

**TOWN OF WASAGA BEACH**  
**EAST-WEST TRANSPORTATION ROUTE STUDY**

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**Collingwood, ON**  
**L9Y 4J5**

**File No. 108072**  
**October, 2008**

TOWN OF WASAGA BEACH  
EAST-WEST TRANSPORTATION ROUTE STUDY

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## 1. INTRODUCTION

This report is submitted in response to a request from Mr. Jim McIntosh, Director of Public Works, Town of Wasaga Beach, for an East-West Transportation Route Study. The purpose of this study is to explore alternative routes to address existing traffic volume and congestion issues on the existing east-west arterial corridor through Town.

The Town of Wasaga Beach currently has only one east-west arterial route through Town consisting of County Road 92/ River Road West from Vigo Road through to Mosley Street at Highway 26. The existing arterial route is a predominantly two-lane rural roadway with some sections widened to a four-lane urban standard. Figure 1 shows the Town road network and highlights all existing arterial and collector roads as per the Town of Wasaga Beach Official Plan amended February 2008. Figure 1 also highlights the existing east-west Mosley Street – River Road West arterial corridor.

## 2. BACKGROUND

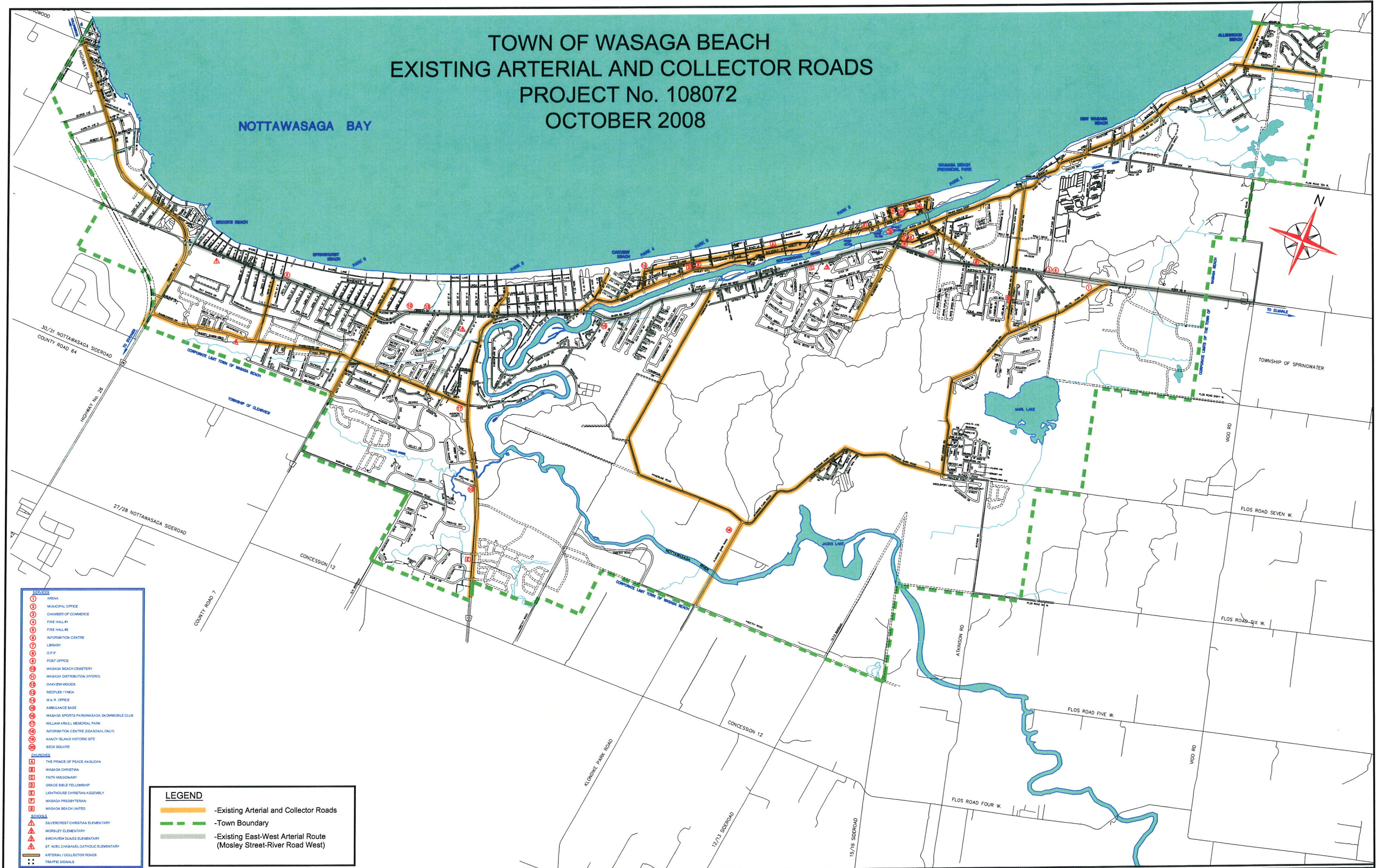
In 1974 the Ministry of Transportation, Ontario (MTO) prepared a Feasibility Study regarding the internal road system throughout the Wasaga Park Community, currently the Corporation of the Town of Wasaga Beach. This study included the Wasaga Park Community Master Plan, 1967. A copy of this plan is provided in Figure 2. The Feasibility Study generally concluded that the Mosley Street – River Road West corridor was required as an east-west passage through Town including construction of the Schoonertown Bridge over Nottawasaga River. The report also identified two other east-west routes for Wasaga Beach in addition to Mosley Street – River Road West. “New Highway 26” was identified approximately along the current south limit of the Town as well as an “East-West Parkway” identified approximately through the center of the current Town boundaries. This would have provided three east-west arterial routes rather than the one that is available today.

In 1999 the Town of Wasaga Beach completed a Transportation Study for the Town road network. The purpose of the study was to identify road network improvements required over a 5 and 10-year time horizon and assist the Town in updating development charges. The study identified the necessity of widening and/or other improvements to the existing Mosley Street – River Road West corridor and recommended staging of the improvements by priority of various sections of the arterial roadway.

The 1999 Transportation Study addressed a public perception that a large volume of trucks travel straight through Town and that a Town by-pass was required to relieve traffic congestion along River Road West and Mosley Street. The study provided a conceptual alignment for a potential by-pass route located approximately along the south limit of Town (see Figure 3). This by-pass would be approximately 18.3km long and was estimated to cost approximately \$27,000,000 to construct.

Data obtained for the 1999 study indicated that truck traffic only accounted for approximately 10% of total traffic volume. Traffic counts also indicated that there was a much larger volume of trucks at the commercial area on Mosley Street and Sunnidale Road than at other locations on the east-west route. This suggested that the majority of truck traffic was stopping in Town for business and therefore, only a small percentage of truck traffic would use a Town by-pass. Furthermore, a large percentage of car traffic volume on the east-west arterial route is due to developments directly

# TOWN OF WASAGA BEACH EXISTING ARTERIAL AND COLLECTOR ROADS PROJECT No. 108072 OCTOBER 2008



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- FIRE HALL #2
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- FAITH MISSIONARY
- GRACE BIBLE FELLOWSHIP
- LANTHORN CHRISTIAN ASSEMBLY
- WASAGA PRESBYTERIAN
- WASAGA BEACH UNITED
- △ SCHOOLS
- △ SILVERCREST CHRISTIAN ELEMENTARY
- △ WORSLEY ELEMENTARY
- △ BIRCHVIEW DUNES ELEMENTARY
- △ ST. NOEL CHABANEL CATHOLIC ELEMENTARY
- ARTERIAL / COLLECTOR ROADS
- TRAFFIC SIGNALS

**LEGEND**

- Existing Arterial and Collector Roads
- Town Boundary
- Existing East-West Arterial Route (Mosley Street-River Road West)

NOTES

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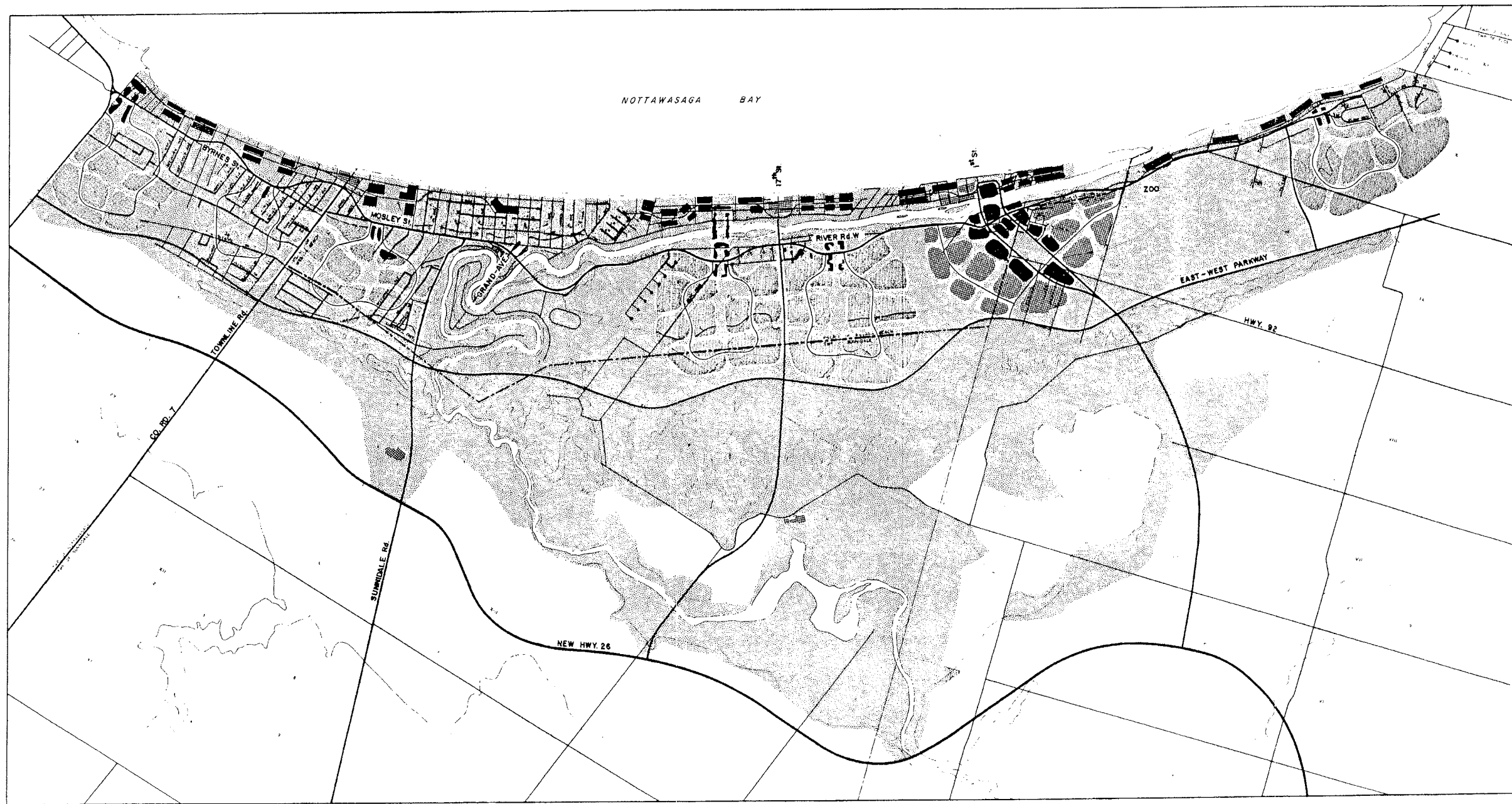
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**TOWN OF WASAGA BEACH**  
EAST-WEST  
TRANSPORTATION ROUTE STUDY

