



C.C. Tatham & Associates Ltd.
Consulting Engineers

**GREY ROAD 19 &
GREY ROAD 21/SIMCOE ROAD 34
INTERSECTION IMPROVEMENTS**
Counties of Grey & Simcoe

**Class Environmental Assessment
Phases 1 & 2 Report**

prepared by:

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1 Introduction

Grey County and Simcoe County jointly initiated a Class Environmental Assessment (Class EA) to examine improvements to the intersection of Grey Road 19 with Grey Road 21/Simcoe Road 34. C.C. Tatham and Associates Ltd. were retained to complete the study on behalf of the Counties, in accordance with the Municipal Class Environmental Assessment guidelines¹.

1.1 Class Environmental Assessment Process

The Class Environmental Assessment process is defined in the *Municipal Class Environmental Assessment* document. Applying to all municipal road improvement projects, a number of study categories or schedules have been established recognizing the range of environmental impacts. These are briefly described below whereas the process corresponding to each is illustrated in Figure 1.

1.1.1 Class EA Schedules

Schedule A

Schedule A projects generally include normal or emergency operational and maintenance activities. As the environmental effects of these activities are usually minimal, these projects are pre-approved and may proceed directly to implementation without the need to complete the design and planning process. No reports or study documents need to be prepared.

Schedule A+

Schedule A+ projects include those that are typically limited in size and scope, and thus have minimal associated environmental impacts. While these projects are also pre-approved, they require notification to the public prior to implementation. No reports or study documents need to be prepared outside of the notification.

Schedule B

Schedule B projects generally include improvements and minor expansions to existing facilities. As there is the potential for some adverse environmental impacts, the municipality is required to conduct a screening process whereby members of the public and review agencies are informed of the project and given the opportunity to provide comment. Documentation of the planning and design process is required under a Schedule B study. As these studies are generally straightforward and do not require detailed technical investigations to arrive at the preferred solution, a formal report is not required. Rather, a Project File or Phase 1 & 2 Report shall be prepared to demonstrate that the appropriate

¹ *Municipal Class Environmental Assessment*. Municipal Engineers Association, Oct 2000 as amended in 2007 & 2011.

steps have been followed. The Project File/Phase 1 & 2 Report is to be submitted for review by the public and review agencies.

Schedule C

Schedule C projects generally include the construction of new facilities and major expansions to existing facilities. As they have the potential for environmental impacts, they must proceed under the full planning and documentation procedures specified by the Municipal Class EA document. Schedule C projects require an Environmental Study Report (ESR) to be prepared and appropriately filed for review by the public and review agencies.

1.1.2 Class EA Terminology

Prior to determining the appropriate Class EA schedule, an understanding of the defining terminology is required as noted below:

Road Capacity

Road Capacity means capacity defined in terms of the number of travelled lanes and does not differentiate between various lane widths to accommodate differing traffic volumes.

New Road

A New Road refers to the construction of an improved surface for vehicular traffic on a new right-of-way where the right-of-way is entirely separate from any previous right-of-way. It also refers to the construction of a road on a road allowance whereby no road surface previously existed.

Same Purpose, Use, Capacity & Location

This refers to the replacement or upgrading of a structure or facility or its performance, where the objective and application remain unchanged, and the volume, size and capability do not exceed the minimum municipal standard, or the existing rated capacity, and there is no substantial change of location. Works carried out within an existing road allowance such that no land acquisition is required are considered to be in the same location. Conversely, it is thus inferred that should improvements extend beyond the existing road allowance and additional property is required, the location is considered to have changed.

1.1.3 Selected Schedule

The Municipal Class EA document details a number of road construction and reconstruction projects and defines the corresponding Class EA schedule to be applied. The most relevant project classifications are as follows:

1. Construction of localized operational improvements at specific locations (eg. the addition of a ramp to an existing interchange; turning lanes at an intersection, but not a continuous centre left-turning lane). The Schedule A+ Class EA guidelines apply to such projects, regardless of construction value, as they are deemed to be of local interest, as opposed to provincial interest. Impacted stakeholders should be notified, but the final project details should be decided locally.
2. Installation, construction or reconstruction of traffic control devices (eg. signing, signalization). The Schedule A process applies for projects with a value of less than \$9.4 million, whereas Schedule B applies for those in excess of \$9.4 million. There are no requirements for a Schedule C Class EA.

In consideration of the above, the project is classified as a Schedule A+ undertaking.

Notwithstanding, to ensure opportunity for public consultation throughout the study, both Grey and Simcoe Counties have elected to elevate the project to a Schedule B undertaking. The requirements of such would be to complete Phase 1 and Phase 2 of the overall Class EA process (as noted in Figure 1), which involves identifying the problem and developing alternative solutions. Following this, the project can proceed to Phase 5 of the Class EA process which is implementation (ie. design, construction and monitoring).

1.2 Study Objectives

The overall objectives of the *Grey Road 19 & Grey Road 21/Simcoe Road 34 Intersection Improvements (County Road 19) Class Environmental Assessment* are as follows:

- provide the need and justification for necessary intersection improvements to address increased traffic volumes;
- develop and evaluate intersection improvement alternatives to best address the need and justification, whilst considering any negative implications of such, particularly to the natural environment and local residents; and
- document the overall study process, development and evaluation of alternatives in consideration of the Class EA requirements.

This Phases 1 & 2 Report has been prepared to follow the chronological order of the Municipal Class EA process and is structured as noted below.

- Chapter 2 presents the need and justification of the study and the preparation of a problem statement to guide the Municipal Class EA process.
- Chapter 3 addresses the first point of public consultation - Notice of Study Commencement.
- Chapter 4 details the alternative solutions developed to address the problem statement.
- Chapter 5 identifies the affected environments and provides an inventory of such to be considered in the subsequent evaluation.

- Chapter 6 details the evaluation of the alternative solutions in context of the manner to which they satisfy the problem statement and potential impacts to the environments.
- Chapter 7 addresses the second point of public consultation - Public Information Centre.
- Chapter 8 identifies the preferred solution, considering the initial evaluation, comments received from the Public Information Centre, additional direction received from the Counties, and additional evaluation.
- Chapter 9 outlines the remaining tasks in the Municipal Class EA process, through to implementation of the preferred solution.

2 Need & Justification

The purpose of this Class EA study is to identify the most appropriate improvement strategy to address the existing and future needs at the intersection of Grey Road 19 with Grey Road 31/Simcoe Road 34, which has been completed in accordance with Phase 1 of the Class EA process (refer to Figure 1).

2.1 Existing Conditions

2.1.1 Road Jurisdictions

The subject intersection is located on the north-south boundary between the Town of Collingwood in Simcoe County, and the Town of The Blue Mountains in Grey County. As the north-south boundary corresponds to a County road, shared between both Counties, there is joint jurisdiction over the intersection. The corresponding road sections and jurisdictions are summarized in Table 1, and illustrated in Figure 2. While the Town of Collingwood has jurisdiction over the east leg, Mountain Road, the intersection is under the sole jurisdiction of the Counties.

Table 1: Intersection Jurisdiction

Intersection Approach	Road Name	Jurisdiction
North (boundary road)	Grey Road 21 Simcoe Road 34	Grey County Simcoe County
South (boundary road)	Grey Road 19 Simcoe Road 34	Grey County Simcoe County
West	Grey Road 19	Grey County
East	Mountain Road	Town of Collingwood

2.1.2 Road Classifications

As the names imply, Grey Road 19, Grey Road 21 and Simcoe Road 34 are all classified as County roads within the respective County Official Plans, which are reflective of arterial roads in the hierarchy of roads (local roads, collector roads, arterial roads, highways and freeways). The *Simcoe County Official Plan* further designates Simcoe Road 34 as a primary arterial road, which is also reflected in the *County of Simcoe Transportation Master Plan*². While such a designation does not exist in the *Grey County Official Plan*, it is noted that both Grey Road 19 and Grey Road 21 have been

² *County of Simcoe Transportation Master Plan*. Earthtech, June 2008.

recommended for designation as minor/secondary arterial roads in the *Grey County Transportation Master Plan*.

Mountain Road, within the Town of Collingwood, is classified as an arterial road as per the *Town of Collingwood Official Plan*.

2.1.3 Rights-of-Way

The existing rights-of-way along the approaches to the intersections vary from 20 to 33.5 metres as illustrated in Figure 3. As noted in the figure, there are daylight triangles on the north-west and south-west corners (with the latter being significant) but not on the north-east and south-east corners. For intersections of arterial roads, it is common to have 15 metre x 15 metre daylight triangles (ie. 15 metres on each property corner to be dedicated to the road authority). These are intended to ensure adequate sight lines through the intersection and accommodate intersection radii and widenings as may be required.

The *County of Simcoe Transportation Master Plan* and the *County of Simcoe Official Plan* detail the proposed rights-of-way for specific County roads. As per the Official Plan, and in accordance with its road designation, Simcoe Road 34 is recommended to have a right-of-way of 40 metres, which can be reduced to 36 metres if constraints exist.

It is noted that widenings on the west side of the north leg, and the north side of the west leg have been proposed as part of the Windfall Medium Density Development on the north-west corner of the intersection. Should the widenings be incorporated as proposed, the right-of-way of the north leg will increase from 20 to 36 metres and the west leg will increase from 33.5 to 38.7 metres across the Windfall lands.

2.1.4 Design Speed & Posted Speed Limit

The posted speed limit on each of the noted road approaches is 60 km/h and hence a design speed of 70 km/h has been assumed (posted speed + 10 km/h for lower speed roads).

2.1.5 Intersection Configuration

The intersection of Grey Road 19 with Grey Road 21/Simcoe Road 34 is a 4-leg intersection, operating under traffic signal control (aerial installation). Additional details of the intersection approaches are provided below and illustrated in Figure 4.

South Leg

The south leg is Grey Road 19/Simcoe Road 34, which is a boundary road between the noted Counties and thus falls under the shared jurisdiction of each County - to the west of the road centerline is Grey County, to the east is Simcoe County (the road is also the boundary between the Town of The

Blue Mountains to the west and the Town of Collingwood to the east). The road has a rural cross section and provides 1 lane of travel per direction. The alignment of this approach is relatively straight and flat in the vicinity of the intersection. At the intersection, the south leg provides a northbound left turn lane, a northbound shared through-right lane, and a southbound receiving lane.

West Leg

The west leg is also Grey Road 19 (the road changes orientation at the intersection), having a similar configuration as the south leg. At the intersection, the west leg provides a shared left-through lane and a right turn lane entering the intersection, with a single westbound receiving lane exiting the intersection.

North Leg

The north leg is Grey Road 21/Simcoe Road 34 and continues as the boundary between the Counties. It has a similar approach as the south leg, with a southbound left turn lane, a southbound shared through-right lane, and a single northbound receiving lane. It is noted that the southbound left turn lane does not comply with MTO standards with respect to lane geometry - it should consist of a 40 metre parallel lane and a 115 metre taper in consideration of the 60 km/h posted speed limit as opposed to the existing 45 metre parallel lane and 20 metre taper.

East Leg

The east leg is Mountain Road, an arterial road under the jurisdiction of the Town of Collingwood. The attributes of Mountain Road are consistent with those of Grey Road 19. It provides a single shared entry lane to the intersection, and a single exit lane.

2.1.6 Horizontal & Vertical Alignment

The existing horizontal alignments on the intersection approaches are tangential within the immediate area. It is expected that the proposed improvement works will closely match existing conditions and hence the existing alignment will be maintained.

With respect to the vertical alignment, there are no significant vertical curves or vertical grades through the intersection.

2.1.7 Roadside Drainage

Roadside drainage is conveyed through existing open ditches (as opposed to storm sewers). There appears to be sufficient capacity within the existing roadside ditches to drain stormwater run-off from the road and surrounding areas.

2.1.8 Traffic Volumes

Traffic counts were conducted at the intersection on Friday February 28, 2014 and Saturday March 1, 2014. Given the time of year, the data is reflective of winter conditions, which are considered the peak seasonal traffic conditions given the seasonal nature of Blue Mountain. The counts were completed on a Friday and a Saturday in order to observe the peak weekday and peak weekend conditions of the surrounding area (Friday is considered the busiest weekday, whereas Saturday is the busiest weekend day). To capture the turnover relating to the end of day skiing and beginning of night skiing (which occurs at 16:30), and to capture typical winter peak operations, the counts were completed from 15:30 to 18:30 on both days. Additional traffic counts for the same intersection conducted on Friday January 28, 2011 and Saturday January 29, 2011 were also considered. It is noted that the 2011 counts were conducted under similar conditions as the 2014 counts (ie. winter conditions, 15:30 to 18:30, Friday and Saturday). The corresponding traffic count details are provided in Appendix A.

A review of the 2011 and 2014 traffic volumes indicate that the traffic volumes on Grey Road 19 and Mountain Road have decreased over the 3 year period by 11 to 14% per annum, whereas volumes on Grey Road 21 (north of Grey Road 19) have decreased by 2% per annum. To ensure a conservative approach to the transportation assessment, the 2011 volumes have been adopted and considered as reflective of existing peak winter conditions. The corresponding winter peak hour volumes (for the year 2014) are illustrated in Figure 5.

2.1.9 Traffic Operations

Existing traffic operations were reviewed based on the observed traffic volumes, the existing intersection configuration and control and procedures outlined in the *2000 Highway Capacity Manual* (using Synchro v.8 software). The analysis considers each intersection approach and the overall intersection operations, a summary of which is provided in Table 2. Level of service A corresponds to the best operating condition with minimal delays whereas level of service F corresponds to poor operations resulting from high intersection delays. A v/c ratio of less than 1.0 indicates the intersection movement/approach is operating at less than capacity while v/c of 1.0 indicates capacity has been reached. Detailed operations worksheets for the existing traffic conditions are included in Appendix B.

Based on the existing volumes, the signalized intersection of Grey Road 19 with Grey Road 21/Simcoe Road 34 provides acceptable overall levels of service (LOS C and D) with average delays. As indicated, the westbound movement operates slightly above its capacity during the Saturday peak hour given the assumed traffic volumes (ie. v/c > 1.0). This is due to the single shared lane configuration and the existing volumes. Separating one or more of the turning movements (ie. providing an exclusive left and/or right turn lane) would address the capacity issue; however, as this issue is limited to the Saturday peak hour and the delays remain acceptable, it is not considered problematic. No intersection improvements are therefore considered necessary to accommodate the existing conditions.

Table 2: Intersection Operations - 2014 Existing Conditions

Intersection and Movement	Control	Friday PM Peak Hour			Saturday Peak Hour		
		delay	LOS	v/c	delay	LOS	v/c
Grey Road 19 & Grey Road 21	EB	19	B	0.77	25	C	0.92
	WB	42	D	0.95	63	E	1.04
	NB	13	B	0.50	27	C	0.74
	SB	20	B	0.20	32	C	0.48
	overall	signal	25	C	0.76	38	D

2.2 Future Conditions

Future traffic volumes and operations for the intersection have been considered for the 2019, 2024 and 2029 planning horizons (which is consistent with other transportation planning studies in the area).

2.2.1 Traffic Volumes

The future traffic volumes have been determined based on the existing traffic volumes, historical and projected growth, and additional increases in volumes due to anticipated development within the immediate area.

Background Growth

Background growth represents the growth in traffic volumes that is expected due to general and overall growth in the contributing areas (ie. with the Town of The Blue Mountains and/or the Town of Collingwood). Annual growth rates have been determined considering the following:

- historic growth through the area as determined from traffic counts;
- traffic data and growth estimates as per the *Georgian Triangle Area Transportation Study*³; and
- traffic data and growth estimates as per *The Town of The Blue Mountain Comprehensive Transportation Strategic Plan*⁴.

Historic counts (2005 to 2008) on Grey Road 19 to the south of Gord Canning Drive indicate that winter volumes have increased in the order of 5 to 10% per annum. The *Georgian Triangle Area Transportation Study* indicates that winter traffic volumes in the area are expected to increase by 2%

³ *Georgian Triangle Area Transportation Study*. Dillon Consulting, June 2001

⁴ *The Town of The Blue Mountain Comprehensive Transportation Strategic Plan*. AECOM in association with C.C. Tatham & Associates, March 2010.

per annum from 2010 to 2020. Lastly, *The Town of The Blue Mountains Comprehensive Transportation Strategic Plan*, which prepared traffic forecasts for the years 2013, 2018 and 2028 (with consideration for overall growth, plus development specific growth), noted 4.4% annual growth from 2008 to 2013, 3.4% from 2013 to 2018 and 2.9% from 2018 to 2028 (which translates to an overall annual growth of 3.4% over the 20 year period).

For purposes of this study, and in considering that traffic volumes from specific area developments will be addressed separately, a 2% annual growth rate has been assumed through to the year 2029. This translates to an overall increase of approximately 36% in traffic volumes on the study area road network through to the 2029 horizon year. Recognizing that the 2014 winter volumes were determined to be less than the 2011 volumes, this assumed growth rate will ensure a conservative approach.

Development Growth

Further to the overall growth through the area, a number of other specific planned developments that will contribute traffic volumes to the study area road system have been identified. These include:

- continued growth at the Intrawest Village;
- the Second Nature development;
- the recent expansion of Blue Mountain Resort at the Orchard ski area; and
- the Windfall residential development (including the medium density component to be located at the north-west corner of the Grey Road 19 and Grey Road 21 intersection).

Additional details with respect to the above noted developments and the associated traffic volumes are provided in the *Windfall Medium Density Block Traffic Impact Study*⁵; the corresponding assignments of the traffic volumes to the area road system are contained in Appendix C.

Total Traffic Volumes

Traffic projections, which are the summation of the existing volumes, background growth and projected development growth for each horizon, are presented in Figure 6 through Figure 8 for the 2019, 2024 and 2029 horizon years.

2.2.2 Traffic Operations - Traffic Signal Control

The intersection operations were again investigated considering the total traffic volumes for each horizon year and existing traffic signal control (with optimized traffic signal timings). The existing lane configurations have been maintained, with improvements only introduced as warranted by the traffic operations.

⁵ *Windfall Medium Density Block Traffic Impact Study*, C.C. Tatham & Associates Ltd., August 18, 2014.

2019 Operations

The results of the 2019 operational analysis are provided in Table 3 (detailed worksheets are provided in Appendix D). As noted, the intersection will experience poor overall operating conditions (LOS F) with long delays during the peak hours.

Table 3: Intersection Operations - 2019 Conditions

Intersection and Movement	Control	Friday Peak Hour			Saturday Peak Hour		
		delay	LOS	v/c	delay	LOS	v/c
Grey Road 19 & Grey Road 21	EB	24	C	0.92	135	F	1.34
	WB	108	F	1.16	986	F	3.13
	NB	161	F	1.34	302	F	1.81
	SB	52	D	0.61	100	F	1.02
	overall	signal	77	E	1.08	421	F

To ensure adequate operations, the east and west approaches are to be improved to include an additional through lane and a left turn lane; the north and south approaches can remain as per the existing configuration. The resulting operating conditions with the noted improvements are summarized in Table 4 with detailed worksheets provided in Appendix D. All approaches will provide acceptable operations with the implementation of the recommendations.

Table 4: Intersection Operations - 2019 Conditions with improvements

Intersection and Movement	Control	Friday Peak Hour			Saturday Peak Hour		
		delay	LOS	v/c	delay	LOS	v/c
Grey Road 19 & Grey Road 21	EB	20	B	0.78	22	C	0.87
	WB	23	C	0.82	23	C	0.86
	NB	12	B	0.64	32	C	0.93
	SB	17	B	0.25	24	C	0.51
	overall	signal	19	B	0.63	24	C

2024 Operations

Operations for the 2024 horizon year have been reviewed based on the 2024 traffic volumes and considering the improvements warranted for the 2019 horizon. In addition, the provision of a southbound right turn lane is required to ensure acceptable operations. The resulting operating conditions are summarized in Table 5 whereas detailed worksheets are provided in Appendix D.

Table 5: Intersection Operations - 2024 Conditions with improvements

Intersection and Movement	Control	Friday Peak Hour			Saturday Peak Hour		
		delay	LOS	v/c	delay	LOS	v/c
Grey Road 19 & Grey Road 21	EB	16	B	0.70	18	B	0.72
	WB	48	D	0.99	43	D	0.97
	NB	22	C	0.80	51	D	0.98
	SB	18	B	0.21	33	C	0.50
	overall	signal	27	C	0.79	32	C

2029 Operations

Further to the improvements previously noted, traffic volumes for the 2029 horizon require a westbound right turn lane to ensure acceptable operations, as evident in the results of Table 6 (corresponding worksheets are provided in Appendix D).

Table 6: Intersection Operations - 2029 Conditions with improvements

Intersection and Movement	Control	Friday Peak Hour			Saturday Peak Hour		
		delay	LOS	v/c	delay	LOS	v/c
Grey Road 19 & Grey Road 21	EB	18	B	0.74	28	C	0.81
	WB	39	D	0.96	45	D	0.95
	NB	32	C	0.90	56	E	0.99
	SB	22	C	0.25	54	D	0.74
	overall	signal	28	C	0.83	40	D

Summary of Traffic Signal Control Intersection Improvements

The following improvements are considered necessary at the intersection of Grey Road 19 and Grey Road 21 (as illustrated in Figure 9):

- 2019
 - west approach to provide an exclusive left turn lane, two exclusive through lanes and an exclusive right turn lane
 - east approach to provide an exclusive left turn lane, an exclusive through lane and a shared through/right lane
- 2024
 - implement exclusive right turn lane on north approach
- 2029
 - implement exclusive right turn lane on east approach

As detailed in the *Windfall Medium Density Block Traffic Impact Study*, a northbound left turn lane is also required on Grey Road 21 at the proposed access to the Windfall Medium Density Development (to be located opposite Laurel Boulevard). This would also dictate the provision of an opposing southbound left turn lane at Laurel Boulevard to maintain lane balance. Given the proximity of the Windfall access to the intersection of Grey Road 19 and Grey Road 21/Simcoe Road 34, coupled with the geometric requirements of the northbound left turn lane at the Windfall access and southbound left turn lane at Mountain Road (assuming the existing sub-standard southbound left turn lane is improved to comply with current geometric design standards), a continuous turn lane should be extended from the subject intersection to the Windfall access.

2.2.3 Traffic Operations - Roundabout Control

Further to consideration for a standard traffic signal control intersection, consideration has also been given to roundabout control. The corresponding operations have been reviewed based on a roundabout of similar size and configuration to that of the existing roundabout at the intersection of Grey Road 19, Scenic Caves Road and Gord Canning Drive, namely:

- an inside island with a 40 metre diameter;
- 2 circulating lanes;
- 2 approach lanes on each leg (shared left-through and through-right); and
- 2 departure lanes on each leg (to be reduced to 1 lane as required beyond the roundabout).

