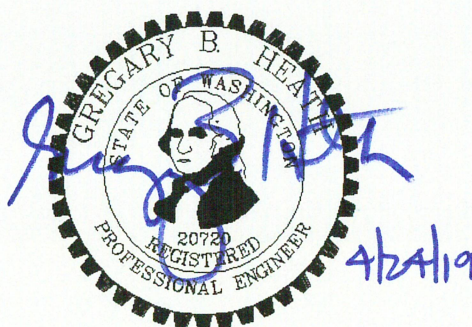




WINSLOW HOTEL
TRAFFIC IMPACT ANALYSIS

City of Bainbridge Island, WA



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WINSLOW HOTEL
TRAFFIC IMPACT ANALYSIS

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WINSLOW HOTEL TRAFFIC IMPACT ANALYSIS

1. INTRODUCTION

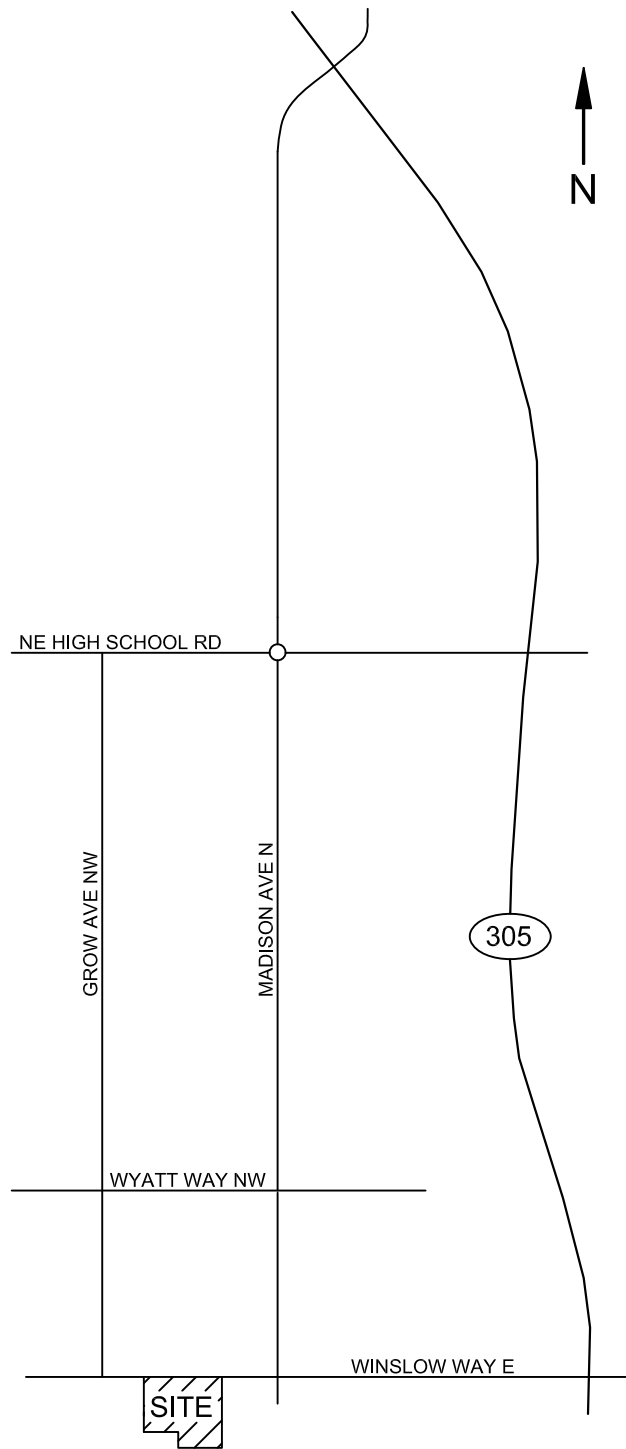
The main goals of this study focus on the assessment of existing roadway conditions and forecasts of newly generated project traffic. The first task includes the review of general roadway information on the roadways serving the site, baseline conditions, and entering sight distance data. Forecasts of future traffic and dispersion patterns on the street system are then determined using established trip generation and distribution techniques. As a final step, appropriate conclusions and mitigation measures are defined if needed.

2. PROJECT DESCRIPTION

Winslow Hotel is a proposed 72,000 square foot (sf) hotel comprising 87 guest rooms in the city of Bainbridge Island. The subject site is located on the south side of Winslow Way and west of Madison Ave on parcels: 272502-4-097-2000 & 272502-4-098-2009. Existing on-site uses will be removed for new construction which consist of an 11,659-sf retail/office building and a 1,574-sf dwelling unit formerly used for restaurant and dining.

The hotel would offer amenities including a restaurant, spa, and banquet rooms. A parking supply of 123 stalls is proposed to accommodate daily operations based on an independent park study. A shuttle system would be available for guests arriving/departing from the Bainbridge Island Ferry Terminal. A vicinity map of the surrounding roadway network is illustrated in Figure 1. A conceptual design outlining the overall configuration of the project and access points via Winslow Way is presented in Figure 2.





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WINSLOW HOTEL
VICINITY MAP & ROADWAY SYSTEM
FIGURE 1



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WINSLOW HOTEL
SITE PLAN
FIGURE 2

3. EXISTING CONDITIONS

3.1 Existing Roadway Characteristics

The major roadways serving the site are listed and described below.

SR 305: is a north-south, multi-lane state route and city designated primary arterial. SR 305 provides connection to the Bainbridge Island Ferry Terminal to the south and to SR 3 and SR 307 to the north. The roadway supports approximately 11,000 average daily trips (ADT) in the vicinity. Shoulders consists of ferry waiting on the west side and paved on the east side. A separated non-motorist path is available on the east side of SR 305. The posted speed limit within the study area ranges from 30 mph to 40 mph.

Madison Avenue S./N.: is a north-south, two-lane collector south of Winslow Way and a two- to three-lane secondary arterial to the north. The road cross section near the site consists of one 10-foot wide travel lane in either direction and 4-foot wide paved shoulders. Curb, gutter, and sidewalk are available along either direction. The roadway has a posted speed limit of 25 mph in the vicinity. No on-street parking opportunities are offered south of Winslow Way.

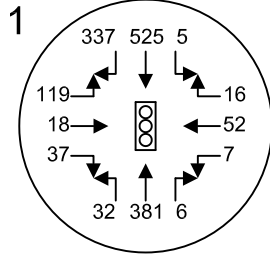
Winslow Way W./E.: is an east-west, two-lane collector and local access west of Madison Avenue and a two-lane secondary arterial to the east. Travel lanes vary from 10-12 feet in width and the roadway has a posted speed limit of 20 mph in the vicinity. Painted bike sharrows are found on the roadway east of Madison Avenue. Curb, gutter, and sidewalk are available in either direction. On-street parking is offered as head-in angle and parallel.

3.2 Existing Peak Hour Volumes

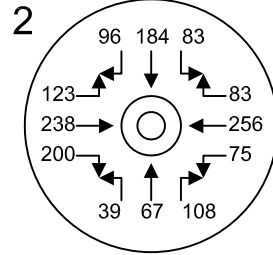
Traffic counts were performed at various locations to determine baseline vehicular activity in the defined study area. Field data was collected in October of 2018 under two peak period weekday scenarios: 7-9 PM and 4-6 PM. These timeframes generally represent peak vehicular activity and were the focus of this analysis. The one-hour reflecting highest overall volumes (peak hour) for each intersection is then used to analyze worst-case conditions. The study intersections with respective AM and PM peak hour volumes are illustrated in Figure 3 and Figure 4. Full count sheets are included in the appendix. The study intersections are summarized below.

