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Intersection Control Evaluation (ICE) Analysis for Canongate Road and Amberly Road in the City of Waverly, NE

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July 5, 2022

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Innovating Through Informatics™

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1 BACKGROUND

This report documents the Intersection Control Evaluation (ICE) analysis performed for the intersection of Canongate Road and Amberly Road in the City of Waverly, NE. The analysis analyzed the existing and future traffic operations for the existing and four alternative intersection control configurations. The Study was conducted in accordance with accepted traffic engineering standards and guidelines including the *Institute of Transportation Engineers' (ITE) Traffic Engineering Guidelines Manual, the Manual on Uniform Traffic Control Devices (MUTCD), Highway Safety Manual (HSM), Highway Capacity Manual (HCM) 6th Edition* and other appropriate guidance materials.

The study is a follow on from a pedestrian study conducted along Amberley Road and 148th Street in 2018.

2 INTRODUCTION

2.1 Study Area

The City of Waverly is located approximately 12 miles north-east of the City of Lincoln and is roughly bounded by State Highway 6 (SR-6) and Interstate 80 (I-80). The study intersection is located approximately 800 yards east of SR-6. Waverley High School is located adjacent to the south-west of the intersection and Waverley Middle school is situated to the south-east. The north-eastern quadrant of the intersection contains industrial land uses while the north-western quadrant is currently vacant. The Study area is shown in **Figure 2-1**.

2.2 ICE Analysis

The study analyzes the existing configuration and four ICE alternatives for the study intersection under existing and future year (15 years out) conditions:

1. Two-way stop control (current configuration)
2. All-way stop control
3. Single lane roundabout
4. Two lane roundabout (one through/left with separate right-turn lanes)
5. Signalized intersection

Figure 2-2 shows the lane configurations of the intersection for each scenario.

The traffic analysis includes:

- Traffic Operations Analysis,
- Signal Warrant Analysis,
- Traffic Simulation Queuing Analysis, and
- Traffic Alternative Analysis.

2.3 Study Time Periods

Traffic operations were evaluated during typical weekday conditions (during the school year).
during the weekday AM and PM peak hours which were identified from turning movement counts. These peak hours were determined to be 7:30 AM – 8:30 AM and 3:15 PM– 4:15 PM

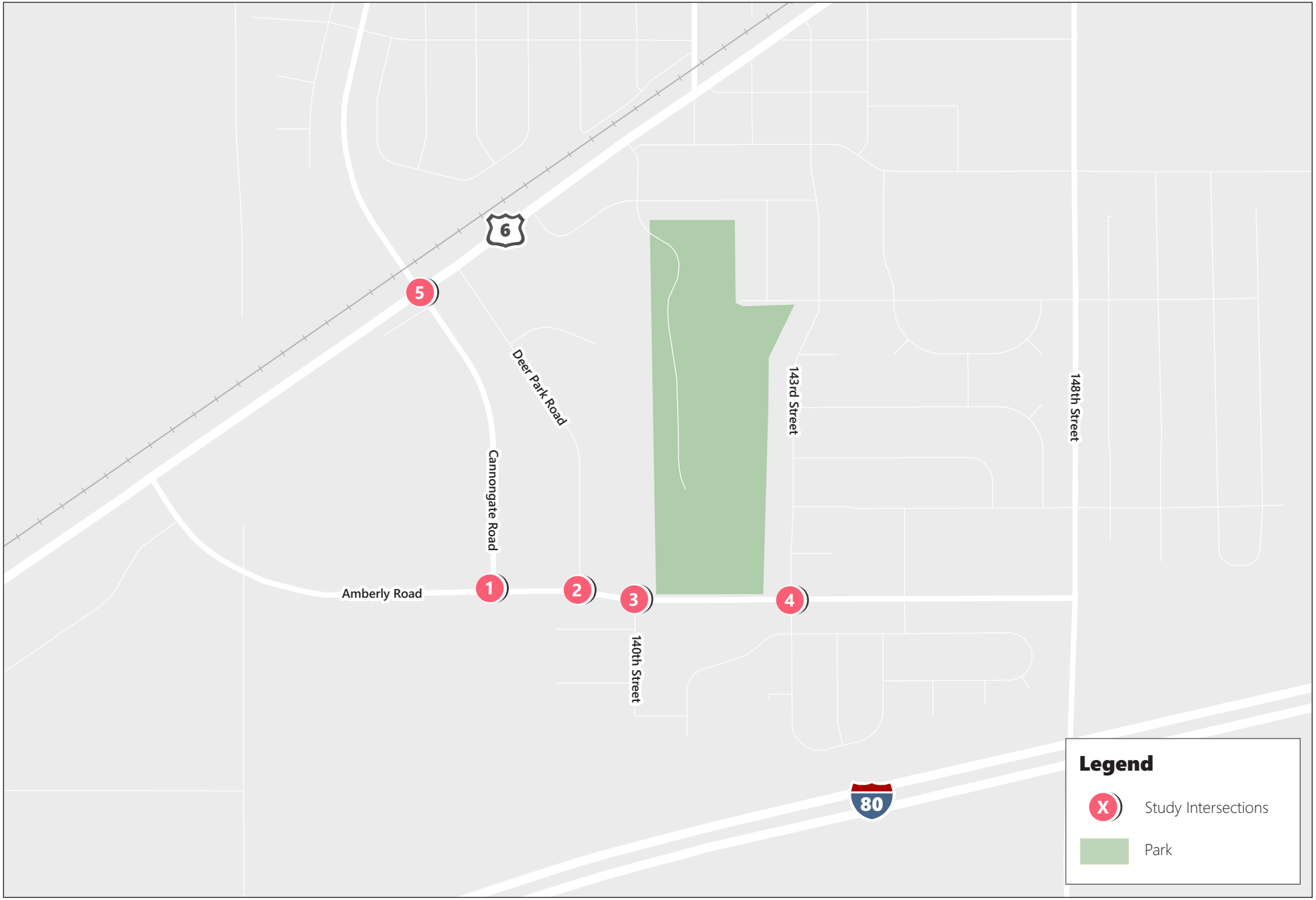

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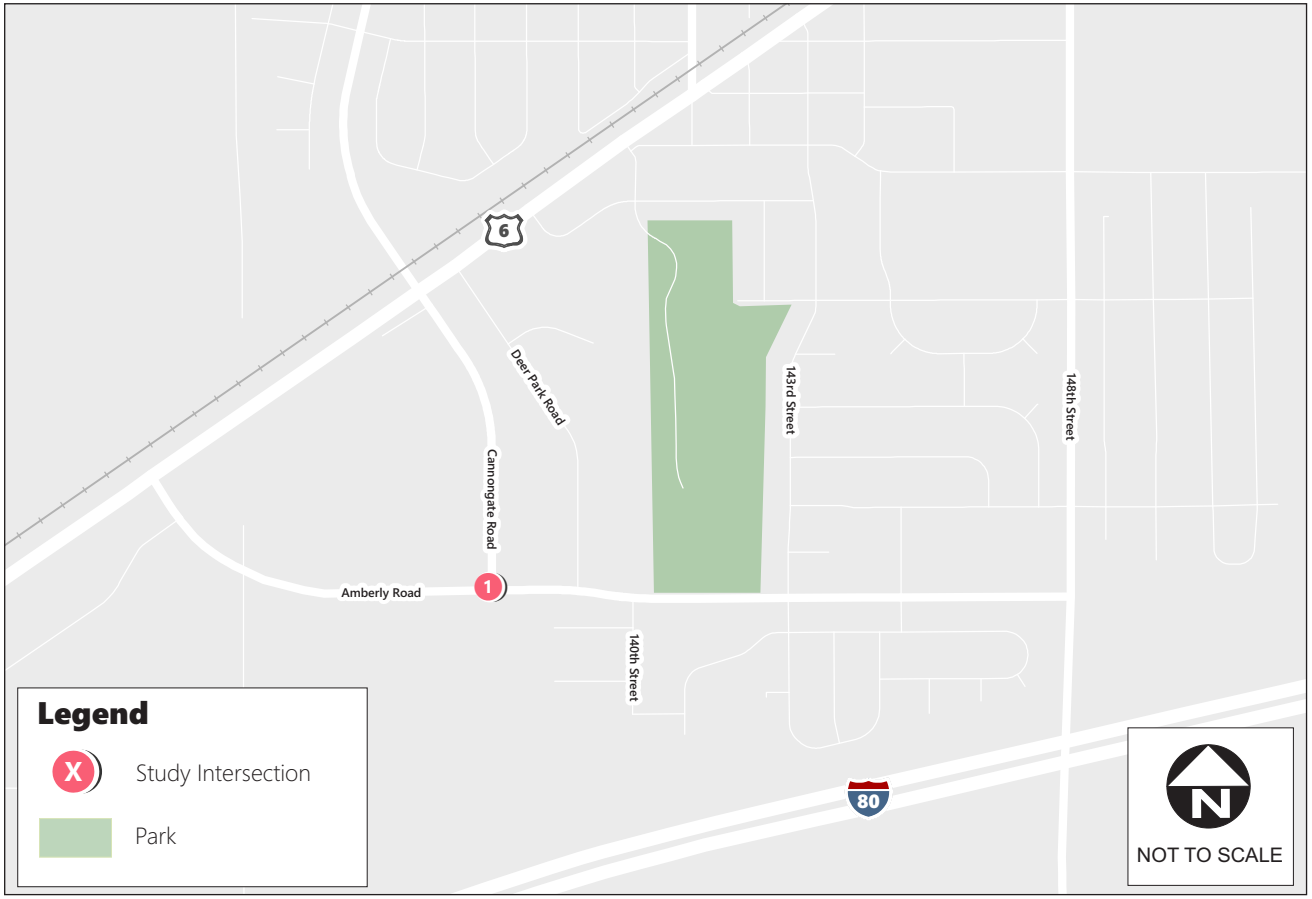
Figure 2-1
Study Area



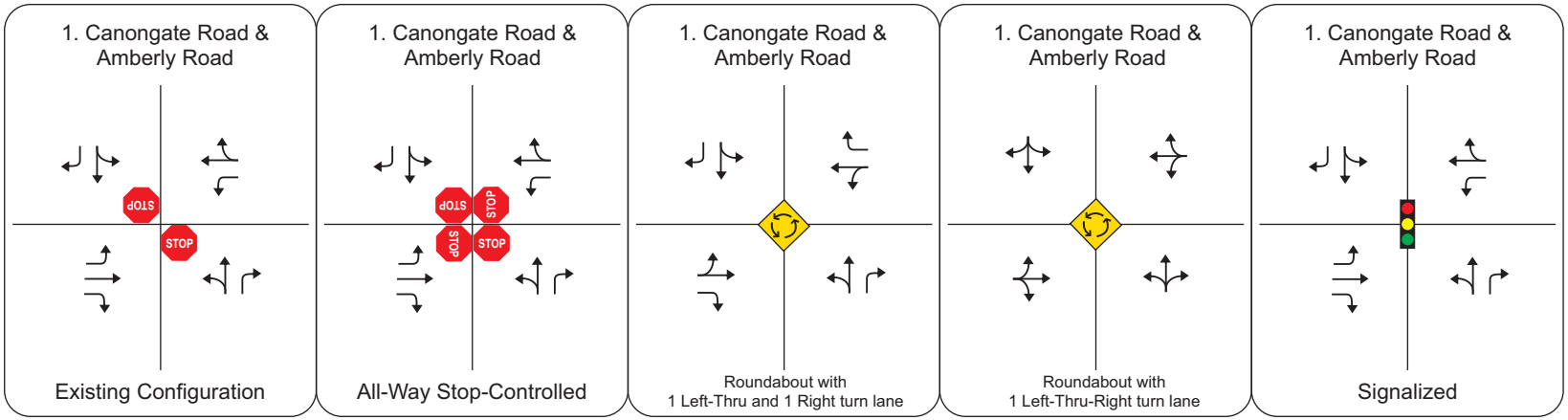


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Figure 2-2
Lane Configurations of each Scenario

3 METHODOLOGY

3.1 Traffic Operations Analysis

The quality of traffic operations is characterized using the concept of Level of Service (LOS). Level of Service is defined by a range of grades from A (best) to F (worst). At intersections, LOS "A" represents relatively free flow operating conditions with little or no delay. LOS "F" is characterized by extremely unstable flow conditions, severe congestion and delays with traffic volumes at or near the intersection's design capacity. This typically results in long vehicular queues extending from all approaches to intersection.

Analysis of traffic operations was conducted using the *Highway Capacity Manual* (HCM) Version 6 methodology, which defines the LOS by the average vehicle delay experienced by all vehicles traveling through the intersection. Traffic operations analysis for HCM analysis was completed using *Synchro 11* software. For the purpose of evaluating project related impacts, signal timing splits are optimized under future scenarios as timing will likely be updated to accommodate changing demand over time. **Table 3-1** presents the average delay associated with each LOS grade as well as a qualitative description of intersection operations at that grade.

Table 3-1: Intersection Level-of-Service Delay Definitions

Ice	Description	Signalized Intersection Delay (seconds)	Unsignalized Intersection Delay (seconds)
A	• Free flowing, virtually no delay. • Minimal traffic.	≤ 10.0	≤ 10.0
B	• Free flow and choice of lanes. • Delays are minimal. • All cars clear intersection easily.	> 10.0 to 20.0	> 10.0 to 15.0
C	• Good operation. • Delays starting to become a factor but still within acceptable limits.	> 20.0 to 35.0	> 15.0 to 25.0
D	• Approaching unstable flow. • Queues at intersection are quite long but most cars clear intersection on their green signal. • Occasionally, several vehicles must wait for a second green signal. • Congestion is moderate.	> 35.0 to 55.0	> 25.0 to 35.0
E	• Severe congestion and delay. • Most of the available capacity is used. • Many cars must wait through a complete signal cycle to clear the intersection.	> 55.0 to 80.0	> 35.0 to 50.0
F	• Excessive delay and congestion. • Most cars must wait through more than one on one signal cycle. • Queues are very long and drivers are obviously irritated.	> 80.0	> 50.0
Source: Highway Capacity Manual 6th Edition			

National and regional Traffic Impact Guidelines considers LOS D as the limit for acceptable intersection operations. A level-of service of E or F can warrant the implementation of countermeasures.

3.2 Signal Warrant Analysis

The warrant analysis was performed to determine if the existing and forecast future traffic volumes warrant the signalization of the intersection.

The detailed warrant analysis was based on the criteria outlined in the 2009 Manual on Uniform Traffic Control Devices (2009 MUTCD). Specifically, Chapter 4C, Traffic Control Signal Needs Studies (pages 436 – 448) establish the criteria used in the evaluation. The 2009 MUTCD identifies nine (9) traffic signal warrants:

- **Warrant 1:** Eight-Hour Vehicular Volume
- **Warrant 2:** Four-Hour Vehicular Volume
- **Warrant 3:** Peak Hour
- **Warrant 4:** Pedestrian Volume
- **Warrant 5:** School Crossing
- **Warrant 6:** Coordinated Signal System
- **Warrant 7:** Crash Experience
- **Warrant 8:** Roadway Network
- **Warrant 9:** Intersection Near a Grade Crossing

3.3 Traffic Simulation Queueing Analysis

Intersection queuing analysis was conducted at the intersection of Canongate Road and Amberly Road for each of the ICE alternatives.

The 95th percentile vehicle queue lengths were calculated using the SimTraffic 11 simulation tool for all three scenarios.

4 EXISTING CONDITIONS

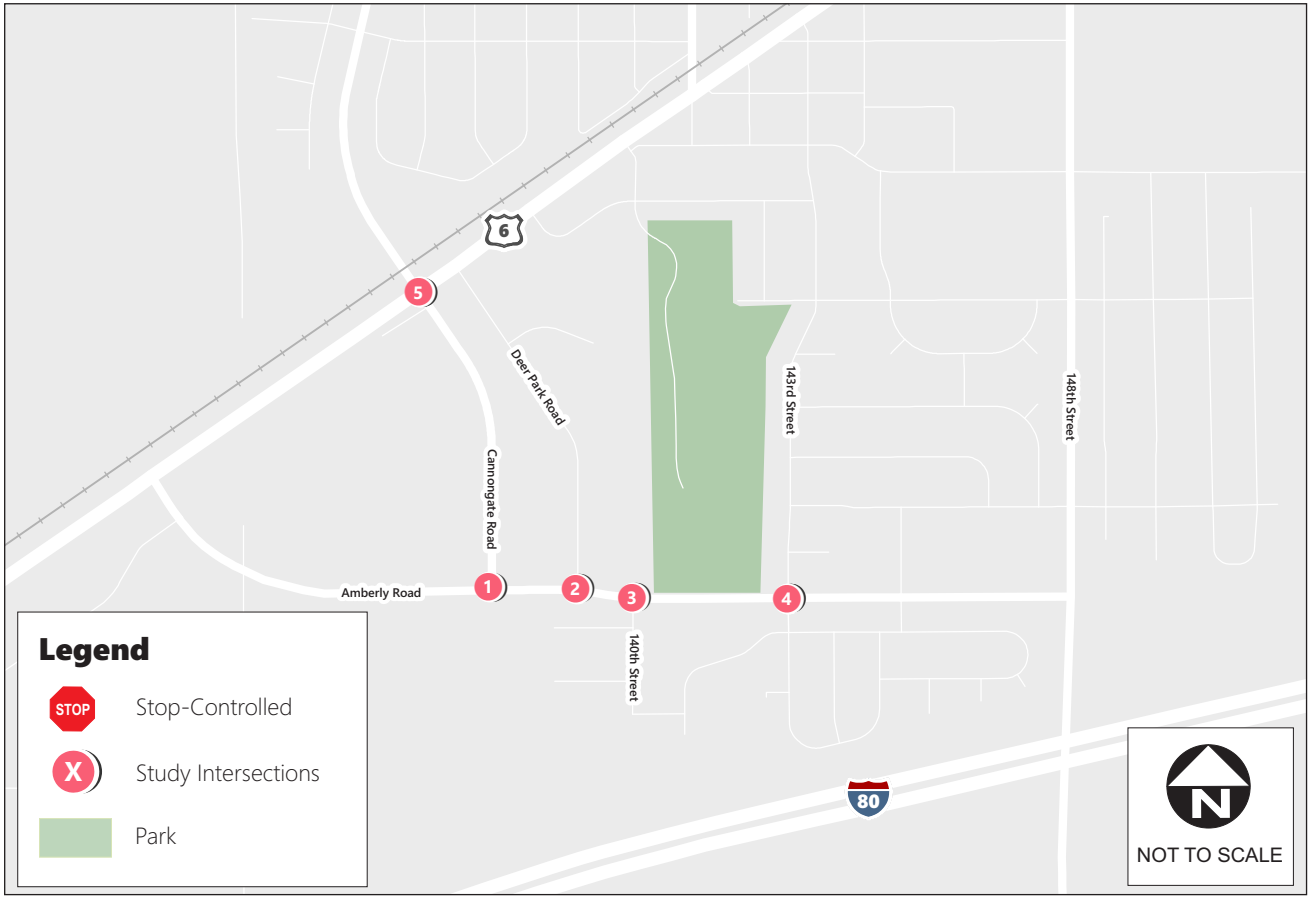
4.1 Intersection and Street Geometric Inventory

The study intersection is currently an unsignalized two-way stop-controlled intersection as shown in **Figure 4-1.** There are no sidewalks leading to the intersection and no crosswalks at the intersection**.**

Waverley High School (650 students) is located adjacent to the south-west of the intersection and Waverley Middle school (530 students) is situated to the south-east. The north-eastern quadrant of the intersection contains industrial land uses while the north-western quadrant is currently vacant. **Figure 4-2** shows the existing lane configurations of the study intersection as well as for the three intersections immediately to the east:

- Deer Park Road and Amberly Road,
- 140th Street and Amberly Road, and
- 143rd Street and Amberly Road.

Figure 4-1: Study Intersection Aerial Image



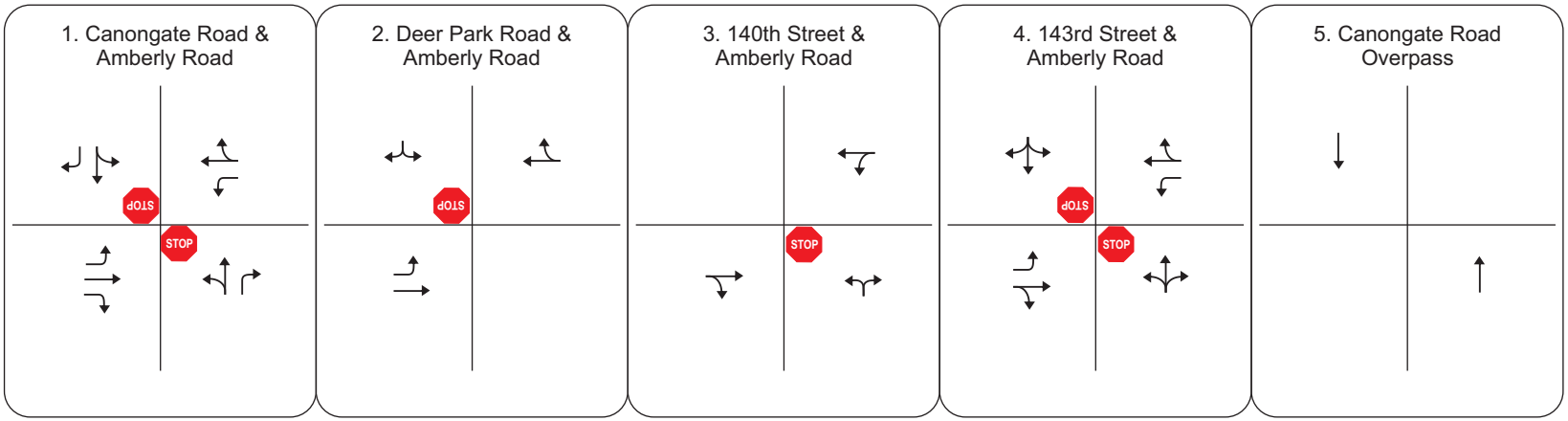


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Figure 4-2
Existing Lane Configurations

The speed limit on Amberley Road is posted as 35 mph with 25 mph during school drop-off and pick up times as shown in **Figure 4-3**.

Figure 4-3: Speed Limits on Amberley Road

The existing configurations of the roadways adjacent to the study intersection are shown in **Table 4-1**.

Table 4-1: Study Area Roadways

Roadway	Direction	Lanes		On-Street Parking	Median
		NB/EB	SB/WB		
Amberly Road	East/West	1	1	-	No
Canongate Road	North/South	1	1	-	No
Deer Park Road	North/South	1	1	-	No
N. 140th Street	North/South	1	1	Both Sides of Street	No
N. 143rd Street	North/South	1	1	Both Sides of Street	No

4.2 Existing Traffic Volumes

Data from the 2018 pedestrian study indicates that the Average Daily traffic (ADT) along Amberley Road is approximately 4,400 vehicles.

Intersection turning movement counts were conducted at four intersections along Amberley Road in May 2022 during typical weekday condition with schools being in session. All intersection counts were conducted during the AM peak period (7:00 AM – 9:00 AM) and PM peak period (3:00 PM – 5:30 PM). Traffic counts were collected while schools were still in session, avoiding any holiday-related shifts in traffic patterns. Detailed vehicle turning movement data are included in **Appendix A.** The AM peak hour was observed to be 7:30 AM to 8:30 AM and the PM peak hour was 3:15 PM to 4:15 PM. Roadway segment counts along Canongate Road near the overcrossing of SR-6 (Cornhusker Highway) were also collected.

Figure 4-4 shows the existing peak hour volumes at the study intersection and three adjacent intersections.