Operations at the intersection have been reviewed with roundabout control for the 2019, 2024 and 2029 horizon years, considering the total projected traffic volumes. Results of the roundabout review are summarized in Table 7 whereas detailed worksheets are provided in Appendix E.

Table 7: Roundabout Operations

Horizon	Control	Friday Peak Hour			Saturday Peak Hour		
		delay (s)	LOS	v/c	delay (s)	LOS	v/c
2019	roundabout	4	A	0.51	7	A	0.71
2024	roundabout	5	A	0.61	13	B	0.89
2029	roundabout	8	A	0.75	36	D	1.31

As indicated, the roundabout will provide acceptable operations with the exception of the 2029 Saturday peak hour, during which the northbound movement will experience higher delays, largely due to the higher volume of left turns and opposing traffic within the roundabout. As this is limited to the Saturday peak hour, and the volumes upon which the assessment is based are considered conservative, no further improvements are considered necessary (and nor are they practical beyond the roundabout configuration already assumed). It is expected that should congested conditions prevail, motorists will alter their travel paths or time of travel accordingly.

Should a roundabout be considered, it would still be necessary to implement the left turn lanes on Grey Road at the Windfall access/Laurel Boulevard (such would be tied into the provision of a 2nd southbound lane entering the roundabout).

2.3 Problem Statement

In consideration of the future traffic volumes and operational needs, the following problem statement has been established.

Operational improvements are required at the intersection Grey Road 19 and Grey Road 21/Simcoe Road 34 to ensure safe and efficient movement through the intersection by the motoring public. Based on an assessment of the existing and future traffic volumes and in consideration of appropriate design standards, the improvements should increase the capacity of the intersection through the provision of additional turn lanes and/or through lanes, or improved intersection control.

3 Stakeholder Consultation - Study Commencement

As per the Class EA process (refer to Figure 1), there are a number of points of stakeholder contact. The first point of contact, as discussed in this chapter, is the Notice of Study Commencement, which is used to inform the general public and stakeholders of the start of the study. The remaining points of contact are discussed further in the report following the chronological order in which they occurred.

3.1 Notification

A Notice of Study Commencement, which is a discretionary point of contact, was issued to all adjacent property owners (as determined from Grey County and Simcoe County municipal records), including those within the Evergreen Estates and Mountainview Estates subdivisions, on February 13, 2015. A notice was also published in the Collingwood Connection on 2 separate occasions around the same time period. The notice provided background to the study including consideration for intersection improvements and/or roundabout control, outlined the study process and Class EA guidelines to be followed and invited public input and comments early in the process such that they could be considered in the overall study design and completion. A copy of the Notice of Study Commencement is provided in Appendix F. The notice was also submitted to the appropriate review agencies, stakeholder groups and special interest groups, a listing of which is provided in Appendix F.

3.2 Public Comments

There were 3 comments received from the public in response to the Notice of Study Commencement. The comments are provided in Appendix F and summarized in Table 8.

Table 8: Notice of Study Commencement - Public Comments

ID	Comment
1	In favour of a 2-lane roundabout.
2	Concerns with: <ul style="list-style-type: none">▪ level of service on local subdivision roads and upstream/downstream intersections▪ availability of appropriate gaps with roundabout control▪ excessive lighting in the area already▪ need for improved corner radii at Slalom Gate Road/Mountain Road intersection▪ increase in noise levels that may result and need for noise barriers
3	Concerns with: <ul style="list-style-type: none">▪ increased traffic volumes and additional development in the area▪ operations of a roundabout given that the existing roundabout at the base of the hill experiences congestion at peak ski periods

3.3 Agency & Stakeholder Group Comments

Comments were received from 5 agencies or stakeholder groups, as included in Appendix F and summarized in Table 9.

Table 9: Notice of Study Commencement - Agency & Stakeholder Group Comments

ID	Agency/Group	Comment
1	Infrastructure Ontario	Need to consider potential impacts to Infrastructure Ontario managed lands.
2	Nottawasaga Valley Conservation Authority	Indicated that a portion of the intersection is within the NVCA regulated floodplain and that a permit will be required for any associated works.
3	Blue Mountain Village Association	In favour of a roundabout.
4	Blue Mountain Resort	In favour of a roundabout, building on the success of the roundabout at Grey Road 19/Grey Road 11/Gord Canning Drive.
5	Ministry of Tourism, Culture & Sport	Confirmed need for the study to address potential impacts on cultural heritage resources in accordance with current guidelines.

4 Alternative Solutions

This chapter will detail the development of a range of alternative solutions that can be implemented to address the project statement. The solutions are premised on the following:

- maintaining the existing conditions (ie. do nothing);
- introducing intersection improvements (eg. additional lanes) and maintaining traffic signal control; and
- introducing roundabout control.

The alternative solutions are described below and illustrated in Figure 10 through Figure 15 for the areas immediately adjacent to the road intersection. The full extents of the improvement alternatives are provided in the corresponding preliminary drawings included in Appendix G.

4.1 Do Nothing

The Do Nothing solution corresponds to the existing conditions (refer to Figure 10). Under this solution, no improvements or changes to the road system would be made to solve the identified problem and as such, the problem would remain. As a result, during peak periods, traffic could become backed up through the roundabout on Grey Road 19 west of study area. This would not satisfy the objectives of the Grey and Simcoe Counties to improve the traffic operations or road safety through the area. As such, a Do Nothing solution is not a feasible option.

4.2 Intersection Improvement Options

These improvement options maintain the existing standard intersection configuration and control (ie. 4. leg intersection with traffic signals), with incremental improvements introduced as necessary to address future demands.

4.2.1 Intersection 1

Under Intersection 1 (Figure 11), the eastbound and westbound legs of the intersection receive an additional through lane per direction (ie. 2 lanes per through the intersection) whereas the northbound and southbound legs are maintained as per existing conditions. This solution avoids impacting the Mountainside Sports building (on the south-east corner) and the water booster station (on the south-west corner); however, it impacts the north-east corner (as there is no daylight triangle).

This solution satisfies the current traffic demands, although it would not meet the forecasted future traffic volumes.

4.2.2 Intersection 2

Further to the additional east-west through lanes as introduced with Intersection 1, this solution implements eastbound and westbound left turn lanes thereby ensuring exclusive left turn lanes on all approaches (refer to Figure 12). With increased left turn volumes, the provision of exclusive turn lanes will increase the overall intersection operations by increasing the level of service and reducing travel delays (recognizing that left turning traffic will no longer interfere with through traffic). As with Intersection 1, this solution poses no impact to either the Mountainside Sports building or the water booster station; however, it impacts the north-east corner of the intersection (as there is no daylight triangle).

While this solution would support future traffic volumes up to the 2019 horizon, it lacks the capacity to adequately accommodate longer term demands.

4.2.3 Intersection 3

Intersection 3 involves all improvements included in Intersection 1 and Intersection 2, and further incorporates exclusive right turn lanes in the westbound and southbound directions (refer to Figure 13). The provision of exclusive right turn lanes will provide improved service to those movements with high right turn demands (such is the case with the eastbound right turn) and will also improve operations for through movements (particularly as right turns on red lights will be permitted, thus allowing for better efficiencies during the corresponding green signal interval). As with the previous intersection solutions, Intersection 3 has no impact on the Mountainside Sports building or the water boosting station but will impact the north-east corner. In addition, the widening of the north leg to accommodate the southbound right turn lane will impact the existing natural gas regulator station in the immediate area.

This solution has the capacity to accommodate the 2029 traffic volumes.

4.3 Roundabout Improvement Options

4.3.1 Roundabout 1

Roundabout 1, as illustrated in Figure 14, is a 60 metre outer diameter, 2 lane roundabout centered on the location of the existing intersection. A roundabout solution is favoured by many stakeholders and is a preferred solution to a traffic signal control. Roundabout 1 impacts the Mountainside Sports building, the north-east corner, the water booster station, and the gas regulator station.

This solution has the capacity to accommodate future traffic volumes.

4.3.2 Roundabout 2

Roundabout 2 is similar to Roundabout 1, except the outer diameter is reduced to 50 metres, as to decrease the impact on surrounding properties. In addition, the location has been shifted to the west to minimize impacts to the abutting properties. While Roundabout 2 does not impact the Mountainside Sports building, it impacts the water booster station, the north-east corner, the north-west corner, and the gas regulator station.

This solution has the capacity for future traffic volumes. Roundabout 2 is illustrated in Figure 15.

5 Environment Inventory

Descriptions of the immediate areas surrounding the subject intersection have been developed in consideration of the improvement alternatives and the existing land uses and development in context of the natural environment, physical environment, economic environment and cultural/heritage environment. In accordance with the Class EA framework (as per Figure 1), detailed investigations and analyses with respect to the environment inventories were not required at this point in the study. Rather, data was obtained from site visits and a review of secondary information pertaining to the study area, which included:

- Grey County Official Plan and GIS database;
- Simcoe County Official Plan and GIS database;
- Ontario Natural Heritage Information Centre Database;
- Ministry of Natural Resources mapping; and
- aerial photography.

The purpose of the inventories is to provide the information from which the assessment of the alternative solutions can be based. Brief descriptions of the various environments investigated are provided below.

5.1 Existing Land Uses

The lands located adjacent to the intersection currently include residential developments, commercial buildings, unoccupied, and recreational space, as illustrated in Figure 16 and detailed below.

The areas north-east and south-east of the intersection are comprised primarily of the Evergreen Estates and Mountainview Estates residential properties. Mountainside Sports, which operates primarily during the winter ski season, is located at the intersection on the south-east corner.

The north-west quadrant of the intersection is currently vacant (forested land). There is a proposal for the Windfall Medium Density Development currently in the planning and approvals process with the Town of The Blue Mountains. The Le Scandinave Spa property is located immediately north of this development parcel.

The south-west quadrant is a golf target range (ie. driving range and putting greens).

5.2 Land Use Designations

County Designations

Land use designations have been referenced from the Grey County and Simcoe County Official Plan schedules, excerpts of which are illustrated in Figure 12. On the Grey County side (west side), the lands are designated Escarpment Recreation Area, whereas on the Simcoe County side (east side), the lands are designated primarily Urban, with a small section noted Rural (which likely corresponds to the Bill Brown Woodworking on the north side of Mountain Road).

Town Designations

Similarly, reference has also been made to the Official Plans of the Town of The Blue Mountains (west side) and Collingwood (east side), excerpts of which are provided in Figure 18. On the Town of The Blue Mountain Side, the north-west quadrant of the intersection is designated Recreational Residential whereas the south-west quadrant is designated Deferred Development. On the Town of Collingwood side, the designations are Rural Residential corresponding to the existing subdivisions or Rural (Bill Brown Woodworking). There is also a small block designated Restrictive Commercial, corresponding to Mountainside Sports.

5.3 Physical Environment

The physical environment pertains to the transportation system and utility/infrastructure systems within the area. Geotechnical conditions have also been explored on a preliminary basis.

5.3.1 Transportation Network

The transportation network as it pertains to this study includes the intersection of Grey Road 19 and Grey Road 21/Simcoe Road 34 as well as the immediate road approaches. Details with respect to the intersection and road system were previously provided in Section 2.1 and detailed in Figure 3 and Figure 4.

5.3.2 Utilities & Services

There are overhead utility services (hydro, telephone and cable) along all intersection approaches and thus it is expected that some poles will have to be relocated, pending the final alignment and road configuration.

There are also underground services (telephone, cable and gas) and above ground appurtenances (including pedestals and gas regulator station on the west side of Grey Road 21/Simcoe Road 34 just north of the intersection) through the intersection and on various approaches. Figure 19 provides an indication of the existing utilities within the area.

There are also several watermains in the area of the intersection, including along the south side of Grey Road 19 (Town of The Blue Mountain infrastructure) and along the east side of Grey Road 21/Simcoe Road 34 (Town of Collingwood infrastructure). In conjunction with these, there is an underground water booster station located within the existing daylighting triangle of the south-west corner of the intersection. Corresponding design drawings for the water booster pump station are provided in Appendix H. Through discussions with Town of The Blue Mountain staff, and review of similar installations, the estimated cost to move and/or replace the water booster station is estimated at \$0.75 to \$1.0M (including associated engineering and constructions costs).

5.3.3 Geotechnical Conditions

A desktop geotechnical investigation was prepared by SPL Consultants Limited, a copy of which is provided in Appendix I. The objective of the study was to provide a review of existing information and to evaluate the regional geological and hydrogeological setting within the study area.

Subsurface Stratigraphy

Findings of the desktop study are summarized below relating to the subsurface stratigraphy:

- the expected subsurface stratigraphy consists of topsoil (up to 0.2 metres below grade), silty sand to sandy silt till (0.2 to 8.2 metres below grade), and upper sand and gravel (ranging in thickness to depth of 2.4 to 16 metres below grade); and
- there is bedrock underlying the site, but it is expected at depths greater than 15 metres below grade.

Groundwater

With respect to groundwater:

- regional groundwater flow is expected to be easterly/north-easterly toward Georgian Bay;
- based on area well records (within 300 metres of the intersection), static water levels vary from 0.6 to 6.4 metres below ground surface; and
- the upper sand and gravel unit is expected to be a source of groundwater and, depending on the construction design and area of the site, may require groundwater control during construction.

Recommendations

Recognizing that the geotechnical investigation was limited to a desktop study, a site specific geotechnical investigation is recommended to correspond with the preferred alternative design limits.

5.4 Social Environment

A review of the social environment focused on existing residential dwellings and commercial properties that could be impacted by the intersection improvements.

Residential Properties

For the adjacent residential properties, there is the potential for impacts to the residence on the north-east corner, resulting from the need to secure an appropriate daylight triangle at the intersection. Such impacts would however be limited to the rear yard of the corresponding residence with no impact to the structure itself.

Similarly, a further daylighting triangle may be required on the north-west corner under the Roundabout 2 solution, resulting in impacts to the proposed Windfall Medium Density Development.

Additional impacts may result to several other properties along the north side of Mountain Road (impacts to rear lots) and along the west side of Grey Road 19 (impacts to front yards). These impacts would result from a need to widen the respective roads and rights-of-way to accommodate additional travel lanes. Recall the north-south section of Grey Road 19 is limited to a 20 metre right-of-way whereas Mountain Road has a 26 metre right-of-way (refer to Figure 3).

Commercial Properties

The commercial properties within the immediate vicinity of the intersection are as follows:

- Mountainside Sports located on the south-east corner of the intersection;
- Tees Please Golf Driving Range located on south-west corner of the intersection; and
- Le Scandinave Spa located on the west side of Grey Road 21/Simcoe Road 34 approximately 450 metres north of the intersection.

The roundabout improvement options will affect the Mountainside Sports building given its close proximity to the road (the building is located approximately 9.5 metres from the edge of Mountain Road and 3.5 metres from the property line). The traffic signal options for the intersection improvements would have little impact on the building. In considering the Tees Please Golf Driving Range, a minor widening may be required across the site frontage on Grey Road 19, however this is not expected to have any impact to the operations of the facility (the area of widening is not otherwise an integral part of the golf facility). No direct impacts to Le Scandinave will occur.

Apart from the property acquisitions, these businesses and their customers could be temporarily affected by proposed road works and any associated road closures and/or detours. However, these

will be short term impacts (no significant construction impacts would result to Mountainside Sports as they operate primarily during the winter ski season).

5.5 Natural Environment

Azimuth Environmental Consulting Inc. evaluated the site area from an ecological perspective, findings of which are summarized below (the full *Environmental Impact Study* report is provided in Appendix J). The study considered the potential impacts from the proposed intersection improvements on the adjacent lands, which include residential developments, commercial buildings, vacant land and recreational space. In completing the study, Azimuth undertook the following:

- obtained background natural heritage information from the Ministry of Natural Resources and Forestry (MNR) through the Natural Heritage Information Centre (NHIC) and Midhurst District and from NVCA (Watershed Report data);
- conducted a Butternut reconnaissance survey on March 11, 2015;
- conducted a field visit to observe and monitor the flows and fish habitat characteristics of the watercourses and drainage features found within the site limits on March 11, 2015; and
- reviewed the proposed design options established for the improvements to the intersection.

Vegetation

Lands to the north-west of the intersection (within the Windfall Medium Density Development lands) contain successional vegetation cover and fencerow vegetation typical of abandoned farmland (the other quadrants were not specifically investigated in that they are currently developed). None of the plant species encountered are considered a Species at Risk (SAR) in Ontario (ie. not designated Endangered, Threatened or Special Concern under Ontario's *Endangered Species Act, 2007*) and none is considered provincially rare. All species are common in the area. No Butternut trees, saplings or seedlings (Endangered) were found within the study area.

Wildlife

The results of calling amphibian surveys completed in 2014 confirmed that the lands to the north-west of the intersection provide no amphibian breeding habitat. Bird species observed within and adjacent to the noted area are not considered Species at Risk (SAR) or provincially rare. No area-sensitive forest or grassland breeding bird species were observed within or adjacent to the lands to the south-west during studies completed in 2014 by Azimuth. Similarly, none of the mammals observed in the area (raccoon, porcupine, coyote, eastern chipmunk, red squirrel, grey squirrel, eastern cottontail, beaver and white-tailed deer) are a SAR or considered provincially rare.

Aquatic Habitat

A tributary of Silver Creek flows under Grey Road 19 via a 28 metre, 1500 mm diameter corrugated steel pipe (CSP) approximately 200 metres west of the intersection. The roadside ditches on Grey Road 19, west of Grey Road 21, drain towards the tributary. These roadside ditches have straight (constructed) banks that are vegetated by grasses that are regularly mowed, and are likely to contain flow for a very short time of the year during the spring snow melt and during large rainfall events. Fish are able to access these only during high flow. These roadside ditches provide seasonal direct fish (or contributing) fish habitat.

The study recommends that a request for review be made to the Department of Fisheries and Oceans (DFO) for any work completed below the high water mark in Silver Creek and any roadside ditches connecting to Silver Creek.

Recommendations

The study concludes that the proposed intersection improvements will not impact the habitat of species at risk (SARs) or significant natural heritage functions identified within the *2014 Provincial Policy Statement (PPS): Woodland Amphibian Breeding Habitat and Fish Habitat*. Therefore, the proposed development is consistent with Sections 2.1.5 d, 2.1.6, 2.1.7 and 2.1.8 of the PPS and requires no registry or permitting submissions under Ontario's *Endangered Species Act, 2007*.

5.6 Cultural/Heritage Environment

A Stage 1 Archeological Assessment was undertaken by Archeoworks Inc., a copy of which is provided in Appendix K.

Archeological Context

Consultation of the Ontario Heritage Properties Database which records heritage resources that have been designated for their provincial cultural value or interest under the *Ontario Heritage Act (O.Reg. 10/06)*, confirmed the absence of a provincially designated heritage property within and near (within 300 metres) of the study area. Similarly, no such designated or listed heritage properties were identified by the Town of The Blue Mountains or the Town of Collingwood.

A Heritage Conservation District includes areas that have been protected under Part V of the *Ontario Heritage Act*. No portion of the study area was found to be located within or near a Heritage Conservation District. According to the Ministry of Tourism, Culture and Sport, no archaeological sites have been registered within one-kilometre of the study area.

Archaeological Potential

The study area is situated in a mainly rural setting at the boundary of Grey and Simcoe Counties and comprises the intersection of Grey Road 19 and Grey Road 21/Simcoe Road 34. Disturbances consisting of an existing commercial structure, paved roads, gravel parking area, gravel shoulder, roadside ditching, and hydro utilities were identified. The Stage 1 Archaeological Assessment identified elevated potential for the recovery of Aboriginal and Euro-Canadian archaeological remains within undisturbed portions of the study area due to its close proximity (within 100 metres) to historic transportation routes and being partially within the hamlet of Kirkville. Potentially undisturbed areas with archaeological potential include (but are not limited to):

- the slightly treed and overgrown area located beyond the existing right-of-way within the north-east corner;
- the wooded areas along the north-west limit; and
- the manicured grassed area along the south-western limit of the study area.

Saugeen Ojibway Nations Traditional Territory

Archeoworks have also indicated that the subject lands fall within Saugeen Ojibway Nation (SON) traditional territory. According to SON's document *Conducting Archaeology within the Traditional Territory of the Saugeen Ojibway Nation (SON): Process and Standards for Approval Authorities, Development Proponents and Consultant Archaeologists*⁶ the Stage 1 Archaeological Assessment report is to be submitted to the SON for engagement purposes. As Stage 2 Archaeological Assessment is needed for this project, a SON monitor will be required to participate.

Recommendations

The following recommendations are presented:

1. As per *Section 1.4.1, Standard 1* of the *2011 Standards and Guidelines for Consultant Archaeologists*, areas that exhibit disturbed conditions need to be confirmed through an on-site property inspection during a Stage 2 Archaeological Assessment.
2. All identified areas which contain archaeological potential must be subjected to a Stage 2 Archaeological Assessment. Given the narrow width of these areas at less than 10 metres and being situated amidst a wooded area and utilities where infrastructure may be damaged, ploughing in advance of pedestrian archaeological survey will not be possible. As such, these areas must be subjected to a Stage 2 shovel test pit archaeological survey at 5 metre intervals in accordance with *Section 2.1.2* of the *2011 Standards and Guidelines for Consultant Archaeologists*.

⁶ *Conducting Archaeology within the Traditional Territory of the Saugeen Ojibway Nation (SON): Process and Standards for Approval Authorities, Development Proponents and Consultant Archaeologists*. Environment Office, Saugeen Ojibway Nation. November 2010.

3. Should construction activities associated with this development extend beyond the assessed limits of the study corridor; further archaeological investigation will be required to assess the archaeological potential of these lands.
4. The Stage 1 Archaeological Assessment report is to be submitted to the SON for engagement purposes and a SON monitor is to be secured during the Stage 2 work.

5.7 Economic Environment

With respect to the economic environment, this considers the associated costs to be incurred in constructing the road improvements. The costs have been considered in relation to the extent of existing road requiring upgrades/reconstruction, the extent of new road construction required, and possible impacts/requirements associated with existing utilities and infrastructure.

Upon implementation, maintenance costs have been reflected relating to traffic signal control versus roundabout control.

In addition, impacts to abutting lands have also been considered as part of the economic environment given the associated costs to obtain any required lands. However, no value has been associated with such acquisition.

6 Evaluation of Alternative Solutions

This section will discuss the evaluation of the alternative solutions as previously described, the results of which are considered preliminary given the need to solicit agency and public input. The evaluation is descriptive or qualitative in nature allowing for a comparative evaluation of the pros and cons associated with each alternative solution.

