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HIGHWAY 407 INTERCHANGE IMPROVEMENTS IN MARKHAM

The Planning and Economic Development Committee recommends the recommendations contained in the following report dated January 23, 2008, from the Commissioner of Planning and Development Services, be adopted as amended, as follows:

1. **Regional Council endorse the traffic and financial analysis (Council Attachment 1) for new ramps at the 9th Line and Donald Cousens Parkway interchanges with Highway 407.**
2. **The Regional Chair and Chief Administrative Officer be authorized to present the business case to 407ETR (the Highway 407 Concessionaire) for improvements to the 9th Line and Donald Cousens Parkway interchanges with Highway 407 and to *finalize an agreement with 407ETR.***
3. ***The Regional Chair and Regional Clerk be authorized to execute all agreements necessary to implement Recommendation 2 above, subject to the approval of the Regional Solicitor as to form and content.***
4. **The Regional Clerk forward a copy of this report to the Clerk of the Town of Markham, 407ETR, Ontario Ministries of Transportation, Public Infrastructure Renewal and Municipal Affairs and Housing, and Durham Region.**

1. RECOMMENDATIONS

It is recommended that:

1. Regional Council endorse the traffic and financial analysis (*Council Attachment 1*) for new ramps at the 9th Line and Donald Cousens Parkway interchanges with Highway 407.
2. The Regional Chair and Chief Administrative Officer be authorized to finalize and present a business case to 407ETR (the Highway 407 Concessionaire) for improvements to the 9th Line and Donald Cousens Parkway interchanges with Highway 407.
3. The Regional Clerk forward a copy of this report to the Clerk of the Town of Markham, 407ETR, Ontario Ministries of Transportation, Public Infrastructure Renewal and Municipal Affairs and Housing, and Durham Region.

2. PURPOSE

This report seeks Regional Council endorsement of the traffic and financial analysis for new ramps at the Highway 407 interchanges with 9th Line and Donald Cousens Parkway. It also seeks Council authorisation to present and negotiate a business case to 407ETR for improvements to the interchanges as part of a 407ETR project to widen Highway 407 from Markham Road to York-Durham Line. There is urgency in establishing a Regional position on this because of the 2009 construction schedule for the Highway 407 widening. A private memorandum from the Commissioner of Planning and Development Services (*Attachment 2*) provides further details on potential options for negotiations with 407ETR and the Province.

3. BACKGROUND

In June 22, 2006, Regional Council endorsed a traffic and financial study of Highway 407 interchange additions in order to advise 407ETR on the business case and feasibility of potential improvements.

The study is examining Highway 407 interchange improvement potential at Donald Cousens Parkway, 9th Line, Leslie Street, Centre Street, Islington Avenue, Kipling Avenue and Martin Grove Road. Improvements being explored include additional ramps or new interchanges. The main deliverable of the study is a business case for each of the recommended improvements at the above locations.

407ETR is prepared to consider business cases which outline future revenue from traffic utilising new interchanges and ramps and the payback period for the capital and operating costs associated with the improvements.

407ETR has planned to widen Highway 407 between Markham Road and York-Durham Line in 2009. This section of highway includes the interchanges at 9th Line and Donald Cousens Parkway (formerly the Markham Bypass Extension). The construction schedule presents an opportunity to potentially include missing ramps at these interchanges to the construction package if a business case can be made for the construction of the ramps.

3.1 Highway 407 and Community of Box Grove



As shown in Figure 1, the Community of Box Grove is situated south of Highway 407. 9th Line and the future south extension of Donald Cousens Parkway are key transportation facilities serving Box Grove as planned in the Box Grove Secondary Plan.

Box Grove when fully built out will have an approximate population of 10,000 and employment of 2,600. As part of the new and larger Box Grove Community Plan, 9th Line was diverted around the original Box Grove hamlet.

With the on-going development of Box Grove comes increasing traffic demand to use Highway 407 to access destinations west and east of Box Grove, particularly to employment areas to the west. With Markham Road, to the west,

already constrained, access to Highway 407 through 9th Line and the future Donald Cousens Parkway are critical to the on-going growth of Box Grove.

3.2 9th Line Interchange

This interchange at Highway 407 is missing the south to west and the south to east directional ramps. That is, northbound traffic on 9th Line has no access to Highway 407.

