2017 Transportation Study Update

Town of Wasaga Beach

DECEMBER 2017

AINLEY FILE # 217046

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1. INTRODUCTION

In 1999, the Town of Wasaga Beach carried out an initial Transportation Study of its road network. The study purpose was to identify improvements required at that time and over a 5 and 10-year time horizon. The study was subsequently updated in 2006 and again in 2012, with finalized reports being issued in 2007 and 2013, respectively.

The purpose of this study update is to address the following:

- Compile and review existing traffic in 2017;
- Compare previous traffic projections to the existing 2017 traffic data;
- Review and estimate future development impacts;
- Estimate future traffic for 5 and 10-year time horizons;
- Determine transportation deficiencies and recommend improvements; and
- Provide long term transportation network planning recommendations.

2. STUDY APPROACH

As this is intended to update the 2012 study, a traffic counting program was established to obtain comparable data. Traffic counts were taken at similar locations as well as new locations to provide additional data. It should be recognized that this type of study provides a general broad overview of the traffic conditions within the Town for planning purposes. Specific traffic impacts from site developments will need to be reviewed individually as part of the development review process.

3. ANALYSIS

3.1 Traffic Volumes

The data collection for this update consists of road section automatic traffic recorder counts and intersection turning movement counts as well as proposed development information and traffic impact studies.

For the update, a total of 31 road section automatic traffic recorder counts were taken on three weekdays from June 6th to June 8th, 2017 and on the July long weekend beginning Friday June 30th to Monday July 3rd, 2017. In addition, 16 manual intersection turning movement counts were taken at various locations during the periods from 7:00 to 10:00 and from 15:00 to 18:00 on Wednesday, June 28th and Thursday,

June 29th, 2017. The locations of the counts are indicated on Figure 1, included in Appendix A.

Counts taken in early June have been considered as representative of the average traffic conditions, while counts taken over the long weekend have been considered as representative of summer peak traffic volumes. The raw data for the traffic counts is extensive and is available digitally; however, it has been summarized and included in Appendix A.

The traffic count data was further summarized and compared to the 2012 data to determine specific road section volumes and growth. The data indicates that the road section annual growth rates since 2012 for the AADT (annual average daily traffic) are in a range from -2.47% to 10.15%. The weighted average growth in traffic volumes was 3.06% per year.

The highest increase in AADT (i.e. those over 6% per year) occurred on River Road East, Veterans Way, and Klondike Park Road where the 2012 AADT's were relatively low (1125 – 2175 vehicles per day). The growth is likely due to development activities in the area, use of the Town's sports field, as well as the new bridge over the Nottawasaga River on Klondike Park Road. Although the bridge was completed at the time of the 2012 Transportation Update, traffic data at that time did not reflect a significant increase. The data on Klondike Park Road may now be reflecting higher volumes due to both the bridge and sports field.

A decline in AADT (-2.47% to -0.68% per year) occurred on Main Street, River Road West between Veterans Way and Bell's Park Road, and Mosley Street between 3rd Street and Beach Drive. Although difficult to explain, some potential reasons for the decline in AADT may be partially due to:

- construction on River Road West between Blueberry Trail and Westbury Road;
- a colder and wetter spring/summer this year, resulting in less people going to the beach or to the downtown area at the time traffic data was collected; and
- any anomaly to change regular driver patterns in these areas during the count.

The average peak traffic on the long weekend was found to be 127 % of the AADT, which is also a decline from the 2012 figure of 153%. Once again, this may be due to cooler and wetter weather this year. It should also be noted that the relationship between AADT and Summer Weekend Daily Traffic (SWEDT) would not be expected to keep pace with changes in the AADT. As the AADT increases due to increases in development and general growth, it is anticipated that the SWEDT would represent a smaller factor in relation to the AADT.

The data also indicates that the greatest impact of summer weekend traffic is experienced in the east end on the following road sections:

Table 1: Road Sections with the Greatest Impact from Summer Weekend Traffic

ROAD SECTION		2017		SWEDT/AADT (%)
No.	Description	AADT	SWEDT	
7	River Road West: Main Street – Bell's Park Road	10,050	14,700	146
9	Mosley Street: River Road West – 3rd Street	6,900	11,475	166
10	Mosley Street: 3rd Street – Beach Drive	6,550	11,700	179
11	Beach Drive	2,525	4,750	188
12	River Road East: Main Street – Zoo Park Road	2,700	4,225	156
13	Main Street: Mosley Street – River Road West	4,125	8,450	205

The above noted road sections on summer weekends experience traffic that is in the range of 146% to 205% of the AADT. These roads all lead to Beach Areas 1 and 2 and signify the impact on traffic due to summer day trippers.

The 2012 study provided traffic projections for 2017 and 2022. Based on those projections, estimates for expected traffic volumes in 2017 were made and compared to the 2017 count data. Overall the average of the 2017 count is at approximately 110% of the expected volume. The tables included in Appendix B show the various road sections, the 2012 and 2017 AADT and SWEDT, as well as the comparison between the 2012 projections and the 2017 data collected.

3.2 Development

Development information was obtained from the Town in July 2017 and from the Sewer/Water Capacity Study. Current and future developments within the Town were identified. Currently, it is estimated that there are approximately 7099 residential units in various stages of development, as follows:

- Committed Developments – Approved and/or Under Construction, 669 units
- Committed Development – Draft Plan Approved, 3,901 units
- Uncommitted Development – Proposals, 2,529 units

The timing of developments coming on line and generating traffic was assessed for 2017-2022 and 2022-2027. In order to assess a reasonable level of development activity, the building statistics provided by the Town's Planning Department were reviewed and the timing of development adjusted to reflect a similar building rate. The

Town's building statistics reveal a 10-year average of about 259 residential units being built every year from 2007 to 2016. We note that this average was on a steady increase from 1984 to 2006; it was able to maintain a relatively high level from 2006 to 2013; but it was on a decline from 2013 to 2016.

That being said, more future developments have been considered in this study update than in the 2012 update. In the 2012 Transportation Study Update, approximately 6,880 residential units were considered for the 10-year planning period. In 2017 there are 7,099 units being considered. A list of developments and map of development locations have been included in Appendix C.

For the purposes of assigning traffic volumes to the Town's road network, we have projected the building activity as approximately 270 to 330 units per year during the planning periods. This is consistent with the Town's Growth Forecast in the 2016 Development Charge Update and is also consistent with the Sewer/Water Capacity Study. The developments currently under construction were assumed to reach 75% build out in the 5-year period with the remaining 25% built in the 10-year horizon. Other developments were reviewed based on the status of information available and the associated build out rate considered. In the absence of specific development timing, all remaining proposals were assigned similar build out rates with higher consideration given to the draft plan approved developments.

Based on the above assumptions it is anticipated that approximately 3,100 units or 45% of the current proposals would be built within the 10-year planning period.

3.3 Traffic Projections

3.3.1 Average Conditions

Traffic projections were prepared for 5 and 10-year planning periods, being 2022 and 2027. Traffic growth within the Town consists of a general increase in traffic throughout the region and the impact generated by new local development. From the 2012 to 2017 data, a general average increase in traffic volumes has been determined as being approximately 3.06% per year. From building statistics, an additional 1,280 residential units have also been added and generating traffic since the 2012 study.

In order to determine the growth of background traffic (i.e. if no development had occurred since 2012) an estimate of the traffic generated by the 1,280 units had to be calculated and removed from the overall traffic volume. Based on the mix of residential densities and an average trip rate of 7.78 vehicles per unit per day, the traffic contribution from the 1,280 units was removed from the 2017 traffic data and a general background growth of 2.23% per year was calculated. This represents the background growth in traffic without any additional traffic due to development for the purposes of this update. As per Statistics Canada, the Town's population has increased at a rate of 2.98% per annum from 2011 to 2016.

The future 2022 and 2027 traffic data were projected using a 2.23% per year growth in background traffic. Trip rates and traffic volumes generated by the proposed developments were estimated based on the Town's Official Plan residential designations and the Institute of Transportation Engineers (ITE) Trip Generation Report 8th Edition. Utilizing both background growth and development traffic projections, total projected road section volumes were developed.

The overall result is that combined with the background growth and the proposed development timing, traffic volumes on a weighted average basis are anticipated to increase at 3.48% per year for the next 5 years and 3.38% per year beyond 5 years and up to 10 years. The table in Appendix D illustrates the 5 and 10-year projected traffic volumes on various Town road sections with the associated growth rates.

3.3.2 Summer Weekend Condition

Although summer weekend traffic conditions can increase significantly several times during the year, it has not been considered economically feasible to consider road improvements based on this traffic condition. It is accepted practice to use weekday peak hour traffic volume for design, as most of the day to day activities occur on a weekday (i.e. to/from work/school etc.). Summer weekend traffic conditions are considered extreme and outside of the design traffic volume.

3.4 Traffic Impacts and Recommended Improvements

Most of the Town's road network is comprised of two-lane roads. The capacity of a two-lane urban road is generally from 12,000 to 15,000 vehicles per day depending on the number of side streets and or entrances. The 2012 Transportation Study Update recommended a number of improvements (widening) based on capacity deficiencies.

The following improvements to road sections are currently undergoing an Environmental Assessment or Detailed Design:

- Mosley Street – Beachwood Road to 45th Street (EA)
- River Road West – Veterans Way to Blueberry Trail (detailed design)
- Veterans Way and Klondike Park Road (EA and detailed design)

The following improvements to intersections have been completed since 2012:

- River Road West at Oxbow Park Drive
- River Road West at Veterans Way
- River Road West at Westbury Road
- Mosley Street at 45th Street

Based on the projections identified in this update, the following road sections are anticipated to exceed their lane capacity during the indicated time period and are

recommended for further review to determine widening requirements (i.e. to 3 or 4 lanes).

Table 2: Recommended Road Section Improvements

ROAD SECTION		3-4 LANE WARRANT		RECOMMENDED TIME FRAME	2017 10-YEAR CAPITAL WORKS FORECAST TIMELINE
No.	Description	2022	2027		
1	Mosley Street: Beachwood Road – 45th Street	Yes		2021-2022	2021-2022, 2025-2026
6	River Road West: Veterans Way – Main Street		Possibly	2027-2028	2019-2020, 2023-2024
7	River Road West: Zoo Park Road – Bell's Park Road		Yes	2024-2025	2027-2028
8	River Road West: Bell's Park Road – Town Limit		Yes	2025-2026	2032-2041

It is noted that the above sections have been identified in the Town's 10-year Capital Works Forecast and dates in the 10-year forecast are provided in the last column of the above table. The dates in the 10-year forecast were determined based on the volumes and warrants for widening outlined in the 2012 Transportation Study Update plus consideration of other factors including (amongst other things) safety for pedestrians on River Road West with regard for the School and provision of alternative active transportation through Town.

Four road sections (45th Street, Sunnidale Road, Knox Road and Ramblewood Drive) are not expected to reach capacity within the 10-year forecast, but should continue to be monitored pending the implementation of significant development proposals within the Sunnidale Trails Secondary Plan. 45th Street and Sunnidale Road are identified as arterial roads in the Town's OP while Knox Road and Ramblewood Drive are collector roads. These roads are within the urban environment and are presently constructed to a rural or semi-urban standard, with the exception of the section of 45th Street from Mosley Street to Knox Road which has two lanes in each direction and an urban cross-section. Consideration should be given to upgrading to these roads to the Town's urban standards.

The intersections analyzed were found to be operating with an acceptable level of service. Copies of the Synchro reports are included in Appendix E for reference.

One intersection is predicted to warrant geometric improvements within the study's planning horizon, as follows:

Table 3: Recommended Intersection Improvements

INTERSECTION	2017	2022	2027
Sunnidale Road at Knox Road		Turn lanes	

Left turn lanes are warranted at the intersection of Sunnidale Road with Knox Road in the 2022 horizon based on MTO left turn lane warrant criteria.

The existing signalized intersections are expected to operate acceptably in the next 10 years. However, to optimize performance, signal timings and geometrics (i.e. the need for a longer left turn lane, double left turn lanes or a right turn lane) should be reviewed regularly (i.e. once a year if possible) to accommodate changing traffic patterns.

4. OTHER CONSIDERATIONS/LONG-TERM TRANSPORTATION NETWORK PLANNING

4.1 Related County Road Improvements

The 2014 Simcoe County Transportation Master Plan has identified the following improvements:

- Widening of County Road 10, from Highway 26 to Concession 12 Sunnidale, to 4 lanes by 2031; and
- Upgrade Concession 12 Sunnidale and Flos Road 4, from County Road 7 to County Road 93, to county road standard by 2031.

The above noted improvements will provide an additional east-west route between County Road 29 and areas north of Stayner other than Highway 26. Thus, this provides potential for capacity relief to County Road 92 at the east end of Wasaga Beach, as well as River Road West/Mosley Street corridor, and can be used as an out-of-Town by-pass.

4.2 Roundabout Considerations

A roundabout alternative has been considered at each signalized intersection. A single lane roundabout was assumed for a two-lane road whereas a two-lane roundabout was assumed for a four-lane road.

Traffic volumes can be accommodated by roundabouts at all signalized intersections within the next 10 years. Should Mosley Street at 58th Street and River Road West at Veterans Way be widened to 4 lanes (assuming a 2-lane roundabout at both locations),

traffic volumes can also be accommodated by the roundabouts within the next 20 years. It is noted that this is only based on traffic operational analysis and other factors should be considered.

Construction of roundabouts of typical 40 m to 60 m inscribed diameter will require property and utility relocations. Although traffic volumes can be handled by the roundabouts, as noted above other factors should be considered such as intersecting roads with significantly unbalanced traffic volumes and insufficient gaps in the major flow to accommodate the minor flow. Mosley Street at 58th Street and Mosley Street at the Rec-Plex entrance are just a couple of examples that may not be suited for roundabouts as the reason traffic signals were installed was to provide a controlled gap for the side street. Closely spaced intersections such as Mosley Street/River Road West and River Road West/Oxbow Park Drive as well as River Road West/Main Street and River Road West/Georgian Glen Drive may also not be suitable for roundabouts.

As a result, the feasibility of roundabouts should be further reviewed on a site-specific basis. Guidelines for selection of roundabouts are well documented in the *County of Simcoe Transportation Master Plan* and Transportation Association of Canada *Canadian Roundabout Design Guide*. Further, consideration should be given to whether or not the proposed improvement would trigger the need for a Class Environmental Assessment.

4.3 Accommodation of Bike Lanes

It is identified in the Town's 2008 Active Transportation Plan that on-road bike lanes as well as sidewalks are required on the Town's major roads such as Mosley Street (between Lyons Court/Beachwood Road and River Road West), River Road West, 45th Street, 58th Street, Ramblewood Drive, Knox Road West, and Zoo Park Road (between River Road West and Golf Course Road). Both bike lanes and sidewalks can be accommodated within the existing right-of-way on two-lane or three-lane roads. However, to accommodate both, additional right-of-way may be required for four-lane roads. Therefore, the feasibility of converting existing four-lane roads to a three-lane cross-section was reviewed.

Based on an assumed capacity of 14,000 – 17,000 vehicles per day for a three-lane road, the existing four-lane cross-section of Mosley Street between 45th Street and River Road West cannot be converted. Four lanes must be maintained as the traffic demands of 22,000 – 25,000 vehicles per day would exceed the capacity of a three-lane cross-section. All other four-lane roads, such as 45th Street (between Mosley Street and Ramblewood Drive/Knox Road West), River Road West (between Westbury Road and Zoo Park Road), and Main Street (between Glenwood Drive and River Road West), could potentially be converted to a three-lane cross-section (3 lanes at intersections/driveway entrances, 2 lanes where there is a raised median for 45th Street) for the next 10 years.

It should be noted that any change in roadway capacity may trigger the need for a Class Environmental Assessment.

4.4 Traffic Implications Associated with Main Street/Downtown Development Area (Beach Area 1 & 2)

As per the Wasaga Beach Downtown Development Master Plan dated March 2017, Beach Area 1 and 2 will consist of "resort accommodation", "amenity mixed use", "mixed use of entertainment and open space focus", and "park, open space and feature right-of-way" land uses. Five potential roundabouts are included in the plan. Located at Main Street/Beck Street, Mosley Street/Main Street, Mosley Street/2nd Street, Mosley Street/6th Street, and Spruce Street/Anchor development entrance. The plan also includes a future bridge connection between Mosley Street and River Road West at 6th Street, and a future pedestrian bridge connection between Mosley Street and River Avenue Crescent at approximately 2nd Street.

Based on a total gross floor area of 124,000 square meters and 1,200 high-rise residential condominium/townhouse units, assuming 35% of the total gross floor areas are specialty retails, 15% performance venue/theater, 50% recreational community centre, and an internal capture rate of 20%, it is estimated that Beach Area 1 and 2 will generate approximately 2,760 trips during a weekday PM peak hour (critical condition), including 1,350 inbound trips and 1,410 outbound trips. Considering that additional traffic volumes would be generated by the downtown development area along Main Street, and that future Main Street and Mosley Street would have two lanes (one lane in each direction), the new bridge connection between River Road West and Mosley Street would likely be required. Further, Main Street would likely be congested during a weekday peak hour and an analysis would need to be completed to determine the impacts and operations of the proposed roundabouts.

Trip estimates and transportation impacts should be reviewed as development details are brought forward and finalized in the future.

4.5 Public Transportation

The Town currently provides hourly transit service Monday – Saturday 7:00 am to 9:00 pm, Sunday 7:00 am to 7:00 pm. There are two routes within the Town operated through a contract by Sinton-Landmark. Both routes connect east and west sections of the Town. Route 1 starts from Lyons Court at Ramblewood Drive, and goes through Ramblewood Drive, Knox Road West, Sunnidale Road, Mosley Street, Main Street, Stonebridge Boulevard/Zoo Park Road, and River Road East to Archer Road. Route 2 starts from 71st Street South, and goes through Mosley Street, and River Road West to Wasaga Stars Arena near Bells Park Road.

Hourly transit service is also available between Wasaga Beach and Collingwood Monday – Saturday 6:00 am to 8:00 pm, Sunday 7:00 am to 10:00 am and 3:00 pm to

8:00 pm, operated by Colltrans. A single route is provided which starts at 45th Street/Mosley Street, and goes through Mosley Street, Beachwood Road to Collingwood.

The capture rate/ridership of the existing transit system should be reviewed to determine if any modifications to the existing hours and frequency of service are required. It is understood that the Town has retained a consultant, Transit Consulting Network, to undertake a review of the existing transit system and provide recommendations as it relates to, among other items, route optimization, levels of service, compliance with AODA and consideration for route expansion. The Study is well underway and is slated to be completed in January 2018.

5. SUMMARY

The following provides a summary of highlights of this 2017 Transportation Study Update:

- On average, traffic throughout the Town has grown at 3.06% per year from 2012 to 2017.
- The main east-west arterial through Town has seen an increase in AADT on average of 2.77% per year from 2012 to 2017.
- Summer weekend traffic volumes are generally 130% of the AADT.
- 2012 traffic projections were 110% met.
- Significant development has been proposed in the next 5 to 10 years. Based on current trends, it is estimated that 45% will be achieved, which has been confirmed with the Town's Public Works Staff.
- Future traffic volumes are anticipated to increase by approximately 3.48% per year over the next 5 years and 3.38% beyond 5 years and up to 10 years, based on the development scenarios assumed.
- The 10-year Capital Works Forecast has been identified, confirmed, and supported by this 2017 Transportation Study Update. However, some of the dates for improvements outlined in the Forecast should be re-visited/revised to reflect the warrant timing for improvements outlined in this study.
- Roundabouts are viable options from a traffic operations perspective for all signalized intersections within the Town. However, property would be required and utilities would need to be relocated. Other factors should also be considered, including proximity of adjacent signalized intersections and specific site details and traffic volumes on each approach.

