1. EXECUTIVE SUMMARY

1.1 The Recommended Route (2002)

1.1.1 Background

Presently, Highway 7 between Kitchener and Guelph is, for the most part, a two-lane rural highway with signalized and unsignalized intersections along its 17.6 km length. Within the urban boundary of both cities the highway is 4 lanes with turning lanes and operates as an urban arterial roadway. Land use adjacent to the route ranges from commercial and prestige industrial within the urban fringe to predominantly agricultural with some commercial land uses, including nurseries along the rural section.

At the time that the Kitchener-Waterloo Expressway (KWE) was designed and built in the 1960s, a plan was conceived to link the Kitchener/Waterloo and Guelph areas with an expressway which would replace existing Highway 7, providing capacity for the anticipated long term travel demand in the corridor. Some forty years later Highway 7 between Kitchener and Guelph remains essentially unchanged and has been identified as a roadway with existing transportation deficiencies (refer to Section 1.2).

In April 1989, the Ministry of Transportation retained McCormick Rankin to carry out the Highway 7 Planning Study - Kitchener to Guelph. The study was carried out in accordance with the requirements of the Environmental Assessment Act, R.S.O. 1990. In December 1997, an Environmental Assessment Report (EA Report 1997) was completed and submitted to the Minister of the Environment. The report followed the MTO Guideline for the Preparation of an Environmental Assessment Report One-Stage Submission (November 1983).

The Environmental Assessment – One Stage Submission represents a one-time only submission for a Ministry of Transportation Group 'A' project. Projects in this group involve the construction of major new highway facilities. These projects are relatively large and complex and have the potential for significant environmental effects. The EA Report 1997 included the following:

- a discussion of the purpose of the project;
- the environmental assessment process followed;
- the current environmental conditions in the study area;
- the alternatives considered;
- a description of the environmental effects associated with the project and all reasonable alternatives; and
- an outline of the commitment for further work to be undertaken relative to identified "environmentally significant areas/issues".

The report recommended a new route (the Recommended Plan (1997)) for Highway 7 to the north of the existing highway. The Ministry of the Environment's formal review process was completed in late 1998. At that time concerns regarding impacts on wetlands were raised by a number of interest groups and local municipal councils.

1.1.2 MTO Review

The MTO Review was initiated by a commitment from the Minister of Transportation in January 1999 to review some of the aspects of the study. The intent of the review was not to start over, but was to take a 'second look' at some of the issues. The areas initially identified for review included:

- comparison of actual traffic volumes existing in 1999 / 2000 with demand forecasts prepared in 1989 / 1990.
- further consideration of the role of transit.
- consideration of the option of widening existing Highway 7 in the central rural section.
- modifications to the Recommended Plan (1997) to reduce impacts on wetlands.

The Review was conducted in three phases each of which included a set of Public Information Centres, which gave the public an opportunity to review and provide comments on what was being presented. The Review was divided into the following phases and key events.

Phase 1- February 1999 to March 2000: Minor Alignment Shifts to the Recommended Plan (1997). Modifications to the alignment presented in the EA Report 1997 were proposed. Following public consultation, the decision was made to move into a second review phase.

Phase 2 – April 2000 to February 2001: New Alignment Alternatives. In response to comments received, additional alternatives were developed which included new route alternatives, existing Highway 7 alternatives and combined alternatives. A new Technically Preferred Alternative was developed during this phase. Following public consultation activities in January – February 2001, the Project Team decided to move into a third phase of review.

Phase 3 – February 2001 to March 2002: Central Section Alternatives. Two new alternatives for the central rural section of the study area were developed in response to the comments received regarding the Technically Preferred Alternative presented in Phase 2. Following the analysis and evaluation of the central section alternatives a new Recommended Route was presented to the public, in November 2001.

The three phases of the MTO Review are documented in detail in this Amendment to the EA Report 1997 (EA Amendment). Consultation during the MTO Review is discussed in Chapter 2.

After finalization of the EA Amendment it will be submitted to the Minister of the Environment for formal review and approval and will be available for public review and comment.

1.2 Purpose of the Undertaking

The purpose of the undertaking is to address the existing transportation deficiencies in the Highway 7 corridor between Kitchener and Guelph and to provide acceptable highway service to the year 2028.

The existing traffic data and the forecasted demand for 2028 indicates that there is a deficiency on existing Highway 7 and that the deficiency will continue to worsen as traffic volumes increase.

Roadway safety is an important consideration in the study and has been identified as one of the study objectives. Slow-moving farm vehicles, entering, exiting, and crossing traffic are common on the central rural section of Highway 7. At present, traffic consists primarily of commuters who are familiar with the road and have some level of expectation that they might encounter one of these situations. Roadway safety can be best achieved through separation of traffic conflicts such as left turns and opposing traffic flow. During the analysis and evaluation of roadway alternatives in Chapter 4 it is important to note that roadway safety increases as the conflicts are removed, i.e. the roadway safety improves when the facility is divided, access controlled and grade separated at crossing roads.

The need to provide adequate capacity to handle the forecasted demand is one of the objectives of the Highway 7 Planning Study.

1.3 Study Area

Transportation demand between Kitchener and Guelph has reached a level where various sections of Highway 7 are now operating near capacity. Since this problem relates directly to the highway, the limits of the study area were established using the existing Highway 7 corridor together with an adjacent zone of sufficient size to provide for flexibility in developing a broad range of alternatives.

