



# GUELPH-WELLINGTON TRANSPORTATION STUDY

JULY 2005 FINAL REPORT





## EXECUTIVE SUMMARY

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### 1.0 BACKGROUND AND PURPOSE

The 2005 Guelph-Wellington Transportation Study (GWTS) presented in this report is part of a periodic transportation planning exercise to assess long term transportation needs in the Guelph-Wellington area and identify specific transportation system improvements. The last area study was the Guelph and Area Study (GATS) completed in 1994. The present study addresses the transportation needs in the study area (see Figure I) for the planning period from 2001 to 2021.

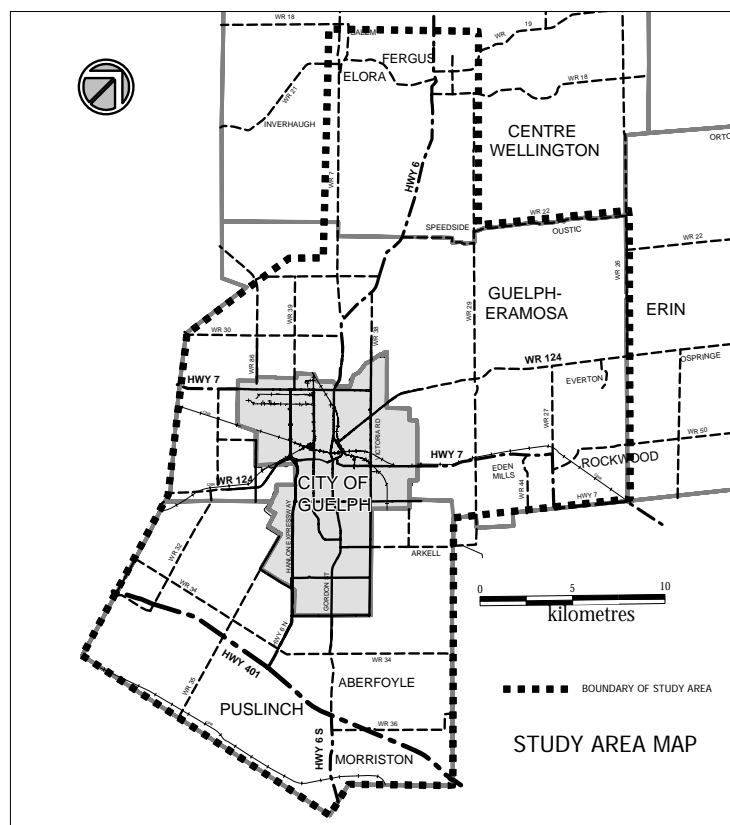


FIGURE I: STUDY AREA MAP

The specific study objectives include:

- Identify transportation needs and recommend practical improvements for specific areas such as new Growth Areas, the Downtown, Older Built-up Area, the University Precincts in Guelph, and areas such as Aberfoyle and Fergus in Wellington County;

- Recommend Transportation Demand Management (TDM) measures, as appropriate to different areas, that will encourage reduced use of the automobile and greater use of alternative modes such as transit, walking and cycling;
- Identify improvements to City and County roadways, establish need and justification to meet the Provincial EA process, and recommend a coordinated implementation strategy;
- Review Provincial highway initiatives affecting Guelph and Wellington County and identify priorities based on inter-regional travel and truck traffic patterns;
- Review the growing inter-regional travel between Guelph/Wellington, Region of Waterloo and the GTA, and identify opportunities for transit initiatives to serve this need.

The GWTS has been undertaken in accordance with the Official Plan policies of Guelph and Wellington County, the City's Transportation Strategy and SmartGuelph Principles. The study is based on the most recent population, employment and travel data contained in the 2001 Census and the 2001 Transportation Tomorrow Survey data.

The study was undertaken jointly by the City of Guelph and the County of Wellington, and was carried out by a consortium of consultants comprising Paradigm Transportation Solutions Limited, Totten Sims Hubicki Associates and the GSP Group. During the course of the study, consultations were held with staff of the Ministry of Transportation, Southwestern Region, and the Regional Municipality of Waterloo. The study commencement was publicly advertised and workshops and public meetings were held to obtain public input to the study and its recommendations. The final report of the study addresses the following:

- Existing Travel Patterns in the Study Area
- Future Planning Context and Needs Assessment
- Transportation Demand Management (TDM), Land Use, and Non-motorized Modes
- Public Transit
- City of Guelph Roadways
- Wellington Road 124 and other County Roadways
- Provincial Highways
- Transportation Master Plan

The findings and recommendations in regard to each of the above-noted study components are summarized herein.