**EXISTING ARTERIAL AND  
COLLECTOR ROADS**

**Ainley** CONSULTING ENGINEERS PLANNERS

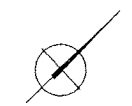
CONTRACT No. DWG. 108072-Figure 1



NOTTAWASAGA BAY

**MASTER PLAN**  
**1967**

-  RESIDENTIAL
-  ACCOMMODATION
-  COMMERCIAL
-  PARK
-  PARKING



WASAGA PARK COMMUNITY

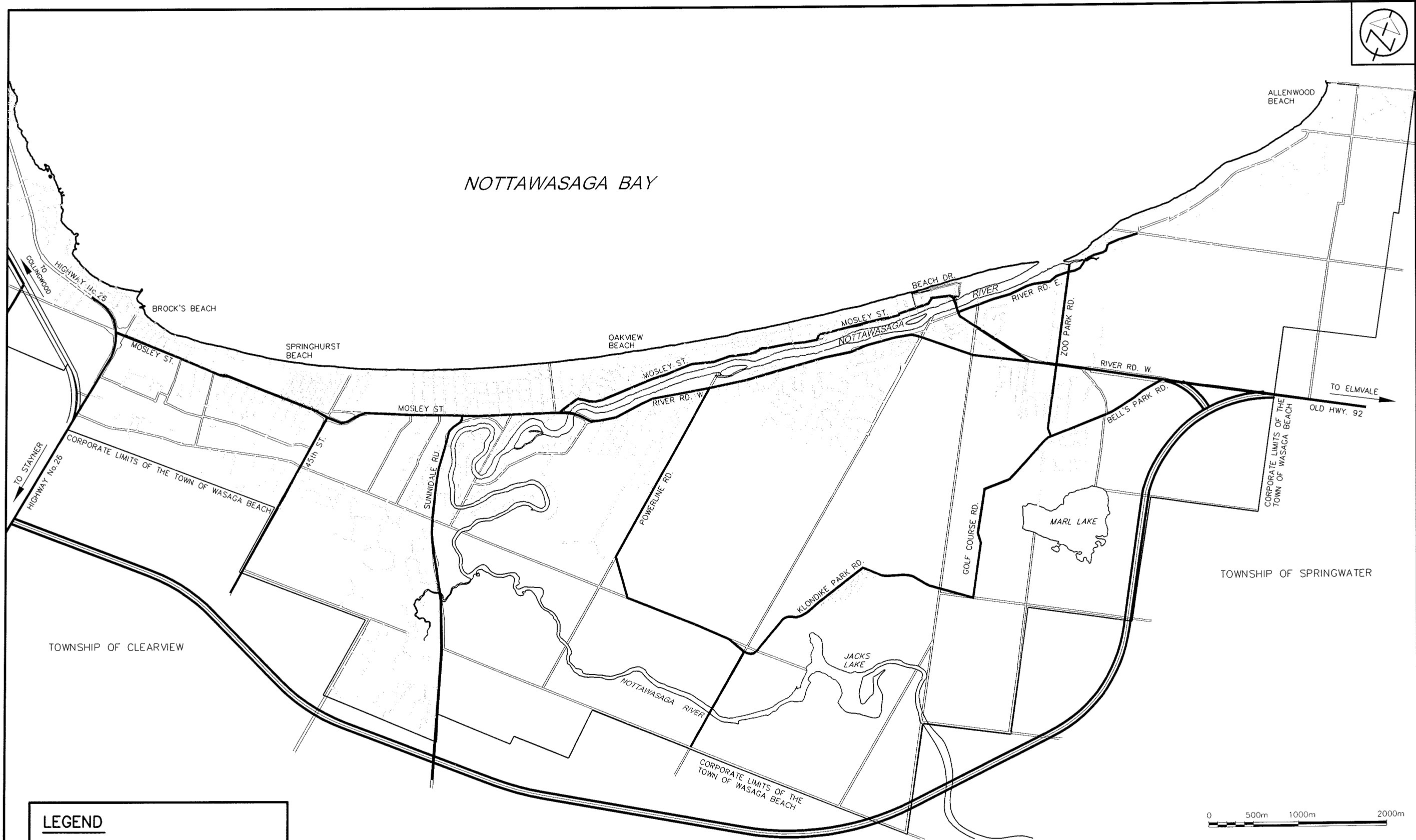
0 100 200 300 400 500 FEET  
SCALE  
1" = 2000'

January 1971



Plate No 1



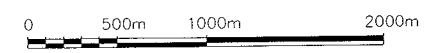
# NOTTAWASAGA BAY




**LEGEND**

-  ARTERIAL ROAD
-  BYPASS ROUTE

NOTE: THE BYPASS ROUTE SHOWN IS CONCEPTUAL ONLY. ANY BYPASS REQUIRES ECONOMIC JUSTIFICATION AND ENVIRONMENTAL ASSESSMENT CLEARANCE.



 CONSULTING ENGINEERS PLANNERS	<b>TOWN OF WASAGA BEACH</b> TRAFFIC STUDY	SCALE: 1: 40000
	<b>BYPASS ROAD CONCEPT</b>	DATE: DEC. 1999

adjacent to River Road West and Mosley Street. Therefore, the study concluded that the low volume of traffic that would use a by-pass would not justify the high cost of construction.

The Town of Wasaga Beach Transportation Study was updated in 2006. Among other things, this report confirmed the necessity of widening Mosley Street – River Road West through Town and recognized locations that had already been widened to four lanes. The report also reiterated that an additional bridge across Nottawasaga River could reduce some of the east-west congestion by providing an alternative north-south route for tourists traveling to the beach areas. Following the report, the Powers Bridge was replaced on Klondike Park Road, and improvements to the approaches are anticipated to be completed by the end of 2008.

Traffic count data from the 2006 update also confirmed that in-Town truck traffic is predominantly due to commercial activity at the Town center and therefore, a by-pass would not be cost effective. However, the study indicates that the existing Mosley Street – River Road West arterial route could potentially reach maximum capacity within the next 15 to 20 years. This is largely due to expected population growth in the Town and namely the large amount of development within close proximity to the existing arterial. It was recommended in the 2006 report that a planning process be established to provide viable solutions to the foreseeable future need for conveying the additional east-west traffic volumes. It was further recommended that the County of Simcoe and the MTO be involved with this planning process.

The Town of Wasaga Beach 2007 Development Charges Background Study identifies an East-West Route Study to be completed in 2008. The Public Works 2008 10-Year Capital Works Forecast document also identifies this study to be undertaken in 2008. The following report outlines the findings of the East-West Transportation Route Study.

### **3. STUDY OBJECTIVES**

This study has been completed in response to the issues identified above, and namely in consideration of the following three issues:

1. Public perception of the large volume of trucks traveling through Town.
2. Overall congestion on the existing east-west arterial route (Mosley Street – River Road West).
3. Improvements to directional signage are required to direct traffic to the Provincial Parks areas and Town amenities.

The purpose of this study is to identify potential alternative east-west routes to help alleviate the above noted issues and evaluate the feasibility of the various alternatives. Design and environmental details for the potential alternatives were not considered as part of this study. Environmental restrictions including topography, land uses, heritage lands, environmental protection areas, etc. would be considered while determining a preferred alternative through the required Environmental Assessment (EA) process.

### **4. EXTERNAL STUDIES AND OTHER TOWN OF WASAGA BEACH STUDIES**

The following is a summary of various on-going and/or upcoming transportation studies being undertaken by other governing bodies in the vicinity of the Town of Wasaga Beach.



### **County of Simcoe – Transportation Master Plan**

The County of Simcoe is currently completing a Transportation Master Plan in conjunction with the Simcoe Area Growth Plan.

The Transportation Master Plan has significant bearing on the Town of Wasaga Beach East-West Transportation Route Study. The County Plan proposes improvements to the existing road network including upgrading existing Nottawasaga Sideroad 27/28 and Concession 12 to a county road standard within the “medium term” (i.e. within 15 years). This roadway improvement may be used as a Town of Wasaga Beach alternate east-west route. Figure 4 provides a copy of the County’s proposed road network improvements within the medium term as displayed in the April 2008 public information centres.

The 30-day public review period for the Transportation Master Plan ended in the end of September.

### **MTO – Highway 26 Study Design Update**

The MTO posted an invitation for consultants to submit an Expression of Interest (EOI) to update the current Highway 26 Study Design prepared by McCormick Rankin Corp. in August 2004. Short-listed consultants have now submitted proposals to complete the work. The “Study Design Report Update and Detailed Traffic Modeling Study for Highway 26 in the Georgian Triangle Area” is project WP# W.O. 07-20008, consultant agreement # 2007-E-0009.

The study length/ location includes provincial and primary local roads within the Town of Wasaga Beach, Stayner, Collingwood, Township of Clearview, the Town of The Blue Mountains, and Simcoe and Grey Counties. The MTO will be seeking transportation information from the municipalities including the Town of Wasaga Beach.

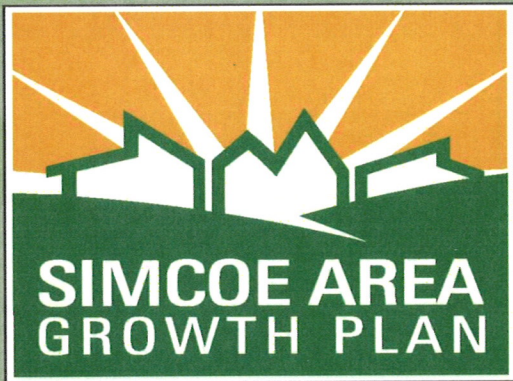
Based on a recent discussion with the MTO Project Manager, it is understood that approval for awarding the study to the recommended consultant is forthcoming and the study will commence shortly. It is a two-year study that will include two origin-destination studies as well as several public meetings and quarterly liaisons with municipalities for feedback and updates.

The proposed origin-destination studies will be surveys/ questionnaires conducted amongst motorists regarding traveler destinations, with special attention to tourist destinations. One survey will be completed in the winter at carpool lots and a second detailed survey will be conducted in the summer at roadside locations within the study area.

