Submission to the Ontario Ministry of the Environment Regarding the draft Environmental Assessment Terms of Reference for the Niagara to GTA Corridor, October 2005.

Prepared by
Ray Tomalty, Ph.D.
Research Associate

The Pembina Institute
December, 2005

Introduction

The Pembina Institute welcomes the opportunity to address the Ontario Ministry of the Environment regarding the draft Environmental Assessment Terms of Reference for the Niagara to GTA Corridor, October 2005.

The Pembina Institute for Appropriate Development (PIAD) is a national, independent not-for profit environmental research and education organization, with offices in Ottawa, Toronto, Edmonton, Calgary, Vancouver and Drayton Valley, Alberta.

The Institute has taken a strong interest in issues related to the environmental, economic and social sustainability of urban communities in Ontario over the two years, publishing a number of major reports including:

- *Smart Growth in Ontario: The Promise vs. Provincial Performance* (February 2003)
- *Building Sustainable Urban Communities in Ontario: Overcoming the Barriers* (December 2003)
- *Towards Implementation? Building Sustainable Urban Communities in Ontario* (July 2004)
- *Building Sustainable Urban Communities in Ontario: A Provincial Progress Report* (June 2005)
- *Local Implementation of 'Smart Growth' Policies in Ontario: Three Case Studies* (July 2005)

The Institute has also been extensively involved in consultations and discussions with the provincial government regarding the Greater Golden Horseshoe Greenbelt initiative, revisions to the *Planning Act* and Provincial Policy Statement, and the Greater Golden Horseshoe Growth Plan.

Throughout its work on urban sustainability issues, the Institute has highlighted the centrality of linkages between land-use planning and major transportation infrastructure in the establishment of environmentally, socially and economically sustainable urban communities in Ontario.

Comments on the Proposed EA Terms of Reference

In general, the Terms of Reference for the Niagara to GTA Corridor Environmental Assessment (ToR) appear to be a net improvement over those that were withdrawn in the summer of 2003 by MTO under the previous government. The withdrawn version proposed "a multi-use transportation corridor that will include a 4 lane (6 lanes in the Hamilton/Halton area) highway and a transitway" as the undertaking and restricted the EA to a consideration of alternative routes.[1] A new highway, in other words, was a fait accompli.

The Richmond Landfill decision of June 18 2003 by Ontario Divisional Court, which required that environmental assessments of projects under the Environmental Assessment Act include consideration of the need for projects and "alternatives to" projects. Thus, the current ToR do not assume that a new highway/transitway will necessarily be the preferred outcome and lays out a method for assessing and evaluating reasonable alternatives.[2]

The Pembina Institute welcomes this fundamental change in direction. Major new transportation infrastructure in the Niagara Peninsula would cut through the newly established GGH greenbelt and longer standing protected areas of the Niagara Escarpment. Such an undertaking would also have the potential to undermine the Province's policy of reducing automobile dependency, containing sprawl in the GGH and promoting more sustainable development patterns. It would also have major impacts on the emissions of smog precursors and greenhouse gases (GHGs) and therefore threaten to compromise other Provincial and Federal goals concerning the improvement of air quality and attainment of Kyoto targets.

For these reasons alone, it is essential that strategic options be considered such as managing transportation demand to reduce automobile/truck traffic, improving the performance of existing transportation system components, shifting goods and people movement to more sustainable alternatives, and managing land use and economic development in order to minimize the growth in personal travel and goods transport. Furthermore, whatever option is finally chosen through the EA as the preferred undertaking, alternative methods of realizing the project should be assessed and evaluated for their potential to undermine or contribute to the goals mentioned above.

---

[1] Ontario Ministry of Transportation. May 2003. Mid-Peninsula Transportation Corridor, Environmental Assessment Terms of Reference. Page 29.