- | | |
|---------------------------------|------------------------------|
| 1. SR 305 / Madison Ave | 5. Grow Ave / Winslow Way |
| 2. Madison Ave / High School Rd | 6. Winslow Way / Madison Ave |
| 3. SR 305 / High School Rd | 7. SR 305 / Winslow Way |
| 4. Madison Ave / Wyatt Way | |

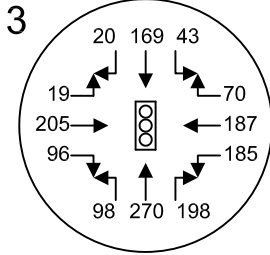
SR 305 / MADISON AVE



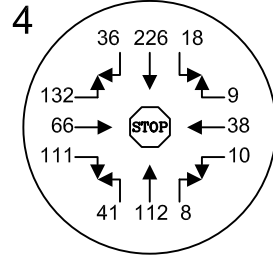
MADISON AVE / HIGH SCHOOL RD



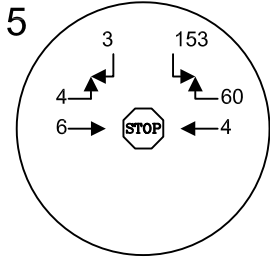
SR 305 / HIGH SCHOOL RD



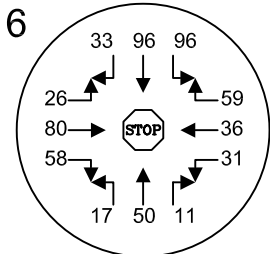
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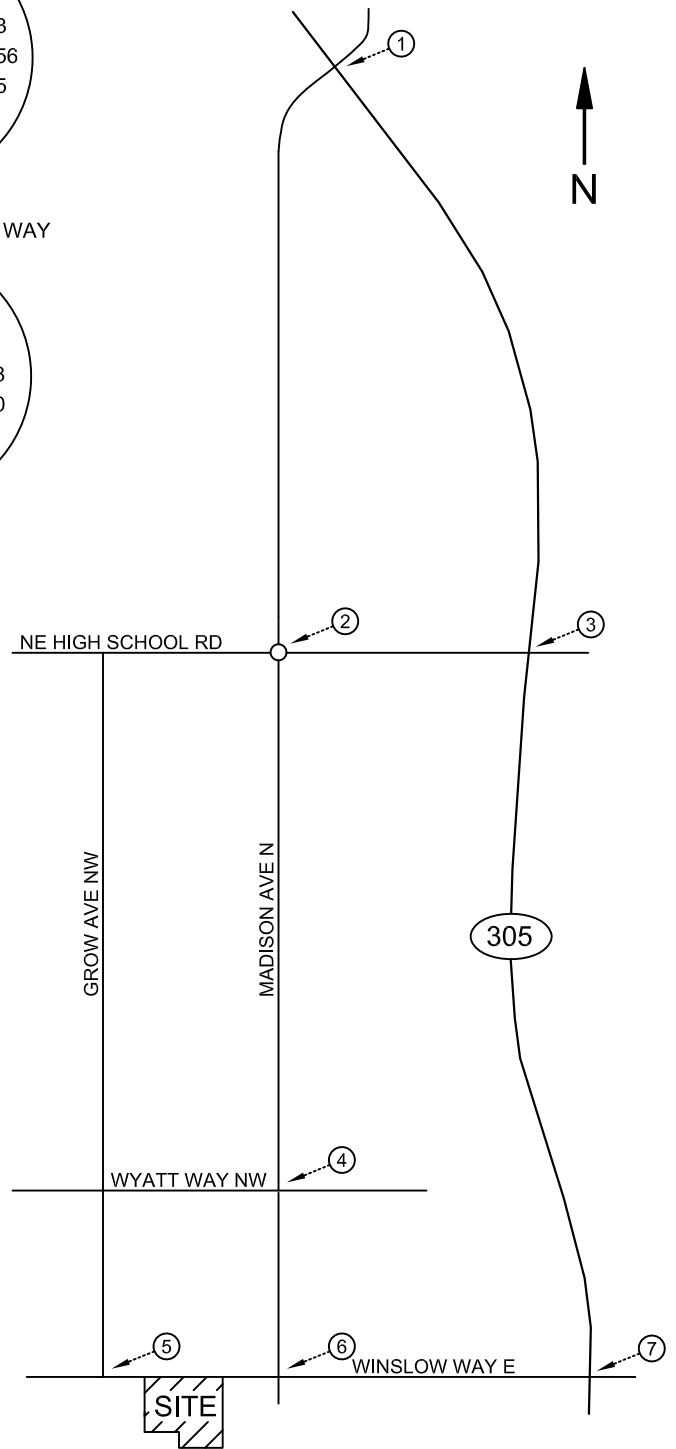
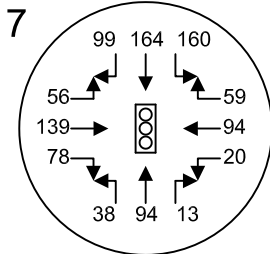
GROW AVE / WINSLOW WAY



WINSLOW WAY / MADISON AVE



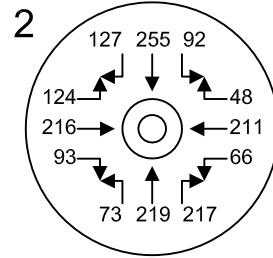
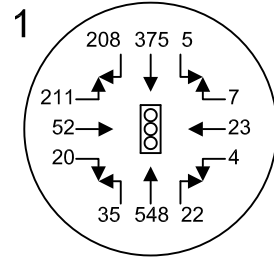
SR 305 / WINSLOW WAY



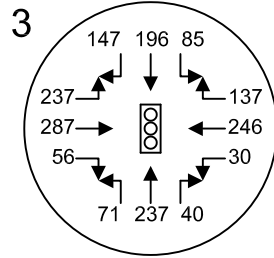
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WINSLOW HOTEL
EXISTING AM PEAK HOUR VOLUMES
FIGURE 3

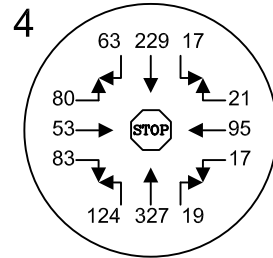
SR 305 / MADISON AVE MADISON AVE / HIGH SCHOOL RD



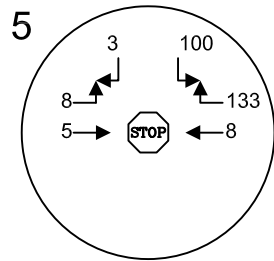
SR 305 / HIGH SCHOOL RD



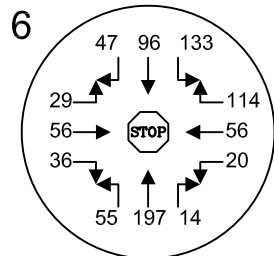
MADISON AVE / WYATT WAY



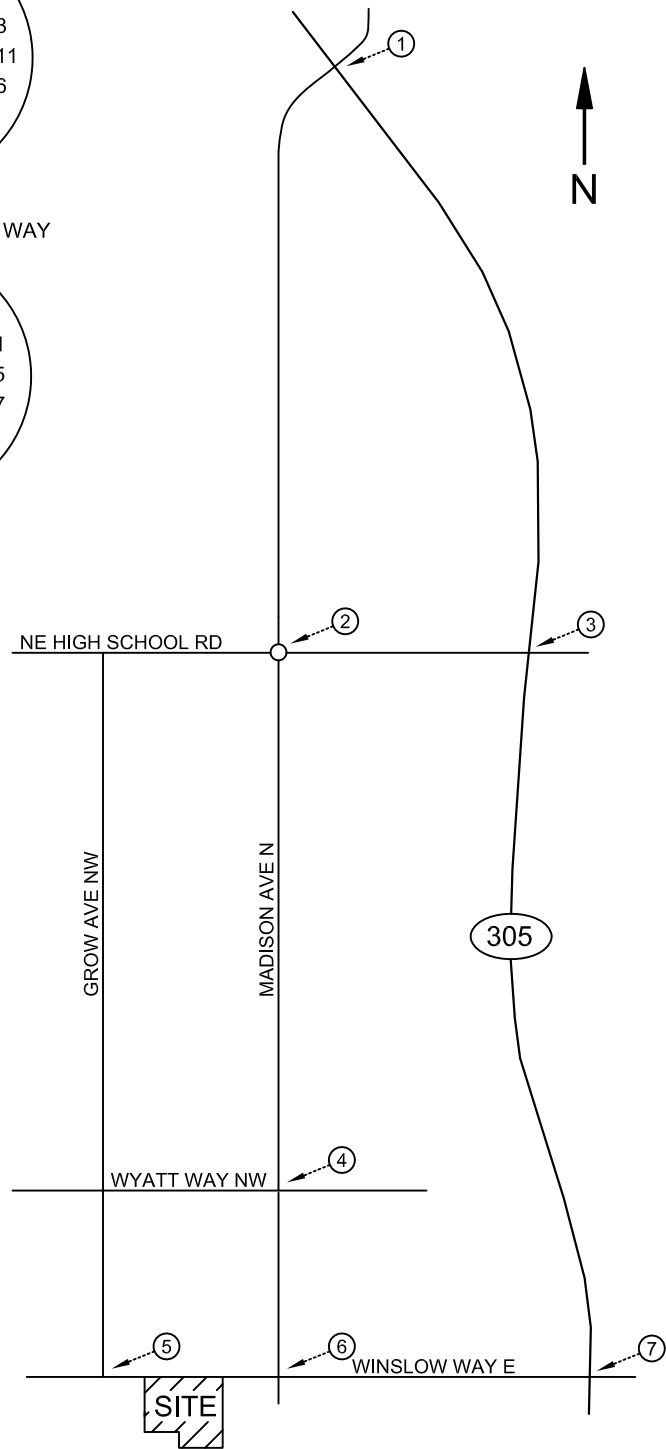
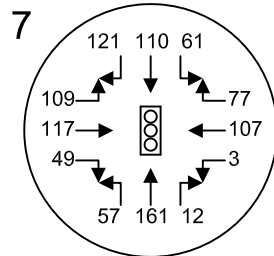
GROW AVE / WINSLOW WAY



