



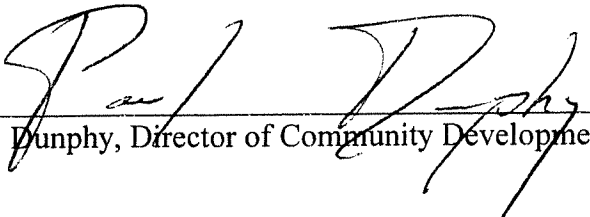
PO Box 1749
Halifax, Nova Scotia
B3J 3A5 Canada

1.

Halifax Regional Council
December 12, 2006

TO: Mayor Kelly and Members of Halifax Regional Council

SUBMITTED BY:


Paul Dunphy, Director of Community Development

DATE: November 3, 2006

SUBJECT: Chebucto/Armdale Roundabout Update

INFORMATION REPORT

ORIGIN

Staff reports requested by Councillor Fougere on May 9, 2006 (item 9.4.1) and Councillor Mosher on May 30, 2006 (items 9.3.1 and 10.3.4) related to the proposed Chebucto Road Reversing Lane and Armdale Rotary Conversion projects.

BACKGROUND

In a May 23 information report to Regional Council, staff indicated that they were confident of the appropriateness of both projects. Nevertheless, staff indicated that an independent, non-local consultant with expertise in the field of transportation demand management would be retained to:

- review the analysis undertaken by staff on the Chebucto Road project; and
- evaluate the alternative suggestions proposed by the Chebucto Road residents committee.

DISCUSSION

Paradigm Transportation Solutions in Cambridge, Ontario, was hired to conduct the review. Their report is attached.

The report identified some additional data collection and modelling for HRM staff to undertake in order to assess the project. The report also made suggestions for minor modifications to the design of the Chebucto Road project to mitigate property impact.

Staff is satisfied with the consultant's report and has begun work on the recommended data analysis and modelling. Once this information is assembled, it will be presented at a public meeting in January. Following that meeting, a report will be presented to Regional Council with a staff recommendation.

BUDGET IMPLICATIONS

There are no budget implications.

FINANCIAL MANAGEMENT POLICIES / BUSINESS PLAN

This report complies with the Municipality's Multi-Year Financial Strategy, the approved Operating, Capital and Reserve budgets, policies and procedures regarding withdrawals from the utilization of Capital and Operating reserves, as well as any relevant legislation.

ALTERNATIVES

There are no recommended alternatives.

ATTACHMENTS

Chebucto Road Capacity Improvement Review, Paradigm Transportation Solutions

A copy of this report can be obtained online at <http://www.halifax.ca/council/agendasc/cagenda.html> then choose the appropriate meeting date, or by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

Report Prepared by: Dave McCusker, P.Eng., Manager, Regional Transportation Planning, 490-6696



November 3, 2006

Halifax Regional Municipality
PO Box 1749
Halifax, Nova Scotia B3J 3A5

ATTENTION: DAVE MCCUSKER, MANAGER, TRANSPORTATION PLANNING

Dear Mr. McCusker:

RE: CHEBUCTO ROAD CAPACITY IMPROVEMENT PEER REVIEW

The Halifax Regional Municipality (HRM) has adopted a Regional Plan that provides the foundation and strategy from which a Functional Transportation Plan will be developed. The transportation strategy focuses on public transit, active transportation and transportation demand management (TDM) measures to meet future transportation needs. However, the strategy also proposes some expansion and improvement of the road network in strategic locations.

The Project

The Chebucto Road Reversing Lane Project is one of the improvements identified in the Regional Municipal Planning Strategy. This project proposes expansion of the Chebucto Road/Mumford Road intersection to enable efficient use of the existing three lane capacity of Chebucto Road between this intersection and the Armdale Rotary to the west through the implementation of a reversing centre lane. It was previously identified as a Roadway Network Optimization Project that, in conjunction with improvements to the Armdale Rotary, would make the best use of existing roadway infrastructure and help reduce the need to undertake major roadway corridor expansion in this area.