The information obtained from the surveys and provided by the municipalities will be used to determine future Highway 26 by-pass needs. The report will also address the split of provincial/ local responsibilities for improvements required for the identified future by-pass needs.

### **Town of the Blue Mountains, County of Grey and the Ministry of Transportation**

The Town of the Blue Mountains (TOTBM) is currently undertaking a “Comprehensive Transportation Strategic Plan”. The plan will address growth related roads within the TOTBM. The TOTBM will be working with the MTO and the County to address concerns regarding Highway 26



# Proposed Road Network Improvements –Medium Term

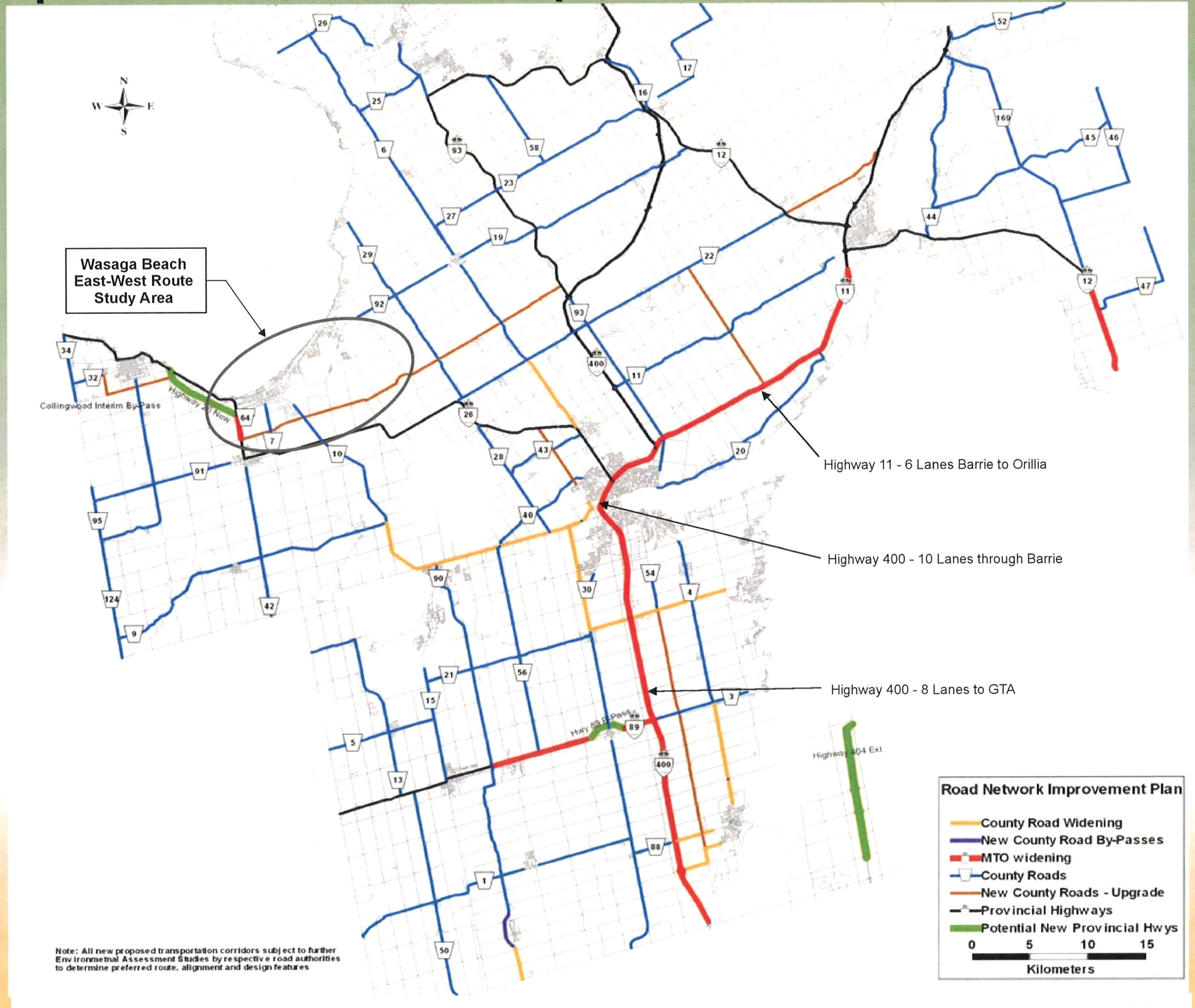


Figure 4

through the Town. This study does not appear to have significance or impact on the Town of Wasaga Beach East-West Transportation Study.

### **TOTBM, Town of Collingwood and Township of Clearview Transportation Initiatives**

The "Georgian Triangle Area Transportation Paper – Phase 2 Report" was previously completed for the TOTBM, Collingwood, and the Township of Clearview in January 2008. The three municipalities initiated this study in order to approach the MTO and request financial and/or other assistance to accommodate concerns regarding high traffic volumes on Highway 26 through the municipalities.

The Town of Wasaga Beach and the County of Simcoe were not directly involved with this study, but provided information with regards to regional transportation.

As a result of the study report, the MTO granted \$10 million for the three municipalities to provide road improvements to specific municipal roads to potentially alleviate some of the traffic congestion on Highway 26 through these Towns.

### **Town of Wasaga Beach Active Transportation Study**

The Town of Wasaga Beach is currently undertaking an Active Transportation Study in order to "promote a healthy active lifestyle for all ages and abilities" (Healthy Communities Network Committee, Wasaga Beach) while also providing the option for alternative means of travel.

Meridian Planning Consultants Inc. was retained by the Town of Wasaga Beach to prepare an Active Transportation Plan to provide guidelines for pedestrian, hiking, and cycling facilities throughout the Town. The document identifies (among other things) recommendations for bike lanes on roadways and/or multi-use trails, linkage of trails systems through Town, and additional information guide signs referred to in the report as "wayfinding". Recommendations for trail linkages include pedestrian bridge crossings over Nottawasaga River to the beach areas. If any of the identified bridge locations were added as a roadway bridge, particularly the vehicular/pedestrian bridge suggested for the north end of Powerline Road, this would provide more accessibility to the beach areas and therefore divert traffic volumes off the Mosley Street – River Road West corridor more readily. The proposed information signage may be beneficial for directing vehicular traffic as noted above.

Existing road widening projects and new road construction in the future should consider provision for bicycle lanes or multi-use trails. However, it is understood that there will be challenges to provide the bicycle and/or multi-use trails because of right-of-way width restrictions.

The Active Transportation Plan also recommends additional use of public transit, including a bus route that runs through the Old Mosley Street beach areas. This would provide local travelers with an alternative means of transportation to the beach areas from across Town.

## **5. EVALUATION OF ALTERNATIVE EAST-WEST ROUTES**

In order to provide an alternative east-west route through the Town of Wasaga Beach, the location for any new roads and/or horizontal improvements to existing roads will be governed by a number of factors. Environmental concerns including heritage lands, trails systems, the sand dunes,

wetlands, environmentally sensitive areas, Hog-nosed snake and other significant/ endangered species habitat, etc. must all be considered to determine a preferred route. It is also noted that the Ministry of Natural Resources (MNR) owns a large amount of the subject area in the Town of Wasaga Beach. Therefore, approvals may be difficult to obtain for any new east-west route, and a preferred corridor would have to be confirmed through an Environmental Assessment (EA).

Through previous consultation with the Town of Wasaga Beach Public Works and Planning departments, three potential alternative routes have been identified for consideration. The identified routes are from Highway 26 at Mosley Street to County Road No. 92 at Vigo Road. Figure 5 highlights the potential alternative east-west routes and a full 24"x34" size of the drawing is also available in Appendix 'A'.

The following is a description of the three potential alternatives considered in this study:

1. Highway 26 – Ramblewood Drive – Knox Road – new road construction – Powerline Road – Klondike Park Road – Golf Course Road – River Road West – County Road 92
2. Highway 26 – Ramblewood Drive – Knox Road – Sunnidale Road – new road construction – Freethy Road – new road construction – Flos Road 6 – Vigo Road
3. Highway 26 – Nottawasaga Sideroad 27/28 – new road construction – Concession Road 12 – Flos Road 4 – Vigo Road

It is noted that the link between Highway 26 and Ramblewood Drive is currently not open and is subject to final approval from the MTO and the Town. Alternatives #1 and #2 would not be available until the connection of Ramblewood Drive to Highway 26 is available.

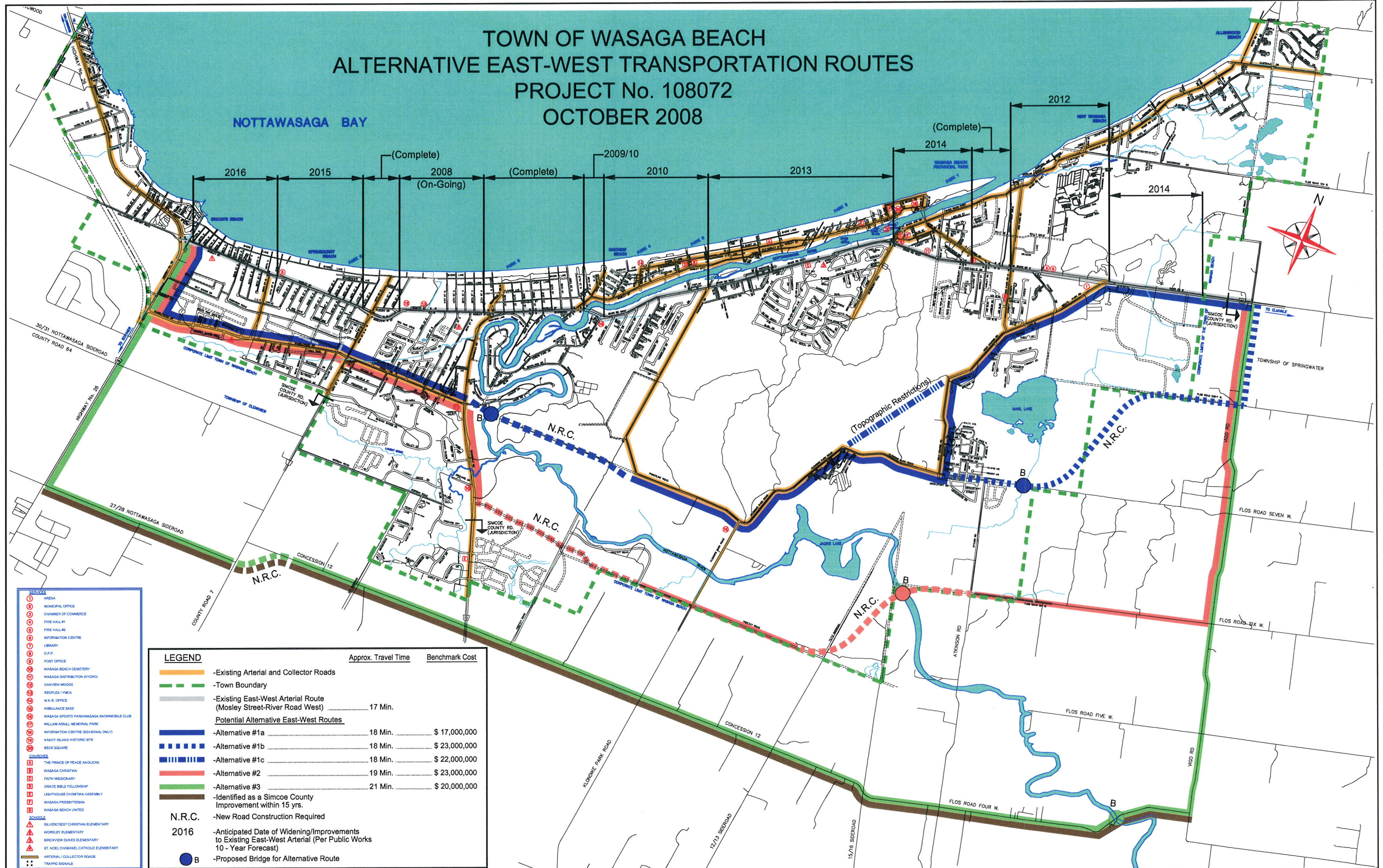
Each of the three above alternatives require horizontal, vertical, and cross-sectional improvements to existing roads as well as various lengths of new road construction. All three alternatives also require construction of new bridges or replacement of existing bridges.