The 2022 traffic counts indicate a truck percentage of 2.9% in the AM peak hour and 4.0% in the PM peak hour.

The peak fifteen minutes of traffic as a percentage of the of the peak hour is quite high, especially in the AM peak when 39% of the peak hour traffic is observed between 8:00 AM and 8:15 AM when students are arriving or being dropped off at school. The peak fifteen minutes in the PM peak hour is between 3:30 PM and 3:45 PM and is 33% of the peak hour and corresponds to time when students are leaving school.

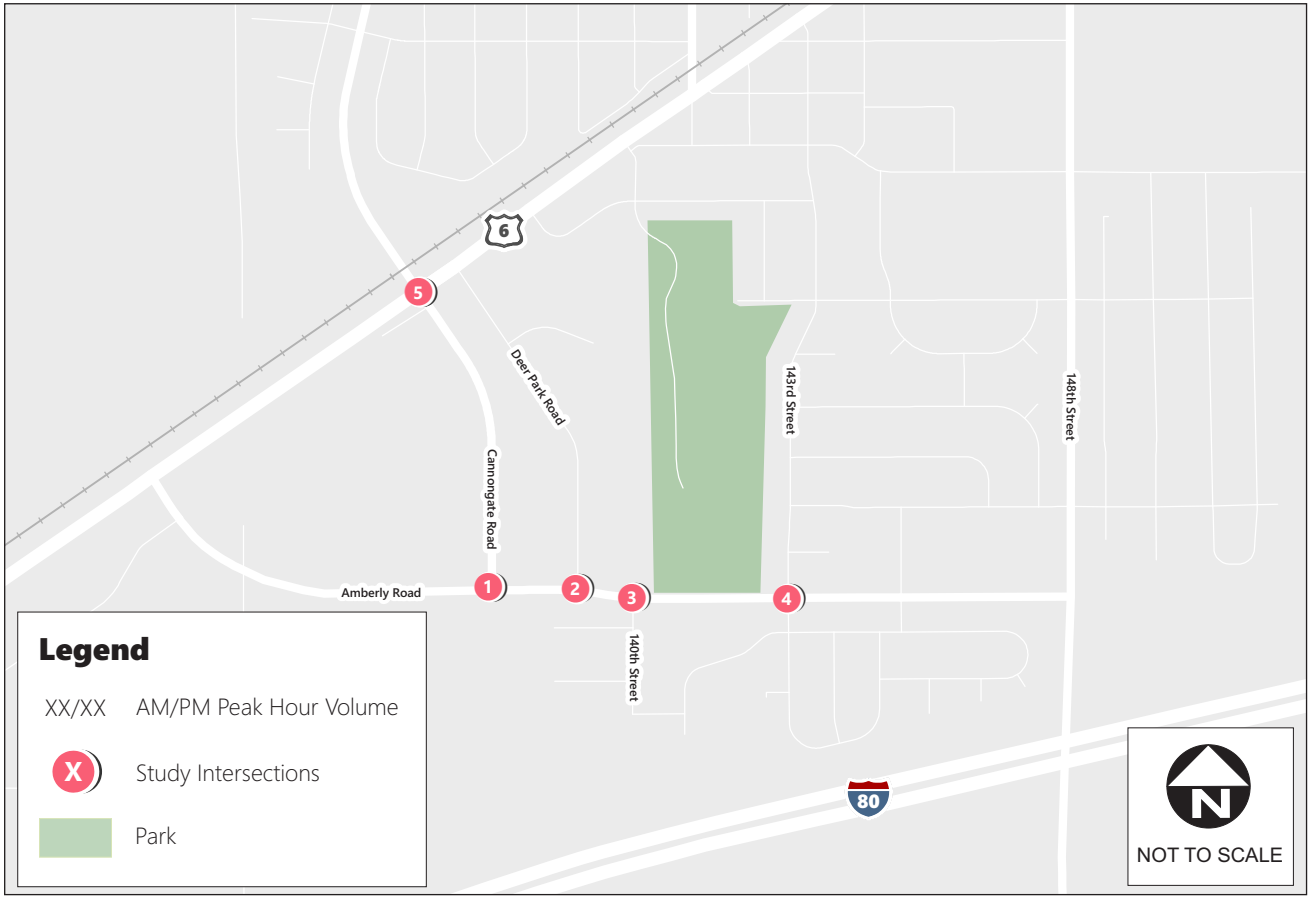
Pedestrian counts were included in the turning movement counts, although no pedestrians were observed at the study intersection (which as noted above does not have adjacent sidewalks or a pedestrian crossings). Traffic counts from the *2018 Pedestrian Study* were also reviewed and no pedestrian activity was noted at the study intersection in that study either. Some pedestrian activity (around 10 pedestrians per hour) was observed at the intersections of 140th Street and Amberley Road and 143rd St and Amberley Road where there are crosswalks. There is a pathway from Waverley High school that traverses to Bailie Street and then to 140th street and a sidewalk from Waverley Middle school along 140th street to the Amberley Road crosswalk on Amberley Road. There is also a pathway on the northside of Amberly Road which lead to Wayne Park and residential areas. No pedestrians were observed on the Amberley Road overcrossing of SR-6.

4.3 Collision Data

Collision data from the *2018 Pedestrian Study* suggests that there is not currently a safety concern at the study intersection:

> *"Iteris contacted Nebraska Department of Transportation (NDOT) to request three-year crash data along the study area corridors of N. 148th Street and Amberly Road. Based on a review three-year crash data, from 2016 to 2018 there is not a substantial crash pattern on the corridor or at a specific intersection. Crash rates were compared to the overall statewide average of a 1.66 accident rate per million vehicle miles (MVM). The accident rates per MVM for N. 148th Street and Amberly Road were both below the statewide average at 1.561 and 1.093 respectively".*

Additionally, the accident rates along Amberly Road are significantly below the statewide average.



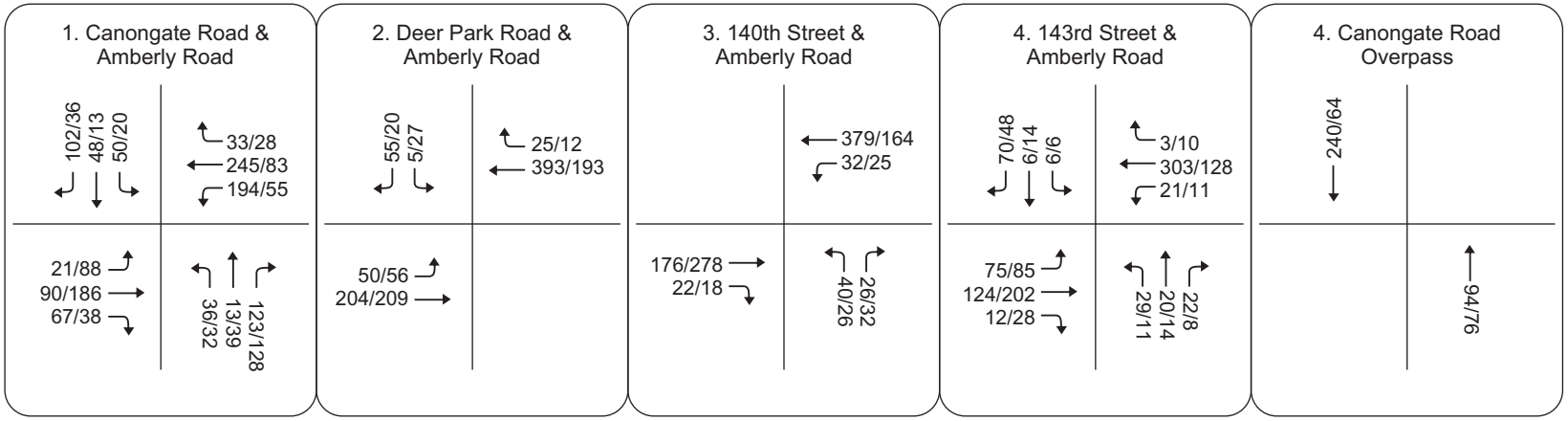


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Figure 4-4
Existing Peak Hour Intersection Volumes

4.4 Existing Level of Service

A level of service (LOS) analysis was conducted to evaluate existing intersection operations and four alternative ICE scenarios during the AM and PM peak hours. **Table 4-1** summarizes the existing LOS at the study intersection. LOS calculation sheets are provided in **Appendix B**.

Table 4-2: Existing Intersection Peak Hour Level of Service

Alt	Scenario/Alternatives	Worst Movement (Two-Way Stop Control Only)	AM Peak Hour		PM Peak Hour	
			Delay (secs)	LOS	Delay (secs)	LOS
1	Two-Way Stop-Controlled (Existing configuration)	SB	**244.6***	**F***	18.7	C
2	All-Way Stop-Controlled	N/A	32.8	D	11.9	B
3	Roundabout (1 Left-Thru-Right Lane in all directions)	N/A	9.2	A	5.8	A
4	Roundabout (1 Left-Thru and 1 Right Turn Lane in all directions)	N/A	7.3	A	5.0	A
5	Signalized Intersection (With existing lane configuration)	N/A	7.1	A	6.3	A

Notes: V/C = Volume to Capacity Ratio, LOS = Level of Service, *=Reporting the worst movement in delay (seconds)

All three ICE alternatives result in satisfactory levels of service (LOS C or better) during the AM and PM peak hours, except for the current two-way stop-controlled scenario, which is currently operating with the LOS F in the AM peak hour in the Southbound movement. It is worthwhile to note that a minor improvement such as add a stop sign in all for legs improves the LOS of the intersection.

4.5 Existing Year Signal Warrant Analysis

An MUTCD signal warrant analysis was completed with the purpose of determining if installation of a new traffic signal is warranted at the intersection of Canongate Road and Amberly Road. The warrant analysis was based on the criteria outlined in the 2009 Manual on Uniform Traffic Control Devices (2009 MUTCD), Chapter 4C. The 2009 MUTCD identifies nine (9) traffic signal warrants:

- **Warrant 1:** Eight-Hour Vehicular Volume
- **Warrant 2:** Four-Hour Vehicular Volume
- **Warrant 3:** Peak Hour
- **Warrant 4:** Pedestrian Volume
- **Warrant 5:** School Crossing
- **Warrant 6:** Coordinated Signal System
- **Warrant 7:** Crash Experience
- **Warrant 8:** Roadway Network
- **Warrant 9:** Intersection Near a Grade Crossing

Based on the availability of data and the applicability of warrants, the summary of analysis for this study is as follows:

- **Warrant 1:** Eight-Hour Vehicular Volume
  - Warrant 1 is associated with eight-hour volume and is not applicable to the study intersection because eight-hour count is not available.
- **Warrant 2:** Four-Hour Vehicular Volume
  - In existing conditions, the study intersection does not satisfy Warrant 2.
- **Warrant 3:** Peak Hour
  - In existing conditions, the study intersection does not satisfy Warrant 3.
- **Warrant 4:** Pedestrian Volume
  - Warrant 4 is not satisfied as it is specific to high pedestrian count locations typically for larger urban locations with minimum pedestrian volumes exceeding 107 pedestrians per hour which is not the case at the study intersection.
- **Warrant 5:** School Crossing
  - Warrant 5 is intended to be applied where there are minimum of 20 school children crossing the approaches at an intersection. This Warrant is not applicable to the study intersection because it did not meet the 20 schoolchildren requirement.
- **Warrant 6:** Coordinated Signal System
  - Warrant 6 is associated with a coordinated signal system and is not applicable to the intersection.
- **Warrant 7:** Crash Experience
  - Based on collision data from the 2018 Pedestrian Study, the crash patterns and frequency of crashes does not satisfy warrant 7. City staff have indicated that study intersection does not have a known safety concern related to collisions.
- **Warrant 8:** Roadway Network
  - Warrant 8 is used to encourage concentrations and organization of traffic flow on a roadway network. For Warrant 8, the intersection must have a total existing, or immediately projected, entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday, which the study intersection does not meet, therefore warrant 8 is not applicable to the intersection.
- **Warrant 9:** Intersection Near a Grade Crossing
  - Warrant 9 is associated with an intersection near a grade crossing and is not applicable to the study intersection.

In summary, a signal is NOT warranted based on existing conditions signal warrant analysis. All supporting signal warrant analysis worksheets are included in **Appendix C**.

5 FUTURE CONDITIONS

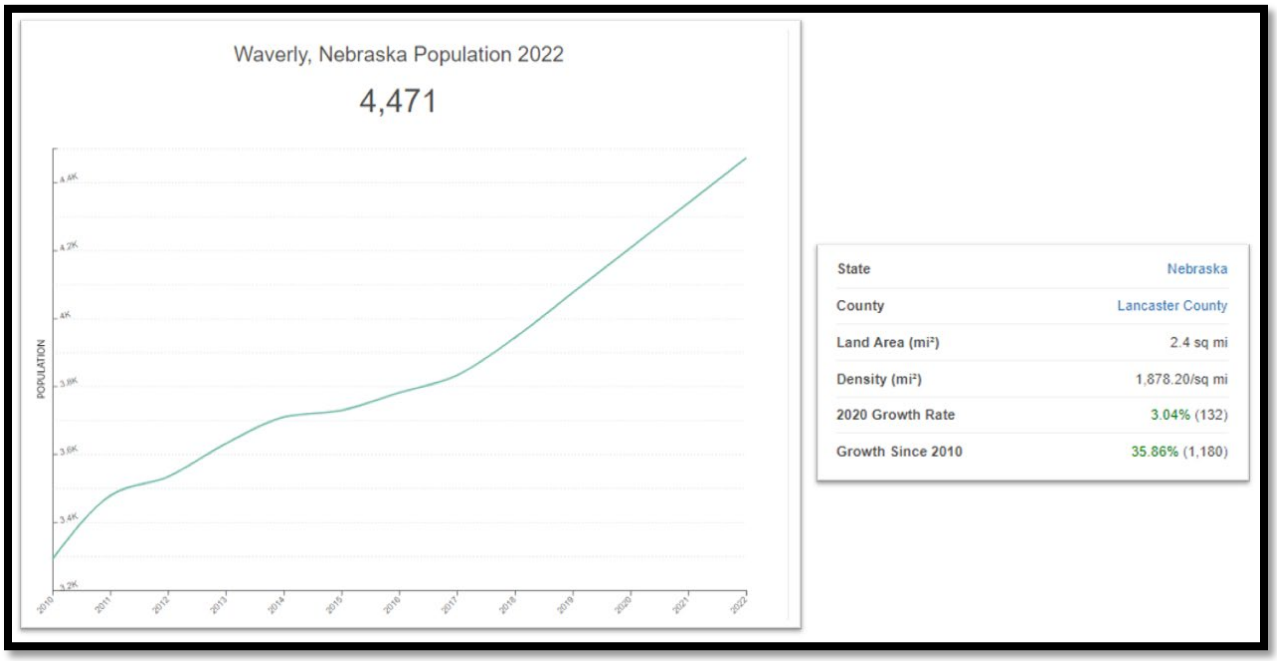
This section of the report analyzes the future data to analyze the following:

- Traffic Operations (using a Level of Service analysis),
- Signal Warrants, and
- SimTraffic traffic queuing analysis.

5.1 Future Traffic Volumes

Future traffic growth was determined by using the same population growth rate as experienced from 2010 to 2020 in the City based on US Census data **Figure 5-1**, which indicate a growth of approximately 3% annually. The 2022 population of 4,471 is higher than the high growth population forecast for 2023 of 4,270 in the "Waverly Comprehensive Plan 2013-2033" (shown in **Appendix D**) which assumed an annual growth rate of 2.8% per annum from 2023 to 2033. Given the recent secular changes of increased working from home and out-migration from major population centers, assuming an ongoing growth rate of 3% per annum over the next 15 years seems reasonable and is conservative from a traffic operations perspective.

Figure 5-1: City of Waverly Population Growth 2010 to 2022 – Source US Census



The annual growth rate of 3% per annum was applied to the existing peak hour volumes to forecast 15 year ahead future volumes at the intersection of Canongate Road and Amberly Road. **Table 5-1** and **Figure 5-2** show the forecast future peak hour turning movement counts at the intersection.

Table 5-1: Forecast Future Traffic Volumes (15 years) at Canongate Road and Amberly Road

Peak Hour	Canongate Road Northbound			Canongate Road Southbound			Amberly Road Eastbound			Amberly Road Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM Peak Hour	56	20	192	78	75	159	33	140	104	302	382	51
PM Peak Hour	50	61	199	31	20	56	137	290	59	86	129	44

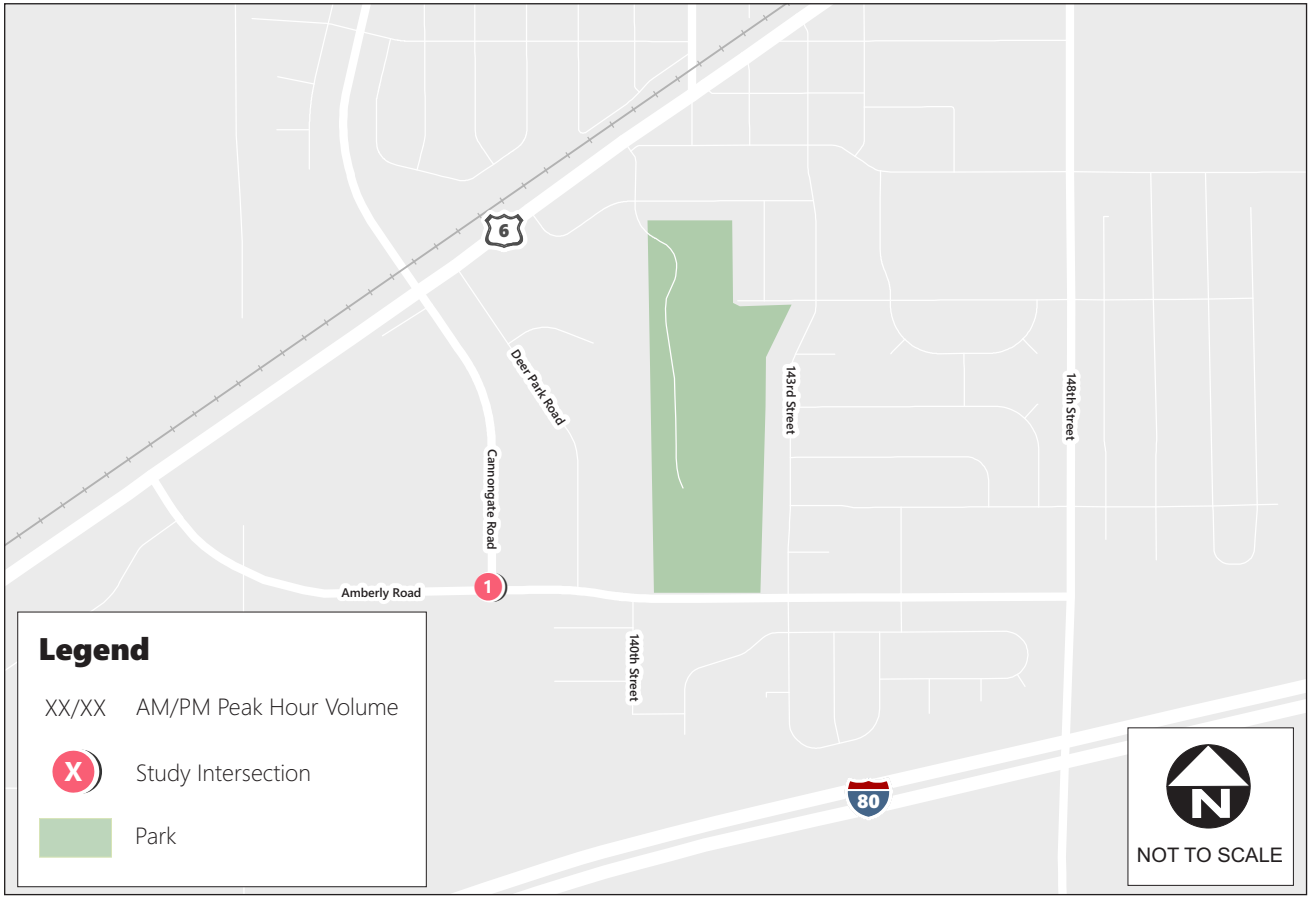
5.2 Future Level of Service

A level of service (LOS) analysis was conducted to evaluate existing intersection operations and four ICE alternatives during the AM and PM peak hours. **Table 5-2** summarizes the future LOS at the study intersection. LOS calculation sheets are provided in **Appendix B**.

Table 5-2: Future Intersection Peak Hour Level of Service

Alt	Scenario/Alternatives	Worst Movement (Two-Way Stop Control Only)	AM Peak Hour		PM Peak Hour	
			Delay (secs)	LOS	Delay (secs)	LOS
1	Two-Way Stop-Controlled (Existing configuration)	SB	**6828***	**F***	**197.9***	**F***
2	All-Way Stop-Controlled	N/A	**209.2**	**F**	24.6	C
3	Roundabout (1 Left-Thru-Right Lane in all directions)	N/A	**39.6**	**E**	9.5	A
4	Roundabout (1 Left-Thru and 1 Right Turn Lane in all directions)	N/A	18.7	C	7.2	A
5	Signalized Intersection (With existing lane configuration)	N/A	12.7	B	7.7	A

Notes: V/C = Volume to Capacity Ratio, LOS = Level of Service, *= Reporting the worst movement in delay (seconds)



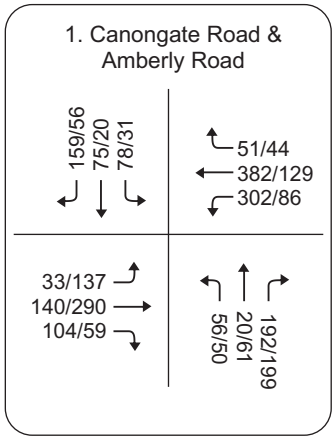


Figure 5-2
Future Year Peak Hour Intersection Volumes

Both the signalized intersection alternative (LOS B) and roundabout with 1 left-thru and 1 right turn lane (LOS C) result in satisfactory levels of service (LOS C or better) during the AM peak hour. The other configurations all result in various degrees of LOS F in the AM peak hour. In the PM peak all four ICE alternatives result in satisfactory levels of service (LOS C or better).

5.3 Future Year Signal Warrant Analysis

An MUTCD signal warrant analysis was completed, consistent with the existing year signal warrant analysis. Based on the availability of data and the applicability of warrants, the summary of analysis for this study is as follows:

- **Warrant 1:** Eight-Hour Vehicular Volume
  - Warrant 1 is associated with eight-hour volume and is not applicable to the study intersection because eight-hour count is not available.
- **Warrant 2:** Four-Hour Vehicular Volume
  - In future conditions, the study intersection does not satisfy Warrant 2 if the northbound and southbound right-turn movements are excluded from the warrant calculation as is recommended by MUTCD if there is no conflict between the right-turning traffic from the minor street to the major street. **Appendix D** summarizes signal warrants with and without the minor right-turn movements included.
- **Warrant 3:** Peak Hour
  - In future conditions, the study intersection does not satisfy Warrant 3 if the northbound and southbound right-turn movements are excluded from the warrant calculation as is recommended by MUTCD if there is no conflict between the right-turning traffic from the minor street to the major street. However, if there is a conflict, the right-turning traffic should be included in the Warrant calculation and in that case Warrant 3 would be met. **Appendix D** summarizes signal warrants with and without the minor right-turn movements included.
  - As a note, from MUTCD – Section 4C.01 Para 10: *"Engineering judgment and rationale should be applied to a street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turn traffic with traffic on the major street should be considered. Thus, right-turn traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered."*
  - Using professional judgement, it seems reasonable that the northbound right-turn movement should be excluded from the Warrant calculation since there is a defacto merge/acceleration lane for right turning traffic. For the southbound right-turning traffic from Canongate Road, if this is impeded by the westbound through traffic then the movement might need to be included. However, based on traffic counts and the observation that the peak 15 minutes of the peak hour is particularly high, and the intersection really only experiences high traffic volumes between 8:00 AM and 8:30 PM, and 8:00 to 8:15 in particular only a subset southbound right-turn traffic should be included in the Warrant calculation and the Warrant will not be met.
- **Warrant 4:** Pedestrian Volume
  - Warrant 4 is not satisfied as it is specific to high pedestrian count locations typically for

larger urban locations with minimum pedestrian volumes exceeding 107 pedestrians per hour which is not the case at the study intersection.