WINSLOW WAY / MADISON AVE



SR 305 / WINSLOW WAY



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WINSLOW HOTEL
EXISTING PM PEAK HOUR VOLUMES
FIGURE 4

3.3 Existing Level of Service

Existing peak hour delays were determined through the use of the *Highway Capacity Manual* 6th Edition. Capacity analysis is used to determine level of service (LOS) which is an established measure of congestion for transportation facilities. The range¹ for intersection level of service is LOS A to LOS F with the former indicating the best operating conditions with low control delays and the latter indicating the worst conditions with heavy control delays. Level of service calculations were made through the use of the *Synchro 10* analysis program. Delays presented represent overall weighted average delays for the signalized and roundabout controls. For unsignalized, side-street stop-controlled intersections, LOS is determined by the movement with the highest delay

Table 1: Existing Weekday Peak Hour Level of Service

Delays Given in Seconds per Vehicle

		<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
Ref #	Intersection	LOS	Delay	LOS	Delay
<u>Signalized</u>					
1	SR 305 / Madison Ave	B	11.6	B	16.6
3	SR 305 / High School Rd	C	24.3	C	33.9
7	SR 305 / Winslow Way	B	18.5	C	23.9
<u>Roundabout</u>					
2	Madison Ave / High School Rd	B	13.3	B	12.1
<u>All-Way Stop</u>					
4	Madison Ave / Wyatt Way	B	12.8	C	17.9
5	Grow Ave / Winslow Way	A	8.3	A	7.7
6	Madison Ave / Winslow Way	B	10.7	B	11.6

¹ *Signalized Intersections - Level of Service*

Level of Service	Control Delay per Vehicle (sec)
A	≤ 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Stop Controlled Intersections – Level of Service

Level of Service	Control Delay per Vehicle (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

City Level of Service Standards²: The subject property is situated within the city's designated Winslow area with the following LOS criteria:

Secondary Arterial – LOS D; Collector – LOS D; Local Access – LOS C

WSDOT Level of Service Standards³: SR 305 is considered a Highway of Statewide Significance (HSS) with an established LOS standard of LOS D.

Existing Weekday AM & PM Peak Hours:

All study intersections meet the LOS standards during the weekday peak hours of travel with delays at LOS C or better.

3.4 Non-Motorist Traffic

The city's downtown area offers a robust network of non-motorist facilities in the form of complete sidewalks, marked pedestrian crossings, and bicycle lanes/sharrows. There is currently no sidewalk on the south side of Winslow Way W west of Finch PI SW; however, the proposal includes frontage improvements with new sidewalk extending through property limits, or approximately 245 linear feet. The downtown nature of the area and proximity to local amenities is anticipated to encourage non-vehicular modes of transportation.

3.5 Transit Service

A review of the Kitsap Transit system indicates transit service is provided in the area. The nearest bus stop with respect to the subject site is served via Route 97 with stops located on Winslow Way W at Wood Ave SW less than 200 feet walking distance west of the site. Route 97 provides service from the American Legion Park & Ride to the Bainbridge Ferry. Other nearby routes (~0.25 miles) consist of Routes 90, 98, & 99 with stops along Winslow Way E and Madison Ave N. Refer to the Kitsap Transit Routed Buses schedule for detailed route information.

Moreover, the Bainbridge Island Ferry Terminal is less than one mile east with respect to the project site. The hotel is anticipated to be a major attraction to non-local residents with many trips expected to arrive/depart from the ferry. The hotel has proposed a shuttle service available to all guests for pick-up and drop-off.

² City of Bainbridge Island Comprehensive Plan, *Transportation Element*, (2017).

³ Level of Service Standards for Washington State Highways, *WSDOT*, (2010).

3.6 Access Driveway Safety

Access to the site is proposed to continue on Winslow Way E via one entrance on either end of the site and an additional driveway for shuttle ingress/egress. Assessments of driveway sight distance are consistent with AASHTO's *Green Book* (2011) standards. Based on the 20-mph posted speed limit on Winslow Way W, 195- and 225 feet of unobstructed view is needed for project traffic to safely enter the roadway. Preliminary measurements along the roadway length indicates sufficient sight lines in excess of 250 feet. No safety concerns are identified with the continued use to/from Winslow Way E.

3.7 Accident History

A list of the recorded accident history from 2015 through 2017 for the study intersections was requested and obtained from WSDOT. A summary of the accident totals per year at each intersection is provided in Table 2 below.

Table 2: Accident History

Location	2015	2016	2017	Avg/yr
<u>SR 305</u>				
at: Madison Ave	4	5	2	3.7
at: High School Rd	2	7	7	5.3
at: Winslow Way	4	5	1	3.3
<u>Madison Ave</u>				
at: High School Rd	2	5	4	3.7
at: Wyatt Way	2	4	4	3.3
at: Madison Ave	0	1	0	0.3
<u>Grow Ave</u>				
at: Winslow Way	0	0	0	0

A review of the crash data indicates the most common accident occurrences were in the form of: rear-end collisions (27) and entering at angle (19). These types of accidents are generally due to driver inattentiveness rather than roadway geometry or design. Three reported collisions involved vehicle-to-pedestrian/cyclist. One accident along SR 305 at High School Rd involved two fatalities due to the vehicle going over the embankment.

3.8 Roadway Improvements

A review of the City of Bainbridge Island Capital Improvement Program indicates improvement projects are planned in the vicinity:

Wyatt Way Reconstruction Phase 1

This scope of this project intends to reconstruct and improve the existing Wyatt Way segment from Madison Avenue to Lovell Avenue. Included are sidewalk and bicycle facilities on both sides of the street and capacity improvements to the intersection of Wyatt Way/Madison Avenue. Intersection improvements are planned with either signalization or a roundabout.

Olympic Drive Non-Motorized Improvements

The scope of this project includes pedestrian and bicycle improvements to Olympic Drive near the Bainbridge Island ferry terminal. Improvements consist of sidewalk widening, bike lanes or sharrows, painted bike boxes, center divider curb, street lighting, signal modifications and landscaping.

4. FUTURE TRAFFIC CONDITIONS

4.1 Trip Generation

Trip generation is used to determine the magnitude of project impacts on the surrounding street system. This is denoted by the quantity or specific number of new trips that enter or exit a project during a designated time period, such as a specific peak hour or an entire day. Data presented in this report was taken from the Institute of Transportation Engineer's (ITE) publication *Trip Generation*, 10th Edition. The designated land use for the proposed project is defined as Hotel (LUC 310).

An excerpt from the ITE manual states, "A hotel is a place of lodging that provides sleeping accommodations and supporting facilities such as restaurants, cocktail lounges, meeting and banquet rooms or convention facilities, limited recreational facilities (pool, fitness room), and/or other retail and service shops." The proposal was identified to offer similar amenities and supporting facilities and is projected to be accurately represented by the above land use. Table 3 below summarizes the estimated new trips. Included are the average weekday daily traffic (AWDT) and the AM and PM peak hours. Refer to the appendix for trip generation output.

Table 3: Project Trip Generation

Land Use	Rooms	AWDT	AM Peak-Hour Trips			PM Peak-Hour Trips		
			In	Out	Total	In	Out	Total
Hotel	87	727	24	17	41	26	26	52

Based on ITE data the project is anticipated to generate 41 new trips in the AM and 52 new trips in the PM peak hours of travel. However, many trips are likely to be in the form of shuttle and/or walking due to proximity to local attractions and amenities. The downtown nature of the area would encourage alternative modes of travel to passenger vehicles. The trip generation is considered to be a conservative forecast.

In addition, no trip deductions from the existing 11,659 sf on-site retail building and 1,574 square foot restaurant were applied to remain conservative in analyzing potential impacts to the adjacent roadway network and study intersections. The net increase in local traffic is therefore lower than the summarized trip generation in Table 3. A calculation of PM peak hour assuming the office traffic and restaurant traffic shows that 15 PM peak hour trips from the office and 12 trips from the restaurant could be expected. This would realize only 22 net new PM peak hour trips from the site.