6.1 Evaluation Criteria

In completing the evaluation, a number of criteria were considered. Criteria have been divided into 5 major groups: Physical Environment, Social Environment, Natural Environment, Cultural/Heritage Environment and Economic Environment. The effects of the alternatives are identified based on the criteria within each group. Groups and criteria are outlined below.

Physical Environment

- traffic operations
- utility conflicts & impacts

Social Environment

- impacts to existing development
- property needs

Natural Environment

- impacts to vegetated areas
- impacts to aquatics & wildlife
- impacts to sensitive areas

Cultural/Heritage environment

- archaeological impacts
- built heritage impacts
- First Nations impacts

Economic Environment

- construction cost
- maintenance costs
- property costs

6.2 Environmental Impacts

The potential impacts associated with each alternative are noted in Table 10 and discussed in further detail below.

Table 10: Pros & Cons of Alternative Solutions

Evaluation Criteria	Do Nothing	Intersection 1	Intersection 2	Intersection 3	Roundabout 1	Roundabout 2
General Description	<ul style="list-style-type: none"> Maintain existing intersection configuration. 	<ul style="list-style-type: none"> Add 2nd E-W through lane. Maintain north & south approaches. 	<ul style="list-style-type: none"> Add 2nd E-W through lane. Add E-W left turn lanes. Maintain north & south approaches. 	<ul style="list-style-type: none"> Add 2nd E-W through lane. Add E-W left turn lanes. Add WB & SB right turn lanes. 	<ul style="list-style-type: none"> 2-lane roundabout (42m island + circulatory lanes = 60m outside diameter) with 2 entry and 2 exit lanes on each approach. 	<ul style="list-style-type: none"> 2-lane roundabout (32m island + circulatory lanes = 50m outside diameter) with 2 entry and 2 exit lanes on each approach.
Physical Environment	<ul style="list-style-type: none"> As the future volume will exceed the intersection capacity, poor traffic operations, increased delays and longer traffic queues will result. No impacts to existing utilities. 	<ul style="list-style-type: none"> Additional lanes will improve traffic operations and can accommodate 2019 traffic projections. Beyond 2019, further improvements will be necessary (add E-W lefts). With improvements, intersection will operate at 75% capacity in 2019. Impacts to 8-10 utility poles. No impacts to water booster station in SW corner. No impacts to gas regulator station in NW corner. 	<ul style="list-style-type: none"> Additional E-W through lanes & left turn lanes will improve traffic operations and can accommodate 2024 traffic projections. Beyond 2024, further improvements will be necessary (add SB right). With improvements, intersection will operate at 86% capacity in 2024. Impacts to 18-20 utility poles. Underground telephone and watermain on Grey Road 19. No impacts to water booster station in SW corner. No impacts to gas regulator station in NW corner. 	<ul style="list-style-type: none"> Additional E-W through lanes & left turn lanes will improve traffic operations and can accommodate 2029 traffic projections. Beyond 2029, further improvements will be necessary (add SB & WB right). With improvements, intersection will operate at 91% capacity in 2029. Impacts to 23-25 utility poles. Underground telephone, gas & watermain in the area. Gas regulator station in NW corner. No impacts to water booster station in SW corner. 	<ul style="list-style-type: none"> Acceptable operations will be provided. Exception is 2029 Saturday peak, when projected volumes will exceed the roundabout capacity (NB approach will be 32% over capacity). Roundabout provides traffic operations, safety and environmental benefits over a signalized intersection. Impacts to 21-23 utility poles. Underground telephone and gas in the area of the roundabout. Water booster station in SW corner. Gas regulator station in NW corner. 	<ul style="list-style-type: none"> Acceptable operations will be provided. Exception is 2029 Saturday peak operations which will be affected by reduced roundabout size (NB approach will be 48% over capacity). Roundabout provides traffic operations, safety and environmental benefits over a signalized intersection. Impacts to 18-20 utility poles. Underground telephone and gas in the area of the roundabout. Water booster station in SW corner. Gas regulator station in NW corner.
	<ul style="list-style-type: none"> Roundabouts are generally preferred to signalized intersections given improved safety and traffic operations and reduced environmental impacts. However, the roundabout alternatives have longer-term traffic issues (volume > capacity) and impact the water booster and gas regulator stations. 					
Natural Environment	<ul style="list-style-type: none"> No major issues/impacts/constraints have been identified with respect to the natural environment as the surrounding areas are primarily developed or have been identified for development. The west side of the intersection is within a regulated Nottawasaga Valley Conservation Authority (NVCA) floodplain area and hence an NVCA permit will be required prior to commencement of works. All options are considered feasible and will have similar and minimal impacts (slightly greater possible impacts with Roundabout 2). 					
Social Environment	<ul style="list-style-type: none"> NW corner: No property impacts NE corner: No property impacts SW corner: No property impacts 	<ul style="list-style-type: none"> NW corner: No property impacts, widenings have been obtained from Windfall on both Grey Road 19 & 21. NE corner: 15m x 15m daylight triangle required (112 sq.m). SW corner: 6m widening along Grey Road 19 (1432 sq.m). 	<ul style="list-style-type: none"> NW corner: No property impacts, widenings have been obtained from Windfall on both Grey Road 19 & 21. NE corner: 20m x 20m daylight triangle required (198 sq.m). SW corner: 6m widening along Grey Road 19 (1432 sq.m). 	<ul style="list-style-type: none"> NW corner: No property impacts, widenings have been obtained from Windfall on both Grey Road 19 & 21. NE corner: 20m x 20m daylight triangle required + 5m widening along Mountain Road (992 sq.m). SW corner: 6m widening along Grey Road 19 (1432 sq.m). 	<ul style="list-style-type: none"> NW corner: No property impacts, widenings have been obtained from Windfall on both Grey Road 19 & 21. NE corner: 15m x 15m daylight triangle required + minor widening along Grey Road 21 (600 sq.m). SW corner: 6m widening along Grey Road 19 (1461 sq.m). 	<ul style="list-style-type: none"> NW corner: 30m x 30m daylight triangle required (335 sq.m). NE corner: 10m x 10m daylight triangle required (50 sq.m). SW corner: 6m widening along Grey Road 19 (1461 sq.m).

Evaluation Criteria	Do Nothing	Intersection 1	Intersection 2	Intersection 3	Roundabout 1	Roundabout 2
Social Environment (cont'd)	<ul style="list-style-type: none"> ✓ SE corner: No property impacts 	<ul style="list-style-type: none"> × SE corner: No property impacts. 	<ul style="list-style-type: none"> × SE corner: No property impacts. 	<ul style="list-style-type: none"> × SE corner: No property impacts. 	<ul style="list-style-type: none"> × SE corner: To acquire Mountainside Sports + minor widening along Mountain Road + minor widening along Grey Road 10 (1425 sq.m.) 	<ul style="list-style-type: none"> × SE corner: 5m x 5m daylight triangle required (13 sq.m).
	<ul style="list-style-type: none"> ✓ Intersections 1 & 2 have the least impacts of improvements. × Greatest property impacts with Roundabout 1 given the location of Mountainside Sports. 					
Cultural/Heritage Environment	<ul style="list-style-type: none"> ✓ No impacts. 	<ul style="list-style-type: none"> × The Stage 1 Archaeological Assessment identified elevated potential for the recovery of Aboriginal and Euro-Canadian archaeological remains within undisturbed portions of the study area due to its close proximity (within 100 metres) to historic transportation routes and being partially within the former hamlet of Kirkville. Undisturbed areas include (but are not limited to) the slightly treed and overgrown area located beyond the existing right-of-way within the NE corner, the wooded areas along the NW limit, and the grassed area along the SW limit of the study area. × All identified areas which contain archaeological potential must be subjected to a Stage 2 Archaeological Assessment. ✓ All options have similar requirements and are considered feasible. 				
Economic Environment	<ul style="list-style-type: none"> ✓ No additional construction costs. 	<ul style="list-style-type: none"> ✓ Least costly of all alternatives to construct. ✓ Least costs relating to utility pole relocation. 	<ul style="list-style-type: none"> × Increased costs vs Intersection 1. × Greater costs for relocation of utility poles. 	<ul style="list-style-type: none"> × Increased costs vs Intersection 1 and Intersection 2 (estimated construction cost of \$1M). × Greater costs for relocation of utility poles. 	<ul style="list-style-type: none"> ▪ Comparable cost to Intersection 3 and Roundabout 2 (\$1M). × Greater costs for relocation of utility poles. × Additional costs to relocate water booster station and gas regulator station (\$0.75M to \$1.0M estimated). 	<ul style="list-style-type: none"> ▪ Comparable cost to Intersection 3 and Roundabout 1 (\$1M). × Greater costs for relocation of utility poles. × Additional costs to relocate water booster station and gas regulator station (\$0.75M to \$1.0M estimated).
	<ul style="list-style-type: none"> ✓ No additional maintenance costs. 	<ul style="list-style-type: none"> ✓ No increase in maintenance costs over existing conditions (typically \$5000 per year for traffic signals). 	<ul style="list-style-type: none"> ✓ No increase in maintenance costs over existing conditions (typically \$5000 per year for traffic signals). 	<ul style="list-style-type: none"> ✓ No increase in maintenance costs over existing conditions (typically \$5000 per year for traffic signals). 	<ul style="list-style-type: none"> ✓ Roundabout maintenance is cheaper than traffic signal maintenance (\$2000 vs \$5000 per year). 	<ul style="list-style-type: none"> ✓ Roundabout maintenance is cheaper than traffic signal maintenance (\$2000 vs \$5000 per year).
	<ul style="list-style-type: none"> ✓ No additional property costs. 	<ul style="list-style-type: none"> ✓ Minimal property costs. 	<ul style="list-style-type: none"> ✓ Minimal property costs. 	<ul style="list-style-type: none"> × Slighter greater property costs as compared to Intersection 1 and Intersection 2. 	<ul style="list-style-type: none"> × Greatest property costs (Mountainside Sports property estimated at \$1M- \$1.25M). 	<ul style="list-style-type: none"> × Minimal property costs. Property at Windfall can be acquired through Site Plan Approval.
	<ul style="list-style-type: none"> ▪ The cost to construct a signalized intersection and roundabout are comparable. × However, in considering the costs associated with relocating the water booster station and acquiring the Mountainside Sports property, the roundabout alternatives are 2x to 3x greater than signals. 					
Recommendation	<ul style="list-style-type: none"> ▪ Do Nothing does not address future traffic operations. ▪ Intersection 1 does not provide sufficient road capacity (no E-W left turn lanes). ▪ While roundabouts are preferred to traffic signals from a traffic & safety perspective, the roundabout alternatives result in impacts/additional costs to the water booster station and/or Mountainside Sports (+ \$1M to \$2M to the project cost). ▪ Intersection 2 is the recommended solution (with ability to upgrade to Intersection 3 as warranted by traffic volumes). 					
	<ul style="list-style-type: none"> ✓ positive impact 	<ul style="list-style-type: none"> ▪ neutral impact 	<ul style="list-style-type: none"> × negative impact 			

6.3 Recommended Alternative Solution

It is noted that the recommended solution is not presented as a decision at this point in the study, but rather a preliminary recommendation based on a rational evaluation of the available information.

Based on the initial evaluation of alternate solutions, the recommended solution for improving the intersection of Grey Road 19 with Grey Road 21/Simcoe Road 34 is:

- Intersection 2 with the ability to upgrade to Intersection 3 as future traffic volumes warrant.

Intersection 2 is the recommended solution for the following reasons:

1. It provides acceptable intersection operations with the ability to further improve operations as future traffic volumes increase.
2. It seeks to reduce/negate impacts to the abutting properties.
3. It does not result in impacts to the water booster station or the gas regulator station, and thus no associated costs to relocate.
4. It does not result in impacts to Mountainside Sports, and thus no associated costs to purchase the land and business.

While there will be impacts in relation to the Do Nothing alternative, they are considered minor and measures will be explored during the design process to minimize/mitigate them (eg. reduce right-of-way where necessary, urban vs. rural cross-section, reduced road standards, etc.).

As the provision of the SB and WB right turn lanes are warranted by MTO standards based on future traffic volumes, their need can be confirmed as development in the area proceeds.

The Do Nothing alternative is not recommended as it will not adequately accommodate the 20 year traffic volumes, which is the primary objective of the intersection improvements. While roundabouts are preferred to traffic signals from a traffic and safety perspective, Roundabout 1 and Roundabout 2 result in impacts/additional costs to the water booster station and/or Mountainside Sports (+ \$1M to \$2M to the project cost).

7 Consultation - Public Information Centre

Under a Schedule B Environmental Assessment, there are two points of mandatory stakeholder contact. As noted in Figure 1, the first point occurs towards the end of Phase 2 when a notice is issued inviting stakeholder comment and input via a Public Information Centre. The second point of contact is upon completion of the planning process at which time a Notice of Completion is provided. In keeping with the chronological order in documenting events in the order that they occurred, the first point of contact is discussed in this chapter whereas the second point of contact is discussed in Chapter 9, after the identification of the preferred solutions and completion of the Schedule B Class EA requirements.

7.1 Notification

In accordance with the EA guidelines, a notification of the Public Information Centre (provided in Appendix L) was issued inviting stakeholder comment and input. Stakeholders include review agencies, the public and other municipalities and thus notices were directed to each.

The EA guidelines indicate that notice to the Ministry of the Environment and other directly affected municipalities is required; other review agencies are to be notified as appropriate. In accordance with this, notices were mailed to the following agencies on February 27, 2015 (agency details are provided in Appendix L):

- Provincial Agencies
 - Ministry of Aboriginal Affairs
 - Ministry of Agriculture, Food and Rural Affairs - Economic Development Division
 - Ministry of Culture - Midhurst District Office
 - Ministry of Culture - Heritage Operations
 - Ministry of the Environment - CEAA Branch
 - Ministry of the Environment - Central Region
 - Ministry of the Environment - London Office
 - Ministry of the Environment - Owen Sound
 - Ministry of Municipal Affairs & Housing
 - Ministry of Natural Resources & Forestry
 - Ministry of Tourism, Culture & Sport
 - Ministry of Transportation
- Federal Agencies
 - Indian & Northern Affairs
- Municipal Agencies
 - Simcoe County
 - Grey County
 - Town of Collingwood
 - Town of The Blue Mountains
- First Nations Communities
 - Beausoleil First Nation
 - Chippewas of Georgina Island
 - Chippewas of Rama First Nation
 - Coordinator for Williams Treaties First Nation
 - Georgian Bay Metis Council
 - Metis Nation of Ontario
 - Moose Deer Point
 - Wahta Mohawk
 - Wasauksing First Nation

- Conservation Agencies
 - Grey Sauble Conservation Authority
 - Niagara Escarpment Commission
 - Nottawasaga Valley Conservation Authority
- School Boards & Transportation
 - Bluewater District School Board
 - Bruce-Grey Catholic District School Board
 - Simcoe County District School Board
 - Simcoe County Student Transportation Consortium
 - Simcoe Muskoka Catholic School Board
 - Student Transportation Consortium of Grey Bruce
- Other Agencies
 - Grey Bruce Health Unit
 - Ontario Provincial Police
 - Simcoe County District Health Unit
- Utilities
 - Bell Canada
 - Collingwood Public Utilities
 - Collus-Powerstream (Epcor)
 - Enbridge Gas Distribution Inc.
 - Hydro One
 - Hydro One Networks
 - Ontario Power Generation
 - Rogers Cable Systems
 - Union Gas
- Commercial
 - Bill Brown Woodworking
 - Blue Mountain Resorts
 - Georgian International
 - Le Scandinave Spa
 - Mountainside Sports
 - Play it Again Sports
 - Tees Please

The notices were also mailed to 218 residences/businesses/landowners in the immediate area, as determined from Grey County and Simcoe County property records, and as compiled in response to the initial Notice of Study Commencement.

Furthermore, as per the EA requirements, a copy of the notice was published in the local newspaper (Collingwood Connection) on 2 separate occasions during the 2-week period prior to the public meeting. Notices were also posted on the websites of the Counties and the Town of Collingwood.

7.2 Public Information Centre

The purpose of the Public Information Centre was to provide information to the public and agencies and seek their input with respect to the following:

- identification of the problem;
- development and evaluation of alternative solutions to the problem;
- general inventory of the affected environments in order to determine the possible impacts; and
- identification of the recommended alternative.

The Public Information Centre was held on Saturday, March 14, 2015 from 1:00 PM to 4:00 PM at the Town of Collingwood Public Library, Community Rooms B and C (3rd Floor). There was a

presentation made at 1:00 PM until 1:30 PM, after which there was a general open house until 4:00 PM. Representatives from the Simcoe County, Grey County, Town of Collingwood and C.C. Tatham & Associates Ltd. were in attendance to answer any questions and provide assistance as necessary.

Various display boards were prepared for viewing by the public, a copy of which was made available on the County websites following the meeting (as provided in Appendix L). Display boards addressed the following (specific to the intersection improvements):

- study objective and purpose, which described the reasoning behind the undertaking;
- the Municipal Class EA process and those tasks relevant to this study;
- a review of the existing intersection, existing traffic volumes and derivation of future traffic volumes;
- problem identification detailing the travel demand (both existing and future) and operational issues necessitating the need for improvements;
- alternative solutions for improvements to the intersection;
- identification of the affected environments;
- preliminary assessment and identification of the recommended solution;
- the remaining steps to completion; and
- contact details for additional information.

Approximately 19 people attended the Public Information Centre based on the sign-in sheets (a copy of which is provided in Appendix L), including representatives from the Blue Mountain Watershed Trust, Blue Mountain Resorts and Town of Collingwood Council. The remainder were area residents.

7.3 Public Comment

Comments were received from stakeholders immediately prior to or shortly after the Public Information Centre, copies of which are provided in Appendix L. A summary of the key issues/concerns is provided in Table 11.

7.4 Agency Comment

In follow-up to the notification of the Public Information Centre, comments were received from Collingwood Public Utilities and the Town of The Blue Mountains, as included in Appendix L and summarized in Table 12.

Table 11: Public Information Centre - Public Comments

ID	Comment	Response
1	<ul style="list-style-type: none"> Support for a roundabout as opposed to a traffic signal. 	<ul style="list-style-type: none"> Acknowledged.
2	<ul style="list-style-type: none"> Concern with current traffic volumes on busy ski days and the additional traffic that may result from the proposed Windfall Medium Density block proposed for the NW corner of the Grey Road 19 and Grey Road 21 intersection and the Windfall Residential development further west on Grey Road 21. 	<ul style="list-style-type: none"> The traffic projections completed for this study consider the additional development and impacts of such on the future traffic operations of the intersection.
3	<ul style="list-style-type: none"> Concern with existing traffic volumes during peak winter weekends. 	<ul style="list-style-type: none"> Acknowledged. The proposed improvements will address existing and future travel demands.
4	<ul style="list-style-type: none"> Support for the preliminary recommendation (Intersection 2) and need for improvements to accommodate the future planned developments in the area and future development at the Village at Blue. While the best solution would be a roundabout, cannot justify the additional \$1-\$2M cost for the roundabout solutions. 	<ul style="list-style-type: none"> Acknowledged.
5	<ul style="list-style-type: none"> Suggested that additional traffic counts be undertaken recognizing that during winter, the volume of traffic to/from the ski hill is somewhat dependent on weather conditions. Is the data collected representative of typical conditions? Need to ensure the intersection improvements are not under-designed as there may not be a future opportunity for additional improvements once development in the area occurs. 	<ul style="list-style-type: none"> Traffic counts from February 2014 were undertaken to reflect typical winter conditions. In comparison, counts from January 2011 were also reviewed, and the greatest volumes (2011) were employed in this study. Furthermore, conservative assumptions regarding future development growth have been employed in preparing the future projections. It is acknowledged that traffic volumes may vary day to day and week to week, however, the volumes obtained are considered typical of winter conditions.
6	<ul style="list-style-type: none"> Request to be added to the mailing list 	<ul style="list-style-type: none"> Acknowledged.
7	<ul style="list-style-type: none"> Adding additional lanes on Mountain Road will simply shift the problem further along Mountain Road and into Collingwood. Greater use and emphasis of Grey Road 19 - Sixth Street - 10th Line - Poplar Sideroad as an alternative route should be considered. Modified Roundabout 2 is the best solution (shifted slightly west and north to reduce impacts). A roundabout will provide a gateway to Grey County, Town of The Blue Mountains and Blue Mountain. 	<ul style="list-style-type: none"> Intersections are the bottlenecks of the transportation systems, and limit road capacity. The intersection of Mountain Road and Highway 26 provides additional through and turn lanes, to provide additional capacity. A similar approach is proposed for the intersection of Grey Road 19 and 21. The need to widen Mountain Road from Cambridge Street to west of 10th Line in the Town of Collingwood was identified in the <i>Town of Collingwood Transportation Study</i> (July 9, 2012) for the long term (ie. beyond 2022).

Table 12: Public Information Centre - Agency & Stakeholder Group Comments

ID	Agency/Group	Comment	Response
1	Collingwood Public Utilities	<ul style="list-style-type: none"> Identified CPU buried watermain infrastructure at the intersection and the need to preserve the watermain integrity during construction. It is preferred that access to the watermain be maintained outside of the road. 	<ul style="list-style-type: none"> Acknowledged
2 3 4	Town of The Blue Mountains	<ul style="list-style-type: none"> Town Council resolution in support of a roundabout as a roundabout will provide a gateway feature to the Town and concern that traffic signals will not function as well as a roundabout. Additional input was provided with respect to the potential costs to relocate the water booster station and potential to salvage and reuse much of the equipment (suggested net costs, following allowance for reuse of infrastructure, of \$250,000). 	<ul style="list-style-type: none"> The benefits of a roundabout are acknowledged. The booster station information will be considered in the final assessment.

8 Preferred Solution

8.1 Additional Considerations

Following the Public Information Centre, the preliminary assessment was revisited to consider comments and input received from the various stakeholders. Further direction was also received from both Grey and Simcoe Counties to re-evaluate the preferred intersection control (ie. traffic signals versus roundabout). While it was previously noted that a roundabout will have greater implementation costs as compared to a signalized intersection, given potential impacts to Mountainside Sports and other existing utility infrastructure, the re-evaluation should place less importance on cost, and a greater importance on traffic operations, road safety and other roundabouts along the corridor and within the immediate area, namely:

- the existing roundabout at Grey Road 19/Scenic Caves Road/Gord Canning Drive approximately 1.3 km to the west;
- the planned roundabout at Grey Road 19/Crosswinds Boulevard (the main entrance to the Windfall) approximately 600 metres to the west; and
- consideration for a roundabout by the Town of Collingwood at Mountain Road/10th Line approximately 2.8 km to the east.