- **Warrant 5:** School Crossing
  - Warrant 5 is intended to be applied where there are minimum of 20 school children crossing the approaches at an intersection. This Warrant is not applicable to the study intersection because it did not meet the 20 schoolchildren requirement.
- **Warrant 6:** Coordinated Signal System
  - Warrant 6 is associated with a coordinated signal system and is not applicable to the intersection.
- **Warrant 7:** Crash Experience
  - Based on collision data from the 2018 Pedestrian Study, the crash patterns and frequency of crashes does not satisfy warrant 7. City staff have indicated that study intersection does not have a known safety concern related to collisions.
- **Warrant 8:** Roadway Network
  - Warrant 8 is used to encourage concentrations and organization of traffic flow on a roadway network. For Warrant 8, the intersection must have a total existing, or immediately projected, entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday, which the study intersection does not meet, therefore warrant 8 is not applicable to the intersection.
- **Warrant 9:** Intersection Near a Grade Crossing
  - Warrant 9 is associated with an intersection near a grade crossing and is not applicable to the study intersection.

In summary, a signal is NOT warranted based on future conditions signal warrant analysis. All supporting signal warrant analysis worksheets are included in **Appendix B**.

5.4 Future Year Queuing Analysis

Future year volumes were input into Synchro to complete queueing analysis for the 4 scenarios/alternatives using traffic simulation. **Table 5-3** summarizes the 95th percentile queuing analysis results. The queuing analysis worksheets are shown in **Appendix E**.

Table 5-3: Future Year Queueing Analysis Results

Alternative	Movement	Available Storage Length (ft)	95th Percentile Queue Length (ft)	
			AM Peak Hour	PM Peak Hour
Two-Way Stop-Controlled (Existing configuration/No Build)	Northbound Left-Thru	314	**353***	155
	Northbound Right-Turn	314	**403***	149
	Southbound Left-Thru	647	**680***	84
	Southbound Right-Turn	300	**545***	15
	Eastbound Left	245	39	55
	Eastbound Thru	326	9	4
	Eastbound Right	135	14	0
	Westbound Left	190	105	55
	Westbound Thru-Right	305	11	7
All-Way Stop-Controlled	Northbound Left-Thru	314	79	80
	Northbound Right-Turn	314	152	137
	Southbound Left-Thru	647	210	62
	Southbound Right-Turn	300	197	19
	Eastbound Left	245	58	160
	Eastbound Thru	326	130	253
	Eastbound Right	135	77	133
	Westbound Left	190	**282***	65
	Westbound Thru-Right	305	**353***	93
Roundabout (1 Left-Thru-Right Lane in all directions)	Northbound Left-Thru-Right	299	118	168
	Southbound Left-Thru-Right	625	351	54
	Eastbound Left-Thru-Right	312	133	245
	Westbound Left-Thru-Right	288	**340***	90
Roundabout (1 Left-Thru and 1 Right Turn Lane in all directions)	Northbound Left-Thru	288	62	77
	Northbound Right-Turn	288	94	120
	Southbound Left-Thru	610	148	41
	Southbound Right-Turn	300	134	40
	Eastbound Left-Thru	297	99	227
	Eastbound Right-Turn	135	68	108
	Westbound Left-Thru	273	**319***	88
	Westbound Right-Turn	273	**321***	46
Signalized Intersection (With existing lane configuration)	Northbound Left-Thru	314	103	82
	Northbound Right-Turn	314	107	109
	Southbound Left-Thru	647	192	69
	Southbound Right-Turn	300	144	13
	Eastbound Left	245	68	102
	Eastbound Thru	326	101	156
	Eastbound Right	135	60	61
	Westbound Left	190	**278***	90
	Westbound Thru-Right	305	**329***	87

* Projected queue length exceeds storage capacity

As shown in **Table 5-3**, the queueing analysis results indicate the projected 95th percentile queue will exceed the available storage lengths for northbound left-thru turn, northbound right-thru turn, southbound left-thru turn, and southbound right-turn under the existing configuration/no build scenario in the future AM peak hour.

With the all-way stop-controlled intersection, westbound left and thru-right movements in the AM peak hour is expected to exceed capacity and queues could block back to Deer Pak Road potentially blocking the eastbound left-turns from Amberley Road to Deer Park Road. However, this movement is only 50 vehicles in existing conditions (77 vehicles in the future) so it seem unlikely that this will cause any major concerns.

Under the roundabout scenarios with 1 left-thru lane and 1 right-turn in all directions, the 95th percentile queues in the AM peak hour are forecast to exceed available storage lengths for the movements of westbound left-thru and right-turns in the future condition. In the roundabout scenario with 1 left-thru-right turn lane in all directions, the westbound left-thru-right turn lane is forecast to exceed the available storage length in the AM peak hour.

The signalized intersection scenario has also queue lengths that exceed the available storage length in the westbound left and thru-right movements in the AM peak hour in the future conditions.

6 ICE ALTERNATIVES ANALYSIS

Table 6-1 summarizes the comparison of the alternatives with respect to.

- Level of Service
- Build Cost
- Maintenance Cost
- Crash Mitigation
- Benefit to Cost

Table 6-1: Alternative Analysis Comparison Summary

Scenario/Alternatives	Existing		Future		Build Cost	Maintenance Cost	Crash Mitigation	Benefit vs Cost
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour				
	LOS	LOS	LOS	LOS				
Two-Way Stop-Controlled (Existing configuration)	**F**	C	**F**	**F**	N/A	Low	N/A	N/A
All-Way Stop-Controlled	D	B	**F**	C	Low	Low	Low	Low
Roundabout (1 Left-Thru and 1 Right Turn Lane in all directions)	A	A	C	A	High	Low	Medium	High
Roundabout (1 Left-Thru-Right Lane in all directions)	B	A	**E**	A	High	Low	Medium	Medium
Signalized Intersection (With existing lane configuration)	A	A	B	A	High	High	Medium	Medium

All four ICE alternatives would improve the overall level of service at the intersection in the peak hours compared to the current configuration for both Existing and Future conditions for the AM and PM peak hours.

However, the traffic counts indicate that high traffic volumes and poor LOS will likely only occur in a subset of the future AM peak hour. Midday traffic counts at the three adjacent intersections per **Appendix A**, were all less than 30% of the AM peak volumes indicating little need for additional traffic control outside the AM peak hour. Implementing an All Way Stop Controlled intersection would unnecessarily delay eastbound and westbound through traffic throughout the rest of the day and is not recommended.

Of the two roundabout options the single lane roundabout will operate satisfactorily in existing conditions but assuming continued growth in the City comparable to the last 10 years the single lane configuration would have a poor LOS for a portion of the future AM peak hour. The two-lane roundabout with a through-left lane and a right-turn lane would accommodate anticipated growth with an acceptable LOS, although due to its larger size both Right of Way requirements and construction costs would be higher than for the single lanes alternative. A benefit of both roundabout alternatives is that while vehicles need to slow down through

the intersection, the delay for the major east-west movement along Amberley Road is low in non-peak conditions compared to an All Way Stop Control or a Traffic Signal.

A traffic signal would provide the best peak hour LOS but has high construction and maintenance costs. Additional Right of Way might be needed if design were to include dedicated left-turn pockets (not assumed in the LOS analysis) for either the southbound or northbound (or both) movements which would increase construction costs. Furthermore the forecast volumes do not actually meet any on the signal Warrant when using MUTCD methodology. There may be a short period of time during the AM peak , likely 30 minutes when the merging of the southbound right-turn movement from Canongate Road to Amberly Road might be disrupted and could potentially justify a traffic signal but this needs to be offset against unnecessary delay caused during the rest of the day.

All of the four ICE alternatives result in the potential for Westbound queuing traffic blocking back to Deer Park Road for a small portion of the future AM peak hour, though the conflicting eastbound left-turn volume is not particularly heavy, so this is unlikely to be a major cause for concerns. If issues are noted in the future then this could be addressed by striping a “Keep Clear” box on Amberley Road at the intersection of Deer Park Road.

7 CONCLUSION

Of the four alternatives the two-lane roundabout alternative provides a good compromise of peak hour level of service, construction and ongoing maintenance cost and lack of disruption to traffic outside peak hours.

APPENDIX A – TRAFFIC COUNTS

Traffic Counts Summary

			Canongate From north				AMBERLY From East				CANONGATE From South				AMBERLY From West						
Period	Start	Type	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Vol	Ped	Truck %
AM	07:30	Light	100	48	50	0	31	235	194	0	122	13	36	0	67	75	21	0	992	0	
		Truck	2	0	0	0	2	10	0	0	1	0	0	0	0	15	0	0	30	0	
		All	102	48	50	0	33	245	194	0	123	13	36	0	67	90	21	0	1022	0	2.9%
Midday		Light																			
		Truck																			
		All																			
PM	15:15	Light	35	13	20	0	25	70	55	0	128	39	32	0	38	174	87	0	716	0	
		Truck	1	0	0	0	3	13	0	0	0	0	0	0	0	12	1	0	30	0	
		All	36	13	20	0	28	83	55	0	128	39	32	0	38	186	88	0	746	0	4.0%

			DEERPARK From North				AMBERLY From East				DEERPARK From South				AMBERLY From West						
Period	Start	Type	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Vol	Ped	Truck %
AM	07:45 AM	Light	55	0	5	0	20	379	0	0	0	0	0	0	0	193	47	0	699	0	
		Truck	0	0	0	0	5	14	0	0	0	0	0	0	0	11	3	0	33	0	
		All	55	0	5	0	25	393	0	0	0	0	0	0	0	204	50	0	732	0	4.5%
Midday	12:30 PM	Light	8	0	2	0	0	17	0	0	0	0	0	0	0	24	1	0	52	0	
		Truck	2	0	2	0	0	7	0	0	0	0	0	0	0	8	1	0	20	0	
		All	10	0	4	0	0	24	0	0	0	0	0	0	0	32	2	0	72	0	27.8%
PM	04:15 PM	Light	18	0	24	0	10	183	0	0	0	0	0	0	1	284	53	0	573	0	
		Truck	2	0	3	0	2	10	0	0	0	0	0	0	0	6	3	0	26	0	
		All	20	0	27	0	12	193	0	0	0	0	0	0	1	290	56	0	599	0	4.3%

			140 ST From North				AMBERLY From East				140 ST From South				AMBERLY From West						
Period	Start	Type	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Vol	Ped	Truck %
AM	07:45 AM	Light	0	0	0	0	0	367	25	0	19	0	36	11	20	166	0	0	633	11	
		Truck	0	0	0	0	0	12	7	0	7	0	4	0	2	10	0	1	42	1	
		All	0	0	0	0	0	379	32	0	26	0	40	11	22	176	0	1	675	12	6.2%
Midday	12:00 PM	Light	0	0	0	0	0	67	5	0	3	0	8	0	7	65	0	0	155	0	
		Truck	0	0	0	0	0	21	0	0	1	0	1	0	1	13	0	0	37	0	
		All	0	0	0	0	0	88	5	0	4	0	9	0	8	78	0	0	192	0	19.3%
PM	03:15 PM	Light	0	0	0	0	0	147	21	0	29	0	22	12	15	270	0	0	504	12	
		Truck	0	0	0	0	0	17	4	0	3	0	4	0	3	8	0	0	39	0	
		All	0	0	0	0	0	164	25	0	32	0	26	12	18	278	0	0	543	12	7.2%

			143 St From North				AMBERLY From East				143 St From South				AMBERLY From West						
Period	Start	Type	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Vol	Ped	Truck %
AM	07:30 AM	Light	69	6	6	1	3	284	20	1	22	19	29	0	12	109	73	0	652	2	
		Truck	1	0	0	0	0	19	1	0	0	1	0	0	0	15	2	0	39	0	
		All	70	6	6	1	3	303	21	1	22	20	29	0	12	124	75	0	691	2	5.6%
Midday	12:00 PM	Light	17	7	2	2	2	49	3	0	5	7	8	0	5	48	17	0	170	2	
		Truck	0	0	0	0	0	20	0	0	0	0	0	0	0	11	0	0	31	0	
		All	17	7	2	2	2	69	3	0	5	7	8	0	5	59	17	0	201	2	15.4%
PM	03:15 PM	Light	47	14	6	3	10	113	9	8	7	14	10	0	27	191	85	0	533	11	
		Truck	1	0	0	0	0	15	2	0	1	0	1	0	1	11	0	0	32	0	
		All	48	14	6	3	10	128	11	8	8	14	11	0	28	202	85	0	565	11	5.7%

			CANNONGATE Southbound								CANNONGATE Northbound										
Period	Start	Type	Right	Thru	Left	Peds					Right	Thru	Left	Peds					Vol	Ped	Truck %
AM	07:30	Light		238		0						93		0					331	0	0.9%
		Truck		2		0						1		0					3	0	0
		All		240		0						94		0					334	0	0.0%
Midday	11:30	Light		63		0						73		0					136	0	2.9%
		Truck		1		0						3		0					4	0	0
		All		64		0						76		0					140	0	0
PM		Light		0		0						0		0					0	0	0.0%
		Truck		0		0						0		0					0	0	0
		All		0		0						0		0					0	0	0

Canongate Road and Amberly Road AM Counts

Existing			CANNONGATE Southbound				AMBERLY Westbound				CANNONGATE Northbound				AMBERLY Eastbound						
	Start	Type	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Vol	Ped	Truck %
AM	07:30	Light	100	48	50	0	31	235	194	0	122	13	36	0	67	75	21	0	992	0	2.9%
		Truck	2	0	0	0	2	10	0	0	1	0	0	0	0	15	0	0	30	0	
	Peak Hour	All	102	48	50	0	33	245	194	0	123	13	36	0	67	90	21	0	1022	0	
	0700-0800	Light	81	15	66	0	26	162	47	0	13	2	6	0	22	48	14	0	502	0	4.9%
		Truck	2	0	1	0	4	7	0	0	0	0	0	0	0	12	0	0	26	0	
		All	83	15	67	0	30	169	47	0	13	2	6	0	22	60	14	0	528	0	
	0800-0900	Light	91	36	22	0	20	192	175	0	116	12	32	0	53	67	22	0	838	0	3.5%
		Truck	1	0	0	0	0	13	0	0	1	0	0	0	1	13	1	0	30	0	
		All	92	36	22	0	20	205	175	0	117	12	32	0	54	80	23	0	868	0	

PHF 0.64

Future			CANNONGATE Southbound				AMBERLY Westbound				CANNONGATE Northbound				AMBERLY Eastbound							Growth	Years	Increase
	Start	Type	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Vol	Ped	Truck %	1.024	15	1.427
AM	Peak Hour	All	159	75	78	0	51	382	302	0	192	20	56	0	104	140	33	0	1592	0	2.9%	1.03	15	1.558
	0700-0800	All	129	23	104	0	47	263	73	0	20	3	9	0	34	93	22	0						
	0800-0900	All	143	56	34	0	31	319	273	0	182	19	50	0	84	125	36	0						

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	CANONGATE Southbound				AMBERLY Westbound				CANONGATE Northbound				AMBERLY Eastbound			
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds
07:00	16	0	16	0	8	37	0	0	0	0	0	0	1	7	2	0
07:15	27	0	16	0	4	44	3	0	0	0	0	0	1	12	2	0
07:30	18	2	21	0	11	33	7	0	1	1	2	0	7	18	7	0
07:45	20	13	13	0	3	48	37	0	12	1	4	0	13	11	3	0
08:00	37	17	10	0	7	78	95	0	67	5	7	0	39	18	6	0
08:15	25	16	6	0	10	76	55	0	42	6	23	0	8	28	5	0
08:30	17	3	1	0	1	30	25	0	5	1	2	0	4	11	7	0
08:45	12	0	5	0	2	8	0	0	2	0	0	0	2	10	4	0

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	CANONGATE Southbound				AMBERLY Westbound				CANONGATE Northbound				AMBERLY Eastbound			
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds
07:00	0	0	1	0	2	5	0	0	0	0	0	0	0	3	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
07:30	1	0	0	0	1	0	0	0	0	0	0	0	0	6	0	0
07:45	1	0	0	0	1	2	0	0	0	0	0	0	0	1	0	0
08:00	0	0	0	0	0	3	0	0	1	0	0	0	0	6	0	0
08:15	0	0	0	0	0	5	0	0	0	0	0	0	0	2	0	0
08:30	1	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
08:45	0	0	0	0	0	1	0	0	0	0	0	0	1	3	1	0

Canongate Road and Amberly Road PM Counts

Existing Year			CANNONGATE Southbound				AMBERLY Westbound				CANNONGATE Northbound				AMBERLY Eastbound						
	Start	Type	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Vol	Ped	Truck %
PM	15:15	Light	35	13	20	0	25	70	55	0	128	39	32	0	38	174	87	0	716	0	4.0%
		Truck	1	0	0	0	3	13	0	0	0	0	0	0	0	12	1	0	30	0	
	Peak Hour	All	36	13	20	0	28	83	55	0	128	39	32	0	38	186	88	0	746	0	
	1500-1600	Light	37	16	20	0	22	64	64	0	123	31	29	0	42	145	75	0	668	0	4.6%
		Truck	1	0	1	0	3	14	0	0	0	0	0	0	0	12	1	0	32	0	
		All	38	16	21	0	25	78	64	0	123	31	29	0	42	157	76	0	700	0	
	1600-1700	Light	28	6	39	0	51	83	15	0	29	15	18	0	7	174	83	0	548	0	3.7%
		Truck	1	0	3	0	0	14	0	0	0	0	0	0	0	3	0	0	21	0	
		All	29	6	42	0	51	97	15	0	29	15	18	0	7	177	83	0	569	0	

PHF 0.76

Future Year			CANNONGATE Southbound				AMBERLY Westbound				CANNONGATE Northbound				AMBERLY Eastbound							Growth	Years	Increase
			Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Vol	Ped	Truck %	1.024	15	1.427
PM	Peak Hour	All	56	20	31	0	44	129	86	0	199	61	50	0	59	290	137	0	1162	0	4.0%	1.03	15	1.558
	1500-1600	All	59	25	33	0	39	122	100	0	192	48	45	0	65	245	118	0	1091	0				
	1600-1700	All	45	9	65	0	79	151	23	0	45	23	28	0	11	276	129	0	884	0				

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	CANNONGATE Southbound				AMBERLY Westbound				CANNONGATE Northbound				AMBERLY Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
15:00	11	5	8	0	5	10	13	0	4	0	3	0	7	16	9	0	91
15:15	8	9	8	0	4	18	33	0	13	4	3	0	19	28	11	0	158
15:30	10	1	3	0	6	21	11	0	83	20	15	0	8	43	16	0	237
15:45	8	1	1	0	7	15	7	0	23	7	8	0	8	58	39	0	182
16:00	9	2	8	0	8	16	4	0	9	8	6	0	3	45	21	0	139
16:15	4	2	9	0	11	21	7	0	8	1	2	0	3	41	18	0	127
16:30	5	2	13	0	16	23	4	0	0	1	3	0	1	40	23	0	131
16:45	10	0	9	0	16	23	0	0	12	5	7	0	0	48	21	0	151
17:00	7	0	9	0	12	24	0	0	0	1	3	0	0	41	19	0	116
17:15	14	0	9	0	14	17	1	0	1	1	0	0	0	46	21	0	124

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	CANNONGATE Southbound				AMBERLY Westbound				CANNONGATE Northbound				AMBERLY Eastbound			
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds
15:00	1	0	1	0	0	5	0	0	0	0	0	0	0	2	0	0
15:15	0	0	0	0	0	5	0	0	0	0	0	0	0	1	1	0
15:30	0	0	0	0	3	2	0	0	0	0	0	0	0	5	0	0
15:45	0	0	0	0	0	2	0	0	0	0	0	0	0	4	0	0
16:00	1	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
16:15	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
16:30	0	0	2	0	0	4	0	0	0	0	0	0	0	1	0	0
16:45	0	0	1	0	0	3	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	1	4	0	0	0	0	0	0	0	1	0	0
17:15	0	0	0	0	0	5	0	0	0	0	0	0	0	3	0	0

Deerpark Road and Amberly Road Counts

PCE Factor 2.0

			DEERPARK From North				AMBERLY From East				DEERPARK From South				AMBERLY From West						
Period	Start	Type	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Vol	Ped	Truck %
AM	07:45 AM	Light	55	0	5	0	20	379	0	0	0	0	0	0	0	193	47	0	699	0	4.5%
		Truck	0	0	0	0	5	14	0	0	0	0	0	0	0	11	3	0	33	0	
		All	55	0	5	0	25	393	0	0	0	0	0	0	0	204	50	0	732	0	
Midday	12:30 PM	Light	8	0	2	0	0	17	0	0	0	0	0	0	0	24	1	0	52	0	27.8%
		Truck	2	0	2	0	0	7	0	0	0	0	0	0	0	8	1	0	20	0	
		All	10	0	4	0	0	24	0	0	0	0	0	0	0	32	2	0	72	0	
PM	04:15 PM	Light	18	0	24	0	10	183	0	0	0	0	0	0	1	284	53	0	573	0	4.3%
		Truck	2	0	3	0	2	10	0	0	0	0	0	0	0	6	3	0	26	0	
		All	20	0	27	0	12	193	0	0	0	0	0	0	1	290	56	0	599	0	

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	DEERPARK From North				AMBERLY From East				DEERPARK From South				AMBERLY From West					
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Tot	Peak
07:00 AM	1	0	3	0	8	47	0	0	0	0	0	0	0	15	5	0	79	399
07:15 AM	3	0	6	0	3	61	0	0	0	0	0	0	0	27	9	0	109	564
07:30 AM	6	0	2	0	4	47	0	0	0	0	0	0	0	14	1	0	74	675
07:45 AM	9	0	3	0	6	72	0	0	0	0	0	0	0	43	4	0	137	699
08:00 AM	17	0	2	0	6	127	0	0	0	0	0	0	0	72	20	0	244	637
08:15 AM	19	0	0	0	4	122	0	0	0	0	0	0	0	57	18	0	220	393
08:30 AM	10	0	0	0	4	58	0	0	0	0	0	0	0	21	5	0	98	173
08:45 AM	6	0	0	0	0	51	0	0	0	0	0	0	0	14	4	0	75	75
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Tot	Peak
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
12:30 PM	1	0	2	0	0	17	0	0	0	0	0	0	0	24	1	0	45	185
12:45 PM	1	0	2	0	0	15	0	0	0	0	0	0	0	25	4	0	47	184
01:00 PM	3	0	5	0	3	15	0	0	0	0	0	0	0	24	2	0	52	172
01:15 PM	3	0	3	0	3	16	0	0	0	0	0	0	0	13	3	0	41	120
01:30 PM	2	0	0	0	2	14	0	0	0	0	0	0	0	20	6	0	44	79
01:45 PM	2	0	1	0	2	15	0	0	0	0	0	0	0	13	2	0	35	35
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:00 PM	8	0	1	0	4	29	0	0	0	0	0	0	0	33	3	0	78	544
04:15 PM	4	0	4	0	2	64	0	0	0	0	0	0	0	41	4	0	119	573
04:30 PM	4	0	4	0	5	43	0	0	0	0	0	0	1	109	30	0	196	559
04:45 PM	5	0	4	0	3	40	0	0	0	0	0	0	0	87	12	0	151	453
05:00 PM	5	0	12	0	0	36	0	0	0	0	0	0	0	47	7	0	107	445
05:15 PM	4	0	2	0	4	23	0	0	0	0	0	0	0	66	6	0	105	445
05:30 PM	3	0	3	0	3	35	0	0	0	0	0	0	0	40	6	0	90	446
05:45 PM	2	0	4	0	4	37	0	0	0	0	0	0	0	93	3	0	143	356
06:00 PM	5	0	6	0	4	37	0	0	0	0	0	0	0	51	4	0	107	213
06:15 PM	3	0	1	0	0	36	0	0	0	0	0	0	0	61	5	0	106	106