[2] The result is somewhat awkward semantically as the current version of the ToR continues to employ the old language of the "undertaking" and "alternatives to the undertaking" whereas no undertaking is proposed. In reality, the first phase of the EA will be an assessment of all strategic options against specific criteria and it would be better if the ToR were phrased in this way in order to avoid the unfortunate impression left by the current wording that the authors of the ToR have a specific but unnamed project in mind.

Unfortunately, our reading of the current ToR leads us the conclusion that these issues are not being adequately addressed in the proposed EA. In particular, we find that the ToR does not directly address the issues of automobile dependency, land use impacts or air emissions. Each of these are considered briefly here before we proceed with more general comments.

Linkage with Automobile Dependency

Transportation-related decisions have a direct impact on modal choice. Public investment in transportation facilities such as road improvements or transit facilities, are usually intended to affect (i.e., reduce) the length of trips, but can also have a major impact on travel mode. Studies have shown, for instance, that new road construction not only shortens trip length, it can lead to fewer trips by other modes as people using that corridor switch to cars or trucks. Thus, investment in road infrastructure can deepen car dependency. Often, the result is more traffic than the infrastructure is designed to carry is quickly generated, which leads to more congestion and demands for further road improvements.[3]

Thus, investment in the expansion of the highway network is a self-stoking process. Public money that could be used to improve the transit network is diverted into highway improvement, further undermining the competitiveness of transit and encouraging a shift to automobile and truck based travel. In Ontario, the apogee of this process was reached in the mid-1990s when the former government eliminated funding for public transit and continued investing heavily in highway development. The increase in car ownership and use, parallel with a decline in public transit use, is well documented.[4]

The current Provincial government has indicated that it intends to halt the drift to car dependency. For example, the draft Growth Plan for the GGH states that dependency on the private automobile must be reduced and a more balanced transportation system created in the GGH.[5] The draft ToR includes a provision that alternative undertakings should consider the degree to which the proposed solutions improve modal choice and create a more balanced transportation system. However, the draft ToR does not raise the general issue of automobile dependency or the more specific issue of induced traffic.

<u>Recommendation</u>

> *The ToR should be revised to incorporate automobile dependency as a general concern that any solution to transportation problems in the*

[3] See: Todd Litman. June 2003. Generated Traffic and Induced Travel: Implications for Transport Planning. Victoria BC: Victoria Transport Policy Institute.
[4] See M.Winfield, February 2003. Smart Growth in Ontario: The Promise vs. Provincial Performance. Toronto: Pembina Institute, Page 29.
[5] Places to Grow. February, 2005. Draft Growth Plan for the Greater Golden Horseshoe. Page 29.

study area should address. Furthermore, the potential for any road-based solution to induce more vehicular travel (induced traffic) should explicitly be included in the factors to be considered when assessing alternative undertakings and alternative methods.

Linkage with Land Use

The design of transportation systems not only has a direct effect on travel patterns by encouraging modal shifts, it can have an indirect effect by influencing urban form. Although this indirect impact applies to all major transportation developments, it is clearest in the case of highway construction. Recent research in the US has shown that highway construction in or near urban regions often triggers urbanization of previously undeveloped areas by providing easier access to those areas.[6] As urbanization along highway corridors takes root, demand increases for new interchanges, which in turn contributes to urban development in those vicinities. Over time, these land-use changes undermine the viability of transit systems and lead to more car use as the only suitable travel option. Thus, although the short-term impact of road construction may be to reduce congestion and trip length and duration, the long-term impacts can be the opposite if people relocate their homes or work to more distant areas newly served by highways.

The draft Growth Plan for the GGH recognizes this vicious circle and proposed that transportation systems – especially highways and interchanges - be designed to contribute to compact communities and strengthen demand for public transit.[7] However, this concern is only weakly reflected in the draft ToR. In the introductory sections (under Policy Framework), the ToR recognize that the need to discourage urban sprawl as one of the policy directions that will inform the EA process, but there is little follow through on this point in the rest of the document. Consideration of transportation-land use interactions is limited to the observation that proposed solutions will need to have regard for municipal planning aspirations as outlined in existing approved regional and local Official Plans. The potential for a highway proposal to undermine provincial policies, regional and municipal official plans through these means is not included in the formal methodology of the EA.