Figure 5 and Appendix 'A' provide approximate travel times for the existing arterial route and the three potential alternative routes. Time of travel was recorded for several trips along the existing arterial corridor and the average time has been provided. Travel times were recorded for various cross-town trips similar in length to the three potential alternatives in order to estimate the travel time for each route. The existing corridor travel time is approximately 17 minutes whereas the three potential alternative routes would take approximately 18 to 21 minutes to travel across Town. Therefore, during regular traffic conditions there is not a significant difference in travel time for the various options.

Benchmark or "ballpark" costs for construction for the three alternatives have also been summarized on Figure 5 and Appendix 'A'. These preliminary cost estimates are based on a cost per kilometer for existing road reconstruction and new road construction per MTO Highway Construction Costs, Spring 2006. The cost of construction for the three alternative routes ranges from \$17,000,000 to \$23,000,000, engineering and taxes excluded. These costs also include preliminary estimates for bridge construction. See Appendix 'B' for the detailed benchmark cost calculations.

The following is an evaluation of the three alternative east-west routes considered in this study:

# TOWN OF WASAGA BEACH ALTERNATIVE EAST-WEST TRANSPORTATION ROUTES PROJECT No. 108072 OCTOBER 2008



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- WILLIAM ADRIAN MEMORIAL PARK
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- WASAGA CHRISTIAN
- FATH MISSIONARY
- GRACE BIBLE FELLOWSHIP
- LIGHTHOUSE CHRISTIAN ASSEMBLY
- WASAGA PRESBYTERIAN
- WASAGA BEACH UNITED
- SILVERCREST CHRISTIAN ELEMENTARY
- HIGHLAND ELEMENTARY
- BIRCHVIEW GLEN ELEMENTARY
- ST. NOEL CHANDEL CATHOLIC ELEMENTARY
- ARTERIAL / COLLECTOR ROADS
- TRAFFIC SIGNALS

LEGEND		Approx. Travel Time	Benchmark Cost
	-Existing Arterial and Collector Roads		
	-Town Boundary		
	-Existing East-West Arterial Route (Mosley Street-River Road West)	17 Min.	
<b>Potential Alternative East-West Routes</b>			
	-Alternative #1a	18 Min.	\$ 17,000,000
	-Alternative #1b	18 Min.	\$ 23,000,000
	-Alternative #1c	18 Min.	\$ 22,000,000
	-Alternative #2	19 Min.	\$ 23,000,000
	-Alternative #3	21 Min.	\$ 20,000,000
	-Identified as a Simcoe County Improvement within 15 yrs.		
	N.R.C. - New Road Construction Required		
	2016 - Anticipated Date of Widening/Improvements to Existing East-West Arterial (Per Public Works 10 - Year Forecast)		
	-Proposed Bridge for Alternative Route		

NOTES

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DRAWN: L.G.B.  
CHECKED: T.N.  
DATE: OCT. 2008

**TOWN OF WASAGA BEACH**  
EAST-WEST  
TRANSPORTATION ROUTE STUDY

**POTENTIAL ALTERNATIVE  
EAST-WEST ROUTES**

**Ainley GROUP** CONSULTING ENGINEERS PLANNERS

CONTRACT No. DWG. 108072-FIGURE 5

**Alternative #1**

It is noted that there are three variations to alternative #1. The estimated benchmark cost of construction for alternatives #1a, #1b, and #1c ranges from \$17 to \$23 million.

This potential alternative is the closest route to the Town centre and therefore could be considered for purposes of in-Town and/or through-Town traffic destinations.

All three variations to alternative #1 require acquisition of MNR land and new road construction through potentially environmentally sensitive lands. Therefore, it may be difficult to obtain approvals for this alternative.

**Alternative #2**

Alternative #2 is similar to #1b) in length and new road construction requirements. The estimated benchmark cost of construction for alternative #2 is also \$23 million.

This alternative includes new road construction along future collector roads identified through the Sunnidale Trails Secondary Planning Area in the Town Official Plan.

Alternative #2 is south of #1 and therefore further from the Town centre. The alignment generally follows the south limit and outside of the Town boundaries for more than half the length of the route. This alignment is similar to the conceptual Town by-pass included in the 1999 Transportation Study. This alternative could be used for in-Town destinations but would likely be considered more for through Town destinations.

It may also be difficult to obtain approvals for alternative #2 because the new road construction outside of Town limits would require approval from adjacent Municipalities and the County of Simcoe. The required new road construction may also be through environmentally sensitive lands.

**Alternative #3**

Alternative #3 requires the least amount of new road construction out of the three alternatives considered. The only new construction would be approximately 1.0km of horizontal alignment improvements for the connection of Sideroad 27/28 to Concession 12. Also, this alternative only requires the replacement of an existing bridge rather than requiring a new bridge.

The estimated benchmark cost of construction for alternative #3 is \$20 million, which is the median average of the three alternatives.

As noted above under section 4. - External Studies, the County of Simcoe has proposed that Sideroad 27/28 and Concession 12 will be reconstructed and upgraded to a county road as part of the County improvements within 15 years. This includes the majority of work for alternative #3 excluding Vigo Road improvements.

Alternative #3 is entirely outside of the Town of Wasaga Beach limits and therefore would require municipal agreements with the County of Simcoe and/or the affected municipalities. This alternative route is the longest out of the three identified routes, and would be considered more of an alternative east-west route for through Town travel than for in-Town destinations. However, this

alternative route provides linkage to a number of locations in Town with the various connections via county and local roads.

### **Main Street / Mosley Street Corridor**

One other option that may appear to be a potential alternative east-west route through part of the Town is the existing Main Street – Mosley Street corridor. This corridor already has, for significant length, 4-lane capacity by virtue of the parallel roads of Mosley Street, Dunkerron Avenue and Old Mosley Street. Improvements if warranted could consist of improvements at the intersections of the parallel roads and the linkages at both ends of the corridor.

Traffic volume studies undertaken together with projections to 2016 indicate that this corridor provides a good level of service for a majority of time. It is recognized that during summer long weekends this corridor undergoes congestion as a result of the influx of visitors to the Beach areas. Since the corridor is part of the destination, added lane capacity will do little to enhance the ability of motorists wanting to simply travel thorough the area. The preferred route through Wasaga Beach would still be River Road West across Schoonertown Bridge to Mosley Street.

In addition to the above, improvements and widening to the Main Street – Mosley Street roadway presents many challenges and therefore, this route was disregarded as a potential alternative for conveying additional traffic volumes. A Traffic Management and Area Improvement Study was submitted to the Town in January 1995 identifying a number of improvement constraints for this corridor including the narrow 50' (15.24m) irregular shaped right-of-ways, building encroachments, and geometric restrictions including topography and proximity to the beach. However, the 1995 study also identifies that Mosley Street right-of-way should be widened through development process to allow for future widening of the roadway. This has already been implemented but is dependent on timing of development of both sides of the road along the entire roadway.

## **6. TRAFFIC INFILTRATION STUDY**

A Traffic Infiltration Study (origin-destination study) provides information regarding vehicular travel patterns and may identify the purpose of motorist trips on a typical day. This type of study is used to determine travelers' ultimate destinations, for example, whether vehicles are traveling to a location within a Town or are traveling through the Town.

The Town of Wasaga Beach 2007 Development Charges Background Study indicates that a Traffic Source Destination Study is to be undertaken in 2010. However, in consultation with Town staff it was agreed that an Origin-Destination Study/ Traffic Infiltration Study was required as part of the East-West Transportation Route Study in order to verify the volume of traffic traveling through Town versus total traffic entering the Town. This is in response to the public perception that a large percentage of trucks use the existing arterial corridor to travel directly though Town without stopping for internal business. Data obtained from a Traffic Infiltration Study could also be useful for planning process for redevelopment of Beach Area #1.

On behalf of the Town of Wasaga Beach, Ainley & Associates Ltd. (AAL) retained Ontario Traffic Inc. (OTI) to conduct a Traffic Infiltration Study. AAL staff has previous experience with OTI completing similar studies to determine the percentages of traffic traveling through a Town versus the total traffic volumes.

OTI proposed to undertake the Traffic Infiltration Study by recording license plate numbers at the east and west ends of Town and determine the number of through-Town trips by matching plate numbers on the opposite side of Town. In order to sufficiently represent the average daily traffic conditions, it was agreed that the survey would be conducted mid-week in June on a day without a forecast of rain. OTI was also instructed to separate car and truck traffic data.

OTI completed the Traffic Infiltration Study on Wednesday June 11, 2008 with a twelve-hour count from 6:00am to 6:00pm. This study/ license plate survey included four technicians from OTI positioned at either end of Town. The two locations were Mosley Street, just east of Highway 26 and River Road West, west of Bells Park Road.

The data obtained from the survey was analyzed by OTI and license plate matches at opposite ends of Town were recorded. Plate matches are noted as having traveled through Town. The number of through Town vehicles are compared with total traffic volumes. The data was broken down into car and truck traffic, and volumes were summarized for every 15-minute interval throughout the day.

A copy of the Traffic Infiltration Study prepared by OTI is provided in Appendix 'C'.

In order to determine the number of vehicles that could be assumed to be traveling directly through Town without any stops, several non-stop calibration trips were taken to establish a benchmark travel time. Based on the average recorded time of 17 minutes to travel the existing arterial route, plate matches within the 0-15 min. and the 15-30 min. intervals are considered to have traveled directly through Town and therefore might benefit from a Town by-pass.