The Issues

The Chebucto Neighbourhood Association (CNA) has raised several concerns with this project. These can be divided into three categories as noted below:

1. *Cost/Benefit:* The net benefit to commuters given the cost of the project should it simply relocate the congestion or queues to downstream intersections. How much time will it save commuters?
2. *Impact:* Its impact on the adjacent community (safety, aesthetics, property values, accessibility to adjacent streets).

3. *Options:* The adequate consideration of other options such as car pooling (HOV lanes) and alternative transportation modes have not been considered.

The CNA has also indicated that the real problem is with the operation of the rotary and that the operation of the rotary should be addressed first.

The Review

Paradigm Transportation Solutions Limited was retained to undertake an independent review of the process used to identify the need for this project and the alternatives. This review was intended to be based on readily available information (see Attachment A), our experience with similar issues/projects and our knowledge of the application of various TDM alternatives. No specific additional analysis was requested as part of this review.

Need and Justification

The need and justification for the project improvement is based on future demand modelling undertaken by HRM staff as part of the development of the Regional Plan. Our review of the analysis of demand indicates that the five east west routes onto the Peninsula are currently close to capacity; in particular Chebucto Road and Quinpool Road. These results agree with our field observations of congestion during the week of September, 27, 2006 where long queues of commuters occur on Chebucto Road and Quinpool Road during the AM and PM peak hours.

With future growth of 20,000 to 30,000 people on the mainland and further economic development of the Halifax Harbour as outlined in the Regional Plan, travel demand forecasts by HRM staff indicate that these conditions will deteriorate further even considering a high (optimistic) diversion of future travel demand to transit, active transportation modes and car pooling through planned TDM initiatives. Planned roadway expansion improvements including the Chebucto Road and Armdale Rotary are intended to maintain congestion to at least existing levels. There will always be a need to accommodate, passenger vehicles including high occupancy vehicles (HOV), public transit and goods movement onto the peninsula as some SOV commuters require personal vehicles for job related or other reasons.

Innovative strategies such as bus rapid transit, fast ferry services, rail transit, community based transportation services, active transportation and transportation demand management are all part of the Regional Plan. While targets for vehicle reduction are included in the Regional Plan, there is no guarantee that these targets will ever be achieved. Most of these strategies will take a long time to have any significant effect on single passenger vehicle (SOV) reduction as public education, infrastructure improvements and TDM initiatives (i.e. increased parking pricing and supply reduction, HOV etc.) are required. These changes need to be implemented carefully given that they affect the personal choice and freedom of individuals. Many of our firm's transportation studies have recommended the implementation of TDM programs in various cities such as London, Guelph and Kelowna with limited if any real progress being made in many cases due to the lack of political will.

Based on the above, it is our view there is a need for increased road capacity onto the Peninsula now and certainly, in the short term future (i.e. 5 years). In the longer term, more of this capacity will be available for conversion to accommodate HOV (transit and passenger vehicles) and additional facilities that support active transportation (i.e. bicycle lanes) as various transit and TDM support programs and facilities are implemented and become successful.

Cost/Benefit

The Chebucto Road project is intended to eliminate lane discontinuity along the corridor. Currently, Chebucto Road varies from one to three lanes in each direction as one travels from the Rotary past Mumford Road to Poplar Street. This lane discontinuity, in particular, the single lane through lane at the Mumford Road intersection reduces the capacity of the corridor. The single east/west through lane at the Mumford Road/Chebucto Road intersection controls the capacity of the corridor and causes the additional lanes upstream and downstream to be underutilized. The project is not a major corridor widening but an intersection widening.

