Implementing minor road safety improvements to be identified by the different Operational Safety Reviews are included in the 2004 Minor Capital Improvement Program budget. Major safety improvements will be prioritized and put forward for consideration in the 2005 budget process.

6. LOCAL MUNICIPAL IMPACT

The goal of the Traffic Safety Improvement Program is to address traffic safety issues throughout the Regional road network. Any operational assessment and safety related recommendations that impact the flow of traffic on the local road system are discussed directly with the appropriate municipal staff before they are implemented.

7. CONCLUSION

The Traffic Safety Section has developed a comprehensive Traffic Safety Improvement Program for 2004. The implementation of this program is expected to result in a substantial reduction in collisions and personal injuries on the Regional road network.

A further report will be prepared in the winter of 2004 updating Regional Council on the progress of the 2004 Road Safety Improvement Program.

The Senior Management Group has reviewed this report.