## **2.0 EXISTING TRAVEL PATTERNS**

Historically, and also between the last two census years (1996 and 2001), the vehicular travel demand in the Guelph-Wellington study area has been increasing at a significantly faster rate than the growth in population. The extent of this growth can be appreciated from the following trends:

- 50% increase in the daily per capita trip rate from 1.97 (1996) to 3.05 (2001)

- Increasing number of households with more than one car
- Increasing use of the car for all travel purposes and declining shares of other modes
- Increasing number of people from the study area working in Kitchener-Waterloo-Cambridge and GTA areas
- Increasing number of people from Kitchener-Waterloo-Cambridge working in Guelph

These trends are manifested in the growing vehicular traffic on the principal roadways within the study area, including:

- Highway 7, Highway 6 North of Woodlawn, the Hanlon Expressway (Provincial highways)
- Wellington Road 124 West, WR 32 and WR 30 (County of Wellington)
- Gordon Street/Wellington Road 46 Corridor (City of Guelph/County of Wellington)
- Sections of Edinburgh Road, Imperial Road, Woolwich Street, Speedvale Avenue, Paisley Road and York Road (City of Guelph)

The main roadways in the study area are also used by pass-through trucks, creating both traffic and community implications for study area residents and travelers.

### **3.0 FUTURE PLANNING CONTEXT AND PLANNING APPROACH**

The existing trends and travel patterns were used in assessing future transportation needs corresponding to anticipated population and employment increases in the study area. As discussed in Section 3.0, the Guelph-Wellington population is projected to increase from 193,500 in 2001 to 258,500 by 2021; employment will similarly increase from 85,900 to 118,600 over the same period. A post-2021 horizon, corresponding to the Ontario Ministry of Finance population projection of 281,000 for Guelph-Wellington by 2031, was also considered in the future needs assessment.

The traditional approach to accommodating transportation needs has been the expansion of roadway capacity. This approach, called the supply side approach, suffers from three main limitations: (a) the significant direct costs of increasing capacity; (b) the no less significant indirect costs associated with environmental and community impacts; and (c) the physical and practical limits to expanding roadway capacity. In addition, increased road capacity could induce more car travel, encouraging people to shift from other modes to the car (modal), divert from other roads to the new facility (spatial), and travel during the peak hour rather than avoiding it (temporal): the so called *triple convergence*. Conversely, restricting capacity and allowing congestion could produce the opposite effects modally, spatially and temporally: the *triple divergence*.

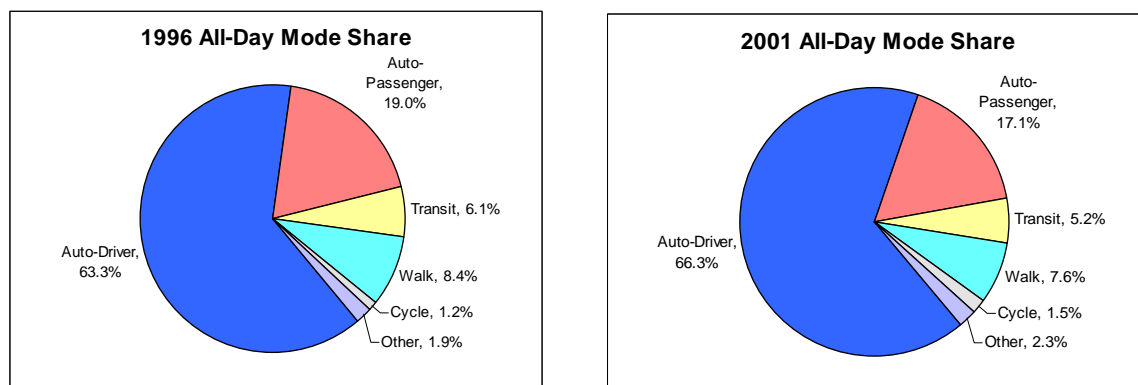
A second approach, called the demand side approach, is being adopted in many jurisdictions and tries to address the ever increasing demand for vehicular travel. This demand is not just the negative result of growth or new developments but is equally attributable to positive demographic changes (smaller households, more working women, and more women and younger people driving),

increasing affluence in society that is manifested in two-income households and increasing car ownership, and the growing propensity to commute longer distances than in the past. Transportation Demand Management (TDM) is the collective description for the policies and practical steps that are undertaken to discourage single occupancy car use and encourage ridesharing and alternative modes such as walking, cycling and transit. Put another way, TDM is the transportation equivalent of energy conservation in the energy sector, water conservation in the water sector, and waste reduction programs in solid waste management.