Given the above, which reflects changing philosophies of County staff and/or Council over the study period, traffic volumes and traffic operations were updated, and revisited, additional roundabout options were considered, and a re-evaluation of the options undertaken.

8.2 Updated Traffic Volumes & Operations

8.2.1 2017 Traffic Volumes

Additional traffic counts were conducted at the intersection of Grey Road 19 and Grey Road 21 on:

- Friday March 17, 2017 (winter conditions);
- Saturday March 18, 2017 (winter conditions); and
- Friday August 18, 2017 (summer conditions).

In comparison to the 2014 winter counts, the 2017 winter counts were 21% more during the Friday PM peak hour and 13% less during the Saturday peak hour. The respective peak hour volumes are noted in Figure 20, with additional count details provided in Appendix M. Upon further review of the 2014 and 2017 Saturday peak hour volumes, most are comparable with the exception of the north-south through volumes. To ensure representation of peak hour conditions, the north-south volumes were

subsequently adjusted to better reflect 2014 conditions. The corresponding 2017 winter peak hour volumes are illustrated in Figure 20. As the 2017 and 2014 volumes are comparable, they are considered representative of current conditions. While it is acknowledged that the 2011 volumes are somewhat greater than both the 2014 and 2017 volumes, the data is now considered dated and thus has not been carried forward for the updated analyses.

In comparison to the 2017 summer count, the 2017 winter volumes were greater and thus were carried forward at the basis for the evaluation (the summer volumes are also noted in Figure 20).

8.2.2 2018 Traffic Volumes

To consider 2018 conditions, the 2017 traffic volumes have been increased to account for background growth and development growth in the area, further details of which are provided in the following sections. While it is acknowledged that additional development has occurred within Phase 2 of the Windfall development, such has not been considered as part of the 2018 background volumes (rather, it will be considered in the future total volume projections).

2018 Traffic Operations

A summary of the 2018 analysis is provided in Table 13 in the form of average delay (measured in seconds) and level of service (LOS). The results reflect the approach and overall intersection delays and levels of service - LOS A corresponds to the best operating condition with minimal delays whereas LOS F corresponds to poor operations resulting from high intersection delays. Volume to capacity ratios (v/c), which indicate the degree to which the intersection capacity is utilized, are also noted (for the roundabout, the v/c pertains to the critical approach). Detailed worksheets are included in Appendix N. As noted, acceptable operations are provided.

Table 13: Intersection Operations - 2018 Existing Conditions

Intersection and Movement	Control	Friday PM Peak Hour			Saturday Peak Hour		
		delay	LOS	v/c	delay	LOS	v/c
Grey Road 19 & Grey Road 21	EB	15	B	0.76	14	B	0.68
	WB	14	B	0.64	18	B	0.74
	NB	14	B	0.46	13	B	0.42
	SB	12	B	0.18	11	B	0.29
	overall	signal	14	B	0.62	14	B

8.2.3 Future Traffic Volumes

Updated projections for the 2029 horizon year were established following the methodology previously detailed in Section 2.2.1, including a 2% annual background growth rate (to reflect general growth in the area) and updated development specific traffic volumes to be generated by the following:

- Intrawest Village;
- Monterra Phase 2;
- Second Nature;
- Blue Mountain Resort at the Orchard ski area (increased volumes associated with which are considered captured in the 2017 traffic counts); and
- the Windfall residential development (including the medium density component to be located at the north-west corner of the Grey Road 19 and Grey Road 21 intersection which is now known as Mountain House at Windfall).

Future traffic volumes were established for the 2019, 2024 and 2029 planning horizons (which is consistent with the horizons previously considered). Consideration was also given to the 2039 planning horizon, to consider the longer-term operations, as requested by the Counties. It is noted that all of the above referenced developments were assumed to be 100% complete by 2029 (if not earlier); a 2% annual growth was applied for the subsequent 10 year period from 2029 to 2039.

The resulting winter peak hour traffic volumes are illustrated in Figure 21 for the 2019, 2024, 2029 and 2039 horizon years. Additional details of traffic volumes associated with various area developments, and the composition of the future traffic volumes are provided in Appendix M.

8.2.4 Traffic Operations - Traffic Signal Control

The intersection operations were again investigated considering the total traffic volumes for the 2029 and 2039 horizons (considered the most critical in that the volumes are greatest). The lane configurations as per Intersection 2 (the previously recommended alternative solution) have been assumed, with optimized signal control.

2029 Operations

The resulting operating conditions for the 2029 horizon are summarized in Table 14, whereas detailed worksheets are provided in Appendix N. As noted, acceptable operations will be provided (level of service C or better on each approach).

Table 14: Intersection Operations - 2029 Conditions (Intersection 2)

Intersection and Movement	Control	Friday Peak Hour			Saturday Peak Hour		
		delay	LOS	v/c	delay	LOS	v/c
Grey Road 19 & Grey Road 21	EB	20	B	0.80	18	B	0.74
	WB	20	B	0.78	24	C	0.86
	NB	16	B	0.72	17	B	0.79
	SB	20	B	0.36	22	C	0.56
	overall	signal	19	B	0.67	20	C

2039 Operations

The results of the 2039 operational review, again with the Intersection 2 configuration, are summarized in Table 15 (corresponding worksheets are provided in Appendix N). As noted, acceptable levels of service are provided for each approach. It is noted that the critical v/c ratio for the northbound approach, which corresponds to the northbound left turn lane, is 0.99 which suggests that this movement will operate at capacity (albeit the delay will remain acceptable). There is sufficient reserve capacity at the intersection to allow for changes to the signal timing to afford this movement additional green time if needed (but as it is a left turn operating on an advance green, it is desired to operate at capacity corresponding to the minimum green time necessary).

Table 15: Intersection Operations - 2039 Conditions (Intersection 2)

Intersection and Movement	Control	Friday Peak Hour			Saturday Peak Hour		
		delay	LOS	v/c	delay	LOS	v/c
Grey Road 19 & Grey Road 21	EB	21	C	0.92	20	B	0.79
	WB	19	B	0.77	27	C	0.88
	NB	39	D	0.96	38	D	0.99
	SB	25	C	0.47	35	C	0.79
	overall	signal	24	C	0.81	27	C

8.2.5 Traffic Operations - Roundabout Control

The roundabout operations were also reviewed, maintaining the roundabout design parameters as previously noted, namely:

- an inside island with a 40 metre diameter;
- 2 circulating lanes;
- 2 approach lanes on each leg (shared left-through and through-right); and
- 2 departure lanes on each leg (to be reduced to 1 lane as required beyond the roundabout).

Results of the roundabout review for the 2029 and 2039 horizon years are summarized in Table 16 whereas detailed worksheets are provided in Appendix N. As indicated, the roundabout will provide excellent levels of service with minimal delays.

Table 16: Roundabout Operations - 2029 & 2039 Conditions

Horizon	Control	Friday Peak Hour			Saturday Peak Hour		
		delay (s)	LOS	v/c	delay (s)	LOS	v/c
2029	roundabout	5	A	0.58	6	A	0.60
2039	roundabout	8	A	0.76	9	A	0.75

As previously noted, should a roundabout be considered, it would still be necessary to implement the left turn lanes on Grey Road at the Windfall access/Laurel Boulevard (such would be tied into the provision of a 2nd southbound lane entering the roundabout).

8.2.6 Traffic Operations - Preferred Control

While acceptable operations will be provided with both traffic signal and roundabout control, reduced delays will be experienced under roundabout control as evident from the operational reviews. In this respect, and in considering the improved safety levels experienced at roundabouts as compared to standard intersections, and the other roundabouts located to the west on Grey Road 19 (the existing roundabout at Scenic Caves Road/Gord Canning Drive and the planned roundabout at Crosswinds Boulevard), roundabout control is deemed the preferred means of intersection control at the intersection of Grey Road 19 with Grey Road 21.

8.3 Additional Roundabout Improvement Options

As previously noted in the development and assessment of the Roundabout 1 alternative solution, a roundabout centered on the intersection of Grey Road 19 and Grey Road 21 will have significant impacts to the existing Mountainside Sports (as is evident in Figure 14). In this regard, 2 additional roundabout options have been considered. In both cases, a 60 metre outside diameter has been maintained to ensure consistency between roundabouts along the Grey Road 19 corridor (the planned roundabout at Crosswinds Boulevard will also have a 60 metre outside diameter).

8.3.1 Roundabout 3

Roundabout 3, as illustrated in Figure 22, has been shifted 30 metres to the west of the intersection to avoid impacts to the Mountainside Sports building (a 5 metre x 5 metre daylight triangle within the Mountainside Sports property is still required), maintaining its centred alignment on the east-west road. Roundabout 3 impacts the north-west corner (Mountain House at Windfall), the water booster station and the gas regulator station.

8.3.2 Roundabout 4

Roundabout 4, as illustrated in Figure 23, has been shifted 17 metres to the west and 14 metres to the north of the centre of the intersection, to illustrate another possible location. While Roundabout 4 does not impact Mountainside Sports (apart from a 5 metre x 5 metre daylighting similar to Roundabout 3), it impacts the water booster station, the north-east corner, the north-west corner, and the gas regulator station.

8.4 Updated Evaluation of Alternative Solutions

The evaluation of the alternative solutions, as previously detailed in Section 6.3 and Table 10 was revisited to consider Roundabout 3 and Roundabout 4. To provide a more comprehensive basis of evaluation, Intersection 2 (as previously identified as the recommended solution) and Roundabout 1 (centred on the intersection) have also been considered in the updated review. Roundabout 2, which employed a roundabout with a 50 metre outside diameter, was not carried forward due to reasons previously discussed (a consistent roundabout design/size of 60 metres is desired along Grey Road 19).

The results of the updated evaluation are provided in Table 17.

Table 17: Pros & Cons of Additional Roundabout Solutions

Evaluation Criteria	Intersection 2	Roundabout 1	Roundabout 3	Roundabout 4
General Description	<ul style="list-style-type: none"> Add 2nd E-W through lane. Add E-W left turn lanes. Maintain north & south approaches. 	<ul style="list-style-type: none"> 2-lane roundabout (42m island + circulatory lanes = 60m outside diameter) with 2 entry and 2 exit lanes on each approach. EB & WB provide shared left-through and through-right lanes NB & SB provide left and through-right lanes Roundabout is centred on the existing intersection. 	<ul style="list-style-type: none"> 2-lane roundabout (42m island + circulatory lanes = 60m outside diameter) with 2 entry and 2 exit lanes on each approach. EB & WB provide shared left-through and through-right lanes NB & SB provide left and through-right lanes Roundabout is offset 30 m west of the centre of the existing intersection. 	<ul style="list-style-type: none"> 2-lane roundabout (42m island + circulatory lanes = 60m outside diameter) with 2 entry and 2 exit lanes on each approach. EB & WB provide shared left-through and through-right lanes NB & SB provide left and through-right lanes Roundabout is offset 17 m west, and 14 m north of the centre of the existing intersection.
Physical Environment	<ul style="list-style-type: none"> ✓ Additional E-W through lanes & left turn lanes will improve traffic operations and can accommodate 2024 traffic projections. ✗ Beyond 2024, further improvements will be necessary (add SB right). ✓ With improvements, intersection will operate at 86% capacity in 2024. ✗ Impacts to 18-20 utility poles. ✗ Underground phone and watermain on Grey Road 19. ✓ No impacts to water booster station in SW corner ✗ No impacts to gas regulator station in NW corner. 	<ul style="list-style-type: none"> ✓ Acceptable operations will be provided with each roundabout option as geometry and design is comparable (Level of service B or better with minimal delays under both the 2029 and 2039 horizon years). ✓ Roundabout provides traffic operations, safety and environmental benefits over a signalized intersection. A roundabout is currently located at the intersection of Grey Road 19 / Grey Road 119 to the west; a future roundabout is to be constructed at Grey Road 19 / Crosswinds Blvd. (main access to Windfall) to the west; and the Town of Collingwood is currently considering a roundabout at Mountain Road / 10th Line to the east. From a corridor perspective, the preference is to construct a roundabout to ensure comparable operations and driver expectations throughout. ✓ Future Intersection improvements north of the roundabout on Grey Road 21 to provide access to the Windfall Development can be incorporated into all options. ✗ The roundabout alternatives will impact the water booster station (SW corner) and gas regulator station (NW corner). ✗ Above ground and underground telephone and gas in the area of the roundabout. ✗ Impacts to 30-32 utility poles. ✗ Commercial entrances within close proximity of the intersection will have to be closed 	<ul style="list-style-type: none"> ✗ Impacts to 26-28 utility poles. ✗ Entry to Mountainside Sports is reduced to two accesses, both of which will be within close proximity of the roundabout. 	<ul style="list-style-type: none"> ✗ Impacts to 29-31 utility poles. ✗ Entry to Mountainside Sports is reduced to two accesses, both of which will be within close proximity of the roundabout.
	<ul style="list-style-type: none"> ✓ Roundabouts are generally preferred to signalized intersections given improved safety and traffic operations and reduced environmental impacts. ✗ The roundabout alternatives will impact the water booster station (SW corner) and gas regulator station (NW corner). 			
Natural Environment	<ul style="list-style-type: none"> ✓ No major issues/impacts/constraints have been identified with respect to the natural environment as the surrounding areas are primarily developed or have been identified for development. ✗ The west side of the intersection is within a regulated Nottawasaga Valley Conservation Authority (NVCA) floodplain area and hence an NVCA permit will be required prior to commencement of works. ✓ All options are considered feasible and will have similar and minimal impacts (slightly greater possible impacts with Roundabouts 3&4). 			
Social Environment	<ul style="list-style-type: none"> ✓ NW corner: No property impacts, widenings have been obtained from Windfall on both Grey Road 19 & 21. ✗ NE corner: 20m x 20m daylight triangle required (198 m²). ✗ SW corner: 6m widening on Grey Road 19 (1432 m²). ✗ SE corner: No property impacts. ✓ Intersection 2 has the least impacts of improvements. 	<ul style="list-style-type: none"> ✓ NW corner: No property impacts, widenings have been obtained from Windfall on both Grey Road 19 & 21. ✗ NE corner: 30m x 30m daylight triangle required (446 m²). ✗ SW corner: 6m widening on Grey Road 19 (711 m²). ✗ SE corner: To acquire Mountainside Sports + minor widening along Mountain Road + minor widening along Grey Road 19 (1687 m²) ✗ Greatest property impacts with Roundabout 1 given the location of Mountainside Sports (2844 m²). 	<ul style="list-style-type: none"> ✗ NW corner: 30m x 30m daylight triangle required (418 m²). ✓ NE corner: No property impacts ✗ SW corner: 6m widening on Grey Road 19 (967 m²). ✗ SE corner: 5m x 5m daylight triangle required (13 m²). ✓ Roundabout 3 has the least impacts of improvements (1398 m²). 	<ul style="list-style-type: none"> ✗ NW corner: 30m x 30m daylight triangle required (418 m²). ✗ NE corner: 30m x 30m daylight triangle required (446 m²). ✗ SW corner: 6m widening on Grey Road 19 (711 m²). ✗ SE corner: 5m x 5m daylight triangle required (13 m²). ✗ Roundabout 2 has slightly greater property impacts than Roundabout 3 (1588 m²).

Evaluation Criteria	Intersection 2	Roundabout 1	Roundabout 3	Roundabout 4
Cultural/Heritage Environment	<ul style="list-style-type: none"> × The Stage 1 Archaeological Assessment identified elevated potential for the recovery of Aboriginal and Euro-Canadian archaeological remains within undisturbed portions of the study area due to its close proximity (within 100 metres) to historic transportation routes and being partially within the former hamlet of Kirkville. Undisturbed areas include (but are not limited to) the slightly treed and overgrown area located beyond the existing right-of-way within the NE corner, the wooded areas along the NW limit, and the grassed area along the SW limit of the study area. × All identified areas which contain archaeological potential must be subjected to a Stage 2 Archaeological Assessment. All options have similar requirements and are considered feasible. 			
Economic Environment	<ul style="list-style-type: none"> × Greater costs for relocation of utility poles. 	<ul style="list-style-type: none"> × Greatest costs for relocation of utility poles (but likely comparable between all roundabouts given scope). 	<ul style="list-style-type: none"> ✓ Lowest cost for relocation of utility poles (but likely comparable between all roundabouts given scope). 	<ul style="list-style-type: none"> × Comparable cost to Roundabout 1; slightly greater than Roundabout 3.
	<ul style="list-style-type: none"> ✓ No increase in maintenance costs over existing conditions (typically \$5000 per year for traffic signals). ✓ Minimal property costs. ▪ The cost to construct a signalized intersection and roundabouts are comparable. × However, in considering the costs associated with relocating the water booster station and acquiring the Mountainside Sports property, the roundabout alternatives are 2x to 3x greater than signals. 	<ul style="list-style-type: none"> ▪ Comparable cost to construct the roundabout between all options given the same size and geometry. ▪ Extent of road work on approaches is least given roundabout is centred in the intersection. ✓ Overall roundabout construction cost is likely less with Roundabout 1 as compared to Roundabout 3 or Roundabout 4. × Additional costs to relocate water booster station and gas regulator station (\$0.75M to \$1.0M estimated). ✓ Roundabout maintenance is cheaper than traffic signal maintenance (\$2000 vs \$5000 per year). × Greatest property costs (Mountainside Sports property estimated at \$1M- \$1.25M). 	<ul style="list-style-type: none"> ▪ Comparable cost to construct the roundabout between all options given the same size and geometry. ▪ Extents of road work on North-South legs are greater than Roundabout 1 and Roundabout 4 given offset location; extents on East-West legs are greater than Roundabout 1 but less than Roundabout 4 (Roundabout 3 is centre on East-West road). × Overall roundabout construction cost is likely more than Roundabout 1 given increased extents of work; likely comparable to Roundabout 4. ✓ Minimal property costs. Property at Windfall can be acquired through Site Plan Approval. 	<ul style="list-style-type: none"> ▪ Comparable cost to construct the roundabout between all options given the same size and geometry. ▪ Extents of road work on North-South legs are greater than Roundabout 1 but less than Roundabout 3 given offset location; extents on East-West legs are greater than Roundabout 1 and Roundabout 3. × Overall roundabout construction cost is likely more than Roundabout 1 given increased extents of work; likely comparable to Roundabout 3. × Slightly greater property costs than Roundabout 3. ✓ Windfall property acquired through Site Plan Approval.
Recommended	<p>Roundabout 4 is recommended for the following reasons:</p> <ul style="list-style-type: none"> ✓ a roundabout is preferred to a signalized intersection from traffic operations and safety perspective, and in consideration of other roundabouts on Grey Road 19 ✓ avoids Mountainside Sports and adjacent properties and still provides opportunity for access via both Mountain Road and Grey Road 19 ✓ alignment provides greater flexibility with respect to the East-West approaches and the opportunity to introduce approach curves to ensure approach speeds are reduced (the more tangential the approach, the greater the speeds) ✓ spacing between approach and departure legs is better suited (more uniform) as compared to Roundabout 3 (given that the shift from the centre of the existing intersection is not as significant) ✓ reduced property impacts on the SW corner ▪ while there will be impacts to the property on the NE corner, such, can be potentially reduced and mitigated accordingly through relocation of existing trees 			
	✓ positive impact	▪ neutral impact	× negative impact	

8.5 Preferred Solution

Prior to identifying the preferred solution, the problem statement has been reiterated.

Operational improvements are required at the intersection Grey Road 19 and Grey Road 21/Simcoe Road 34 to ensure safe and efficient movement through the intersection by the motoring public. Based on an assessment of the existing and future traffic volumes and in consideration of appropriate design standards, the improvements should increase the capacity of the intersection through the provision of additional turn lanes and/or through lanes, or improved intersection control.

To establish the preferred solution, the recommendation from the updated evaluation was reviewed in context of the problem statement, comments received from the general public and agencies consulted during the Class EA process. In particular, it is noted that a number of major stakeholders in the area are in favour of a roundabout, as opposed to a traffic signal, both as a means of improved traffic control and a potential gateway feature to the Town and Blue Mountain. These stakeholders include:

- Grey County;
- Simcoe County;
- Town of The Blue Mountains;
- Blue Mountain Resort; and
- Blue Mountain Village Association.

Furthermore, a number of residents who attended the Public Information Centre also expressed support for a roundabout.

While the updated evaluation detailed in Table 17 recommended Roundabout 4 given it is a roundabout and will not impact Mountainside Sports, it must be acknowledged that there are a number of possible options as it relates to the exact location and configuration of the roundabout. While there has been significant reviews and investigations completed as part of the Class EA, there may be further consideration required during the corresponding detail design. In this regard, it may be necessary to modify the roundabout as compared to what has been put forth under Roundabout 4 (eg. modifications to the location of the roundabout, the alignment of the approach lanes, alignment of the departure lanes, etc.).

In this regard, the preferred solution is as follows:

- a 2-lane roundabout with a 60 metre outside diameter and 2 approach lanes and 2 departure lanes on each leg; and

- the roundabout is to be located to the north and west of Mountainside Sports to avoid impacting the existing building.

This solution is preferred in that it:

- will readily accommodate existing and future travel demands;
- employs a roundabout as opposed to a traffic signal which will provide operational and safety benefits and consistency in intersection control along the Grey Road 19 corridor; and
- it will avoid Mountainside Sports and the immediately adjacent properties whilst still providing commercial access via both Mountain Road and Grey Road 19.

While there may be impacts to the property on the north-east corner, such can be potentially reduced and mitigated accordingly through relocation of existing trees.

It is noted that as part of the Roundabout 1 review, consideration was given to the potential redevelopment of the Mountainside Sports property (including the old school house to the east). However, upon review with Town of Collingwood planning staff, it was noted that a redevelopment would not be supported. Hence, the impacts to Mountainside Sports should Roundabout 1 be chosen, could not be mitigated.

9 Completion of the Class EA Process

This chapter details the steps remaining to complete the Schedule B Class Environmental process and to proceed to Phase 5: Implementation, which entails completion of the engineering design and subsequent construction.

9.1 Confirmation of Class EA Schedule

As previously noted in Section 1.1.3, the construction of localized operational improvements at a specific location (eg. provision of additional through lanes, turn lanes and traffic signals at an intersection) is considered a Schedule A+ undertaking. Under the MEA Class EA guidelines, impacted stakeholders should be notified, but the final project details should be decided locally. There is no requirement for public consultation or input.

Notwithstanding, the Counties elected to follow the Schedule B guidelines to allow for public consultation, and the appropriate steps were subsequently followed. As such, the process employed is considered appropriate and exceeds the process required under the Class EA guidelines.