These missing ramps are partly causing northbound traffic to make unsafe and illegal U-turn manoeuvres to utilize the north to west and north to east ramps or require an extended drive onto other Regional roads to access Highway 407.

3.3 Donald Cousens Parkway Interchange

This interchange at Highway 407 is also missing the south to west and the south to east movement ramps. Currently, the southern limit of Donald Cousens Parkway is Highway 407. Plans are being pursued to initially extend it south to 9th Line and eventually to Morningside Avenue in Scarborough.

Once the proposed Donald Cousens Parkway south extension to 9th Line is constructed without the south-oriented ramps at Hwy 407, a similar situation to 9th Line will occur with northbound traffic on Donald Cousens Parkway not having access to Highway 407.

3.4 Environmental Assessment Approvals

Staff from 407ETR has indicated that it has the necessary EA approvals to proceed with improvements of the 9th Line and Donald Cousens Parkway interchanges once the financial business case has been made.

This report details the analysis and findings of the traffic and financial study on the 9th Line and Donald Cousens Parkway interchanges with Highway 407.

4. ANALYSIS AND OPTIONS

The Highway 407 Traffic and Financial Model Study is still on-going and is scheduled for completion in Winter 2008. However, a planned widening of Highway 407 scheduled for 2009 is presenting an opportunity to include missing ramps at 9th Line and Donald Cousens Parkway into the construction works. However, to meet the design schedule, 407ETR has indicated that a York Region decision on the missing ramps must be forwarded to 407ETR in early 2008.

A draft report on the traffic and financial impacts of ramp improvements at 9th Line and Donald Cousens Parkway is presented in Attachment 1.

4.1 Importance of the Ramps and Alternatives Considered

The addition of northbound ramps at 9th Line to go west or east on Highway 407 will reduce traffic volumes on sections of 14th Avenue, Highway 7, and Markham Road, and serve local traffic from Box Grove.

Introduction of new ramps at Donald Cousens Parkway for northbound traffic access to Highway 407 is conditional upon York Region and Markham's ability to phase construction of Donald Cousens Parkway south extension to 9th Line with construction of the new ramps.

If the additional ramps at 9th Line and the ramp at Donald Cousens Parkway were to be constructed and opened together, the positive benefits are more wide-spread.

With the combined improvements, northbound traffic from Box Grove and points south will have the option of using either the 9th Line or Donald Cousens Parkway interchange to access Highway 407, thus reducing the amount of additional traffic on 9th Line and Donald Cousens Parkway. The total amount of travel on Regional roads in this area of Markham will decrease and correspondingly, greenhouse gas emissions from affected traffic will be reduced as a result of the more efficient way of accessing Highway 407. As well, U-turn access to Highway 407 will be eliminated.

Overall, these traffic improvements will help ease growth pressures in the Town of Markham.

4.2 Financial Analysis of Ramp Additions

Highway 407 is a Provincial facility that is currently operated by 407ETR through a long term lease as a profit-making enterprise.

4.2.1 Key 407ETR Criteria

Any improvement to Highway 407 will only be made by 407ETR if it is required by conditions in the lease or if it makes business sense for 407ETR.

From 407ETR's perspective, any proposed improvements to the 9th Line and Donald Cousens Parkway interchanges will fall under the latter category. Their key criterion for assuming the cost of constructing and operating new ramps is if the proponent of the improvements can present a business case that shows a positive 5-year net present value (NPV) benefiting 407ETR. Otherwise, the capital and operating costs of any improvements must be fully borne by the proponent, to be repaid through new toll revenues.

4.2.2 Financial Analysis Assumptions

The study analysed the 5-year net present value for each year from 2008 to 2031 of each ramp or combinations of ramp improvements. The assumptions used in this analysis are:

- 5% discount rate
- Net revenue from car and truck travel
- Capital costs (estimated from conceptual designs of the facilities)
- Operating and maintenance costs (tolling, road maintenance)

4.2.3 9th Line Analysis

The additions of south to west and south to east ramps to Highway 407 were analysed individually and in combination without any other ramp improvement elsewhere the system. As shown in Table 1, existing traffic demands for these ramps is sufficient to produce a positive 5-year net present value for 407ETR right away.

