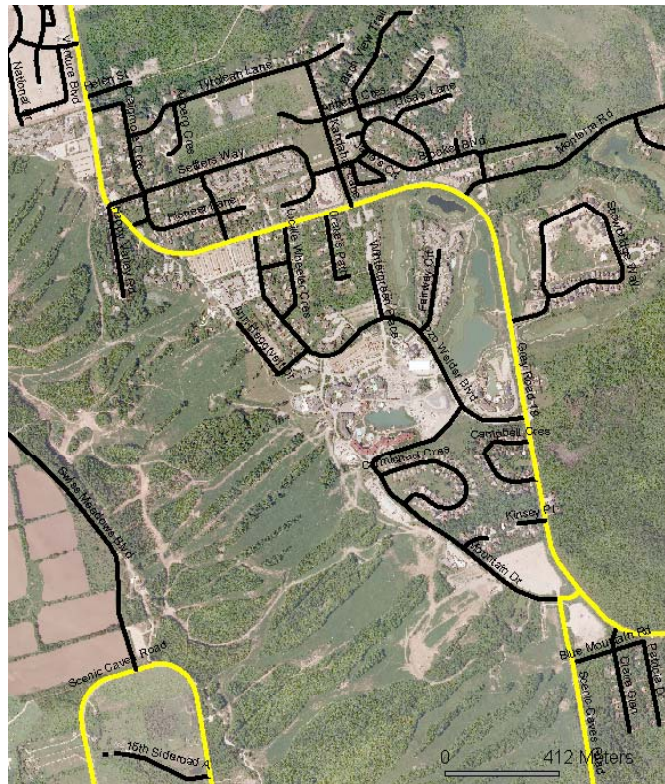




Highway 26 Transportation Study – Winter Survey Study Design



**Prepared for:
AECOM**

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1.0 INTRODUCTION

1.1 Overview

Highway 26 between Thornbury and Stayner (41 km) is an economic corridor and is of major significance to the tourism and recreational components of Ontario's economy. The Ministry of Transportation aims to provide a safe and efficient transportation facility linking the cities and towns in the south and southwest to commercial and recreational destinations along the southern shores of Georgian Bay.

The Georgian Triangle Transportation Study (GTATS), 2001 and the Simcoe Area Transportation Network Needs Assessment (SATNNA), 2002 based on population and tourism growth, identified the need for additional capacity along Highway 26 from east of Stayner to west of Thornbury by 2012.

GTATS proposed to widen Highway 26 to four lanes from Stayner to Thornbury and to widen the existing two and four lane cross-section in Collingwood to six lanes or the construction of a bypass.

SATNNA confirmed the findings of GTATS and recommended a high quality highway link for the Highway 26 corridor.

The Ministry of Transportation Ontario (MTO) Draft Study Design Report (August 2004) confirmed these needs and recommended a narrow study area for future environmental assessment (EA).

The MTO has traditionally used data from origin-destination (OD) surveys to provide critical information on passenger vehicle characteristics in support of long-range transportation planning across the province.

The Highway 26 Transportation Study from the Town of the Blue Mountains easterly to Stayner includes a Travel Pattern Survey. The Travel Pattern Survey will be in the form of an OD survey in winter 2009 utilizing direct patron interviews at ski resorts and in summer 2009 utilizing roadside interviews to examine the current and future traffic demands of Highway 26 and primary municipal roadways. The Travel Pattern Survey is a co-operative effort between the MTO Central Region (project lead), the MTO Provincial, Environmental Planning Office, resort operators and local municipalities.

1.2 Study Purpose

The purpose of this study is to survey 1,000-1,500 daily visitors to Blue Mountain resort and the Craigeleith Ski Club from about 8:30 am to 8:30 pm to obtain trip-making characteristics to calibrate the transit/transportation model. Data will be collected regarding the trip purpose, origin, destination, routing, mode of transportation, ski payment type, if they are staying overnight and trip frequency.

The survey will also include collection of control total data in the form of number of vehicles parked in the onsite parking lots at the two resorts and traffic count data at the Blue Mountain resort and parking lot entrances. In order to obtain control totals, onsite parking accumulation data, number of employees and daily lift ticket sales will be collected from Blue Mountain resort and compared to collected data. To further support the survey findings, two samplings of parked vehicle license plates will be conducted at the two surveyed resorts and three other private resorts in the area.



2.0 SURVEY METHODOLOGY AND CONDUCT

2.1 Survey Methods

Various methods of undertaking the survey were considered including:

- ▶ *Mail back survey:* This method survey would involve distributing survey forms/cards to all vehicles parked in the onsite lots at the resort over the course of the day(s). The packet would include a letter outlining the survey purpose, instructions on survey completion, the survey form and a postage paid mail back envelope. For surveys of this type, response rates are generally low ranging from 10%-25% of the total surveys distributed and the quality and accuracy of the data collected is not as good as with direct interview surveys.
- ▶ *Direct interview survey:* This method would require placing interview staff in strategic locations at the resorts and approaching patrons to complete the survey. The interviewers would ask the questions and complete the form for the patron thereby ensuring that the correct information is obtained. If the patron desired, the form can be left with them and returned later. Surveys of this type have a higher response rate and data quality.
- ▶ *License plate trace:* This method would require teams of two people driving through the resort parking lots at set intervals to record the license plate information for all parked vehicles. The data would then be turned over to MTO who would then search the home location of the registered vehicle owner. This type of survey is easy to conduct. However, this method only provides the location of home address and detailed routing and intermediate trips would not be available.