File Name: C:\SharePoint\ITERIS INC\Systems - Midwest - Active Projects\11696 - City of Waverly NE ICE Study\2 TMCs\Deer Park & Amberly.ppd
Start Date: 5/11/2022
Start Time: 7:00:00 AM
Site Code: 00000000
Comment 1: Default Comments
Comment 2: Change These in The Preferences Window
Comment 3: Select File/Preference in the Main Scree
Comment 4: Then Click the Comments Tab

	DEERPARK From North				AMBERLY From East				DEERPARK From South				AMBERLY From West			
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds
07:00 AM	2	0	1	0	0	3	0	0	0	0	0	0	0	3	1	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
07:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0
07:45 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	2	0	0
08:00 AM	0	0	0	0	2	1	0	0	0	0	0	0	0	4	0	0
08:15 AM	0	0	0	0	3	4	0	0	0	0	0	0	0	2	2	0
08:30 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	3	1	0
08:45 AM	0	0	1	0	1	2	0	0	0	0	0	0	0	4	1	0
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	1	0	2	0	0	4	0	0	0	0	0	0	0	4	0	0
12:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0
01:00 PM	1	0	0	0	0	2	0	0	0	0	0	0	0	1	1	0
01:15 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	3	1	0
01:30 PM	1	0	0	0	1	6	0	0	0	0	0	0	0	1	0	0
01:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	4	0	3	1	0	0	0	0	0	0	0	0	0	0
04:15 PM	1	0	2	0	1	1	0	0	0	0	0	0	0	2	0	0
04:30 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	2	1	0
04:45 PM	0	0	1	0	0	2	0	0	0	0	0	0	0	1	1	0
05:00 PM	1	0	0	0	1	2	0	0	0	0	0	0	0	1	1	0
05:15 PM	2	0	0	0	0	5	0	0	0	0	0	0	0	3	1	0
05:30 PM	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
05:45 PM	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0
06:00 PM	0	0	1	0	1	1	0	0	0	0	0	0	0	0	1	0
06:15 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	3	0	0

140th Street and Amberly Road Counts

			140 ST From North				AMBERLY From East				140 ST From South				AMBERLY From West						
	Start	Type	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Vol	Ped	Truck %
AM	07:45 AM	Light	0	0	0	0	0	367	25	0	19	0	36	11	20	166	0	0	633	11	6.2%
		Truck	0	0	0	0	0	12	7	0	7	0	4	0	2	10	0	1	42	1	
		All	0	0	0	0	0	379	32	0	26	0	40	11	22	176	0	1	675	12	
Midday	12:00 PM	Light	0	0	0	0	0	67	5	0	3	0	8	0	7	65	0	0	155	0	19.3%
		Truck	0	0	0	0	0	21	0	0	1	0	1	0	1	13	0	0	37	0	
		All	0	0	0	0	0	88	5	0	4	0	9	0	8	78	0	0	192	0	
PM	03:15 PM	Light	0	0	0	0	0	147	21	0	29	0	22	12	15	270	0	0	504	12	7.2%
		Truck	0	0	0	0	0	17	4	0	3	0	4	0	3	8	0	0	39	0	
		All	0	0	0	0	0	164	25	0	32	0	26	12	18	278	0	0	543	12	

File Name: C:\SharePoint\ITERIS INC\Systems - Midwest - Active Projects\11696 - City of Waverly NE ICE Study\2 TMCs\140th & Amberly.ppd
Start Date: 5/4/2022
Start Time: 6:30:00 AM
Site Code: 00000000
Comment 1: Default Comments
Comment 2: Change These in The Preferences Window
Comment 3: Select File/Preference in the Main Scree
Comment 4: Then Click the Comments Tab

	140 ST From North				AMBERLY From East				140 ST From South				AMBERLY From West					
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Tot	Peak
6:45 AM	0	0	0	0	0	68	1	0	0	0	2	0	6	15	0	0	92	373
07:00 AM	0	0	0	0	0	50	9	0	6	0	10	0	10	16	1	0	102	400
07:15 AM	0	0	0	0	0	42	4	0	0	0	12	0	7	19	0	0	84	526
07:30 AM	0	0	0	0	0	51	6	0	2	0	10	0	5	21	0	0	95	641
07:45 AM	0	0	0	0	0	57	4	0	2	0	9	4	7	36	0	0	119	644
08:00 AM	0	0	0	0	0	120	10	0	7	0	12	4	4	71	0	0	228	525
08:15 AM	0	0	0	0	0	117	10	0	7	0	10	2	7	46	0	0	199	297
08:30 AM	0	0	0	0	0	73	1	0	3	0	5	1	2	13	0	0	98	98
08:45 AM	0	0	0	0	0	8	2	0	0	0	1	0	1	11	0	0		
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Tot	Peak
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
11:30 AM	0	0	0	0	0	14	0	0	2	0	1	1	1	16	0	0	35	146
11:45 AM	0	0	0	0	0	10	1	0	0	0	0	0	2	9	0	0	22	145
12:00 PM	0	0	0	0	0	15	3	0	0	0	2	0	3	23	0	0	46	155
12:15 PM	0	0	0	0	0	22	0	0	0	0	2	0	3	16	0	0	43	109
12:30 PM	0	0	0	0	0	12	2	0	1	0	2	0	1	16	0	0	34	66
12:45 PM	0	0	0	0	0	18	0	0	2	0	2	0	0	10	0	0	32	32
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
03:00 PM	0	0	0	0	0	22	2	0	5	0	2	0	4	25	0	0	60	489
03:15 PM	0	0	0	0	0	57	5	0	3	0	1	1	7	31	0	0	105	516
03:30 PM	0	0	0	0	0	45	8	0	8	0	6	7	1	95	0	0	170	487
03:45 PM	0	0	0	0	0	19	6	0	13	0	8	1	4	103	0	0	154	401
04:00 PM	0	0	0	0	0	26	2	0	5	0	7	3	3	41	0	0	87	390
04:15 PM	0	0	0	0	0	21	1	0	1	0	3	1	4	45	0	0	76	457
04:30 PM	0	0	0	0	0	26	1	0	5	0	3	2	5	42	0	0	84	501
04:45 PM	0	0	0	0	0	42	2	0	1	0	5	2	9	78	0	4	143	417
05:00 PM	0	0	0	0	0	42	5	0	4	0	10	3	11	79	0	0	154	274
05:15 PM	0	0	0	0	0	31	1	0	1	0	6	0	7	74	0	0	120	120

File Name: C:\SharePoint\ITERIS INC\Systems - Midwest - Active Projects\11696 - City of Waverly NE ICE Study\2 TMCs\140th & Amberly.ppd
Start Date: 5/4/2022
Start Time: 6:30:00 AM
Site Code: 00000000
Comment 1: Default Comments
Comment 2: Change These in The Preferences Window
Comment 3: Select File/Preference in the Main Scree
Comment 4: Then Click the Comments Tab

	140 ST From North				AMBERLY From East				140 ST From South				AMBERLY From West			
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds
6:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
07:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	1	4	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
07:30 AM	0	0	0	0	0	2	0	0	1	0	0	0	2	3	0	0
07:45 AM	0	0	0	0	0	4	1	0	2	0	1	0	0	5	0	0
08:00 AM	0	0	0	0	0	0	6	0	2	0	0	0	2	1	0	1
08:15 AM	0	0	0	0	0	6	0	0	3	0	3	0	0	3	0	0
08:30 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	0
11:45 AM	0	0	0	0	0	6	0	0	1	0	0	0	0	1	0	0
12:00 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	4	0	0
12:15 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0
12:30 PM	0	0	0	0	0	4	0	0	1	0	0	0	1	3	0	0
12:45 PM	0	0	0	0	0	8	0	0	0	0	1	0	0	5	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
03:15 PM	0	0	0	0	0	5	3	0	0	0	0	0	3	3	0	0
03:30 PM	0	0	0	0	0	4	0	0	3	0	3	0	0	2	0	0
03:45 PM	0	0	0	0	0	5	1	0	0	0	0	0	0	2	0	0
04:00 PM	0	0	0	0	0	3	0	0	0	0	1	0	0	1	0	0
04:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0
04:45 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	5	0	0
05:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0

143rd Street and Amberly Road Counts

			143 From North				AMBERLY From East				143 From South				AMBERLY From West						
	Start	Type	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Vol	Ped	Truck %
AM	07:30 AM	Light	69	6	6	1	3	284	20	1	22	19	29	0	12	109	73	0	652	2	5.6%
		Truck	1	0	0	0	0	19	1	0	0	1	0	0	0	15	2	0	39	0	
		All	70	6	6	1	3	303	21	1	22	20	29	0	12	124	75	0	691	2	
Midday	12:00 PM	Light	17	7	2	2	2	49	3	0	5	7	8	0	5	48	17	0	170	2	15.4%
		Truck	0	0	0	0	0	20	0	0	0	0	0	0	0	11	0	0	31	0	
		All	17	7	2	2	2	69	3	0	5	7	8	0	5	59	17	0	201	2	
PM	03:15 PM	Light	47	14	6	3	10	113	9	8	7	14	10	0	27	191	85	0	533	11	5.7%
		Truck	1	0	0	0	0	15	2	0	1	0	1	0	1	11	0	0	32	0	
		All	48	14	6	3	10	128	11	8	8	14	11	0	28	202	85	0	565	11	

File Name: C:\SharePoint\ITERIS INC\Systems - Midwest - Active Projects\11696 - City of Waverly NE ICE Study\2 TMCs\143rd & Amberl
Start Date: 5/4/2022
Start Time: 7:00:00 AM
Site Code: 00000000
Comment 1: Default Comments
Comment 2: Change These in The Preferences Window
Comment 3: Select File/Preference in the Main Scree
Comment 4: Then Click the Comments Tab

	143 From North				AMBERLY From East				143 From South				AMBERLY From West					
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Tot	Peak
07:00 AM	12	1	1	2	0	39	3	1	1	1	3	0	1	18	5	0	88	392
07:15 AM	10	5	3	0	0	28	3	0	5	3	10	0	4	14	2	0	87	547
07:30 AM	16	2	3	1	1	37	1	0	1	4	2	0	1	17	6	0	92	654
07:45 AM	12	1	2	0	1	53	4	0	3	6	5	0	3	27	8	0	125	650
08:00 AM	27	3	0	0	1	101	10	0	12	6	5	0	7	33	38	0	243	554
08:15 AM	14	0	1	0	0	93	5	1	6	3	17	0	1	32	21	0	194	311
08:30 AM	11	0	3	0	0	45	2	1	0	2	9	0	1	13	1	0	88	117
08:45 AM	5	0	0	0	1	7	1	1	0	3	0	0	0	8	3	0	29	29
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Tot	Peak
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
11:30 AM	5	0	3	1	0	10	0	0	1	1	0	1	1	9	6	0	38	154
11:45 AM	2	0	0	0	1	11	1	0	0	1	1	0	1	9	2	0	29	158
12:00 PM	5	0	0	0	0	11	0	0	3	1	3	0	1	19	1	0	44	172
12:15 PM	4	5	1	0	0	15	1	0	1	1	0	0	2	7	6	0	43	128
12:30 PM	3	0	1	2	1	10	1	0	0	4	4	0	0	8	8	0	42	85
12:45 PM	5	2	0	0	1	13	1	0	1	1	1	0	2	14	2	0	43	43
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
03:00 PM	5	2	4	0	3	19	1	0	3	2	1	0	2	17	10	0	69	518
03:15 PM	16	3	2	0	2	44	4	0	2	5	4	0	2	22	12	0	118	544
03:30 PM	15	5	2	2	3	37	2	4	2	3	1	0	10	65	31	0	182	519
03:45 PM	8	4	1	0	2	11	1	3	1	4	3	0	7	73	31	0	149	423
04:00 PM	8	2	1	1	3	21	2	1	2	2	2	0	8	31	11	0	95	413
04:15 PM	6	6	1	4	1	16	4	4	0	4	0	0	5	34	8	0	93	456
04:30 PM	5	1	1	0	1	21	3	0	2	3	3	0	7	30	9	0	86	494
04:45 PM	5	4	1	0	4	31	6	0	2	4	6	0	6	48	22	0	139	408
05:00 PM	2	5	2	0	2	30	7	0	4	8	2	0	4	59	13	0	138	269
05:15 PM	3	4	4	0	2	27	2	1	6	6	2	0	13	48	13	0	131	131

File Name: C:\SharePoint\ITERIS INC\Systems - Midwest - Active Projects\11696 - City of Waverly NE ICE Study\2 TMCs\143rd & Amberly.ppd
Start Date: 5/4/2022
Start Time: 7:00:00 AM
Site Code: 00000000
Comment 1: Default Comments
Comment 2: Change These in The Preferences Window
Comment 3: Select File/Preference in the Main Scree
Comment 4: Then Click the Comments Tab

	143 From North				AMBERLY From East				143 From South				AMBERLY From West			
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds
07:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	4	0	0
07:45 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	5	0	0
08:00 AM	0	0	0	0	0	6	1	0	0	0	0	0	0	2	1	0
08:15 AM	1	0	0	0	0	6	0	0	0	1	0	0	0	4	1	0
08:30 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0
08:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	1	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0
11:45 AM	0	0	0	0	0	6	0	0	0	1	0	0	0	2	0	0
12:00 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	3	0	0
12:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0
12:30 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
12:45 PM	0	0	0	0	0	8	0	0	0	0	0	0	0	3	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0
03:15 PM	0	0	0	0	0	8	0	0	0	0	0	0	0	3	0	0
03:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	1	5	0	0
03:45 PM	1	0	0	0	0	3	1	0	1	0	1	0	0	2	0	0
04:00 PM	0	0	0	0	0	2	1	0	0	0	0	0	0	1	0	0
04:15 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0
04:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0

Canongate Road Overpass Counts

			CANNONGATE Southbound								CANNONGATE Northbound										
	Start	Type	Right	Thru	Left	Peds					Right	Thru	Left	Peds					Vol	Ped	Truck %
AM	07:30	Light		238								93							331	0	0.9%
		Truck		2								1							3	0	
		All		240								94							334	0	
Midday	11:30	Light		63								73							136	0	2.9%
		Truck		1								3							4	0	
		All		64								76							140	0	
PM																					

File Name: C:\SharePoint\ITERIS INC\Systems - Midwest - Active Projects\11696 - City of Waverly NE ICE Study\2 TMCs\Cannongate Overpas
Start Date: 5/12/2022
Start Time: 7:00:00 AM
Site Code: 00000000
Comment 1: Default Comments
Comment 2: Change These in The Preferences Window
Comment 3: Select File/Preference in the Main Scree
Comment 4: Then Click the Comments Tab

	CANNONGATE Southbound				NONE Westbound				CANNONGATE Northbound				NONE Eastbound			
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds
07:00	0	42	0	0	0	0	0	0	0	13	0	0	0	0	0	0
07:15	0	35	0	0	0	0	0	0	0	20	0	0	0	0	0	0
07:30	0	66	0	0	0	0	0	0	0	15	0	0	0	0	0	0
07:45	0	64	0	0	0	0	0	0	0	25	0	0	0	0	0	0
08:00	0	69	0	0	0	0	0	0	0	24	0	0	0	0	0	0
08:15	0	39	0	0	0	0	0	0	0	29	0	0	0	0	0	0
08:30	0	27	0	0	0	0	0	0	0	10	0	0	0	0	0	0
08:45	0	22	0	0	0	0	0	0	0	4	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	16	0	0	0	0	0	0	0	18	0	0	0	0	0	0
11:45	0	13	0	0	0	0	0	0	0	20	0	0	0	0	0	0
12:00	0	20	0	0	0	0	0	0	0	15	0	0	0	0	0	0
12:15	0	14	0	0	0	0	0	0	0	20	0	0	0	0	0	0
12:30	0	9	0	0	0	0	0	0	0	20	0	0	0	0	0	0
12:45	0	12	0	0	0	0	0	0	0	12	0	0	0	0	0	0

File Name: C:\SharePoint\ITERIS INC\Systems - Midwest - Active Projects\11696 - City of Waverly NE ICE Study\2 TMCs\Cannongate Overpas
Start Date: 5/12/2022
Start Time: 7:00:00 AM
Site Code: 00000000
Comment 1: Default Comments
Comment 2: Change These in The Preferences Window
Comment 3: Select File/Preference in the Main Scree
Comment 4: Then Click the Comments Tab

	CANNONGATE Southbound				NONE Westbound				CANNONGATE Northbound				NONE Eastbound			
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds
07:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
07:15	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
07:30	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
08:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
12:15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0

APPENDIX B – LEVEL OF SERVICE ANALYSIS

Existing Year LOS

Intersection	
Int Delay, s/veh	70.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	90	67	194	245	33	36	13	123	50	48	102
Future Vol, veh/h	21	90	67	194	245	33	36	13	123	50	48	102
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	245	-	135	190	-	-	-	-	0	-	-	300
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	64	64	64	64	64	64	64	64	64	64	64	64
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	33	141	105	303	383	52	56	20	192	78	75	159

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	435	0	0	246	0	0	1260	1248	141	1381	1327	409
Stage 1	-	-	-	-	-	-	207	207	-	1015	1015	-
Stage 2	-	-	-	-	-	-	1053	1041	-	366	312	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1119	-	-	1314	-	-	147	172	904	121	155	640
Stage 1	-	-	-	-	-	-	793	729	-	286	315	-
Stage 2	-	-	-	-	-	-	272	306	-	651	656	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1119	-	-	1314	-	-	~ 44	128	904	~ 68	116	640
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 44	128	-	~ 68	116	-
Stage 1	-	-	-	-	-	-	770	708	-	278	242	-
Stage 2	-	-	-	-	-	-	108	235	-	483	637	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	3.5	122.8	244.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	53	904	1119	-	-	1314	-	-	85	640
HCM Lane V/C Ratio	1.445	0.213	0.029	-	-	0.231	-	-	1.801	0.249
HCM Control Delay (s)	$ 405.7	10.1	8.3	-	-	8.6	-	-	$ 486.2	12.5
HCM Lane LOS	F	B	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	7	0.8	0.1	-	-	0.9	-	-	12.9	1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	88	186	38	55	83	28	32	39	128	20	13	36
Future Vol, veh/h	88	186	38	55	83	28	32	39	128	20	13	36
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	245	-	135	190	-	-	-	-	0	-	-	300
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	116	245	50	72	109	37	42	51	168	26	17	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	146	0	0	295	0	0	757	767	245	884	799	128
Stage 1	-	-	-	-	-	-	477	477	-	272	272	-
Stage 2	-	-	-	-	-	-	280	290	-	612	527	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.14	6.54	6.24	7.14	6.54	6.24
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.54	-	6.14	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.54	-	6.14	5.54	-
Follow-up Hdwy	2.236	-	-	2.236	-	-	3.536	4.036	3.336	3.536	4.036	3.336
Pot Cap-1 Maneuver	1424	-	-	1255	-	-	322	330	789	264	316	917
Stage 1	-	-	-	-	-	-	565	553	-	730	681	-
Stage 2	-	-	-	-	-	-	722	669	-	477	525	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1424	-	-	1255	-	-	261	286	789	161	274	917
Mov Cap-2 Maneuver	-	-	-	-	-	-	261	286	-	161	274	-
Stage 1	-	-	-	-	-	-	519	508	-	671	642	-
Stage 2	-	-	-	-	-	-	628	631	-	310	482	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.2	2.7	15.8	18.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	274	789	1424	-	-	1255	-	-	192	917
HCM Lane V/C Ratio	0.341	0.213	0.081	-	-	0.058	-	-	0.226	0.052
HCM Control Delay (s)	24.8	10.8	7.8	-	-	8	-	-	29.1	9.1
HCM Lane LOS	C	B	A	-	-	A	-	-	D	A
HCM 95th %tile Q(veh)	1.5	0.8	0.3	-	-	0.2	-	-	0.8	0.2

Intersection	
Intersection Delay, s/veh	32.8
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	90	67	194	245	33	36	13	123	50	48	102
Future Vol, veh/h	21	90	67	194	245	33	36	13	123	50	48	102
Peak Hour Factor	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	33	141	105	303	383	52	56	20	192	78	75	159
Number of Lanes	1	1	1	1	1	0	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	3
HCM Control Delay	15.7	51.2	17.7	17.5
HCM LOS	C	F	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	73%	0%	100%	0%	0%	100%	0%	51%	0%
Vol Thru, %	27%	0%	0%	100%	0%	0%	88%	49%	0%
Vol Right, %	0%	100%	0%	0%	100%	0%	12%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	49	123	21	90	67	194	278	98	102
LT Vol	36	0	21	0	0	194	0	50	0
Through Vol	13	0	0	90	0	0	245	48	0
RT Vol	0	123	0	0	67	0	33	0	102
Lane Flow Rate	77	192	33	141	105	303	434	153	159
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.208	0.462	0.09	0.365	0.25	0.73	0.974	0.404	0.377
Departure Headway (Hd)	9.762	8.662	9.855	9.337	8.612	8.671	8.07	9.498	8.515
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	368	415	364	385	417	418	452	380	422
Service Time	7.517	6.417	7.615	7.097	6.372	6.419	5.818	7.251	6.267
HCM Lane V/C Ratio	0.209	0.463	0.091	0.366	0.252	0.725	0.96	0.403	0.377
HCM Control Delay	15.1	18.7	13.6	17.4	14.2	31.6	64.9	18.6	16.4
HCM Lane LOS	C	C	B	C	B	D	F	C	C
HCM 95th-tile Q	0.8	2.4	0.3	1.6	1	5.7	12	1.9	1.7

Intersection	
Intersection Delay, s/veh	11.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	88	186	38	55	83	28	32	39	128	20	13	36
Future Vol, veh/h	88	186	38	55	83	28	32	39	128	20	13	36
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	116	245	50	72	109	37	42	51	168	26	17	47
Number of Lanes	1	1	1	1	1	0	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	3
HCM Control Delay	12.7	11.6	11.3	10.5
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	45%	0%	100%	0%	0%	100%	0%	61%	0%
Vol Thru, %	55%	0%	0%	100%	0%	0%	75%	39%	0%
Vol Right, %	0%	100%	0%	0%	100%	0%	25%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	71	128	88	186	38	55	111	33	36
LT Vol	32	0	88	0	0	55	0	20	0
Through Vol	39	0	0	186	0	0	83	13	0
RT Vol	0	128	0	0	38	0	28	0	36
Lane Flow Rate	93	168	116	245	50	72	146	43	47
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.182	0.285	0.221	0.434	0.079	0.147	0.268	0.091	0.086
Departure Headway (Hd)	7.031	6.097	6.885	6.379	5.671	7.291	6.604	7.547	6.529
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	508	586	520	563	629	490	542	472	545
Service Time	4.805	3.87	4.648	4.142	3.433	5.064	4.377	5.334	4.316
HCM Lane V/C Ratio	0.183	0.287	0.223	0.435	0.079	0.147	0.269	0.091	0.086
HCM Control Delay	11.4	11.3	11.6	14	8.9	11.3	11.8	11.1	9.9
HCM Lane LOS	B	B	B	B	A	B	B	B	A
HCM 95th-tile Q	0.7	1.2	0.8	2.2	0.3	0.5	1.1	0.3	0.3