The following is a summary of data obtained in the Traffic Infiltration Study with respect to total traffic volume entering the Town and the percentage of those vehicles traveling directly through Town without stopping (i.e. within 30 minutes):

	Total Traffic Entering Town	Vehicles Assumed to be Traveling Directly Through Town ( $\leq 30$ min.)	Percentage
EASTBOUND – from location 1	3,823	85 + 99 = 184	4.8%
WESTBOUND – from location 2	3,434	138 + 64 = 202	5.9%
<b>TOTALS</b>	<b>7,257</b>	<b>386</b>	<b>5.3%</b>

As shown above, 386 vehicles including cars and trucks travel directly through the Town within the 12-hour period on a typical day. This represents 5.3% of the total volume of traffic entering the Town during that period.

The following is a summary of the total vehicles observed to travel through Town without any consideration for time, i.e. all plate matches observed during the study:

- 8.22% of all eastbound cars
- 11.69% of all eastbound trucks
- 16.65% of all westbound cars
- 15.75% of all westbound trucks



The data from the Traffic Infiltration Study indicates that during a 12-hour period on a typical day 8.5% of total eastbound traffic will eventually travel completely through Town and 16.5% of westbound traffic will eventually travel through Town. This represents a weighted average of 12.3% of all vehicles entering Town travel through Town. A significant amount of these vehicles were observed to complete the trip in more than 30 minutes. These vehicles are presumed to have stopped in Town to conduct business prior to completing the trip and therefore would likely continue to use the existing arterial route even if an alternative east-west route was available.

The data obtained from the Traffic Infiltration Study confirms the conclusions made in the 1999 Transportation Study and the 2006 update, which indicate that only approximately 10% of total traffic volume travels directly through Town. The study indicates that on an average day, 386 vehicles out of the 7,257 entering Town during the 12-hour daytime period travel directly through Town and could benefit from a by-pass. This low volume of traffic does not justify the high costs associated with constructing a Town by-pass. Therefore, it is recommended that the Town consider other potential solutions for traffic congestion.

## **7. OTHER POTENTIAL SOLUTIONS FOR TRAFFIC CONGESTION**

The following is a summary of alternative solutions to potentially reduce traffic congestion on the exiting east-west arterial route other than providing an additional east-west collector/ arterial road:

1. Public transportation (in-Town bus).
2. Carpool parking lots.
3. Shuttle bus service from parking areas to the beach areas.
4. Complete widening and improvements to the existing east-west corridor.
5. Signage for directing traffic.
6. Development.

The above listed measures could be used in-lieu of and/or in conjunction with constructing an alternative east-west transportation route.

### **7.1 Public Transportation**

It is noted that the Town implemented a cross-town bus system for local public transportation on July 7, 2008. The Town bus utilizes the existing east-west arterial corridor from the arena at River Road West and Bells Park Road to the medical centre on 45<sup>th</sup> Street south of Mosley Street. The one-hour round trip bus route has 60 stop locations identified with signs along Mosley Street and River Road West.

According to the Director of Operations at Georgian Coachliner, who facilitates the Town bus system, approximately 20 to 30 passengers use the bus per day.

The Town should continue to monitor bus usage and expand the system as demand warrants.

### **7.2 Carpool Parking Lots**

Additional research would be required to determine whether the public in the Town of Wasaga Beach would use carpool lots if they were provided. It is assumed that people commuting to other

Towns for work would be the most likely motorists to use carpool lots. It is not expected that carpool lots would have a significant impact on traffic volumes on the existing east-west arterial corridor.

### **7.3 Shuttle Bus to Beach Areas**

A shuttle bus to the Beach Areas from a parking area would likely not be used extensively because of the peak time nature of daily tourist traffic – everyone arrives and/or leaves at the same time, which may discourage people from waiting for the bus. It is also noted that carpool lots and/or shuttle bus parking lots would require public property.

### **7.4 Complete Improvements to the Existing East-West Corridor – Public Works 10-Year Forecast**

One other solution for alleviating traffic congestion on the existing east-west corridor is to complete the widening projects on Mosley Street and River Road West in accordance with the 2008 Public Works 10-Year Capital Works Forecast Summary Brief.

As discussed in the introduction, the existing east-west arterial route is predominantly a two-lane rural roadway. Some sections of the corridor have been and/or are currently being widened to a four-lane urban cross-section. The areas that have already been widened are mainly through commercial business areas where the highest traffic volumes occur.

It is anticipated the entire east-west arterial corridor will ultimately be widened and/or improved pending completion of the required EA processes and municipal approvals for the works. Improvements for the entire existing east-west route are identified in the Town of Wasaga Beach 2007 Development Charges Background Study.

In addition to the DC Study, the Town of Wasaga Beach Public Works 10-Year Capital Works Forecast (2008) also identifies the arterial roadway improvements and provides anticipated dates for various segments of roadway to be reconstructed. The map provided in Figure 5 and Appendix 'B' indicates the various construction dates identified in the 10-Year Forecast.

The Schoonertown Bridge over Nottawasaga River has been identified in the 10-Year Forecast as the next segment of the arterial roadway to be improved/ widened on this corridor. The bridge is the connecting link between Mosley Street and River Road West and could be construed as an existing "bottleneck" of the arterial corridor because it is directly adjacent to the commercial area. An EA is currently underway to identify the preferred widening alternative for the bridge.

Based on the Public Works Forecast, improvements to the existing east-west arterial route is anticipated to be completed in 2016.

### **7.5 Signage**

Directional information signage or guide signs provide assistance for motorists to determine the best route for their destinations. Guide signs are especially helpful when travelers are not familiar with the area. Information guide signs including turn off signs and destination signs help motorists reach their destination more readily by informing motorists of the shortest route to their destination. This reduces the amount of time that a motorist spends on the road network and therefore reduces the total number of vehicles traveling on the road network system.

The Town of Wasaga Beach is a very popular tourist destination and therefore, there are many times that a large number of motorists on the local roads are not familiar with the area. Providing additional directional signage would help these motorists determine the best route for their destination (for example, to a specific Beach Area) and potentially reduce overall congestion on the road system.

It is noted that the Town of Wasaga Beach already provides information signage to assist motorists in locating the Beach Areas, tourist information centres, and other amenities including golf. The Town also has turn-off and/or urban destination signage along the existing east-west arterial route for directing travelers to Highway 26 from 45<sup>th</sup> Street (County Road 7) and Sunnidale Road (County Road 10). However, it is suggested that additional turn-ahead and/or advanced notification signage, and larger, more obvious urban destination signage (i.e. to Barrie; to Stayner; to Collinwood...) may help direct more traffic off of Mosley Street and River Road West more quickly.

It is also suggested that the existing directional information signage leading traffic into Town could be improved. Existing destination signage is available on Highway 26 at County Road 7, County Road 10, and at Klondike Park Road. This signage could be improved by providing a description of the attractions available at the various Beach Areas (for example, Beach Areas 1 – 3: Shopping and Restaurants; Beach Areas 4 – 6: Family Picnic Areas; etc.). This type of descriptive destination signage could also be beneficial for directing in-Town tourist traffic to their destinations.

More specifically, improvements to existing signage may include updating urban destination and advanced notification signage at Mosley Street and 45<sup>th</sup> Street, Mosley Street and Sunnidale Road, and River Road West and Powerline Road intersections. Improvements could also be made on the existing signage on Highway 26 at County Road 7, County Road 10, and Klondike Park Road.

In addition to supplementary guide signage, the Town and the MNR may want to consider using other means to notify the public of up-to-date conditions of the Beach Areas. This may be achieved by use of changeable message signs that can inform tourists of conditions as they occur, such as "Beach Area 1 Parking lot Full". Another potential means for the MNR to inform the public of Beach Area conditions is through radio. The MNR could use a specific radio station for up-to-date announcements/ conditions reports and provide signage to indicate which station provides this information.

Any improvements to information signage and/or other means of notification to the public would require consultation with the MNR, the MTO, and the County of Simcoe, depending on jurisdictional boundaries and impacts.

## **7.6 Developments**

The Town should encourage the establishment of neighbourhood commercial areas through the development and planning process. These types of land uses have the potential of providing the convenience of minor shopping in close proximity to residential areas and thereby diverting trips from the main arterial system. This type of development with residential areas being closer to shopping areas may encourage the use of active transportation modes.

## 8. SUMMARY AND RECOMMENDATIONS

Data obtained from the Traffic Infiltration Study suggests that the low percentage of traffic volume that travels directly through Town on the existing east-west arterial route does not warrant the costs for the Town to construct a by-pass. This is consistent with the 1999 and 2006 Transportation Studies. However, it is recognized that the existing east-west arterial route could potentially reach maximum capacity within 15 to 20 years. Therefore, an alternative east-west route might be required in the future.

The County of Simcoe has proposed improvements to Nottawasaga Sideroad 27/28 and Concession 12, which will be upgraded to a county road standard within 15 years. This will provide motorists with an alternative east-west route prior to the existing corridor potentially reaching capacity.

To inform motorists of the alternative route provided by the County in the future, and in order to direct travelers to their destinations more efficiently, it is recommended that additional guide signs be provided in-Town and outside of Town. This is to be done in consultation with the MTO, the MNR, and the County of Simcoe. The Town and Ontario Parks (MNR) may also wish to consider the use of changeable message signs or radio broadcasting to provide motorists with up-do-date information.

It is recommended that improvements to the existing Mosley Street – River Road West corridor be completed in accordance with the Public Works 10-Year Forecast. Completion of these widening and improvement projects will help convey the increasing traffic volumes and alleviate congestion as the Town grows in population.

A planning process should be established in consultation with the MTO, MNR, and the County of Simcoe to identify alternative long-term solutions. The planning approach must take into consideration the potential of the existing east-west arterial route reaching capacity in 15 to 20 years. Development might not proceed as anticipated and/or traffic volumes on Mosley Street and River Road West corridor may be alleviated by utilizing a combination of the various other potential solutions for traffic congestion described above. This could negate the need for an alternative east-west route. Therefore, it is recommended that traffic volumes on the existing east-west arterial route be monitored by conducting traffic volume counts every 5 years at the major intersections on Mosley Street and River Road West and at other major intersections in Town. This will help identify the growth of the traffic and confirm if/ when the existing arterial route is approaching capacity and a new route would be required.

It is noted that if an alternative route becomes necessary, although the County of Simcoe proposes improvements that will provide an alternative east-west route, the route is outside of Town limits and is far from the Town's business core. The Traffic Infiltration Study indicates that approximately 5% of all traffic that enters the Town will travel directly through without stopping for business. It can be assumed that this small amount of traffic could potentially choose to take the alternative route proposed by the County. Removing 5% from the existing corridor would not adequately address congestion issues if the roadway reaches maximum volume capacity.