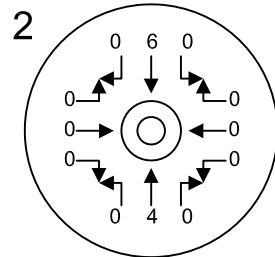
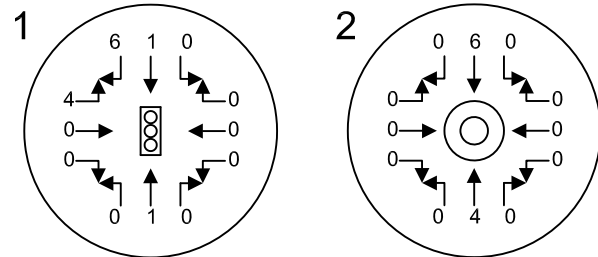
4.2 Distribution & Assignment

Trip distribution describes the anticipated travel routes for inbound and outbound project traffic during the peak hour study periods. Figures 5 & 6 illustrate destination and origin percentages for the respective AM and PM peak hours. Trip distributions are based on existing travel patterns and proximity to nearby arterials. The hotel is anticipated to attract out of town guests which would likely originate from the ferry terminal or SR 305 from the north.

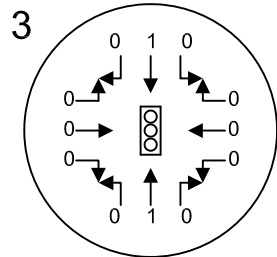
4.3 Future Peak Hour Volumes

A horizon year of 2021 was used for future traffic delay analysis to reflect conditions at the time of project buildout. Forecast background volumes were derived by applying a one percent annual compound growth rate to the existing intersection volumes. This growth rate has been determined appropriate for the study area and has been used in similar past projects. In addition, a number of nearby approved projects have been included as pipeline volumes. Projects include: CKCB, Madison Grove, Wallace Cottages, Madison Place, Madison Landing, Wyatt Apartments, Madrona Townhomes and Vicons Master Plan. Pipeline volumes traveling through the study intersection are shown in Figures 7 & 8 for the AM and PM peak hours, respectively. Forecast 2021 peak hour volumes without project are illustrated in Figures 9 & 10. Forecast 2021 peak hour volumes with project are illustrated in Figures 11 & 12. In addition, a long-term 20-year (2039) horizon was analyzed in terms of total intersection volumes and are provided in the appendix.

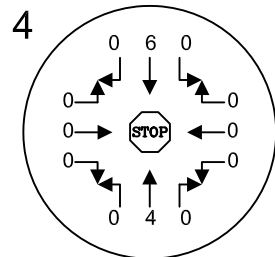
SR 305 / MADISON AVE MADISON AVE / HIGH SCHOOL RD



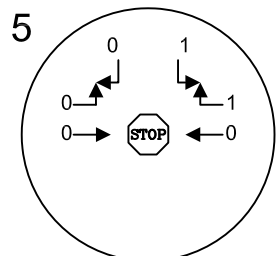
SR 305 / HIGH SCHOOL RD



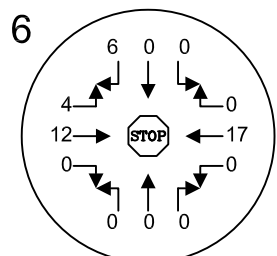
MADISON AVE / WYATT WAY



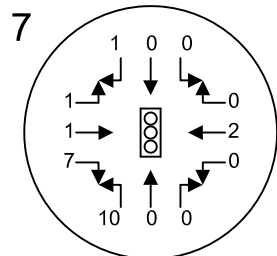
GROW AVE / WINSLOW WAY



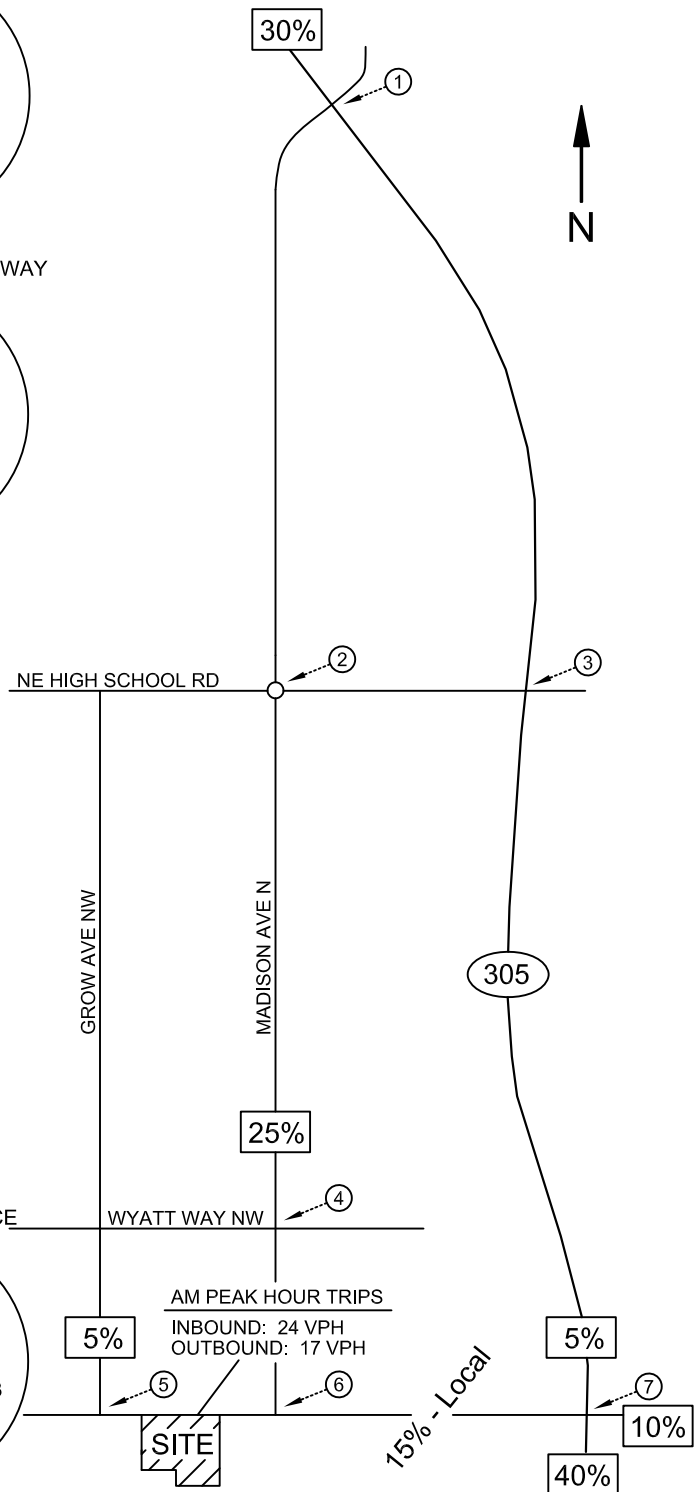
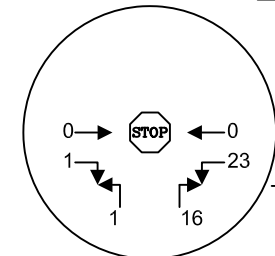
WINSLOW WAY / MADISON AVE



SR 305 / WINSLOW WAY



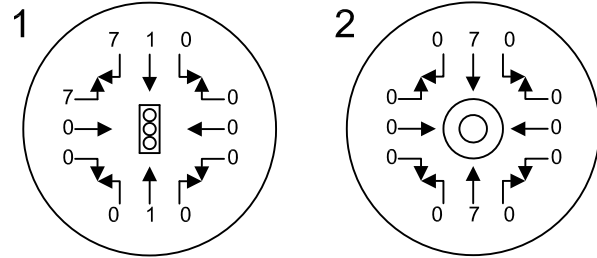
WINSLOW / ENTRANCE



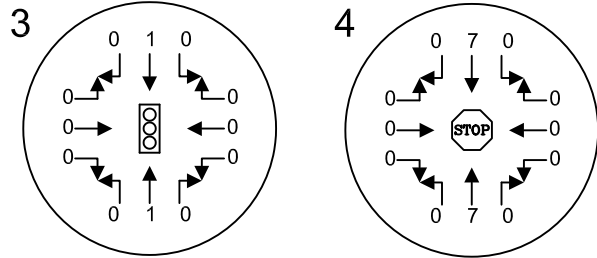
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WINSLOW HOTEL
TRIP DISTRIBUTION - AM PEAK HOUR
FIGURE 5