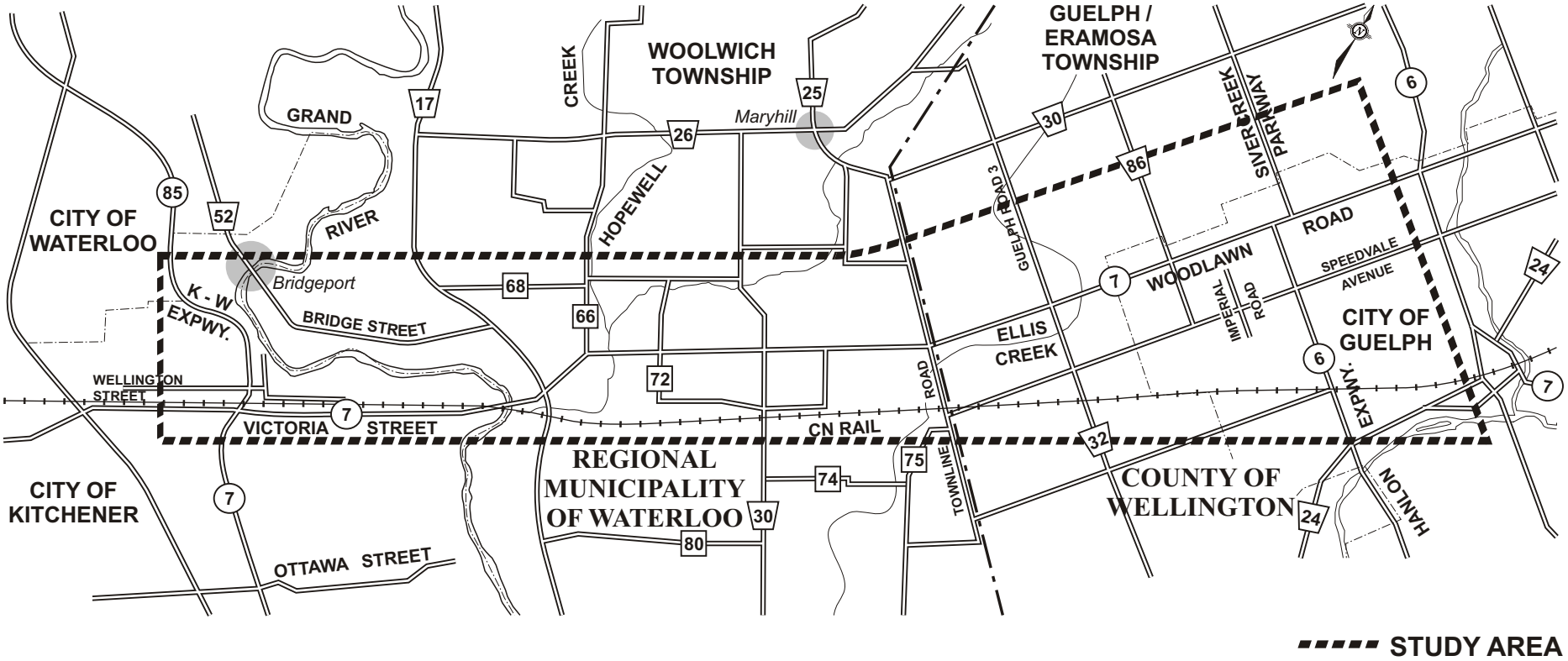
The study area, as shown on Exhibit 1-1, extends from the Kitchener-Waterloo Expressway (KWE) Highway 85 in the Regional Municipality of Waterloo (RMW), easterly to the Hanlon Expressway (Highway 6) in the City of Guelph. Within the RMW, the study area extends north of the community of Bridgeport and Woolwich Road 68 to approximately 700 m south of the CN rail line. Within the County of Wellington, the study area extends north to a location mid-way between County Road 30 and Woodlawn Road, with the south limits paralleling approximately 700 m south of the CN rail line.

1.4 Description of the Undertaking (Recommended Route (2002))

Roadway

The new Highway 7 will be located north of and parallel to existing Highway 7 between the cities of Kitchener and Guelph. It will connect existing Highway 85 (Kitchener-Waterloo Expressway (KWE)) at Wellington Street in Kitchener to existing Highway 6 (Hanlon Expressway) at Woodlawn Road (existing Highway 7) in Guelph. The Recommended Route (2002) is illustrated on Exhibit 1-2.

The highway will be a four lane divided controlled access freeway for its entire length. All intersecting roads, with the exception of Curtis Drive in Guelph, will be grade separated. Curtis Drive will be closed. The cross section will be rural, with a 22 m grassed median. The median will narrow as it approaches the KWE interchange. The entire length will have provision for a future 6-lane cross section, with the additional 2 lanes being constructed in the median.



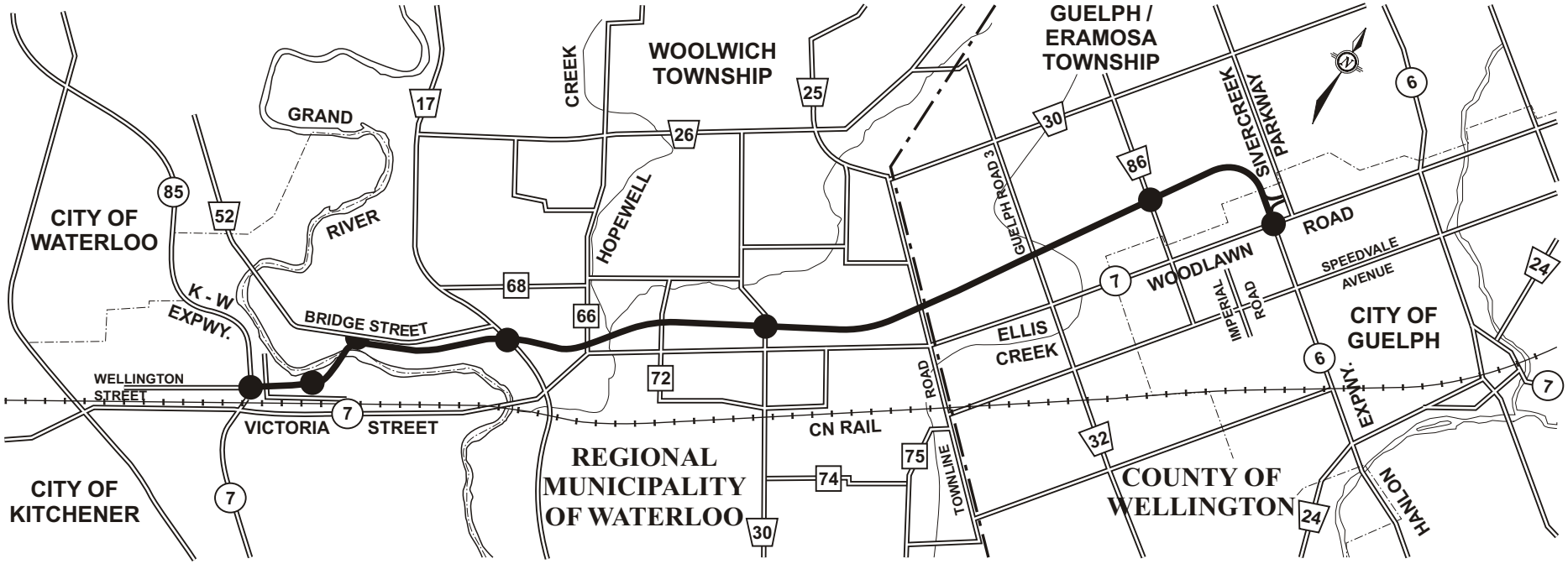
HIGHWAY 7 PLANNING STUDY

KITCHENER TO GUELPH

STUDY AREA

EXHIBIT

1-1



RECOMMENDED ROUTE (2002)

PROPOSED FULL INTERCHANGE LOCATIONS

PROPOSED PARTIAL INTERCHANGE LOCATIONS

HIGHWAY 7 PLANNING STUDY KITCHENER TO GUELPH	KEY PLAN OF RECOMMENDED ROUTE (2002)	EXHIBIT 1-2

There will be 7 interchanges along the proposed alignment, located at:

- KWE (freeway)/Wellington Street (local)
- Riverbend Drive/Shirley Avenue
- Bridge Street (partial)
- Ebycrest Road (Regional Road 17)
- Shantz Station Road (Regional Road 30)
- Wellington County Road 86
- Woodlawn Road

Structures

Structures will be required at the interchanges (as noted in the previous section), at crossing roads to provide continuity in the local road system, and at the following water crossings:

- Grand River
- Hopewell Creek
- Ellis Creek

Drainage and Stormwater Management

In addition to the Grand River, Hopewell Creek and Ellis Creek, the proposed Highway 7 will cross eleven watercourses. A detailed review was completed to determine the location and size of the transverse culverts that will serve these watercourses.