It is assumed that an east-west arterial route closer to River Road West and Mosley Street would be more extensively used because motorists could easily access the commercial and residential development areas. It is further noted that an arterial route located along the south edge of the developments on the south side of River Road West would provide a direct connection for these

developments to access an alternative east-west route. This would keep a certain amount of traffic off of River Road West completely. Therefore, it is recommended that the Town recognizes during the planning process that an alternative east-west route that is closer to the Town commercial, residential, and beach areas would attract a larger volume traffic and better alleviate congestion on existing Mosley Street and River Road West. This may include an alignment such as Alternative #1 or a new route similar to the "East West Parkway" identified on the 1967 Master Plan (see Figure 2).

It is acknowledged that approvals may be difficult to obtain for constructing any route through the MNR lands, but Alternative #1 or an east-west alignment similar to the East West Parkway from the 1967 Master Plan should be considered more closely through the appropriate EA processes. The MNR should be made aware of the proposed traffic volume monitoring program and be informed of the potential future need of a new east-west route through MNR lands.

In conclusion, the following is a summary of recommendations regarding improvements to existing east-west transportation within the Town of Wasaga Beach:

1. The Town of Wasaga Beach may not warrant the high cost of construction for a new alternative east-west route at this time. However:
2. The County of Simcoe proposes improvements to existing Nottawasaga Sideroad 27/28 and Concession 12, which will provide an alternative east-west route. The Town should maintain communications with the County throughout the improvement process and consider improvements to Vigo Road to complete Alternative #3 considered in this report.
3. Additional directional signage and improvements to existing signage should be provided within Town and outside of Town limits through consultation with the MTO, the MNR, and the County of Simcoe. Existing sign deficiencies and new sign recommendations are to be completed through a separate study.
4. Widening and improvements to existing Mosley Street and River Road West should be completed in accordance with the 2008 Public Works 10-Year Capital Works Forecast.
5. Initiate a traffic volume monitoring program and conduct traffic volume counts at Town major intersections every 5 years to identify the potential future need of an alternative route within Town. It is suggested that the most effective alternative route may be Alternative #1 or an alignment similar to the East West Parkway in Figure 4.

Respectfully submitted,

AINLEY & ASSOCIATES LIMITED

Prepared by:



Mike Pincivero, P.Eng.



Checked by:



Tom Nollert, C.E.T.

REFERENCES

1. Town of Wasaga Beach, Official Plan, as amended February 2008
2. Ministry of Transportation and Communication, Ontario, Planning Division, Feasibility Study: Internal Road System Wasaga Park - Community, February 1974
3. Town of Wasaga Beach, Transportation Study, 1999
4. Town of Wasaga Beach, Transportation Study Update, 2006
5. Town of Wasaga Beach, Development Charges Background Study, 2007
6. Town of Wasaga Beach, Public Works Department 10-Year Capital Works Forecast, 2008
7. County of Simcoe, Transportation Master Study, 2008 (on-going)
8. Ministry of Transportation, Ontario, Study Design Report Update and Detailed traffic Modelling Study for Highway 26 in the Georgian Triangle Area, (yet to commence)
9. Town of the Blue Mountains, Town of Collingwood, Township of Clearview, Georgian Triangle Transportation Paper – Phase 2 Report, January 2008
10. Ministry of Transportation, Ontario, Highway Construction Costs, Spring 2006
11. Ontario Traffic Inc., Wasaga Beach Traffic Infiltration Study, June 2008 (appended)
12. Town of Wasaga Beach, Active Transportation Plan, August 2008
13. Town of Wasaga Beach, Mosley Street / Main Street Urban Renewal: Traffic Management and Area Improvement Study, January 1995

**APPENDIX 'A':**

**POTENTIAL ALTERNATIVE EAST-WEST ROUTES  
MAP**

**APPENDIX 'B':**

**POTENTIAL ALTERNATIVE EAST-WEST ROUTES  
BENCHMARK COST CALCULATIONS**



File No. 108072  
 Town of Wasaga Beach  
 Alternative East-West Transportation Study  
 Alternative Route Benchmark Cost Estimates

Road	From	To	Length (km)	New Const.		Reconst.		New Bridge Cost***
				Length (km)	Cost*	Length (km)	Cost**	
<b>Alternative #1A</b>								
Hwy 26	Mosley St.	Ramblewood Dr.	1.0	0.0	\$0.00	0.0	\$0.00	
Ramblewood Dr.	Hwy 26	58th St.	1.4	0.0	\$0.00	0.0	\$0.00	
Ramblewood Dr.	58th St.	45th St.	1.3		\$0.00	1.3	\$1,300,000.00	****
Knox Rd.	45th St.	Sunnidale Rd.	1.6		\$0.00	1.6	\$1,177,600.00	
(New)	Sunnidale Rd.	Powerline Rd.	2.4	2.4	\$3,600,000.00		\$0.00	\$5,000,000.00
Powerline Rd.	(New)	Klondike Park Rd.	1.5		\$0.00	1.5	\$1,104,000.00	
Klondike Park Rd.	Powerline Rd.	Golf Course Rd.	3.0		\$0.00	3.0	\$2,208,000.00	
Golf Course Rd.	Klondike Park Rd.	Zoo Park Rd.	2.3		\$0.00	2.3	\$1,692,800.00	
Bells Park Rd.	Zoo Park Rd.	RRW	1.4		\$0.00	1.4	\$1,030,400.00	
RRW	Bells Park Rd.	Vigo Rd.	1.9	0.0	\$0.00	0.0	\$0.00	
		<b>TOTALS</b>	17.8	2.4	\$3,600,000.00	11.1	\$8,512,800.00	\$5,000,000.00
						<b>TOTAL COST ALTERNATIVE #1A:</b>		<b>\$17,112,800.00</b>
<b>Alternative #1B</b>								
Hwy 26	Mosley St.	Ramblewood Dr.	1.0	0.0	\$0.00	0.0	\$0.00	
Ramblewood Dr.	Hwy 26	58th St.	1.4	0.0	\$0.00	0.0	\$0.00	
Ramblewood Dr.	58th St.	45th St.	1.3		\$0.00	1.3	\$1,300,000.00	****
Knox Rd.	45th St.	Sunnidale Rd.	1.6		\$0.00	1.6	\$1,177,600.00	
(New)	Sunnidale Rd.	Powerline Rd.	2.4	2.4	\$3,600,000.00		\$0.00	\$5,000,000.00
Powerline Rd.	(New)	Klondike Park Rd.	1.5		\$0.00	1.5	\$1,104,000.00	
Klondike Park Rd.	Powerline Rd.	Golf Course Rd.	3.0		\$0.00	3.0	\$2,208,000.00	
(New)	Golf Course Rd.	Vigo Rd.	4.3	4.3	\$6,450,000.00		\$0.00	\$1,875,000.00
Vigo Rd.	(New)	Cnty Rd. 92	1.3	0.0	\$0.00	0.0	\$0.00	
		<b>TOTALS</b>	17.8	6.7	\$10,050,000.00	7.4	\$5,789,600.00	\$6,875,000.00
						<b>TOTAL COST ALTERNATIVE #1B:</b>		<b>\$22,714,600.00</b>

Road	From	To	Length (km)	New Const.		Reconst.		New Bridge Cost***	
				Length (km)	Cost*	Length (km)	Cost**		
<b>Alternative #1C</b>									
Hwy 26	Mosley St.	Ramblewood Dr.	1.0	0.0	\$0.00	0.0	\$0.00		
Ramblewood Dr.	Hwy 26	58th St.	1.4	0.0	\$0.00	0.0	\$0.00		
Ramblewood Dr.	58th St.	45th St.	1.3		\$0.00	1.3	\$1,300,000.00	****	
Knox Rd.	45th St.	Sunnidale Rd.	1.6		\$0.00	1.6	\$1,177,600.00		
(New)	Sunnidale Rd.	Powerline Rd.	2.4	2.4	\$3,600,000.00		\$0.00	\$5,000,000.00	
Powerline Rd.	(New)	Klondike Park Rd.	1.5		\$0.00	1.5	\$1,104,000.00		
Klondike Park Rd.	Powerline Rd.	(New)	1.8		\$0.00	3.0	\$2,208,000.00		
(New)	Klondike Park Rd.	Golf Course Rd.	1.6	1.6	\$2,400,000.00	4.0	\$2,944,000.00		
Golf Course Rd.	(New)	Zoo Park Rd.	1.0		\$0.00	1.0	\$736,000.00		
Bells Park Rd.	Zoo Park Rd.	RRW	1.4		\$0.00	1.4	\$1,030,400.00		
RRW	Bells Park Rd.	Vigo Rd.	1.9	0.0	\$0.00	0.0	\$0.00		
<b>TOTALS</b>			16.9	4.0	\$6,000,000.00	13.8	\$10,500,000.00	\$5,000,000.00	
			<b>TOTAL COST ALTERNATIVE #1C:</b>						<b>\$21,500,000.00</b>
<b>Alternative #2</b>									
Hwy 26	Mosley St.	Ramblewood Dr.	1.0	0.0	\$0.00	0.0	\$0.00		
Ramblewood Dr.	Hwy 26	58th St.	1.4	0.0	\$0.00	0.0	\$0.00		
Ramblewood Dr.	58th St.	45th St.	1.3		\$0.00	1.3	\$1,300,000.00	****	
Knox Rd.	45th St.	Sunnidale Rd.	1.6		\$0.00	1.6	\$1,177,600.00		
Sunnidale Rd.	Knox Rd.	(New)	1.3		\$0.00	1.3	\$956,800.00		
(New)	Sunnidale Rd.	Freethy Rd.	2.4	2.4	\$3,600,000.00		\$0.00		
Freethy Rd.	(New)	(New)	2.2		\$0.00	2.2	\$1,619,200.00		
(New)	Freethy Rd.	Ryther Rd.	2.5	2.5	\$3,750,000.00	3.1	\$0.00	\$5,000,000.00	
Fios Rd. 6	Ryther Rd.	Vigo Rd.	3.1		\$0.00	3.1	\$2,281,600.00		
Vigo Rd.	Fios Rd. 6	Cnty Rd. 92	4.2		\$0.00	4.2	\$3,091,200.00		
<b>TOTALS</b>			21.0	4.9	\$7,350,000.00	13.7	\$10,426,400.00	\$5,000,000.00	
			<b>TOTAL COST ALTERNATIVE #2:</b>						<b>\$22,776,400.00</b>

Road	From	To	Length (km)	New Const.		Reconst.		New Bridge Cost***
				Length (km)	Cost*	Length (km)	Cost**	
<b>Alternative #3</b>								
Hwy 26	Mosley St.	27/28 Sideroad	3.7	0.0	\$0.00	0.0	\$0.00	
27/28 Sideroad (New)	Hwy 26 Cnty. Rd. 7	Cnty. Rd. 7 Concession 12	2.6	0.8	\$0.00	2.6	\$1,913,600.00	
Concession 12	(New)	15/16 Sideroad	10.0		\$1,200,000.00	10.0	\$0.00	
Fios Rd. 4	15/16 Sideroad	Vigo Rd.	4.3		\$0.00	4.3	\$7,360,000.00	
Vigo Rd.	Fios Rd. 4	Cnty Rd. 92	6.7		\$0.00	6.7	\$3,164,800.00	\$1,875,000.00
<b>TOTALS</b>			28.1	0.8	\$1,200,000.00	23.6	\$17,369,600.00	\$1,875,000.00
						<b>TOTAL COST ALTERNATIVE #3:</b>		<b>\$20,444,600.00</b>