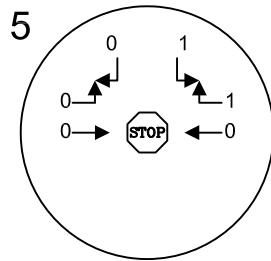
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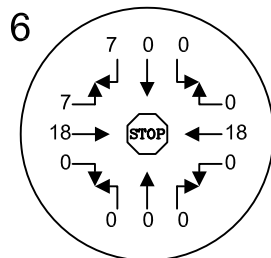
SR 305 / HIGH SCHOOL RD MADISON AVE / WYATT WAY



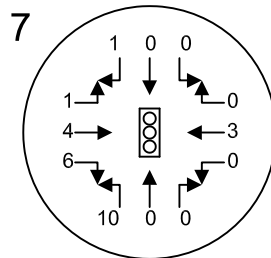
GROW AVE / WINSLOW WAY



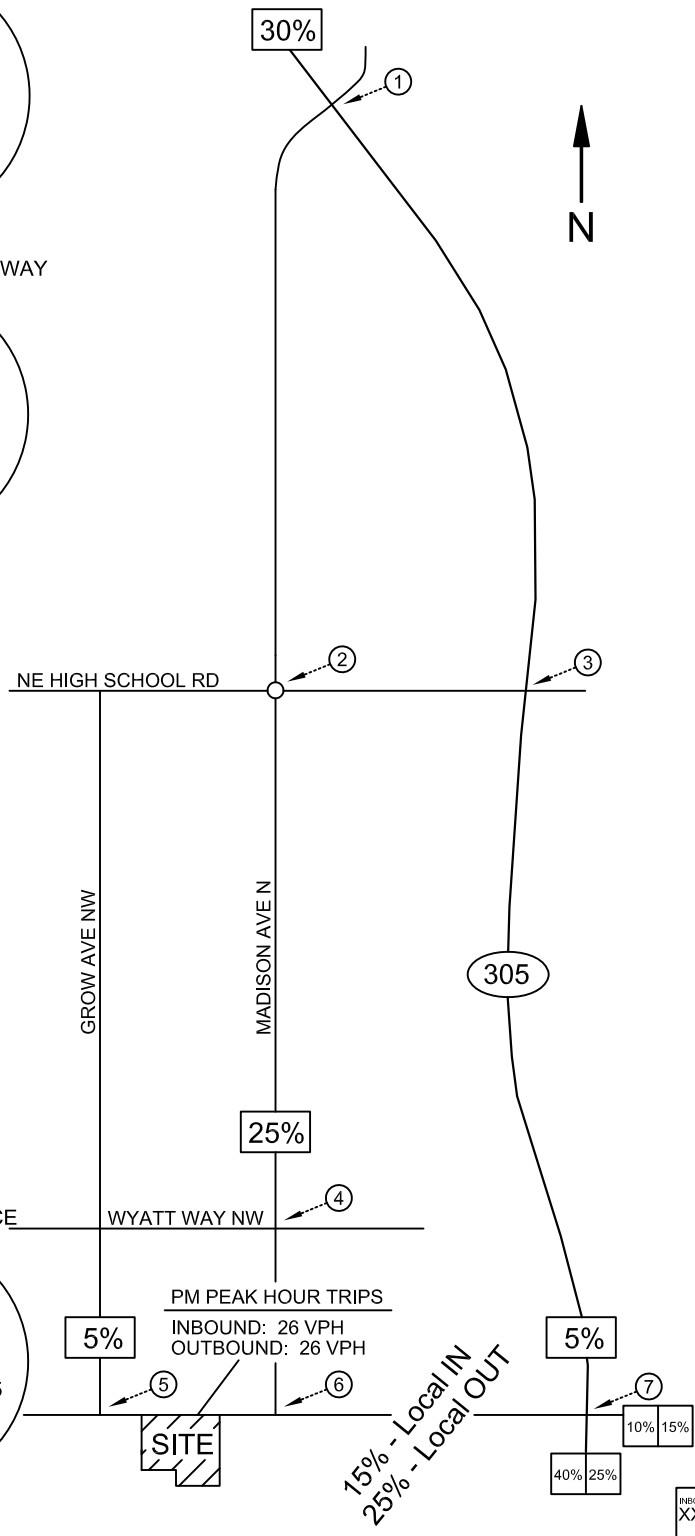
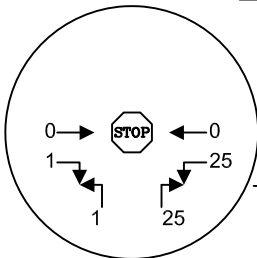
WINSLOW WAY / MADISON AVE



SR 305 / WINSLOW WAY



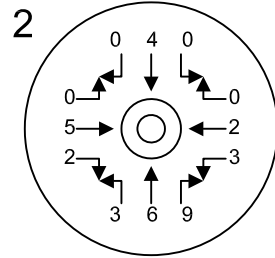
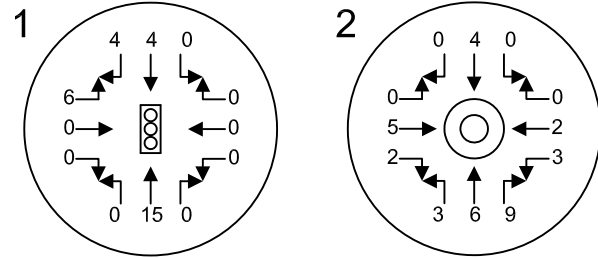
WINSLOW / ENTRANCE



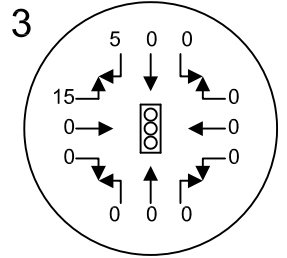
HEATH & ASSOCIATES
TRAFFIC AND CIVIL ENGINEERING

WINSLOW HOTEL
TRIP DISTRIBUTION - PM PEAK HOUR
FIGURE 6

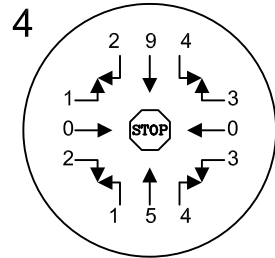
SR 305 / MADISON AVE MADISON AVE / HIGH SCHOOL RD



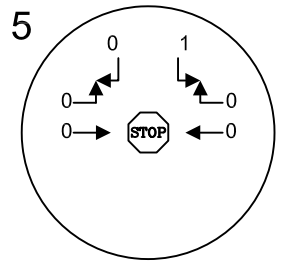
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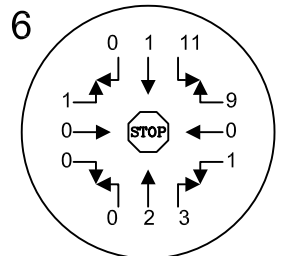
MADISON AVE / WYATT WAY



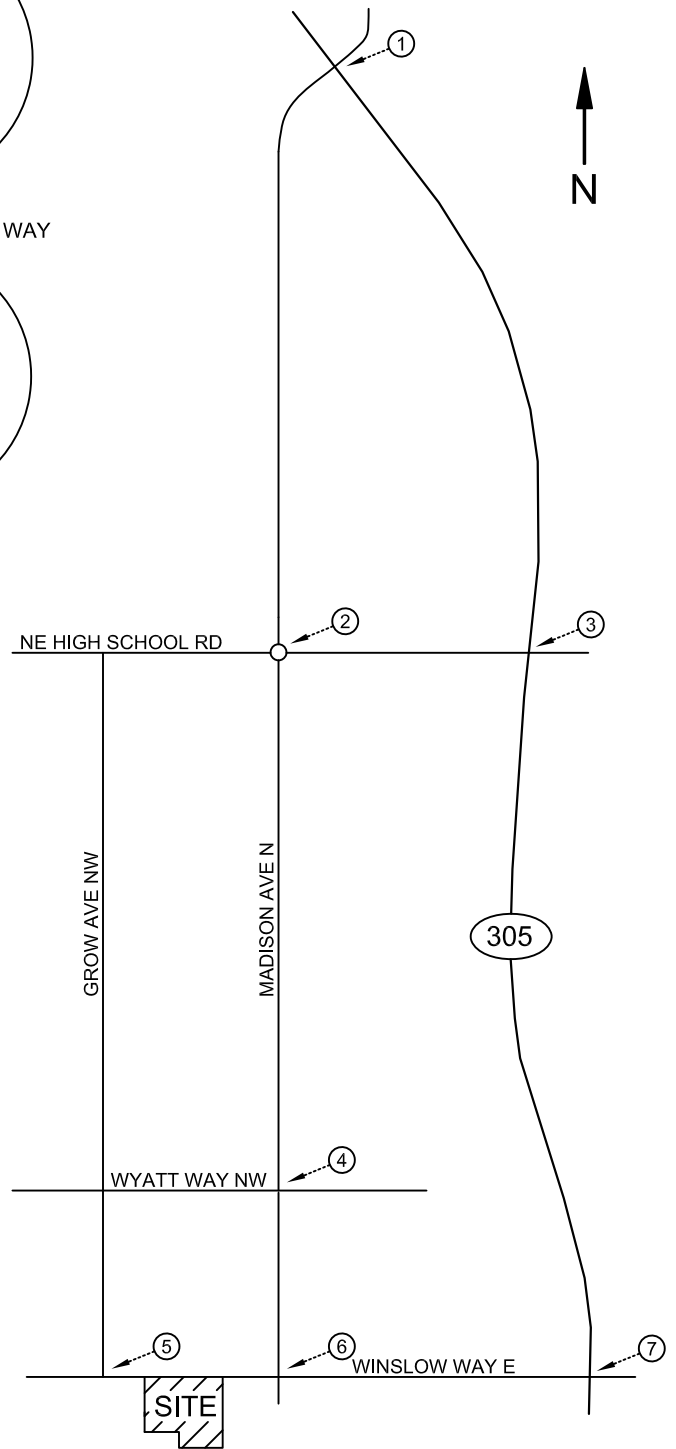
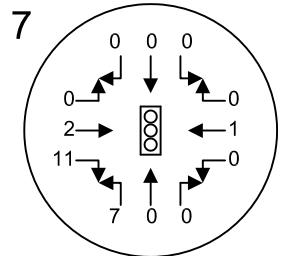
GROW AVE / WINSLOW WAY