Storm water management facilities will be required to provide treatment in accordance with MOE guidelines, and to ensure that any increase in downstream erosion potential or flood risk is kept to a minimum.

Alternative management practices were screened leading to the recommendation that a combination of storm water Wet Ponds and flat-bottomed or enhanced water quality swales be constructed to serve runoff from the proposed highway.

Environmental Effects of the Recommended Route (2002)

Chapter 6 summarizes the Recommended Route (2002) in terms of environmental effects, mitigating measures and commitments to further work. As the Recommended Route (2002) has been developed to a preliminary design level of detail, it is not possible to provide complete details for every aspect of the project. A number of issues will be addressed in more detail during the detail design. The timing of the detail design will occur at some time following the approval of this EA Amendment. Consultation with affected property owners, agencies, municipalities and the public will be carried out during detail design to ensure that issues are properly resolved.

The identification of environmentally significant issues / concerns has been carried through to the EA Amendment. The following table provides a comparison of the environmentally significant issues / concerns identified in the EA Report 1997 with those identified in this EA Amendment.

EA Report 1997		EA Amendment	
Identified Environmentally Significant Issue	**Identified by**	**Identified Environmentally Significant areas / issues**	**Identified by**
Municipalities • The need to provide reasonable transportation infrastructure to meet expected population growth.	Local Municipalities	**Municipalities** • The need to provide reasonable transportation infrastructure (capacity) to meet the expected growth in population (demand).	Local Municipalities
Communities • The disruption or displacement of homes, both in urban and rural areas. • Access and disruption of businesses in the Shirley Avenue industrial area. • Disruption of existing rural communities.	Local Residents Local Businesses Local Residents and Businesses	**Communities / Land Use** • Loss or disruption of access to the upper tier road network, particularly in the industrial areas of Kitchener and Guelph. • Disruption to access during construction. • Disruption or displacement of households, both in the urban and rural areas.	Local Businesses Local Businesses Local Residents
Noise • Increase in noise levels greater than 5dBA in noise sensitive areas.	MOEE Local Residents	**Noise** • Increase in noise level for noise sensitive land uses adjacent to the alignment.	Local Residents
Heritage Resource • The loss of heritage features.	Area LACACs Ministry of Citizenship, Culture and Recreation	**Heritage Resources** • Loss of heritage features, including archaeological sites. • The heritage and conservation of the Grand River Corridor.	Area LACACs Ministry of Culture
Vegetation • The loss of high quality woodlands.	MNR GRCA	**Vegetation and Wetlands** • The Grand River valley, Bloomingdale-Rosendale Wetland (LSW), Hopewell Creek, Hopewell Riparian Woodland/Wetland (LSW), Townline Wetland (now PSW), Ellis Creek Wetland (PSW), and Marden South Wetland (PSW).	MNR GRCA
Wetlands • The removal or disturbance of Provincially significant Wetlands (Classes 1-3). • The removal or disturbance of other wetlands (Classes 4-5).	MNR GRCA GRCA	**Wildlife Resources** • Maximizing integrity and minimizing intrusion within the wetland areas, to the extent possible, while balancing other competing resource interests. • Maintaining wildlife movement opportunities in the design, and maximizing habitat retention in the design of the Grand River crossing.	MNR GRCA Interest Groups
Fisheries and Aquatic Habitats • Protection of fish/aquatic habitats (Grand River, Hopewell Creek and Ellis Creek).	MNR GRCA	**Aquatic Resources and Fisheries** • Protection of fish/aquatic habitats in the Grand River, Hopewell Creek, and Ellis Creek • Significant degradation of surface water features	MNR GRCA

EA Report 1997		EA Amendment	
Identified Environmentally Significant Issue	**Identified by**	**Identified Environmentally Significant areas / issues**	**Identified by**
Water Resources • Loss or contamination of private wells and water sources. • Significant degradation of surface water features.	Local Residents MOEE MNR GRCA	**Water Quality and Quantity** • Loss or contamination of private wells and water sources. • Significant degradation of surface water features.	Local Residents MOE GRCA
Geology and Physiology • Loss of potential aggregate resources.	MNR Ministry of Northern Development and Mines Local Municipalities	**Geology and Physiology** • Loss of potential aggregate resources.	MNR RMW
Environmentally Sensitive Areas • Loss of any portion of an ESPA.	Local Municipalities MNR	**Environmentally Sensitive Areas** • Loss of any portion of an Environmentally Sensitive Area (ESA).	Local Municipalities MNR
Agricultural Soil Capability • Loss of Class 1 to 4 soils capability.	OMAFRA	**Soil Capability** • Loss of Class 1 to 4 agricultural land.	OMAFRA
Farm Community • Disruption to the existing farm community.	Local Farmers OMAFRA	**Agricultural Land Use** • Agricultural Land Use.	Local Farmers OMAFRA
		Farm Community • Disruption to the existing farm community.	Local Farmers OMAFRA Federation of Agriculture

Cost Estimate

Capital construction cost estimates and property cost estimates were carried out using 2002 dollars. The capital construction cost was estimated using quantity unit prices which were representative of unit prices in the Region of Waterloo. The total program value is estimated to be approximately $147 million.

Structure costs account for approximately $76 million of the total program value, including approximately $21 million for the KWE / Highway 7 interchange structures, $23 million to construct the Grand River crossing structure in Kitchener and approximately $ 7 million for the Ellis Creek crossing structure.

The cost for property for the recommended alternative is approximately $ 11 million. This estimate is based on a per hectare cost for property.

1.5 Documentation for the Recommended Route (2002)

This section of the summary documents: i) features of the study area, ii) the need and justification, iii) the analysis and evaluation of alternatives and iv) the study organization. The study findings are described in detail in Chapters 2 through 6 of the main report and additional technical information is provided as Appendices to the report.

1.5.1 Features of the Study Area

Municipalities

The study area is within the Regional Municipality of Waterloo (RMW), County of Wellington and the City of Guelph. Within RMW, the study area is within the City of Kitchener and the Township of Woolwich. The study area is in the Township of Guelph-Eramosa in the County of Wellington.

Land Use

Within the study area there are generally four different types of land use:

- residential;
- industrial/commercial;
- institutional; and
- agricultural

Residential

Residential communities are mostly rural and consist of properties scattered throughout the study area, however, the study area includes an urban residential community south of Victoria Street in the City of Kitchener. The community of Breslau, within the RMW is located south of existing Highway 7 and east of the Grand River. The Township of Woolwich has proposed development east of the Breslau community and south of Highway 7. Population projections in the Township of Woolwich range from approximately 6,560 (low density) to 14,400 (high density).

Within the City of Guelph and Guelph/Eramosa Township a residential community exists along Silvercreek Road, north of Woodlawn Road. The Official Plan designation of these lands within the City is industrial, however, these homes pre-date the Official Plan land use designation.

