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INTERSECTION IMPROVEMENT REQUEST LANGSTAFF ROAD AND BALDING BOULEVARD, CITY OF VAUGHAN

The Transportation and Works Committee recommends the following report, June 8, 2005, from the Commissioner of Transportation and Works be received and referred back to Staff to review the alternatives for the installation of a traffic control signal at this location.

1. RECOMMENDATION

It is recommended that:

1. The following report be received for information by Committee and Council on the issue of the traffic control signal request at the intersection of Langstaff Road (Y.R. 72) and Balding Boulevard, in the City of Vaughan.

2. PURPOSE

The purpose of this report is to present requests from residents and City of Vaughan Council for traffic improvements at the intersection of Langstaff Road and Balding Boulevard, in the City of Vaughan. A location map is attached as *Attachment 1*.

This report also presents the staff analysis and options available taking into account current Council policies.

3. BACKGROUND

Regional staff receive many requests for improvements to intersections. These improvements range from a simple signal timing change, and advance green indication, to additional turning lanes, and the installation of traffic control signals.

Signalization of Balding Boulevard and Langstaff Road and the potential for other improvements has previously been considered by staff during the finalization of the contract now under construction. Requests for traffic control signals have been denied, because they do not meet current Region policy. Furthermore the potential for a right turn lane was considered, but not carried in the design because the lane is not warranted and because construction of such a lane would have necessitated the extensive removal of now mature landscaping. In consideration of the requests, it is felt that staff has done all that can be done under current policies. A number of meetings were held in April and May 2005 between local ratepayer group representatives and Regional staff to discuss the concern of the National Estate Homeowner's Association. The Association has requested

both a westbound right-turn taper and traffic signals. In some of these discussions it has been intimated that the City of Vaughan may consider financing the installation of the signals.

This report is prepared to present the details of the requests and the staff position on the requests.

3.1 Current Regional Policies

3.1.1 Traffic Control Signal Warrant

The Region's Traffic Control Signal Warrant Policy was approved by Regional Council on October 17, 2002. The warrant is based on the traffic control signal warrants as outlined in Book 12 of the Ontario Traffic Manual. For a traffic control signal to be warranted, any one of the three warrant criteria below must be satisfied by 100% or at least two warrant criteria by 80%. The first warrant criterion accounts for the total amount of traffic using an intersection, the second warrant criterion accounts for the delay to side road traffic, and the third warrant criterion accounts for the safety performance of an intersection.

3.1.2 Payment for Signals

When an intersection of a public road allowance with a Regional road meets the warrants, the intersection is programmed into the Intersection Improvement Program and paid for through tax levies and development charges.

The Region's Traffic Control Signal Warrant Policy also stipulates that a local municipality can pay for the installation of unwarranted traffic control signals provided that Warrant 1 and Warrant 2 are satisfied by at least 70%, and that all installation and ongoing maintenance costs be incurred by the local municipality until traffic control signals become warranted.

3.1.3 Need for Turning Lanes When Signalizing

The safe and efficient operation of a signalized intersection depends, to a large degree, on the presence of turning lanes; particularly left turn lanes. Vehicles waiting to perform left turns from a shared through and left turn lane, can disrupt and delay through-traffic, potentially resulting in increased numbers of rear-end and sideswipe collisions.

4. ANALYSIS AND OPTIONS

In considering all requests, staff carried out various studies, counts and analysis to determine the need and warrant for certain improvements. The following outlines the results of the various studies for this intersection.

4.1 Traffic Signal Consideration

4.1.1 Background

On October 15, 2002, the Council of the City of Vaughan passed a resolution that the Region be requested to install traffic control signals at the intersection of Langstaff Road and Balding Boulevard. A traffic control signal warrant review at the intersection of Langstaff Road at Balding Boulevard was completed by Regional staff. The review concluded that side road traffic volumes were too low to warrant the installation of traffic control signals.

4.1.2 Warrant Analysis

On October 12, 2004, Regional staff conducted an eight-hour traffic turning movement count at Langstaff Road and Balding Boulevard. The turning movement data was used to conduct a traffic control signal warrant analysis according to the Region's policy approved by Council on October 17, 2002.

The following table shows the results of the traffic control signal warrant analysis for Langstaff Road at Balding Boulevard.

Table 1
Traffic Control Signal Warrant Analysis
Langstaff Road and Balding Boulevard

Warrant Component	Warrant Compliance
Minimum vehicular delay	27%
Delay to cross traffic	39%
Preventable collisions (last 3 years)	1

Traffic control signals are warranted when two of the warrant components are at or above 80%, or if five or more collisions, which can be prevented by traffic control signals, occurred over a three-year period. None of these warrant criteria are satisfied at the intersection of Langstaff Road and Balding Boulevard.