WINSLOW WAY / MADISON AVE



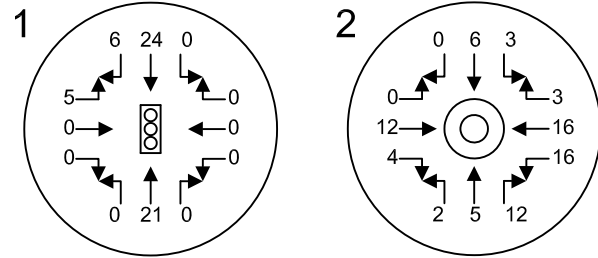
SR 305 / WINSLOW WAY



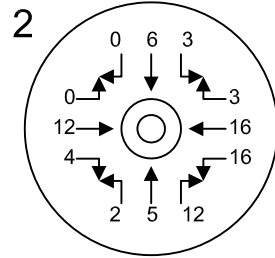
HEATH & ASSOCIATES
TRAFFIC AND CIVIL ENGINEERING

WINSLOW HOTEL
AM PEAK HOUR PIPELINE VOLUMES
FIGURE 7

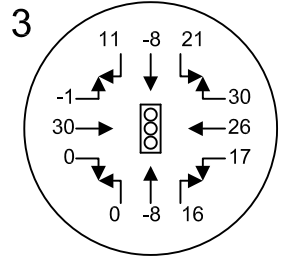
SR 305 / MADISON AVE MADISON AVE / HIGH SCHOOL RD



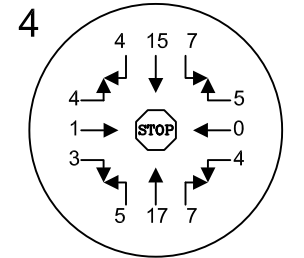
MADISON AVE / HIGH SCHOOL RD



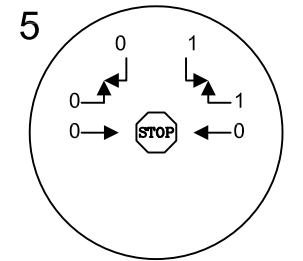
SR 305 / HIGH SCHOOL RD



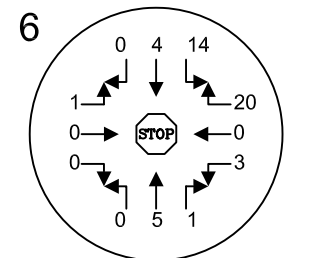
MADISON AVE / WYATT WAY



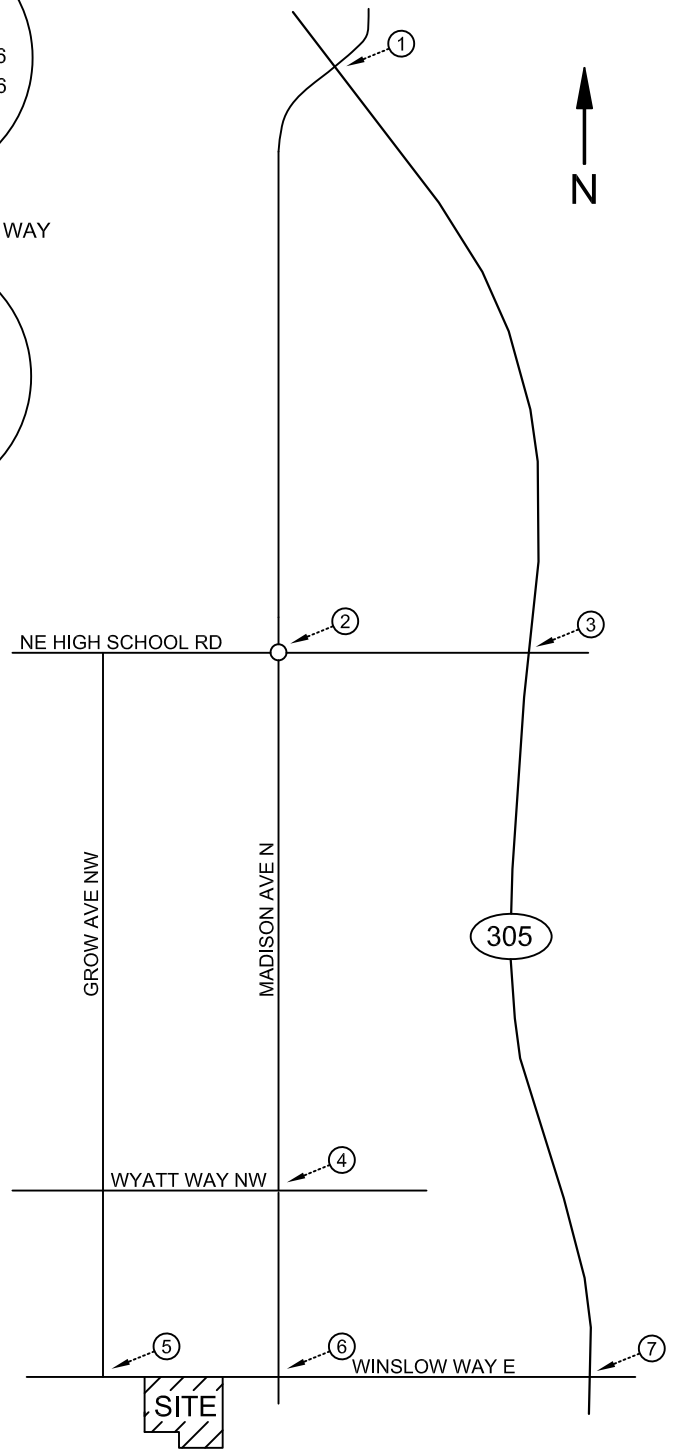
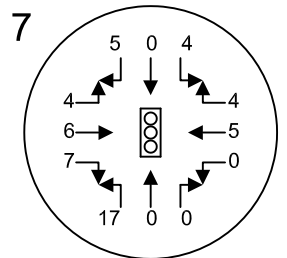
GROW AVE / WINSLOW WAY



WINSLOW WAY / MADISON AVE



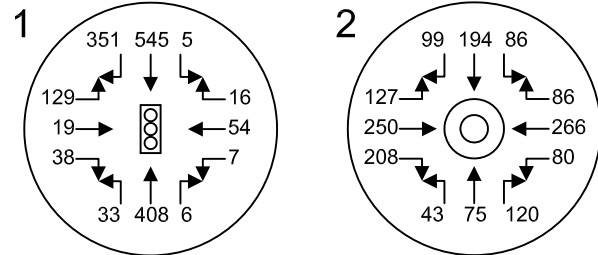
SR 305 / WINSLOW WAY



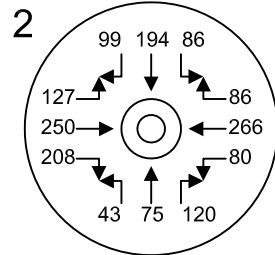
HEATH & ASSOCIATES
TRAFFIC AND CIVIL ENGINEERING