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	279	738	268	312
Demand Flow Rate, veh/h	287	760	277	321
Vehicles Circulating, veh/h	469	113	259	764
Vehicles Exiting, veh/h	616	423	497	109
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.6	8.7	4.6	7.9
Approach LOS	A	A	A	A

Lane	Left	Right	Left	Right	Left	Right	Left	Right
Designated Moves	LT	R	LT	R	LT	R	LT	R
Assumed Moves	LT	R	LT	R	LT	R	LT	R
RT Channelized								
Lane Util	0.624	0.376	0.929	0.071	0.285	0.715	0.489	0.511
Follow-Up Headway, s	2.536	2.536	2.536	2.536	2.536	2.536	2.536	2.536
Critical Headway, s	4.550	4.550	4.550	4.550	4.550	4.550	4.550	4.550
Entry Flow, veh/h	179	108	706	54	79	198	157	164
Cap Entry Lane, veh/h	926	926	1281	1281	1121	1121	707	707
Entry HV Adj Factor	0.971	0.972	0.971	0.963	0.967	0.970	0.973	0.970
Flow Entry, veh/h	174	105	686	52	76	192	153	159
Cap Entry, veh/h	899	900	1243	1233	1084	1087	688	686
V/C Ratio	0.193	0.117	0.551	0.042	0.070	0.177	0.222	0.232
Control Delay, s/veh	5.9	5.1	9.1	3.3	3.9	4.9	7.8	8.0
LOS	A	A	A	A	A	A	A	A
95th %tile Queue, veh	1	0	4	0	0	1	1	1

Intersection	
Intersection Delay, s/veh	5.0
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	411	218	261	90
Demand Flow Rate, veh/h	428	226	272	94
Vehicles Circulating, veh/h	120	218	403	232
Vehicles Exiting, veh/h	206	457	145	212
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.4	4.4	5.2	3.6
Approach LOS	A	A	A	A

Lane	Left	Right	Left	Right	Left	Right	Left	Right
Designated Moves	LT	R	LT	R	LT	R	LT	R
Assumed Moves	LT	R	LT	R	LT	R	LT	R
RT Channelized								
Lane Util	0.879	0.121	0.832	0.168	0.357	0.643	0.479	0.521
Follow-Up Headway, s	2.536	2.536	2.536	2.536	2.536	2.536	2.536	2.536
Critical Headway, s	4.550	4.550	4.550	4.550	4.550	4.550	4.550	4.550
Entry Flow, veh/h	376	52	188	38	97	175	45	49
Cap Entry Lane, veh/h	1272	1272	1164	1164	983	983	1149	1149
Entry HV Adj Factor	0.961	0.962	0.961	0.974	0.958	0.960	0.962	0.959
Flow Entry, veh/h	361	50	181	37	93	168	43	47
Cap Entry, veh/h	1222	1224	1118	1133	942	944	1106	1102
V/C Ratio	0.295	0.041	0.162	0.033	0.099	0.178	0.039	0.043
Control Delay, s/veh	5.7	3.3	4.6	3.4	4.7	5.5	3.6	3.6
LOS	A	A	A	A	A	A	A	A
95th %tile Queue, veh	1	0	1	0	0	1	0	0

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

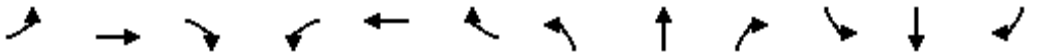
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	279	738	268	312
Demand Flow Rate, veh/h	287	760	277	321
Vehicles Circulating, veh/h	469	113	259	764
Vehicles Exiting, veh/h	616	423	497	109
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.3	10.0	5.6	11.8
Approach LOS	A	A	A	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.536	2.536	2.536	2.536
Critical Headway, s	4.550	4.550	4.550	4.550
Entry Flow, veh/h	287	760	277	321
Cap Entry Lane, veh/h	926	1281	1121	707
Entry HV Adj Factor	0.971	0.970	0.969	0.971
Flow Entry, veh/h	279	738	268	312
Cap Entry, veh/h	899	1243	1086	687
V/C Ratio	0.310	0.593	0.247	0.454
Control Delay, s/veh	7.3	10.0	5.6	11.8
LOS	A	A	A	B
95th %tile Queue, veh	1	4	1	2

Intersection	
Intersection Delay, s/veh	5.8
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	411	218	261	90
Demand Flow Rate, veh/h	428	226	272	94
Vehicles Circulating, veh/h	120	218	403	232
Vehicles Exiting, veh/h	206	457	145	212
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.1	5.0	6.7	4.0
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.536	2.536	2.536	2.536
Critical Headway, s	4.550	4.550	4.550	4.550
Entry Flow, veh/h	428	226	272	94
Cap Entry Lane, veh/h	1272	1164	983	1149
Entry HV Adj Factor	0.961	0.963	0.959	0.961
Flow Entry, veh/h	411	218	261	90
Cap Entry, veh/h	1222	1121	943	1104
V/C Ratio	0.336	0.194	0.277	0.082
Control Delay, s/veh	6.1	5.0	6.7	4.0
LOS	A	A	A	A
95th %tile Queue, veh	1	1	1	0



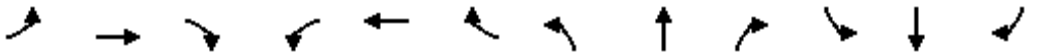
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	90	67	194	245	33	36	13	123	50	48	102
Future Volume (veh/h)	21	90	67	194	245	33	36	13	123	50	48	102
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1930	1856	1856	1930	1856	1930	1930	1856	1856	1930	1856	1856
Adj Flow Rate, veh/h	33	141	105	303	383	52	56	20	192	78	75	0
Peak Hour Factor	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	534	820	695	736	707	96	451	126	342	331	204	
Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44	0.22	0.22	0.22	0.22	0.22	0.00
Sat Flow, veh/h	984	1856	1572	1170	1599	217	987	578	1572	575	935	1572
Grp Volume(v), veh/h	33	141	105	303	0	435	76	0	192	153	0	0
Grp Sat Flow(s),veh/h/ln	984	1856	1572	1170	0	1816	1564	0	1572	1511	0	1572
Q Serve(g_s), s	0.7	1.2	1.1	5.6	0.0	4.6	0.0	0.0	2.9	0.9	0.0	0.0
Cycle Q Clear(g_c), s	5.3	1.2	1.1	6.8	0.0	4.6	0.9	0.0	2.9	2.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.12	0.74		1.00	0.51		1.00
Lane Grp Cap(c), veh/h	534	820	695	736	0	803	577	0	342	534	0	
V/C Ratio(X)	0.06	0.17	0.15	0.41	0.00	0.54	0.13	0.00	0.56	0.29	0.00	
Avail Cap(c_a), veh/h	770	1264	1071	1015	0	1237	1237	0	1071	1193	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	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.4	4.5	4.4	6.5	0.0	5.4	8.4	0.0	9.2	8.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.4	0.0	0.6	0.1	0.0	1.4	0.3	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	0.1	0.2	0.2	0.8	0.0	0.9	0.3	0.0	0.8	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.4	4.6	4.5	6.9	0.0	6.0	8.5	0.0	10.7	9.1	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	B	A	A	
Approach Vol, veh/h		279			738			268			153	A
Approach Delay, s/veh		4.9			6.4			10.1			9.1	
Approach LOS		A			A			B			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		10.3		16.2		10.3		16.2				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		4.9		7.3		4.1		8.8				
Green Ext Time (p_c), s		0.9		0.9		0.7		2.9				

Intersection Summary												
HCM 6th Ctrl Delay			7.1									
HCM 6th LOS			A									

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	186	38	55	83	28	32	39	128	20	13	36
Future Volume (veh/h)	88	186	38	55	83	28	32	39	128	20	13	36
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1914	1841	1841	1914	1841	1914	1914	1841	1841	1914	1841	1841
Adj Flow Rate, veh/h	116	245	50	72	109	37	42	51	168	26	17	0
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	670	572	485	582	408	139	376	294	384	437	207	
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.25	0.25	0.25	0.25	0.25	0.00
Sat Flow, veh/h	1271	1841	1560	1110	1314	446	483	1194	1560	621	840	1560
Grp Volume(v), veh/h	116	245	50	72	0	146	93	0	168	43	0	0
Grp Sat Flow(s),veh/h/ln	1271	1841	1560	1110	0	1760	1677	0	1560	1462	0	1560
Q Serve(g_s), s	1.5	2.1	0.5	1.1	0.0	1.3	0.0	0.0	1.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.8	2.1	0.5	3.3	0.0	1.3	0.8	0.0	1.8	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.25	0.45		1.00	0.60		1.00
Lane Grp Cap(c), veh/h	670	572	485	582	0	547	670	0	384	644	0	
V/C Ratio(X)	0.17	0.43	0.10	0.12	0.00	0.27	0.14	0.00	0.44	0.07	0.00	
Avail Cap(c_a), veh/h	1402	1631	1382	1220	0	1560	1691	0	1382	1505	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	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.3	5.6	5.0	6.9	0.0	5.3	6.1	0.0	6.5	5.9	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.5	0.1	0.1	0.0	0.3	0.1	0.0	0.8	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	0.2	0.4	0.1	0.2	0.0	0.2	0.2	0.0	0.4	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.4	6.1	5.1	7.0	0.0	5.5	6.2	0.0	7.3	6.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	
Approach Vol, veh/h		411			218			261			43	A
Approach Delay, s/veh		6.1			6.0			6.9			6.0	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		9.5		10.8		9.5		10.8				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		3.8		4.8		2.4		5.3				
Green Ext Time (p_c), s		0.9		1.7		0.1		0.9				

Intersection Summary												
HCM 6th Ctrl Delay			6.3									
HCM 6th LOS			A									

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Future Year LOS

Intersection	
Int Delay, s/veh	1340.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	140	104	302	382	51	56	20	192	78	75	159
Future Vol, veh/h	33	140	104	302	382	51	56	20	192	78	75	159
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	245	-	135	190	-	-	-	-	0	-	-	300
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	64	64	64	64	64	64	64	64	64	64	64	64
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	52	219	163	472	597	80	88	31	300	122	117	248

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	677	0	0	382	0	0	1963	1944	219	2151	2067	637
Stage 1	-	-	-	-	-	-	323	323	-	1581	1581	-
Stage 2	-	-	-	-	-	-	1640	1621	-	570	486	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	910	-	-	1171	-	-	~ 47	65	818	~ 35	~ 54	475
Stage 1	-	-	-	-	-	-	687	649	-	136	168	-
Stage 2	-	-	-	-	-	-	126	161	-	505	549	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	910	-	-	1171	-	-	-	37	818	~ 5	~ 30	475
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	37	-	~ 5	~ 30	-
Stage 1	-	-	-	-	-	-	648	612	-	128	~ 100	-
Stage 2	-	-	-	-	-	-	-	96	-	286	518	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	4.2		$ 6828
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	818	910	-	-	1171	-	-	8	475
HCM Lane V/C Ratio	-	0.367	0.057	-	-	0.403	-	-	29.883	0.523
HCM Control Delay (s)	-	11.9	9.2	-	-	10.1	-	-	$ 13902.3	20.6
HCM Lane LOS	-	B	A	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	-	1.7	0.2	-	-	2	-	-	31.7	3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	41.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	137	290	59	86	129	44	50	61	199	31	20	56
Future Vol, veh/h	137	290	59	86	129	44	50	61	199	31	20	56
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	245	-	135	190	-	-	-	-	0	-	-	300
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	180	382	78	113	170	58	66	80	262	41	26	74

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	228	0	0	460	0	0	1180	1196	382	1377	1245	199
Stage 1	-	-	-	-	-	-	742	742	-	425	425	-
Stage 2	-	-	-	-	-	-	438	454	-	952	820	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.14	6.54	6.24	7.14	6.54	6.24
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.54	-	6.14	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.54	-	6.14	5.54	-
Follow-up Hdwy	2.236	-	-	2.236	-	-	3.536	4.036	3.336	3.536	4.036	3.336
Pot Cap-1 Maneuver	1328	-	-	1091	-	-	166	184	661	121	172	837
Stage 1	-	-	-	-	-	-	404	419	-	603	583	-
Stage 2	-	-	-	-	-	-	594	566	-	309	386	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1328	-	-	1091	-	-	107	142	661	~ 34	133	837
Mov Cap-2 Maneuver	-	-	-	-	-	-	107	142	-	~ 34	133	-
Stage 1	-	-	-	-	-	-	349	362	-	521	522	-
Stage 2	-	-	-	-	-	-	461	507	-	126	334	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.3	2.9	82.2	197.9
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	124	661	1328	-	-	1091	-	-	48	837
HCM Lane V/C Ratio	1.178	0.396	0.136	-	-	0.104	-	-	1.398	0.088
HCM Control Delay (s)	204.4	14	8.1	-	-	8.7	-	-	$ 404.5	9.7
HCM Lane LOS	F	B	A	-	-	A	-	-	F	A
HCM 95th %tile Q(veh)	8.9	1.9	0.5	-	-	0.3	-	-	6.4	0.3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	209.2
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	140	104	302	382	51	56	20	192	78	75	159
Future Vol, veh/h	33	140	104	302	382	51	56	20	192	78	75	159
Peak Hour Factor	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	52	219	163	472	597	80	88	31	300	122	117	248
Number of Lanes	1	1	1	1	1	0	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	3
HCM Control Delay	30.9	405.2	50.9	41.9
HCM LOS	D	F	F	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	74%	0%	100%	0%	0%	100%	0%	51%	0%
Vol Thru, %	26%	0%	0%	100%	0%	0%	88%	49%	0%
Vol Right, %	0%	100%	0%	0%	100%	0%	12%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	76	192	33	140	104	302	433	153	159
LT Vol	56	0	33	0	0	302	0	78	0
Through Vol	20	0	0	140	0	0	382	75	0
RT Vol	0	192	0	0	104	0	51	0	159
Lane Flow Rate	119	300	52	219	162	472	677	239	248
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.387	0.889	0.17	0.693	0.483	1.5	2.035	0.759	0.723
Departure Headway (Hd)	12.689	11.585	12.793	12.273	11.544	11.443	10.829	12.303	11.317
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	285	315	282	298	314	321	338	296	323
Service Time	10.389	9.285	10.493	9.973	9.244	9.196	8.582	10.003	9.017
HCM Lane V/C Ratio	0.418	0.952	0.184	0.735	0.516	1.47	2.003	0.807	0.768
HCM Control Delay	23.2	61.8	18.1	38.6	24.6	269.6	499.8	45.3	38.7
HCM Lane LOS	C	F	C	E	C	F	F	E	E
HCM 95th-tile Q	1.8	8.2	0.6	4.8	2.5	26.3	48.1	5.7	5.3

Intersection	
Intersection Delay, s/veh	24.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	137	290	59	86	129	44	50	61	199	31	20	56
Future Vol, veh/h	137	290	59	86	129	44	50	61	199	31	20	56
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	180	382	78	113	170	58	66	80	262	41	26	74
Number of Lanes	1	1	1	1	1	0	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	3
HCM Control Delay	32.6	19.6	19.7	14.3
HCM LOS	D	C	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	45%	0%	100%	0%	0%	100%	0%	61%	0%
Vol Thru, %	55%	0%	0%	100%	0%	0%	75%	39%	0%
Vol Right, %	0%	100%	0%	0%	100%	0%	25%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	111	199	137	290	59	86	173	51	56
LT Vol	50	0	137	0	0	86	0	31	0
Through Vol	61	0	0	290	0	0	129	20	0
RT Vol	0	199	0	0	59	0	44	0	56
Lane Flow Rate	146	262	180	382	78	113	228	67	74
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.363	0.582	0.432	0.86	0.16	0.294	0.546	0.186	0.183
Departure Headway (Hd)	8.947	7.999	8.631	8.117	7.399	9.339	8.638	9.961	8.922
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	403	450	418	446	485	385	419	360	402
Service Time	6.695	5.747	6.374	5.861	5.142	7.09	6.389	7.719	6.68
HCM Lane V/C Ratio	0.362	0.582	0.431	0.857	0.161	0.294	0.544	0.186	0.184
HCM Control Delay	16.7	21.4	17.8	43.8	11.6	16	21.4	15	13.7
HCM Lane LOS	C	C	C	E	B	C	C	B	B
HCM 95th-tile Q	1.6	3.6	2.1	8.7	0.6	1.2	3.2	0.7	0.7

Intersection	
Intersection Delay, s/veh	18.7
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	433	1149	419	487
Demand Flow Rate, veh/h	447	1183	432	502
Vehicles Circulating, veh/h	733	177	406	1192
Vehicles Exiting, veh/h	961	661	774	168
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.3	26.7	6.5	18.6
Approach LOS	A	D	A	C

Lane	Left	Right	Left	Right	Left	Right	Left	Right
Designated Moves	LT	R	LT	R	LT	R	LT	R
Assumed Moves	LT	R	LT	R	LT	R	LT	R
RT Channelized								
Lane Util	0.626	0.374	0.931	0.069	0.285	0.715	0.492	0.508
Follow-Up Headway, s	2.536	2.536	2.536	2.536	2.536	2.536	2.536	2.536
Critical Headway, s	4.550	4.550	4.550	4.550	4.550	4.550	4.550	4.550
Entry Flow, veh/h	280	167	1101	82	123	309	247	255
Cap Entry Lane, veh/h	728	728	1208	1208	980	980	479	479
Entry HV Adj Factor	0.969	0.970	0.971	0.976	0.968	0.971	0.970	0.973
Flow Entry, veh/h	271	162	1069	80	119	300	239	248
Cap Entry, veh/h	705	706	1173	1179	949	952	464	466
V/C Ratio	0.385	0.229	0.911	0.068	0.125	0.315	0.516	0.533
Control Delay, s/veh	10.2	7.8	28.4	3.6	5.0	7.1	18.3	18.9
LOS	B	A	D	A	A	A	C	C
95th %tile Queue, veh	2	1	15	0	0	1	3	3

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	640	341	408	141
Demand Flow Rate, veh/h	665	355	424	147
Vehicles Circulating, veh/h	188	339	627	364
Vehicles Exiting, veh/h	323	712	226	330
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.9	6.0	8.0	4.3
Approach LOS	A	A	A	A

Lane	Left	Right	Left	Right	Left	Right	Left	Right
Designated Moves	LT	R	LT	R	LT	R	LT	R
Assumed Moves	LT	R	LT	R	LT	R	LT	R
RT Channelized								
Lane Util	0.878	0.122	0.831	0.169	0.358	0.642	0.476	0.524
Follow-Up Headway, s	2.536	2.536	2.536	2.536	2.536	2.536	2.536	2.536
Critical Headway, s	4.550	4.550	4.550	4.550	4.550	4.550	4.550	4.550
Entry Flow, veh/h	584	81	295	60	152	272	70	77
Cap Entry Lane, veh/h	1196	1196	1042	1042	802	802	1019	1019
Entry HV Adj Factor	0.962	0.963	0.960	0.967	0.959	0.963	0.957	0.961
Flow Entry, veh/h	562	78	283	58	146	262	67	74
Cap Entry, veh/h	1150	1152	1000	1007	769	772	974	979
V/C Ratio	0.488	0.068	0.283	0.058	0.190	0.339	0.069	0.076
Control Delay, s/veh	8.5	3.7	6.4	4.1	6.7	8.7	4.3	4.4
LOS	A	A	A	A	A	A	A	A
95th %tile Queue, veh	3	0	1	0	1	2	0	0

Intersection	
Intersection Delay, s/veh	39.6
Intersection LOS	E

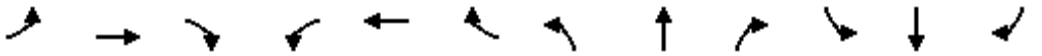
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	433	1149	419	487
Demand Flow Rate, veh/h	447	1183	432	502
Vehicles Circulating, veh/h	733	177	406	1192
Vehicles Exiting, veh/h	961	661	774	168
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	16.0	40.4	8.9	85.0
Approach LOS	C	E	A	F

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.536	2.536	2.536	2.536
Critical Headway, s	4.550	4.550	4.550	4.550
Entry Flow, veh/h	447	1183	432	502
Cap Entry Lane, veh/h	728	1208	980	479
Entry HV Adj Factor	0.970	0.971	0.970	0.971
Flow Entry, veh/h	433	1149	419	487
Cap Entry, veh/h	706	1173	951	465
V/C Ratio	0.614	0.979	0.441	1.048
Control Delay, s/veh	16.0	40.4	8.9	85.0
LOS	C	E	A	F
95th %tile Queue, veh	4	19	2	15

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	640	341	408	141
Demand Flow Rate, veh/h	665	355	424	147
Vehicles Circulating, veh/h	188	339	627	364
Vehicles Exiting, veh/h	323	712	226	330
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.8	7.1	12.4	5.0
Approach LOS	A	A	B	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.536	2.536	2.536	2.536
Critical Headway, s	4.550	4.550	4.550	4.550
Entry Flow, veh/h	665	355	424	147
Cap Entry Lane, veh/h	1196	1042	802	1019
Entry HV Adj Factor	0.962	0.961	0.962	0.959
Flow Entry, veh/h	640	341	408	141
Cap Entry, veh/h	1151	1002	771	977
V/C Ratio	0.556	0.341	0.529	0.144
Control Delay, s/veh	9.8	7.1	12.4	5.0
LOS	A	A	B	A
95th %tile Queue, veh	4	2	3	1



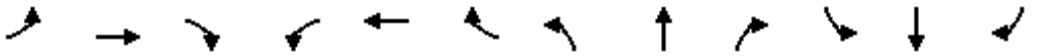
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	140	104	302	382	51	56	20	192	78	75	159
Future Volume (veh/h)	33	140	104	302	382	51	56	20	192	78	75	159
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1930	1856	1856	1930	1856	1930	1930	1856	1856	1930	1856	1856
Adj Flow Rate, veh/h	52	219	162	472	597	80	88	31	300	122	117	0
Peak Hour Factor	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	389	1063	901	671	918	123	346	105	400	228	173	
Arrive On Green	0.57	0.57	0.57	0.57	0.57	0.57	0.25	0.25	0.25	0.25	0.25	0.00
Sat Flow, veh/h	786	1856	1572	1034	1602	215	887	411	1572	485	678	1572
Grp Volume(v), veh/h	52	219	162	472	0	677	119	0	300	239	0	0
Grp Sat Flow(s),veh/h/ln	786	1856	1572	1034	0	1817	1298	0	1572	1164	0	1572
Q Serve(g_s), s	2.5	3.0	2.6	21.2	0.0	13.2	0.0	0.0	9.2	6.8	0.0	0.0
Cycle Q Clear(g_c), s	15.7	3.0	2.6	24.2	0.0	13.2	3.8	0.0	9.2	10.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.12	0.74		1.00	0.51		1.00
Lane Grp Cap(c), veh/h	389	1063	901	671	0	1041	450	0	400	401	0	
V/C Ratio(X)	0.13	0.21	0.18	0.70	0.00	0.65	0.26	0.00	0.75	0.60	0.00	
Avail Cap(c_a), veh/h	429	1157	980	724	0	1133	589	0	558	534	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	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.9	5.4	5.3	11.3	0.0	7.6	15.8	0.0	17.9	18.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.1	0.1	2.8	0.0	1.2	0.3	0.0	3.6	1.4	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	0.4	0.9	0.7	4.3	0.0	4.1	1.1	0.0	3.4	2.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.1	5.5	5.4	14.1	0.0	8.8	16.1	0.0	21.5	20.2	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	C	C	A	
Approach Vol, veh/h		433			1149			419			239	A
Approach Delay, s/veh		6.4			10.9			19.9			20.2	
Approach LOS		A			B			B			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.8		34.4		17.8		34.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.5		32.5		18.5		32.5				
Max Q Clear Time (g_c+I1), s		11.2		17.7		12.5		26.2				
Green Ext Time (p_c), s		1.1		1.9		0.7		3.7				