\* - New construction cost per km per 2 lanes for rural section - MTO Hwy Const. Costs document, Spring 2006 Eastern & Northeastern Regions avg. = \$1,500,000.00

\*\* - Reconstruction cost for rural section per km per lane - MTO Hwy Const. Costs document, Spring 2006 Central Region avg. = \$368,000.00

\*\*\* - New bridge ballpark cost for 15m x 100m deck; cost per MTO Spring 2006 = 1500 x \$1,250 = \$1,875,000.00

\*\*\*\* - New bridges over Nottawasaga River, assume high bid for Powers Bridge const. = \$5,000,000.00

\*\*\*\*\* - Reconstruction cost for upgrading from rural to urban section, per km per lane - MTO Hwy Const. document, Spring 2006 Central Region high cost (urban) = \$500,000.00

**APPENDIX 'C':**

**TRAFFIC INFILTRATION STUDY,  
ONTARIO TRAFFIC INC.**

# ONTARIO TRAFFIC, INC.

## TRAFFIC MONITORING SERVICES

- ❖ **Project Name:** Wasaga Beach Traffic Infiltration Study
- ❖ **Performed For:** Ainley Group
- ❖ **Date Performed:** June 2008

Ontario Traffic, Inc.  
17705 Leslie Street, Unit 6  
Newmarket, Ontario, Canada  
L3Y 3E3

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## **PURPOSE:**

A Traffic Infiltration Study was conducted at 2 survey stations in the Town of Wasaga Beach. This was to determine infiltration and layover trips.

## **STUDY METHODOLOGY:**

The data was collected by capturing vehicle license plates at two (2) survey stations. The first station was located at Mosley Street just east of Highway 26. The second station was located at River Road west of Belles Park Road.

At each station there was a crew of four (4) surveyors where two (2) surveyors were responsible for recording the EB traffic and the other two (2) surveyors were responsible for capturing the WB traffic. The data was collected with the use of laptop computers.

The survey hours were 06:00-18:00 (continuous). Each vehicle was parked on the shoulder and was setup with orange cones and revolving lights (conformance to MTO Book 7 guidelines).

## **SUMMARY OF STUDY RESULTS:**

The results indicate that for both the eastbound and westbound directions the trip purpose is roughly equally divided between trips that are strictly cut-thru and trips whereby drivers stop in town. Study results are presented in the following pages.

# WASAGA BEACH OD STUDY LOCATIONS :

1. MOSLEY ST., EAST OF HWY 26
2. RIVER RD. W, WEST OF BELLS PARK RD

**1 to 2**

Cars **8.22%** Trucks **11.69%**  
Total **8.50%**

**2 to 1**

Cars **16.65%** Trucks **15.75%**  
Total **16.54%**



Performed by Ontario Traffic Inc.  
on June 11, 2008

# 1-2 EB Car Summary

CARS	Totals		Travel Time Period					Totals		% match of Location 1	
	Location 1	0-15 (min)	15-30 (min)			30-45 (min)		45-60 (min)	>60 (min)		Location 2
			0	1	2	3	4				
6:00	6:15	12	0	0	0	0	0	1	9	8.33%	
6:15	6:30	13	0	0	0	1	0	0	17	7.69%	
6:30	6:45	17	0	0	0	0	1	0	22	5.88%	
6:45	7:00	36	3	1	0	0	0	1	25	13.89%	
7:00	7:15	41	2	1	0	0	0	0	43	7.32%	
7:15	7:30	29	2	0	0	0	0	1	32	10.34%	
7:30	7:45	48	2	3	0	0	0	3	34	16.67%	
7:45	8:00	29	2	2	0	0	0	1	38	17.24%	
8:00	8:15	50	4	3	1	1	1	0	48	18.00%	
8:15	8:30	63	2	1	0	0	0	2	49	7.94%	
8:30	8:45	66	0	2	0	0	0	3	38	7.58%	
8:45	9:00	56	0	0	0	1	0	4	38	8.93%	
9:00	9:15	72	1	3	0	0	0	3	34	9.72%	
9:15	9:30	53	0	1	0	0	0	5	35	11.32%	
9:30	9:45	58	3	1	0	0	0	3	55	12.07%	
9:45	10:00	69	2	0	0	0	1	3	36	8.70%	
10:00	10:15	67	1	1	1	1	0	3	34	8.96%	
10:15	10:30	63	2	3	0	0	2	1	35	12.70%	
10:30	10:45	66	2	2	1	0	0	2	34	10.61%	
10:45	11:00	59	1	3	0	0	0	2	37	10.17%	
11:00	11:15	66	1	1	0	0	0	3	53	16.67%	
11:15	11:30	71	1	2	1	0	0	4	34	11.27%	
11:30	11:45	58	0	0	2	1	0	2	35	6.90%	
11:45	12:00	58	2	2	1	0	0	0	21	8.62%	
12:00	12:15	97	5	5	2	2	1	1	48	14.43%	
12:15	12:30	86	2	2	0	0	0	2	49	6.98%	
12:30	12:45	73	0	0	1	0	0	1	42	4.11%	
12:45	13:00	66	0	2	0	0	0	1	35	4.55%	
13:00	13:15	89	3	1	1	0	0	4	41	10.11%	
13:15	13:30	70	3	2	0	0	0	1	44	8.57%	
13:30	13:45	61	0	1	0	0	0	4	38	8.20%	
13:45	14:00	76	3	2	0	0	0	4	44	11.84%	
14:00	14:15	86	3	1	1	1	0	1	46	6.98%	
14:15	14:30	82	3	2	1	0	0	4	39	12.20%	
14:30	14:45	64	0	7	0	0	1	5	41	20.31%	
14:45	15:00	93	3	4	2	0	0	4	56	13.98%	
15:00	15:15	77	1	4	0	0	0	2	35	9.09%	
15:15	15:30	100	3	2	0	0	0	2	36	7.00%	
15:30	15:45	105	0	2	2	0	0	3	33	6.67%	
15:45	16:00	113	0	5	0	0	0	2	24	6.19%	
16:00	16:15	127	2	3	0	0	0	3	55	6.30%	
16:15	16:30	109	0	0	0	0	0	1	42	0.92%	
16:30	16:45	114	2	3	0	0	0	0	46	4.39%	
16:45	17:00	98	2	1	1	0	0	0	48	4.08%	
17:00	17:15	123	2	2	0	0	0	0	46	3.25%	
17:15	17:30	137	0	4	0	0	0	0	35	2.92%	
17:30	17:45	141	3	0	0	0	0	0	50	2.13%	
17:45	18:00	108	2	1	0	0	0	0	30	2.78%	
Totals		3515	76	88	20	7	98	1839	Totals		
%%%			2.16%	2.50%	0.57%	0.20%	2.79%		%%%		
Total Matching			8.22%					Total Matching			



# 1-2 EB Truck Summary

TRUCKS	Totals		Travel Time Period						Totals		% match of Location 1
	Location 1	Location 2	0-15 (min)	15-30 (min)	30-45 (min)	45-60 (min)	>60 (min)	Location 2	Location 1		
6:00	6:15	0	0	0	0	0	0	0	1	0.00%	
6:15	6:30	2	0	0	0	0	0	0	1	0.00%	
6:30	6:45	1	0	0	0	0	0	0	3	0.00%	
6:45	7:00	2	0	0	0	0	0	0	4	0.00%	
7:00	7:15	4	0	0	0	0	0	0	7	0.00%	
7:15	7:30	3	0	0	0	0	0	0	2	0.00%	
7:30	7:45	6	0	0	0	0	0	2	2	33.33%	
7:45	8:00	4	1	0	0	0	0	0	4	25.00%	
8:00	8:15	7	1	0	0	0	0	0	5	14.29%	
8:15	8:30	5	0	0	0	0	0	1	3	20.00%	
8:30	8:45	9	0	0	0	0	0	0	4	0.00%	
8:45	9:00	5	1	1	0	0	0	0	1	40.00%	
9:00	9:15	2	0	0	0	0	0	0	6	0.00%	
9:15	9:30	7	0	0	0	0	0	0	3	0.00%	
9:30	9:45	4	0	0	0	0	0	0	5	0.00%	
9:45	10:00	3	0	1	1	0	1	0	1	66.67%	
10:00	10:15	6	0	0	0	0	0	0	4	0.00%	
10:15	10:30	1	0	0	0	0	0	0	2	0.00%	
10:30	10:45	3	0	0	0	0	0	0	0	0.00%	
10:45	11:00	2	1	0	0	0	0	1	3	100.00%	
11:00	11:15	4	0	0	0	0	0	0	2	0.00%	
11:15	11:30	6	0	0	0	0	0	0	2	0.00%	
11:30	11:45	8	0	1	1	0	0	1	4	25.00%	
11:45	12:00	5	0	0	0	0	0	0	5	0.00%	
12:00	12:15	9	0	0	1	1	1	1	3	33.33%	
12:15	12:30	12	0	0	0	0	0	1	6	8.33%	
12:30	12:45	6	0	1	1	0	0	0	2	16.67%	
12:45	13:00	9	0	0	0	0	0	0	4	0.00%	
13:00	13:15	7	0	0	0	0	0	0	5	0.00%	
13:15	13:30	10	1	0	0	0	0	0	7	10.00%	
13:30	13:45	4	0	1	0	0	0	1	6	50.00%	
13:45	14:00	13	1	1	0	0	0	0	3	15.38%	
14:00	14:15	7	0	0	0	0	0	0	2	0.00%	
14:15	14:30	5	0	0	0	2	1	0	2	60.00%	
14:30	14:45	7	0	0	0	0	0	0	4	0.00%	
14:45	15:00	9	0	2	0	0	0	0	2	22.22%	
15:00	15:15	12	1	0	0	0	0	0	6	8.33%	
15:15	15:30	7	0	0	0	0	0	1	3	14.29%	
15:30	15:45	6	0	1	0	0	0	0	1	16.67%	
15:45	16:00	5	0	0	0	0	0	0	4	0.00%	
16:00	16:15	15	0	0	0	0	0	0	5	0.00%	
16:15	16:30	9	1	0	0	0	0	0	2	11.11%	
16:30	16:45	11	0	0	0	0	0	0	3	0.00%	
16:45	17:00	8	0	0	0	0	0	0	5	0.00%	
17:00	17:15	3	0	1	0	0	0	1	1	66.67%	
17:15	17:30	14	0	0	0	0	0	0	2	0.00%	
17:30	17:45	9	1	0	0	0	0	0	5	11.11%	
17:45	18:00	12	0	1	1	0	0	0	1	8.33%	
Totals:		308	9	11	3	3	10	158			
%%%			2.92%	3.57%	0.97%	0.97%	3.25%				
Total Matching			11.69%						Total Matching		