The two approaches are not mutually exclusive and an effective and successful transportation plan should be based on a synthesis of the two approaches. The GWTS plan is premised on a balanced approach that uses both demand side and supply side measures to address the future transportation needs in the Guelph-Wellington area.

The TDM measures including land use policy recommendations, incentives to walking and cycling, and other policy initiatives are outlined in Section 4, while Section 5 deals with the role of public transit both within Guelph (Guelph Transit) and in capturing a share of the growing inter-regional travel demand. The supply side measures for increasing roadway capacity are described in Section 6 (Guelph and Wellington Roads) and Section 7 (Provincial Highways).

The 1996 and 2001 modal shares in Guelph (see Figure II) show that the proportion of trips using non-auto modes has declined during the five-year period. For analytical purposes, this study has assumed that the 2001 modal shares will not decline during the planning period from 2001 to 2021. The purpose of the proposed TDM measures is, in fact, to reverse the current trend and increase the share of non-auto modes. In particular, the use of transit should be promoted to reach the Official Plan target of 10% within Guelph, and to provide an effective alternative to the automobile for inter-regional travel.



**FIGURE II: MODAL SHARES 1996/2001**

It is worth noting that even a minimal reduction in auto volumes will have a magnified impact on roadway capacity. The very successful program of congestion pricing in Central London, England, has shown that a 15% drop in traffic levels amounted to 30% reduction in congestion and further benefited public transit by improving service reliability and schedule adherence.

Congestion or road pricing are measures that can only be initiated at the Provincial level or by larger municipalities. However, it is necessary to take note of the growing technical and political emphasis on road pricing. The 2004 British White Paper, *The Future of Transport: A network for 2030*, highlights the need for public education and debate over road pricing involving all levels of government in Britain. The White Paper expects road pricing to be feasible in Britain by 2015 and, as a user-pay form of payment, to be superior to traditional fuel, property and transportation taxes and levies.

The rationale for road pricing is the concept of “locking in the benefits of new capacity” and preventing it from being consumed entirely by vehicular traffic. As a form of payment, road pricing is also more efficient and equitable than taxation. A second way of “locking in the benefits of new capacity” is to give priority to buses and High Occupancy Vehicles (HOV) in the use of new road improvements. This measure is applicable to the Guelph-Wellington study area and is discussed in Section 5 and Section 7.

#### **4.0 TRANSPORTATION DEMAND MANAGEMENT**

Section 4 of the report describes the TDM measures applicable to Guelph under the following headings:

- Land Use and Urban Design Practices
- Ridesharing
- Walking and Cycling
- Reducing Auto Use
- TDM Program

The University of Guelph provides an excellent TDM success story in the study area. In the core section of the campus, as a result of a number of TDM measures including priority to pedestrians, bicycle and pedestrian trails, the student bus pass system and parking restrictions, the level of single occupancy vehicle use has been reduced to 35% while the modal shares of walking/cycling and transit are 35% and 23% respectively. This is an encouraging base to start a TDM program for other areas in the City, especially the Downtown and other major employment areas.

The study recommends the establishment of a TDM Committee to develop and implement a comprehensive TDM Program. The TDM measures identified in this study are more applicable in Guelph and less so in the townships. However, a successful TDM program in Guelph including inter-regional transit services will positively benefit the County and Provincial roadways.