HRM staff have recommended this project for the following reasons:

1. *More Efficient Use of Past and Proposed Corridor Capacity Enhancements:* The intersection improvement will increase capacity of the corridor and allow more efficient use of the past investment in roadway infrastructure on Chebucto Road between Westmount Street and Connaught Avenue and proposed future capacity increases at the rotary, thereby reducing or eliminating the need for a more expensive and higher impact corridor improvement elsewhere.
2. *Benefit to Commuters:* It will reduce the extensive queuing and delays that occur presently and are expected to grow in the future along Chebucto Road and Mumford Road during peak hours.
3. *Prevent Gridlock of the Rotary:* It will prevent queuing on Chebucto Road or Quinpool Road from extending to the Armdale Rotary in the AM peak hour causing gridlock to occur thereby reducing the capacity of the rotary. This is especially important since the planned improvements to the Armdale Rotary is expected to increase its capacity in both directions causing longer queues and more frequent disruption of the rotary by traffic entering Chebucto Road or Quinpool Road without a capacity increase along the Quinpool/Chebucto Road corridor.
4. *Maintain Existing Mobility Levels in Future:* Planned roadway expansion improvements including the Chebucto Road and Armdale Rotary are intended to maintain existing mobility levels to/from the Peninsula in the future.
5. *Lower Cost Capacity Investment:* Quinpool Road as an alternative is currently operating at capacity and would require more than one intersection improvement and higher cost/impact to increase its capacity to the same degree.

The rationale for the proposal to implement the Chebucto Road improvement is, in our opinion, reasonable and supportable provided that HRM can demonstrate that the following conditions can be met:

1. The proposed capacity enhancements to the rotary will accommodate any expected increase in westbound PM peak hour traffic from Chebucto Road with the intersection improvement in place.
2. The project will eliminate the impact of eastbound queues in the AM peak hour from affecting the operation of the rotary.
3. There is a net benefit in travel time savings, fuel consumption and emission levels to justify the project.

In summary, the CNA's request to provide more quantitative analysis to ensure that the proposed improvement has a net benefit and does not simply relocate the congestion to downstream intersections (i.e. Connaught/Chebucto, Connaught/Quinpool, Chebucto/Oxford, the rotary) is reasonable and should be provided through modelling of "before" and "after" conditions.

Community Impact

We offer the following comments to address the CNA community impact issues related to the Chebucto Road/Mumford Road intersection widening project:

1. *Property Impact:* The Chebucto Road intersection improvement will physically affect approximately 180m of the 700m stretch of Chebucto Road between Westmount Road and the rotary by reducing the front yards of up to 12 residential homes by an amount ranging from 0 to 3.5m as it is proposed. The CNA has requested that HRM eliminate the eastbound left turn lane at the Mumford Road intersection by prohibiting left turns. Subject to further analysis by HRM, we anticipate that this is a reasonable design alternative to consider and should provide most of the capacity benefit that would otherwise be achieved while reducing the property impact of the project. As HRM buses must turn at this location, the left turn prohibition would exclude transit vehicles.
2. *Property Values:* We do not have the expertise to address this issue. However, this issue could be addressed by qualified real estate appraisal firms. In our experience on similar projects, this issue is very difficult to address in a quantitative manner. It is our suggestion that HRM consider retaining a qualified appraiser to address this issue or to consider acquiring properties that are most significantly affected.
3. *Aesthetics:* Consideration of some urban design components in the project is recommended to address this issue.