9.2 County Approvals

The Phase 1 & 2 Report has been reviewed with staff from both Grey and Simcoe Counties and appropriately endorsed. Grey County Council has also indicated their support for a roundabout solution through adoption of Committee Report TR-CW-35-18.

9.3 Stakeholder Consultation - Study Completion

This represents the second mandatory point of stakeholder consultation in the Schedule B Class EA process. The purpose of such is to identify the conclusion of the study and provide an opportunity for additional review of the study findings and recommendations within a 30-day review period.

In accordance with the Class EA guidelines, a Notice of Completion was prepared to identify the preferred improvement solution and the opportunity for further review (a copy of which is provided in Appendix O). The notice was distributed on January 23, 2019 as follows:

- mailed to each of the review agencies, municipality agencies and other stakeholder groups as previously contacted (as per the listing employed for the Public Information Centre);
- mailed to the area residents;
- mailed or emailed to those in attendance at the Public Information Centre; and

- advertised in the Collingwood Connection on 2 separate occasions, in accordance with the Class EA guidelines.

9.4 30-Day Review Period

The Phase 1 & 2 report will be placed on public record for a period of 30 days following the Notice of Completion. As per the notice, the public and review agencies will be encouraged to further review the report and provide written comments to Grey County, Simcoe County or the Consultant.

If concerns arise regarding this study, which cannot be resolved in discussion with the Counties or the Project Team, the public can request that the Minister of the Environment make an order for the project to comply with Part II of the Environmental Assessment Act (referred to as a Part II Order), which addresses individual environmental assessments. Requests are to be submitted to the Minister, and copied to both Grey and Simcoe Counties before the end of the 30-day review period.

If there is no request for a Part II Order, the project may proceed based on the identified preferred improvements.

9.5 Implementation

Design, Approvals & Construction

It is the intent of the Counties to implement the intersection improvements within the next several years, commencing utility relocation work in 2019 and roundabout construction in 2020, subject to approval of funds by the respective County councils. As such, engineering drawings detailing the required works, including the need for mitigation measures to address impacts to the adjacent properties and environments will be prepared and submitted to Grey and Simcoe Counties, the Town of Collingwood (as Mountain Road is a Town road) and the conservation authorities as required, to obtain the necessary approvals prior to construction. There are no further requirements with respect to public consultation during Phase 5 (although meetings/coordination with affected landowners is likely to be required).

As part of the design process and in accordance with the limits of the preferred alternative, the following additional studies should be undertaken:

- a site specific geotechnical investigation to confirm the underlying soil stratigraphy and to provide recommendations with respect to the road reconstruction and need for ground water control; and
- a Stage 2 Archaeological Assessment for those areas deemed to contain archaeological potential (complete with monitoring by the Saugeen Ojibway Nation).

Monitoring

The need for improvements has been based on the development and assessment of traffic volumes through the study area over the next 15 years. Should the assumptions with respect to future growth, upon which the future traffic volumes were based, not be realized or growth occurs over a longer horizon, the need for the improvements may be deferred. In this respect, it is recommended that the Counties monitor traffic volumes and traffic operations through the area to confirm the need for, and timing of, the noted road improvements prior to implementation.

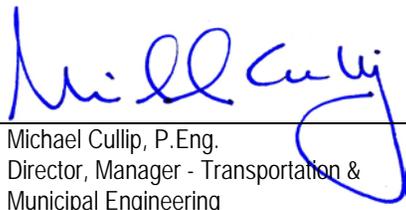
Impact Mitigation

Further to the possible impacts to the environments resulting from the implementation of the preferred solution, a number of mitigating measures have been identified as outlined in Table 18. This is not intended to be a complete list of the potential impacts and mitigating measures, but rather an initial overview. During detail design, the extent of impacts will be identified, and the practicality of mitigation appropriately addressed.

Table 18: Negative Impacts & Mitigating Measures

Negative Impact	Potential Mitigating Measure
Reduced Safety	<ul style="list-style-type: none"> ensure appropriate signage and pavement markings comply with MTO Ontario Traffic Manual (OTM) Book 11
Impact on Road Capacity During Construction	<ul style="list-style-type: none"> ensure construction staging, road closures, etc. comply with OTM Book 7 undertake construction works during non-peak periods
Major Services / Utility Conflicts	<ul style="list-style-type: none"> co-ordinate with utility companies to identify services and possible relocation opportunities.
Fisheries and Aquatic Habitat	<ul style="list-style-type: none"> minimize run-off into storm ditches and area water courses during construction through routine street sweeping and silt control measures
Water Quality / Stormwater Management	<ul style="list-style-type: none"> provision for spill control fast accurate reporting of spill pollution prevention and source control by best management land use practices and best management stormwater practices implementation of erosion and sedimentation controls development of a stormwater quality management plan to minimize entry of contaminants into area watercourses
Aesthetics	<ul style="list-style-type: none"> improve boulevards where possible to include landscape reduce intersection footprints where possible
Noise	<ul style="list-style-type: none"> reduce traffic congestion and need for start-stop activities
Impact on Existing Businesses	<ul style="list-style-type: none"> notify public agencies and adjacent owners of construction scheduling ensure access is maintained





Michael Cullip, P.Eng.
Director, Manager - Transportation &
Municipal Engineering

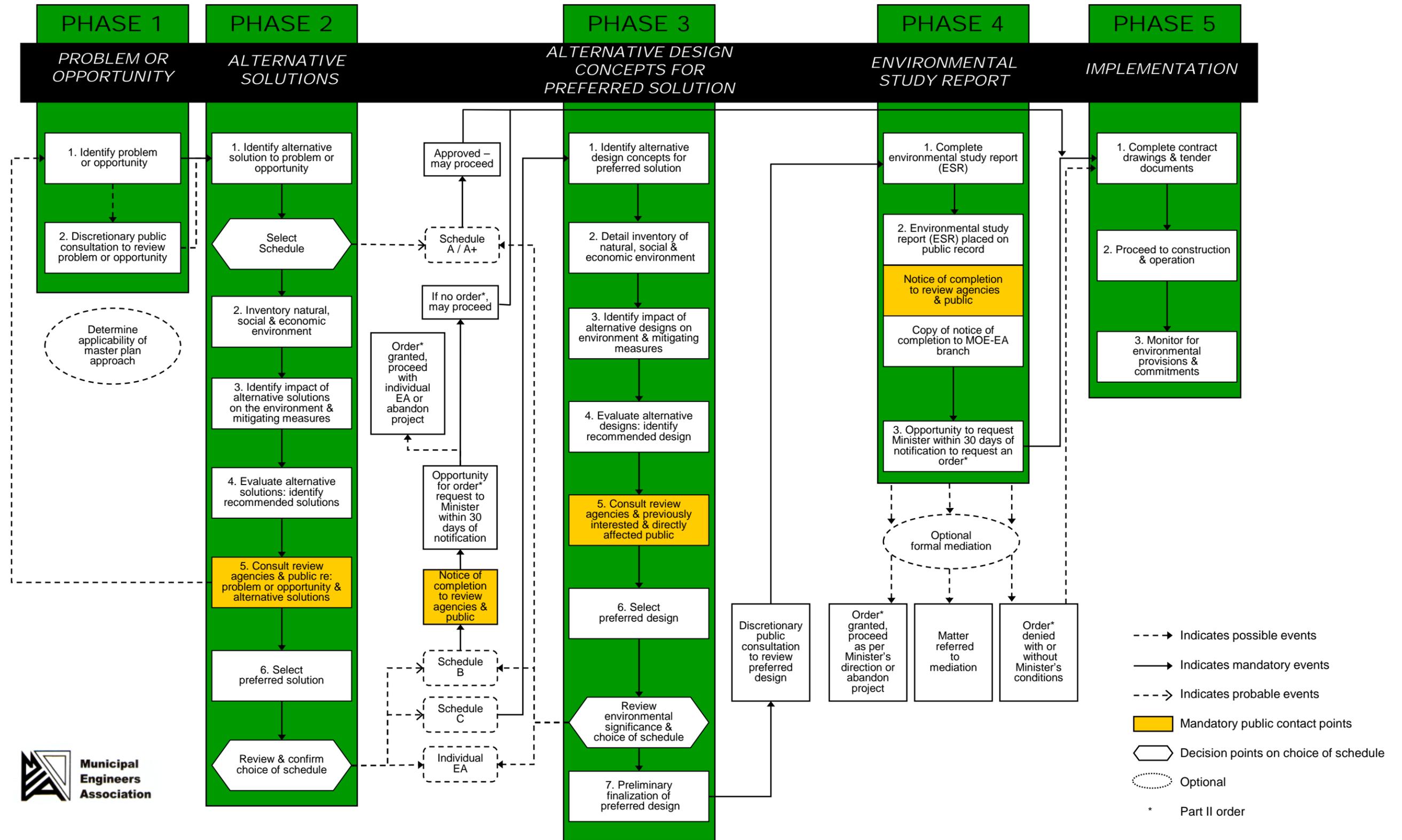


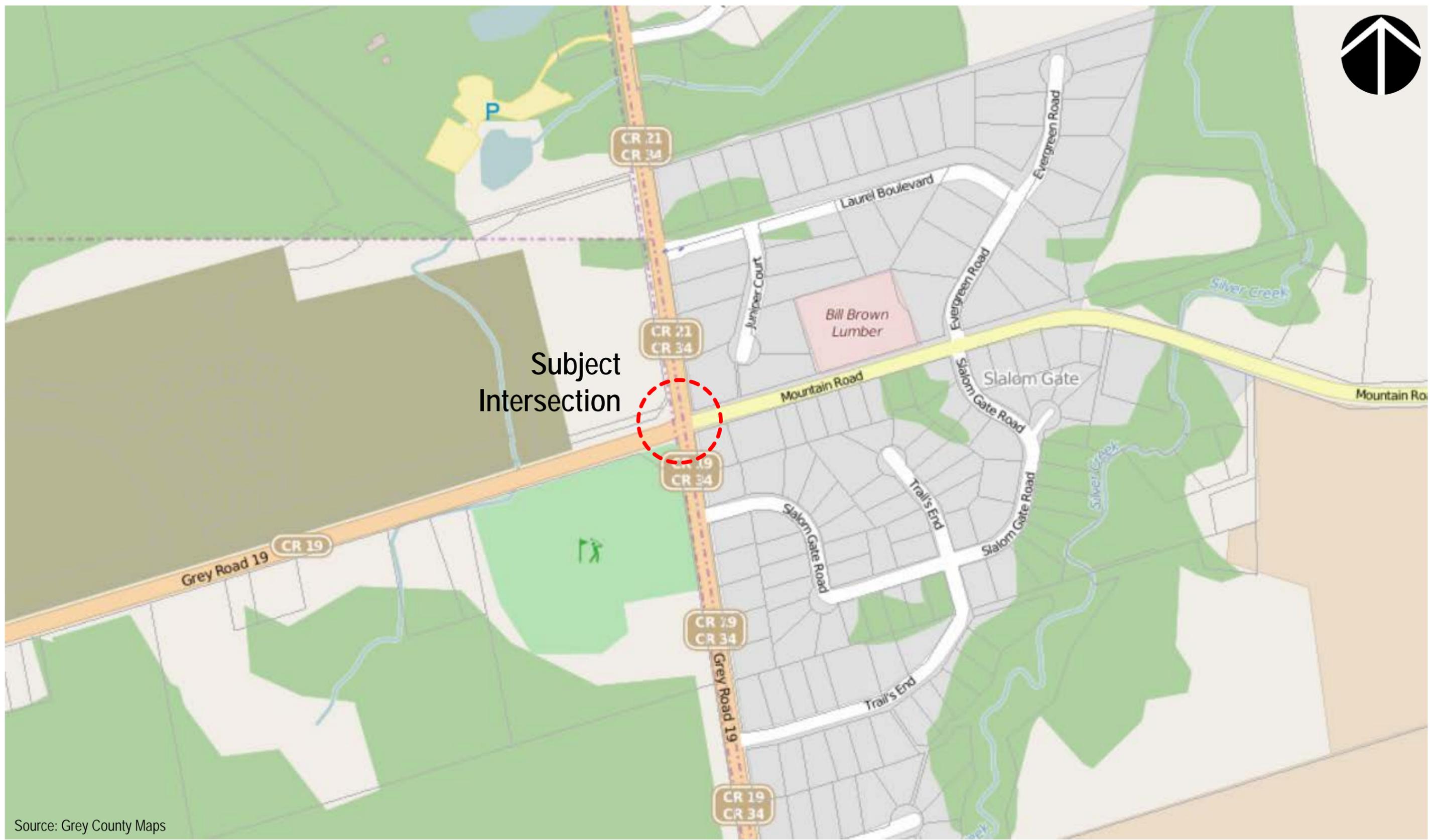
David Perks, PTP
Transportation Planner

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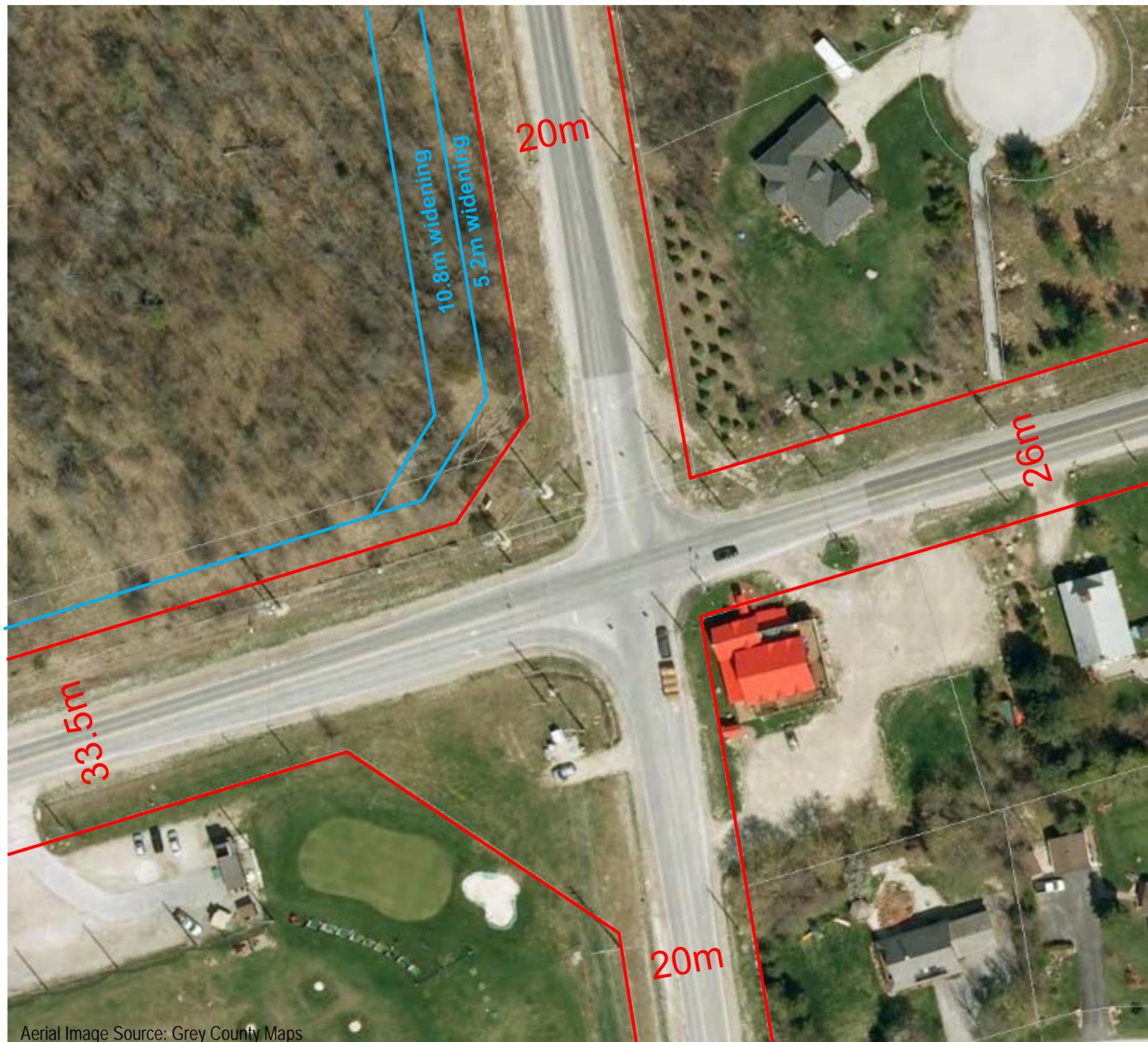
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Source: Grey County Maps

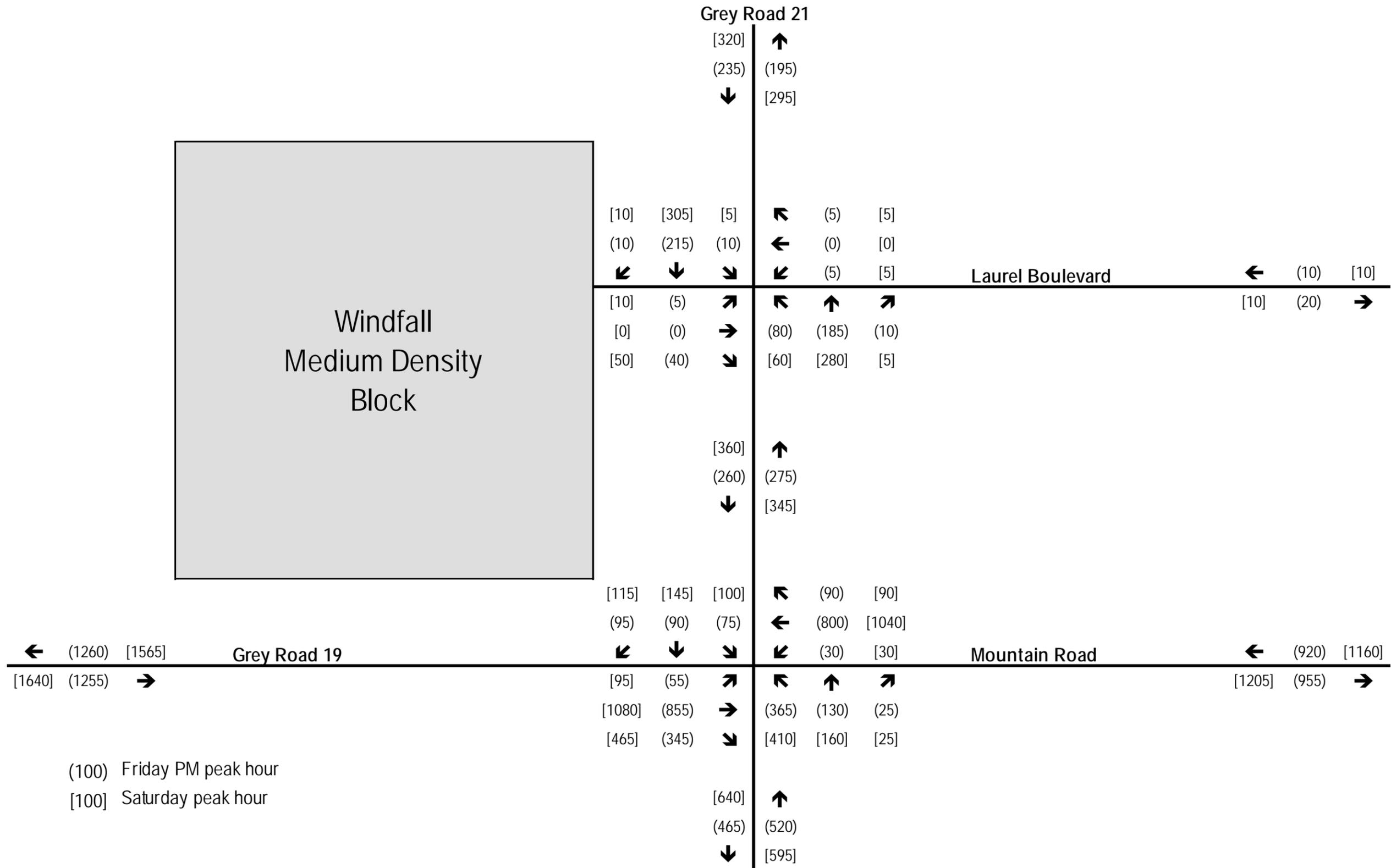


Aerial Image Source: Grey County Maps

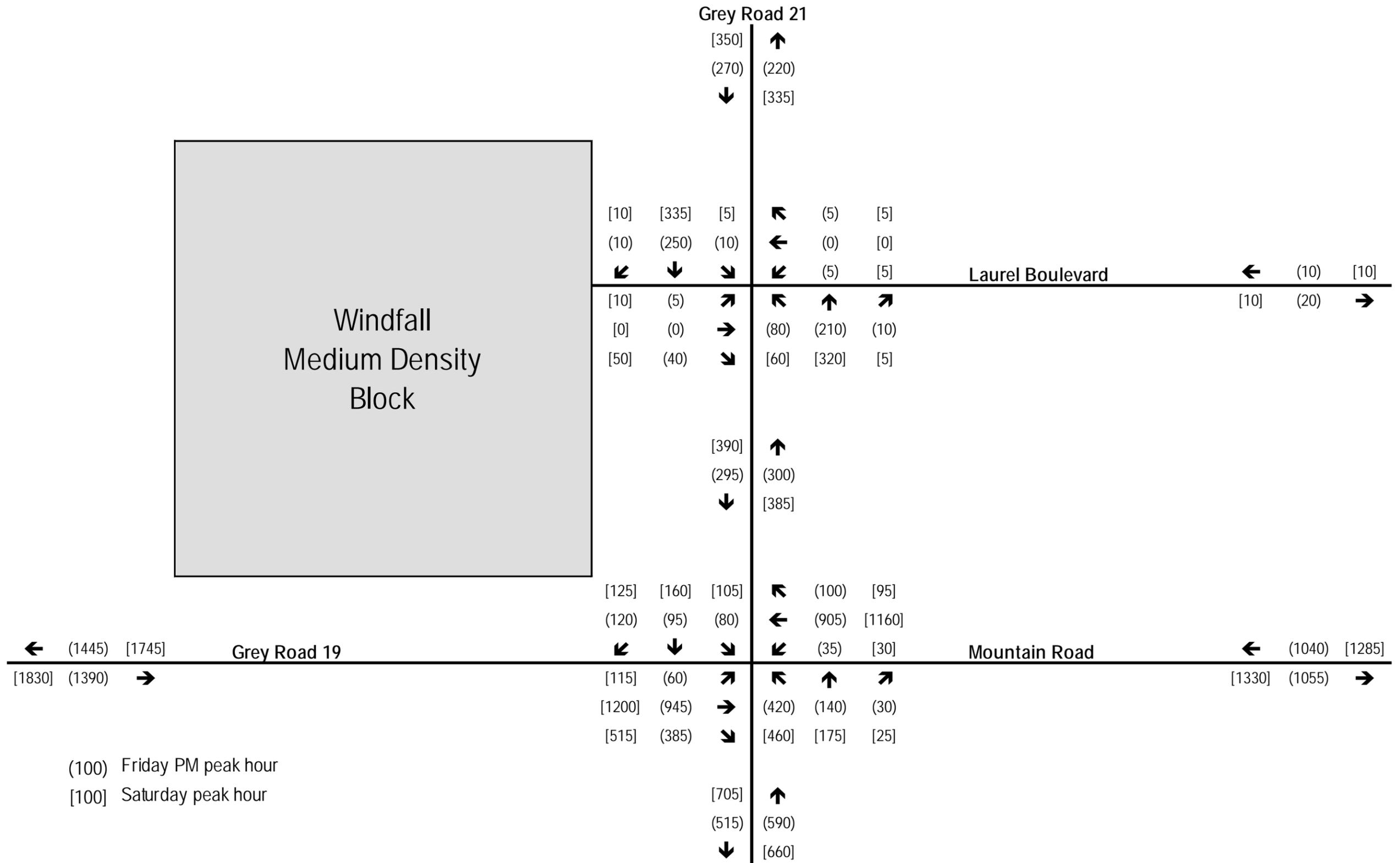
- existing property line
- proposed widening