Intersection Summary												
HCM 6th Ctrl Delay			12.7									
HCM 6th LOS			B									

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	290	59	86	129	44	50	61	199	31	20	56
Future Volume (veh/h)	137	290	59	86	129	44	50	61	199	31	20	56
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1914	1841	1841	1914	1841	1914	1914	1841	1841	1914	1841	1841
Adj Flow Rate, veh/h	180	382	78	113	170	58	66	80	262	41	26	0
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	620	714	605	487	509	174	335	318	429	378	187	
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.28	0.28	0.28	0.28	0.28	0.00
Sat Flow, veh/h	1180	1841	1560	954	1312	448	507	1156	1560	584	679	1560
Grp Volume(v), veh/h	180	382	78	113	0	228	146	0	262	67	0	0
Grp Sat Flow(s),veh/h/ln	1180	1841	1560	954	0	1760	1663	0	1560	1263	0	1560
Q Serve(g_s), s	3.4	4.3	0.9	2.8	0.0	2.4	0.0	0.0	3.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.8	4.3	0.9	7.1	0.0	2.4	1.7	0.0	3.9	1.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.25	0.45		1.00	0.61		1.00
Lane Grp Cap(c), veh/h	620	714	605	487	0	683	653	0	429	565	0	
V/C Ratio(X)	0.29	0.54	0.13	0.23	0.00	0.33	0.22	0.00	0.61	0.12	0.00	
Avail Cap(c_a), veh/h	957	1241	1051	760	0	1186	1287	0	1051	1058	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	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.8	6.3	5.3	9.0	0.0	5.7	7.6	0.0	8.4	7.3	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.6	0.1	0.2	0.0	0.3	0.2	0.0	1.4	0.1	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	0.6	1.0	0.2	0.4	0.0	0.5	0.5	0.0	1.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.0	6.9	5.4	9.3	0.0	6.0	7.8	0.0	9.8	7.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	
Approach Vol, veh/h		640			341			408			67	A
Approach Delay, s/veh		7.1			7.1			9.1			7.4	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		11.8		14.9		11.8		14.9				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		5.9		7.8		3.7		9.1				
Green Ext Time (p_c), s		1.4		2.5		0.3		1.3				

Intersection Summary												
HCM 6th Ctrl Delay			7.7									
HCM 6th LOS			A									

Notes

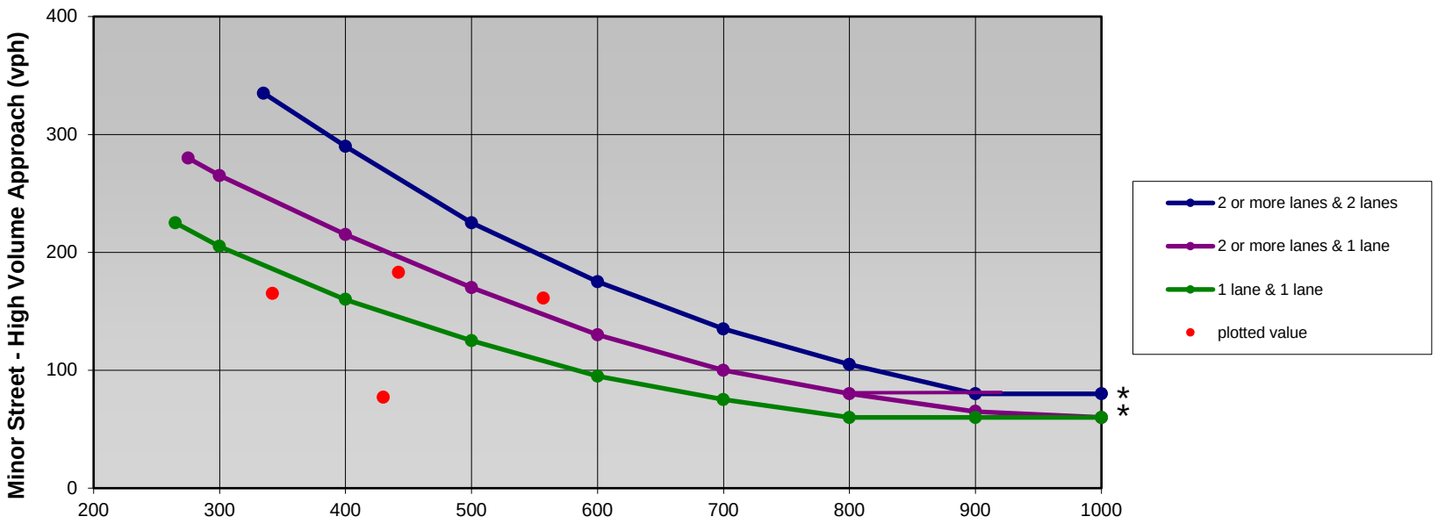
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX C –SIGNAL WARRANT ANALYSIS

		Number of Lanes
Major Approach:	Amberly Road	1
Minor Approach:	Canongate Road	1
Warrant Met?:	No	(Existing - Including Minor Road Right-Turn Volumes)

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(Community less than 10,000 population or above 40mph on major street)

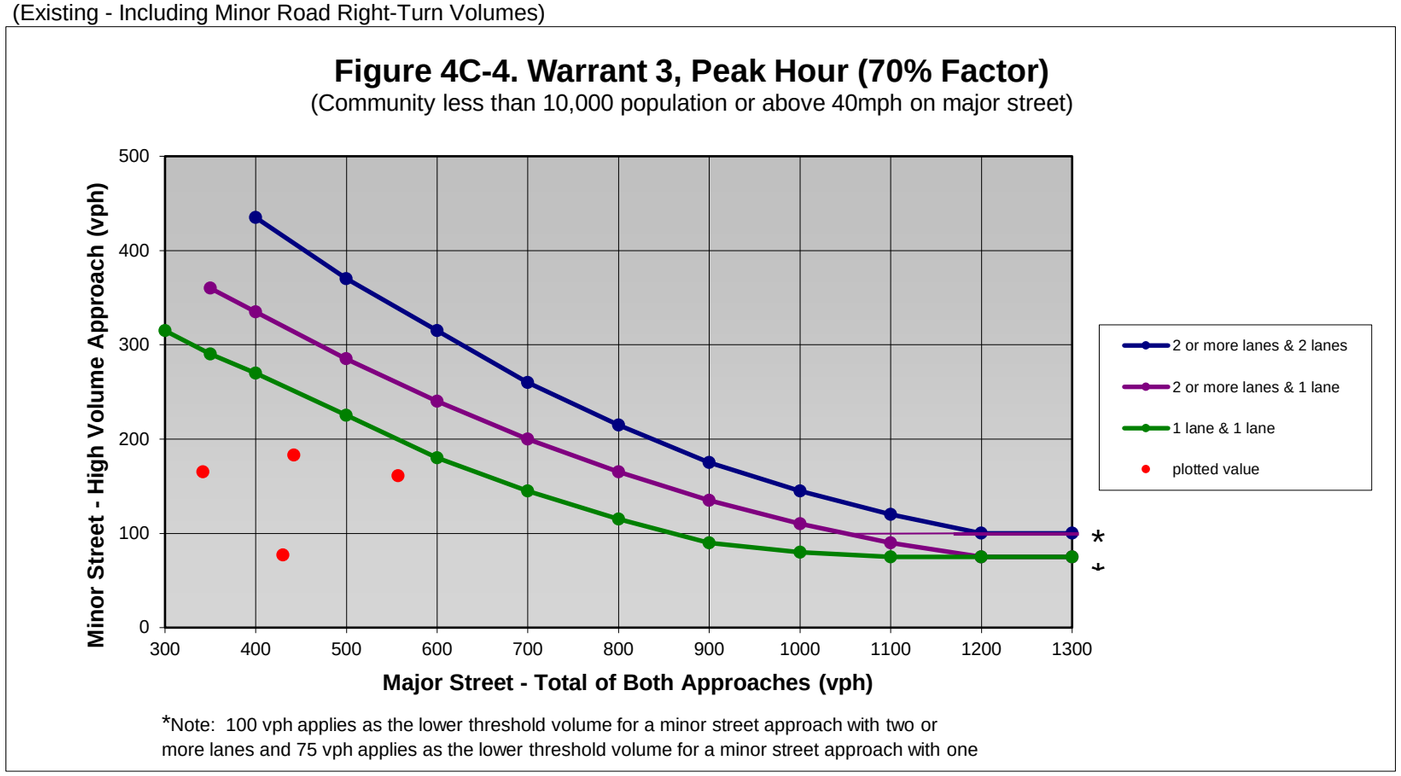


*Note: 80 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor street approach with one lane.

2 or more lanes & 2 or more lanes		2 or more lanes & 1 lane		1 lane & 1 lane	
335	335	275	280	265	225
400	290	300	265	300	205
500	225	400	215	400	160
600	175	500	170	500	125
700	135	600	130	600	95
800	105	700	100	700	75
900	80	800	80	800	60
1000	80	900	65	900	60
		1000	60	1000	60

	Volume	
Hour	Amberly Rd.	Canongate Rd.
11:00 PM - 12:00 AM	0	0
12:00 AM - 1:00 AM	0	0
1:00 AM - 2:00 AM	0	0
2:00 AM - 3:00 AM	0	0
3:00 AM - 4:00 AM	0	0
4:00 AM - 5:00 AM	0	0
5:00 AM - 6:00 AM	0	0
6:00 AM - 7:00 AM	0	0
7:00 AM - 8:00 AM	342	165
8:00 AM - 9:00 AM	557	161
9:00 AM - 10:00 AM	0	0
10:00 AM - 11:00 AM	0	0
11:00 AM - 12:00 PM	0	0
12:00 PM - 1:00 PM	0	0
1:00 PM - 2:00 PM	0	0
2:00 PM - 3:00 PM	0	0
3:00 PM - 4:00 PM	442	183
4:00 PM - 5:00 PM	430	77
5:00 PM - 6:00 PM	0	0
6:00 PM - 7:00 PM	0	0
7:00 PM - 8:00 PM	0	0
8:00 PM - 9:00 PM	0	0
9:00 PM - 10:00 PM	0	0
10:00 PM - 11:00 PM	0	0

(Existing - Including Minor Road Right-Turn Volumes)



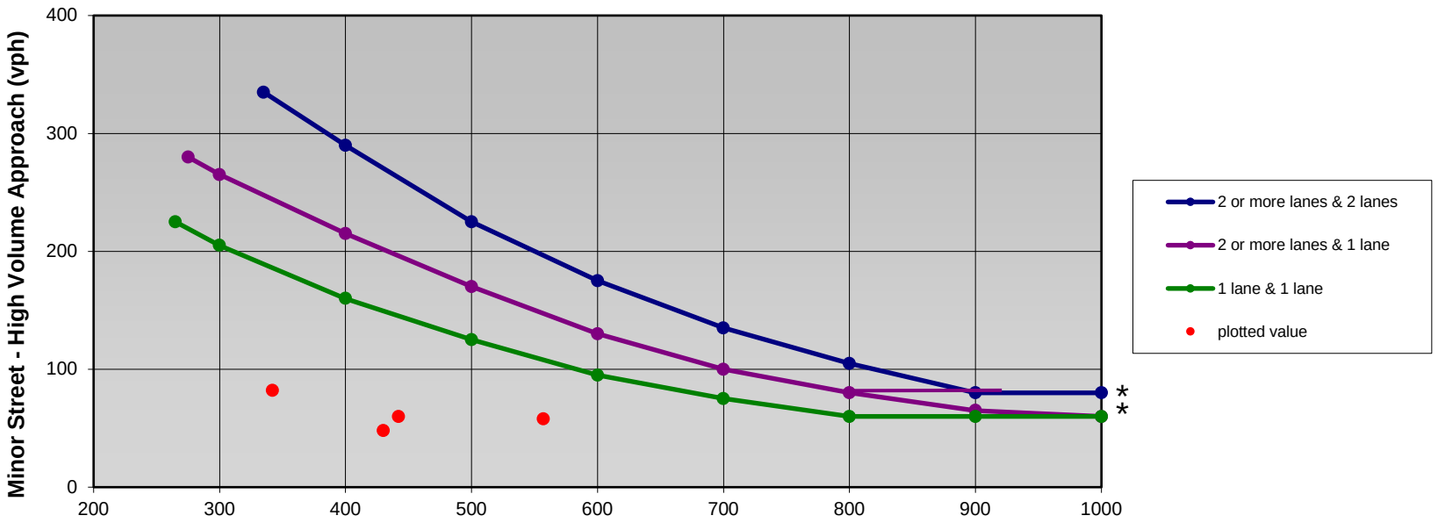
		Volume	
Hour		Major	Higher Minor
11:00 PM - 12:00 AM		0	0
12:00 AM - 1:00 AM		0	0
1:00 AM - 2:00 AM		0	0
2:00 AM - 3:00 AM		0	0
3:00 AM - 4:00 AM		0	0
4:00 AM - 5:00 AM		0	0
5:00 AM - 6:00 AM		0	0
6:00 AM - 7:00 AM		0	0
7:00 AM - 8:00 AM		342	165
8:00 AM - 9:00 AM		557	161
9:00 AM - 10:00 AM		0	0
10:00 AM - 11:00 AM		0	0
11:00 AM - 12:00 PM		0	0
12:00 PM - 1:00 PM		0	0
1:00 PM - 2:00 PM		0	0
2:00 PM - 3:00 PM		0	0
3:00 PM - 4:00 PM		442	183
4:00 PM - 5:00 PM		430	77
5:00 PM - 6:00 PM		0	0
6:00 PM - 7:00 PM		0	0
7:00 PM - 8:00 PM		0	0
8:00 PM - 9:00 PM		0	0
9:00 PM - 10:00 PM		0	0
10:00 PM - 11:00 PM		0	0

2 or more lanes & 2 or more lanes		2 or more lanes & 1 lane		1 lane & 1 lane	
400	435	350	360	300	315
500	370	400	335	350	290
600	315	500	285	400	270
700	260	600	240	500	225
800	215	700	200	600	180
900	175	800	165	700	145
1000	145	900	135	800	115
1100	120	1000	110	900	90
1200	100	1100	90	1000	80
1300	100	1200	75	1100	75
		1300	75	1200	75
				1300	75

		Number of Lanes
Major Approach:	Amberly Road	1
Minor Approach:	Canongate Road	1
Warrant Met?:	No	(Existing Year - Excluding Minor Road Right-Turn Volumes)

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(Community less than 10,000 population or above 40mph on major street)



*Note: 80 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor street approach with one lane.

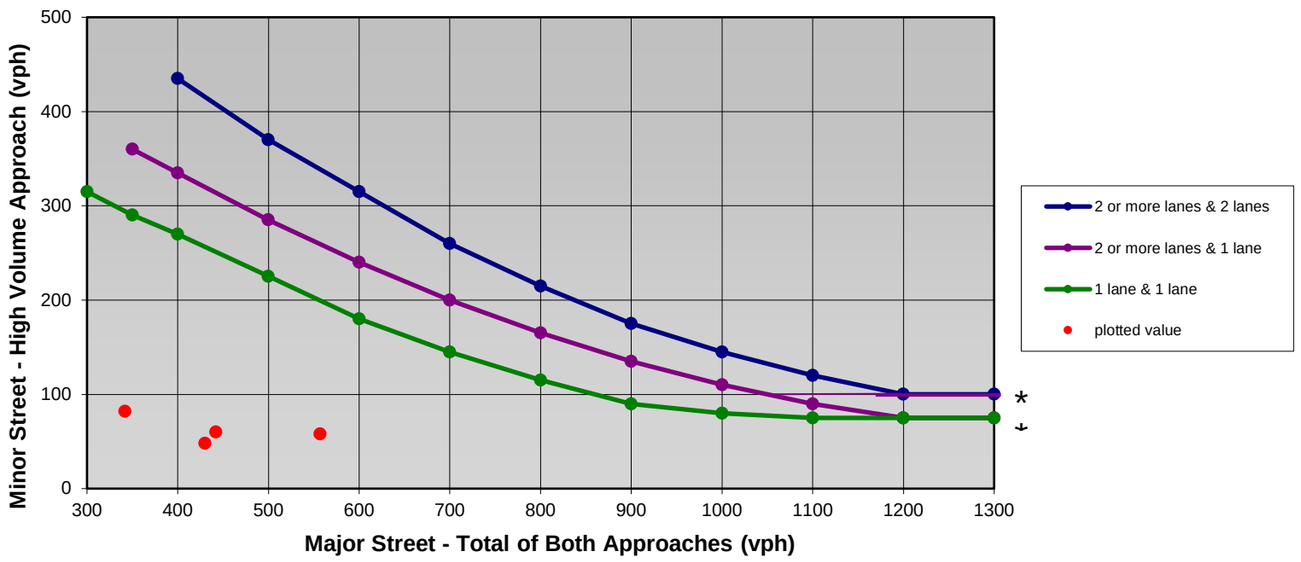
2 or more lanes & 2 or more lanes		2 or more lanes & 1 lane		1 lane & 1 lane	
335	335	275	280	265	225
400	290	300	265	300	205
500	225	400	215	400	160
600	175	500	170	500	125
700	135	600	130	600	95
800	105	700	100	700	75
900	80	800	80	800	60
1000	80	900	65	900	60
		1000	60	1000	60

	Volume	
Hour	Amberly Rd.	Canongate Rd.
11:00 PM - 12:00 AM	0	0
12:00 AM - 1:00 AM	0	0
1:00 AM - 2:00 AM	0	0
2:00 AM - 3:00 AM	0	0
3:00 AM - 4:00 AM	0	0
4:00 AM - 5:00 AM	0	0
5:00 AM - 6:00 AM	0	0
6:00 AM - 7:00 AM	0	0
7:00 AM - 8:00 AM	342	82
8:00 AM - 9:00 AM	557	58
9:00 AM - 10:00 AM	0	0
10:00 AM - 11:00 AM	0	0
11:00 AM - 12:00 PM	0	0
12:00 PM - 1:00 PM	0	0
1:00 PM - 2:00 PM	0	0
2:00 PM - 3:00 PM	0	0
3:00 PM - 4:00 PM	442	60
4:00 PM - 5:00 PM	430	48
5:00 PM - 6:00 PM	0	0
6:00 PM - 7:00 PM	0	0
7:00 PM - 8:00 PM	0	0
8:00 PM - 9:00 PM	0	0
9:00 PM - 10:00 PM	0	0
10:00 PM - 11:00 PM	0	0

(Existing Year - Excluding Minor Road Right-Turn Volumes)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(Community less than 10,000 population or above 40mph on major street)



*Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one

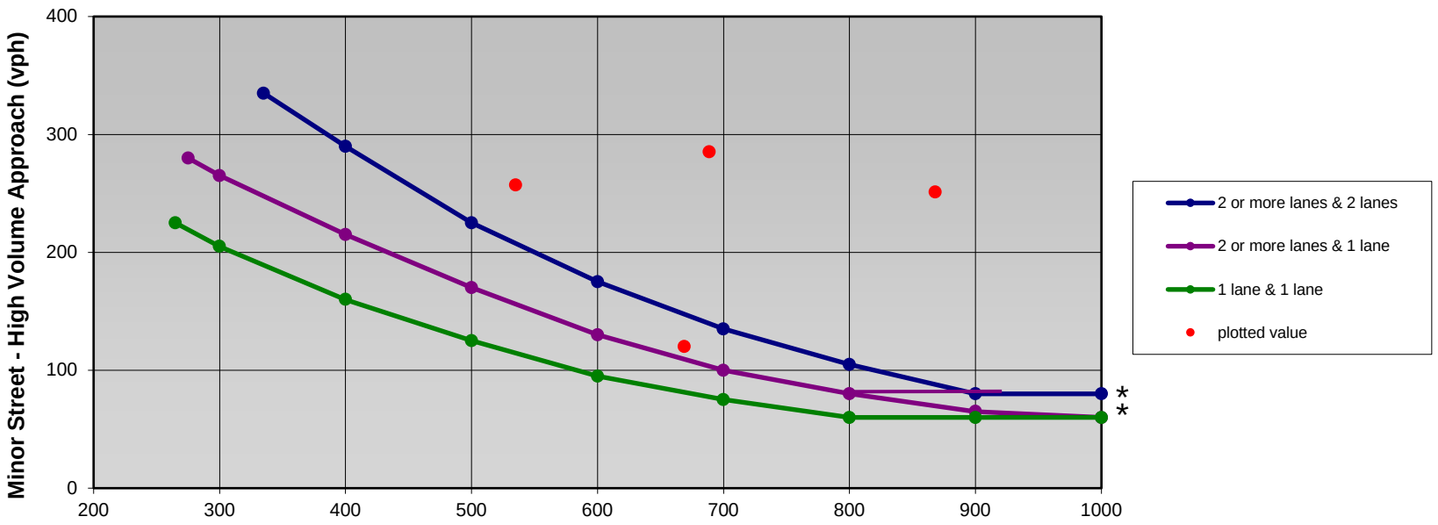
	Volume	
Hour	Major	Higher Minor
11:00 PM - 12:00 AM	0	0
12:00 AM - 1:00 AM	0	0
1:00 AM - 2:00 AM	0	0
2:00 AM - 3:00 AM	0	0
3:00 AM - 4:00 AM	0	0
4:00 AM - 5:00 AM	0	0
5:00 AM - 6:00 AM	0	0
6:00 AM - 7:00 AM	0	0
7:00 AM - 8:00 AM	342	82
8:00 AM - 9:00 AM	557	58
9:00 AM - 10:00 AM	0	0
10:00 AM - 11:00 AM	0	0
11:00 AM - 12:00 PM	0	0
12:00 PM - 1:00 PM	0	0
1:00 PM - 2:00 PM	0	0
2:00 PM - 3:00 PM	0	0
3:00 PM - 4:00 PM	442	60
4:00 PM - 5:00 PM	430	48
5:00 PM - 6:00 PM	0	0
6:00 PM - 7:00 PM	0	0
7:00 PM - 8:00 PM	0	0
8:00 PM - 9:00 PM	0	0
9:00 PM - 10:00 PM	0	0
10:00 PM - 11:00 PM	0	0

2 or more lanes & 2 or more lanes		2 or more lanes & 1 lane		1 lane & 1 lane	
400	435	350	360	300	315
500	370	400	335	350	290
600	315	500	285	400	270
700	260	600	240	500	225
800	215	700	200	600	180
900	175	800	165	700	145
1000	145	900	135	800	115
1100	120	1000	110	900	90
1200	100	1100	90	1000	80
1300	100	1200	75	1100	75
		1300	75	1200	75
				1300	75

		Number of Lanes
Major Approach:	Amberly Road	1
Minor Approach:	Canongate Road	1
Warrant Met?:	Yes	(Future Year - Including Minor Road Right-Turn Volumes)

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(Community less than 10,000 population or above 40mph on major street)



*Note: 80 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor street approach with one lane.