#### **5.0 PUBLIC TRANSIT**

Public transit in Guelph enjoys remarkable support in the community and at Council, and Guelph Transit is one of the better performing transit operators among municipalities of comparable size in Canada. The GWTS study builds on the recent transit planning studies undertaken by Guelph Transit and its ongoing initiatives, and makes recommendations in a number of areas including the following:

- Transit Route/Service Improvements: Gradually change from the existing radial route/fixed transfer system to a modified radial-grid system; initially focus on a perimeter route that connects residential and employment areas directly and avoids the need for a downtown transfer; increase service frequency by providing buses at 15-minute intervals on critical routes instead of the current 30-minute intervals; implement the proposed inter-regional transportation terminal at the VIA Station to benefit both local and inter-regional travelers.
- Roadway Transit Priority Measures: Roadway transit priority measures help buses avoid delays on mixed-traffic roadways. With increasing traffic volumes on some of the main transit routes, Guelph Transit will require transit priority measures including signal priority and queue bypass lanes at intersections. Candidate intersections for bypass lanes are: Gordon/Wellington, Gordon/Stone, Gordon/College, Edinburgh/Stone, Edinburgh/College, and Woolwich/Eramosa. Priority treatment will also be required at the Carden Street and Macdonell Street entry points to the proposed Transportation Terminal.
- Transit Technology and Fleet: Guelph Transit should continue its initiatives to acquire new technologies, especially in regard to automatic vehicle location/communication and the fare medium. Fleet replacement and expansion should continue to reach the ten year target of 60 buses (from the current fleet of 51 buses) and the long term requirement of 80 buses, including both replacement buses and new additions.
- Transit Fare Strategies: Guelph Transit should build on the successful bus pass system used by the University of Guelph students as a model for similar fare arrangements with the University, City of Guelph and private sector employees. Payroll deductions and/or employer subsidies for employee bus passes are other fare strategies for consideration.
- Transit Ridership Strategies: There is potential for attracting “choice bus users” within the five inner planning districts by providing a more frequent service. New direct routes, more frequent service and fare incentives are strategies to promote transit usage in the outer eight districts (see maps in Section 5).

The transit share of inter-regional travel is not significant at the present time, but with the growing demand for travel between Guelph-Wellington, Kitchener-Waterloo-Cambridge and GTA areas the level of inter-regional transit serving these areas will have to be significantly enhanced. Guelph and neighbouring municipalities are involved in a number of initiatives to enhance inter-regional transit service in their areas. These include the proposal to develop a new transportation terminal in Guelph, the North Mainline Municipal Alliance to provide a higher speed and more frequent train service between London/Stratford and Toronto, intercity GO/private bus service in the Highway 401 corridor, and an initiative to pursue the connection of Guelph Transit to Grand River Transit (GRT) route networks through pooled services.

The GWTS study further recommends that improvements to Provincial highways in the study area (Highway 7 and the Hanlon Expressway–Highway 6) and Wellington Road 124 West (the former Highway 24) should also be used for implementing rapid bus transit to serve inter-regional travel between Guelph, Wellington and Kitchener-Waterloo-Cambridge areas. These improvements will facilitate a coordinated bus service by Grand River Transit and Guelph Transit to serve commuters

in these areas.

### **6.0 CITY OF GUELPH ROADWAYS**

The City roadway improvements recommended in Section 6 and Section 8 fall under three categories:

- 1) Improvements for which Environmental Assessments have already been completed: These include sections of Gordon Street (Clair to Maltby), Stone Road (Monticello to Victoria to Watson Parkway), Watson Road (Watson Parkway to Speedvale), Clair Road (Laird to Victoria) and Victoria Road (York to Clair). These roadway sections are included in the City's current 5-year capital budget/forecast. Their implementation timing is indicated in Section 8.
- 2) Improvements for which Environmental Assessments will have to be completed: These include York Road (East City Limits to Wellington), Woodlawn Road (Hanlon to Nicklin), Laird Road (realigned section from Hanlon to Downey), Edinburgh Road (Wellington to London), Stone Road/Elmira Road connection to Wellington Road 124 West, and Watson Road/Woodlawn Road connection to Wellington Road 124 East. Of these, York Road and Woodlawn Road are included in the 5-year capital budget/forecast. The realignment and widening of Laird Road will depend on the development of the Hanlon Creek Business Park. The Stone/Elmira and the Watson/Woodlawn connections are not required before 2021, but the need for these improvements could be advanced if improvements to the Hanlon Expressway and the construction of the new Highway 7 are not completed before 2021. As sections of both Stone/Elmira and Watson/Woodlawn connections will be located within Wellington County's jurisdiction, their environmental assessment and implementation will have to be coordinated between the City and the County.
- 3) Pre-approved projects: The roadway upgrades and intersection improvements listed in Table 8.3 are considered pre-approved in terms of the Class EA Guidelines for municipal road projects insofar as they do not involve capacity expansion but include only geometric and structural improvements and auxiliary turn lanes at intersections. Most of these projects are included in the 5-year capital budget/forecast.