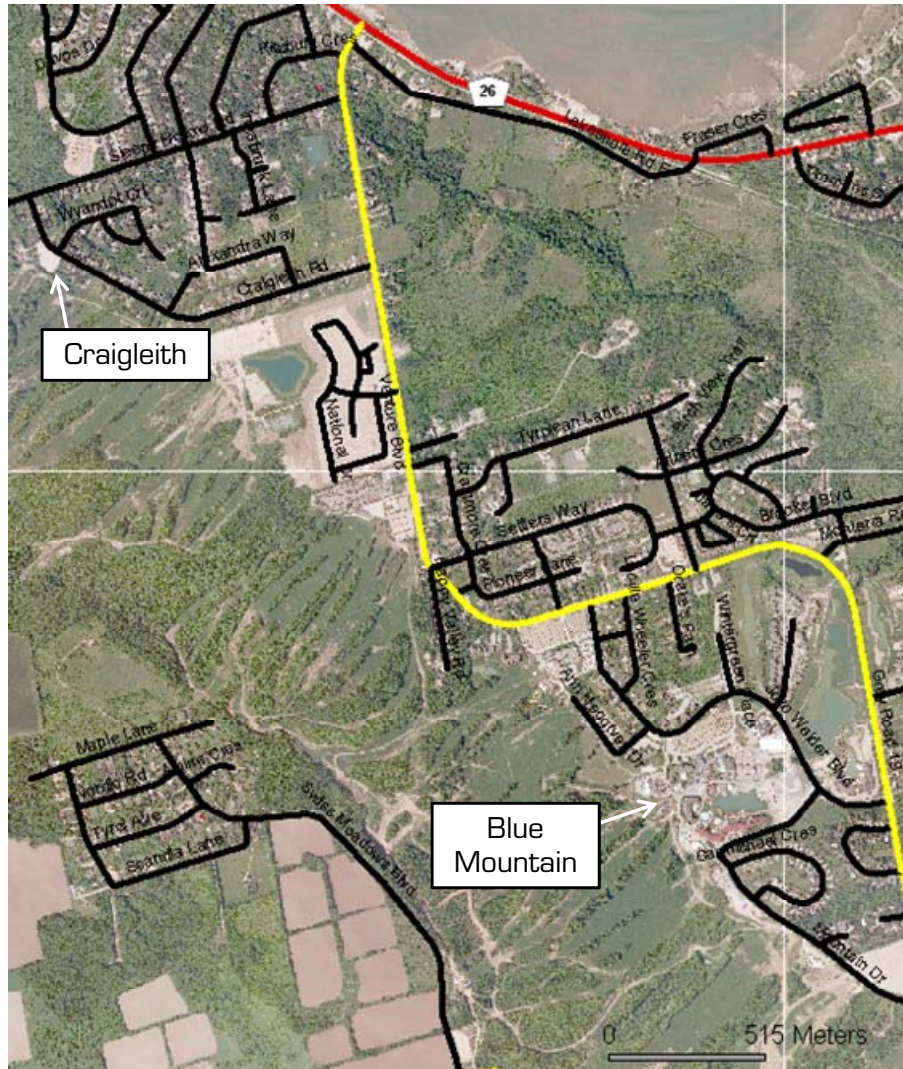
For this survey, a combination of direct interview and license plate trace methods will be used as it will provide higher sampling rates, more detailed routing, arrival and departure times, frequency data, supporting home location, day versus season permit data and more accurate information. Collection of the license plate data will further support the long-distance travel patterns by providing a general ultimate origin and destination location.

2.2 Survey Locations and Sample Size

Blue Mountain resort and Craighleith Ski Club are the two locations selected for surveying due to their size and location. Blue Mountain resort is the largest public resort in the Blue Mountains area. At present, Blue Mountain resort has about 3,000 to 4,000 season ski passes that are valid during the daytime period and about 48,000 passes valid for evening skiing. On an average Saturday, Blue Mountain resort estimates its attendance at approximately 18,000 visits, with an additional 12,000 on Sunday. Of the Saturday visits, about 8,000 occur during the day session (1,000 pass holders and 7,000 daily ticket holders) with the rest occurring during the evening (post-4:30 pm) period. It is estimated that approximately 10 to 15% of the visits are made by patrons staying overnight in the area.

Craighleith Ski Club has the largest membership of the private resorts in the area. At present, there are about 3,000 badge holders (members) with typical daily weekend attendance of 1,500 to 2,000 members. In addition to members, day passes are provided to guests; however this number is not readily available. The clientele at Craighleith typically arrive in the Blue Mountain area on Friday and depart on Sunday. Night skiing typically isn't available; however a few runs may occasionally operate depending on conditions.