The document does not specifically propose the need to avoid induced urban sprawl and focus development in existing settlement areas (as required by the draft Growth Plan for the GGH) as criteria for assessing transportation solutions in the study area. Most importantly, it does not acknowledged that official plans can and routinely are changed to adapt to unforeseen development pressures,

[6] A 2000 Brookings Institution report found that "changes in metropolitan patterns are induced by highways." They concluded that federal highway funding has constituted a subsidy to suburban regions at the cost of urban centers, leading to "less than optimal urban growth patterns." Brad Heavner. November 2000. Paving the Way How Highway Construction Has Contributed to Sprawl in Maryland. MaryPIRG Foundation. Page 9.

[7] Places to Grow. February, 2005. Draft Growth Plan for the Greater Golden Horseshoe. Pages 6 and 28.

such as those created by new highways. Nor does the ToR discuss the likely outcome that a new highway through rural areas will eventually trigger demand for new interchanges and further urban development. Needless to say, if development pressures are the result of a highway expansion project and new interchanges, the type of development induced would likely favour car-based travel and thus undermine demand for alternative modes, such as transit.

Recommendation

> *The ToR should be revised to more thoroughly incorporate issues of induced urban development as a general concern that any solution to transportation problems in the study area must address. Provision should be made for a thorough study of alternative undertakings for their potential contribution to urban sprawl outside planned expansion areas. The desire to avoid induced urban development should be posed as key criterion for assessing alternative undertakings. Furthermore, for any undertaking involving a new highway, the assessment of alternative methods should include consideration of the demand for new interchanges (and the further development) that different methods are likely to give rise to.*

Linkage with Air Emissions

Advocates of road expansion, such as the Canadian Automobile Association, argue that investment in roads in general and highways in particular will improve air quality by reducing trip lengths and congestion. This may be true in the short run, but studies in the US have demonstrated that in the long run, the addition of new highway capacity brings with it the risk of increased vehicular air pollution. Newman and Kenworthy have shown that those cities with the freest flowing traffic actually have the highest gasoline consumption.[8] A study by the US Public Interest Research Group found that metropolitan areas in the US with the most highway capacity had the highest levels of air pollution from vehicles.[9] Thus, adding new highway capacity, does little to alleviate congestion in the long run and likely will exacerbate existing air pollution problems in metropolitan areas.

The draft Growth Plan for the GGH makes reference to the need for improved air quality and reduced greenhouse gas emissions in the region but the link made with transportation systems is not strong. Fortunately, the draft ToR for the N-GTA corridor helps address this issue by including the need to minimize toxic and GHG emissions as a criterion for assessing alternative undertakings and alternative methods. However, air emissions are not given due attention in other

[8] Newman, Peter W.G., and Jeffrey R. Kenworthy. 1989. Cities and Automobile Dependence: A Sourcebook. Aldershot: Gower Technical.
[9] US PIRG Education Fund. 2004. More Highways, More Pollution Road-Building And Air Pollution In America's Cities.

parts of the document. For example, despite the major impacts on Ontario's toxics inventory and GHG emissions, the Policy Framework section makes no mention of the Kyoto Protocol, the federal or provincial smog plans or municipal environmental plans. Nor are air emissions identified as a consideration that will go into the generation of alternative methods (table 5.1). Finally, there is no mention in the document of the need to do detailed modelling of the air emissions associated with alternative undertaking.

Recommendation

> *The Terms of Reference should be revised to better reflect the importance of reducing air emissions in order to reflect federal, provincial, regional and municipal air quality and greenhouse gas reduction objectives. The ToR should also require that the criteria for assessing alternative undertakings include a full assessment of the air pollutant and greenhouse gas emissions associated with the alternatives being considered using advanced modelling and detailed data collection.*

The Need for Background Studies and Models

An concern raised by the foregoing considerations is the lack of background information in Ontario related to induced traffic and sprawl. Despite the importance of these issues to many communities, NGOs, and others, the Ontario government has never undertaken a thorough study of these issues in the context of its highway building program.