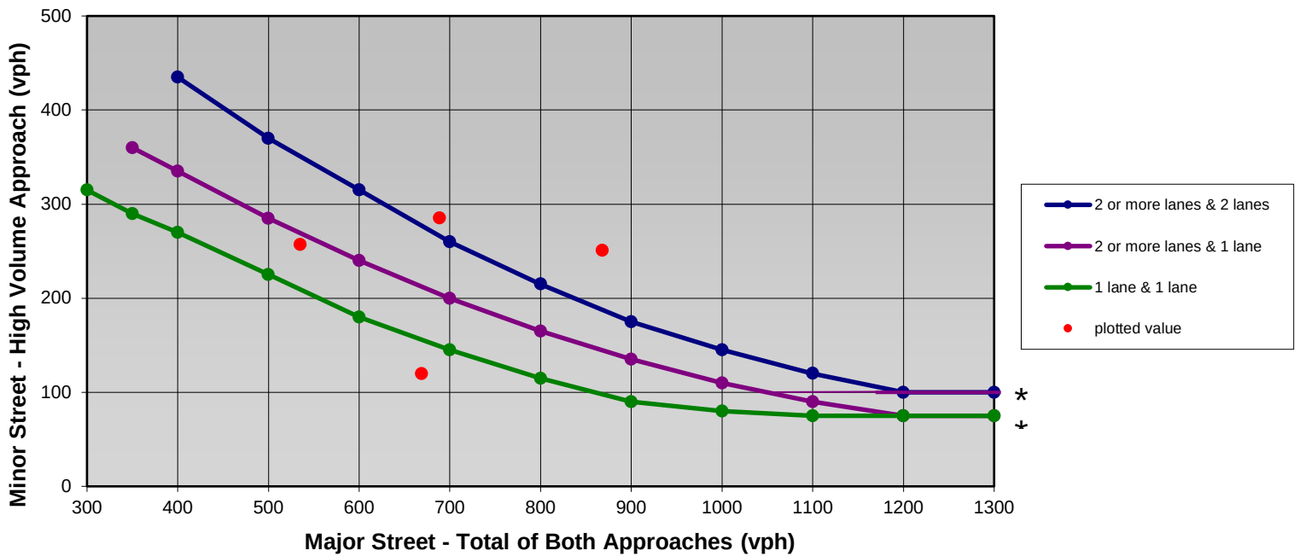
2 or more lanes & 2 or more lanes		2 or more lanes & 1 lane		1 lane & 1 lane	
335	335	275	280	265	225
400	290	300	265	300	205
500	225	400	215	400	160
600	175	500	170	500	125
700	135	600	130	600	95
800	105	700	100	700	75
900	80	800	80	800	60
1000	80	900	65	900	60
		1000	60	1000	60

	Volume	
Hour	Amberly Rd.	Canongate Rd.
11:00 PM - 12:00 AM	0	0
12:00 AM - 1:00 AM	0	0
1:00 AM - 2:00 AM	0	0
2:00 AM - 3:00 AM	0	0
3:00 AM - 4:00 AM	0	0
4:00 AM - 5:00 AM	0	0
5:00 AM - 6:00 AM	0	0
6:00 AM - 7:00 AM	0	0
7:00 AM - 8:00 AM	535	257
8:00 AM - 9:00 AM	868	251
9:00 AM - 10:00 AM	0	0
10:00 AM - 11:00 AM	0	0
11:00 AM - 12:00 PM	0	0
12:00 PM - 1:00 PM	0	0
1:00 PM - 2:00 PM	0	0
2:00 PM - 3:00 PM	0	0
3:00 PM - 4:00 PM	689	285
4:00 PM - 5:00 PM	669	120
5:00 PM - 6:00 PM	0	0
6:00 PM - 7:00 PM	0	0
7:00 PM - 8:00 PM	0	0
8:00 PM - 9:00 PM	0	0
9:00 PM - 10:00 PM	0	0
10:00 PM - 11:00 PM	0	0

(Future Year - Including Minor Road Right-Turn Volumes)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(Community less than 10,000 population or above 40mph on major street)



*Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one

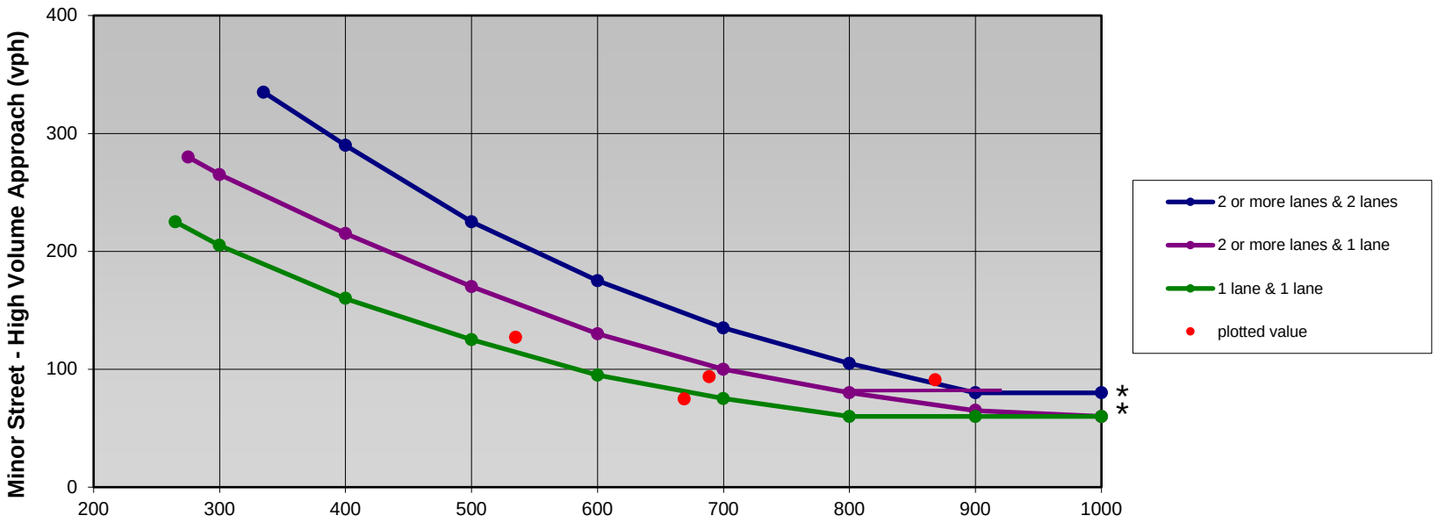
	Volume	
Hour	Major	Higher Minor
11:00 PM - 12:00 AM	0	0
12:00 AM - 1:00 AM	0	0
1:00 AM - 2:00 AM	0	0
2:00 AM - 3:00 AM	0	0
3:00 AM - 4:00 AM	0	0
4:00 AM - 5:00 AM	0	0
5:00 AM - 6:00 AM	0	0
6:00 AM - 7:00 AM	0	0
7:00 AM - 8:00 AM	535	257
8:00 AM - 9:00 AM	868	251
9:00 AM - 10:00 AM	0	0
10:00 AM - 11:00 AM	0	0
11:00 AM - 12:00 PM	0	0
12:00 PM - 1:00 PM	0	0
1:00 PM - 2:00 PM	0	0
2:00 PM - 3:00 PM	0	0
3:00 PM - 4:00 PM	689	285
4:00 PM - 5:00 PM	669	120
5:00 PM - 6:00 PM	0	0
6:00 PM - 7:00 PM	0	0
7:00 PM - 8:00 PM	0	0
8:00 PM - 9:00 PM	0	0
9:00 PM - 10:00 PM	0	0
10:00 PM - 11:00 PM	0	0

2 or more lanes & 2 or more lanes		2 or more lanes & 1 lane		1 lane & 1 lane	
400	435	350	360	300	315
500	370	400	335	350	290
600	315	500	285	400	270
700	260	600	240	500	225
800	215	700	200	600	180
900	175	800	165	700	145
1000	145	900	135	800	115
1100	120	1000	110	900	90
1200	100	1100	90	1000	80
1300	100	1200	75	1100	75
		1300	75	1200	75
				1300	75

		Number of Lanes
Major Approach:	Amberly Road	1
Minor Approach:	Canongate Road	1
Warrant Met?:	No	(Future Year - Excluding Minor Road Right-Turn Volumes)

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(Community less than 10,000 population or above 40mph on major street)



*Note: 80 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor street approach with one lane.

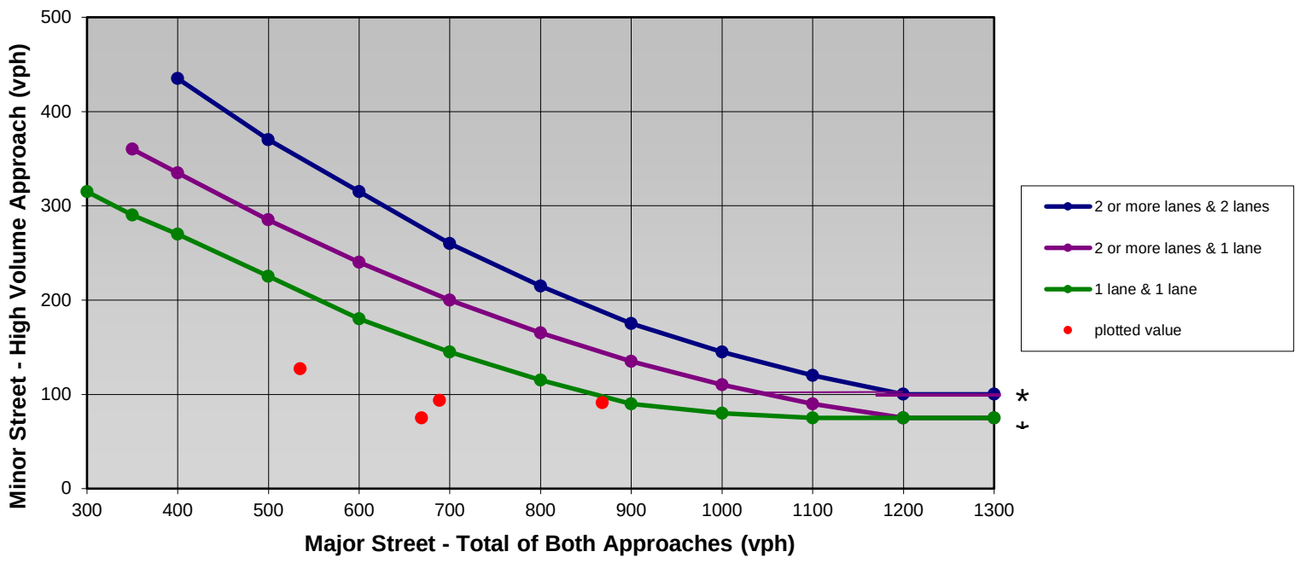
2 or more lanes & 2 or more lanes		2 or more lanes & 1 lane		1 lane & 1 lane	
335	335	275	280	265	225
400	290	300	265	300	205
500	225	400	215	400	160
600	175	500	170	500	125
700	135	600	130	600	95
800	105	700	100	700	75
900	80	800	80	800	60
1000	80	900	65	900	60
		1000	60	1000	60

	Volume	
Hour	Amberly Rd.	Canongate Rd.
11:00 PM - 12:00 AM	0	0
12:00 AM - 1:00 AM	0	0
1:00 AM - 2:00 AM	0	0
2:00 AM - 3:00 AM	0	0
3:00 AM - 4:00 AM	0	0
4:00 AM - 5:00 AM	0	0
5:00 AM - 6:00 AM	0	0
6:00 AM - 7:00 AM	0	0
7:00 AM - 8:00 AM	535	127
8:00 AM - 9:00 AM	868	91
9:00 AM - 10:00 AM	0	0
10:00 AM - 11:00 AM	0	0
11:00 AM - 12:00 PM	0	0
12:00 PM - 1:00 PM	0	0
1:00 PM - 2:00 PM	0	0
2:00 PM - 3:00 PM	0	0
3:00 PM - 4:00 PM	689	93
4:00 PM - 5:00 PM	669	75
5:00 PM - 6:00 PM	0	0
6:00 PM - 7:00 PM	0	0
7:00 PM - 8:00 PM	0	0
8:00 PM - 9:00 PM	0	0
9:00 PM - 10:00 PM	0	0
10:00 PM - 11:00 PM	0	0

(Future Year - Excluding Minor Road Right-Turn Volumes)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(Community less than 10,000 population or above 40mph on major street)



*Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one

	Volume	
Hour	Major	Higher Minor
11:00 PM - 12:00 AM	0	0
12:00 AM - 1:00 AM	0	0
1:00 AM - 2:00 AM	0	0
2:00 AM - 3:00 AM	0	0
3:00 AM - 4:00 AM	0	0
4:00 AM - 5:00 AM	0	0
5:00 AM - 6:00 AM	0	0
6:00 AM - 7:00 AM	0	0
7:00 AM - 8:00 AM	535	127
8:00 AM - 9:00 AM	868	91
9:00 AM - 10:00 AM	0	0
10:00 AM - 11:00 AM	0	0
11:00 AM - 12:00 PM	0	0
12:00 PM - 1:00 PM	0	0
1:00 PM - 2:00 PM	0	0
2:00 PM - 3:00 PM	0	0
3:00 PM - 4:00 PM	689	93
4:00 PM - 5:00 PM	669	75
5:00 PM - 6:00 PM	0	0
6:00 PM - 7:00 PM	0	0
7:00 PM - 8:00 PM	0	0
8:00 PM - 9:00 PM	0	0
9:00 PM - 10:00 PM	0	0
10:00 PM - 11:00 PM	0	0

2 or more lanes & 2 or more lanes		2 or more lanes & 1 lane		1 lane & 1 lane	
400	435	350	360	300	315
500	370	400	335	350	290
600	315	500	285	400	270
700	260	600	240	500	225
800	215	700	200	600	180
900	175	800	165	700	145
1000	145	900	135	800	115
1100	120	1000	110	900	90
1200	100	1100	90	1000	80
1300	100	1200	75	1100	75
		1300	75	1200	75
				1300	75

APPENDIX D – CITY OF WAVERLY COMPREHENSIVE PLAN EXTRACT

POPULATION PROFILE

The analysis and projection of population are at the center of all planning decisions. This process assists in the understanding of important changes which have and will occur throughout the planning period.

Estimating population size is critical to this community planning process due to the overall growth of Lancaster County, as well as Waverly's proximity to the City of Lincoln. Further, projecting the community population is extremely complex. Since projections are based upon various assumptions about the future, projections must be carefully analyzed and continually reevaluated, due to the changing economic and social structure of a community.

Population.

Table 3.1 identifies current population trends and projections in Waverly, from 1990 to 2033. The current (2013) estimated population of Waverly is 3,335, an increase of 58 persons, or 1.5 percent since 2010. Based on the "medium" population projection, the population for Waverly is expected to increase an estimated 23.2 percent, or by 775 persons, from 2013 to 2023, to an estimated population of 4,110. A "high" projection would result in a 10-year population increase of 935, or 28 percent by 2023.

By 2033, the population for Waverly is expected to continue to increase, reaching an estimated population of 4,660. Waverly has the potential to increase in population by an estimated 47.7 percent, or 1,590 persons, resulting in a population of 4,925.

TABLE 3.1
POPULATION TRENDS & PROJECTIONS
WAVERLY, NEBRASKA
1990-2033

	YEAR	POPULATION	TOTAL CHANGE	PERCENT CHANGE	ANNUAL CHANGE	PERCENT CHANGE
	1990	1,869	--	--	--	--
	2000	2,448	+579	+31.0%	+57.9	+3.1%
	2010	3,277	+829	+33.8%	+82.9	+3.4%
	2013	**3,335**	**+58**	**+1.8%**	**+29.0**	**+0.9%**
Low	**2023**	**3,925**	**+590**	**+17.7%**	**+59.0**	**+1.8%**
Medium	**2023**	**4,110**	**+775**	**+23.2%**	**+77.5**	**+2.3%**
High	**2023**	**4,270**	**+935**	**+28.0%**	**+93.5**	**+2.8%**
Low	**2033**	**4,400**	**+1,065**	**+31.9%**	**+53.3**	**+1.6%**
Medium	**2033**	**4,660**	**+1,325**	**+39.7%**	**+66.3**	**+2.0%**
High	**2033**	**4,925**	**+1,590**	**+47.7%**	**+79.5**	**+2.4%**

Source: 1990, 2000, 2010 U.S. Census;
Hanna:Keelan Associates, P.C., 2013.

APPENDIX E – QUEUEING ANALYSIS

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:45	6:45	6:45	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	2047	1970	2098	2047	1988	2079	2008
Vehs Exited	2043	1974	2083	2035	1982	2071	2012
Starting Vehs	56	60	50	54	52	54	60
Ending Vehs	60	56	65	66	58	62	56
Travel Distance (mi)	293	279	298	293	284	294	285
Travel Time (hr)	354.2	463.9	345.2	342.7	321.7	322.9	381.3
Total Delay (hr)	341.7	452.1	332.6	330.2	309.6	310.4	369.2
Total Stops	528	434	596	573	499	547	502
Fuel Used (gal)	90.5	115.1	88.4	87.9	82.7	83.4	96.5

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	2037	1935	2051	2027
Vehs Exited	2027	1933	2042	2020
Starting Vehs	53	68	53	56
Ending Vehs	63	70	62	62
Travel Distance (mi)	289	278	290	288
Travel Time (hr)	362.4	363.3	346.2	360.4
Total Delay (hr)	350.2	351.6	333.9	348.2
Total Stops	527	453	509	517
Fuel Used (gal)	92.2	91.9	88.9	91.8

Interval #0 Information Seeding

Start Time	6:45
End Time	7:00
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	2047	1970	2098	2047	1988	2079	2008
Vehs Exited	2043	1974	2083	2035	1982	2071	2012
Starting Vehs	56	60	50	54	52	54	60
Ending Vehs	60	56	65	66	58	62	56
Travel Distance (mi)	293	279	298	293	284	294	285
Travel Time (hr)	354.2	463.9	345.2	342.7	321.7	322.9	381.3
Total Delay (hr)	341.7	452.1	332.6	330.2	309.6	310.4	369.2
Total Stops	528	434	596	573	499	547	502
Fuel Used (gal)	90.5	115.1	88.4	87.9	82.7	83.4	96.5

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	2037	1935	2051	2027
Vehs Exited	2027	1933	2042	2020
Starting Vehs	53	68	53	56
Ending Vehs	63	70	62	62
Travel Distance (mi)	289	278	290	288
Travel Time (hr)	362.4	363.3	346.2	360.4
Total Delay (hr)	350.2	351.6	333.9	348.2
Total Stops	527	453	509	517
Fuel Used (gal)	92.2	91.9	88.9	91.8

Intersection: 1: Canongate Road & Amberly Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	LT	R	LT	R
Maximum Queue (ft)	51	22	24	136	20	351	356	692	375
Average Queue (ft)	17	1	2	56	1	326	320	664	282
95th Queue (ft)	39	9	14	105	11	353	403	680	545
Link Distance (ft)		326			305	314	314	647	
Upstream Blk Time (%)						92	82	100	
Queuing Penalty (veh)						0	0	0	
Storage Bay Dist (ft)	245		135	190					300
Storage Blk Time (%)								100	
Queuing Penalty (veh)								248	

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:45	6:45	6:45	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	1505	1603	1543	1463	1467	1528	1588
Vehs Exited	1504	1607	1551	1460	1476	1525	1591
Starting Vehs	10	15	15	11	27	10	9
Ending Vehs	11	11	7	14	18	13	6
Travel Distance (mi)	226	242	234	221	223	232	239
Travel Time (hr)	13.6	16.2	13.4	13.4	13.0	13.9	14.8
Total Delay (hr)	4.1	6.0	3.6	4.1	3.7	4.2	4.7
Total Stops	632	683	645	565	599	605	635
Fuel Used (gal)	10.7	11.9	10.8	10.2	10.4	10.7	11.2

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	1520	1499	1528	1522
Vehs Exited	1517	1505	1534	1526
Starting Vehs	10	16	14	14
Ending Vehs	13	10	8	10
Travel Distance (mi)	229	227	231	230
Travel Time (hr)	14.3	13.7	14.0	14.0
Total Delay (hr)	4.6	4.2	4.3	4.3
Total Stops	599	575	627	616
Fuel Used (gal)	10.7	10.5	10.9	10.8

Interval #0 Information Seeding

Start Time	6:45
End Time	7:00
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1505	1603	1543	1463	1467	1528	1588
Vehs Exited	1504	1607	1551	1460	1476	1525	1591
Starting Vehs	10	15	15	11	27	10	9
Ending Vehs	11	11	7	14	18	13	6
Travel Distance (mi)	226	242	234	221	223	232	239
Travel Time (hr)	13.6	16.2	13.4	13.4	13.0	13.9	14.8
Total Delay (hr)	4.1	6.0	3.6	4.1	3.7	4.2	4.7
Total Stops	632	683	645	565	599	605	635
Fuel Used (gal)	10.7	11.9	10.8	10.2	10.4	10.7	11.2

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	1520	1499	1528	1522
Vehs Exited	1517	1505	1534	1526
Starting Vehs	10	16	14	14
Ending Vehs	13	10	8	10
Travel Distance (mi)	229	227	231	230
Travel Time (hr)	14.3	13.7	14.0	14.0
Total Delay (hr)	4.6	4.2	4.3	4.3
Total Stops	599	575	627	616
Fuel Used (gal)	10.7	10.5	10.9	10.8

Intersection: 1: Canongate Road & Amberly Road

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	L	TR	LT	R	LT	R
Maximum Queue (ft)	77	6	71	14	195	185	97	35
Average Queue (ft)	24	0	27	1	81	80	42	1
95th Queue (ft)	55	4	55	7	155	149	84	15
Link Distance (ft)		326		305	314	314	647	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	245		190					300
Storage Blk Time (%)								
Queuing Penalty (veh)								

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:45	6:45	6:45	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	2201	2278	2246	2286	2202	2181	2273
Vehs Exited	2198	2273	2251	2271	2192	2188	2280
Starting Vehs	29	38	40	31	43	33	41
Ending Vehs	32	43	35	46	53	26	34
Travel Distance (mi)	329	340	336	339	330	326	340
Travel Time (hr)	296.0	276.5	209.6	167.6	200.3	214.7	216.3
Total Delay (hr)	281.8	261.8	195.2	153.0	186.0	200.7	201.7
Total Stops	1974	2092	2033	2123	2000	1952	2049
Fuel Used (gal)	80.0	76.0	60.9	51.1	58.1	61.4	62.3

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	2255	2161	2227	2231
Vehs Exited	2248	2142	2235	2227
Starting Vehs	24	34	43	35
Ending Vehs	31	53	35	37
Travel Distance (mi)	338	324	334	334
Travel Time (hr)	217.8	268.2	213.8	228.1
Total Delay (hr)	203.3	254.2	199.4	213.7
Total Stops	2032	1953	2013	2023
Fuel Used (gal)	62.3	73.2	61.5	64.7

Interval #0 Information Seeding

Start Time	6:45
End Time	7:00
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	2201	2278	2246	2286	2202	2181	2273
Vehs Exited	2198	2273	2251	2271	2192	2188	2280
Starting Vehs	29	38	40	31	43	33	41
Ending Vehs	32	43	35	46	53	26	34
Travel Distance (mi)	329	340	336	339	330	326	340
Travel Time (hr)	296.0	276.5	209.6	167.6	200.3	214.7	216.3
Total Delay (hr)	281.8	261.8	195.2	153.0	186.0	200.7	201.7
Total Stops	1974	2092	2033	2123	2000	1952	2049
Fuel Used (gal)	80.0	76.0	60.9	51.1	58.1	61.4	62.3