Industrial/Commercial

Industrial/commercial areas are located in both Kitchener and Guelph. In Kitchener, industrial land uses are designated in two areas: Wellington Street / Shirley Avenue / Riverbend Drive and Bridge Street (Bridgeport). The types of businesses vary from light service industrial to heavy manufacturing industrial. The adjacent land uses along Victoria Street in the City of Kitchener are retail commercial with some industrial uses. In Guelph, the industrial/commercial land uses are bounded by Speedvale Avenue to the south, and the west and north city limits to the west and north respectively. The industrial land uses extend beyond the easterly limit of the study area. In addition, industrial land uses are designated south of existing Highway 7 between Ebycrest Road (Regional Road 17) and Greenhouse Road in the Breslau area. Although these lands are designated industrial, the use of the lands is currently being considered for other uses.

The land uses along the central rural section of Highway 7 are a mix of nurseries, residential, commercial and agriculture. There are three nursery operations fronting on Highway 7 and two others on sideroads close to Highway 7. During the MTO Review the existing central section of Highway 7 area became known as the ‘Nursery Mall’.

Institutional

There are two private schools located in the rural part of the study area: Woodland Christian High School and St. John's Kilmarnock School. The Woodland Christian High School is located on Spitzig Road (Woolwich Road 66) north of Highway 7. St. John's Kilmarnock School is located on Shantz Station Road (Regional Road 30) north of Highway 7.

One additional institutional site was identified in the MTO Review. The Brahmarishi Mission of Canada (Hindu Temple) is located on Bridge Street in Kitchener. An industrial site was converted to the Hindu Temple after the original study was completed in 1994. The Hindu Temple is located on the route for the Recommended Plan (1997).

Agricultural

The RMW Official Policies Plan (ROPP) designates the majority of the area in the rural part of the study area as Prime Agricultural Land. The ROPP states very clearly that non-farm uses in Prime Agricultural Lands are not permitted. The Township of Woolwich has developed rural land use policies as part of its Official Plan that preserve, protect and encourage the use of land for farming. The importance of retaining land for agricultural uses has been re-iterated by staff of both the RMW and the Township of Woolwich during the MTO Review. Agriculture operations in the Township of Guelph-Eramosa are predominantly traditional uses such as dairy and cash cropping.

Heritage Resources

Archaeology. Archaeological field reviews were conducted as part of the original EA and as part of the MTO Review. There is a high potential for recovery of archaeological remains within the study area, particularly in the vicinity of the Grand River. Significant archaeological remains have been discovered at sixteen locations for which Stage 3 site testing has been recommended.

Built Heritage. No designated heritage features would be affected by the Recommended Route (2002). There is a potential for effects on non-designated built heritage features and cultural landscape units within the study area. Most of the sites are associated with the early development of the agricultural community and include farmstead buildings.

Geology and Physiography

The last glacial retreat and exposure of features occurred in the period between 25,000 and 13,000 years ago. Drumlins, outwash features, till sheets and moraines were formed during this period and are responsible for shaping the topographic character of the area. Topography in the study area varies from depressional to flat to rolling; some steeply sloping areas are also present.

Organic deposits represent a small portion of the surficial materials found in the area; their significance lies in the engineering implications associated with them. An organic deposit found along Regional Road 30 at Highway 7 is an example of a kettle depression in which organics have accumulated.

Aggregate resource areas are located north of the Grand River at the City of Kitchener/Township of Woolwich boundary and in the vicinity of Waterloo Regional Road 30.

Natural Environment

The surface water drainage system in the study area is represented by a dendritic network of streams and their tributaries, numerous wetland pockets, and several ponds. The largest watercourse in the study area is the Grand River which meanders southward through a glacial spillway along the eastern boundary of the City of Kitchener. Within the study area, the Grand River supports a warmwater sport fishery, including Smallmouth Bass and Northern Pike. All other streams in the study area are part of the Grand River watershed.

In the study area, Hopewell Creek is a third order stream which flows directly into the Grand River. Hopewell Creek is considered "coldwater" by the Ministry of Natural Resources (MNR) based on the presence of Mottled Sculpin, a species which prefers smaller streams with areas of swift flow and cool water temperatures. Ellis Creek has components of a second and third order stream and is a tributary of the Speed River in Guelph which subsequently flows into the Grand River at Cambridge. MNR and the Grand River Conservation Authority (GRCA) consider Ellis Creek as supporting potential coldwater habitat, based on cool water temperatures and the presence of a remnant Brook Trout fishery in a tributary well south of the study area (Timmerman, Murray, pers. Comm.., Baldwin, 1991). Rosendale Creek drains the Bloomingdale-Rosendale Wetland north of Bridge Street. Rosendale Creek exhibits coldwater potential based on observed discharge and wetland conditions. A series of small creeks (perennial and intermittent) and municipal drains also feed the network. The general flow pattern is north to south through the study area.

Localized groundwater seepage or inferred discharge was identified in the EA Report 1997 in locations such as the Grand River valley and in association with some of the wetland areas and tributaries. These conditions were confirmed during the current MTO Review.

Beyond the wetland and tributary areas, where ground elevations rise, the water table is generally at depth (about 30 m) with static water levels averaging about 18 m.

Forest composition within the study area ranges from sugar maple, white ash, black cherry, basswood, American beech dominated communities on upland sites to eastern white cedar, eastern hemlock, yellow birch, silver maple, green/black ash dominated communities on lowland (moist) sites. Hedgerow features within the study area are dominated by a mixture of early successional trees and shrubs (e.g. buckthorn, hawthorn, black cherry, white elm, white ash), tolerant hardwoods (sugar maple, green ash, basswood) and conifer species (Norway spruce, eastern white cedar). Small areas of plantation conifers are also present.

It is important to note that the environmental policy field as well as the status of the wetland evaluation process changed considerably from the original EA study through the review, which spanned several years.

Changes in wetland status and designations (such as from locally to provincially significant) during the course of the study reflected the application of the Wetlands Policy Statement in 1992 and the passing of Bill 20 in 1996.

Wetlands within the study area include:

- *Bloomingdale-Rosendale Wetland* is a locally significant wetland (LSW) which extends well north of the study area.
- *Hopewell Creek Riparian Woodland/Wetland* is a locally significant wetland (LSW) associated with Hopewell Creek and associated woodlands. The wetland complex located in the northwest quadrant of Highway 7 and Shantz Station Road and continues to the northeast along Hopewell Creek.
- *Townline Woodland/Wetland* is a provincially significant wetland (PSW) that is a complex of a large wetland block located north of Highway 7 and west of Townline Road and a large woodland / wetland block just east of Townline Road.
- *Ellis Creek Wetland* is a large provincially significant wetland (PSW) complex that extends both north and south of existing Highway 7 near Guelph Road 3 associated with the Ellis Creek system.
- *Marden South Wetland* is located north of existing Highway 7 approximately midway between County Road 86 and Silvercreek Parkway. The wetland block is one of nine wetland areas comprising the provincially significant Marden South Wetland complex.

During the current MTO Review, more detailed in-season wildlife surveys were undertaken in the priority habitat areas identified by MNR/GRCA as part of the updating and re-visiting of the EA Report 1997alignment. Specific areas of interest are described in Section 3.2.6. In addition to field surveys conducted by Ecoplans, both the Kitchener Waterloo Field Naturalists and Guelph Field Naturalists (KWFN / GFN) conducted surveys in the major habitat areas.