4. *Accessibility:* It is our opinion that accessibility from side streets along Chebucto Road will not be significantly affected by the reversible lane project. The additional lane in the peak direction will help create more gaps in the traffic stream. As currently exists today, motorists in the curb lane will likely continue to provide the courtesy of allowing local residents to enter the road from side streets. For left turn movements, the use of Quinpool Road (via right turn) or turning left at the Mumford/MacDonald traffic signal provide alternatives for local residents.
5. *Safety:* Changes to pedestrian safety will not be significantly affected as the widening is focused in the vicinity of the Mumford/MacDonald intersection. Pedestrian safety in this area will be enhanced by the proposed implementation of a southbound dual left turn from Mumford Road. This dual left turn will only be permitted during a protected phase eliminating the condition that currently occurs where left turns are permitted to cross the east pedestrian crosswalk when pedestrian crossings occur. Further, elimination of the eastbound left turn lane will reduce the width of road required to cross on the west leg. Textured interlocking brick cross walks could be installed as part of an urban design element to visually enhance the crossing area. In our experience, pedestrian safety is not significantly affected by the requirement to cross five lanes at signalized intersections. The pedestrian crossing at Philip Street is protected by a flashing pedestrian crossing device. It has been our observation that most motorists in Halifax are very courteous in regards to pedestrians by slowing or stopping to permit safe crossings. The roadway in this area will not be wider than it is today. Crossing the road under a reversing lane situation is not significantly different than any other road crossing where pedestrians must look both ways before proceeding. It is analogous to crossing a road with a two-way left turn lane where the direction of the traffic in the turn lane could be in either direction.
6. *Street Maintenance:* Snow removal and storage will not be significantly affected as the most significant boulevard reduction will occur within 40m of the intersection.

It is our view that the project is sensitive to reducing the community impact in that a reversible lane is proposed to effectively provide the capacity of a four lane facility for the peak direction of traffic within the existing three lane cross-section. In this way additional widening of the roadway is avoided.

CNA HOV Alternative

We applaud the CNA for their initiative to become engaged on the issues and for the many hours of volunteer time that has been expended to date. Unfortunately, we cannot support the alternative of simply converting Chebucto Road, from the rotary to Mumford Road, a HOV only facility during peak hours without implementing the proposed intersection widening and reversible lane. Based on our experience and research, the CNA "Thinking Outside the Box" HOV proposal has many barriers to overcome and several disbenefits as outlined below:

1. *Legislation:* We understand legislation does not currently exist to implement HOV facilities in the Region.

2. *Local Property and Business Impacts:* Restricting traffic to HOV users only during peak hours would create issues in obtaining reasonably direct access to local businesses and residences by SOV motorists. To obtain access, increased use of streets within adjacent residential areas would occur causing neighbourhood impacts within these areas. Access to businesses by SOV users would be very inconvenient. In our experience, successful HOV facilities are not implemented on existing arterial roads without retaining lanes for general purpose use.
3. *Acceptance:* Taking existing general purpose lanes away from SOV drivers generally leads to significant public controversy. HOV lanes have improved acceptance when a new lane is added for the purpose of accommodating high occupancy vehicles.
4. *Effectiveness:* The implementation of such a facility in this short stretch of road would not necessarily generate more HOV use or provide increased people movement capacity. Many existing HOV users already on other facilities such as Quinpool Road, Bayers Road and Mumford Road will divert to Chebucto Road if it offers improved travel time and they can avoid delays currently experienced on other routes into the Peninsula. This would effectively reduce any increase in person carrying capacity onto the Peninsula as existing HOV drivers will effectively use up the capacity available and therefore any incentive for SOV motorists to car pool.
5. *Need Supporting Programs:* Successful HOV facilities need to be part of an overall Transportation Demand Management Program that includes such measures as public education, promotion, congestion pricing, limited parking supply, and high parking costs at destination, ride matching programs, employer guaranteed ride home programs and conveniently located park and ride facilities. Many SOV drivers cannot car pool or use public transit as they work odd hours or require their vehicle for work. Research on barriers to car pooling and measures to encourage car pooling at a major employment centre in Waterloo is attached (Attachment B).
6. *Substantial Time Savings:* Successful HOV lanes need to generate substantial time savings to encourage car pooling. The proposed short section of HOV may not be substantial enough to convert SOV users. Generally, a longer network of HOV facilities is required to encourage HOV use.
7. *Institutional Support:* Needs strong support from public officials and transportation agencies.
8. *HOV Better With Reversing Lane Project:* The reversing lane project proposed by HRM has higher person carrying capacity than the CNA proposal. As well, when conditions are right for the implementation of an HOV facility, the Chebucto Road Reversing Lane project will also generate greater person carrying capacity than the CNA proposal and is therefore a better long term solution if HOV was to be implemented along the corridor during peak periods with one general purpose lane and one HOV lane in the peak direction of travel.