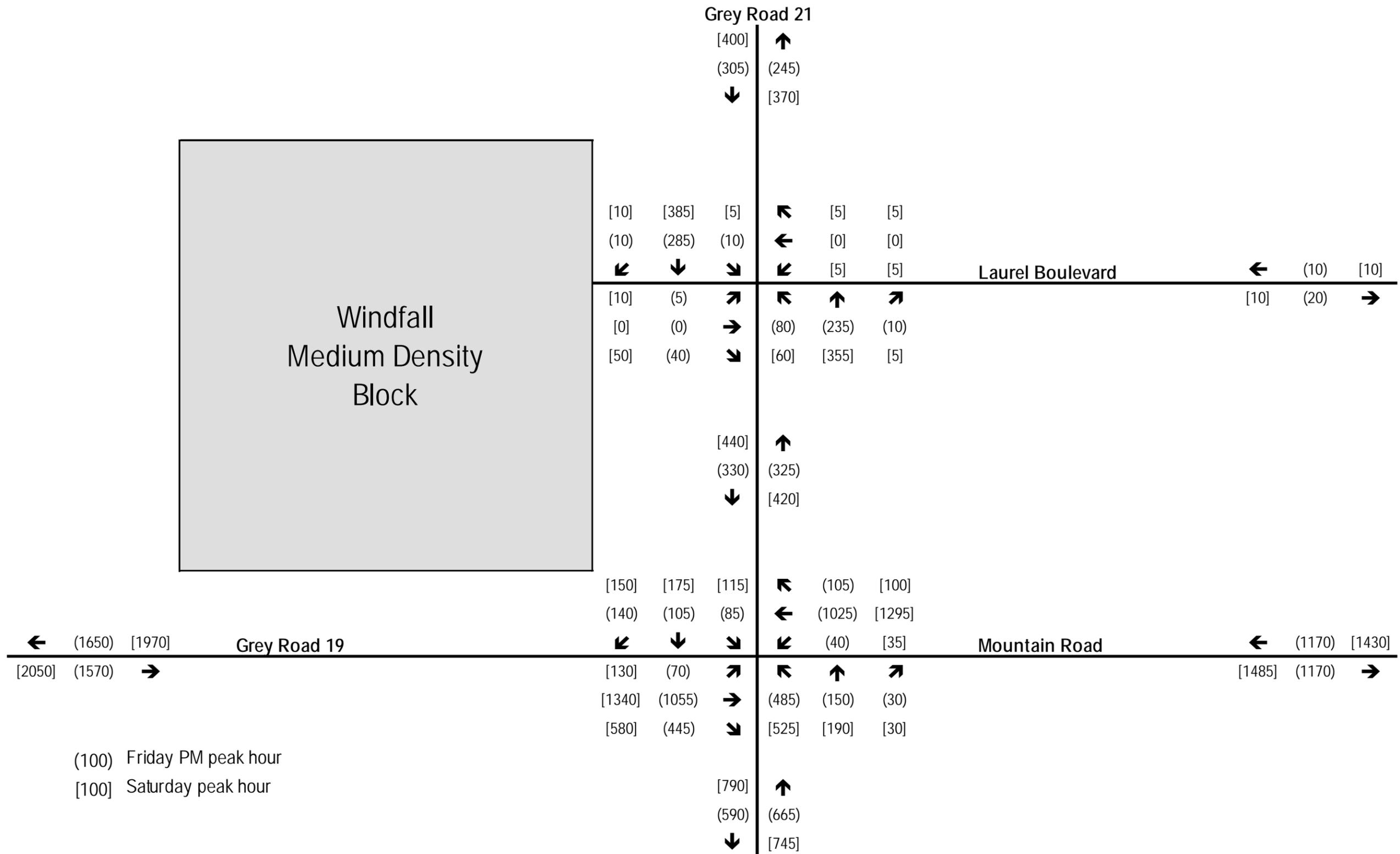
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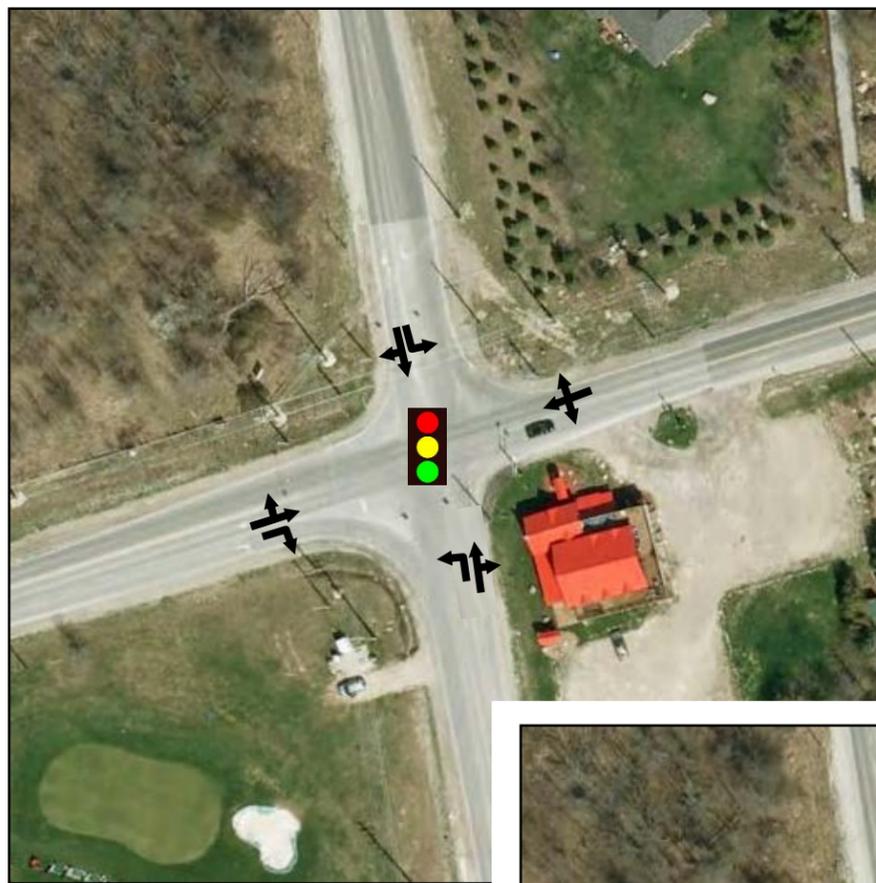
(100) Friday PM peak hour
[100] Saturday peak hour



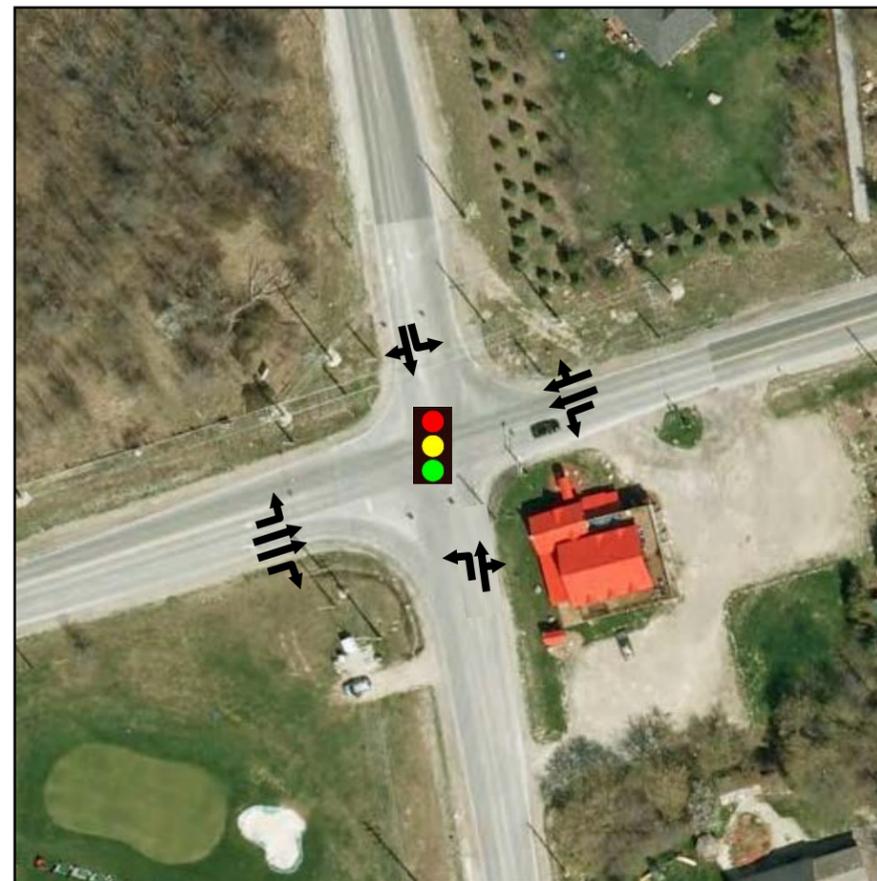
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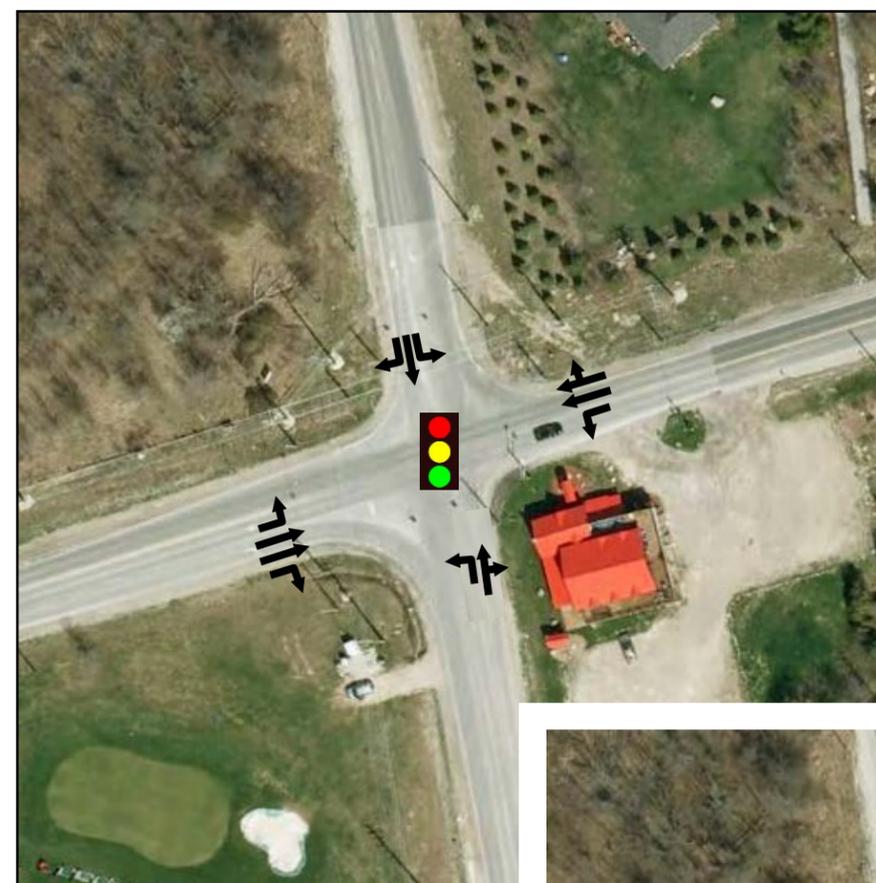
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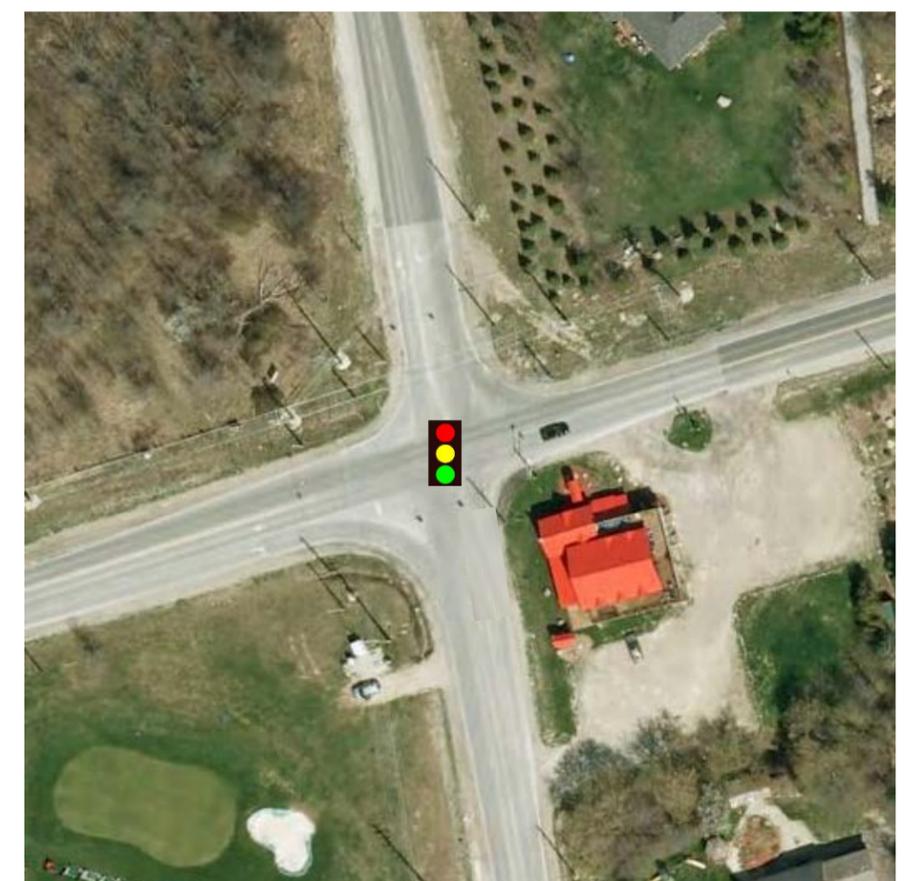
Existing



2019



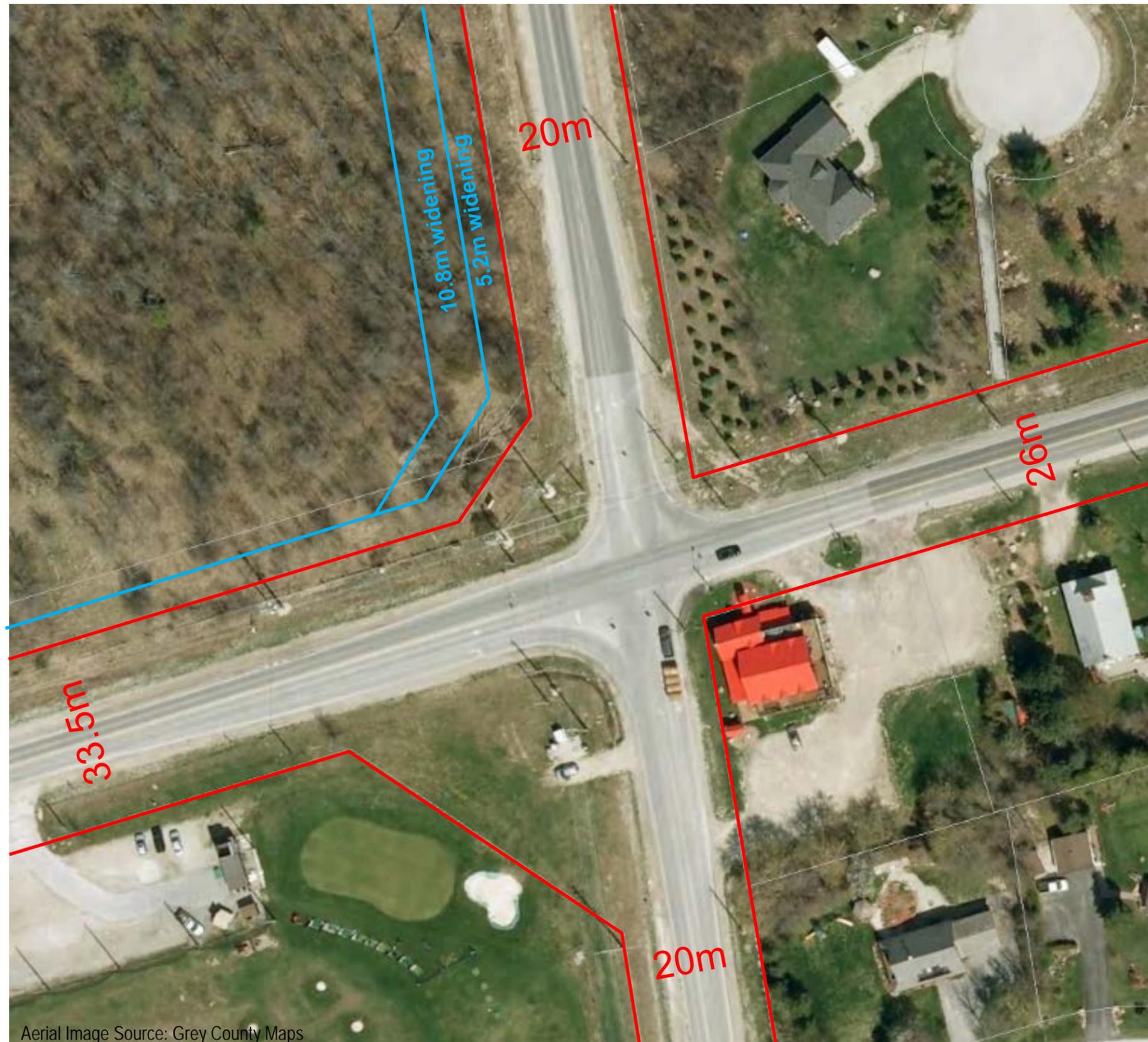
2024



2029



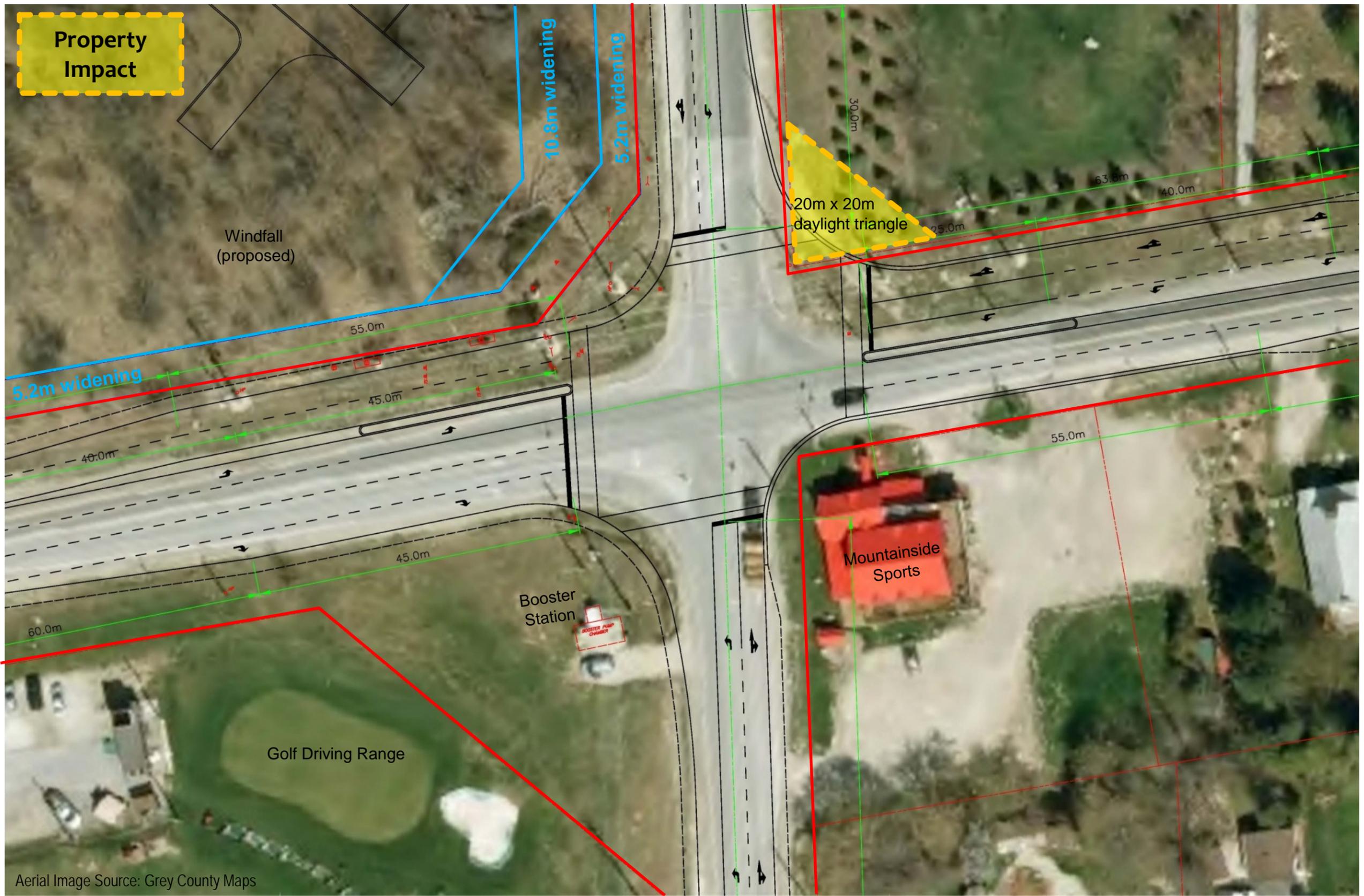
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Aerial Image Source: Grey County Maps