Two Environmentally Sensitive Policy Areas (ESPAs) occur northwest of the study area. Bloomingdale Woods ESPA 20 is located about 4 km north of existing Highway 7 near the hamlet of Bloomingdale. Rosendale Woods ESPA 74 is part of the Bloomingdale-Rosendale Wetland (LSW). This core-forested block is located about 1.5 km north of Highway 7, to the northeast of Rosendale.

1.5.2 Need and Justification

Transportation

The highway characteristics are the same as those documented in the EA Report 1997. Victoria Street (Highway 7) in Kitchener remains an urban, five-lane undivided roadway (four through lanes with a centre left turn lane) from the Kitchener-Waterloo Expressway (Highway 85) to just west of the CN railway bridge. This section of Highway 7 functions as an urban arterial roadway and is under the jurisdiction of the Regional Municipality of Waterloo. The Annual Average Daily Traffic (AADT) for this section of highway ranges from 25,300-34,400 vehicles (1998). Between the CN Rail crossing and the Hopewell Creek crossing, the roadway still functions as a four-lane arterial highway. AADT for this section of highway is approximately 22,000 (1999).

Between the Hopewell Creek and the west limits of the City of Guelph, the roadway continues to function as a two-lane rural arterial highway. AADT (1999) for this section of highway is approximately 22,000. The practical capacity of a two-lane rural highway is in the range of 15,000 to 20,000 AADT.

The remaining section of Highway 7 (Woodlawn Road) between the west limits of Guelph and Highway 6 (Hanlon Expressway) functions as a five-lane urban arterial roadway and is under the jurisdiction of the City of Guelph. AADT for this section of Highway 7 ranges from 20,500 to 26,100 (1999).

The central section of Highway 7 has been classified as having a 'Commuter' traffic profile with relatively low variation from season to season. During peak periods the traffic is generally commuter traffic between Kitchener and Guelph. Additional traffic on existing Highway 7 is broken into three components: peak-hour commercial traffic (approximately 5%), recreational and tourist traffic (typically, summer volumes are only about 10% higher than average annual volumes), and traffic with either an origin or destination external to Kitchener-Waterloo or Guelph (not likely to be a factor in forecasting future traffic volumes).

During the MTO Review, a new traffic assessment was carried out. This independent review was carried out using methodologies different from the one used in preparation of the EA Report 1997, together with the latest available information on traffic volumes, and population and employment forecasts. The existing traffic data and the forecasted demand for the 2028 indicates that there is a deficiency on existing Highway 7 and that the deficiency will continue to worsen as traffic volumes increase.

Four roadway types (cross section), including the Do Nothing alternative, were analyzed to determine their effectiveness as a solution. This analysis was needed in order to determine which types of alternatives should be carried forward for analysis and evaluation (see Chapter 4). Four possible cross-sections were evaluated:

1. **Existing two-lane rural highway (Do Nothing)**. This cross section would be equivalent to the existing Highway 7 cross-section in the central section. (100 km/h design speed, 80 km/h posted speed);
2. **Five-lane highway**. This cross-section would be a four-lane undivided rural highway (permitting right and left turns) on the existing right-of-way (100 km/h design speed, 80 km/h posted speed);
3. **Right-In / Right-Out (RIRO)**. This cross section would be a four-lane highway with a median barrier, access to and from adjacent lands by right turns only, and interchanges at intersecting roads; (110 km/h design speed, 90 km/h posted speed);
4. **Controlled Access Highway (CAH)**. This would be a four-lane divided controlled access highway at interchanges, either on a new alignment or along the existing route. For the CAH along the existing Highway 7 alignment, some form of service road network would be required to provide access to the adjacent properties. (120 km/h design speed, 100 km/h posted speed).

The Level of Service (LOS) is a measure to describe the operating conditions on a road. There are six levels of service, A through F, which cover the range from excellent to very congested, forced flow conditions. LOS ‘D’ represents a reasonable level of service that is typically the target to accommodate future demand.

The RIRO alternative would accommodate predicted traffic at a Level of Service ‘C / D’ to at least 2028 (assuming MTO exercises strict control over the number of new entrances). A CAH alternative would accommodate predicted traffic at a LOS ‘C’ well beyond 2028.

Alternatives to the Undertaking

In the EA Report 1997, the Alternatives to the Undertaking included Do Nothing, Transit (Rail and Bus), and Roadway Improvements. In the EA Report 1997, the Do Nothing and Transit alternatives were set aside, as neither would address the forecast deficiencies in the corridor.

In the MTO Review, a number of questions were asked regarding the viability of transit, both on its own and in combination with road improvements. In addition, questions were raised about the possibility of using the existing road network to address the transportation deficiencies.

Rationale for Selecting Road Improvement Alternatives

The EA Report 1997 addressed and discarded the 'Do Nothing' alternative and therefore the Do Nothing alternative is not a consideration as part of the MTO Review. Increased traffic demand in the corridor has occurred as anticipated and is expected to grow based on population and employment forecasts to beyond 2028.

Bus and rail service exists in the corridor and has not significantly contributed to a reduction of trips in the last 10 years. For transit, it was determined that while increased transit ridership would benefit the level of transportation service, it could not, on its own, eliminate the need for increased road capacity to address future growth. Thus, to meet future demand, the expansion of Highway 7 would be required whether or not transit initiatives were introduced.

Rail transit, with expected modal splits of less than 5%, would not address the future forecast demand, either alone, or in conjunction with a minimal upgrade (5-lane) in the central section of Highway 7. Similarly, bus transit would not address the future forecast demand.

Road improvements including widening in the existing corridor or a new alignment would address the transportation deficiencies in the corridor and address the future travel demand. Road improvement alternatives would not preclude the future use of additional transit or Travel Demand Management (TDM) initiatives.

In general, the rationale for the selected alternative to the undertaking is consistent with the work carried out in the original study. The concept of a nominal widening in the central section to four or five lanes and a supplement of transit and travel demand management (i.e. ride share, car-pooling, and corporate van) would not address the forecast growth in the Highway 7 corridor in the planning time frame. Based on the analysis of alternatives, it was determined that roadway improvements would be the most reasonable alternative to address the existing transportation deficiencies and future travel demand.

Alternative Methods of Carrying Out the Undertaking

In the EA Report 1997 there were numerous alternatives developed, analysed and evaluated, resulting in the identification of the Recommended Plan (1997). The starting point for the MTO Review was the Recommended Plan (1997). The alternatives that were considered in the review can be defined by the following characteristics that would make each alternative unique, including:

- location - on an existing right-of-way, new route or a combination
  - located west, centrally or east in the study area
- cross-section - number of lanes
  - divided or undivided roadway
- classification - arterial or controlled access (freeway)

Two types of alternatives were identified:

- new route alternatives
- combined alternatives

The development of alternatives proceeded in three phases, described as follows:

Phase 1: Minor Alignment Shifts to the Recommended Plan (1997)
(February 1999 – March 2000)

Phase 2: New Alignment Alternatives (April 2000 – February 2001)

Phase 3: Central Section Alternatives (February 2001 – March 2002)

Towards the end of each phase Public Information Centres were held, to present the work carried out during the phase. Each of the phases is described briefly below. A more detailed discussion is included in Sections 4.2.1 through 4.2.3.