Table 1
Five-Year NPV for 9th Line Interchange Ramps (\$M)

Construction Year	South to West Ramp	South to East Ramp	Combined S-W and S-E Ramps
2009	\$ 2.4	\$ -0.3	\$ 2.1
2011	\$ 3.1	\$ 0.4	\$ 3.4
2021	\$ 6.0	\$ 1.9	\$ 7.9
2031	\$8.9	\$ 4.1	\$13.1

Both ramp improvements could be constructed together to reduce the negative impacts of multiple construction projects on Markham residents, maximise the traffic reduction benefits of the new ramps and reduce future costs (financial and otherwise) of construction.

4.2.4 Donald Cousens Parkway Analysis

The additions of south to west and south to east ramps to Highway 407 were analysed individually and in combination without any other ramp improvement elsewhere in the system.

Table 2
Five-Year NPV for Donald Cousens Pkwy Interchange Ramps (\$M)

Construction Year	South to West Ramp	South to East Ramp	Combined S-W and S-E Ramps
2009	\$ 2.2	\$ -3.5	\$ -1.3
2011	\$ 2.9	\$ -2.5	\$ 0.4
2021	\$ 6.3	\$ 0.3	\$ 6.6
2031	\$10.1	\$ 3.7	\$13.8

As shown in Table 2, existing demands for the south to west ramp is sufficient to produce a strong positive 5-year net present value for 407ETR today. Requiring a much large construction cost, the south to east ramp does not produce a positive 5-year net present value until later. As well, the construction timing for the south to east ramp is beyond 407ETR's 2009 construction program due to the need to widen two existing structures.

4.2.5 Inter-Regional Benefit of the South to East Ramps

Although the business case for the Donald Cousens Parkway south to east ramp has indicated that the payback criteria and timing for the ramp will not meet 407ETR's schedule, it does provide an important inter-regional benefit. A majority of the traffic that will use this ramp will be travelling between the City of Toronto and Durham Region. If this ramp is not constructed, some of this same traffic would instead use the south to east ramp at 9th Line to access Highway 407, impacting on the community of Box Grove.

Given this traffic pattern and the importance of the inter-regional connection served by the Donald Cousens Parkway ramp, the best scenario would be to construct both south to east ramps to Highway 407 at 9th Line and Donald Cousens Parkway so that local York Region traffic as well as inter-regional traffic can be accommodated.

Therefore, as a facility that will mostly carry inter-regional traffic and will benefit Durham Region including potential developments in the Pickering and Seaton areas, the Province and Durham Region should be directly involved in planning, approving and cost-sharing the south to east ramp at Donald Cousens Parkway.

4.3 Next Steps

Staff recommends that the following steps be taken to move the above analyses forward in terms of consultation and discussion with the Town of Markham, 407ETR and MTO:

1. Consult with Town of Markham staff and Council across January to February 2008.
2. Finalise the business case based on comments received from Committee and Council.
3. Present the final business case to 407ETR and MTO at the end of February 2008.

5. FINANCIAL IMPLICATIONS

There are no financial implications on York Region from the recommendations of this report.

6. LOCAL MUNICIPAL IMPACT

This study was initiated partly in response to a request from the Town of Markham to examine Highway 407 ramp improvement opportunities at 9th Line and Donald Cousens Parkway. The scope of work was expanded to include all Highway 407 interchanges in York Region. As such, Towns of Markham and Richmond Hill and City of Vaughan staff are very much involved in the study through a technical advisory committee. 407ETR and Ministry of Transportation are also represented by staff in the study technical advisory committee.

Markham staff have been consulted on this report and are supportive of its recommendations.

7. CONCLUSION

A traffic and financial analysis of improvements to Highway 407 interchanges at 9th Line and Donald Cousens Parkway estimates a positive 5-year net present value for 407ETR for some of the missing ramps.

To take advantage of 407ETR's 2009 construction program which includes widening the section of Highway 407 from Markham Road to York-Durham Line, staff recommends the endorsement of the traffic and financial analysis, and authorisation for York Region senior management to present a business case to 407ETR to build new ramps at 9th Line and Donald Cousens Parkway as part of their 2009 construction.

For more information on this report, please contact Richard Hui, Program Manager in Transportation Planning at 905-830-4444 ext. 1578 or richard.hui@york.ca, or Loy Cheah, Manager, Transportation Planning at 905-830-4444 ext. 5024 or loy.cheah@york.ca.

The Senior Management Group has reviewed this report.

(The two attachments referred to in this clause were included in the agenda for the February 6, 2008 Committee meeting.)