We trust that the above meets the Town's needs at this time. Should you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

AINLEY & ASSOCIATES LIMITED

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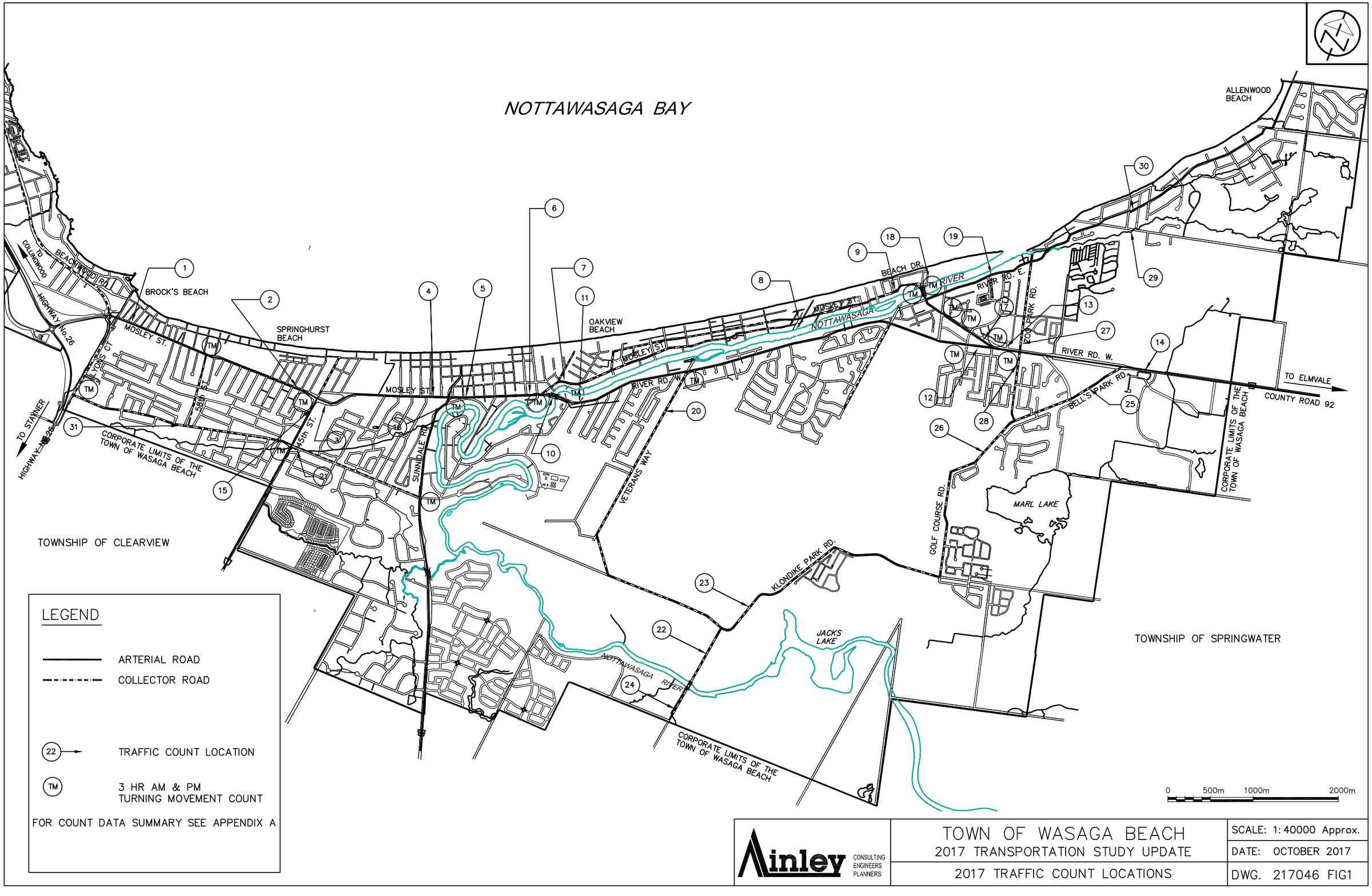
Report Reviewed By:

Tom Nollert, C.E.T
Senior Technologist

Appendix A

Traffic Count Location Plan & Data



LEGEND

- ARTERIAL ROAD
- COLLECTOR ROAD
- 22 → TRAFFIC COUNT LOCATION
- TM 3 HR AM & PM TURNING MOVEMENT COUNT

FOR COUNT DATA SUMMARY SEE APPENDIX A

Ainley CONSULTING ENGINEERS PLANNERS

TOWN OF WASAGA BEACH
2017 TRANSPORTATION STUDY UPDATE
2017 TRAFFIC COUNT LOCATIONS

SCALE: 1: 40000 Approx.
DATE: OCTOBER 2017
DWG. 217046 FIG1

NOTTAWASAGA BAY

ALLENWOOD BEACH

BROCK'S BEACH

SPRINGHURST BEACH

OAKVIEW BEACH

TO COLLINGWOOD

HIGHWAY No. 26

MOSLEY ST.

BEACH DR.

RIVER RD. E.

RIVER RD. W.

ZOO PARK RD.

BELL'S PARK RD.

45th ST.

KNOX RD. W.

SUNNIDALE RD.

VETERANS WAY

KLONDIKE PARK RD.

GOLF COURSE RD.

NOTTAWASAGA RIVER

MARL LAKE

JACKS LAKE

TO STAYNER

HIGHWAY No. 26

TO ELMVALE

COUNTY ROAD 92

CORPORATE LIMITS OF THE TOWN OF WASAGA BEACH

TOWNSHIP OF CLEARVIEW

TOWNSHIP OF SPRINGWATER

180 Right Channelization

14950/17900 (1)
16450/18300 (2)
19100/22130 (3)
15450/17975 (4)
15625/16475 (16)
6900/11475 (9)
6550/11700 (10)
2525/4750 (11)
2700/4225 (12)
4125/8450 (13)
8650/9575 (6)
10050/14700 (23)
2325/3375 (23)
4600/5550 (22)
8625/11825 (8)
1125/1575 (18)
1175/1650 (25)
800/1400 (24)
2725/2250 (26)
3375/3575 (21)
900/9600 (14)
5225/6625 (15)
1575/1575 (16)
3900/4125 (17A)
2675/3425 (17)
3125/3600 (19)
3000/3775 (20)

LEGEND

- ARTERIAL ROAD
- COLLECTOR ROAD
- AADT/SWEDT — ANNUAL AVERAGE DAILY TRAFFIC / SUMMER WEEKEND DAILY TRAFFIC
- 19 — ROAD SECTION No. (Ref Table 1)
- PEAK PM HOUR TURNING MOVEMENT

0 500m 1000m 2000m

Ainley CONSULTING ENGINEERS PLANNERS

TOWN OF WASAGA BEACH
2017 TRANSPORTATION STUDY UPDATE
2017 TRAFFIC VOLUMES

SCALE: 1:40000 Approx.
DATE: OCTOBER 2017
DWG. 217046-FIG.2

Town of Wasaga Beach
2017 Transportation Study Update
24 Hour Count Volumes & Peak Hour Volumes
Appendix A Table A1

ID	Location	Average Condition Average Weekday of June 6 - 8, 2017 Average Weekday of Tues. - Thur.				July Long Weekend				
						June 30, 2017 Fri.	July 1, 2017 Sat.	July 2, 2017 Sun.	July 3, 2017 Mon.	One-Way Peak Hour
		Daily Vehicle Count	Trucks	% Trucks	One-Way Peak Hour					
1	Mosley East of Lyons Ct/Beachwood Rd	14,298	455	3.18%	711	13,048	17,389	14,577	15,354	837
2	Mosley West of 45th Street	15,610	500	3.21%	740	13,969	18,422	15,411	16,545	824
3	Mosley East of 45th Street	13,674	1,878	13.73%	629	15,337	14,827	14,970	14,805	651
4	Mosley West of Sunnidale Rd.	19,235	1,110	5.77%	799	21,262	20,034	19,052	17,958	847
5	Mosley East of Sunnidale Rd.	20,437	2,997	14.66%	1,007	25,285	22,445	18,451	18,533	1,117
6	Mosley West of River Rd. W.	17,750	2,469	13.91%	714	18,865	18,153	19,012	18,219	889
7	Mosley North of River Rd. W.	7,964	409	5.14%	394	10,391	12,881	12,982	11,975	660
8	Mosley Between 13th and 12th St.	5,818	446	7.67%	307	8,066	9,777	9,989	9,180	492
9	Mosley Between 1st and Willow St.	6,547	735	11.23%	445	10,444	11,144	11,690	10,507	660
10	River Rd. W. East of Mosley	15,453	1,323	8.56%	751	17,969	15,937	16,211	15,463	809
11	River Rd. W. East of Oxbow Park Dr.	15,625	1,039	6.65%	749	16,463	15,465	15,714	15,132	749
12	River Rd. W. West of Main St.	8,658	1,056	12.20%	368	9,663	8,525	8,776	8,322	466
13	River Rd. W. East of Main St.	10,038	1,011	10.07%	429	13,731	14,241	14,689	13,765	704
14	River Rd. W. East of Bells Park Rd.	8,635	812	9.40%	392	10,810	10,533	11,834	11,302	642
15	45th Street South of Mosley	7,889	564	7.15%	342	9,590	8,574	8,780	8,782	432
16	Sunnidale Rd. South of Mosley	5,225	276	5.28%	260	6,198	6,186	6,616	6,432	375
17	Main St North of River Rd. W.	4,114	339	8.24%	230	6,039	7,946	8,441	7,683	458

18	Spruce St. towards Beach Dr.	2,537	156	6.15%	257	3,806	4,750	4,580	4,466	369
19	River Rd. E. east of Beck St.	2,689	113	4.20%	135	3,859	4,099	4,229	3,971	200
20	Veterans Way south of River Rd. W.	1,570	53	3.38%	99	1,576	1,471	1,489	1,519	96
21	Knox Rd. East of 45th St.	3,384	123	3.64%	189	3,569	3,179	2,861	3,831	175
22	Klondike Park Rd South of Powerline Rd.	3,121	115	3.69%	187	3,334	3,608	3,138	2,900	211
23	Klondike Park Rd. North of Powerline Rd.	2,673	98	3.67%	149	3,426	2,610	2,664	2,925	239
24	Klondike Park Rd South of Bridge Rd.	2,994	109	3.64%	189	3,767	2,723	2,650	2,474	279
25	Bells Park Rd. South of River Rd. W.	1,126	24	2.13%	68	1,264	1,387	1,576	1,475	89
26	Golf Course Rd. Between Marlwood Ave. and Fairway Cres.	3,891	173	4.45%	190	3,585	3,772	3,756	4,122	241
27	Zoo Park Rd North of River Rd W.	2,315	107	4.62%	117	3,232	3,216	3,387	3,061	191
28	Zoo Park Rd South of River Rd W.	4,600	156	3.39%	193	4,655	5,554	5,000	4,784	293
29	Deerbrook Dr. East of River Rd E.	806	19	2.36%	49	1,191	1,106	1,396	1,120	92
30	River Rd E. East of Deerbrook Dr.	1,166	22	1.89%	62	1,461	1,468	1,657	1,401	92
31	Ramblewood Dr. West of 58th Street	2,731	142	5.20%	187	2,252	1,843	1,599	1,735	110

Notes:

1 Digital Data is available for 15min and hourly volumes
2 ID #1 and 2 data are 2016 data (June 21-23 and July 1-4)

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 8:30:00
To: 9:30:00

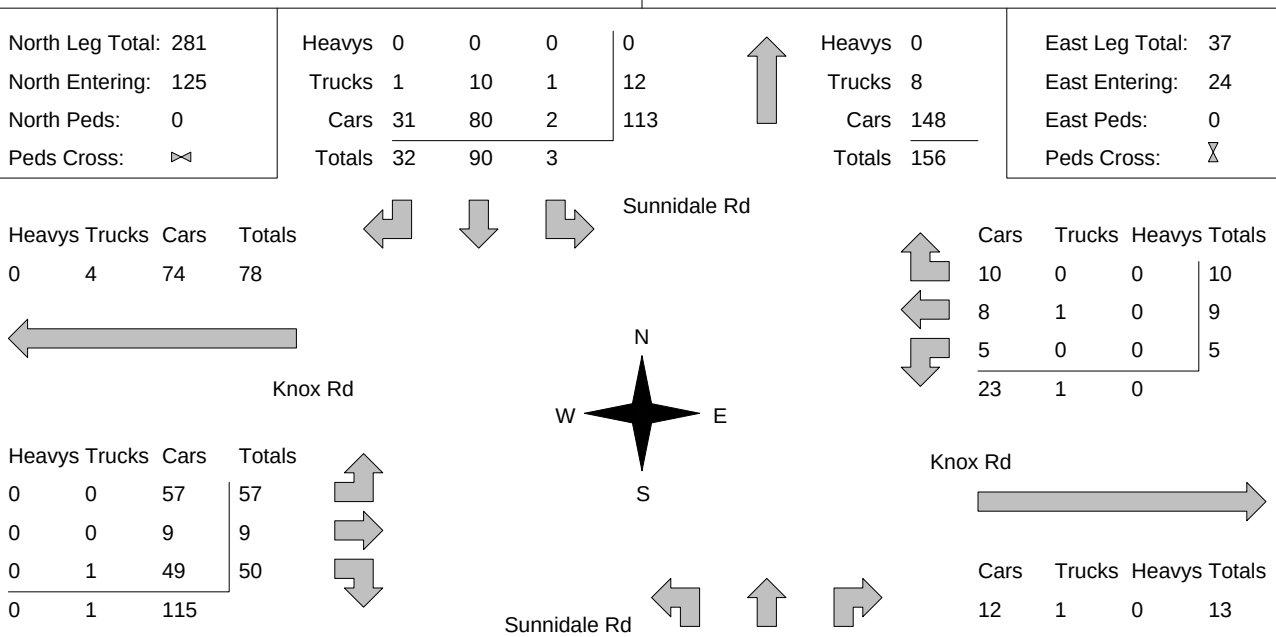
Municipality: Wasaga Beach
Site #: 1712500001
Intersection: Sunnidale Rd & Knox Rd
TFR File #: 1
Count date: 28-Jun-17

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Sunnidale Rd runs N/S



Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:45:00
To: 17:45:00

Municipality: Wasaga Beach
Site #: 1712500001
Intersection: Sunnidale Rd & Knox Rd
TFR File #: 1
Count date: 28-Jun-17

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Sunnidale Rd runs N/S

North Leg Total:	415			
North Entering:	196			
North Peds:	4			
Peds Cross:	⋈			
Heavys	0	0	0	0
Trucks	2	3	0	5
Cars	58	123	10	191
Totals	60	126	10	
Heavys	0			
Trucks	2			
Cars	217			
Totals	219			
East Leg Total:	37			
East Entering:	17			
East Peds:	2			
Peds Cross:	⧖			

Sunnidale Rd

Heavys	Trucks	Cars	Totals
0	2	152	154

Knox Rd

Heavys	Trucks	Cars	Totals
0	1	59	60
0	0	8	8
0	0	40	40
0	1	107	

Cars	Trucks	Heavys	Totals
5	0	0	5
10	0	0	10
2	0	0	2
17	0	0	

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Knox Rd

Cars	Trucks	Heavys	Totals
20	0	0	20

Sunnidale Rd

Peds Cross:	⧖			
West Peds:	0			
West Entering:	108			
West Leg Total:	262			
Cars	165			
Trucks	3			
Heavys	0			
Totals	168			
Cars	84	153	2	239
Trucks	0	1	0	1
Heavys	0	0	0	0
Totals	84	154	2	
Peds Cross:	⋈			
South Peds:	0			
South Entering:	240			
South Leg Total:	408			

Comments

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 7:30:00
To: 8:30:00

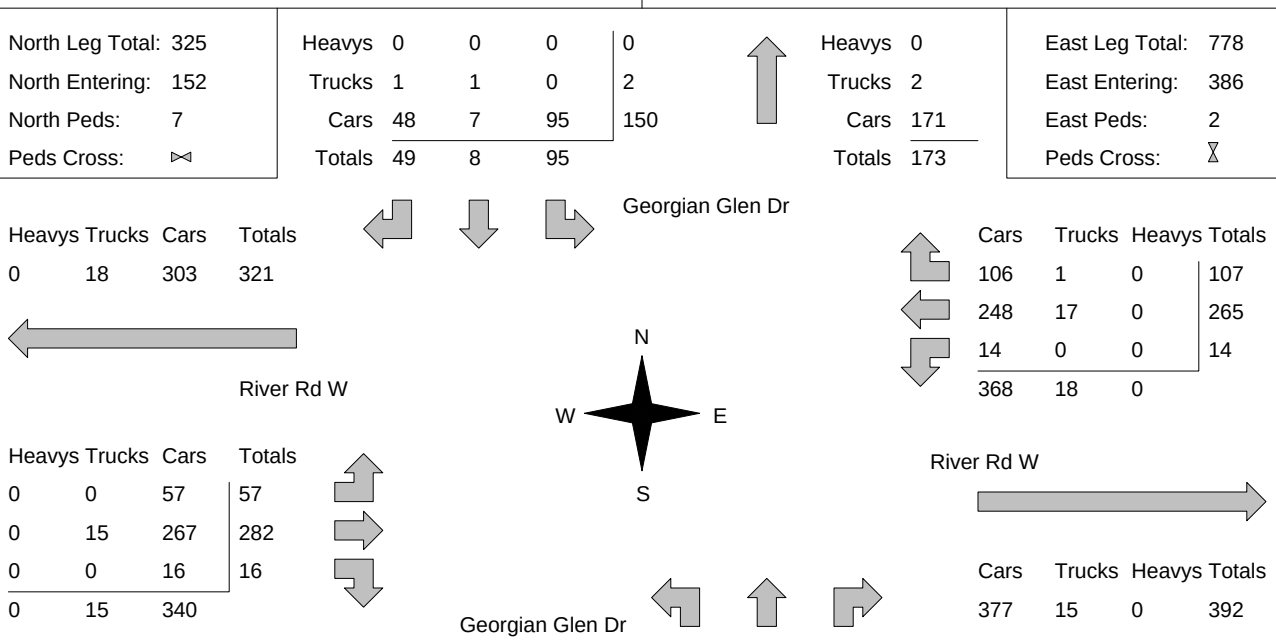
Municipality: Wasaga Beach
Site #: 1712500002
Intersection: River Rd W & Wal-Mart Ent.
TFR File #: 1
Count date: 28-Jun-17

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: River Rd W runs W/E



Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:15:00
To: 17:15:00

Municipality: Wasaga Beach
Site #: 1712500002
Intersection: River Rd W & Wal-Mart Ent.
TFR File #: 1
Count date: 28-Jun-17

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: River Rd W runs W/E

North Leg Total:	389
North Entering:	193
North Peds:	3
Peds Cross:	⋈

Heavys	0	0	0	0
Trucks	2	0	1	3
Cars	35	28	127	190
Totals	37	28	128	

Heavys	0
Trucks	1
Cars	195
Totals	196

East Leg Total:	1300
East Entering:	661
East Peds:	3
Peds Cross:	⧖

Georgian Glen Dr

Heavys	Trucks	Cars	Totals
0	23	538	561

Cars	Trucks	Heavys	Totals
134	1	0	135
467	20	0	487
39	0	0	39
640	21	0	

River Rd W

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Heavys	Trucks	Cars	Totals
0	0	46	46
0	11	447	458
0	1	37	38
0	12	530	

River Rd W

Cars	Trucks	Heavys	Totals
627	12	0	639

Georgian Glen Dr

Peds Cross:	⧖
West Peds:	4
West Entering:	542
West Leg Total:	1103

Cars	104			
Trucks	1			
Heavys	0			
Totals	105			

Cars	36	15	53	104
Trucks	1	0	0	1
Heavys	0	0	0	0
Totals	37	15	53	

Peds Cross:	⋈
South Peds:	7
South Entering:	105
South Leg Total:	210

Comments

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period	One Hour Peak
From: 7:00:00	**From:** 8:30:00
To: 10:00:00	**To:** 9:30:00

Municipality: Wasaga Beach
Site #: 1712500003
Intersection: River Rd W & Veterans Way (Powe
TFR File #: 1
Count date: 28-Jun-17