9. *Congestion Impact:* The CNA proposal will reduce congestion on Chebucto Road to some degree but it will increase traffic demands on Quinpool Road. Given that this facility is now operating at capacity and queues frequently extend almost to the rotary, any increase in traffic can be expected to cause queues to extend to the rotary causing gridlock to occur.
10. *Signage/Enforcement:* Given that the HOV facility would begin at the rotary, signage would be difficult for motorists to observe due to the need to focus on adjacent drivers in the rotary. Many SOV motorists may enter the roadway not knowing that the lane is HOV only and will need to either continue or turn around. Much confusion would result.

We agree with the concept of HOV and creating people carrying capacity rather than vehicle capacity as suggested by the CNA. This concept is embedded in the Regional Plan and is intended to be the focus of future transportation in the Region. However, some limited road projects are required to support this concept including the Chebucto Road Reversing Lane project which may provide for an effective short term capacity increase as well as an effective long term solution that may ultimately include HOV.

Other Options

The CNA has expressed the concern that HRM has not adequately addressed other innovative strategies such as Water-based strategies (i.e. fast ferries), rail based strategies (i.e. light rail transit), HOV, express bus and active transportation. Most of these strategies are part of the Regional Plan, will take many years to implement and require a considerable amount of planning and funding to implement. They have been examined to some degree by HRM staff but not as an alternative solution to Chebucto Road. Over the long term, if these initiatives reduce travel demands on Chebucto Road to eliminate the need for the reversing lane project, the additional pavement available as a result of this project can be used to for HOV and/or bicycle lanes to support the overall transportation vision.

At the May 30th, 2006 meeting of Regional Council a motion was passed that staff be directed to come forward with a solution that would work better than the Chebucto Reversing Lane Project and alternatives that would ensure safe and effective flow without enticing more drivers than the usual patterns to utilize the Armdale Rotary including but not limited to a parclo, tunnel, bridge and overpass.

A partial grade separation (overpass) of some of the approaches to Armdale Rotary was examined in 2002 in the Halifax Peninsula Traffic Capacity Opportunities Study. In general, it is expected that a parclo, tunnel, bridge or overpass could be implemented at a significant cost to improve safe and effective flow at the rotary. These could be designed to not increase capacity onto the Peninsula as requested above. However, lower cost at grade configurations of the rotary are being considered to address the objective of safe and effective flow. In any event, improvements to the operation of the rotary will not likely effect the need for the Chebucto Road Reversing lane project unless the capacity of the rotary is reduced creating even more congestion on its approaches.

CNA Questions

At a meeting with the CNA representatives, additional questions were raised for Paradigm to address. These are further discussed below:

1. *Chebucto Road/Armdale Rotary Relationship:* A solution to the operation of the Armdale Rotary is currently being developed under a separate contract with HRM. The two projects are interrelated as the amount of traffic that enters or leaves Chebucto Road is controlled by the capacity of the rotary. If improvements to the Rotary increase its capacity to accommodate more traffic to/from the Peninsula, this will increase the need for the Reversing Lane solution. If the solution reduces the capacity of the rotary, queuing and delays on Chebucto Road will increase in the PM and decrease in the AM. While decreasing the capacity of the Rotary may or may not eliminate the need for the Reversing Lane project it will cause significantly increased congestion on Chebucto and Quinpool and on the Peninsula in general in the PM and on Bay Road and Herring Cove in the AM. Furthermore, this would increase traffic demands on neighbourhood roads to bypass congested areas and cause difficulties for emergency services. In general, once the plans are approved for the Rotary then the need for the Chebucto Road improvements will be confirmed. The construction would desirably occur at the same time.
2. *Public Participation:* It is our view the neighbourhood should have been informed of the project early in the planning process by reviewing the need and justification and introducing some of the alternatives to obtain input at that stage. A second meeting to review the selection of the alternative and obtain further input on its design would then follow. This is especially the case given that the project has land requirements and is within a residential neighbourhood.
3. *Evaluation of Options:* There are very few feasible options to the Chebucto Road project. However, with every project proposal, it is our view what ever options are available should be evaluated against each other.
4. *Trial HOV Implementation:* For reasons noted above, a trial HOV implementation would likely not be successful. A bad experience with such an initiative would negatively influence future potential implementation of further HOV initiatives.