### **7.0 WELLINGTON ROAD 124 (OLD HIGHWAY 24) AND OTHER COUNTY ROADWAYS**

The County roadway improvement in the study area that is most urgently required is the upgrading of Wellington Road 124 as a divided, 4-lane expressway. WR 124 was formerly Provincial Highway 24, and an Environmental Assessment for its improvement was completed by the Ministry of Transportation before the road was transferred to the County in 1997.

The present GWTS study confirms the earlier EA recommendation to widen WR 124 as a divided, 4-lane expressway. The existing roadway is already over capacity and the recommended improvements are required regardless of whether or not the upgrading of the Hanlon Expressway and the construction of the new Highway 7 are implemented. However, given the cost of this

project, estimated to be nearly \$50 million, the County is not in a position to implement it without Provincial support.

Other major County roadway projects to be undertaken during the planning period include the widening of Wellington Road 46 (Maltby to WR 34, the EA for which has been completed along with Gordon Street) and the reconstruction of Wellington Road 7 (Elora to Hwy 6).

### **8.0 PROVINCIAL HIGHWAYS**

Provincial highways are important links in the study area road network, serving long distance and inter-regional vehicular and truck traffic. As discussed in Section 7, improvements to these highways are consistent with Ontario's strategic transportation directions and the emphasis on public transit. The critical improvements required during the planning period (2001–2021) and the status of their environmental assessments are as follows:

- 1) Highway 6 South (Morrison to Guelph) Bypass: The EA for the Bypass has been completed and is under MoE review. The review is expected to be completed by December 2005.
- 2) Highway 7 West (Kitchener to Guelph): The EA Addendum for the new Highway 7 is currently under MoE review, which is expected to be completed by August 2005.
- 3) The Hanlon Expressway: Hanlon is currently a north-south, 4-lane divided roadway with one interchange at Wellington Road and several at-grade intersections to the north and south of Wellington Road. A recent operational review of the Hanlon intersections also indicates that the existing intersections will have to be upgraded as interchanges or grade-separated before 2021. As indicated in Table 8.5, an environmental assessment will be required for interchange upgrades south of Wellington Road, while an addendum will be required to the earlier EA undertaken for upgrades to the north of Wellington Road.

The Ministry of Transportation Southwestern Region will be undertaking a transportation needs study to specifically address Provincial highway issues in Guelph and Wellington. As discussed in Sections 7 and 8, the GWTS recommends the following highway improvements for further consideration in the proposed Guelph-Wellington Transportation Needs Study:

- 1) The Hanlon Expressway northerly extension to connect with Highway 6 North
- 2) Highway 6 North Bypass at Fergus
- 3) Easterly connection to Highway 401—a new north-south corridor to the east of Guelph

The proposed needs study should also examine opportunities to use future highway improvements for accommodating bus transit service in the Guelph-Wellington and the Kitchener-Waterloo-Cambridge areas.

### **9.0 THE GUELPH-WELLINGTON TRANSPORTATION MASTER PLAN**

Section 8 of this report includes the Guelph-Wellington Transportation Master Plan. It summarizes the recommendations to be undertaken during the planning period in the areas of:

- Transportation Demand Management
- Public Transit
- City of Guelph Roadways
- County of Wellington Roadways
- Provincial Highways

The proposed improvements are interconnected and mutually supportive. If the use of alternative modes in Guelph and the use of inter-regional transit do not increase during the planning period, there will be significant strains on the area road system and congestion on specific roadway sections.

Roadway improvements in Guelph are necessary not only to accommodate passenger vehicular traffic but also to accommodate walking, cycling and buses. The County and Provincial roadway improvements should also promote inter-regional transit and efficient goods movement.

Delays in implementing the recommended improvements on identified roadways will create traffic congestion on them, adversely affect transit service, and will lead to traffic infiltration of neighbourhoods and communities. With the exception of the upgrading of Wellington Road 124 (the former Highway 24), the City and County roadway improvements identified in this study are not excessive, involving, at most, widening from 2 to 4 lanes. However, if the identified Provincial highway improvements are not implemented during the planning period, there will be significant impacts to adjacent City/County/Township roadways. Additional widening to these roadways would involve significant social and community impacts.



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