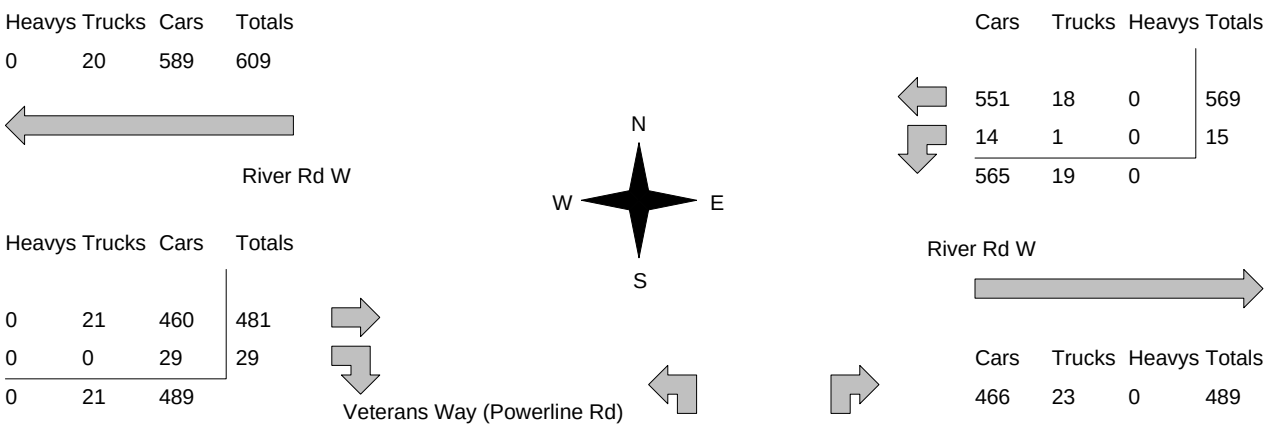
Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: River Rd W runs W/E

East Leg Total: 1073
East Entering: 584
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 510
West Leg Total: 1119

Cars 43
Trucks 1
Heavys 0
Totals 44

Cars 38 6 44
Trucks 2 2 4
Heavys 0 0 0
Totals 40 8

Peds Cross: ⋈
South Peds: 0
South Entering: 48
South Leg Total: 92

Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:30:00
To: 16:30:00

Municipality: Wasaga Beach
Site #: 1712500003
Intersection: River Rd W & Veterans Way (Powe
TFR File #: 1
Count date: 28-Jun-17

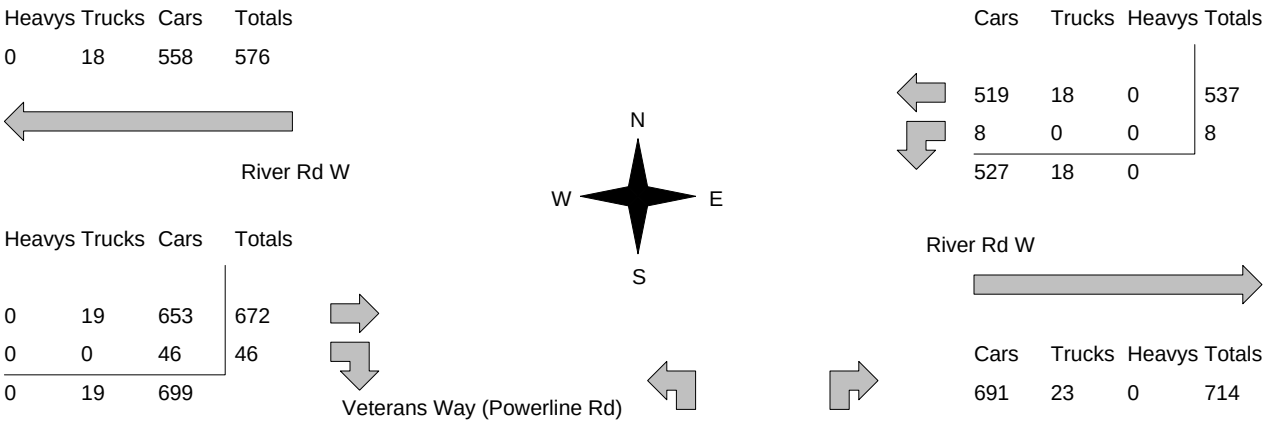
Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: River Rd W runs W/E

East Leg Total: 1259
East Entering: 545
East Peds: 0
Peds Cross:



Peds Cross:
West Peds: 0
West Entering: 718
West Leg Total: 1294

Cars 54
Trucks 0
Heavys 0
Totals 54

Cars 39 38 77
Trucks 0 4 4
Heavys 0 0 0
Totals 39 42

Peds Cross:
South Peds: 0
South Entering: 81
South Leg Total: 135

Comments

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period	One Hour Peak
From: 7:00:00	**From:** 8:30:00
To: 10:00:00	**To:** 9:30:00

Municipality: Wasaga Beach
Site #: 1712500004
Intersection: River Rd W & Oxbow Park Dr
TFR File #: 1
Count date: 28-Jun-17

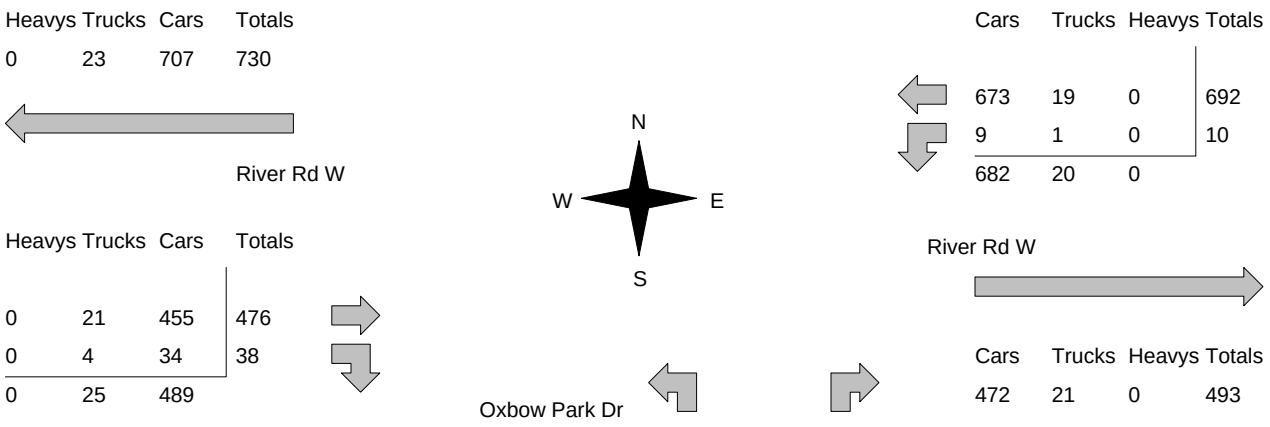
Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: River Rd W runs W/E

East Leg Total: 1195
East Entering: 702
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 514
West Leg Total: 1244

Cars	43		
Trucks	5		
Heavys	0		
Totals	48		

Cars	34	17	51
Trucks	4	0	4
Heavys	0	0	0
Totals	38	17	

Peds Cross: ⋈
South Peds: 2
South Entering: 55
South Leg Total: 103

Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:30:00
To: 16:30:00

Municipality: Wasaga Beach
Site #: 1712500004
Intersection: River Rd W & Oxbow Park Dr
TFR File #: 1
Count date: 28-Jun-17

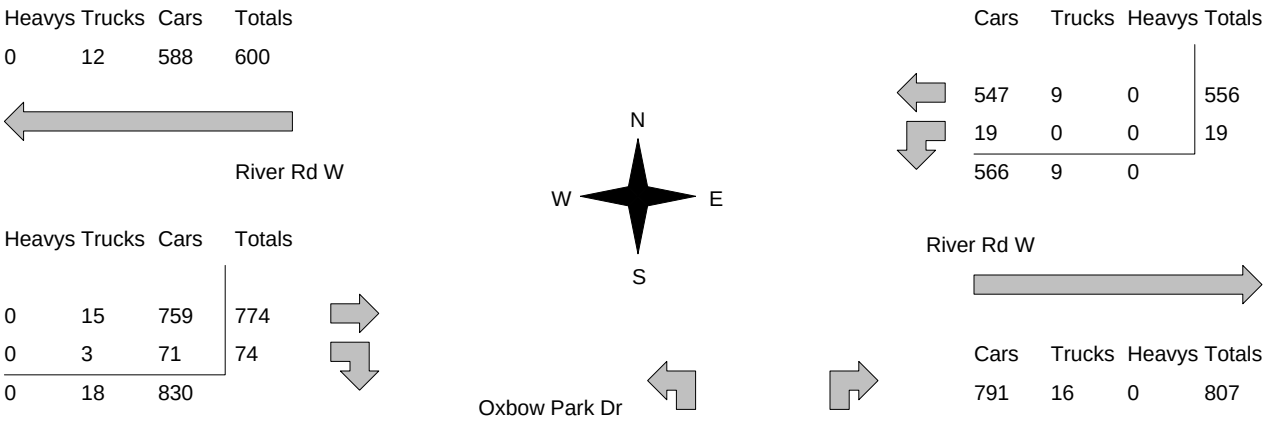
Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: River Rd W runs W/E

East Leg Total: 1382
East Entering: 575
East Peds: 0
Peds Cross:



Peds Cross:
West Peds: 0
West Entering: 848
West Leg Total: 1448

Cars 90
Trucks 3
Heavys 0
Totals 93

Cars 41 32 73
Trucks 3 1 4
Heavys 0 0 0
Totals 44 33

Peds Cross:
South Peds: 1
South Entering: 77
South Leg Total: 170

Comments

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 9:00:00
To: 10:00:00

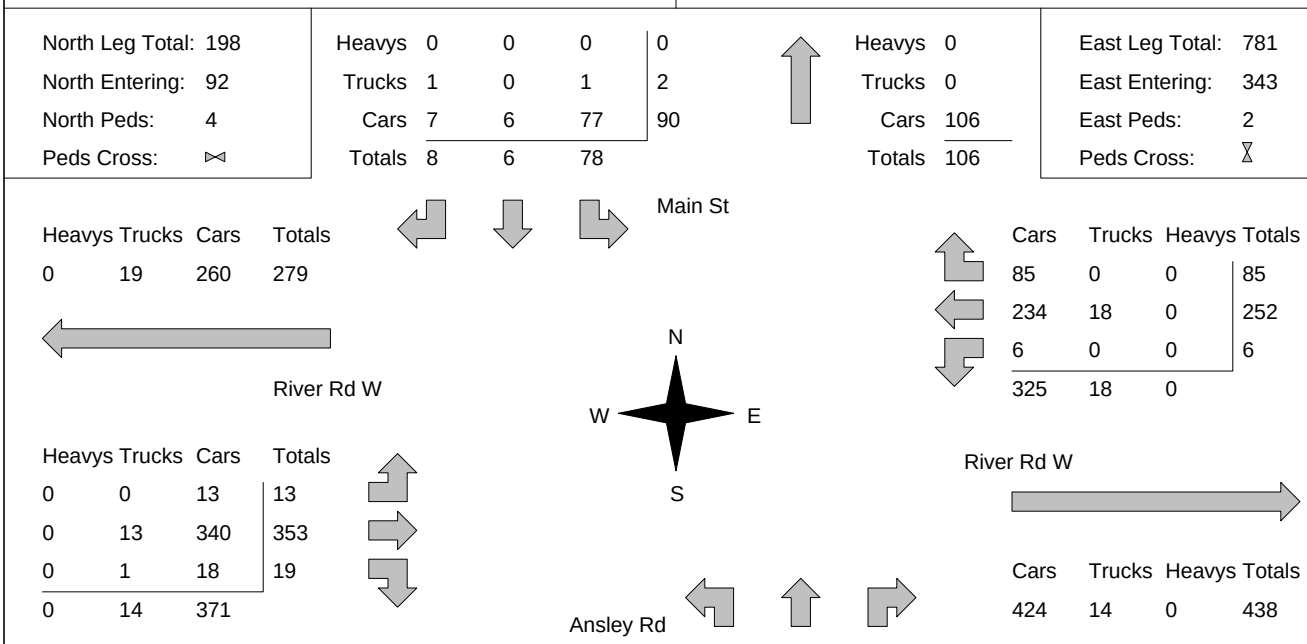
Municipality: Wasaga Beach
Site #: 1712500005
Intersection: River Rd W & Main St-Ansley Rd
TFR File #: 1
Count date: 28-Jun-17

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: River Rd W runs W/E



Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:00:00
To: 17:00:00

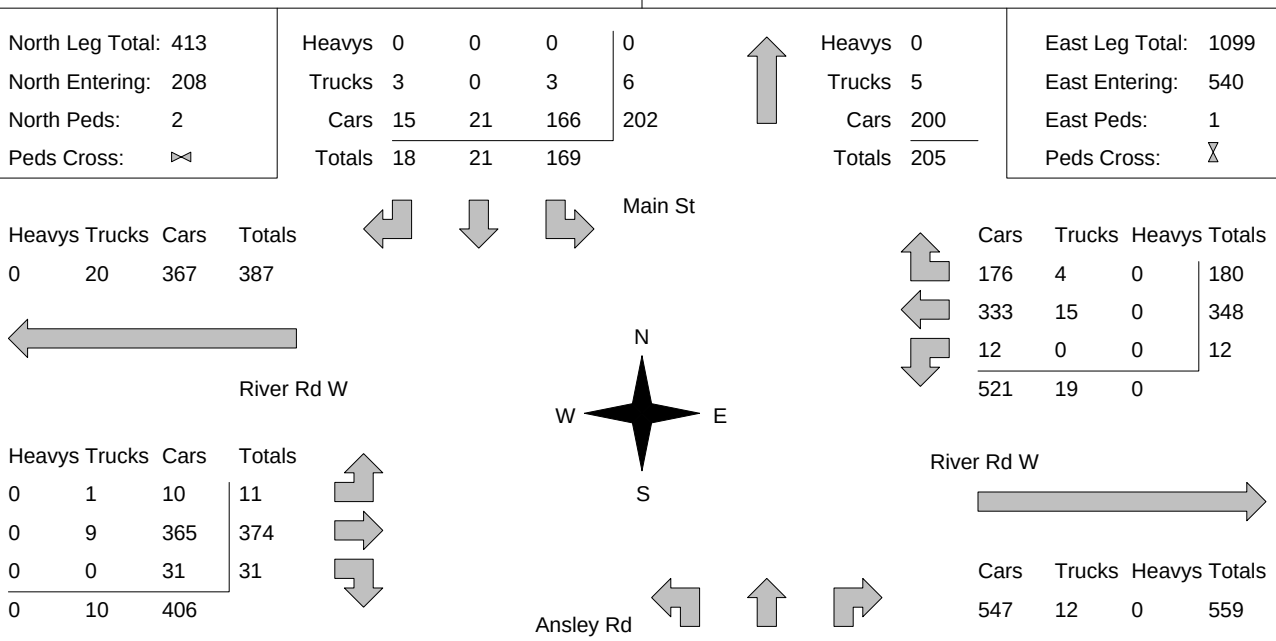
Municipality: Wasaga Beach
Site #: 1712500005
Intersection: River Rd W & Main St-Ansley Rd
TFR File #: 1
Count date: 28-Jun-17

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: River Rd W runs W/E



Comments

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 8:45:00
To: 9:45:00

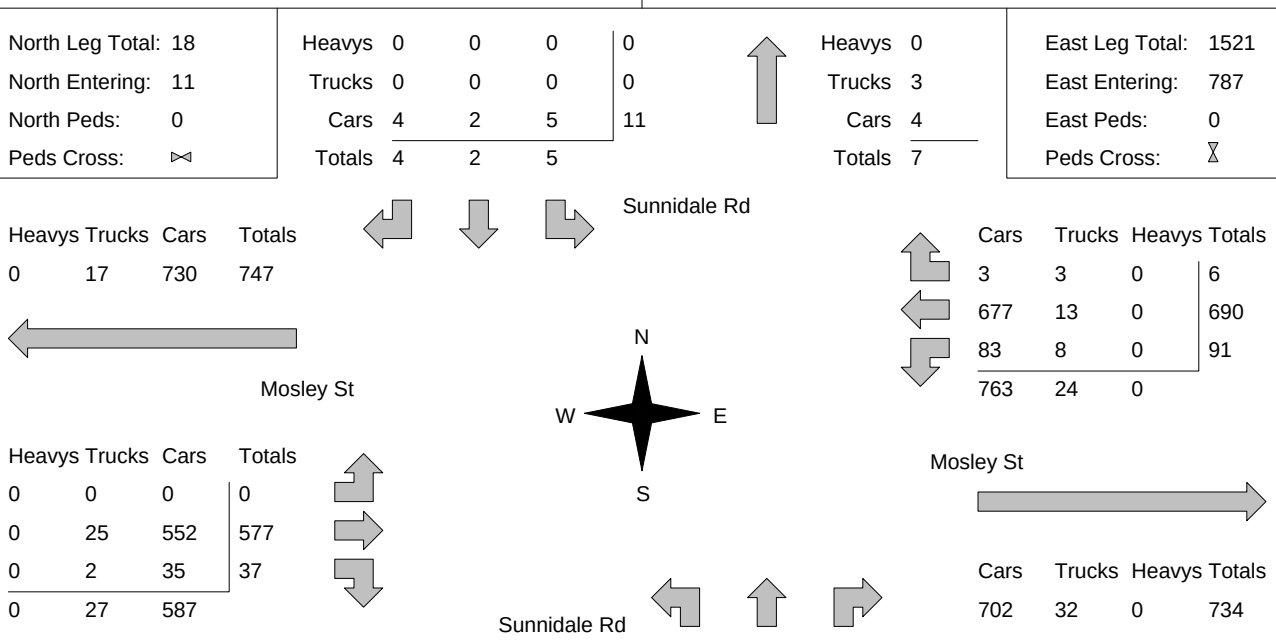
Municipality: Wasaga Beach
Site #: 1712500006
Intersection: Mosley St & Sunnidale Rd
TFR File #: 1
Count date: 28-Jun-17

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Mosley St runs W/E



Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:45:00
To: 17:45:00

Municipality: Wasaga Beach
Site #: 1712500006
Intersection: Mosley St & Sunnidale Rd
TFR File #: 1
Count date: 28-Jun-17

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Mosley St runs W/E

North Leg Total:	32
North Entering:	14
North Peds:	1
Peds Cross:	⋈

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	4	5	5	14
Totals	4	5	5	

Heavys	0
Trucks	3
Cars	15
Totals	18

East Leg Total:	1909
East Entering:	879
East Peds:	3
Peds Cross:	⧖

Sunnidale Rd

Heavys	Trucks	Cars	Totals
0	15	755	770

Mosley St

Cars	Trucks	Heavys	Totals
3	3	0	6
702	15	0	717
152	4	0	156
857	22	0	

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Heavys	Trucks	Cars	Totals
0	0	3	3
0	7	833	840
0	2	48	50
0	9	884	