Conclusions

Based on our review and experience we offer the following recommendations for HRM related to the Chebucto Road project:

1. *Finalize Rotary Improvement Plan:* Finalize the recommended improvement plan for the Armdale Rotary and determine the potential increase in traffic demand and impact that will occur on Chebucto Road with the improvement in place.
2. *Operational Analysis of Chebucto Road Reversing Lane:* Evaluate the net benefit of the project to address the CNA's request to ensure that the proposed improvement does not simply relocate the congestion to downstream intersections (i.e. Connaught/Chebucto, Connaught/Quinpool, Chebucto/Oxford, the rotary). Evaluate the improvement against the "Do-Nothing" option.

3. *Evaluate Reduced Impact Solution:* If the Chebucto Road reversing lane project is still required, evaluate lower impact design solutions including eliminating the eastbound left turn lane and implementation of possible urban design enhancements.
4. *Property Acquisition:* Consider acquisition of the most impacted properties. If properties most affected by the eastbound left turn lane implementation are acquired, this may reduce the need to eliminate it as noted in "3" above.

We trust that this review will assist the HRM and the CNA relative to the Chebucto Road issue.

Yours very truly,

PARADIGM TRANSPORTATION SOLUTIONS LIMITED



Phil Grubb., P.Eng.
President

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ATTACHMENT A
CHEBUCTO ROAD REVERSING LANE PROJECT
DOCUMENTS REVIEWED

1. Notes for Mr. Phil Grubb Regarding HRM's Proposal to Widen Chebucto Road, Andrea McQuillin, CNA, Sept. 26, 2006.
2. Letter from Dave McCusker to Phil Grubb, September 26, 2006 and Screenline Analysis Attachments.
3. CNA Web Site, Working Toward a Better Solution to Armdale Rotary Congestion, Additional Information (letter, news articles), September, 14, 2006.
4. Letter from Andrea McQuillin, CNA, to June 26, 2006.
5. Chebutco Road Reversing Lane Project, June 13, 2006, Staff Report, Regional Council.
6. Letter from Andrea McQuillin, CNA, to Paul Dunpy dated June 12, 2006.
7. Halifax Regional Council Minutes, May 30, 2006 related to Chebucto Road.
8. Halifax Regional Council Presentation and Attachments by CNA, May 30, 2006.
9. Halifax Regional Council Minutes, May 9, 2006 related to Chebucto Road.
10. Alternatives to Widening Chebutco Road, Andrea McQuillin, May 30, 2006.
11. Letter from Andrea McQuillin, CAN, to Mayor Kelly, May 26, 2006.
12. Regional Council Minutes, May 16, 2006, Delegations regarding Regional Plan.
13. Public Information Meeting Notes, Chebucto Road Reversing Lanes Project, April 27, 2006.
14. Regional Municipal Planning Strategy, April 2006.
15. Memo from Andrea McQuillin to Mayor Kelly, Request to Speak, May 17, 2006.
16. Roadway Network Optimization Plan, May 11, 2004, Staff Report, Regional Council.
17. Roadway Network Optimization Plan, April 28, 2004, Staff Report, Regional Council.
18. Halifax Peninsula Traffic Opportunities Study, Final Report, April 2002.

ATTACHMENT B: BARRIERS AND INCENTIVES FOR CAR POOLING

CLARICA INSURANCE COMPANY/ GRAND RIVER HOSPITAL WATERLOO