# 1-2 EB Total Summary

TOTAL	Totals		Travel Time Period					Totals		% match of Location 1
	Location 1	0-15 (min)	15-30 (min)	30-45 (min)	45-60 (min)	>60 (min)	Location 2			
6:00	6:15	12	0	0	0	0	1	10	8.33%	
6:15	6:30	15	0	0	0	0	0	18	6.67%	
6:30	6:45	18	0	0	0	0	0	25	5.56%	
6:45	7:00	38	3	1	0	0	1	29	13.16%	
7:00	7:15	45	2	1	0	0	0	50	6.67%	
7:15	7:30	32	2	0	0	0	1	34	9.38%	
7:30	7:45	54	2	3	0	0	5	36	18.52%	
7:45	8:00	33	3	2	0	0	1	42	18.18%	
8:00	8:15	57	5	3	1	1	0	53	17.54%	
8:15	8:30	68	2	1	0	0	3	52	8.82%	
8:30	8:45	75	0	2	0	0	3	42	6.67%	
8:45	9:00	61	1	1	1	0	4	39	11.48%	
9:00	9:15	74	1	3	0	0	3	40	9.46%	
9:15	9:30	60	0	1	0	0	5	38	10.00%	
9:30	9:45	62	3	1	0	0	3	60	11.29%	
9:45	10:00	72	2	1	0	2	3	37	11.11%	
10:00	10:15	73	1	1	1	0	3	38	8.22%	
10:15	10:30	64	2	3	0	2	1	37	12.50%	
10:30	10:45	69	2	2	1	0	2	34	10.14%	
10:45	11:00	61	2	3	0	0	3	40	13.11%	
11:00	11:15	70	1	1	0	0	9	55	15.71%	
11:15	11:30	77	1	2	1	0	4	36	10.39%	
11:30	11:45	66	0	1	2	0	3	39	9.09%	
11:45	12:00	63	2	2	1	0	0	26	7.94%	
12:00	12:15	106	5	5	3	2	2	51	16.04%	
12:15	12:30	98	2	2	0	0	3	55	7.14%	
12:30	12:45	79	1	1	1	0	1	44	5.06%	
12:45	13:00	75	0	2	0	0	1	39	4.00%	
13:00	13:15	96	3	1	1	0	4	46	9.38%	
13:15	13:30	80	4	2	0	0	1	51	8.75%	
13:30	13:45	65	0	2	0	0	5	44	10.77%	
13:45	14:00	89	4	3	0	0	4	47	12.36%	
14:00	14:15	93	3	1	1	0	1	48	6.45%	
14:15	14:30	87	3	2	3	1	4	41	14.94%	
14:30	14:45	71	0	7	0	1	5	45	18.31%	
14:45	15:00	102	3	6	2	0	4	58	14.71%	
15:00	15:15	89	2	4	0	0	2	41	8.99%	
15:15	15:30	107	3	2	0	0	3	39	7.48%	
15:30	15:45	111	0	3	2	0	3	34	7.21%	
15:45	16:00	118	0	5	0	0	2	28	5.93%	
16:00	16:15	142	2	3	0	0	3	60	5.63%	
16:15	16:30	118	1	0	0	0	1	44	1.69%	
16:30	16:45	125	2	3	0	0	0	49	4.00%	
16:45	17:00	106	2	1	1	0	0	53	3.77%	
17:00	17:15	126	2	3	0	0	1	47	4.76%	
17:15	17:30	151	0	4	0	0	0	37	2.65%	
17:30	17:45	150	4	0	0	0	0	55	2.67%	
17:45	18:00	120	2	2	0	0	0	31	3.33%	
Totals:		3823	85	99	23	10	108	1997	Totals	
%%			2.22%	2.59%	0.60%	0.26%	2.83%		%%	
Total Matching			8.50%					Total Matching		

# 2-1 WB Car Summary

CARS	Totals		Travel Time Period					Totals		% match of Location 1
	Location 1	0-15 (min)	15-30 (min)	30-45 (min)	45-60 (min)	>60 (min)	Location 2			
	5	0	0	0	0	1	11			
6:00	6:15	5	0	0	0	0	0	1	20.00%	
6:15	6:30	11	1	2	0	0	0	41	27.27%	
6:30	6:45	14	3	0	1	0	0	63	28.57%	
6:45	7:00	27	2	1	0	0	1	45	14.81%	
7:00	7:15	15	0	2	2	0	2	50	40.00%	
7:15	7:30	31	4	2	0	0	3	63	19.35%	
7:30	7:45	38	5	0	0	0	3	79	21.05%	
7:45	8:00	37	3	2	0	0	5	78	27.03%	
8:00	8:15	25	1	0	0	0	0	82	4.00%	
8:15	8:30	25	3	3	0	0	0	106	24.00%	
8:30	8:45	29	3	1	0	0	2	76	20.69%	
8:45	9:00	45	4	1	0	0	5	71	22.22%	
9:00	9:15	36	3	1	0	0	1	58	13.89%	
9:15	9:30	26	2	2	0	0	2	81	23.08%	
9:30	9:45	28	3	0	0	0	1	95	14.29%	
9:45	10:00	40	2	0	1	0	3	61	15.00%	
10:00	10:15	37	1	0	2	0	3	51	16.22%	
10:15	10:30	34	5	0	1	0	1	56	20.59%	
10:30	10:45	36	2	0	0	1	2	65	13.89%	
10:45	11:00	40	0	1	1	0	4	60	15.00%	
11:00	11:15	33	3	0	1	1	3	49	24.24%	
11:15	11:30	50	4	2	2	1	3	70	24.00%	
11:30	11:45	26	1	3	0	0	1	59	19.23%	
11:45	12:00	30	6	1	1	0	3	76	36.67%	
12:00	12:15	35	2	0	0	0	3	54	14.29%	
12:15	12:30	28	2	1	0	1	1	83	17.86%	
12:30	12:45	46	2	1	1	0	5	57	19.57%	
12:45	13:00	47	2	2	0	0	2	69	12.77%	
13:00	13:15	45	2	1	0	0	1	66	8.89%	
13:15	13:30	41	2	1	1	1	1	56	14.63%	
13:30	13:45	46	2	0	1	0	3	66	13.04%	
13:45	14:00	54	2	2	2	1	2	48	16.67%	
14:00	14:15	44	5	1	0	0	1	67	15.91%	
14:15	14:30	55	4	1	0	0	1	68	10.91%	
14:30	14:45	34	4	1	0	1	0	73	17.65%	
14:45	15:00	34	6	2	0	1	1	78	29.41%	
15:00	15:15	36	1	2	0	1	1	53	13.89%	
15:15	15:30	38	0	1	0	1	0	61	5.26%	
15:30	15:45	62	2	2	0	0	2	46	9.68%	
15:45	16:00	47	4	1	0	0	1	92	12.77%	
16:00	16:15	55	4	3	1	0	3	67	20.00%	
16:15	16:30	43	3	1	0	0	1	66	11.63%	
16:30	16:45	46	1	2	1	2	2	54	17.39%	
16:45	17:00	50	5	0	2	1	1	53	18.00%	
17:00	17:15	52	2	0	2	0	0	62	7.69%	
17:15	17:30	45	5	1	1	0	0	65	15.56%	
17:30	17:45	43	4	0	1	1	0	79	11.63%	
17:45	18:00	46	4	1	0	0	0	56	10.87%	
Totals		1790	131	51	25	13	78	3085	Totals	
%%			7.32%	2.85%	1.40%	0.73%	4.36%		%%	
Total Matching			16.65%					Total Matching		



# 2-1 WB Total Summary

TOTAL	Totals		Travel Time Period					Totals		% match of Location 1
	Location 1	0-15 (min)	15-30 (min)	30-45 (min)	45-60 (min)	>60 (min)	Location 2			
							Location 2	%		
6:00	5	0	0	0	0	1	11	20.00%		
6:15	12	1	2	0	0	0	44	25.00%		
6:30	14	3	0	0	0	0	68	28.57%		
6:45	30	2	1	0	0	1	47	13.33%		
7:00	16	0	2	2	0	3	56	43.75%		
7:15	33	4	2	0	0	0	67	18.18%		
7:30	43	5	0	0	0	3	83	18.60%		
7:45	39	3	2	0	0	5	84	25.64%		
8:00	29	1	0	0	0	0	91	3.45%		
8:15	26	3	3	0	0	1	113	26.92%		
8:30	34	3	1	0	0	2	86	17.65%		
8:45	47	4	2	0	0	6	76	25.53%		
9:00	39	4	1	1	0	1	65	17.95%		
9:15	31	2	2	0	0	2	89	19.35%		
9:30	29	3	0	0	0	1	99	13.79%		
9:45	45	2	0	1	0	3	67	13.33%		
10:00	44	1	0	2	0	3	54	13.64%		
10:15	37	5	0	2	0	1	62	21.62%		
10:30	41	2	0	0	1	5	69	19.51%		
10:45	43	1	1	1	0	4	69	16.28%		
11:00	40	3	0	1	1	3	55	20.00%		
11:15	54	4	2	2	2	3	77	24.07%		
11:30	29	1	5	0	0	1	71	24.14%		
11:45	36	6	1	1	0	3	81	30.56%		
12:00	42	2	0	0	0	3	63	11.90%		
12:15	39	2	1	0	1	3	90	17.95%		
12:30	50	2	1	1	0	5	70	18.00%		
12:45	53	2	2	0	0	2	79	11.32%		
13:00	47	2	1	0	0	2	71	10.64%		
13:15	50	3	1	1	1	1	63	14.00%		
13:30	57	2	2	1	0	3	75	14.04%		
13:45	59	2	2	3	1	2	60	16.95%		
14:00	51	5	2	0	1	1	73	17.65%		
14:15	59	4	1	0	1	1	77	11.86%		
14:30	44	4	1	0	1	0	85	13.64%		
14:45	39	6	4	0	1	1	86	30.77%		
15:00	45	1	2	0	1	1	60	11.11%		
15:15	50	1	3	0	1	0	67	10.00%		
15:30	72	2	3	0	0	2	55	9.72%		
15:45	55	4	1	0	0	1	97	10.91%		
16:00	62	5	3	1	0	3	76	19.35%		
16:15	49	3	1	0	0	1	73	10.20%		
16:30	55	1	2	1	2	2	69	14.55%		
16:45	57	5	0	2	2	3	64	21.05%		
17:00	58	2	0	3	0	0	71	8.62%		
17:15	55	7	2	1	1	0	79	20.00%		
17:30	50	4	0	1	0	0	82	10.00%		
17:45	50	4	2	0	0	0	65	12.00%		
Totals	2044	138	64	29	18	89	3434	Totals		
%%		6.75%	3.13%	1.42%	0.88%	4.35%		%%		
Total Matching		16.54%					Total Matching			