Mosley St

Cars	Trucks	Heavys	Totals
1023	7	0	1030

Sunnidale Rd

Peds Cross:	⧖
West Peds:	0
West Entering:	893
West Leg Total:	1663

Cars	205			
Trucks	6			
Heavys	0			
Totals	211			

Cars	49	9	185	243
Trucks	0	0	0	0
Heavys	0	0	0	0
Totals	49	9	185	

Peds Cross:	⋈
South Peds:	1
South Entering:	243
South Leg Total:	454

Comments

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 8:45:00
To: 9:45:00

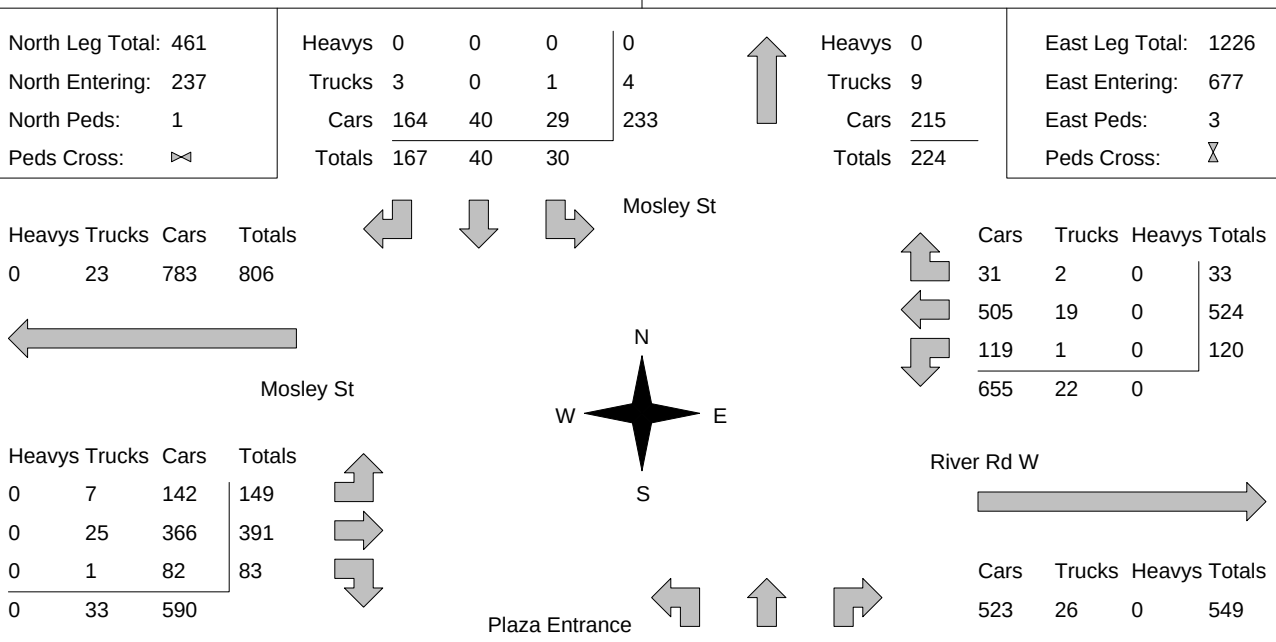
Municipality: Wasaga Beach
Site #: 1712500007
Intersection: River Rd W & Mosley St
TFR File #: 1
Count date: 28-Jun-17

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Mosley St-River Rd W runs W/E



Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:00:00
To: 16:00:00

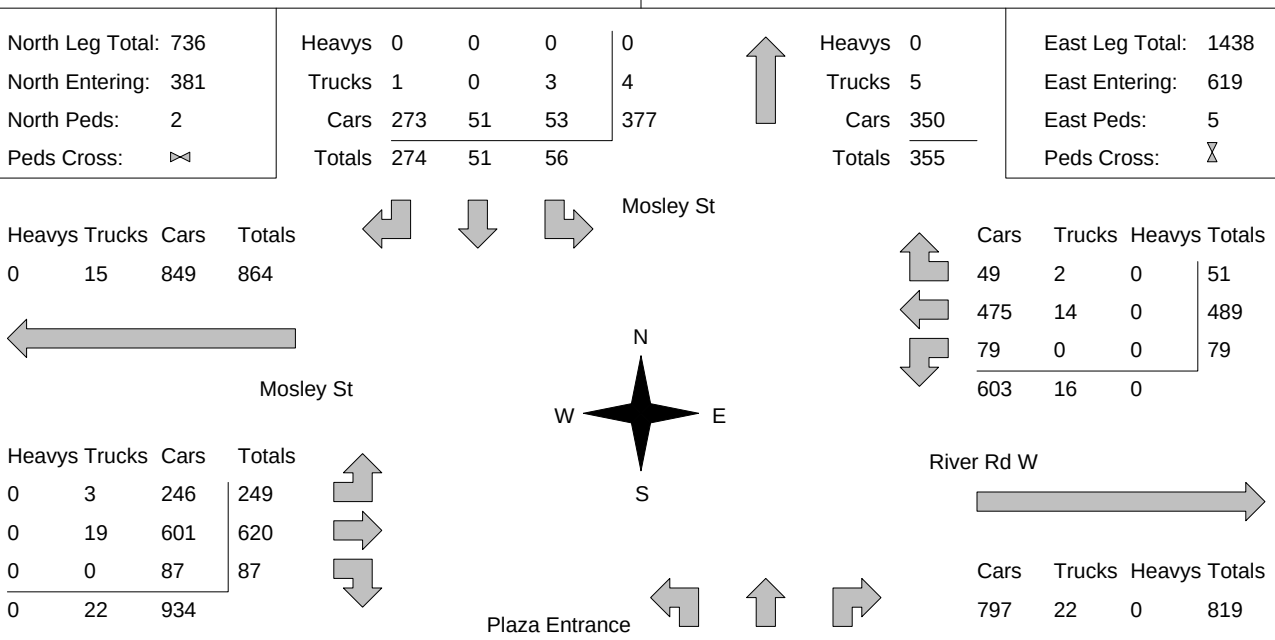
Municipality: Wasaga Beach
Site #: 1712500007
Intersection: River Rd W & Mosley St
TFR File #: 1
Count date: 28-Jun-17

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Mosley St-River Rd W runs W/E



Comments

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 8:30:00
To: 9:30:00

Municipality: Wasaga Beach
Site #: 1712500008
Intersection: Mosley St & 45th St
TFR File #: 1
Count date: 28-Jun-17

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Mosley St runs W/E

North Leg Total:	150			
North Entering:	52			
North Peds:	2			
Peds Cross:	⋈			

Heavys	0	0	0	0
Trucks	1	0	0	1
Cars	9	19	23	51
Totals	10	19	23	

Heavys	0
Trucks	4
Cars	94
Totals	98

East Leg Total:	1248
East Entering:	692
East Peds:	4
Peds Cross:	⧖

45th St

Heavys	Trucks	Cars	Totals
0	18	614	632

Cars	Trucks	Heavys	Totals
6	2	0	8
478	12	0	490
193	1	0	194
677	15	0	

Mosley St

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Heavys	Trucks	Cars	Totals
0	0	36	36
0	19	339	358
0	7	66	73
0	26	441	

Mosley St

Cars	Trucks	Heavys	Totals
532	24	0	556

45th St

Peds Cross:	⧖		
West Peds:	0		
West Entering:	467		
West Leg Total:	1099		

Cars	278			
Trucks	8			
Heavys	0			
Totals	286			

Cars	127	52	170	349
Trucks	5	2	5	12
Heavys	0	0	0	0
Totals	132	54	175	

Peds Cross:	⋈
South Peds:	0
South Entering:	361
South Leg Total:	647

Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

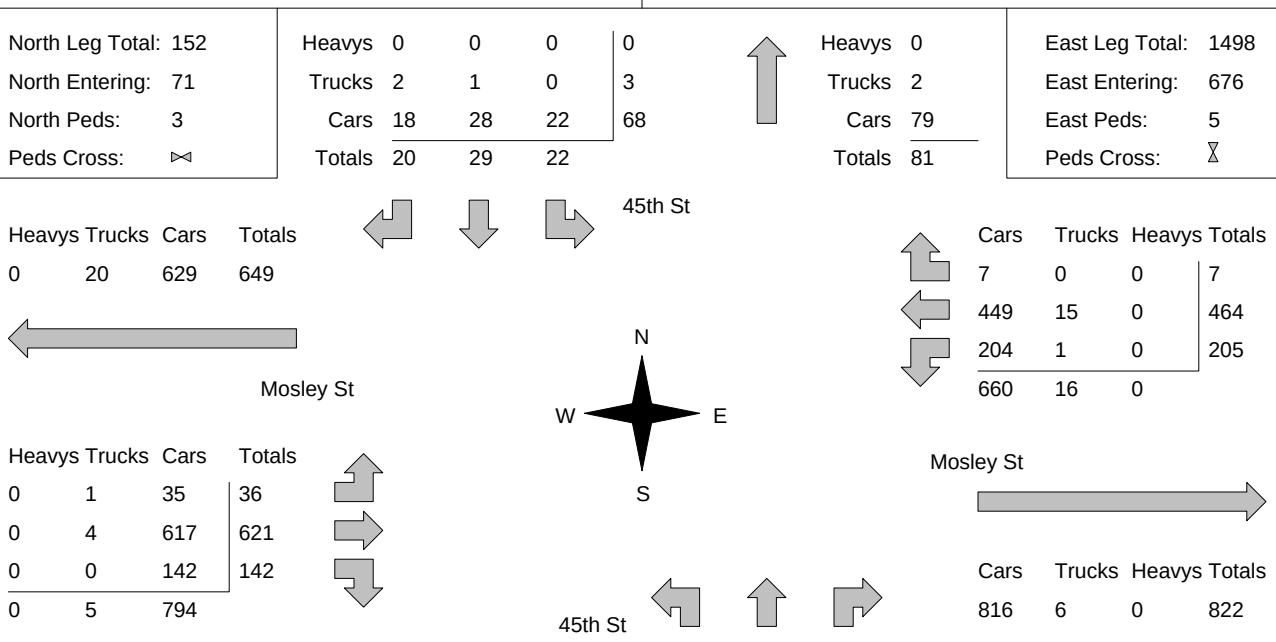
Municipality: Wasaga Beach
Site #: 1712500008
Intersection: Mosley St & 45th St
TFR File #: 1
Count date: 28-Jun-17

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Mosley St runs W/E



Comments

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 8:30:00
To: 9:30:00

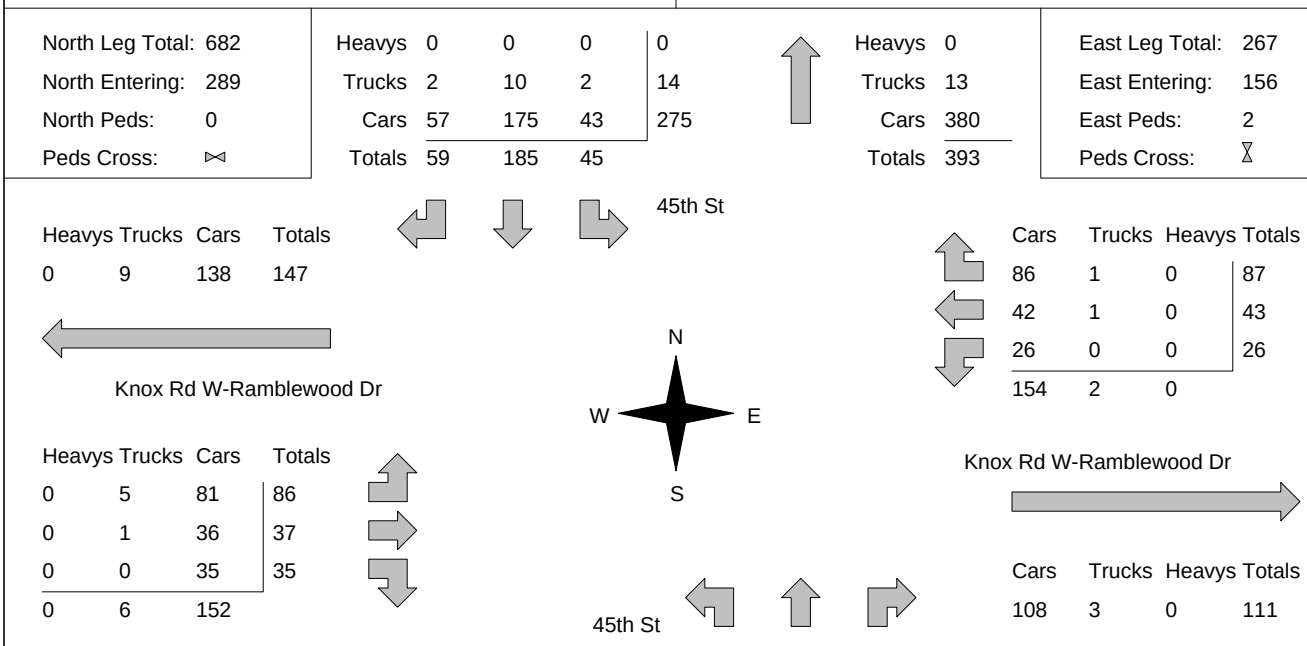
Municipality: Wasaga Beach
Site #: 1712500009
Intersection: 45th St & Knox Rd W-Ramblewood
TFR File #: 1
Count date: 28-Jun-17

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: 45th St runs N/S



Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:45:00
To: 17:45:00

Municipality: Wasaga Beach
Site #: 1712500009
Intersection: 45th St & Knox Rd W-Ramblewood
TFR File #: 1
Count date: 28-Jun-17

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: 45th St runs N/S

North Leg Total:	798			
North Entering:	404			
North Peds:	3			
Peds Cross:	⋈			
Heavys	0	0	0	0
Trucks	0	3	0	3
Cars	73	240	88	401
Totals	73	243	88	
Heavys	0			
Trucks	6			
Cars	388			
Totals	394			
East Leg Total:	304			
East Entering:	146			
East Peds:	1			
Peds Cross:	⧖			

45th St

Heavys	Trucks	Cars	Totals
0	1	149	150

Knox Rd W-Ramblewood Dr

Cars	Trucks	Heavys	Totals
86	1	0	87
38	0	0	38
20	1	0	21
144	2	0	

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Heavys	Trucks	Cars	Totals
0	0	55	55
0	0	40	40
0	3	34	37
0	3	129	

Knox Rd W-Ramblewood Dr

Cars	Trucks	Heavys	Totals
158	0	0	158

45th St

Peds Cross:	⧖			
West Peds:	0			
West Entering:	132			
West Leg Total:	282			
Cars	294			
Trucks	7			
Heavys	0			
Totals	301			
Cars	38	247	30	315
Trucks	1	5	0	6
Heavys	0	0	0	0
Totals	39	252	30	
Peds Cross:	⋈			
South Peds:	0			
South Entering:	321			
South Leg Total:	622			

Comments

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 9:00:00
To: 10:00:00

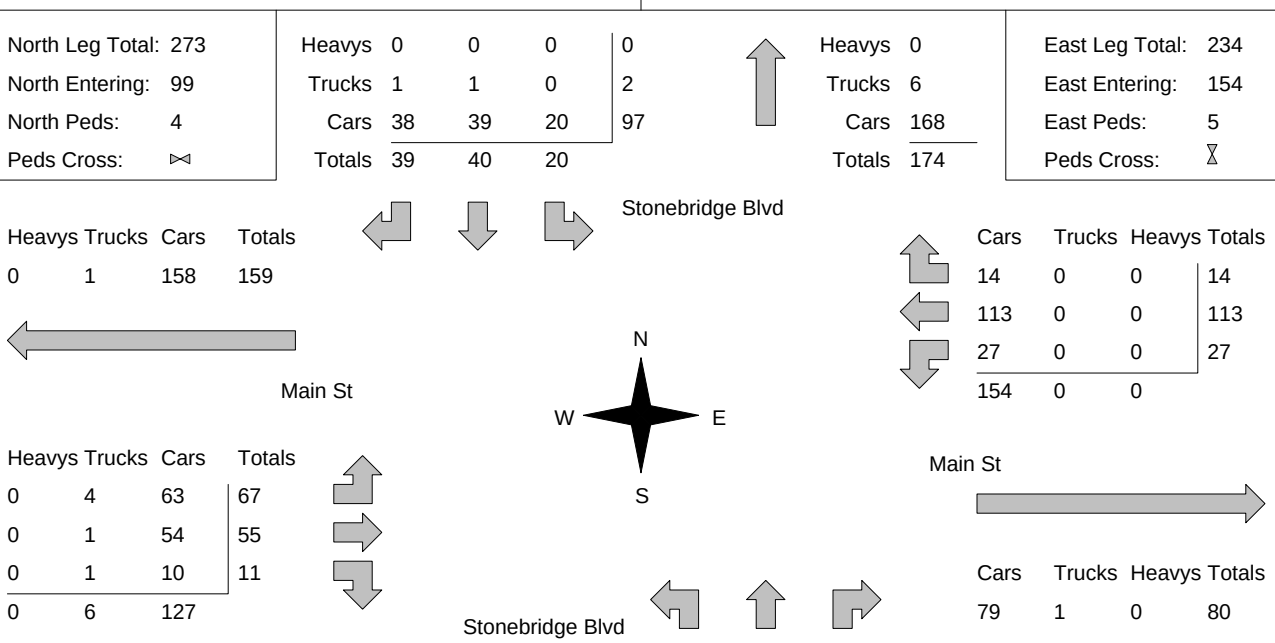
Municipality: Wasaga Beach
Site #: 1712500010
Intersection: Main St & Stonebridge Blvd
TFR File #: 1
Count date: 29-Jun-17

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Main St runs W/E



Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:30:00
To: 16:30:00

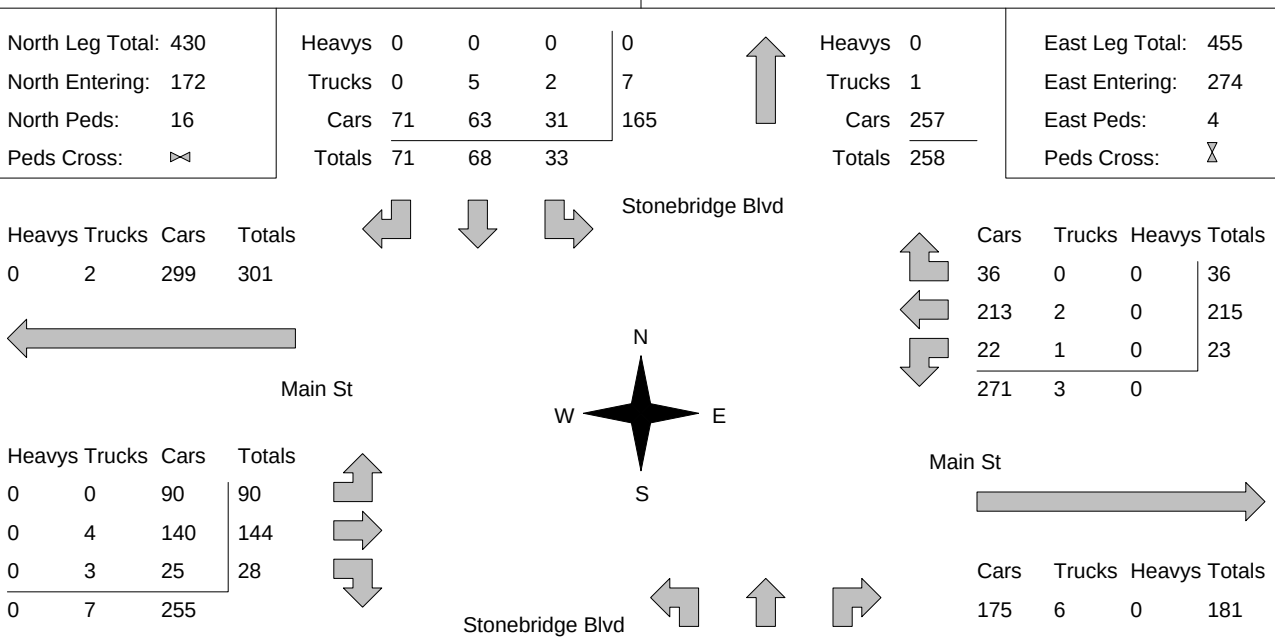
Municipality: Wasaga Beach
Site #: 1712500010
Intersection: Main St & Stonebridge Blvd
TFR File #: 1
Count date: 29-Jun-17