Phase 1 – Minor Alignment Shifts to the Recommended Plan (1997)

- The MTO Review was initiated by a commitment from the Minister of Transportation in January 1999 to review some of the aspects of the study, as noted previously.

The modifications to the Recommended Plan (1997) involved minor shifts in alignment, in an effort to reduce the impact of the highway on wetlands. A review of widening alternatives on the existing Highway 7 right-of-way in the central rural section of the corridor was also included. Section 4.2.1 describes these modifications in more detail.

In March 2000, Public Information Centres were held to review the results of the fieldwork and analysis carried out in 1999. Comments received during the public consultation process resulted in further action to be taken. The work identified was carried out as Phase 2.

Phase 2: New Alignment Alternatives

The work carried out in Phase 2 included:

- Revisit the KW Expressway interchange including traffic movements between the KW Expressway and Highway 7, movements to Victoria Street, and traffic patterns in the area bounded by King Street, Wellington Street, KW Expressway and Ottawa Street.

- Reconsider the evaluation criteria and weighting.

- Analyze and evaluate four western alternatives between the KW Expressway and Shantz Station Road.

- Develop, analyze and evaluate three eastern alternatives between Shantz Station Road and the Hanlon Expressway.
- Develop, analyze and evaluate alternatives for upgrading existing Highway 7 in the central rural section of the study area.
- Compare the preferred New Route Alternative with a Combined Alternative, which consists of a controlled access highway (CAH) on existing Highway 7 in the central rural section of the study area, and new alignment sections to the east and west.

In February 2001, Public Information Centres were held to review the results of Phase 2, including the identification of a Technically Preferred Alternative. Comments received during the public consultation process resulted in further action to be taken. The work identified was carried out as Phase 3.

Phase 3: Revised Central Section Alternatives

There was overwhelming opposition to the Technically Preferred Alternative that was presented to the public in February 2001. The concern centred on the central rural section of Highway 7. Therefore the only new alternatives identified in Phase 3 were located in the central section. The alternatives considered during this phase were located between the 'New Route' alternative and the 'Combined' (Technically Preferred) alternative that were presented to the public as the third stage evaluation in Phase 2.

At the end of Phase 3 the Recommended Route (2002) was identified and is discussed in Chapters 5 and 6.

1.5.3 Analysis and Evaluation

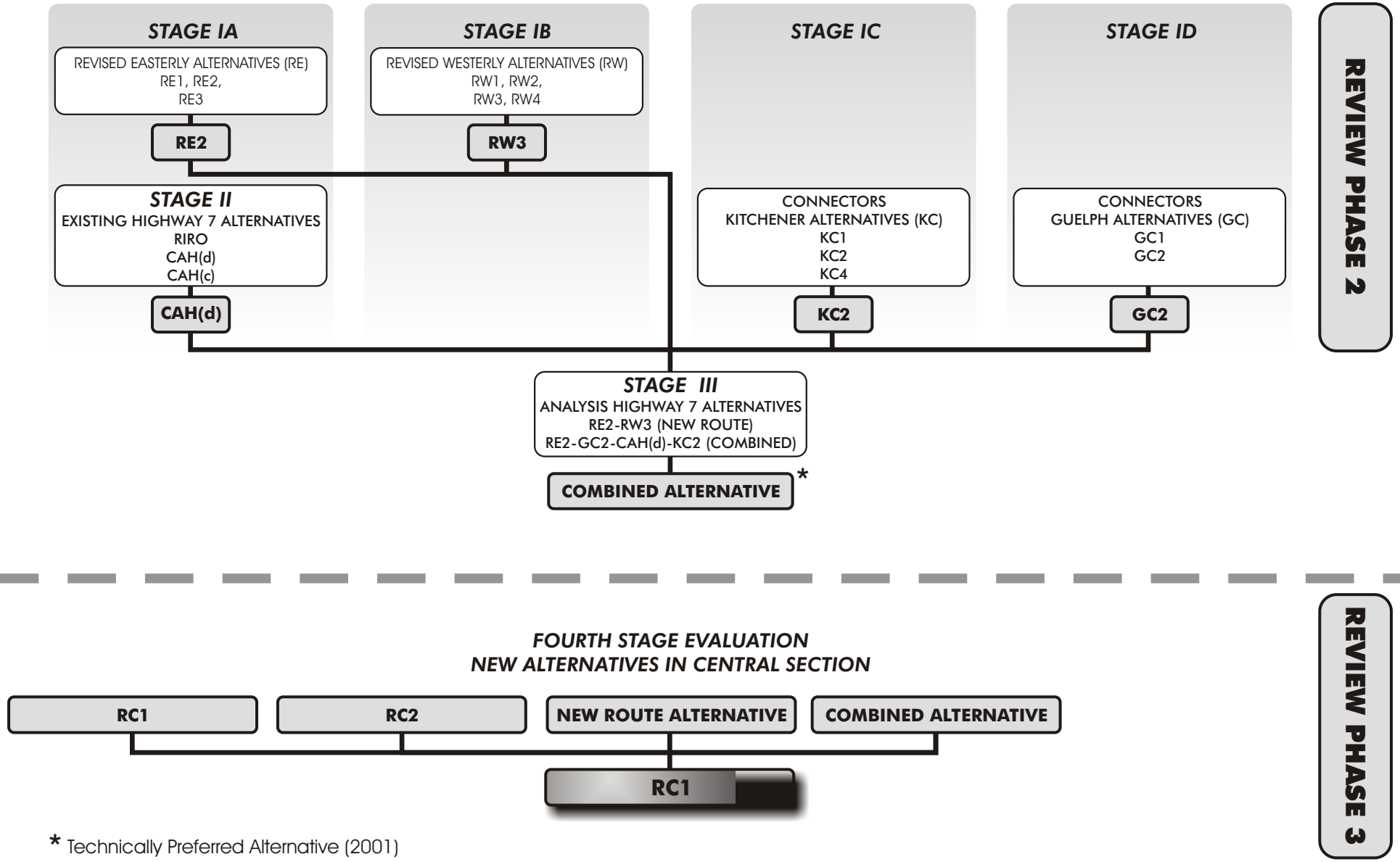
Analysis and Evaluation Process

Exhibit 1-3 illustrates the analysis and evaluation process developed for Phases 2 and 3 of the MTO Review. (There was no formal evaluation process for Phase 1).

The groupings and factors to be used in the analysis were updated from the original study to reflect changes in policies and approaches since the previous evaluation was carried out in the Original EA. (see Section 4.3.2).

The analysis was conducted to determine the effects that each alternative would have in the various factor areas. The alternative which produced the best balance with the greatest overall benefit was identified as the best alternative. The analysis tables in Chapter 4, show the net effects of each alternative. Preparation of these tables included consideration and discussion of potential mitigation measures (for example, standard erosion control measures).