Recommendation

> *MTO should commission a comprehensive study of the impact of the 400 series highway system on land-use patterns and induced traffic in the GTA over the last 30 years. The results of this study should be used as background information in the context of the proposed EA.*

One constraint on the province's ability to incorporate consideration of induced land-use and travel demand into EA procedures is the absence of any transportation model tailored to the GGH that could serve this purpose. At present, the most sophisticated transportation modelling in the GGH is carried out by the Department of Civil Engineering at the University of Toronto. In the models used to predict the impact of transportation improvements on travel behaviour, land-use is a fixed input: there is no interaction between network improvements and land-use changes. Work on models that can incorporate such interactions have been developed for cities in the US and in Alberta, and researchers at the University of Toronto are ready to proceed in this direction if provided with the necessary resources.

Recommendation

> *MTO should consider funding efforts to produce a transportation-land-use travel demand model tailored to the GGH.*

Above we mentioned the need for the EA to carry out detailed studies on the impacts of various alternatives on air emissions. By comparing emissions based on current trends versus those associated with a proposed transportation alternative, such studies can be invaluable in quantifying the extra load being placed on the environment. They should be a routine aspect of any EA on transportation issues.

However, air emissions from transportation sources is only one element in understanding the impact of growth on the air environment and on ultimate outcomes such as public health. To get a more comprehensive picture of how growth affects air emissions and public health, we need to inventory the full range of added emissions – not only from transportation, but from industries, homes, and other sources linked to the proposed growth – and then model how these emissions chemically interact with each other and contaminants arriving from outside the region. We also need to understand how the resulting pollutants disperse themselves in patterns affected by climate, topography, and the built form and where dangers to human health might arise. Only a more comprehensive air quality model with these elements can give us an indication as to whether a proposed growth plan will result in levels of air pollution that are likely to cause harm to human beings or the larger environment.

Other countries are making progress in this field. For example, the Commonwealth Scientific and Industrial Research Organization (the national government body for scientific research in Australia) has created the Air Pollution Model, which can be used to model emissions on a regional scale, including the assessment of regional growth management plans, major development proposals, and transportation projects.[10] It has been used often in regional, urban and transportation planning exercises.

Closer to home, the Community Multi-Scale Air Quality Model (CMAQ) is being developed by Rowan Williams Davies & Irwin Inc. (RWDI) in Guelph.[11] The model adapts US emission, chemistry and dispersion models for use in southern Ontario. The company has used CMAQ to model specific smog episodes and assess the impacts of specific transportation projects on the air environment, but it believes the model could be enhanced to support a more holistic and integrated approach to managing growth in the GGH. The company has been working for several years to bring together municipalities in the area with the province and

[10] See: http://www.dar.csiro.au/news/2000/mr02.html.
[11] See: http://www.rwdi.com/aspx/pub/Misc/AtmosphericChemistryTransportandDispersion.aspx.

the federal government in order to shape the tool, but progress has been slow. These efforts should be supported by all governments concerned.

Recommendation

> *MTO should provide leadership in the development of a regional air quality model and decision-support tool such as that being proposed by Rowan Williams Davies & Irwin Inc.*

Prioritizing Criteria

The ToR is quite detailed in its proposed decision making method concerning the choice of alternative methods (section 5.5) – including the weighing of factors and scoring of methods – but is rather vague on how trade-offs will be made with respect to the most strategic decisions, i.e., evaluation alternative undertakings and selecting the preferred alternative (sections 4.2 and 4.3). A list of criteria by which each alternative will be assessed is provided, but there is no discussion as to how to weigh the criteria against each other, especially important when they point in contradictory directions.