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Main St runs W/E



Comments

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 8:30:00
To: 9:30:00

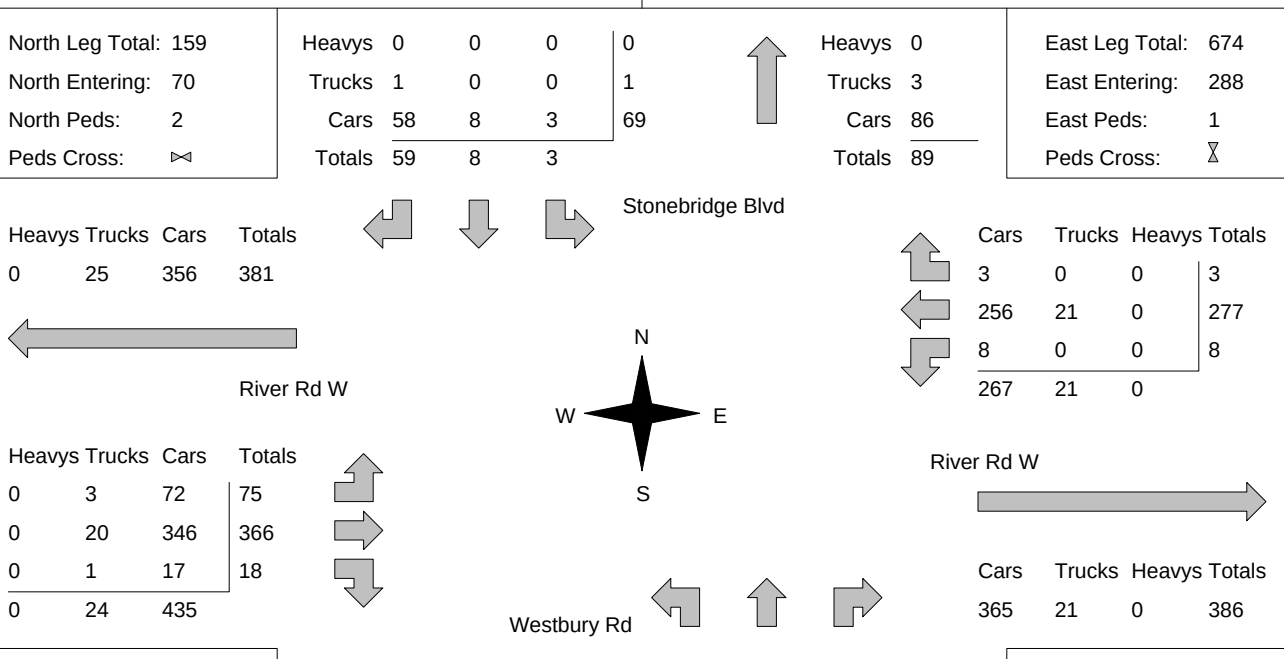
Municipality: Wasaga Beach
Site #: 1712500011
Intersection: River Rd W & Westbury Rd-Stoneb
TFR File #: 1
Count date: 28-Jun-17

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: River Rd W runs W/E



Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:45:00
To: 16:45:00

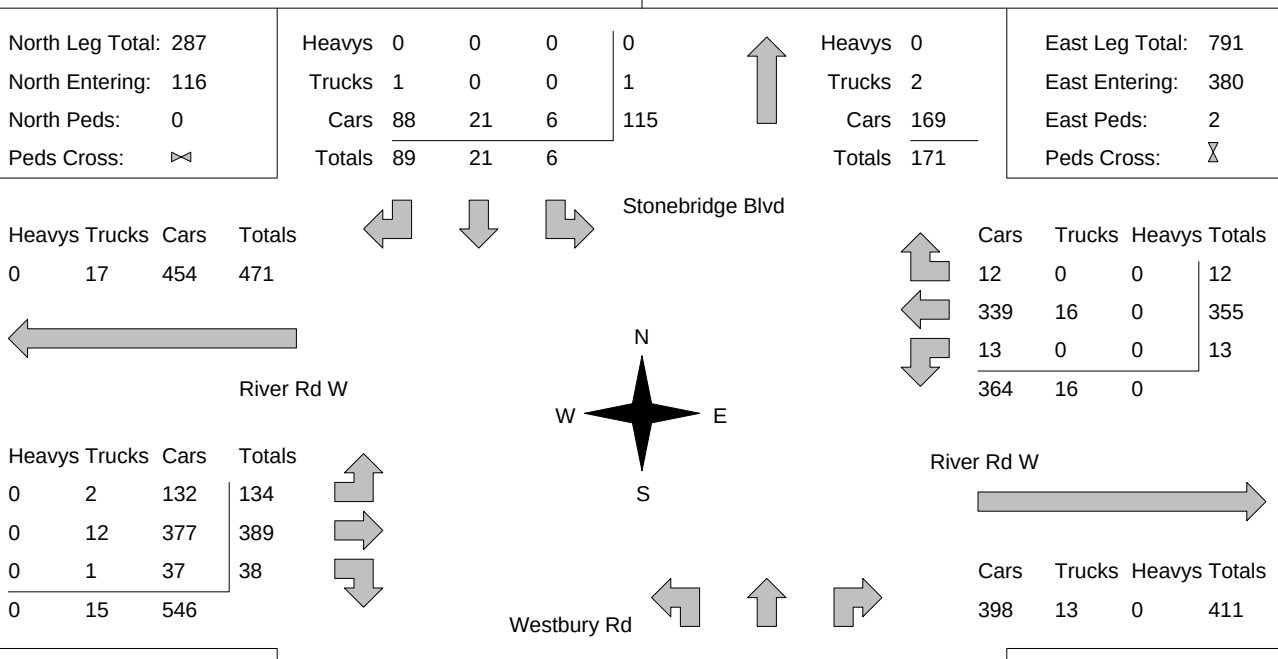
Municipality: Wasaga Beach
Site #: 1712500011
Intersection: River Rd W & Westbury Rd-Stoneb
TFR File #: 1
Count date: 28-Jun-17

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: River Rd W runs W/E



Comments

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

Municipality: Wasaga Beach
Site #: 1712500012
Intersection: Lyons Ct & Ramblewood Dr
TFR File #: 1
Count date: 28-Jun-17

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Lyons Ct runs N/S

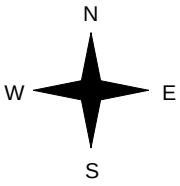
North Leg Total: 131
North Entering: 39
North Peds: 0
Peds Cross: ⋈

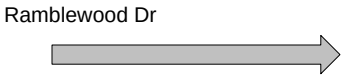
Heavys	0	0	0
Trucks	1	5	6
Cars	7	26	33
Totals	8	31	

Heavys	0
Trucks	1
Cars	91
Totals	92

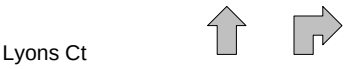
East Leg Total: 116
East Entering: 83
East Peds: 1
Peds Cross: ⋈

	Cars	Trucks	Heavys	Totals
	81	0	0	81
	2	0	0	2
	83	0	0	





	Cars	Trucks	Heavys	Totals
	28	5	0	33



Cars	9		
Trucks	1		
Heavys	0		
Totals	10		

Cars	10	2	12
Trucks	1	0	1
Heavys	0	0	0
Totals	11	2	

Peds Cross: ⋈
South Peds: 0
South Entering: 13
South Leg Total: 23

Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:45:00
To: 17:45:00

Municipality: Wasaga Beach
Site #: 1712500012
Intersection: Lyons Ct & Ramblewood Dr
TFR File #: 1
Count date: 28-Jun-17

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Lyons Ct runs N/S

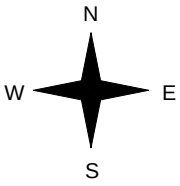
North Leg Total: 115
North Entering: 67
North Peds: 0
Peds Cross: ⋈

Heavys	0	0	0
Trucks	0	0	0
Cars	4	63	67
Totals	4	63	

Heavys	0
Trucks	0
Cars	48
Totals	48

East Leg Total: 105
East Entering: 38
East Peds: 0
Peds Cross: ⋈

	Cars	Trucks	Heavys	Totals
	38	0	0	38
	0	0	0	0
	38	0	0	



	Cars	Trucks	Heavys	Totals
	67	0	0	67

Cars	4		
Trucks	0		
Heavys	0		
Totals	4		

Cars	10	4	14
Trucks	0	0	0
Heavys	0	0	0
Totals	10	4	

Peds Cross: ⋈
South Peds: 0
South Entering: 14
South Leg Total: 18

Comments

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 8:15:00
To: 9:15:00

Municipality: Wasaga Beach
Site #: 1712500013
Intersection: Mosley St & 58th St
TFR File #: 1
Count date: 28-Jun-17

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Mosley St runs W/E

North Leg Total:	4
North Entering:	3
North Peds:	1
Peds Cross:	⋈

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	2	0	1	3
Totals	2	0	1	

Heavys	0
Trucks	0
Cars	1
Totals	1

East Leg Total:	1055
East Entering:	637
East Peds:	1
Peds Cross:	⧖

58th St

Heavys	Trucks	Cars	Totals
0	20	623	643

Cars	Trucks	Heavys	Totals
0	0	0	0
592	19	0	611
25	1	0	26
617	20	0	

Mosley St

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	1	1
0	26	361	387
0	2	10	12
0	28	372	

Mosley St

Cars	Trucks	Heavys	Totals
390	28	0	418

58th St

Peds Cross:	⧖
West Peds:	3
West Entering:	400
West Leg Total:	1043

Cars	35			
Trucks	3			
Heavys	0			
Totals	38			

Cars	29	0	28	57
Trucks	1	0	2	3
Heavys	0	0	0	0
Totals	30	0	30	

Peds Cross:	⋈
South Peds:	3
South Entering:	60
South Leg Total:	98

Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

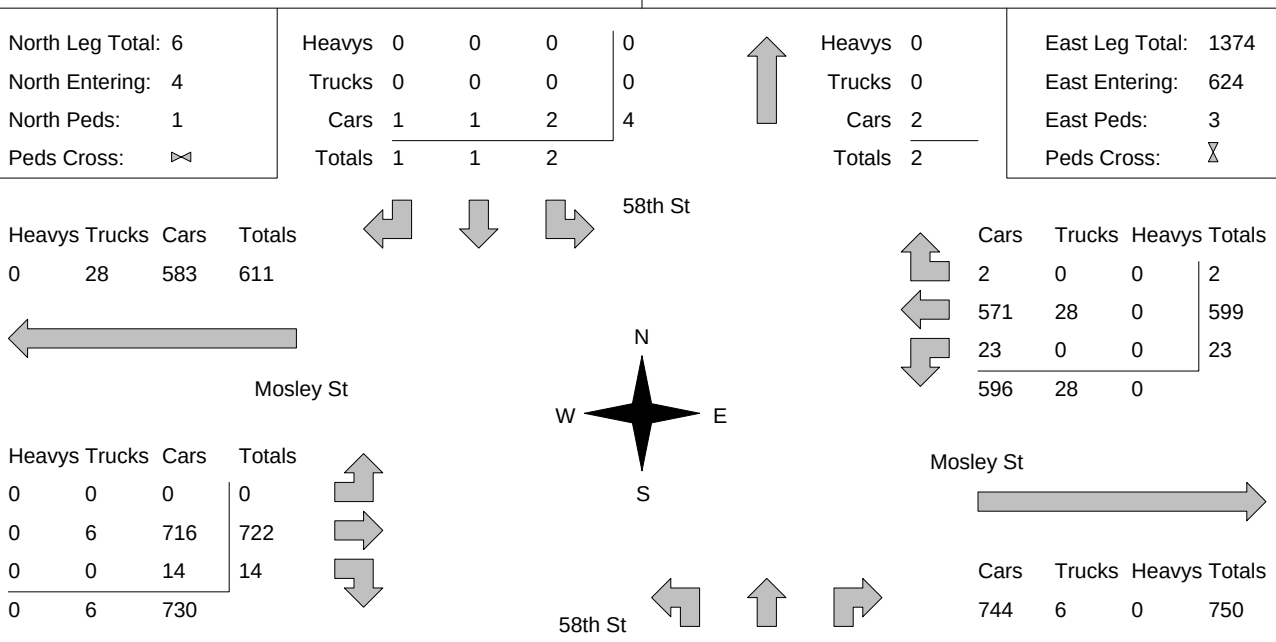
Municipality: Wasaga Beach
Site #: 1712500013
Intersection: Mosley St & 58th St
TFR File #: 1
Count date: 28-Jun-17

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Mosley St runs W/E



Comments

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 9:00:00
To: 10:00:00

Municipality: Wasaga Beach
Site #: 1712500014
Intersection: Main St & Beck St
TFR File #: 1
Count date: 29-Jun-17

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Main St runs W/E

North Leg Total: 24
North Entering: 8
North Peds: 4
Peds Cross: ⋈

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	3	3	2	8
Totals	3	3	2	

Heavys	0
Trucks	0
Cars	16
Totals	16

East Leg Total: 315
East Entering: 171
East Peds: 1
Peds Cross: ⧖

Beck St

Heavys	Trucks	Cars	Totals
0	4	160	164

	Cars	Trucks	Heavys	Totals
	3	0	0	3
	149	2	0	151
	17	0	0	17
	169	2	0	

Main St

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	6	6
0	7	118	125
0	1	9	10
0	8	133	

Main St

Cars	Trucks	Heavys	Totals
137	7	0	144

Beck St

Peds Cross: ⧖
West Peds: 1
West Entering: 141
West Leg Total: 305

Cars	29
Trucks	1
Heavys	0
Totals	30

Cars	8	7	17	32
Trucks	2	0	0	2
Heavys	0	0	0	0
Totals	10	7	17	

Peds Cross: ⋈
South Peds: 2
South Entering: 34
South Leg Total: 64

Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:30:00
To: 16:30:00

Municipality: Wasaga Beach
Site #: 1712500014
Intersection: Main St & Beck St
TFR File #: 1
Count date: 29-Jun-17

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

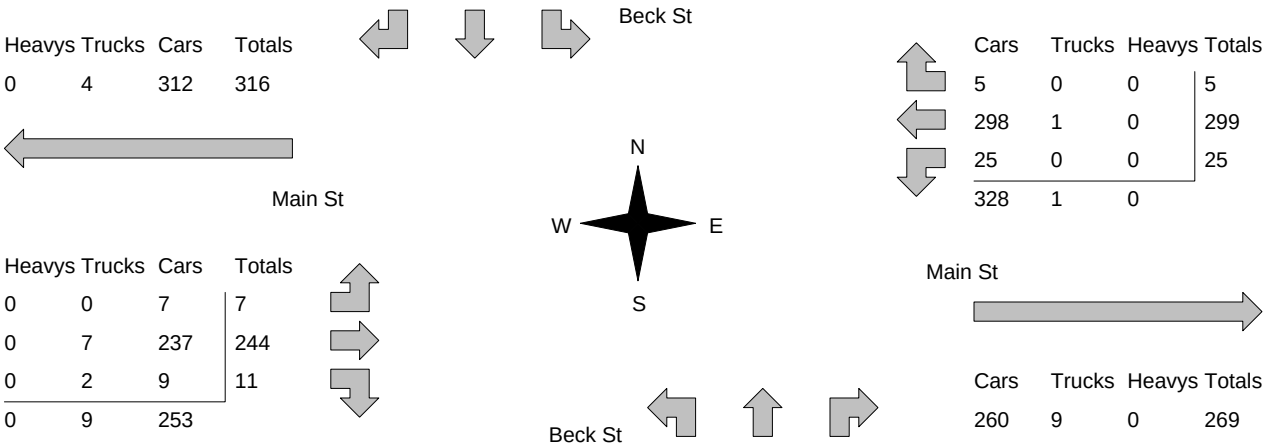
Major Road: Main St runs W/E

North Leg Total:	43
North Entering:	15
North Peds:	43
Peds Cross:	⋈

Heavys	0	0	0	0
Trucks	0	1	0	1
Cars	3	8	3	14
Totals	3	9	3	

Heavys	0
Trucks	0
Cars	28
Totals	28

East Leg Total:	598
East Entering:	329
East Peds:	0
Peds Cross:	⧖



Peds Cross:	⧖
West Peds:	0
West Entering:	262
West Leg Total:	578

Cars	42
Trucks	3
Heavys	0
Totals	45

Cars	11	16	20	47
Trucks	3	0	2	5
Heavys	0	0	0	0
Totals	14	16	22	

Peds Cross:	⋈
South Peds:	10
South Entering:	52
South Leg Total:	97

Comments

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 9:00:00
To: 10:00:00

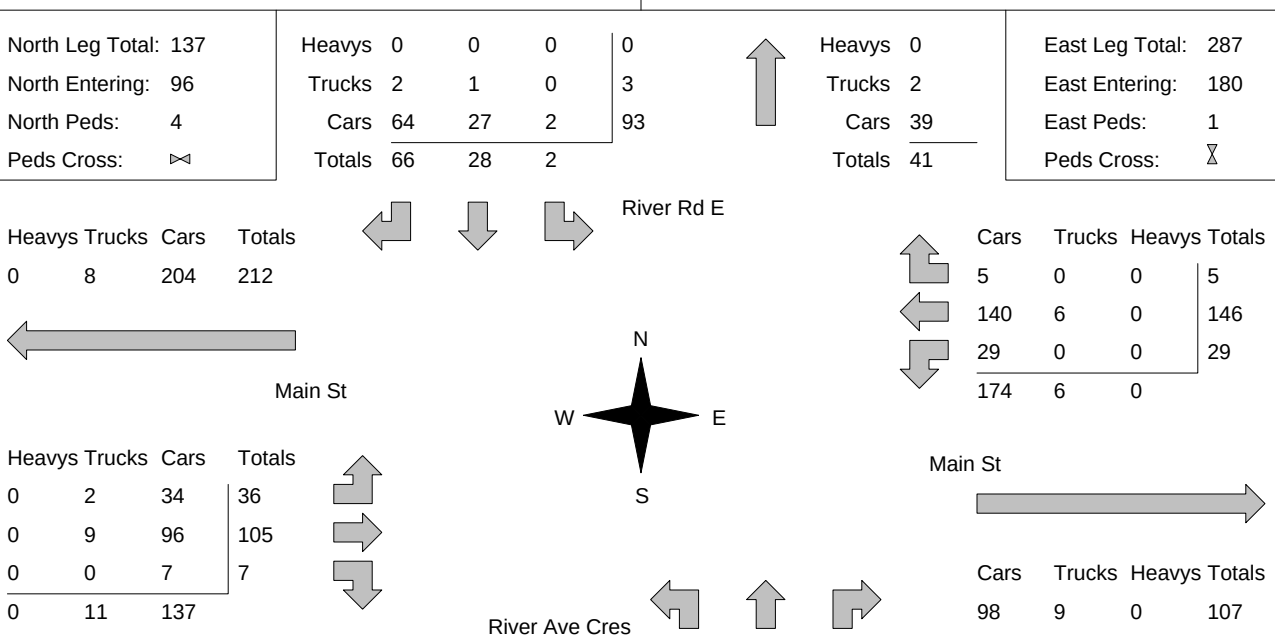
Municipality: Wasaaga Beach
Site #: 1712500015
Intersection: Main St & River Rd E-River Ave Cr
TFR File #: 1
Count date: 29-Jun-17

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Main St runs W/E



Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:30:00
To: 16:30:00

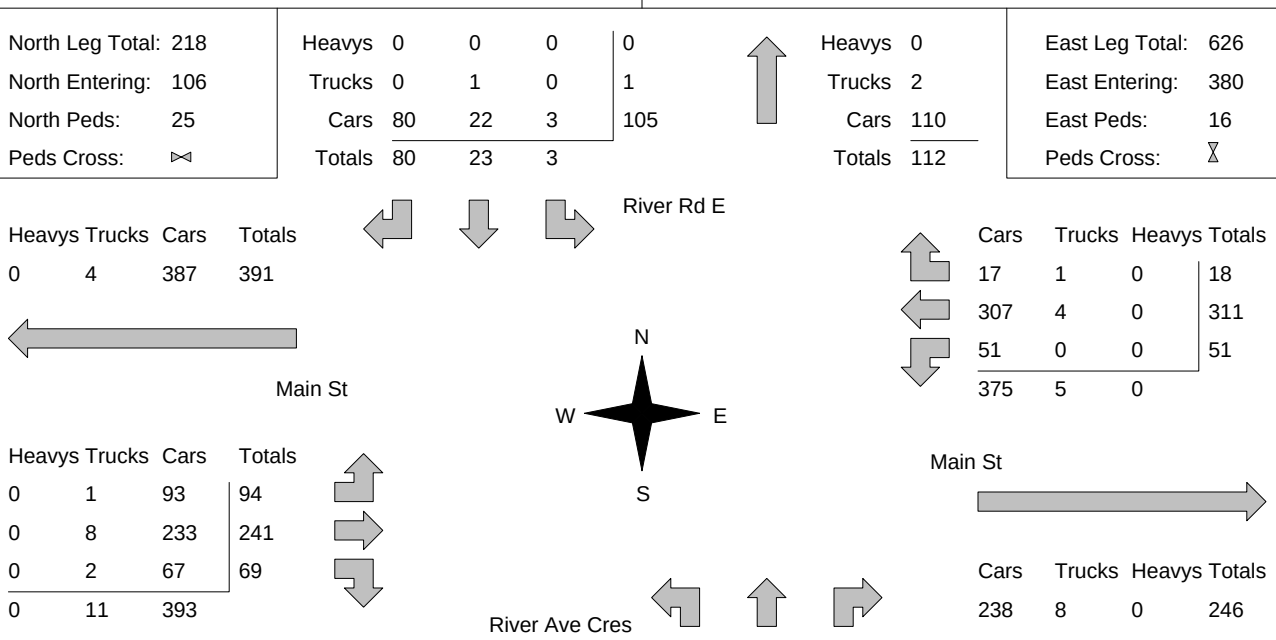
Municipality: Wasaaga Beach
Site #: 1712500015
Intersection: Main St & River Rd E-River Ave Cr
TFR File #: 1
Count date: 29-Jun-17