The survey resort locations are shown in **Figure 2.1** below.



Highway 26 Transportation Study
Winter Survey Study Design

Figure 2.1



Survey Locations



2.3 Survey Schedule

The goal of the survey is to collect approximately 1,000 to 1,500 surveys over the course of the weekend. In order to do so, a team of ten interviewers and one supervisor will be mobilized at the two resort areas. This survey will capture trip making characteristics on a typical ski day at the resorts before the March slow-down and will be conducted from Friday, February 27, 2009 through Sunday, March 1, 2009. The schedule has been designed to provide all-day work of up to 12 hours in length. To conform to Ontario Ministry of Labour requirements, after a maximum of five hours, at least 30 minutes of break time will be provided either all at once or over two 15 minute periods. Recognizing the weather dependent nature of the survey, Saturday, March 7 and Sunday March 8, 2008 have been set aside as make-up days if required.

During the course of the survey, a supervisor will be available to assist with any issues that arise, answer any questions, provide additional supplies and to retrieve collected surveys. Any changes to the schedule will be at the discretion of the supervisor. The supervisor will also be responsible for determining if and when to stop work due to unforeseen circumstances (inclement weather, etc) and will re-schedule the missed work.

2.4 Design of the Interview Form

The sample interview form is shown in **Figure 2.2** below. This form is designed to collect the following information:

- ▶ If the patron is skiing that day;
- ▶ How the patron paid to ski;
- ▶ Mode of travel to Blue Mountain;
- ▶ Trip origin;
- ▶ Routing to resort from origin;
- ▶ Trip destination;
- ▶ Arrival and departure dates;
- ▶ How often they visit the ski area on the weekend;
- ▶ How often they ski on the weekend;
- ▶ Where the respondent is staying (if staying overnight); and
- ▶ If they know what municipality they are currently in.

The last question was requested by the Town of Blue Mountain.



Highway 26 Travel Pattern Survey

1. Are you skiing / boarding today?
 Yes No

2. How did you pay for skiing / boarding today?
 Private Club Member Super Pass
 Daily Lift Ticket 5 x 7 Pass

3. How did you get to the ski area today?
 Car driver Dropped off Other (Specify Below)
 Car passenger Bus passenger

If you drive, how many people were in the vehicle (including yourself)?

4. You came to the ski area from:
 Home Owned Cottage/Condo Hotel/Motel
 Work Rental Cottage/Condo Other
 Shopping Friend's Cottage/Condo

5. Which is that located at:
 (City/Town) _____ (State/Province) _____
 Closest Intersection (Street Name) _____ & _____ (Street Name) _____
 Or Closest Address _____ (ABC Supermarket on Elm St, etc)

6. Were you anywhere before that?
 Home Owned Cottage/Condo Hotel/Motel
 Work Rental Cottage/Condo Other
 Shopping Friend's Cottage/Condo

7. Where is that located?
 (City/Town) _____ (State/Province) _____
 Closest Intersection (Street Name) _____ & _____ (Street Name) _____
 Or Closest Address _____ (ABC Supermarket on Elm St, etc)

8. When did you first arrive in the Blue Mountain area?
 _____ (Day/Date)

9. When you first arrived, what main road did you take to get to the Blue Mountain area?
 a. _____
 b. _____
 c. _____
 d. _____
 e. _____

10. When are you departing the Blue Mountain area?
 _____ (Day/Date)

11. Are you staying overnight? Yes No

12. When you leave today, where are you going?
 Home Owned Cottage/Condo Hotel/Motel
 Work Rental Cottage/Condo Other
 Shopping Friend's Cottage/Condo

13. Where is that located?
 (City/Town) _____ (State/Province) _____
 Closest Intersection (Street Name) _____ & _____ (Street Name) _____
 Or Closest Address _____ (ABC Supermarket on Elm St, etc)

14. Are you going anywhere after that?
 Home Owned Cottage/Condo Hotel/Motel
 Work Rental Cottage/Condo Other
 Shopping Friend's Cottage/Condo

15. Where is that located?
 (City/Town) _____ (State/Province) _____
 Closest Intersection (Street Name) _____ & _____ (Street Name) _____
 Or Closest Address _____ (ABC Supermarket on Elm St, etc)

16. How often do come to this ski area on the weekend?
 Weekly Every other month Other (Specify below)
 Monthly Once per year

17. If you're a Super Pass holder, how often do you ski at this ski area on the weekend?
 Every Saturday 3-5 times / month Once / month
 Every Sunday 1-2 times / month Other

18. Where is your primary residence located?
 (City/Town) _____ (State/Province) _____
 Closest Intersection (Street Name) _____ & _____ (Street Name) _____
 Or Closest Address _____ (ABC Supermarket on Elm St, etc)

19. Which municipality are you in now?
 Collingwood Clearview
 The Blue Mountains Other _____

Date				Time		Surveyor	Survey Type	Location		
Month	Day	Hour	Minute	Hour	Minute			1. South Base Lodge	2. Grand Central Lodge	3. Other

Highway 26 Transportation Study Winter Survey Study Design

Figure 2.2



Survey Form



2.5 Sampling Procedure

In order to achieve a sampling of approximately 1,000 to 1,500 patrons, the surveyors will be provided with the minimum number of samples required per day. The surveyors will be directed to interview as many patrons as possible over the course of each hour, with a minimum of 10 interviews/hour required per surveyor. Surveyors will also be instructed to allow patrons to fill out their own survey (if requested) and return it to them later. To ensure the surveys can be easily retrieved for review if necessary, they will be sequentially numbered with their distribution location noted on them.