One likely source of contradiction arises from the fact that the proposed transportation solution in the area must respond to the need to move both goods and people. Transit improvements are seen as contributing to people movement, while highway expansion is seen as contributing to the free flow of goods. This ignore the simple fact that when highways are built to move goods in an urbanized region, they are quickly clogged with people making intra-regional trips. As argued above, there is also ample evidence that new highways or highway extensions in urban areas trigger development pressures outside the urban envelope, which in turn give rise to more and longer distance commuting on those highways. Thus, a proposed alternative may support trade, tourism and economic development, but it may undermine provincial and municipal growth management plans. But all of these are stated criteria for assessing alternatives according to the draft ToR.

In order guide thinking in situations like this, we believe that the assessment criteria in section 4.2 should be prioritized by identifying which ones have precedence over others. Such an approach was foreshadowed in the draft Growth Plan for the GGH when it stated that transit would be the “first priority” for deciding on investments to meet the plan’s transportation objectives (reduce commuting lengths, congestion, etc.). In the draft ToR, the Policy Framework demotes transit investment to “a priority” when generating and assessing transportation planning alternatives, and in the list of criteria presented in section 4.2 the need to prioritize transit investment is further diluted to need to “improve modal choice”.

In our view, factors related to the impact of transportation solutions on trade should be of lower priority than those of impacts on balanced transportation system, land use and the environment. We believe that the assumption made in the Introduction to the ToR, namely that trade related goods traffic will continue to expand rapidly – may be open to challenge in the long term for a number of reasons. Most importantly, the structural changes in the North American economy related to the 1988 CUSTA and 1994 NAFTA may have already played themselves out. [12] In contrast, we have little doubt that the population growth expectations behind the ToR are likely to materialize. Thus, it would not be appropriate to place goods movement at par with people movement when weighing alternative undertakings.

This raises another important issue with respect to the overall purpose of the EA and the assessment of alternatives. We are concerned that the draft ToR takes as the key issue the need to accommodate the anticipated growth in population and employment. While we agree that it is important to plan for growth, we believe that the overarching goal of the EA should be to achieve a sustainable region and healthy communities within the limits of social, ecological and economic carrying capacity. This should be the guiding principle of the EA and the first and foremost of the criteria used to assess alternative undertakings and methods.

Recommendation

> *The ToR should be revised to highlight the overall goal of achieving a sustainable region and healthy communities. The list of criteria to be used to assess alternative undertakings should be revised to give top priority to the need to contribute to healthy communities. High priority should be given to transit investment, demand management, the need to stem and reverse urban sprawl and to reduce environmental impacts. Lower priority should be given to trade-related factors.*

Economic Costs

The list of criteria provided in section 4.2 does not include economic cost nor is this factor mentioned in section 4.3 in the list of factors that will be included in selecting the preferred alternative. The only mention of costs in the document (other than the costs of congestion) is the consideration that will be given to the cost factor during evaluation of alternative methods. Even there, however, no details are provided to how costs will be assessed.

In our opinion, the weighing of alternative undertakings and methods should involve an examination of the global costs over the life cycle of each major

[12] For other reasons, see the Pembina Institute's Comments on Places to Grow (February 2005). http://www.pembina.org/pdf/whatsnew/CommentPlacestoGrow041805.pdf

alternative, including economic, social and environmental costs. Most methods to assess transit versus highway projects do not take into account the full range of social and environmental externalities associated with highway projects and the many non-financial benefits associated with transit. Fortunately, a framework for a comprehensive assessment was recently developed for Transport Canada and could be of use in this context.[13]

Recommendation

> *The total financial, social and environmental costs and benefits associated with the alternative, using an accepted method for assessing the costs and benefits of transportation projects.*

For More Information Contact:

Mark S. Winfield, Ph.D.
Director, Environmental Governance
Tel: 416-978-5656
Fax: 416-978-3884
e-mail: markw@pembina.org
www.pembina.org

[13] HLB Decision Economics Inc. 2002. Cost Benefit Framework and Model for the Evaluation of Transit and Highway Investments. Ottawa: Transport Canada.