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Main St runs W/E



Comments

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 9:00:00
To: 10:00:00

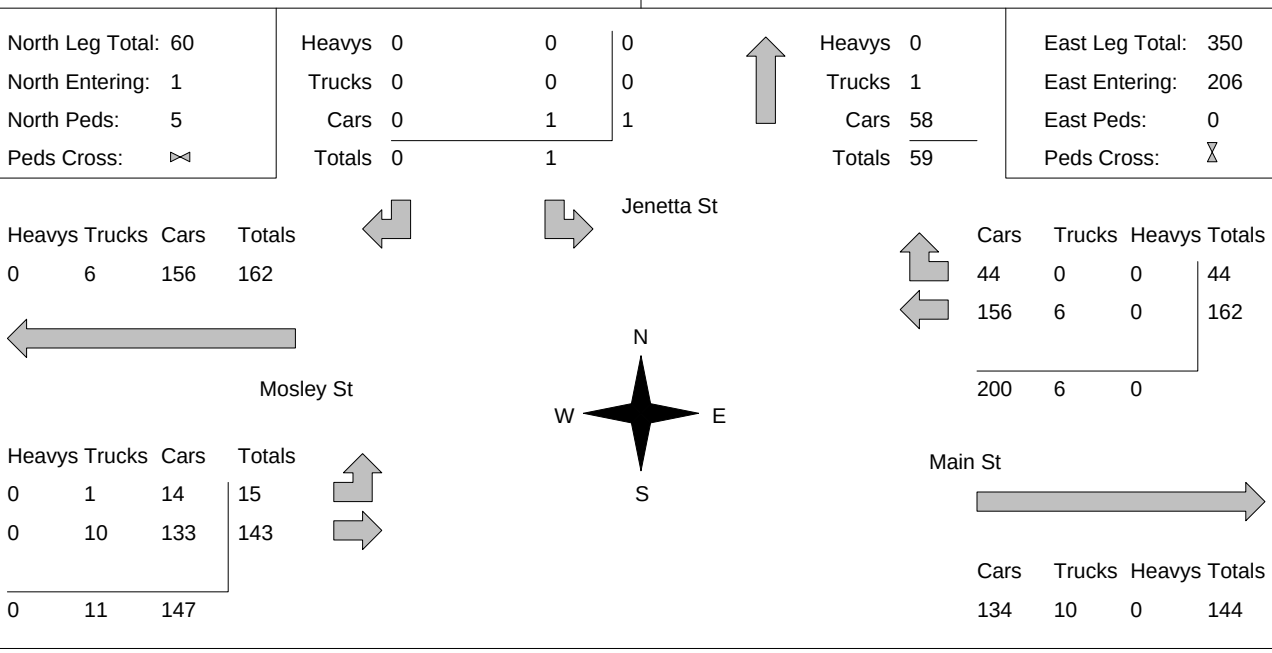
Municipality: Wasaga Beach
Site #: 1712500016
Intersection: Main St-Mosley St & Jenetta St
TFR File #: 1
Count date: 29-Jun-17

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Main St-Mosley St runs W/E



Peds Cross:
West Peds: 0
West Entering: 158
West Leg Total: 320

Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:30:00
To: 16:30:00

Municipality: Wasaga Beach
Site #: 1712500016
Intersection: Main St-Mosley St & Jenetta St
TFR File #: 1
Count date: 29-Jun-17

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

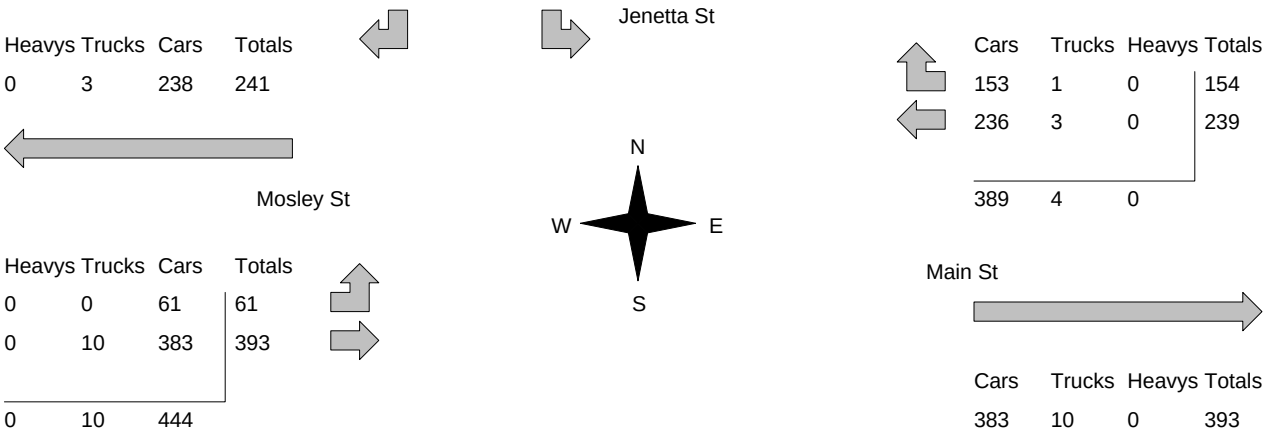
Major Road: Main St-Mosley St runs W/E

North Leg Total: 217
North Entering: 2
North Peds: 26
Peds Cross: ⋈

Heavys	0	0	0
Trucks	0	0	0
Cars	2	0	2
Totals	2	0	

Heavys	0
Trucks	1
Cars	214
Totals	215

East Leg Total: 786
East Entering: 393
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 20
West Entering: 454
West Leg Total: 695

Comments

Appendix B

Road Section Traffic Volumes & Comparison with Projections

Town of Wasaga Beach
2017 Transportation Study Update

Table B1 - Road Section Traffic Volumes

Road Section		2012		2017		Annualized Growth Rate	
No.	Description	AADT	SWEDT	AADT	SWEDT	AADT	SWEDT
1	Mosley St.: Lyons Ct. - 45th St.	12,375	13,725	14,950	17,900	3.85%	5.46%
2	Mosley St.: 45th St. - Sunnidale Rd.	13,875	18,075	16,450	18,300	3.46%	0.25%
3	Mosley St.: Sunnidale Rd. - River Rd. W.	15,850	20,275	19,100	22,150	3.80%	1.78%
4	River Rd. W.: Mosley St. - Oxbow Park Rd.	12,875	20,225	15,450	17,975	3.71%	-2.33%
5	River Rd. W.: Oxbow Park Rd.- Veterans Way	12,800	19,750	15,625	16,475	4.07%	-3.56%
6	River Rd. W.: Veterans Way - Main St.	8,950	11,700	8,650	9,675	-0.68%	-3.73%
7	River Rd. W.: Main St. - Bell's Park Rd.	11,100	17,675	10,050	14,700	-1.97%	-3.62%
8	River Rd. W.: Bell's Park Rd. - Town Limit	7,750	17,050	8,625	11,825	2.16%	-7.06%
9	Mosley St.: River Rd. W. - 3rd St.	5,800	11,250	6,900	11,475	3.53%	0.40%
10	Mosley St.: 3rd St. - Beach Dr.	6,775	10,325	6,550	11,700	-0.67%	2.53%
11	Beach Drive	2,325	5,625	2,525	4,750	1.66%	-3.32%
12	River Rd. E.: Main St. - Zoo Park Rd.	1,900	5,000	2,700	4,225	7.28%	-3.31%
13	Main St.: Mosley St. - River Rd. W.	4,675	12,475	4,125	8,450	-2.47%	-7.50%
14	45th St.: Mosley St. - Town Limit	7,150	9,550	7,900	9,600	2.02%	0.10%
15	Sunnidale Rd. S.: Mosley St. - Town Limit	4,225	6,650	5,225	6,625	4.34%	-0.08%
16	Veterans Way: River Rd. W. - Klondike Park Rd.	1,125	1,275	1,575	1,575	6.96%	4.32%
17	Klondike Park Rd.: Powerline Rd. - Golf Course Rd.	1,800	2,400	2,675	3,425	8.25%	7.37%
17a	Golf Course Rd.: Klondike Park Rd. - Zoo Park Rd.	3,050	3,775	3,900	4,125	5.04%	1.79%
18	Bell's Park Rd.: Zoo Park Rd. - River Rd W.	975	1,350	1,125	1,575	2.90%	3.13%
19	Klondike Park Rd.: Powerline Rd. - Sport's Park	2,175	2,850	3,125	3,600	7.52%	4.78%
20	Klondike Park Rd.: Sport's Park - Town Limit	1,850	2,800	3,000	3,775	10.15%	6.16%
21	Knox Rd.: 45th St. - Sunnidale Rd.	2,675	2,975	3,375	3,575	4.76%	3.74%
22	Zoo Park Rd.: Golf Course Rd. - River Rd. W.	3,925	4,900	4,600	5,550	3.22%	2.52%

23	Zoo Park Rd.: River Rd. W. -River Rd. E.	2,000	4,625	2,325	3,375	3.06%	-6.11%
24	Deerbrook Dr.: River Rd. E. - Wydunas Ct.			800	1,400		
25	River Rd. E.: Albert St. - Edward St.			1,175	1,650		
26	Ramblewood Dr.: Briarwood Pl. - 58th St.			2,725	2,250		

*The above road section numbers are based on the 2012 Transportation Study Update

	AADT	SWEDT
Weighted Average Annual Growth Rate	3.06%	-0.45%
	2012	2017
Weighted Average Summer Weekends compared to AADT	152.91%	126.90%
Not including New Links		

AADT = Average Annual Daily Traffic
SWEDT= Summer Weekend Daily Traffic

Town of Wasaga Beach
2017 Transportation Study Update

Table B2 - Comparison of 2017 Data with 2012 Projections

Road Section		AADT					
No.	Description	2012	2011	2017			2022
			2006 Projection	Actual Data	2012 Projection	Variance	2012 Projection
1	Mosley St.: Hwy. 26 - 45th St.	12,375	***15,175***	14,950	***13,325***	12.2%	***15,275***
2	Mosley St.: 45th St. - Sunnidale Rd.	13,875	***14,075***	16,450	***14,350***	14.6%	***15,275***
3	Mosley St.: Sunnidale Rd. - River Rd. W.	15,850	***16,375***	19,100	***16,325***	17.0%	***17,000***
4	River Rd. W.: Mosley St. - Oxbow Park Rd.	12,875	***15,400***	15,450	***13,075***	18.2%	***13,100***
5	River Rd. W.: Oxbow Park Rd.- Veterans Way	12,800	***14,150***	15,625	***13,325***	17.3%	***13,400***
6	River Rd. W.: Veterans Way - Main St.	8,950	***12,175***	8,650	***10,475***	-17.4%	***11,300***
7	River Rd. W.: Main St. - Bell's Park Rd.	11,100	***9,375***	10,050	***12,375***	-18.8%	***13,625***
8	River Rd. W.: Bell's Park Rd. - Town Limit	7,750	***7,800***	8,625	***9,125***	-5.5%	***11,200***
9	Mosley St.: River Rd. W. - 3rd St.	5,800	***6,500***	6,900	***6,025***	14.5%	***6,050***
10	Mosley St.: 3rd St. - Beach Dr.	6,775	***6,150***	6,550	***7,000***	-6.4%	***7,075***
11	Beach Drive	2,325	***2,125***	2,525	***2,325***	8.6%	***2,325***
12	River Rd. E.: Main St. - Zoo Park Rd.	1,900	***4,000***	2,700	***3,000***	-10.0%	***3,200***
13	Main St.: Mosley St. - River Rd. W.	4,675	***3,425***	4,125	***5,725***	-27.9%	***6,450***
14	45th St.: Mosley St. - Town Limit	7,150	***6,600***	7,900	***7,750***	1.9%	***9,300***
15	Sunnidale Rd. S.: Mosley St. - Town Limit	4,225	***4,450***	5,225	***5,125***	2.0%	***7,675***
16	Veterans Way: River Rd. W. - Klondike Park Rd.	1,125	***1,650***	1,575	***1,500***	5.0%	***1,550***
17	Klondike Park Rd.: Powerline Rd. - Golf Course Rd.	1,800	***2,050***	2,675	***3,300***	-18.9%	***3,950***
17a	Golf Course Rd.: Klondike Park Rd. - Zoo Park Rd.	3,050	***5,150***	3,900	***4,300***	-9.3%	***4,975***
18	Bell's Park Rd.: Zoo Park Rd. - River Rd W.	975	***975***	1,125	***1,450***	-22.4%	***2,600***
19	Klondike Park Rd.: Powerline Rd. - Sport's Park	2,175	***3,075***	3,125	***2,525***	23.8%	***2,550***
20	Klondike Park Rd.: Sport's Park - Town Limit	1,850	***6,625***	3,000	***2,050***	46.3%	***2,075***

21	Knox Rd.: 45th St. - Sunnidale Rd.	2,675	***2,575***	3,375	***2,900***	16.4%	***3,525***
22	Zoo Park Rd.: Golf Course Rd. - River Rd. W.	3,925	***5,550***	4,600	***4,650***	-1.1%	***4,800***
23	Zoo Park Rd.: River Rd. W. -River Rd. E.	2,000	***2,350***	2,325	***2,500***	-7.0%	***2,600***

*The above road section numbers are based on the 2012 Transportation Study Update

Weighted Average Variance for 2017 based on the 2012 Data, 2017 and 2022 projections	9.85%
Not including Estimated Links	

AADT = Average Annual Daily Traffic
SWEDT= Summer Weekend Daily Traffic
Bold Numbers are Estimated

Appendix C

List of Developments & Map of Locations

Table C1 - Wasaga Beach Proposed Developments

Town's Residential Classification	ITE Landuse Code	Daily Vehicle Trip Rate per Unit
High Density Residential	Avg. 220, 223	5.525
Medium Density Residential	Avg. 230, 210	7.69
Mixed Density Residential	Avg. of High, Med & Single	7.595
Single Residential	210	9.57

Development	Map ID	Number of Units/1k ft^2 GFA	Type of Development	Proposed Timing			Expected Buildout Trips per Day		Trip Rate Used
				1-5 Years	6-10 Years	Beyond 10	1-5 Years	6-10 Years	
Committed Developments - Approved and/or Under Construction									
Zancor Trillium Forest North - Zancor	9	228	Medium Res	50%			877	0	7.69
Robinson Road Area Servicing/Development	11	122	Single Res		79%		0	922	9.57
Marocco 45th Street Commercial Development	14	20	High Res		100%		0	111	5.53
Baycliffe Homes - Morgan Road Development	16	373	Single Res	81%			2,891	0	9.57
Pine Valley Estates Subdivision (Phase IV) Formerly J. Dick	18	55	Medium Res	50%			211	0	7.69
Greenhill Homes	29	14	Medium Res	50%			54	0	7.69
Donato-Strite Subdivision	50	42	Single Res	50%			201	0	9.57
Beaver Run Estates Condos	57	50	Medium Res		100%		0	385	7.69
Parkbridge - Phase 6 Park Place	59	151	Medium Res	10%			116	0	7.69
Country Meadows (Parkbridge)	61	160	Medium Res	10%			123	0	7.69
Sub-Total		669		503	166		4,473	1,417	
Committed Developments - Draft Plan Approved									
West Wasaga (Stirling Cook Development Properties)	3	345	High Res			100%	0	0	5.53
DAS Developments	6	352.31	Commercial	15%	35%	50%	2,269	5,295	42.94
Marocco Residential Development (Ramblewood Drive)	12	218	Single Res	25%	75%		522	1,565	9.57
Pacific Homes (Sunnidale Trails) Secondary Plan Ph. 1	19	556	Mixed Res	15%	35%	50%	633	1,478	7.60
Rivers Edge Phase 1 (Sunnidale Trails) Secondary Plan Area	22	940	Mixed Res	15%	35%	50%	1,071	2,499	7.60
Marocco Knox Road East High Density Development	25	392	High Res	15%	35%	50%	325	758	5.53
Acchione/Fisico Severances	33	14	Medium Res	15%	35%	50%	16	38	7.69
Devlin Subdivision (Mollela)	35	60	Medium Res	25%	75%		115	346	7.69
Sergautis Townhouse Development	36	16	Medium Res		25%	75%	0	31	7.69
Wasaga Beach Village Ph 3 - Berkley Homes	37	22	Medium Res	15%	35%	50%	25	59	7.69
York Contracting - Royal Bank Plaza Ph.2	45		Commercial		25%	75%			

Golfview Estates (Peter Regina)	48	75	Single Res	15%	35%	50%	108	251	9.57
Iantomo Residential Devolopment	49	12	Single Res	15%	35%	50%	17	40	9.57
New England Village (Subdivision)	51	861	Mixed Res	50%	50%		3,270	3,270	7.60
Optima Homes	56	39	Single Res	15%	35%	50%	56	131	9.57
New England Village (Phase 2)	62	287	High Res	15%	35%	50%	238	555	5.53
Hamount Commercial/Residential	70	64	High Res	15%	35%	50%	53	124	5.53
Sub-Total		3,901		913	1,607	1,734	6,449	11,144	
Uncommitted Development - Proposals									
Maram Building Corp - Commercial Development (Maram)	1		Commercial	25%	50%	25%	0	0	42.94
Vadermeer Homes	2	24	Single Res		25%	75%	0	57	9.57
TY-Corp Lands	15	104	High Res		25%	75%	0	144	5.53
Pacific Homes (Sunnidale Trails) Secondary Plan Ph. 2	20	405	Mixed Res			100%	0	0	7.60
Marocco/Spence (Sunnidale Trails)	21	97	Medium Res			100%	0	0	7.69
Rivers Edge Phase 2 (Sunnidale Trails) Secondary Plan Area	23	140	Medium Res		25%	75%	0	269	7.69
Arnill Pitt - Marocco	24	42	Medium Res			100%	0	0	7.69
Blueberry Village Townhomes (Phase 2)	32	17	Medium Res	25%	75%		33	98	7.69
Ansley Grove Subdivision - Pine Vally Developments	38	40	Medium Res		25%	75%	0	77	7.69
Perciball - Townhomes	47	7	Medium Res			100%	0	0	7.69
Di Giovanni Hotel & Condominium Development	53	177	Medium Res			100%	0	0	7.69
Skydale Condos - Coastline Drive	55	22	Medium Res			100%	0	0	7.69
Eastdale Redevelopment	58	8	Medium Res	25%	75%		15	46	7.69
Eastdale Drive - 2355573 Ont Inc.	60	191	Mixed Res			100%	0	0	7.60
Deerbrook Drive - 2355573 Ont Inc	64	120	Medium Res			100%	0	0	7.69
Marlwood Inc Subdivision	65	66	Mixed Res			100%	0	0	7.60
Farsight Homes	66	260	Mixed Res			100%	0	0	7.60
A.B.B Development - 12 Unit Stacked Townhouse	72	12	Medium Res			100%	0	0	7.69
Tru Star Developments - 11 Units	73	11	Medium Res			100%	0	0	7.69
Beach Area 1	web	786	High Res			100%	0	0	5.53
Sub-Total		2,529		6	96	2,427	48	691	
Total		7,099		1,422	1,869	4,161	10,971	13,252	