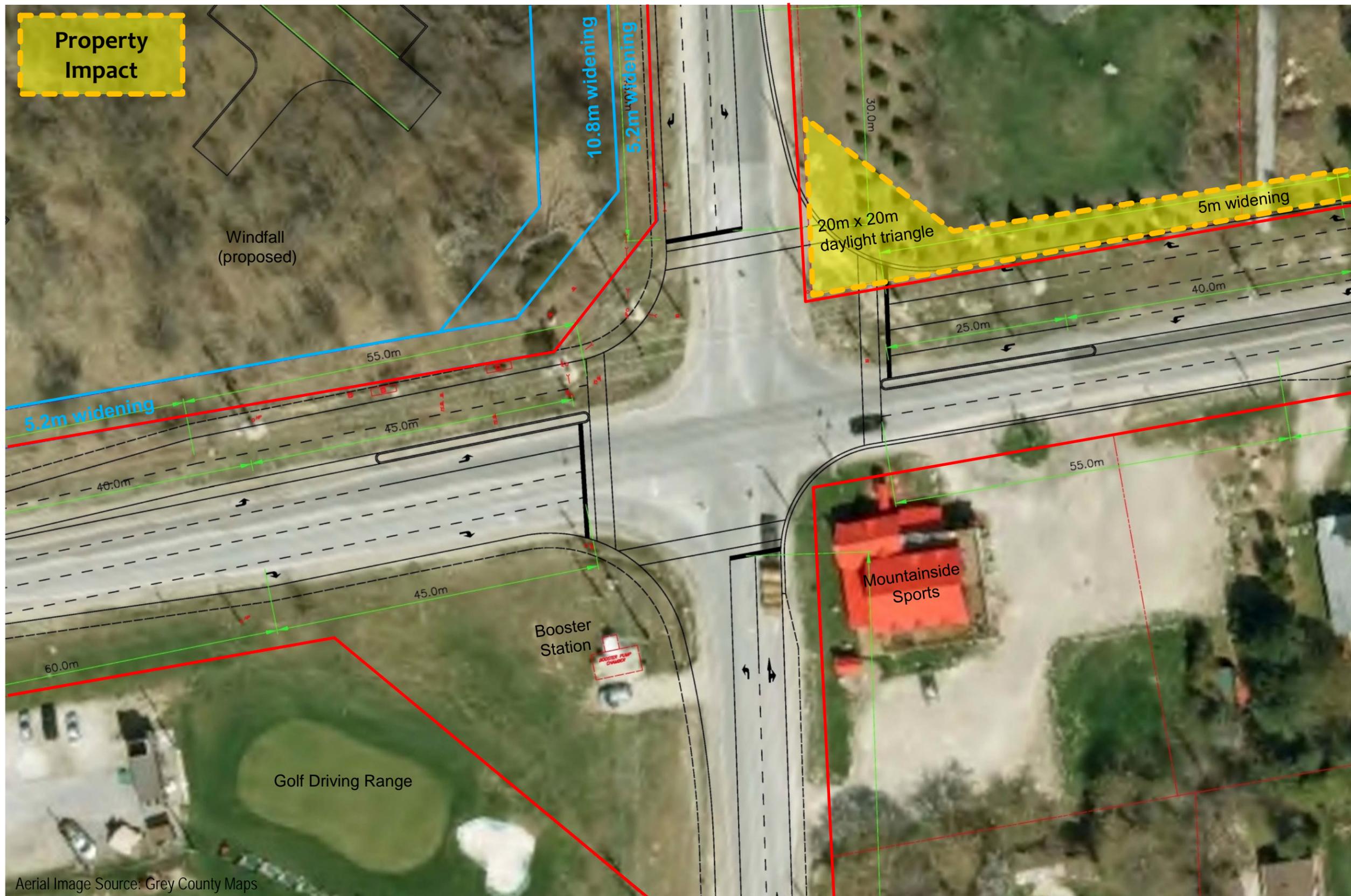
- 2 east-west through lanes
- 1 north-south through lane
- NB & SB left turn lanes
- urbanize as necessary to minimize impacts



Aerial Image Source: Grey County Maps

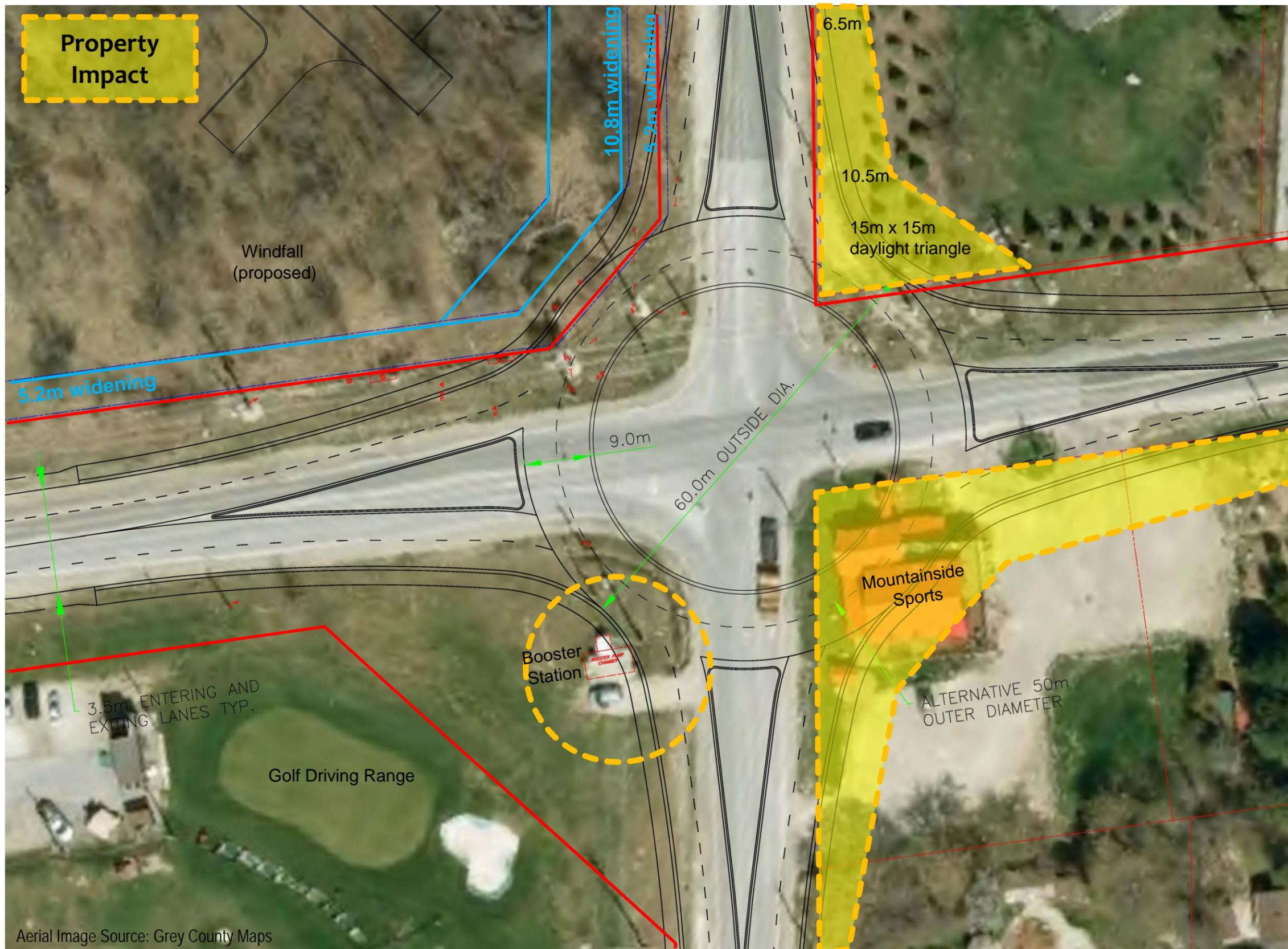


- 2 east-west through lanes
- 1 north-south through lane
- left turn lanes on all approaches
- urbanize as necessary to minimize impacts

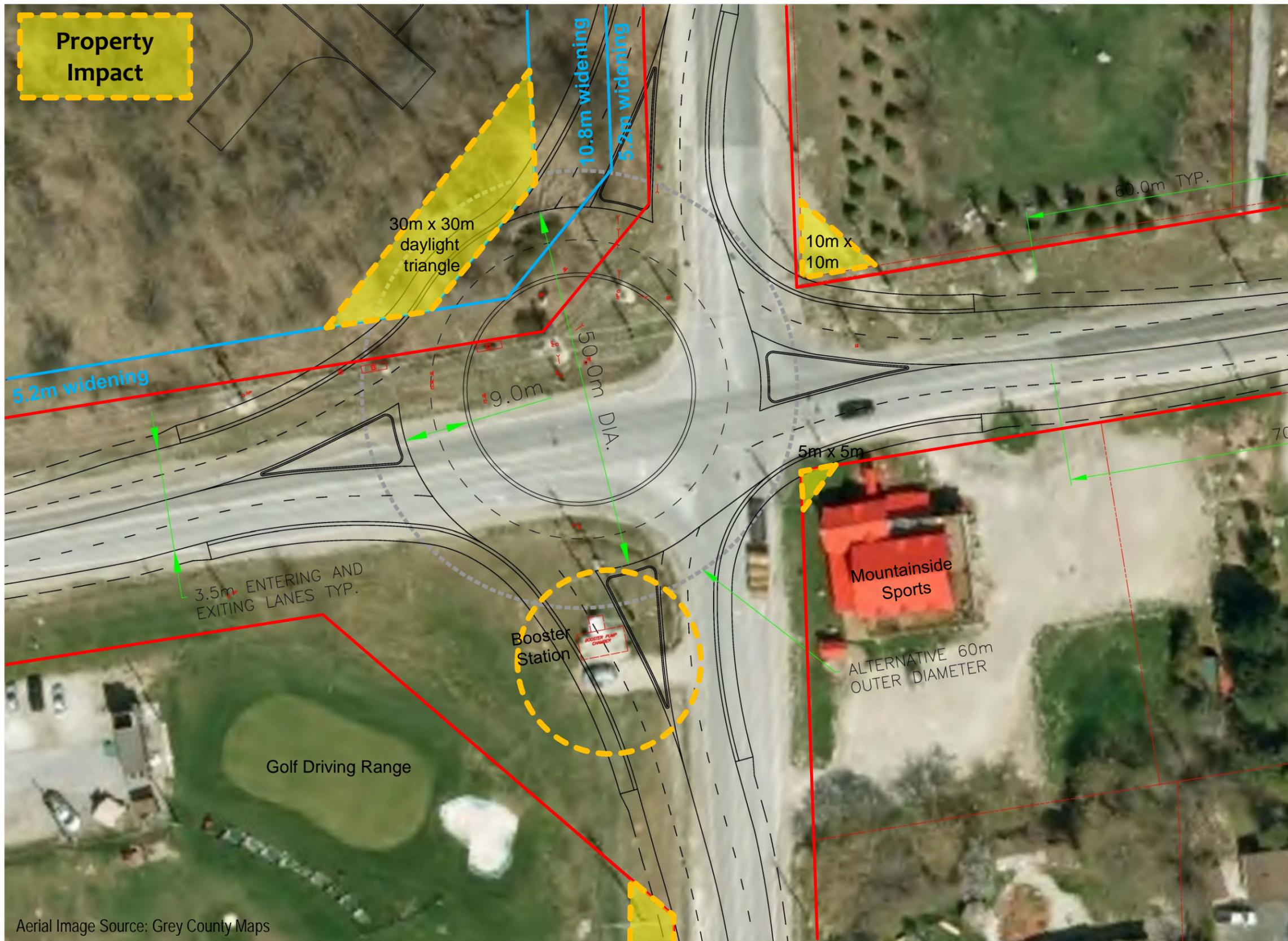


- 2 east-west through lanes
- 1 north-south through lane
- left turn lanes on all approaches
- SB & WB right turn lanes
- urbanize as necessary to minimize impacts

Aerial Image Source: Grey County Maps

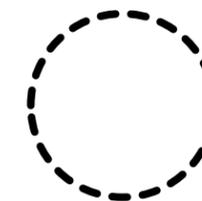


- 2 lane roundabout + 2 lane entries/exits
- 42m diameter inside island
- 9m circulatory road
- 60m outside diameter



- 2 lane roundabout + 2 lane entries/exits
- 32m diameter inside island
- 9m circulatory road
- 50m outside diameter (reduced as compared to Roundabout 1)

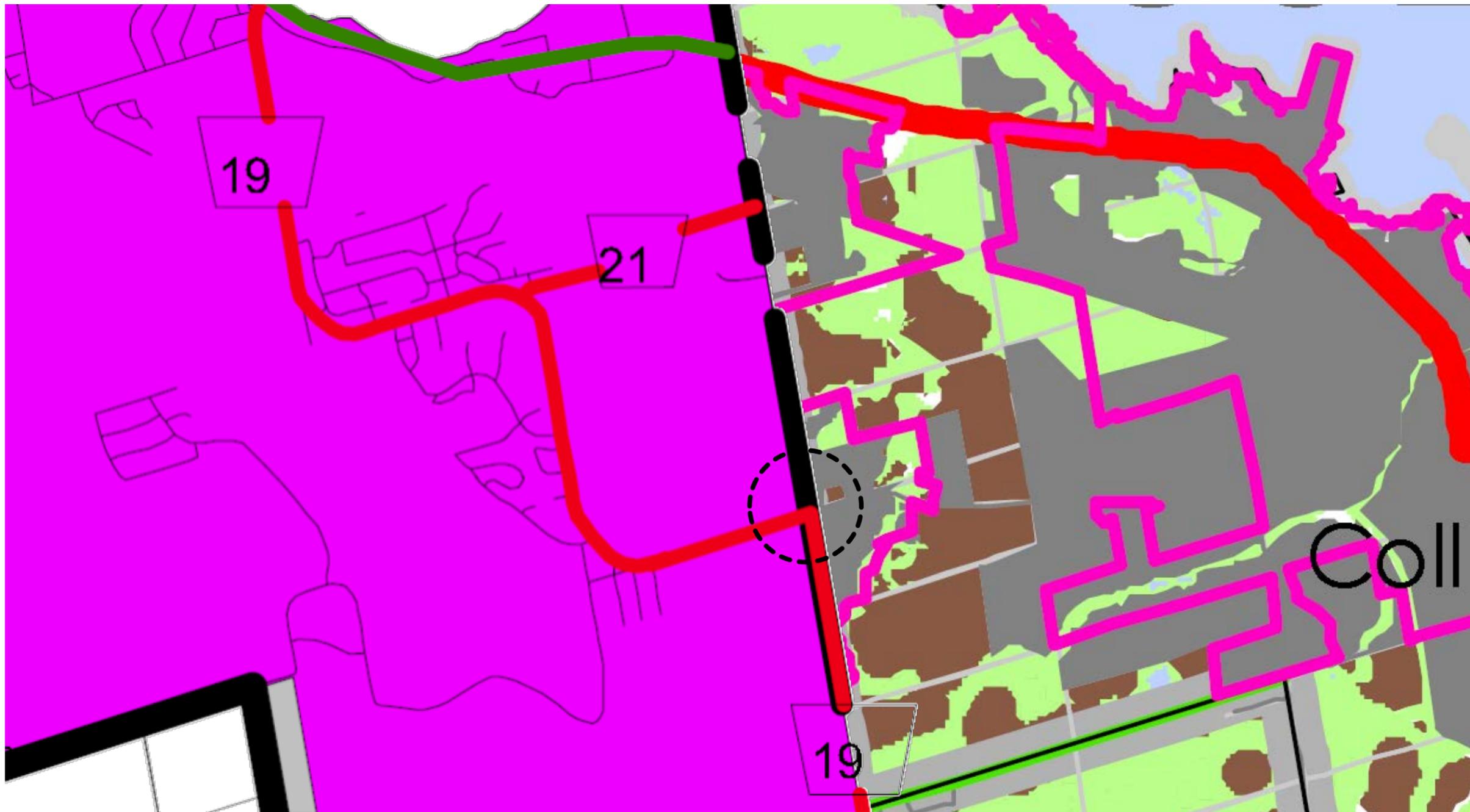
Aerial Image Source: Grey County Maps



Subject
Intersection

Aerial Image Source: Grey County Maps

Aerial Image Source: Simcoe County Maps



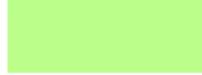


 Subject
 Intersection

Grey County Official Plan
 Schedule A Land Use Designations Map 2 North East Quadrant

 Escarpment Recreation Area

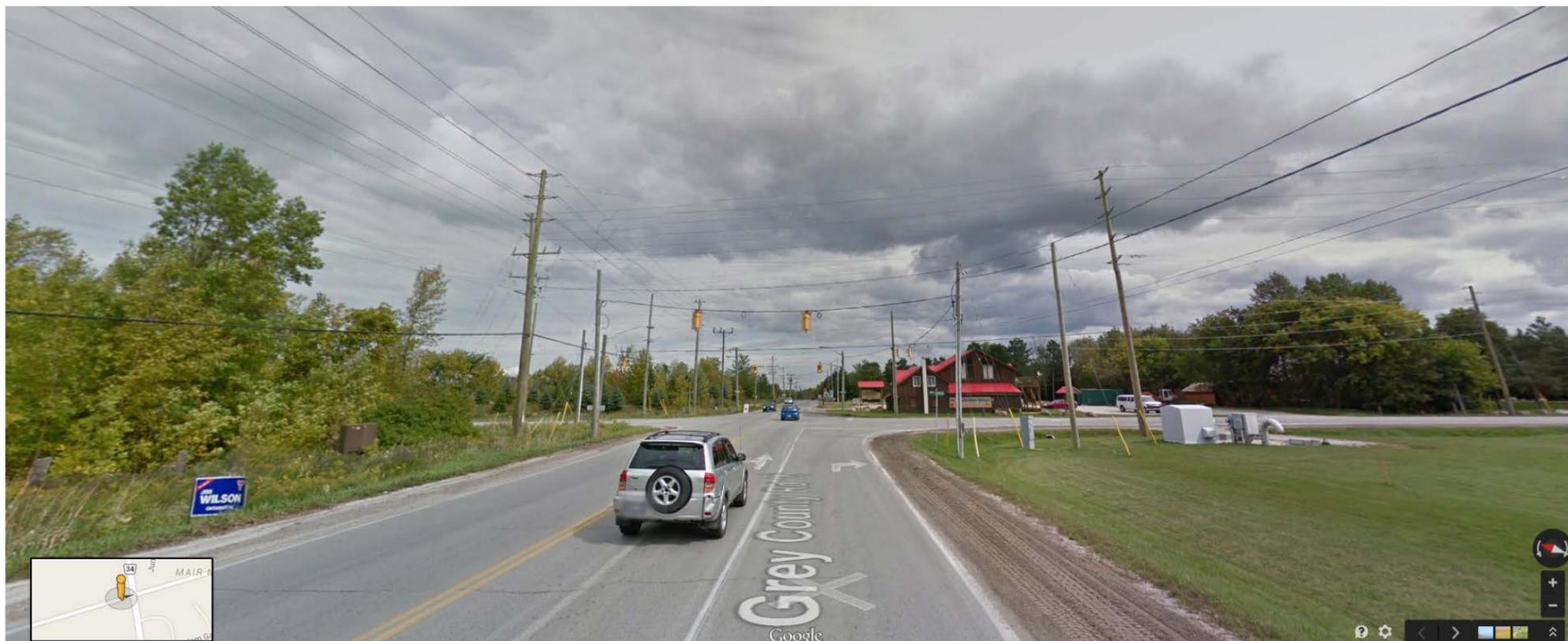
Simcoe County Official Plan
 Schedule 5.1 Land Use Designations

 Urban Areas	 Greenland
 Rural	 Built Boundaries



East Approach - Mountain Road looking west to Blue Mountain

- extensive utility poles along north side of Mountain Road with service poles along south side
- underground telephone on north side and south side at intersection



West Approach - Grey Road 19 looking east to Collingwood

- extensive utility poles along north side of Grey Road 19 with service poles along south side
- underground telephone (including fibre optic), gas and cable along north side
- buried watermain along south side
- water booster station on the south side at intersection