A set of 3,000 surveys will be printed for distribution to surveyors. In addition, a letter providing information on the survey will be handed out with the project web site address if additional information is requested. As the survey progresses, Paradigm staff will monitor the number of surveys conducted and distributed each day to determine if the sampling rate requires adjustment.

2.6 Survey Conduct

In general, the survey will be conducted by approaching individuals and asking if they would consent to the survey. Interviewers will be instructed to allow the patron to fill out the survey form themselves or to allow the patron to take a survey form to fill out and return to Paradigm staff by the end of the survey on Sunday.

The survey will be conducted by placing staff in the two lodges at Blue Mountain (South Base Lodge and Grand Central Lodge) and at the lodge at Craigeith Ski Club. The surveys will be conducted over different time periods and with different staffing levels to accommodate the peak periods at each resort. Generally, the survey hours will be 5:00 pm to 7:00 pm on Friday, February 27; 8:30 am to 8:30 pm on Saturday, February 28; and 9:00 am to 6:00 pm on Sunday, March 1, 2009. Interviews will be conducted with as many people as possible recognizing that to achieve a final useable sample, more surveys will have to be completed to account for invalid responses. The surveyors will be responsible for keeping track of the number of surveys completed so that an average sample rate can be calculated. It is expected that to net about 1,000 to 1,500 completed surveys, a minimum of 10 per hour per surveyor will be required.

Each surveyor will be equipped with a sufficient number of surveys, clipboards, writing instruments and Ontario road maps to be given out as incentives for those that complete the surveys. In addition to having the surveyors mingle amongst patrons, a table will be setup in each lodge so that a common form drop is available as well as a place to store survey materials and completed forms during survey hours. All surveyors will be provided with a badge for identification, a letter from the MTO outlining the purpose and validity of the survey and to provide contact information if they have any questions.

Prior to finalizing the survey, each surveyor will ensure the date, time, survey type, location and their initials are properly filled out to assist with final database assembly.

2.7 Control Total Counts

Concurrent to the survey, control total counts will be conducted onsite, with supplementary data provided by the resorts as follows:

- ▶ At two times on Saturday, parking lot occupancy counts will be conducted to collect the total number of vehicles parked onsite at the two surveyed resorts;
- ▶ On Sunday, license plate data will be collected for 50% of the parked vehicles at the two surveyed resorts as well as three other private resorts (Georgian Peaks, Osler Bluffs and Alpine) as shown in **Figure 2.3** below. While the license plate data is collected and directly entered into a Microsoft



Excel file on Sunday, the total number of parked vehicles will also be recorded;