WINSLOW HOTEL
PM PEAK HOUR PIPELINE VOLUMES
FIGURE 8

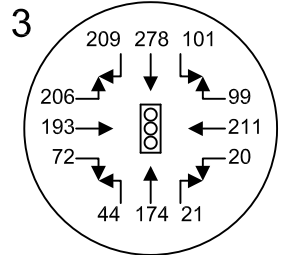
SR 305 / MADISON AVE MADISON AVE / HIGH SCHOOL RD



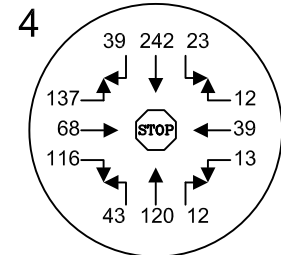
MADISON AVE / HIGH SCHOOL RD



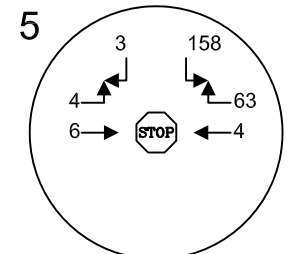
SR 305 / HIGH SCHOOL RD



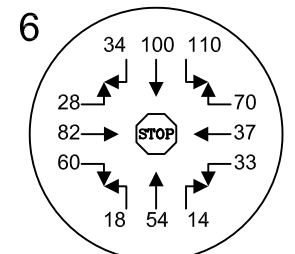
MADISON AVE / WYATT WAY



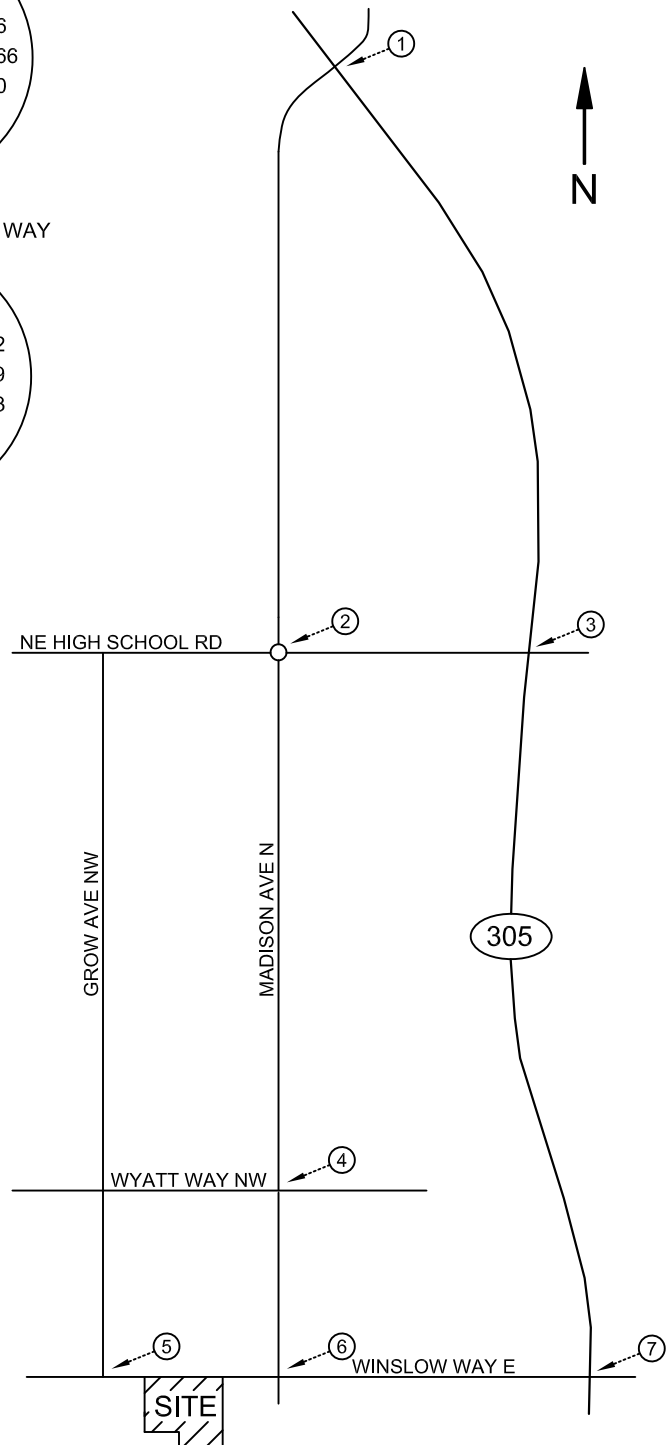
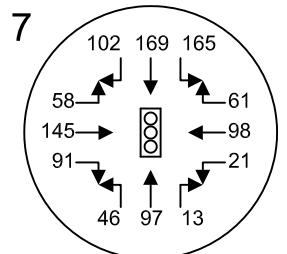
GROW AVE / WINSLOW WAY



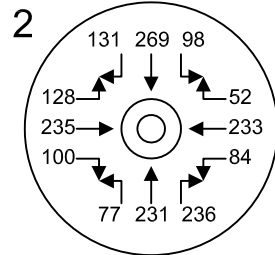
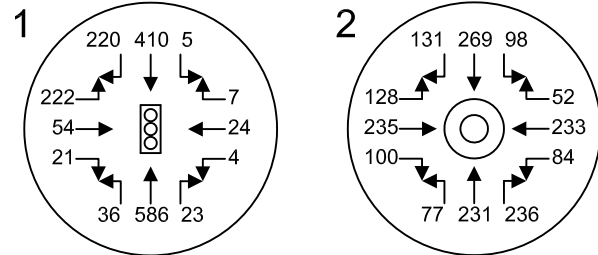
WINSLOW WAY / MADISON AVE



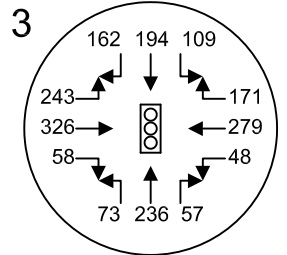
SR 305 / WINSLOW WAY



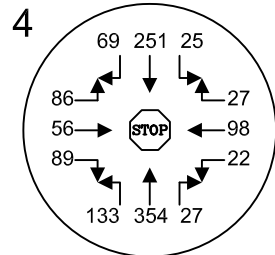
SR 305 / MADISON AVE MADISON AVE / HIGH SCHOOL RD