Active & Proposed Developments as of June 2016

The Beach is just the Beginning... WASAGA Beach

Nottawasaga Bay

Marl Lake

Jacks Lake

345 Units
117 Lots
24 Lots
22 Units
228 Units
218 Lots
122 Lots
20 Units
104 Units
26 Lots
373 Lots
392 Units
42 Units
940 Units
140 Units
97 Units
405 Units
556 Units
50 Units
15 Units
7 Units
11 Units
14 Units
12 Units
14 Units
64 Units
16 Units
22 Units
Phase II 17 Units
Phase I 60 Units
236 Units
177 Units
105 Units
260 Units
92 Units
96 Units
75 Lots
12 Lots
40 Units
60 Units
42 Lots
287 Units
861 Units
10 Units
66 Units
160 Units
151 Units
8 Units
191 Units
50 Units
39 Lots
110-120 Units

Legend

- Commercial
- Commercial/Residential Mixed Use
- Modular Home Community
- Proposed Condominium
- Proposed Severances
- Proposed Subdivision
- Draft Plan of Subdivision Approved
- Subdivision/ Development Under Construction
- 26 Lots — Proposed Number of Lots/Units

0 0.5 1 2 3
Kilometres

01. Maram Building Corp - Commercial Development (Maram)
02. Vandermeer Homes
03. West Wasaga (Stirling Cook Development Properties)
04. Bluewater Canoe Club (Phases I & II)
05. Wasaga Pines Retail Centre
06. DAS Developments
07. Jell-E-Bean Campground Expansion
08. Zancor Trillium Forest North - Commercial Zancor
09. Zancor Trillium Forest North - Zancor
10. Business Park (Zancor)
11. Robinson Road Area Servicing/Development
12. Marocco Residential Development (Ramblewood Drive)
13. Ramblewood Estates Subdivision (Phase II)
14. Marocco 45th Street Commercial Development
15. TY-Corp Lands
16. Baycliffe Homes - Morgan Road Development
17. Donato Puccini Townhouse Development
18. Pine Valley Estates Subdivision (Phase IV) Formerly J.Dick
19. Pacific Homes (Sunnidale Trails) Secondary Plan Ph.1
20. Pacific Homes (Sunnidale Trails) Secondary Plan Ph.2
21. Marocco / Spence (Sunnidale Trails)
22. Rivers Edge Phase 1 (Sunnidale Trails) Secondary Plan Area
23. Rivers Edge Phase 2 (Sunnidale Trails) Secondary Plan Area
24. Arnill Pitt - Marocco - Proposed Condominium Townhouses
25. Marocco Knox Road East High Density Development
26. RONA
27. Di Paola Commercial
28. Free Spirit Tours
29. Greenhill Homes
30. Riverdock Suites (Marcolini)
31. Blueberry Village Townhomes (Phase 1)
32. Blueberry Village Townhomes (Phase 2)
33. Acchione /Fisico Severances
34. Westbury Road Subdivision - Berkley Homes
35. Devlin Subdivision (Mollela)
36. Sergautis Townhouse Development
37. Wasaga Beach Village Ph 3 - Berkley Homes
38. Ansley Grove Subdivision - Pine Valley Developments
39. Scave Commercial Site Plan (Phases III & IV)
40. Esso Redevelopment - Petro Gold
41. Hamount Commercial (Phase 1, 2 & 3)
42. Hamount Residential
43. Parkbridge Wasaga Meadows East
44. Parkbridge Wasaga Country Life (Phase 5)
45. York Contracting - Royal Bank Plaza Ph.2
46. Bremont Homes - H2O Townhomes
47. Perciball - Townhomes
48. Golfview Estates (Peter Regina)
49. Iantorno Residential Development
50. Donato-Strite Subdivision
51. New England Village (Subdivision)
52. New England Village (Condominium)
53. Di Giovanni Hotel & Condominium Development
54. Wasaga Country Life Resort (Phases 4B & 4C)
55. Skydale Condos - Coastline Drive
56. Optima Homes
57. Beaver Run Estates Condos
58. Eastdale Redevelopment
59. Parkbridge - Phase 6 Park Place
60. Eastdale Drive - 2355573 Ont Inc.
61. Country Meadows (Parkbridge)
62. New England Village Phase 2 (Subdivision)
63. Mosley Street Professional Building-Commercial
64. Deerbrook Drive - 2355573 Ont Inc
65. Marlwood Inc Subdivision
66.Farsight Homes
67. Chrissies Cabins (Hamount)
68. Pine Valley Commercial
69. DiMichelle/Dipaola
70. Hamount Commercial (700m2)/Residential (64 Units)
71. Superstore Commercial Pad
72. A.B.B. Developments - 12 Unit Stacked Townhouse
73. Tru Star Developments -11 Units

Appendix D

5 & 10-Year Traffic Projections, including Development

Town of Wasaga Beach
2017 Transportation Study Update

Table D1 - 5 Year and 10 Year Traffic Projections Including Anticipated Developments

Road Section		2022 (5yr)	2027 (10yr)	Projected Growth Factor Including Anticipated Development	
No.	Description	AADT	AADT	2017-2022	2022-2027
1	Mosley St.: Hwy. 26 - 45th St.	15,800	16,925	1.06	1.07
2	Mosley St.: 45th St. - Sunnidale Rd.	17,250	18,175	1.05	1.05
3	Mosley St.: Sunnidale Rd. - River Rd. W.	19,425	20,000	1.02	1.03
4	River Rd. W.: Mosley St. - Oxbow Park Rd.	15,450	15,475	1.00	1.00
5	River Rd. W.: Oxbow Park Rd.- Veterans Way	16,100	16,675	1.03	1.04
6	River Rd. W.: Veterans Way - Main St.	9,225	10,050	1.07	1.09
7	River Rd. W.: Main St. - Bell's Park Rd.	11,050	12,275	1.10	1.11
8	River Rd. W.: Bell's Park Rd. - Town Limit	10,475	12,475	1.21	1.19
9	Mosley St.: River Rd. W. - 3rd St.	6,925	6,925	1.00	1.00
10	Mosley St.: 3rd St. - Beach Dr.	6,575	6,650	1.00	1.01
11	Beach Drive	2,525	2,525	1.00	1.00
12	River Rd. E.: Main St. - Zoo Park Rd.	2,725	2,875	1.01	1.06
13	Main St.: Mosley St. - River Rd. W.	4,650	5,325	1.13	1.15
14	45th St.: Mosley St. - Town Limit	9,750	10,850	1.23	1.11
15	Sunnidale Rd. S.: Mosley St. - Town Limit	6,250	8,675	1.20	1.39
16	Veterans Way: River Rd. W. - Klondike Park Rd.	1,600	1,600	1.02	1.00
17	Klondike Park Rd.: Powerline Rd. - Golf Course Rd.	2,775	2,775	1.04	1.00
17a	Golf Course Rd.: Klondike Park Rd. - Zoo Park Rd.	4,450	5,025	1.14	1.13
18	Bell's Park Rd.: Zoo Park Rd. - River Rd W.	1,700	2,175	1.51	1.28
19	Klondike Park Rd.: Powerline Rd. - Sport's Park	3,625	4,150	1.16	1.14

20	Klondike Park Rd.: Sport's Park - Town Limit	3,450	3,950	1.15	1.14
21	Knox Rd.: 45th St. - Sunnidale Rd.	3,375	3,450	1.00	1.02
22	Zoo Park Rd.: Golf Course Rd. - River Rd. W.	4,675	4,800	1.02	1.03
23	Zoo Park Rd.: River Rd. W. -River Rd. E.	2,325	2,425	1.00	1.04
24	Deerbrook Dr.: River Rd. E. - Wydunas Ct.	825	1,075	1.03	1.30
25	River Rd. E.: Albert St. - Edward St.	1,175	1,200	1.00	1.02
26	Ramblewood Dr.: Briarwood Pl. - 58th St.	3,300	3,675	1.21	1.11

*The above road section numbers are based on the 2012 Transportation Study Update

AADT = Average Annual Daily Traffic
SWEDT= Summer Weekend Daily Traffic

Appendix E

2017 PM Peak Hour Intersection Level of Service Reports

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	55	40	37	21	38	87	39	252	30	88	243	73
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1829	1900	1810	1887	1900	1900	1864	1900	1900	1889	1900
Adj Flow Rate, veh/h	60	43	40	23	41	95	42	274	33	96	264	79
Adj No. of Lanes	1	1	0	1	1	0	0	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	5	0	0	2	2	2	1	1	1
Cap, veh/h	365	198	184	401	115	265	232	1356	160	389	983	294
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.50	0.50	0.50	0.50	0.50	0.50
Sat Flow, veh/h	1270	872	811	1268	505	1170	262	2710	321	544	1966	588
Grp Volume(v), veh/h	60	0	83	23	0	136	180	0	169	222	0	217
Grp Sat Flow(s),veh/h/ln	1270	0	1683	1268	0	1675	1653	0	1639	1483	0	1614
Q Serve(g_s), s	1.8	0.0	1.8	0.7	0.0	3.0	0.0	0.0	2.5	0.4	0.0	3.4
Cycle Q Clear(g_c), s	4.8	0.0	1.8	2.4	0.0	3.0	2.4	0.0	2.5	3.0	0.0	3.4
Prop In Lane	1.00		0.48	1.00		0.70	0.23		0.20	0.43		0.36
Lane Grp Cap(c), veh/h	365	0	382	401	0	380	928	0	820	859	0	807
V/C Ratio(X)	0.16	0.00	0.22	0.06	0.00	0.36	0.19	0.00	0.21	0.26	0.00	0.27
Avail Cap(c_a), veh/h	539	0	612	574	0	609	928	0	820	859	0	807
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.3	0.0	13.8	14.8	0.0	14.3	6.1	0.0	6.1	6.2	0.0	6.3
Incr Delay (d2), s/veh	0.2	0.0	0.3	0.1	0.0	0.6	0.5	0.0	0.6	0.7	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.8	0.2	0.0	1.4	1.3	0.0	1.3	1.7	0.0	1.7
LnGrp Delay(d),s/veh	16.5	0.0	14.1	14.9	0.0	14.9	6.5	0.0	6.7	7.0	0.0	7.2
LnGrp LOS	B		B	B		B	A		A	A		A
Approach Vol, veh/h		143			159			349			439	
Approach Delay, s/veh		15.1			14.9			6.6			7.1	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		28.0		16.0		28.0		16.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		22.0		16.0		22.0		16.0
Max Q Clear Time (g_c+I1), s		4.5		6.8		5.4		5.0
Green Ext Time (p_c), s		5.4		1.2		5.3		1.4

Intersection Summary	
HCM 2010 Ctrl Delay	9.1
HCM 2010 LOS	A

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	60	8	40	2	10	5	84	154	2
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	0	0	0	0	1	0
Mvmt Flow	65	9	43	2	11	5	91	167	2

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	558	551	176	576	583	174	206	0	0
Stage 1	195	195	-	355	355	-	-	-	-
Stage 2	363	356	-	221	228	-	-	-	-
Critical Hdwy	7.12	6.5	6.2	7.1	6.5	6.2	4.1	-	-
Critical Hdwy Stg 1	6.12	5.5	-	6.1	5.5	-	-	-	-
Critical Hdwy Stg 2	6.12	5.5	-	6.1	5.5	-	-	-	-
Follow-up Hdwy	3.518	4	3.3	3.5	4	3.3	2.2	-	-
Pot Cap-1 Maneuver	440	445	872	431	427	875	1377	-	-
Stage 1	807	743	-	666	633	-	-	-	-
Stage 2	656	633	-	786	719	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	399	406	868	376	390	871	1375	-	-
Mov Cap-2 Maneuver	399	406	-	376	390	-	-	-	-
Stage 1	746	734	-	615	585	-	-	-	-
Stage 2	592	585	-	730	710	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	14.4	13.1	2.7
HCM LOS	B	B	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1375	-	-	500	463	1413	-	-
HCM Lane V/C Ratio	0.066	-	-	0.235	0.04	0.008	-	-
HCM Control Delay (s)	7.8	0	-	14.4	13.1	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.9	0.1	0	-	-

Intersection	
Int Delay, s/veh	

Movement	SBL	SBT	SBR
Vol, veh/h	10	126	60
Conflicting Peds, #/hr	2	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	92	92	92
Heavy Vehicles, %	0	2	3
Mvmt Flow	11	137	65

Major/Minor	Major2		
Conflicting Flow All	174	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	1415	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1413	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	0.4
HCM LOS	

Minor Lane/Major Mvmt

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	5	5	4	49	9	184	3	840	50	156	717	6
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1878	1900	1900	1853	1900
Adj Flow Rate, veh/h	5	5	4	53	10	200	3	913	54	170	779	7
Adj No. of Lanes	0	1	0	0	1	1	0	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	1	1	1	2	2	2
Cap, veh/h	163	149	88	357	57	309	70	1942	115	299	1183	11
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.58	0.58	0.58	0.58	0.58	0.58
Sat Flow, veh/h	366	777	457	1203	298	1612	2	3350	198	333	2040	18
Grp Volume(v), veh/h	14	0	0	63	0	200	513	0	457	310	0	646
Grp Sat Flow(s),veh/h/ln	1600	0	0	1500	0	1612	1875	0	1674	709	0	1683
Q Serve(g_s), s	0.0	0.0	0.0	1.4	0.0	6.0	0.0	0.0	8.3	12.1	0.0	13.7
Cycle Q Clear(g_c), s	0.3	0.0	0.0	1.8	0.0	6.0	8.3	0.0	8.3	20.4	0.0	13.7
Prop In Lane	0.36		0.29	0.84		1.00	0.01		0.12	0.55		0.01
Lane Grp Cap(c), veh/h	400	0	0	414	0	309	1156	0	970	517	0	976
V/C Ratio(X)	0.04	0.00	0.00	0.15	0.00	0.65	0.44	0.00	0.47	0.60	0.00	0.66
Avail Cap(c_a), veh/h	569	0	0	581	0	491	1210	0	1019	541	0	1024
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.3	0.0	0.0	17.8	0.0	19.6	6.4	0.0	6.4	9.7	0.0	7.5
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.0	2.3	0.3	0.0	0.4	1.7	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.8	0.0	2.9	4.4	0.0	3.9	3.8	0.0	6.7
LnGrp Delay(d),s/veh	17.3	0.0	0.0	18.0	0.0	21.9	6.6	0.0	6.7	11.5	0.0	9.0
LnGrp LOS	B			B		C	A		A	B		A
Approach Vol, veh/h		14			263			970			956	
Approach Delay, s/veh		17.3			20.9			6.7			9.8	
Approach LOS		B			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.5		16.1		36.5		16.1
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		32.0		16.0		32.0		16.0
Max Q Clear Time (g_c+I1), s		10.3		2.3		22.4		8.0
Green Ext Time (p_c), s		16.0		1.2		8.1		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	9.8
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	36	621	142	205	464	7	165	38	179	22	29	20
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1885	1900	1881	1846	1900	1863	1845	1881	1900	1795	1900
Adj Flow Rate, veh/h	39	675	154	223	504	8	179	41	195	24	32	22
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	1	1	1	3	3	2	3	1	0	3	3
Cap, veh/h	520	1097	250	458	1570	25	402	410	353	377	220	151
Arrive On Green	0.04	0.38	0.38	0.11	0.44	0.44	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1757	2896	660	1792	3532	56	1337	1845	1588	1157	989	680
Grp Volume(v), veh/h	39	417	412	223	250	262	179	41	195	24	0	54
Grp Sat Flow(s),veh/h/ln	1757	1790	1765	1792	1753	1835	1337	1845	1588	1157	0	1669
Q Serve(g_s), s	0.7	9.7	9.7	3.5	4.8	4.8	6.4	0.9	5.6	0.9	0.0	1.3
Cycle Q Clear(g_c), s	0.7	9.7	9.7	3.5	4.8	4.8	7.7	0.9	5.6	1.8	0.0	1.3
Prop In Lane	1.00		0.37	1.00		0.03	1.00		1.00	1.00		0.41
Lane Grp Cap(c), veh/h	520	678	669	458	779	816	402	410	353	377	0	371
V/C Ratio(X)	0.07	0.62	0.62	0.49	0.32	0.32	0.44	0.10	0.55	0.06	0.00	0.15
Avail Cap(c_a), veh/h	687	696	686	580	779	816	521	574	494	479	0	519
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.9	12.9	12.9	8.6	9.3	9.3	19.2	15.9	17.7	16.6	0.0	16.1
Incr Delay (d2), s/veh	0.1	1.6	1.6	0.8	0.2	0.2	0.8	0.1	1.4	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	5.0	5.0	1.8	2.3	2.5	2.4	0.5	2.6	0.3	0.0	0.6
LnGrp Delay(d),s/veh	8.9	14.5	14.5	9.4	9.5	9.5	20.0	16.0	19.1	16.7	0.0	16.3
LnGrp LOS	A	B	B	A	A	A	B	B	B	B		B
Approach Vol, veh/h		868			735			415			78	
Approach Delay, s/veh		14.3			9.5			19.2			16.4	
Approach LOS		B			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.5	25.5		17.4	5.1	28.9		17.4
Change Period (Y+Rc), s	3.0	6.0		6.0	3.0	6.0		6.0
Max Green Setting (Gmax), s	9.0	20.0		16.0	7.0	22.0		16.0
Max Q Clear Time (g_c+I1), s	5.5	11.7		3.8	2.7	6.8		9.7
Green Ext Time (p_c), s	0.3	4.9		2.0	0.0	8.4		1.4

Intersection Summary		
HCM 2010 Ctrl Delay		13.6
HCM 2010 LOS		B

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	56	51	274	101	55	143	249	620	87	79	489	51
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1900	1900	1900	1900	1900	1881	1851	1900	1900	1843	1900
Adj Flow Rate, veh/h	61	55	298	110	60	155	271	674	95	86	532	55
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	0	0	0	0	0	1	3	3	0	3	3
Cap, veh/h	404	522	437	386	522	437	524	1250	176	409	1099	113
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.13	0.40	0.40	0.06	0.34	0.34
Sat Flow, veh/h	1118	1900	1594	1036	1900	1594	1792	3096	436	1810	3204	330
Grp Volume(v), veh/h	61	55	298	110	60	155	271	383	386	86	290	297
Grp Sat Flow(s),veh/h/ln	1118	1900	1594	1036	1900	1594	1792	1759	1773	1810	1751	1784
Q Serve(g_s), s	2.5	1.3	9.7	5.2	1.4	4.6	5.2	9.7	9.7	1.7	7.6	7.6
Cycle Q Clear(g_c), s	3.9	1.3	9.7	6.4	1.4	4.6	5.2	9.7	9.7	1.7	7.6	7.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.25	1.00		0.19
Lane Grp Cap(c), veh/h	404	522	437	386	522	437	524	710	716	409	601	612
V/C Ratio(X)	0.15	0.11	0.68	0.29	0.12	0.35	0.52	0.54	0.54	0.21	0.48	0.49
Avail Cap(c_a), veh/h	404	522	437	386	522	437	577	724	730	447	601	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	15.8	18.9	18.2	15.8	17.0	9.7	13.2	13.3	11.1	15.1	15.1
Incr Delay (d2), s/veh	0.8	0.4	8.3	1.9	0.4	2.2	0.8	0.8	0.8	0.3	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.7	5.3	1.7	0.8	2.3	2.5	4.8	4.9	0.9	3.7	3.8
LnGrp Delay(d),s/veh	18.1	16.2	27.2	20.1	16.3	19.2	10.5	14.0	14.0	11.4	15.7	15.7
LnGrp LOS	B	B	C	C	B	B	B	B	B	B	B	B
Approach Vol, veh/h		414			325			1040			673	
Approach Delay, s/veh		24.4			19.0			13.1			15.1	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.8	29.5		22.0	10.3	26.0		22.0
Change Period (Y+Rc), s	3.0	6.0		6.0	3.0	6.0		6.0
Max Green Setting (Gmax), s	5.0	24.0		16.0	9.0	20.0		16.0
Max Q Clear Time (g_c+I1), s	3.7	11.7		11.7	7.2	9.6		8.4
Green Ext Time (p_c), s	0.0	7.4		1.6	0.2	6.5		2.5