4.1.3 Safety Performance

Over the last five years (2000 to 2004), six collisions were recorded at this intersection. Five of the six collisions were rear-end type collisions. Most of these collisions can be attributed to the lack of an eastbound left turn lane. With the recent widening of Langstaff Road between Islington Avenue, turning lanes have been provided at this intersection. These turning lanes will likely reduce the incidence of rear-end conflicts and collisions.

Over a period of eight hours on October 12, 2004, no pedestrians were observed crossing Balding Boulevard or Langstaff Road at the intersection. There are no schools or other facilities in the immediate vicinity of this intersection that would force pedestrians to cross at this location.

Installing traffic control signals at locations that do not yet meet the traffic signal warrant can result in a reduction in overall intersection safety. Specifically, the installation of traffic control signals increases the occurrence of certain types of collisions. Rear-end collisions on the major streets; for example, can increase by as much as 60% after the installation of traffic control signals. Additionally, the average delay to side street traffic is often substantially increased during periods of the day outside of peak hours. This increased delay can result in driver frustration and non-compliance with the traffic control signal indications.

4.1.4 Other Considerations

Representatives of the local ratepayers have also brought to staff attention other issues which they believe need to be considered. First, a concern has been raised about the visibility of the intersection for traffic approaching from the west. Regional staff have reviewed this concern and confirmed that the available east bound sight distance of 250 metres exceeds the minimum stopping sight distance of 220 metres required for this situation.

Second, a concern about potential lack of visibility in the morning peak due to the rising sun in the east has been raised. Staff have pointed out that this situation is no more unusual than on any other unsignalized intersections on east-west arterial Regional roads and that this issue does not normally constitute justification for signals.

Last, the fact that sidewalks on the north side are discontinuous west of Balding Boulevard has been suggested as a reason to introduce signalization. Although, this is indeed the case, Regional counts have not noted any significant pedestrian activity at this location, however there are YRT stops located in both the northeast and the southwest quadrants.

4.2 Right Turn Lane Consideration

In the initial meetings the ratepayer's representatives requested an additional westbound right-turn taper lane to be installed to allow right-turning vehicles to exit from the through-lane before making the turn. Regional staff again reviewed this request.

Although a right turn taper lane is not required for the light volumes making this move, Regional staff did develop an alternate design for discussion with the ratepayers group. Unfortunately, for operational reasons a right-turn taper would be insufficient because of the above-mentioned YRT stop in this quadrant. A bus stopping straddling the edge of a lane would introduce operational and safety problems on the through lane. Therefore, the design for a full right turn lane with taper was developed. As identified during the initial design, the implementation of such a right-turn lane would result in significant additional impacts. Storm drainage systems, utilities and sidewalks would all have to be relocated. Most significantly however, this scheme would require the removal of large amounts of now mature landscaping and gateway features that had previously been installed by others in the northern boulevard. The affected landscaping includes mature hedge cedars and other plantings, stone features, and an irrigation system. Although some of the

vegetation could potentially be saved by the construction of additional retaining wall, it is estimated such a wall would add a further \$15,000 to \$20,000 to the estimated \$125,000 cost of the right-turn lane.

Although Regional staff could include the construction of the right-turn lane in the current contract, this lane is not currently warranted. Furthermore, in the most recent discussions with Regional staff, some representatives of the ratepayers group suggested that the funding be allocated to the installation of the requested traffic signals instead.

5. FINANCIAL IMPLICATIONS

The addition of a right-turn lane would cost an estimated \$125,000 to \$150,000. Signals at this intersection are estimated to cost \$100,000 to \$125,000. Completion of the current design however, as recommended by staff, would have no new financial implication to the Region. Furthermore, if either of the requested works were to be funded by others, there would be no further financial implication.

6. LOCAL MUNICIPAL IMPACT

Under current Council policy, the local municipality can request a signal to be installed at their cost if it meets the warrants at 70%.

7. CONCLUSION

The purpose of this report is to present to Committee and Council a request for improvements to the intersection of Langstaff Road and Balding Boulevard, in the City of Vaughan that was considered by staff and denied due to Council policy. Requests for improvements are still being made.

This report provides background information, the results of warrant analysis, observations concerning safety performance, traffic operations, potential effectiveness, drawbacks and costs.

The Senior Management Group has reviewed this report.

(The attachment referred to in this clause is attached to this report.)