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	2255	2161	2227	2231
Vehs Exited	2248	2142	2235	2227
Starting Vehs	24	34	43	35
Ending Vehs	31	53	35	37
Travel Distance (mi)	338	324	334	334
Travel Time (hr)	217.8	268.2	213.8	228.1
Total Delay (hr)	203.3	254.2	199.4	213.7
Total Stops	2032	1953	2013	2023
Fuel Used (gal)	62.3	73.2	61.5	64.7

Intersection: 1: Canongate Road & Amberly Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	LT	R	LT	R
Maximum Queue (ft)	85	168	97	265	362	100	197	225	223
Average Queue (ft)	23	72	46	264	331	45	83	87	79
95th Queue (ft)	58	130	77	282	353	79	152	210	197
Link Distance (ft)		326			305	314	314	647	
Upstream Blk Time (%)	0	0			74			0	
Queuing Penalty (veh)	0	0			0			0	
Storage Bay Dist (ft)	245		135	190					300
Storage Blk Time (%)		1		18	91			0	2
Queuing Penalty (veh)		3		124	430			1	4

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:45	6:45	6:45	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	1505	1603	1543	1463	1467	1528	1588
Vehs Exited	1511	1603	1551	1457	1476	1522	1591
Starting Vehs	17	15	17	12	28	10	10
Ending Vehs	11	15	9	18	19	16	7
Travel Distance (mi)	227	242	234	221	223	232	239
Travel Time (hr)	15.9	18.4	15.6	15.2	15.2	15.7	21.5
Total Delay (hr)	6.3	8.2	5.8	5.9	5.8	5.9	11.4
Total Stops	1480	1566	1520	1449	1447	1496	1501
Fuel Used (gal)	12.2	13.3	12.3	11.5	11.8	12.0	13.8

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	1520	1499	1528	1522
Vehs Exited	1517	1492	1535	1525
Starting Vehs	12	11	18	15
Ending Vehs	15	18	11	12
Travel Distance (mi)	229	226	231	230
Travel Time (hr)	15.2	15.1	16.4	16.4
Total Delay (hr)	5.5	5.6	6.7	6.7
Total Stops	1496	1473	1514	1494
Fuel Used (gal)	11.8	11.7	12.3	12.3

Interval #0 Information Seeding

Start Time	6:45
End Time	7:00
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1505	1603	1543	1463	1467	1528	1588
Vehs Exited	1511	1603	1551	1457	1476	1522	1591
Starting Vehs	17	15	17	12	28	10	10
Ending Vehs	11	15	9	18	19	16	7
Travel Distance (mi)	227	242	234	221	223	232	239
Travel Time (hr)	15.9	18.4	15.6	15.2	15.2	15.7	21.5
Total Delay (hr)	6.3	8.2	5.8	5.9	5.8	5.9	11.4
Total Stops	1480	1566	1520	1449	1447	1496	1501
Fuel Used (gal)	12.2	13.3	12.3	11.5	11.8	12.0	13.8

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	1520	1499	1528	1522
Vehs Exited	1517	1492	1535	1525
Starting Vehs	12	11	18	15
Ending Vehs	15	18	11	12
Travel Distance (mi)	229	226	231	230
Travel Time (hr)	15.2	15.1	16.4	16.4
Total Delay (hr)	5.5	5.6	6.7	6.7
Total Stops	1496	1473	1514	1494
Fuel Used (gal)	11.8	11.7	12.3	12.3

Intersection: 1: Canongate Road & Amberly Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	LT	R	LT	R
Maximum Queue (ft)	161	287	175	82	118	101	181	74	40
Average Queue (ft)	54	125	47	37	54	47	75	33	2
95th Queue (ft)	160	253	133	65	93	80	137	62	19
Link Distance (ft)		326			305	314	314	647	
Upstream Blk Time (%)	0	2					0		
Queuing Penalty (veh)	0	0					0		
Storage Bay Dist (ft)	245		135	190					300
Storage Blk Time (%)		15							
Queuing Penalty (veh)		38							

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:45	6:45	6:45	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	2061	2091	2075	2016	2006	2022	2097
Vehs Exited	2054	2099	2082	2010	2001	2025	2100
Starting Vehs	20	41	32	27	39	29	30
Ending Vehs	27	33	25	33	44	26	27
Travel Distance (mi)	322	329	325	316	316	316	328
Travel Time (hr)	376.6	397.0	348.9	330.5	346.1	337.8	345.4
Total Delay (hr)	364.2	384.3	336.4	318.3	333.8	325.6	332.8
Total Stops	930	996	1045	935	989	865	968
Fuel Used (gal)	97.8	102.7	91.9	87.1	90.4	88.8	91.0

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	2053	2011	2047	2048
Vehs Exited	2046	2009	2052	2047
Starting Vehs	21	32	36	31
Ending Vehs	28	34	31	32
Travel Distance (mi)	323	317	321	321
Travel Time (hr)	341.0	345.4	352.8	352.1
Total Delay (hr)	328.6	333.1	340.4	339.8
Total Stops	1023	1035	946	974
Fuel Used (gal)	89.7	90.3	92.4	92.2

Interval #0 Information Seeding

Start Time	6:45
End Time	7:00
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	2061	2091	2075	2016	2006	2022	2097
Vehs Exited	2054	2099	2082	2010	2001	2025	2100
Starting Vehs	20	41	32	27	39	29	30
Ending Vehs	27	33	25	33	44	26	27
Travel Distance (mi)	322	329	325	316	316	316	328
Travel Time (hr)	376.6	397.0	348.9	330.5	346.1	337.8	345.4
Total Delay (hr)	364.2	384.3	336.4	318.3	333.8	325.6	332.8
Total Stops	930	996	1045	935	989	865	968
Fuel Used (gal)	97.8	102.7	91.9	87.1	90.4	88.8	91.0

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	2053	2011	2047	2048
Vehs Exited	2046	2009	2052	2047
Starting Vehs	21	32	36	31
Ending Vehs	28	34	31	32
Travel Distance (mi)	323	317	321	321
Travel Time (hr)	341.0	345.4	352.8	352.1
Total Delay (hr)	328.6	333.1	340.4	339.8
Total Stops	1023	1035	946	974
Fuel Used (gal)	89.7	90.3	92.4	92.2

Intersection: 1: Canongate Road & Amberly Road

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	LT	R	LT	R	LT	R
Maximum Queue (ft)	132	85	330	319	75	128	202	194
Average Queue (ft)	51	31	298	289	28	46	74	65
95th Queue (ft)	99	68	319	321	62	94	148	134
Link Distance (ft)	297		273	273	288	288	610	
Upstream Blk Time (%)			99	69				
Queuing Penalty (veh)			0	0				
Storage Bay Dist (ft)		135						300
Storage Blk Time (%)	0	0					0	0
Queuing Penalty (veh)	0	0					0	0

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:45	6:45	6:45	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	1505	1603	1543	1463	1467	1529	1589
Vehs Exited	1512	1603	1550	1458	1473	1524	1591
Starting Vehs	18	15	16	10	24	9	9
Ending Vehs	11	15	9	15	18	14	7
Travel Distance (mi)	237	253	243	230	232	242	249
Travel Time (hr)	13.7	16.5	13.7	13.4	13.1	14.1	16.4
Total Delay (hr)	3.6	5.9	3.4	3.6	3.3	3.9	5.8
Total Stops	698	745	687	665	618	754	806
Fuel Used (gal)	11.6	12.9	11.8	11.1	11.3	11.7	12.6

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	1521	1498	1527	1523
Vehs Exited	1515	1500	1533	1526
Starting Vehs	10	12	15	12
Ending Vehs	16	10	9	11
Travel Distance (mi)	238	236	240	240
Travel Time (hr)	13.6	13.3	13.8	14.2
Total Delay (hr)	3.5	3.3	3.7	4.0
Total Stops	690	667	626	694
Fuel Used (gal)	11.4	11.4	11.7	11.7

Interval #0 Information Seeding

Start Time	6:45
End Time	7:00
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1505	1603	1543	1463	1467	1529	1589
Vehs Exited	1512	1603	1550	1458	1473	1524	1591
Starting Vehs	18	15	16	10	24	9	9
Ending Vehs	11	15	9	15	18	14	7
Travel Distance (mi)	237	253	243	230	232	242	249
Travel Time (hr)	13.7	16.5	13.7	13.4	13.1	14.1	16.4
Total Delay (hr)	3.6	5.9	3.4	3.6	3.3	3.9	5.8
Total Stops	698	745	687	665	618	754	806
Fuel Used (gal)	11.6	12.9	11.8	11.1	11.3	11.7	12.6

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	1521	1498	1527	1523
Vehs Exited	1515	1500	1533	1526
Starting Vehs	10	12	15	12
Ending Vehs	16	10	9	11
Travel Distance (mi)	238	236	240	240
Travel Time (hr)	13.6	13.3	13.8	14.2
Total Delay (hr)	3.5	3.3	3.7	4.0
Total Stops	690	667	626	694
Fuel Used (gal)	11.4	11.4	11.7	11.7

Intersection: 1: Canongate Road & Amberly Road

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	LT	R	LT	R	LT	R
Maximum Queue (ft)	299	165	118	63	98	164	55	61
Average Queue (ft)	103	28	44	14	40	63	13	13
95th Queue (ft)	227	108	90	43	77	120	41	40
Link Distance (ft)	297		273	273	288	288	610	
Upstream Blk Time (%)	2							
Queuing Penalty (veh)	0							
Storage Bay Dist (ft)		135						300
Storage Blk Time (%)	8	0						
Queuing Penalty (veh)	6	0						

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:45	6:45	6:45	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	2082	2117	2099	2030	2024	2034	2123
Vehs Exited	2078	2119	2108	2024	2016	2039	2125
Starting Vehs	22	35	35	26	42	28	31
Ending Vehs	26	33	26	32	50	23	29
Travel Distance (mi)	325	332	329	318	317	318	332
Travel Time (hr)	362.8	375.5	326.6	319.2	333.8	330.7	324.6
Total Delay (hr)	350.3	362.8	314.0	307.0	321.6	318.5	311.9
Total Stops	899	1054	912	843	900	887	924
Fuel Used (gal)	94.6	97.8	86.7	84.4	87.4	87.1	86.1

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	2084	2048	2066	2072
Vehs Exited	2071	2045	2079	2070
Starting Vehs	17	34	45	33
Ending Vehs	30	37	32	31
Travel Distance (mi)	327	322	325	324
Travel Time (hr)	323.9	315.8	334.7	334.8
Total Delay (hr)	311.3	303.4	322.2	322.3
Total Stops	1007	935	922	930
Fuel Used (gal)	85.7	83.5	88.2	88.1

Interval #0 Information Seeding

Start Time	6:45
End Time	7:00
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	2082	2117	2099	2030	2024	2034	2123
Vehs Exited	2078	2119	2108	2024	2016	2039	2125
Starting Vehs	22	35	35	26	42	28	31
Ending Vehs	26	33	26	32	50	23	29
Travel Distance (mi)	325	332	329	318	317	318	332
Travel Time (hr)	362.8	375.5	326.6	319.2	333.8	330.7	324.6
Total Delay (hr)	350.3	362.8	314.0	307.0	321.6	318.5	311.9
Total Stops	899	1054	912	843	900	887	924
Fuel Used (gal)	94.6	97.8	86.7	84.4	87.4	87.1	86.1

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	2084	2048	2066	2072
Vehs Exited	2071	2045	2079	2070
Starting Vehs	17	34	45	33
Ending Vehs	30	37	32	31
Travel Distance (mi)	327	322	325	324
Travel Time (hr)	323.9	315.8	334.7	334.8
Total Delay (hr)	311.3	303.4	322.2	322.3
Total Stops	1007	935	922	930
Fuel Used (gal)	85.7	83.5	88.2	88.1

Intersection: 1: Canongate Road & Amberly Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	168	346	165	435
Average Queue (ft)	68	317	55	170
95th Queue (ft)	133	340	118	351
Link Distance (ft)	312	288	299	625
Upstream Blk Time (%)		99		0
Queuing Penalty (veh)		0		0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:45	6:45	6:45	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	1504	1603	1544	1463	1467	1528	1589
Vehs Exited	1511	1605	1547	1460	1475	1526	1591
Starting Vehs	18	16	13	10	26	10	9
Ending Vehs	11	14	10	13	18	12	7
Travel Distance (mi)	236	252	243	229	232	241	249
Travel Time (hr)	13.4	16.0	13.5	13.0	13.0	13.4	17.0
Total Delay (hr)	3.6	5.5	3.5	3.4	3.4	3.4	6.6
Total Stops	653	658	628	541	582	610	826
Fuel Used (gal)	11.5	12.7	11.7	11.0	11.2	11.4	12.7

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	1520	1498	1527	1523
Vehs Exited	1518	1497	1533	1527
Starting Vehs	12	11	14	12
Ending Vehs	14	12	8	9
Travel Distance (mi)	238	235	240	239
Travel Time (hr)	13.1	12.9	13.6	13.9
Total Delay (hr)	3.2	3.1	3.6	3.9
Total Stops	591	598	593	628
Fuel Used (gal)	11.3	11.2	11.6	11.6

Interval #0 Information Seeding

Start Time	6:45
End Time	7:00
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1504	1603	1544	1463	1467	1528	1589
Vehs Exited	1511	1605	1547	1460	1475	1526	1591
Starting Vehs	18	16	13	10	26	10	9
Ending Vehs	11	14	10	13	18	12	7
Travel Distance (mi)	236	252	243	229	232	241	249
Travel Time (hr)	13.4	16.0	13.5	13.0	13.0	13.4	17.0
Total Delay (hr)	3.6	5.5	3.5	3.4	3.4	3.4	6.6
Total Stops	653	658	628	541	582	610	826
Fuel Used (gal)	11.5	12.7	11.7	11.0	11.2	11.4	12.7

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	1520	1498	1527	1523
Vehs Exited	1518	1497	1533	1527
Starting Vehs	12	11	14	12
Ending Vehs	14	12	8	9
Travel Distance (mi)	238	235	240	239
Travel Time (hr)	13.1	12.9	13.6	13.9
Total Delay (hr)	3.2	3.1	3.6	3.9
Total Stops	591	598	593	628
Fuel Used (gal)	11.3	11.2	11.6	11.6

Intersection: 1: Canongate Road & Amberly Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	311	121	223	74
Average Queue (ft)	106	44	83	19
95th Queue (ft)	245	90	168	54
Link Distance (ft)	312	288	299	625
Upstream Blk Time (%)	3		0	
Queuing Penalty (veh)	0		0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:45	6:45	6:45	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	2482	2609	2524	2402	2431	2458	2479
Vehs Exited	2482	2615	2525	2404	2431	2457	2483
Starting Vehs	23	40	26	25	36	19	25
Ending Vehs	23	34	25	23	36	20	21
Travel Distance (mi)	368	387	374	356	363	364	368
Travel Time (hr)	28.7	33.8	29.3	27.2	28.8	28.3	28.0
Total Delay (hr)	12.8	17.3	13.3	11.9	13.2	12.7	12.3
Total Stops	1699	1904	1696	1663	1653	1630	1713
Fuel Used (gal)	20.2	22.5	20.6	19.4	19.9	19.9	20.0

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	2489	2396	2496	2477
Vehs Exited	2477	2398	2489	2476
Starting Vehs	20	34	32	28
Ending Vehs	32	32	39	28
Travel Distance (mi)	370	358	369	368
Travel Time (hr)	27.7	27.1	28.9	28.8
Total Delay (hr)	11.9	11.8	13.0	13.0
Total Stops	1637	1612	1714	1694
Fuel Used (gal)	19.8	19.4	20.3	20.2

Interval #0 Information Seeding

Start Time	6:45
End Time	7:00
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	2482	2609	2524	2402	2431	2458	2479
Vehs Exited	2482	2615	2525	2404	2431	2457	2483
Starting Vehs	23	40	26	25	36	19	25
Ending Vehs	23	34	25	23	36	20	21
Travel Distance (mi)	368	387	374	356	363	364	368
Travel Time (hr)	28.7	33.8	29.3	27.2	28.8	28.3	28.0
Total Delay (hr)	12.8	17.3	13.3	11.9	13.2	12.7	12.3
Total Stops	1699	1904	1696	1663	1653	1630	1713
Fuel Used (gal)	20.2	22.5	20.6	19.4	19.9	19.9	20.0

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	2489	2396	2496	2477
Vehs Exited	2477	2398	2489	2476
Starting Vehs	20	34	32	28
Ending Vehs	32	32	39	28
Travel Distance (mi)	370	358	369	368
Travel Time (hr)	27.7	27.1	28.9	28.8
Total Delay (hr)	11.9	11.8	13.0	13.0
Total Stops	1637	1612	1714	1694
Fuel Used (gal)	19.8	19.4	20.3	20.2

Intersection: 1: Canongate Road & Amberly Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	LT	R	LT	R
Maximum Queue (ft)	92	114	76	264	335	131	138	228	178
Average Queue (ft)	31	52	34	176	187	54	63	111	63
95th Queue (ft)	68	101	60	278	329	103	107	192	144
Link Distance (ft)		326			305	314	314	647	
Upstream Blk Time (%)					3				
Queuing Penalty (veh)					0				
Storage Bay Dist (ft)	245		135	190					300
Storage Blk Time (%)		0		8	5			0	
Queuing Penalty (veh)		0		53	24			0	

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:45	6:45	6:45	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	1505	1603	1543	1463	1467	1528	1588
Vehs Exited	1503	1604	1552	1458	1474	1524	1591
Starting Vehs	10	16	17	11	25	10	10
Ending Vehs	12	15	8	16	18	14	7
Travel Distance (mi)	226	242	234	221	223	232	239
Travel Time (hr)	14.0	15.5	14.6	13.7	13.9	14.3	15.3
Total Delay (hr)	4.5	5.3	4.7	4.5	4.5	4.6	5.2
Total Stops	896	974	951	868	845	876	984
Fuel Used (gal)	11.3	12.2	11.6	10.9	11.0	11.3	11.9

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	1520	1499	1528	1522
Vehs Exited	1516	1498	1536	1526
Starting Vehs	9	11	16	12
Ending Vehs	13	12	8	11
Travel Distance (mi)	229	226	231	230
Travel Time (hr)	14.1	14.0	14.3	14.4
Total Delay (hr)	4.5	4.5	4.6	4.7
Total Stops	895	909	897	910
Fuel Used (gal)	11.2	11.1	11.4	11.4

Interval #0 Information Seeding

Start Time	6:45
End Time	7:00
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1505	1603	1543	1463	1467	1528	1588
Vehs Exited	1503	1604	1552	1458	1474	1524	1591
Starting Vehs	10	16	17	11	25	10	10
Ending Vehs	12	15	8	16	18	14	7
Travel Distance (mi)	226	242	234	221	223	232	239
Travel Time (hr)	14.0	15.5	14.6	13.7	13.9	14.3	15.3
Total Delay (hr)	4.5	5.3	4.7	4.5	4.5	4.6	5.2
Total Stops	896	974	951	868	845	876	984
Fuel Used (gal)	11.3	12.2	11.6	10.9	11.0	11.3	11.9

Interval #1 Information Recording

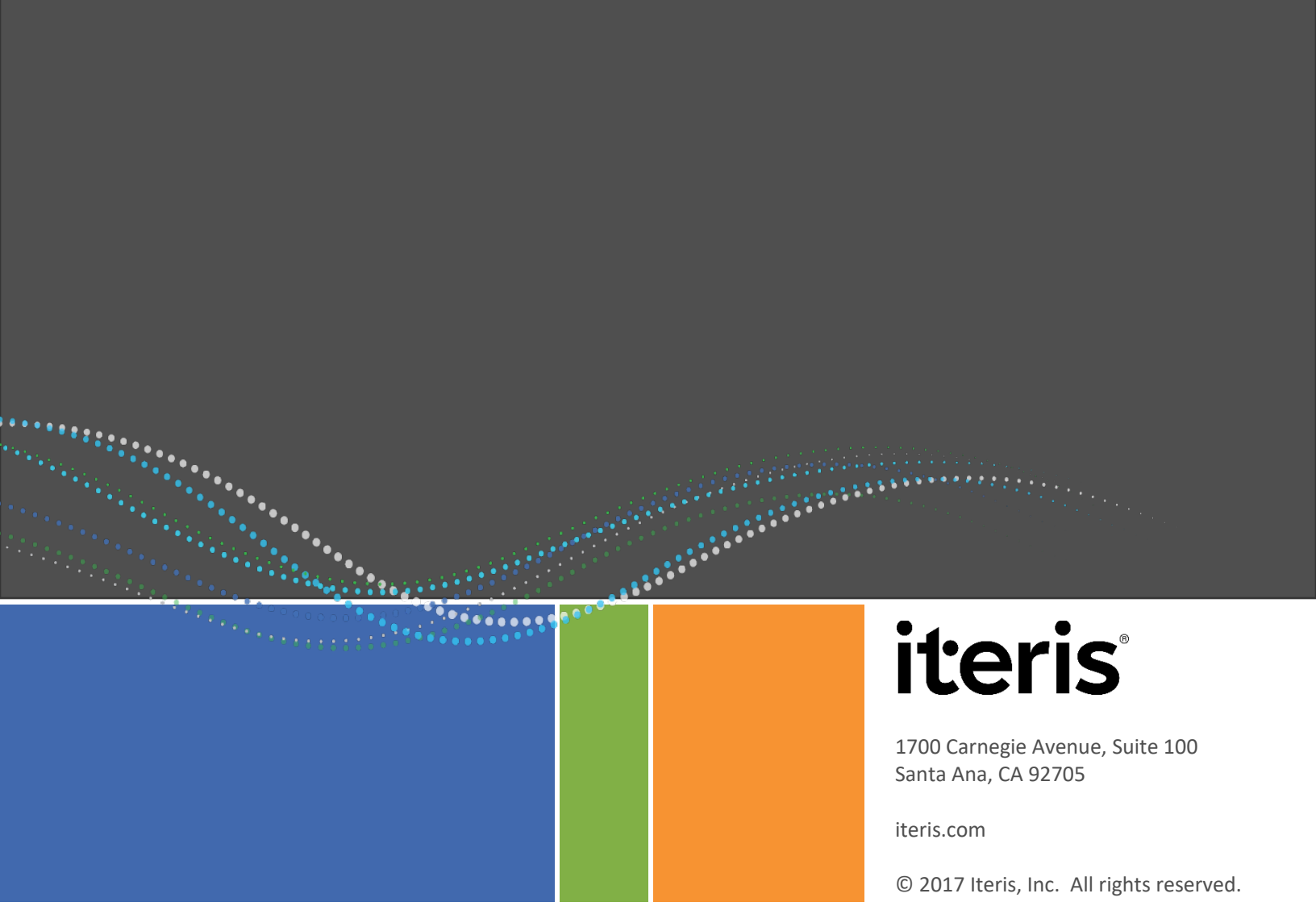
Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	1520	1499	1528	1522
Vehs Exited	1516	1498	1536	1526
Starting Vehs	9	11	16	12
Ending Vehs	13	12	8	11
Travel Distance (mi)	229	226	231	230
Travel Time (hr)	14.1	14.0	14.3	14.4
Total Delay (hr)	4.5	4.5	4.6	4.7
Total Stops	895	909	897	910
Fuel Used (gal)	11.2	11.1	11.4	11.4

Intersection: 1: Canongate Road & Amberly Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	LT	R	LT	R
Maximum Queue (ft)	134	210	94	110	113	92	142	90	28
Average Queue (ft)	55	84	24	49	47	44	61	33	1
95th Queue (ft)	102	156	61	90	87	82	109	69	13
Link Distance (ft)		326			305	314	314	647	
Upstream Blk Time (%)		0							
Queuing Penalty (veh)		0							
Storage Bay Dist (ft)	245		135	190					300
Storage Blk Time (%)		1							
Queuing Penalty (veh)		3							



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