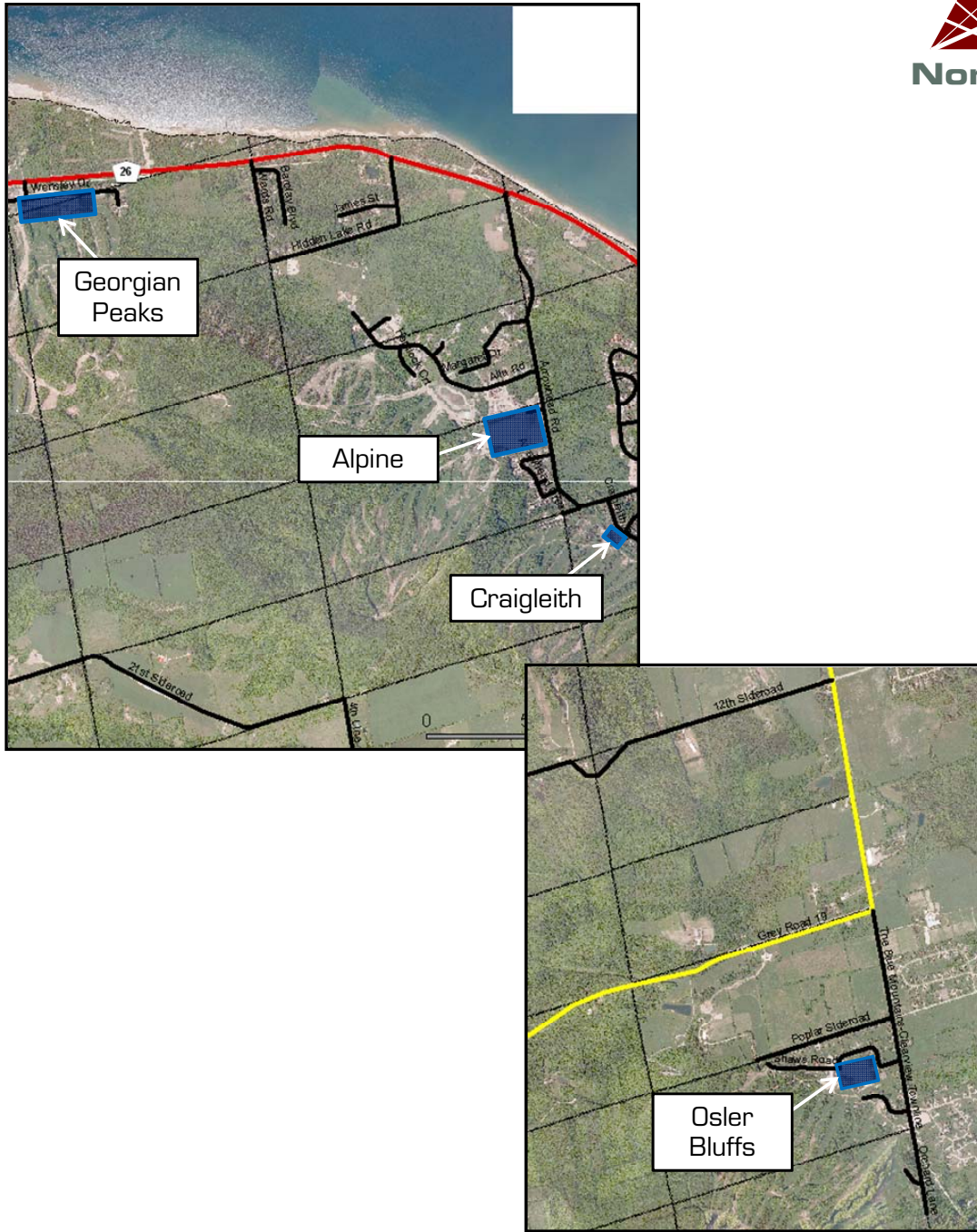
- ▶ Both Blue Mountain and Craigleith will provide daily ticket sales for the survey days;
- ▶ Cordon counts will be collected by Grey County at the five locations shown on **Figure 2.4** below. These counts will provide the total number of vehicles (summed every 15 minutes) entering the Blue Mountain resort area;
- ▶ The total number of reserved rooms and the average occupancy will be provided by Blue Mountain resort for the survey weekend; and
- ▶ Craigleith Ski Club will provide the license plate information for their members, aggregated by area.
- ▶ The number of employees on site during the survey day will also be obtained.

On average, the private ski clubs have parking for about 200 to 400 vehicles in their lots. Blue Mountain resort has multiple parking lots onsite with capacity for about 4,400 vehicles in both surface and underground lots. Every effort will be made to collect information for all lots; however given the time and manpower required to count at all of the onsite lots, the main surface parking areas will be focused upon as it was indicated that underground parking is mostly reserved for Village guests. The lots chosen for control data collection are shown in **Figure 2.5** below and total about 2,350 of the 4,400 stalls.

2.8 Survey Awareness

A successful survey not only relies on the how it is conducted and the quality of the survey staff but the perceived importance, relevance and legitimacy of the survey effort. To achieve this, a number of tasks and strategies are recommended:

1. *Survey Staff* – As the ambassadors for this exercise, the appearance and conduct of the survey staff is critical. Each staff member will be provided with an identification badge. A training session will be conducted on Friday, February 27, 2008, for staff which have not worked on a project of this type before. Survey staff will be instructed to treat resort patrons with the appropriate respect and how to diffuse difficult situations if they arise. Inappropriate behavior, language or treatment of customers will not be tolerated.
2. *Communication with resort patrons* – Past experience has shown that advanced communication with the potential population dramatically improves the response rate. To this end a Notice of Commencement will be published in the local newspapers at least two weeks in advance of the initial survey dates.
3. *Incentives* – Experience in other surveys and jurisdictions has shown that providing incentives for participation in the survey greatly improves response rates. In this case, an Ontario road map will be given to each patron after they complete the survey. At this time, additional incentives are not known, but may be provided by the participating resorts.