Intersection Summary	
HCM 2010 Ctrl Delay	16.3
HCM 2010 LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	774	74	19	556	44	33
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1860	1900	1900	1864	1776	1845
Adj Flow Rate, veh/h	841	80	21	604	48	36
Adj No. of Lanes	2	0	0	2	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	7	3
Cap, veh/h	1331	127	95	1366	587	544
Arrive On Green	0.41	0.41	0.41	0.41	0.35	0.35
Sat Flow, veh/h	3354	310	42	3430	1691	1568
Grp Volume(v), veh/h	456	465	330	295	48	36
Grp Sat Flow(s),veh/h/ln	1767	1804	1776	1611	1691	1568
Q Serve(g_s), s	10.1	10.1	0.0	6.5	0.9	0.8
Cycle Q Clear(g_c), s	10.1	10.1	6.2	6.5	0.9	0.8
Prop In Lane		0.17	0.06		1.00	1.00
Lane Grp Cap(c), veh/h	721	736	803	658	587	544
V/C Ratio(X)	0.63	0.63	0.41	0.45	0.08	0.07
Avail Cap(c_a), veh/h	757	773	837	691	587	544
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.6	11.6	10.4	10.5	10.8	10.7
Incr Delay (d2), s/veh	1.6	1.6	0.3	0.5	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	5.2	3.3	3.0	0.5	0.4
LnGrp Delay(d),s/veh	13.2	13.1	10.8	11.0	11.0	10.9
LnGrp LOS	B	B	B	B	B	B
Approach Vol, veh/h	921			625	84	
Approach Delay, s/veh	13.1			10.9	11.0	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		23.0		26.0				26.0
Change Period (Y+Rc), s		6.0		6.0				6.0
Max Green Setting (Gmax), s		17.0		21.0				21.0
Max Q Clear Time (g_c+I1), s		2.9		12.1				8.5
Green Ext Time (p_c), s		0.2		6.4				8.4

Intersection Summary	
HCM 2010 Ctrl Delay	12.2
HCM 2010 LOS	B

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	39	42	672	46	8	537
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0		6.0	6.0
Lane Util. Factor	1.00		1.00		1.00	1.00
Frt	0.93		0.99		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1639		1832		1805	1845
Flt Permitted	0.98		1.00		0.16	1.00
Satd. Flow (perm)	1639		1832		304	1845
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	46	730	50	9	584
RTOR Reduction (vph)	33	0	5	0	0	0
Lane Group Flow (vph)	55	0	775	0	9	584
Heavy Vehicles (%)	0%	10%	3%	0%	0%	3%
Turn Type	Prot		NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases					6	
Actuated Green, G (s)	16.1		27.3		27.3	27.3
Effective Green, g (s)	16.1		27.3		27.3	27.3
Actuated g/C Ratio	0.29		0.49		0.49	0.49
Clearance Time (s)	6.0		6.0		6.0	6.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	476		902		149	909
v/s Ratio Prot	c0.03		c0.42			0.32
v/s Ratio Perm					0.03	
v/c Ratio	0.12		0.86		0.06	0.64
Uniform Delay, d1	14.4		12.4		7.3	10.4
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.5		8.2		0.2	1.6
Delay (s)	14.9		20.6		7.5	12.0
Level of Service	B		C		A	B
Approach Delay (s)	14.9		20.6			11.9
Approach LOS	B		C			B

Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	55.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	134	389	38	13	355	12	27	25	16	6	21	89
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1845	1845	1900	1812	1900	1900	1874	1900	1900	1886	1900
Adj Flow Rate, veh/h	146	423	41	14	386	13	29	27	17	7	23	97
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	3	3	0	5	5	0	0	0	0	0	0
Cap, veh/h	419	812	687	401	767	26	257	228	117	85	115	400
Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	980	1845	1561	942	1743	59	490	712	365	27	359	1249
Grp Volume(v), veh/h	146	423	41	14	0	399	73	0	0	127	0	0
Grp Sat Flow(s),veh/h/ln	980	1845	1561	942	0	1802	1567	0	0	1636	0	0
Q Serve(g_s), s	6.3	8.3	0.8	0.5	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	14.3	8.3	0.8	8.9	0.0	8.0	1.4	0.0	0.0	2.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.03	0.40		0.23	0.06		0.76
Lane Grp Cap(c), veh/h	419	812	687	401	0	793	602	0	0	599	0	0
V/C Ratio(X)	0.35	0.52	0.06	0.03	0.00	0.50	0.12	0.00	0.00	0.21	0.00	0.00
Avail Cap(c_a), veh/h	419	812	687	401	0	793	602	0	0	599	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	0.98	0.00	0.00
Uniform Delay (d), s/veh	15.2	10.2	8.1	13.4	0.0	10.1	12.1	0.0	0.0	12.5	0.0	0.0
Incr Delay (d2), s/veh	2.3	2.4	0.2	0.2	0.0	2.3	0.4	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	4.8	0.4	0.2	0.0	4.4	0.8	0.0	0.0	1.4	0.0	0.0
LnGrp Delay(d),s/veh	17.5	12.6	8.2	13.6	0.0	12.3	12.5	0.0	0.0	13.3	0.0	0.0
LnGrp LOS	B	B	A	B		B	B			B		
Approach Vol, veh/h		610			413			73			127	
Approach Delay, s/veh		13.4			12.4			12.5			13.3	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		28.0		22.0		28.0		22.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		22.0		16.0		22.0		16.0
Max Q Clear Time (g_c+I1), s		16.3		4.8		10.9		3.4
Green Ext Time (p_c), s		3.3		0.9		5.3		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	13.0
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	374	31	12	348	180	21	14	16	169	21	18
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1846	1900	1900	1846	1863	1827	1900	1900	1863	1848	1900
Adj Flow Rate, veh/h	12	407	34	13	378	0	23	15	17	184	23	20
Adj No. of Lanes	0	2	0	0	2	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	2	4	0	0	2	0	0
Cap, veh/h	74	1107	91	77	1179	554	524	247	280	689	411	357
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.00	0.30	0.30	0.30	0.10	0.45	0.45
Sat Flow, veh/h	30	3164	259	38	3368	1583	1329	813	922	1774	913	794
Grp Volume(v), veh/h	239	0	214	209	182	0	23	0	32	184	0	43
Grp Sat Flow(s),veh/h/ln	1820	0	1633	1809	1596	1583	1329	0	1735	1774	0	1707
Q Serve(g_s), s	0.0	0.0	5.9	0.0	5.0	0.0	0.7	0.0	0.8	3.9	0.0	0.9
Cycle Q Clear(g_c), s	5.8	0.0	5.9	5.0	5.0	0.0	0.7	0.0	0.8	3.9	0.0	0.9
Prop In Lane	0.05		0.16	0.06		1.00	1.00		0.53	1.00		0.47
Lane Grp Cap(c), veh/h	700	0	572	697	559	554	524	0	527	689	0	768
V/C Ratio(X)	0.34	0.00	0.37	0.30	0.33	0.00	0.04	0.00	0.06	0.27	0.00	0.06
Avail Cap(c_a), veh/h	700	0	572	697	559	554	524	0	527	754	0	768
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.86	0.86	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.6	0.0	14.6	14.3	14.3	0.0	14.8	0.0	14.8	10.8	0.0	9.3
Incr Delay (d2), s/veh	1.3	0.0	1.9	0.9	1.3	0.0	0.2	0.0	0.2	0.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.0	2.9	2.7	2.4	0.0	0.3	0.0	0.4	1.9	0.0	0.4
LnGrp Delay(d),s/veh	15.9	0.0	16.5	15.2	15.6	0.0	15.0	0.0	15.0	11.0	0.0	9.4
LnGrp LOS	B		B	B	B		B		B	B		A
Approach Vol, veh/h		453			391			55			227	
Approach Delay, s/veh		16.2			15.4			15.0			10.7	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		27.0		33.0		27.0	8.8	24.2
Change Period (Y+Rc), s		6.0		6.0		6.0	3.0	6.0
Max Green Setting (Gmax), s		21.0		27.0		21.0	8.0	16.0
Max Q Clear Time (g_c+I1), s		7.9		2.9		7.0	5.9	2.8
Green Ext Time (p_c), s		4.9		0.5		5.0	0.1	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	14.8
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	46	458	38	39	487	135	37	15	53	128	28	37
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1865	1900	1900	1842	1900	1845	1900	1900	1881	1847	1900
Adj Flow Rate, veh/h	50	498	41	42	529	147	40	16	58	139	30	40
Adj No. of Lanes	0	2	0	0	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	4	4	4	3	0	0	1	0	0
Cap, veh/h	151	1280	103	123	1103	297	524	115	417	527	230	306
Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	153	2909	233	98	2506	675	1308	360	1304	1329	717	957
Grp Volume(v), veh/h	298	0	291	380	0	338	40	0	74	139	0	70
Grp Sat Flow(s),veh/h/ln	1642	0	1653	1728	0	1551	1308	0	1664	1329	0	1674
Q Serve(g_s), s	0.0	0.0	6.0	0.0	0.0	7.8	1.1	0.0	1.6	4.2	0.0	1.5
Cycle Q Clear(g_c), s	5.3	0.0	6.0	7.3	0.0	7.8	2.6	0.0	1.6	5.7	0.0	1.5
Prop In Lane	0.17		0.14	0.11		0.44	1.00		0.78	1.00		0.57
Lane Grp Cap(c), veh/h	807	0	728	840	0	682	524	0	532	527	0	536
V/C Ratio(X)	0.37	0.00	0.40	0.45	0.00	0.49	0.08	0.00	0.14	0.26	0.00	0.13
Avail Cap(c_a), veh/h	807	0	728	840	0	682	524	0	532	527	0	536
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.00	0.94	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.3	0.0	9.5	9.9	0.0	10.0	13.0	0.0	12.1	14.1	0.0	12.1
Incr Delay (d2), s/veh	1.2	0.0	1.5	1.8	0.0	2.6	0.3	0.0	0.5	1.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	3.0	4.1	0.0	3.8	0.4	0.0	0.8	1.7	0.0	0.8
LnGrp Delay(d),s/veh	10.6	0.0	11.1	11.6	0.0	12.6	13.3	0.0	12.6	15.4	0.0	12.6
LnGrp LOS	B		B	B		B	B		B	B		B
Approach Vol, veh/h		589			718			114			209	
Approach Delay, s/veh		10.8			12.1			12.9			14.4	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		28.0		22.0		28.0		22.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		22.0		16.0		22.0		16.0
Max Q Clear Time (g_c+I1), s		8.0		7.7		9.8		4.6
Green Ext Time (p_c), s		8.1		1.1		7.3		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	12.0
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	90	144	28	23	215	36	15	132	4	33	68	71
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1848	1900	1900	1879	1900	1900	1882	1900	1792	1837	1900
Adj Flow Rate, veh/h	98	157	30	25	234	39	16	143	4	36	74	77
Adj No. of Lanes	0	2	0	0	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	1	1	1	0	1	1	6	7	7
Cap, veh/h	431	683	135	148	1145	184	501	632	18	493	286	298
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	749	1674	332	154	2805	450	1253	1822	51	1186	824	858
Grp Volume(v), veh/h	139	0	146	158	0	140	16	0	147	36	0	151
Grp Sat Flow(s),veh/h/ln	1139	0	1615	1789	0	1620	1253	0	1872	1186	0	1682
Q Serve(g_s), s	2.6	0.0	2.9	0.0	0.0	2.8	0.5	0.0	2.7	1.1	0.0	3.2
Cycle Q Clear(g_c), s	5.4	0.0	2.9	2.7	0.0	2.8	3.6	0.0	2.7	3.8	0.0	3.2
Prop In Lane	0.71		0.21	0.16		0.28	1.00		0.03	1.00		0.51
Lane Grp Cap(c), veh/h	590	0	659	815	0	661	501	0	650	493	0	584
V/C Ratio(X)	0.24	0.00	0.22	0.19	0.00	0.21	0.03	0.00	0.23	0.07	0.00	0.26
Avail Cap(c_a), veh/h	615	0	692	851	0	694	501	0	650	493	0	584
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.3	0.0	9.4	9.4	0.0	9.4	12.8	0.0	11.3	12.7	0.0	11.5
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.1	0.0	0.2	0.1	0.0	0.8	0.3	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	1.3	1.4	0.0	1.2	0.2	0.0	1.5	0.4	0.0	1.6
LnGrp Delay(d),s/veh	10.5	0.0	9.6	9.5	0.0	9.6	12.9	0.0	12.1	13.0	0.0	12.5
LnGrp LOS	B		A	A		A	B		B	B		B
Approach Vol, veh/h		285			298			163			187	
Approach Delay, s/veh		10.0			9.5			12.2			12.6	
Approach LOS		B			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		26.0		23.0		26.0		23.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		21.0		17.0		21.0		17.0
Max Q Clear Time (g_c+I1), s		7.4		5.8		4.8		5.6
Green Ext Time (p_c), s		3.5		1.7		3.8		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	10.8
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	722	14	23	599	2	11	0	26	2	1	1
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1882	1900	1900	1813	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	0	785	15	25	651	2	12	0	28	2	1	1
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	5	5	5	0	0	0	0	0	0
Cap, veh/h	0	960	18	74	789	2	172	38	303	278	139	108
Arrive On Green	0.00	0.52	0.52	0.52	0.52	0.52	0.27	0.00	0.27	0.27	0.27	0.27
Sat Flow, veh/h	0	1840	35	20	1511	5	337	139	1110	678	509	396
Grp Volume(v), veh/h	0	0	800	678	0	0	40	0	0	4	0	0
Grp Sat Flow(s),veh/h/ln	0	0	1875	1535	0	0	1586	0	0	1583	0	0
Q Serve(g_s), s	0.0	0.0	20.8	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	20.8	23.5	0.0	0.0	1.0	0.0	0.0	0.1	0.0	0.0
Prop In Lane	0.00		0.02	0.04		0.00	0.30		0.70	0.50		0.25
Lane Grp Cap(c), veh/h	0	0	979	865	0	0	513	0	0	525	0	0
V/C Ratio(X)	0.00	0.00	0.82	0.78	0.00	0.00	0.08	0.00	0.00	0.01	0.00	0.00
Avail Cap(c_a), veh/h	0	0	1025	907	0	0	513	0	0	525	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	11.7	10.9	0.0	0.0	15.8	0.0	0.0	15.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	5.1	4.4	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	12.0	9.3	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0
LnGrp Delay(d),s/veh	0.0	0.0	16.8	15.3	0.0	0.0	16.1	0.0	0.0	15.5	0.0	0.0
LnGrp LOS			B	B			B			B		
Approach Vol, veh/h		800			678			40			4	
Approach Delay, s/veh		16.8			15.3			16.1			15.5	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.6		22.0		36.6		22.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		32.0		16.0		32.0		16.0
Max Q Clear Time (g_c+I1), s		22.8		2.1		25.5		3.0
Green Ext Time (p_c), s		6.8		0.1		5.0		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	16.1
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	6.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	38	10	4	63	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	500	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	41	11	4	68	4

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	154	13	0	0	15	0
Stage 1	13	-	-	-	-	-
Stage 2	141	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	842	1073	-	-	1616	-
Stage 1	1015	-	-	-	-	-
Stage 2	891	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	807	1073	-	-	1616	-
Mov Cap-2 Maneuver	772	-	-	-	-	-
Stage 1	1015	-	-	-	-	-
Stage 2	854	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	6.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1073	1616	-
HCM Lane V/C Ratio	-	-	0.038	0.042	-
HCM Control Delay (s)	-	-	8.5	7.3	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	7	244	11	25	299	5	14	16	22
Conflicting Peds, #/hr	43	0	10	10	0	43	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	3	18	0	0	0	21	0	9
Mvmt Flow	8	265	12	27	325	5	15	17	24

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	330	0	0	277	0	0	508	671	182
Stage 1	-	-	-	-	-	-	286	286	-
Stage 2	-	-	-	-	-	-	222	385	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.92	6.5	7.08
Critical Hdwy Stg 1	-	-	-	-	-	-	6.92	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.92	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.71	4	3.39
Pot Cap-1 Maneuver	1241	-	-	1298	-	-	408	380	808
Stage 1	-	-	-	-	-	-	647	679	-
Stage 2	-	-	-	-	-	-	708	614	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1196	-	-	1251	-	-	373	367	779
Mov Cap-2 Maneuver	-	-	-	-	-	-	373	367	-
Stage 1	-	-	-	-	-	-	642	674	-
Stage 2	-	-	-	-	-	-	650	598	-

Approach	EB	WB	NB
HCM Control Delay, s	0.2	0.7	13.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	475	1196	-	-	1251	-	-	396
HCM Lane V/C Ratio	0.119	0.006	-	-	0.022	-	-	0.041
HCM Control Delay (s)	13.6	8	0	-	7.9	0.1	-	14.5
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	

Movement	SBL	SBT	SBR
Vol, veh/h	3	9	3
Conflicting Peds, #/hr	0	0	0
Sign Control	Stop	Stop	Stop
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	92	92	92
Heavy Vehicles, %	0	11	0
Mvmt Flow	3	10	3

Major/Minor	Minor2		
Conflicting Flow All	539	674	208
Stage 1	382	382	-
Stage 2	157	292	-
Critical Hdwy	7.5	6.72	6.9
Critical Hdwy Stg 1	6.5	5.72	-
Critical Hdwy Stg 2	6.5	5.72	-
Follow-up Hdwy	3.5	4.11	3.3
Pot Cap-1 Maneuver	430	357	804
Stage 1	618	589	-
Stage 2	835	648	-
Platoon blocked, %			
Mov Cap-1 Maneuver	377	345	775
Mov Cap-2 Maneuver	377	345	-
Stage 1	613	574	-
Stage 2	754	643	-

Approach	SB
HCM Control Delay, s	14.5
HCM LOS	B

Minor Lane/Major Mvmt

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	94	241	69	51	311	18	0	0	0
Conflicting Peds, #/hr	25	0	5	5	0	25	6	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	3	3	0	1	6	0	0	0
Mvmt Flow	102	262	75	55	338	20	0	0	0

Major/Minor	Major1			Major2		
Conflicting Flow All	374	0	0	337	0	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.21	-	-	2.2	-	-
Pot Cap-1 Maneuver	1188	-	-	1234	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %		-	-		-	-
Mov Cap-1 Maneuver	1163	-	-	1208	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB
HCM Control Delay, s	2	1.3
HCM LOS		

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1163	-	-	1208	-	-	699
HCM Lane V/C Ratio	0.088	-	-	0.046	-	-	0.165
HCM Control Delay (s)	8.4	0	-	8.1	0.2	-	11.2
HCM Lane LOS	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-	-	0.6

Intersection			
Int Delay, s/veh			

Movement	SBL	SBT	SBR
Vol, veh/h	3	23	80
Conflicting Peds, #/hr	16	0	6
Sign Control	Stop	Stop	Stop
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	92	92	92
Heavy Vehicles, %	0	4	0
Mvmt Flow	3	25	87

Major/Minor	Minor2		
Conflicting Flow All	979	1016	220
Stage 1	475	475	-
Stage 2	504	541	-
Critical Hdwy	6.6	6.56	6.9
Critical Hdwy Stg 1	5.8	5.56	-
Critical Hdwy Stg 2	5.4	5.56	-
Follow-up Hdwy	3.5	4.038	3.3
Pot Cap-1 Maneuver	265	235	790
Stage 1	597	552	-
Stage 2	611	516	-
Platoon blocked, %			
Mov Cap-1 Maneuver	217	0	763
Mov Cap-2 Maneuver	217	0	-
Stage 1	555	0	-
Stage 2	537	0	-

Approach	SB
HCM Control Delay, s	11.2
HCM LOS	B

Minor Lane/Major Mvmt