The Groupings, Factors and Indicators from the Original EA were reviewed and updated. The Environmentally Significant Issues identified in Chapter 3, along with the study objectives, form the basis for the broad groupings and seventeen factors identified as the framework for the analysis and evaluation of the alternatives. The groupings have been identified as:



HIGHWAY 7 PLANNING STUDY

KITCHENER TO GUELPH

ANALYSIS AND EVALUATION REVIEW PROCESS

EXHIBIT

1-3

- Socio-Economic Environment
- Natural Environment
- Agriculture
- Transportation
- Cost

There are seventeen factors that identify key areas in each of the Groupings, and the factors are further defined by the use of indicators. Wherever possible, indicators were used which would provide a quantitative measure when used. If this was not possible, qualitative indicators were used. Qualitative indicators were labelled as subjective. There are seventy-three indicators in total. A description of the factors and indicators by grouping is included in Appendix F.

The alternatives considered for the MTO Review are described in Section 4.2 and include new route and combined alternatives. The alternatives were analysed based on similar characteristics identified as:

Phase 2

- Revised Easterly Alternatives (RE)
- Revised Westerly Alternatives (RW)
- Connectors – Kitchener (KC)
- Connectors – Guelph (GC)
- Existing Highway 7 Alternatives

Phase 3

- Revised Central Alternatives (RC)

The initial work (Phase 1) that was carried out for the MTO Review attempted to make minor modifications to the Recommended Plan 1997. There was a review of the alternatives by the Project Team to determine if the modification provided a reduction to the impacts on the wetlands without significant increased impacts on the other major groupings.

Following the March 2000 Public Information Centres, new alternatives were developed and the factors and indicators were reviewed and updated. The formal evaluation was carried out in four stages. The first three stages were carried out in October 2000 (Phase 2), and the fourth stage was carried out in June 2001 (Phase 3). Stage I of the evaluation consisted of a comparison of the alternatives within each set:

- Revised Easterly Alternatives (RE)
- Revised Westerly Alternatives (RW)
- Connectors – Kitchener (KC)
- Connectors – Guelph (GC)

Stage II of the evaluation compared existing Highway 7 in the central rural section of the study area.

The best alternatives were selected from each of the Stage I and Stage II evaluations and carried forward to the Stage III evaluation. This stage resulted in the identification of the Technically Preferred Alternative. There was significant negative response to the Technically Preferred Alternative at the Public Information Centres held in February 2001, particularly with the recommendation in the central rural section. After the February 2001 Public Information Centres two additional alternatives were developed and analysed for the central rural section of the study area. A fourth stage evaluation was carried out in June 2001, which resulted in the identification of the Recommended Route (2002).

Rationale for the Recommended Route (2002)

When the four alternatives considered in Phase 3 were compared using the amended factors and indicators, Alternative RC1 was found to be equal to or better than the other alternatives for all major groupings, except for Natural Environment. However, Alternative RC1 would have less impact on the natural environment than the New Route Alternative considered in Phase 2, and far less impact than the Recommended Plan (1997).

Alternative RC2 was found to be better than Alternative RC1 and the New Route Alternative for Natural Environment. However, Alternative RC2 would be the least preferred alternative for Socio-Economic Environment, in particular because of the removal of the houses and businesses at Shantz Station, in the central rural section of Highway 7.

Alternative RC1 is therefore considered to be the best of the four alternatives because it provides the best balance amongst the Factor Groupings for overall effect on the environment.

Alternative RC1, combined with the east (RE2) and west (RW3) sections presented in February 2001 is identified as the Recommended Route (2002). The Recommended Route (2002) is shown on Exhibit 1-4. For comparison purposes, the Recommended Route (2002) is presented with the Recommended Plan (1997).

The Recommended Route (2002) was presented to the public in the Fall of 2001. A drop-in centre for Property Owners was held on September 11, 2001. This provided an opportunity for affected owners to review the alternatives prior to the Public Information Centres.

The response from the public at the information centres held in November 2001 was much more favourable than the response received in February 2001. The majority of written comments received supported the Recommended Route (2002), although there was continued negative response from groups and individuals who believed that a simple widening of Highway 7 in the central rural section would be sufficient, if more emphasis were placed on alternate modes of transportation.

The Recommended Route (2002), as shown on Exhibit 1-4 and described in Chapter 5, is the result of intensive technical analysis and evaluation and public consultation.

1.5.4 Study Organization

The study organization is shown on Exhibit 1-5. The **Project Team** is comprised of representatives from the Ministry of Transportation and its consultants. McCormick Rankin Corporation, a firm of consulting engineers specializing in transportation projects, was the Prime Engineering Consultant. Ecoplans Ltd was the environmental consultant.

The Project Team was the key working group responsible for carrying out the MTO Review and the preparation of the Amendment to the EA Report 1997.

The **Internal Team** comprised representatives of various specialist offices within the Ministry of Transportation. Contact with these groups was made as required throughout the study.

Municipalities

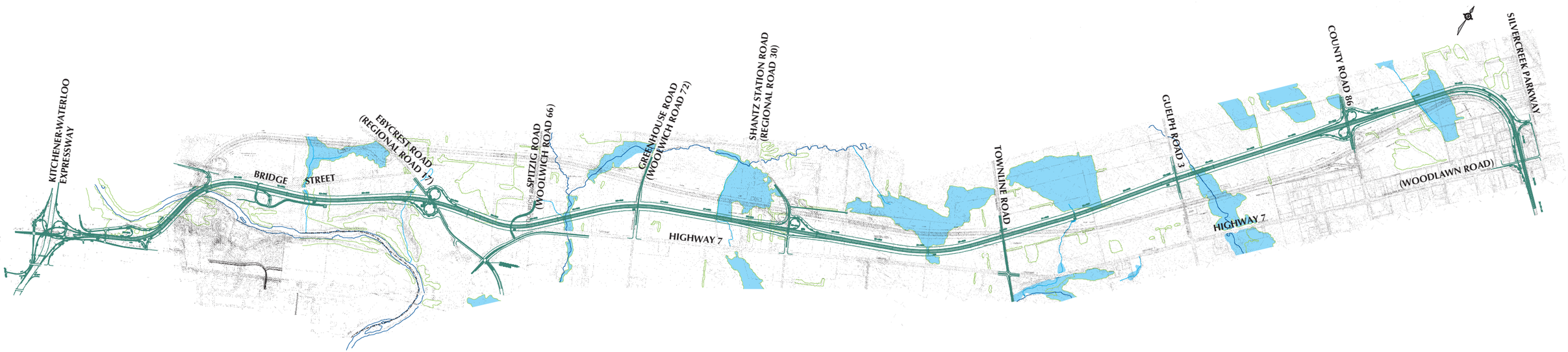
The Municipalities within the study area include: Regional Municipality of Waterloo, County of Wellington, City of Kitchener, City of Guelph, Township of Woolwich and Township of Guelph-Eramosa. A Municipal Team of representatives from the Engineering and Planning Departments of the six municipalities was developed for the study. A joint meeting of the Municipal Team and External Agencies was held prior to each of the Public Information Centres and prior to Municipal Council presentations. Issues of concern to the municipalities were typically discussed at these meetings. Minutes of these meetings are included in Appendix A. Members of the Municipal Team were also encouraged to contact Project Team members to discuss any concerns related to the MTO Review. A process of ongoing dialogue was maintained throughout the study.