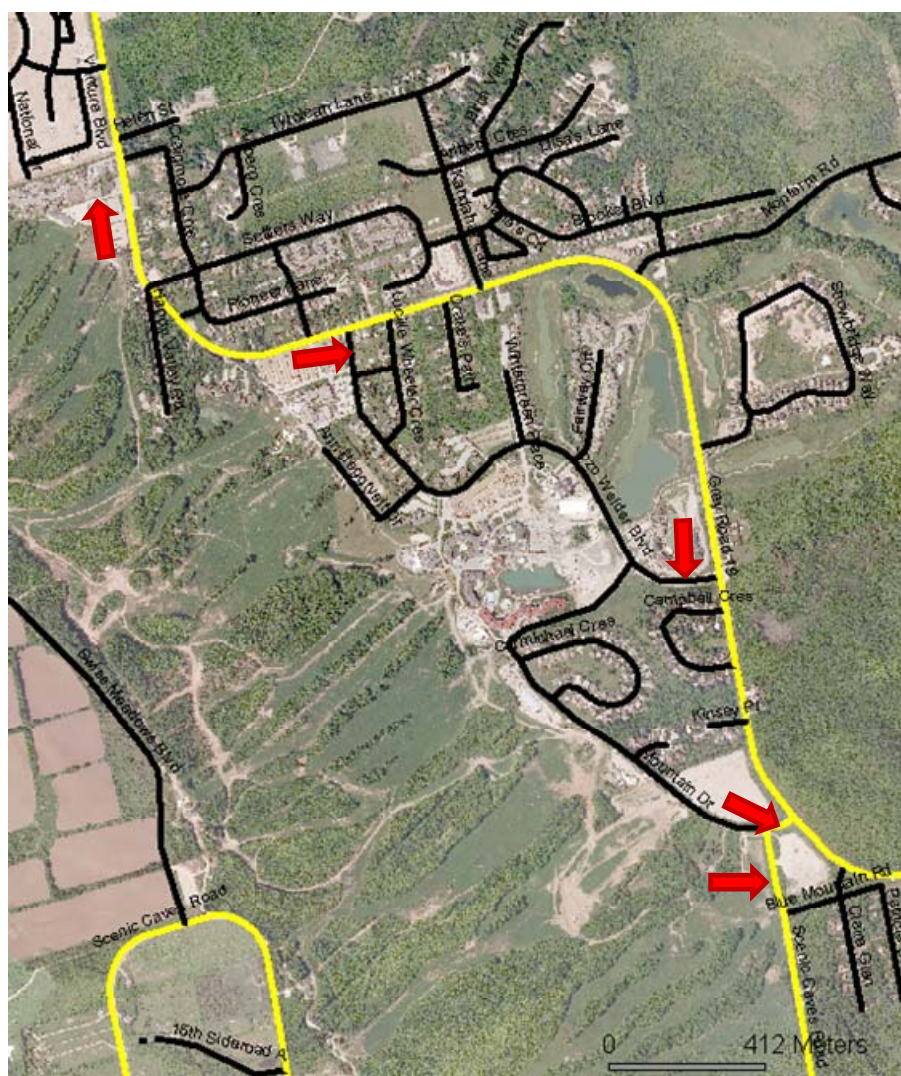


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Figure 2.3

**Private Ski
Club Locations**



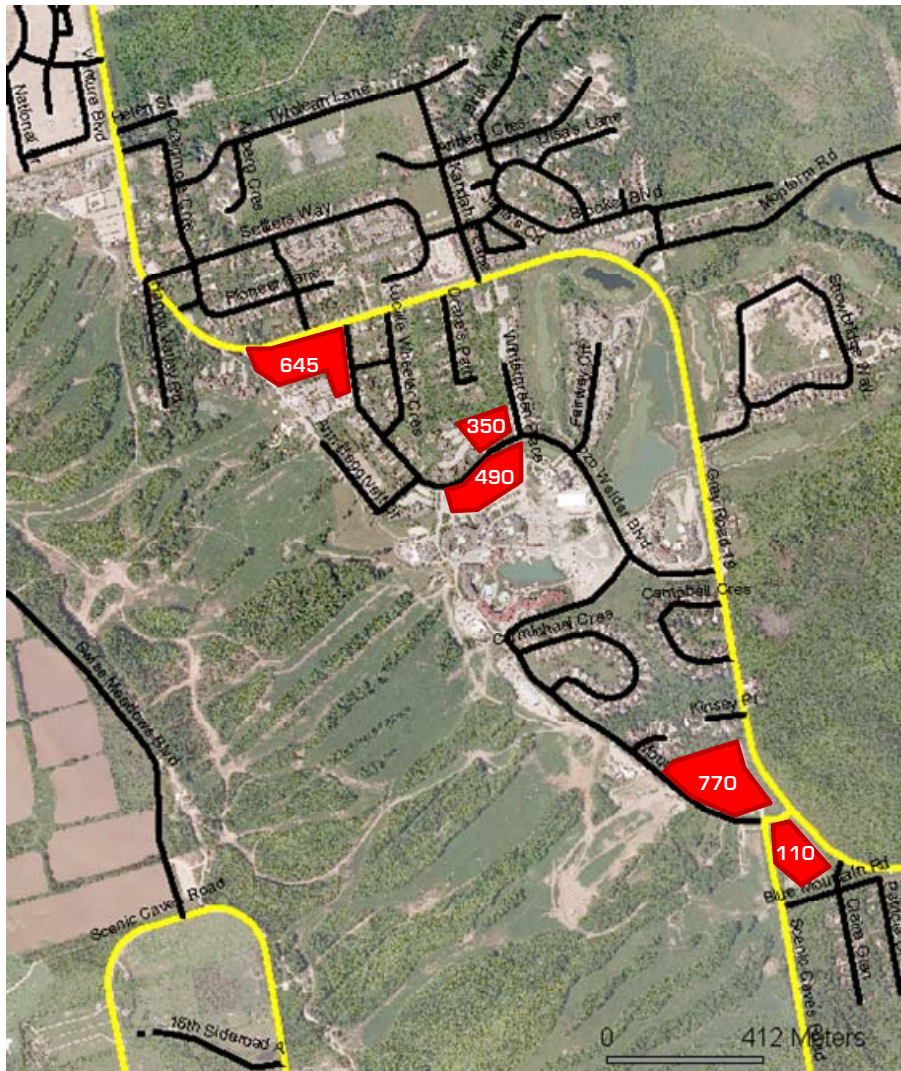


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Figure 2.4



**Blue Mountain Resort
Cordon Count Locations**



Highway 26 Transportation Study
Winter Survey Study Design

Figure 2.5

**Blue Mountain Resort
Parking Lot Count Locations**





3.0 SURVEY STAFFING

3.1 Manpower Requirements and Scheduling

In order to conduct a survey of this magnitude, a total of 10 staff will be required and will operate in shifts up to twelve hours in length. Staff will work from 5:00 pm to 7:00 pm on Friday, February 27, 8:30 am to 8:30 pm on Saturday, February 28 and from 9:00 am to 6:00 pm on Sunday, March 1, 2009. Shifts will range from two to twelve hours in length and surveyors will be paid for the entire shift, including break times and any time spent in transit during their shift. One supervisor will be scheduled throughout each day and will be responsible for ensuring adequate numbers of interviews are completed.

Each surveyor will be required to organize their work during the course of each day and ensure all collected surveys are sorted by hour and returned to their supervisor. Survey supplies will be provided at the start of each day and the supervisor will be responsible for ensuring adequate supplies are available throughout each day.

Table 3.1 below shows the staff compliment required for each day of the survey. The work will be scheduled so that each surveyor can work at each location each day to ensure adequate coverage in all lodges. Every effort will be made to accommodate special scheduling where required.

TABLE 3.1: DAILY STAFF REQUIREMENT

Location	Friday, February 27	Saturday, February 28	Sunday, March 1
Blue Mountain Resort	Interviews at Village check-in (Grand Georgian Lodge) from 5 pm to 7 pm: five staff	Interviews from 8:30 am to 8:30 pm: four staff at South Base Lodge and four staff at Grand Central Lodge	Interviews from 9 am to 6 pm: four staff at South Base Lodge and four staff at Grand Central Lodge
Craigeith Ski Club		Interviews from 9:00 am to 5:00 pm: two staff in lodge with one additional staff between 11 am and 1 pm	Interviews as needed
License plate data collection			Ongoing throughout the day (two staff)

3.2 Staff Recruiting

Staff for the survey will be recruited from a few sources: Paradigm staff, Paradigm's current temporary staffing list, and referrals from Paradigm staff. The majority of the staff have worked on surveys of this type before and are familiar with the issues and difficulties that can arise and have experience in dealing with the public.

3.3 Staff Training and Remuneration