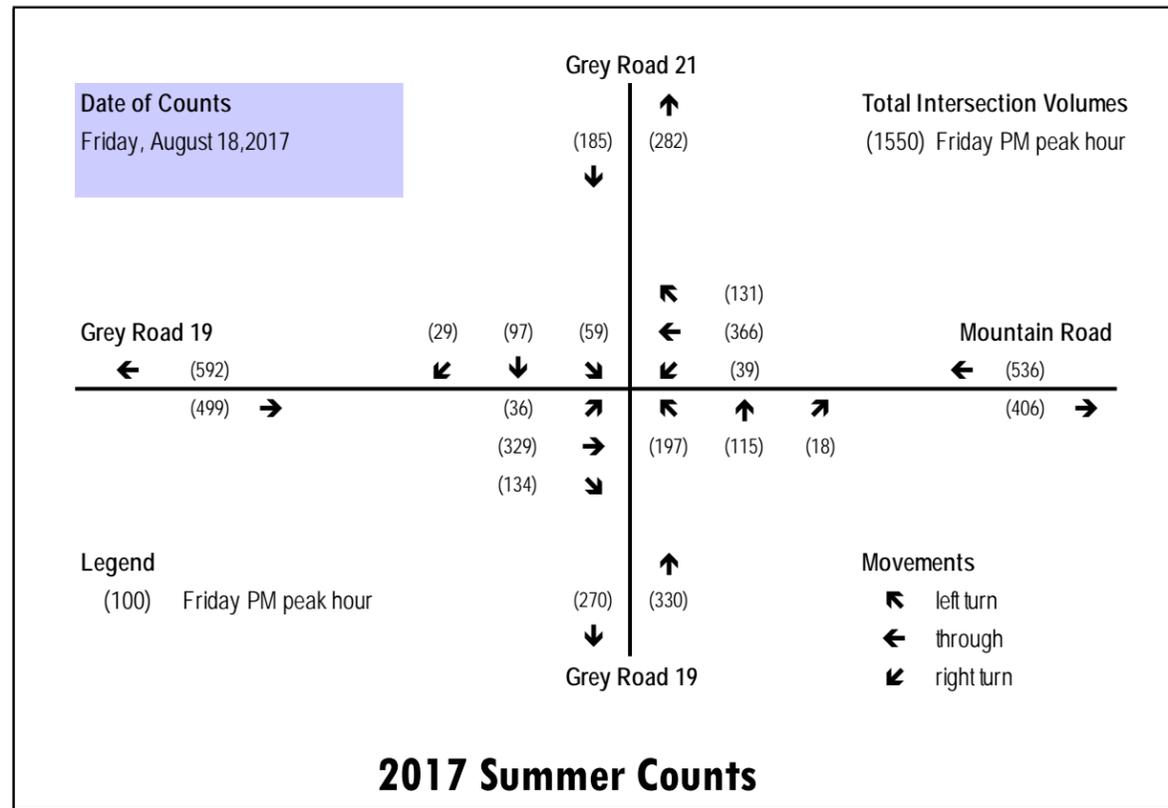
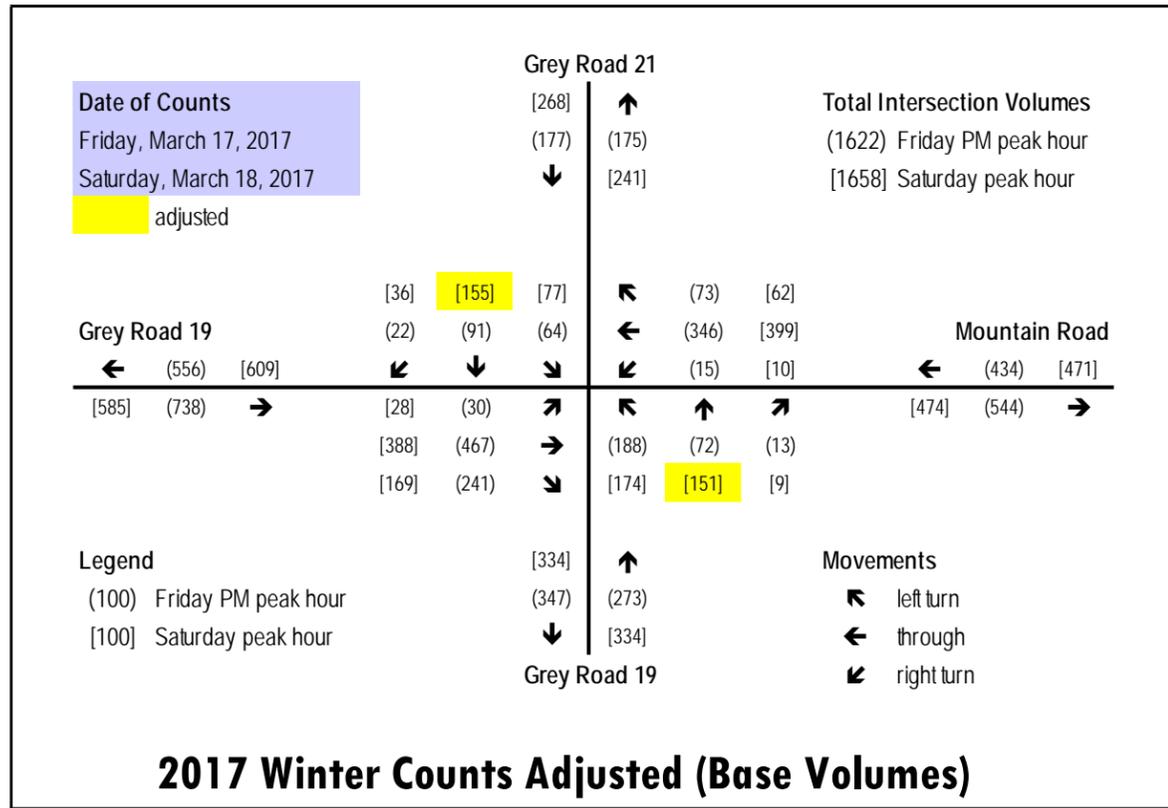
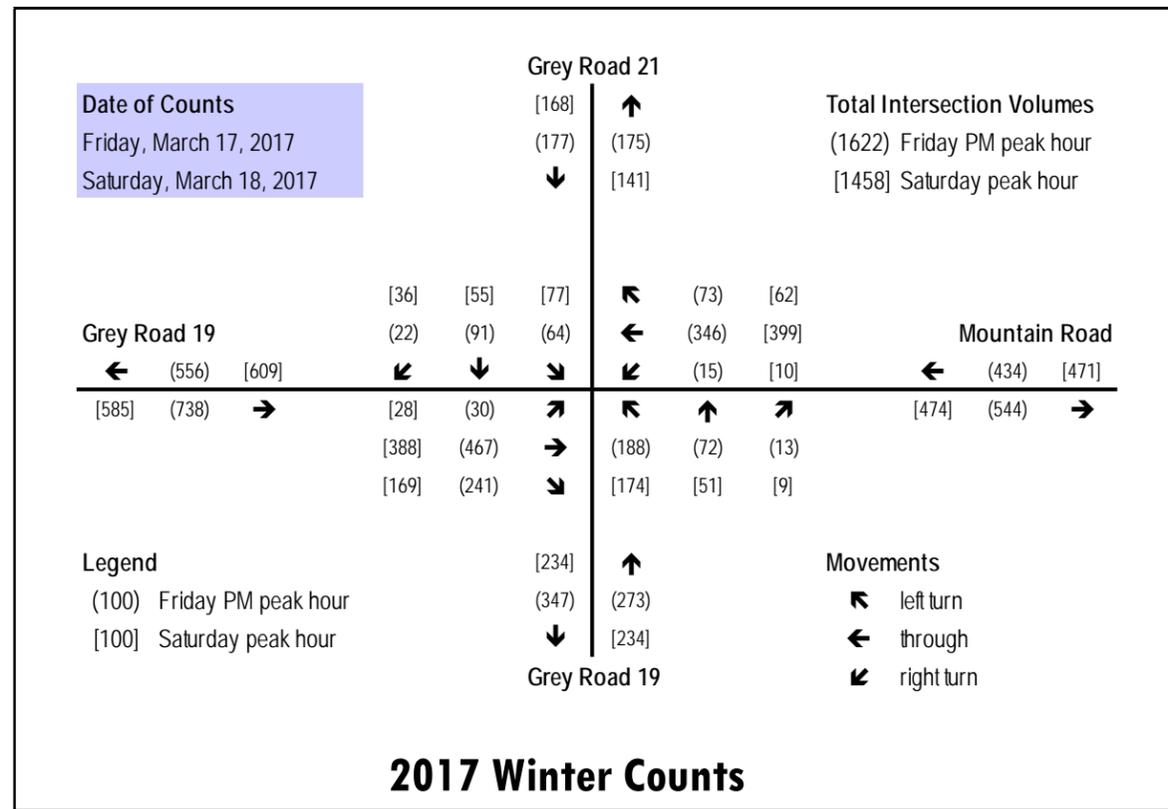
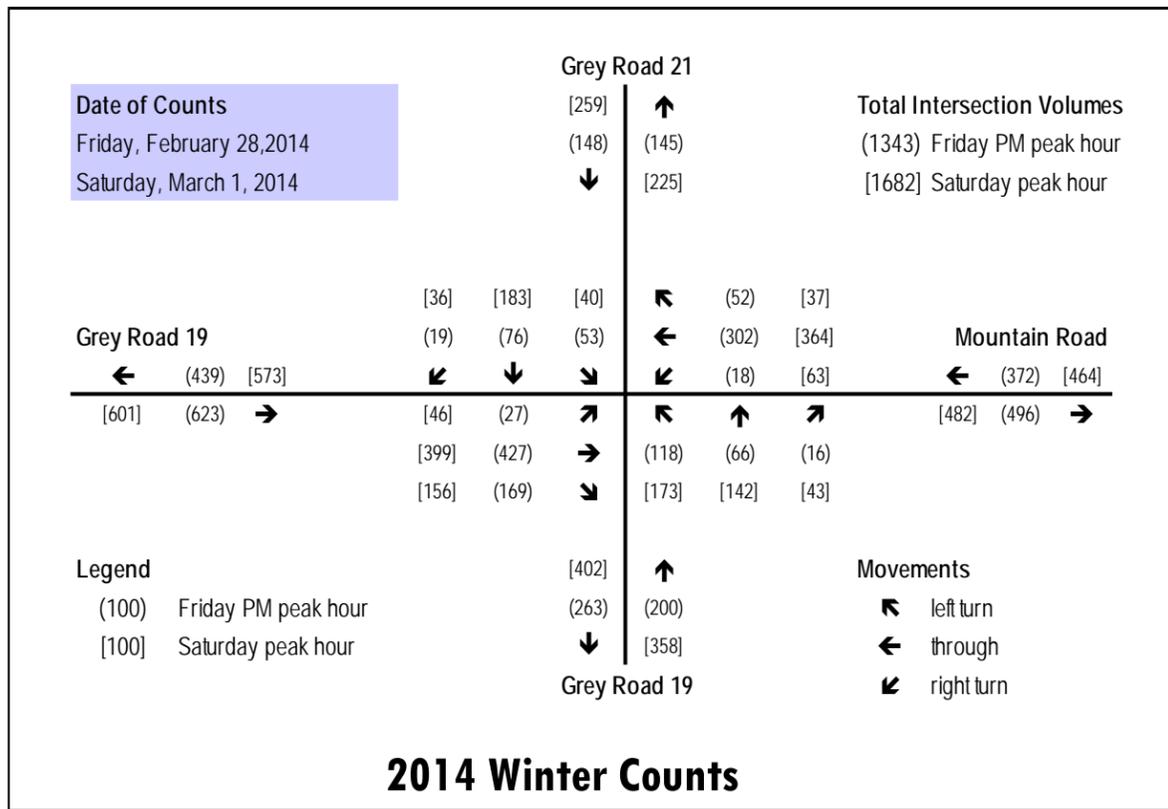
South Approach - Grey Road 19/Simcoe Road 34 looking north

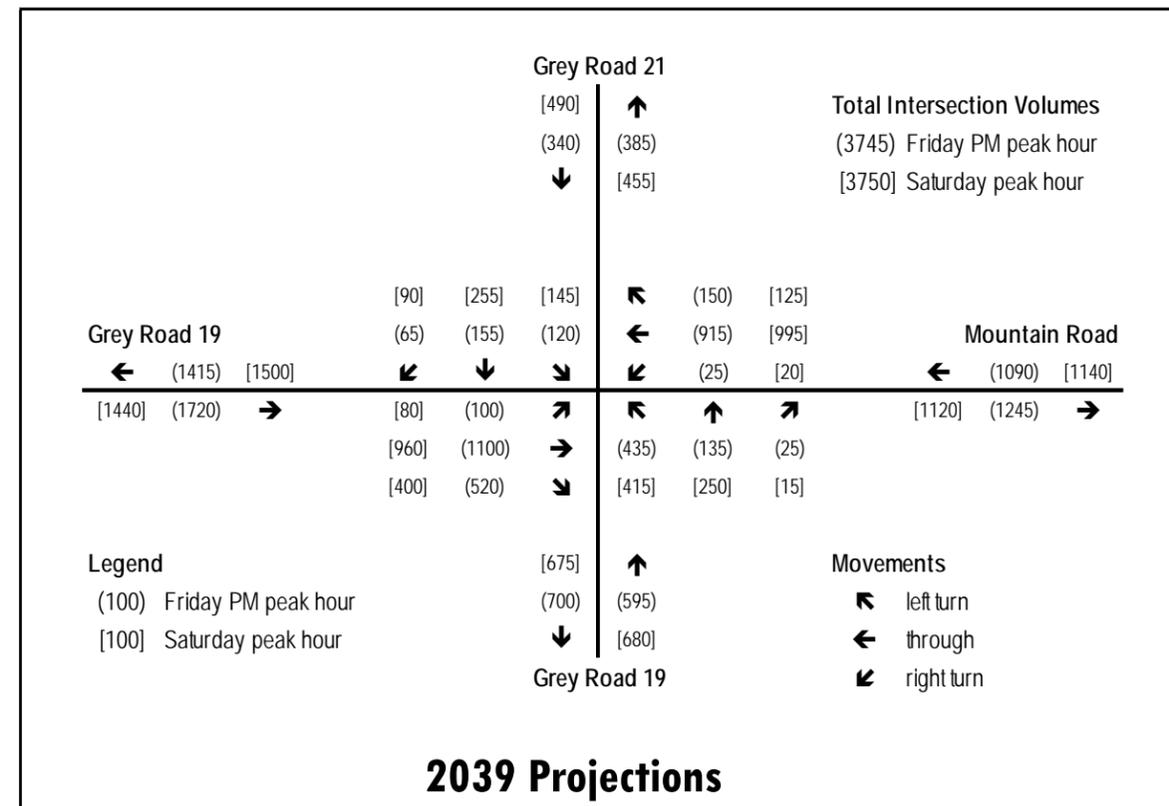
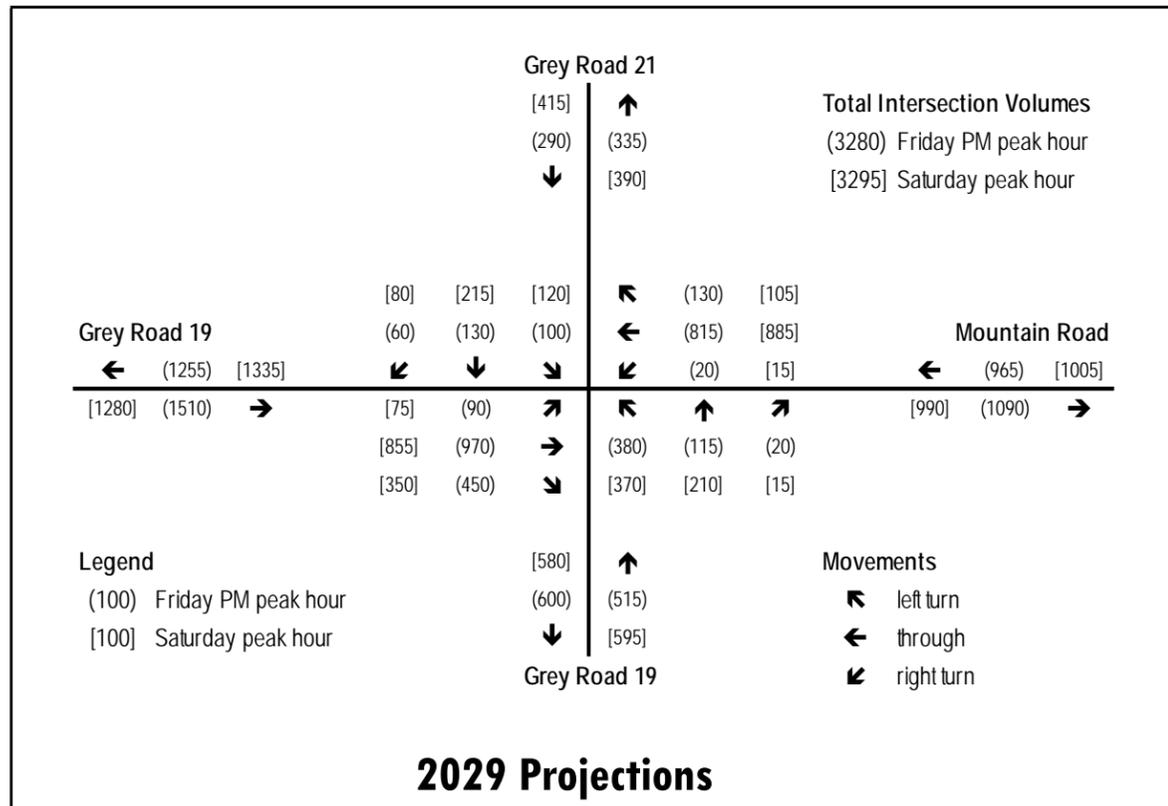
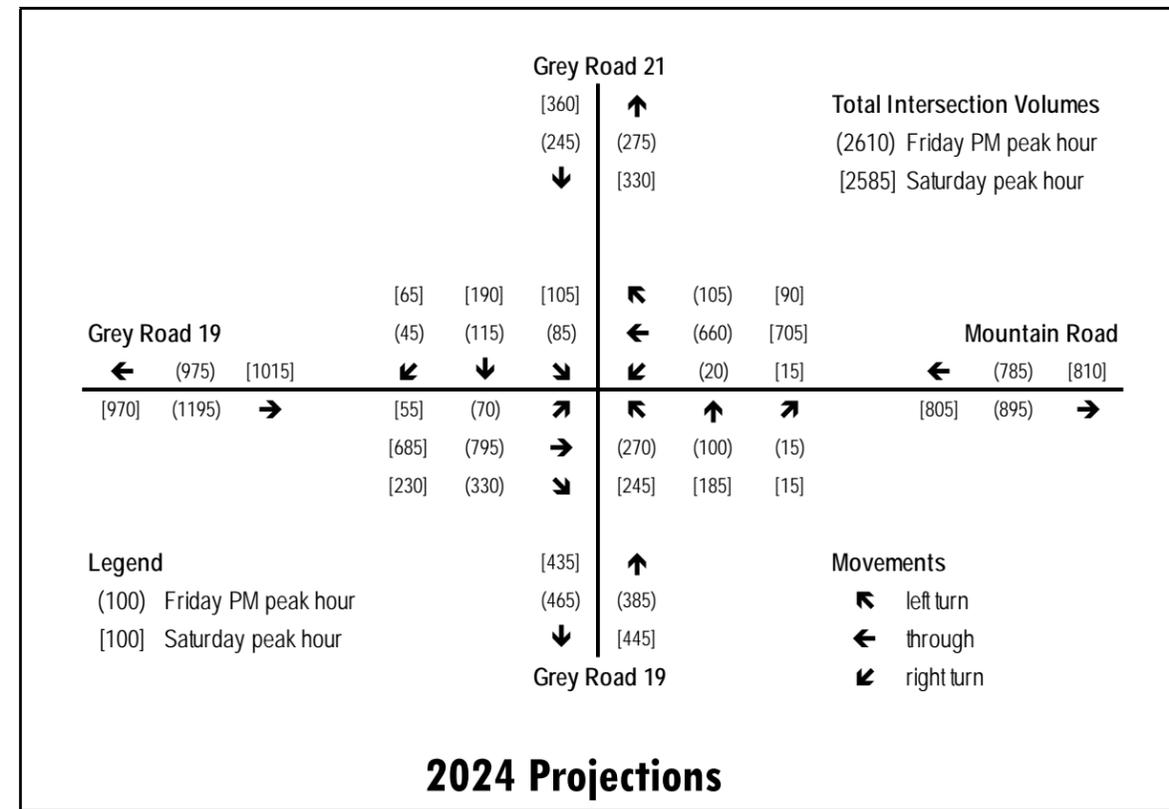
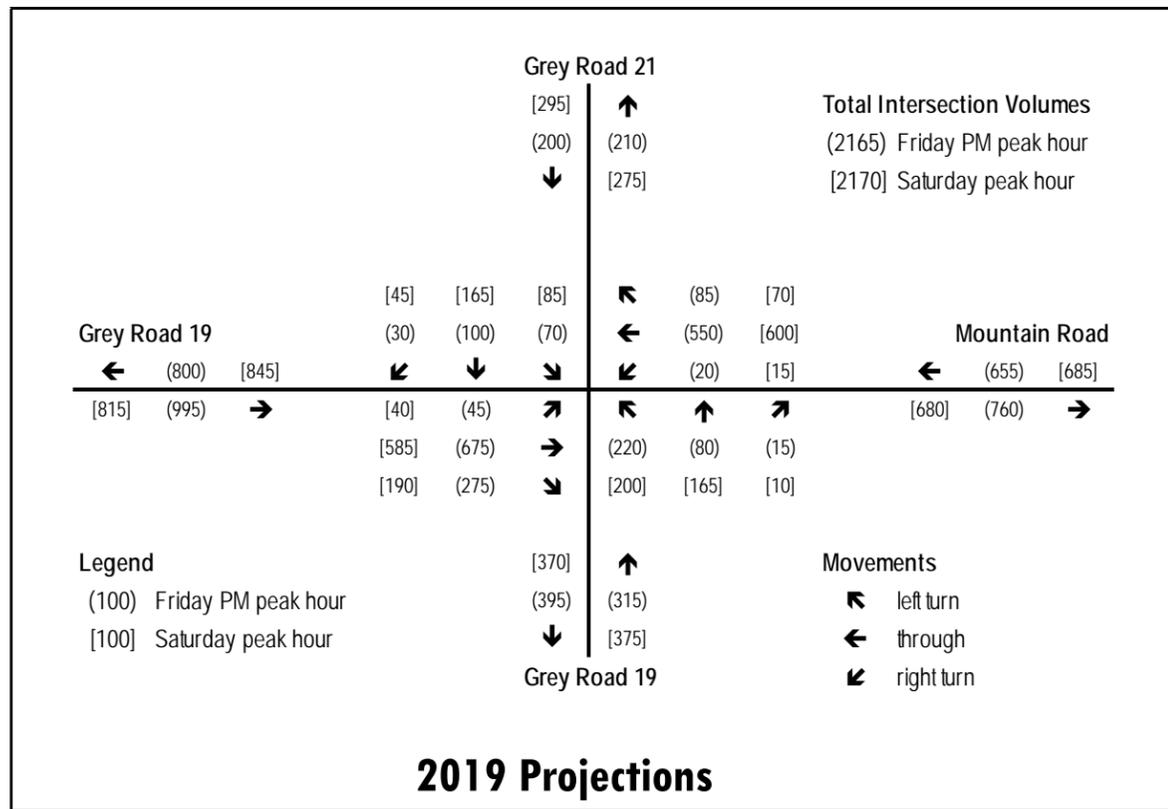
- extensive utility poles along west and east side at intersection, east side south of intersection
- water booster station on the west side at intersection
- underground telephone and gas on the east side



North Approach - Grey Road 21/Simcoe Road 34 looking south

- extensive utility poles along west and east sides
- buried watermain along east side
- underground telephone and gas on the east side and gas regulator station on the west side







Aerial Image Source: Grey County Maps

- 2 lane roundabout + 2 lane entries/exits
- 42m diameter inside island
- 9m circulatory road
- 60m outside diameter



Aerial Image Source: Grey County Maps

- 2 lane roundabout + 2 lane entries/exits
- 42m diameter inside island
- 9m circulatory road
- 60m outside diameter