External Agencies

During the Original EA process External Agencies were contacted and asked to participate in the study. The agencies that participated in the Original EA study were contacted at the commencement of the MTO Review. Key External Agencies for the MTO Review included the following:

- Ministry of the Environment
- Ministry of Agriculture, Food and Rural Affairs
- Ministry of Natural Resources
- Ministry of Culture
- Grand River Conservation Authority (GRCA)
- Ontario Provincial Police

Contact with the External Agencies was made at key points in the study. Meetings were scheduled throughout the study prior to each set of Public Information Centres, to provide the External Agencies with the opportunity to review the study progress and provide input.

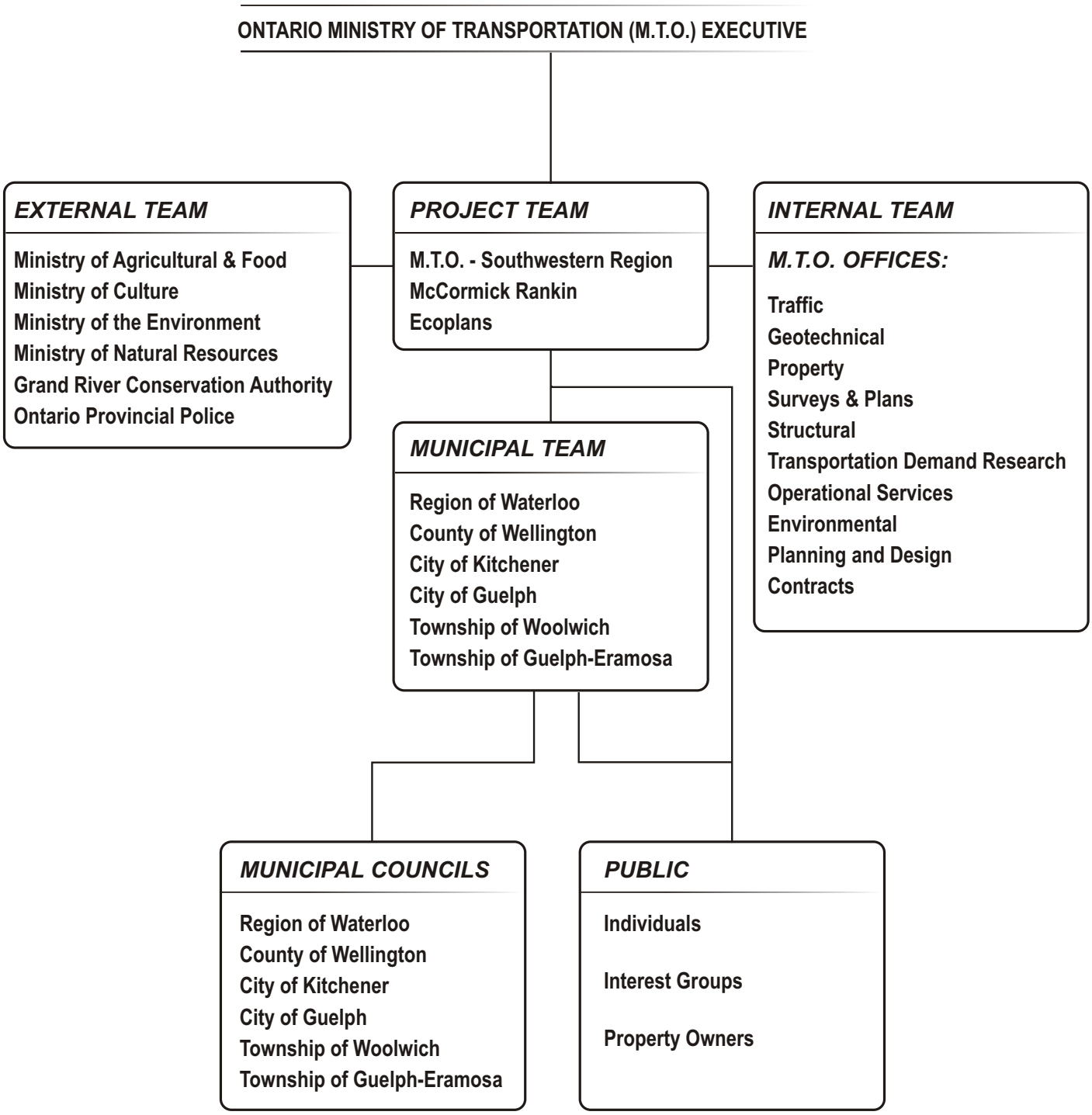


LEGEND

RECOMMENDED ROUTE (2002)

RECOMMENDED PLAN (1997)

HIGHWAY 7 PLANNING STUDY KITCHENER TO GUELPH	RECOMMENDED ROUTE (2002)	EXHIBIT 1-4



HIGHWAY 7 PLANNING STUDY
KITCHENER TO GUELPH

STUDY ORGANIZATION

EXHIBIT
1-5

Property Owners

Property owners meetings were held prior to the February and November 2001 Public Information Centres, in order to provide the property owners within the study area an opportunity to comment on the alternatives and recommendations of the Project Team. The property owners meetings were conducted as informal drop-in centres. Property owners were informed through letters sent prior to the meeting and were also contacted by telephone prior to the drop-in centre. A property owner group was established by the business operators within the study area during Phase 2 of the MTO Review known as the Highway 7 Home and Property Owners Group.

Public

The public was provided with several opportunities to review the study status and provide comments on the material presented. Public consultation for the MTO Review began in January 2000 with a workshop for stakeholders. The workshop presented the study findings to the representatives of interest groups invited to attend.

Public Information Centres were also held at three key points during the MTO Review to provide members of the public an opportunity to comment on the recommendations of the Project Team. The Public Information Centres were held as informal drop-in centres where members of the Project Team were available to discuss the study on a one to one basis. The public was notified of the Public Information Centres by brochure and newspaper advertisements in the local papers. The brochures were distributed to all addresses within the study area and to those who expressed an interest in the study.

Interest Groups

The following interest groups were involved in the study:

- HALT 7
- Kitchener-Waterloo Field Naturalists
- Waterloo Public Interest Research Group
- Waterloo Citizens Environmental Advisory Committee
- Guelph Field Naturalists
- Federation of Ontario Field Naturalists
- Federations of Agriculture
- Transport 2000 Ontario Waterloo Region Chapter
- CARP (Canadian Association of Retired Persons)

Municipal Councils and GRCA Board

During the MTO Review, presentations were made at key points to Councils, Committees of Council of each of the six municipalities and to the Board of the GRCA. The last presentations that were made were seeking endorsement from the Municipal Councils and the GRCA. The Recommended Route (2002) has been endorsed by all of the Councils and the GRCA. Details are included in Chapter 2.