For staff that have not participated in this type of survey before, a two-hour training session is scheduled for Friday, February 27, 2009 at the resort. The training session will cover survey conduct, survey procedures, customer service skills and safety issues. Staff that have not worked on surveys of this type before will be paired with experienced staff that will assist them when needed over the course of the survey.

Surveyors will be paid a base salary with an hourly premium paid at the end of the survey if all scheduled shifts are completed to satisfaction. Selected surveyors will be offered data entry work at the end of the survey and will be placed on Paradigm's temporary staff list if desired. In addition, surveyors will be provided a letter of reference if requested with satisfactory performance and offered positions for the summer survey.



4.0 DATABASE ASSEMBLY

Once the data is collected a number of processes will be required before the data can be used for analysis purposes. The following briefly outlines the processes that will be undertaken to translate the raw survey data into the final database.

4.1 Data Cleaning

The first step in the database assembly will be to undertake a thorough review of the actual survey forms, prior to data entry. A number of critical pieces of information will be verified including date, location and time period. In addition, Paradigm staff will review each survey in an attempt to correct mistakes regarding street names and/or directions or origins and destinations. In order to meet the timelines set out for the study, data entry may occur before data cleaning.

At this point, the license plate data will be prepared for submission to MTO who will in turn give it to the licensing office for home address location (city/town) searches.

4.2 Data Entry

Data entry will be conducted by the surveyors (if qualified) and temporary staff of Paradigm. A Microsoft Access (2002) database will be developed to assist with the data entry stage. Field choices for the “select” data points will be limited to the list from the survey form, thus reducing the possibility of “out of range” errors. With respect to street names, the street name list will be stripped from the Ontario roads file and used a “drop-down” list. This will eliminate data entry errors through typing mistakes and ensure that there are a high number of automatic matches in the geocoding process. In addition, a monument list will be developed for addresses such as Blue Mountain Resort, Craigeleith Ski Resort other area resorts, etc. The survey forms will be returned to MTO by Paradigm for storage or shredding once the final data base has been developed and the summary report has been accepted.

4.3 Logic and Error Checking

The above processes will remove a number of possible errors from the dataset. Additional checks will be performed on the dataset to ensure that the trip information is as correct as possible. Examples of further checks including close scrutiny of all trips that report origin purpose and destination purpose as the same. Reference back to the original survey form will be conducted as required. Blank records and unfinished surveys will be removed from the dataset at this time.

4.4 Geocoding

Geocoding is the necessary step that allows the trip patterns of the patrons to be determined. The geocoding of trip ends will be performed by Paradigm staff using MapInfo version 9 software. The software enables interactively assigned x-y coordinates to trip origin and destination locations. Look-ups are done by specifying a street intersection or place name. Monuments (landmarks and tourist attractions) will be converted to addresses or place names using available internet search engines and online databases.

Paradigm currently has Single Line Road (SLR) and Ontario Cities files to be used as appropriate. Geographic coordinates will be based on a UTM projection on the NAD 83 datum. UTM-X coordinates are measured in metres east of the 81st degree Longitude with a 500,000 metres false Easting. UTM-Y coordinates are measured in metres north of the Equator. There are six digits in UTM-X and seven digits in UTM-Y coordinates.



All trip ends that can be geocoded to an exact point will be assigned with specific x-y coordinates. These are mainly records with detailed street intersections or monument descriptions. Trips that are recorded only with general place names (e.g.: Toronto) will be assigned an x-y coordinate within the place name's physical boundary. In general, areas within the study area will be coded to exact geocodes while remaining areas in South Central Ontario will be coded to place names, and areas outside South Central Ontario will be coded to special provincial codes. Place name geocodes will be assigned a Lat-Long coordinate value.

All survey records will be put through a batch geocoding process followed up by an interactive coding process where required. The batch process attempts to automatically code all trip ends that match addresses or place name location information. Surveys that can not be batch processed will be passed to interactive geocoding. Based on previous experience, approximately 30% of the trips ends are expected to require interactive coding.

Interactive coding is done one survey record at a time. Both trip origin and destination information will be referenced together. This is to help the coder understand the overall trip and to spot any illogical information. The more difficult survey records will be further assessed by retrieving the original survey and correcting immediately. For each trip end on the survey, the coder will either assign an x-y Canadian coordinate or a flag to identify the reason for not assigning a code. Different flags will be used for different scenarios. This includes flags for identifying U.S. trip ends and non-North American trip ends.

4.5 Zone System Development

A zone system for the survey will be developed consistent with the Transportation Tomorrow Survey (TTS) within Simcoe County. Additional zones will be to the west and desirably should be consistent with the previous and ongoing transportation studies in the area (i.e.: Town of Blue Mountain Transportation Study). Consistency with Census Subdivisions will be considered for this task.

Zone assignments for both the origin and destination and license plate data will be done using MapInfo version 9 software and the zone system described above. Many of the locations external to the study area will be given as place names and coded to Statistics Canada's Census Subdivisions (CSD). To address locations within the study area that did not have exact geocodes (such as place name), they will also be assigned CSD based zone numbers.

4.6 Survey Sample Expansion

Once the final data file is created, survey records will be expanded to represent the total number of visitors to the resorts during the Saturday survey period. In order to determine the control total to which all interviews will be expanded, all the control total data will be examined. Based on the results of the control total data, a number of expansion methods may be available and compared including:

- ▶ Expanding up to the average of the Saturday and Sunday visits at Blue Mountain based on daily ticket sales, average ticket to pass ratios and occupied resort accommodations;
- ▶ Expanding up to the total number of parked vehicles onsite at both resorts for Saturday; and
- ▶ Expanding up to the total number of vehicles passing through the survey area during the Saturday survey period based on the cordon count data with appropriate adjustments to account for traffic from permanent residences in the area.

Each method of expansion has inherent flaws given that the actual number of patrons onsite at each resort will not be known since pass holders and private club members do not need to check in or pass through



screening of any sort. However, given the amount of data that will be available for the survey period, a combination of control total data will be used with the cordon data providing the main source with the daily ticket sales and parking lot count data used to verify the totals.

Each interview conducted during a particular day will be expanded up to the total number of visits for the Saturday. The expansion factor will be determined by dividing the total number of vehicles/visits by the total number of surveys collected. The decision was made to expand to the Saturday sample size as it is typically higher than Sunday and includes all trips arriving on Friday and departing on Sunday. Based on this expansion, a summary of the travel characteristics of the resorts will be prepared.

4.7 Summary Report

Upon completion of the above steps, a summary report will be prepared outlining the key findings and conclusions of the study. This report will provide detailed analyses as well as document the survey process. The searched license plate data will be reviewed in conjunction with the analyses results to assist with determining the validity of the provided ultimate origin and destination information. The information outlined in the report will include a minimum of the following:

- ▶ O-D trip matrices;
- ▶ Various levels of aggregation on trip purpose;
- ▶ Trip frequency;
- ▶ How often they visit the resort;
- ▶ How often they ski;
- ▶ Where they stay;
- ▶ How they pay to ski; and
- ▶ O-D license plate matrices

In addition to the summary report, the raw database and the final database (expanded and geocoded) will be provided to MTO in an agreed upon format.