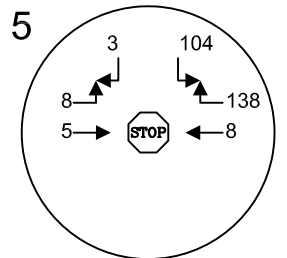
SR 305 / HIGH SCHOOL RD



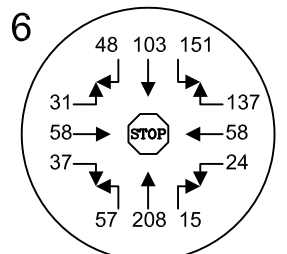
MADISON AVE / WYATT WAY



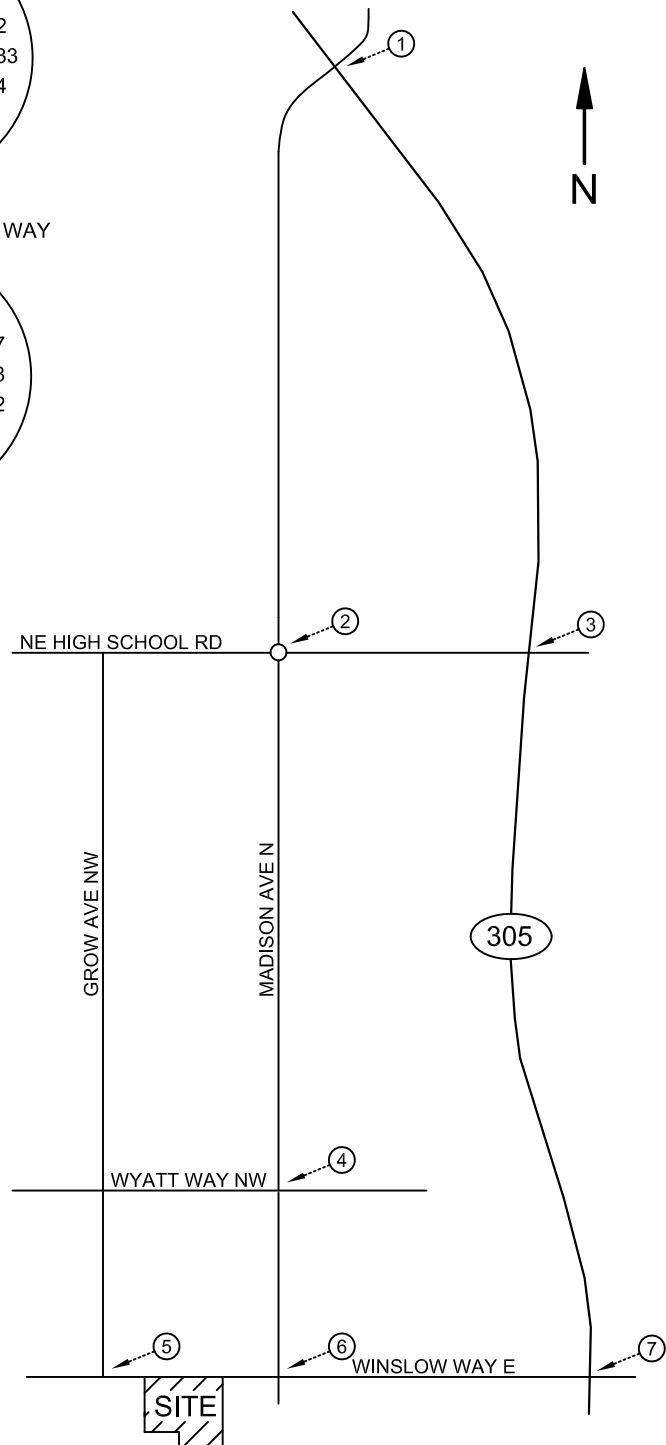
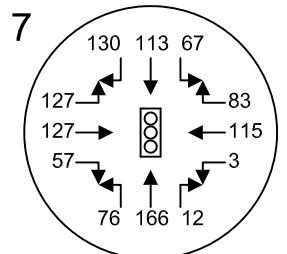
GROW AVE / WINSLOW WAY



WINSLOW WAY / MADISON AVE



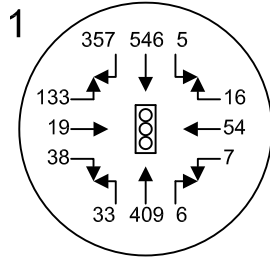
SR 305 / WINSLOW WAY



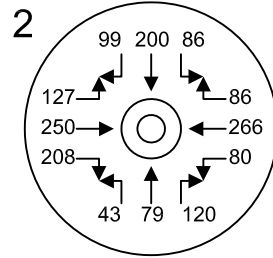
HEATH & ASSOCIATES
TRAFFIC AND CIVIL ENGINEERING

WINSLOW HOTEL
2021 PM PEAK HOUR VOLUMES WITHOUT PROJECT
FIGURE 10

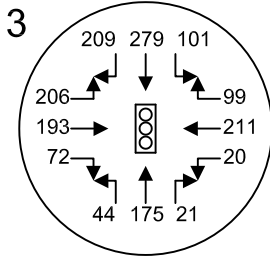
SR 305 / MADISON AVE



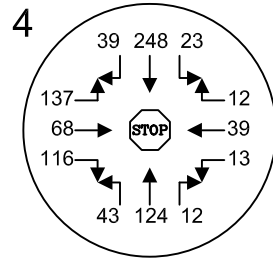
MADISON AVE / HIGH SCHOOL RD



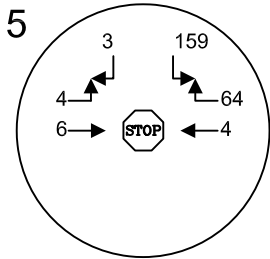
SR 305 / HIGH SCHOOL RD



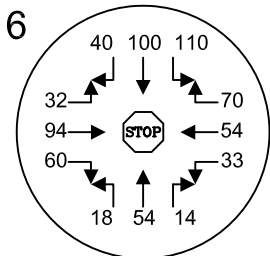
MADISON AVE / WYATT WAY



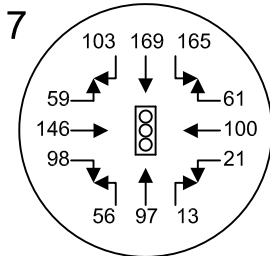
GROW AVE / WINSLOW WAY



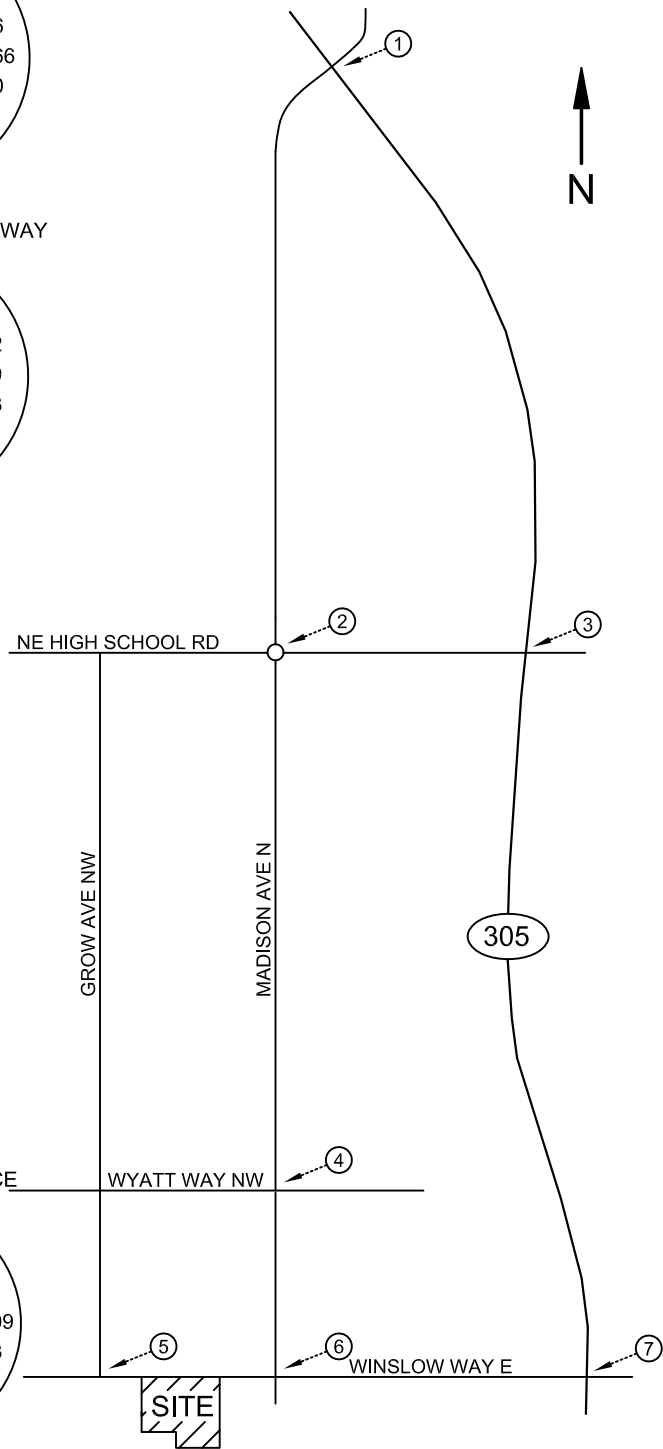
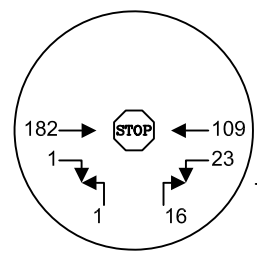
WINSLOW WAY / MADISON AVE



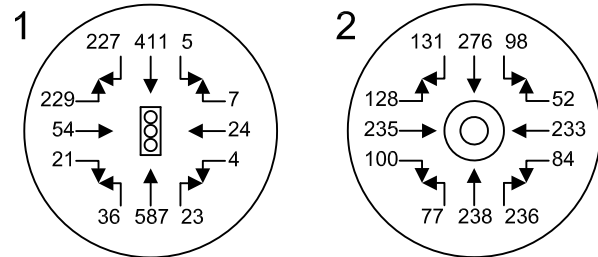
SR 305 / WINSLOW WAY



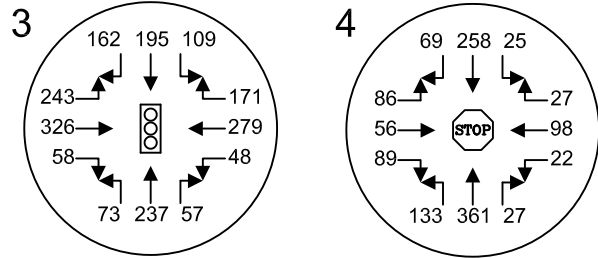
WINSLOW / ENTRANCE



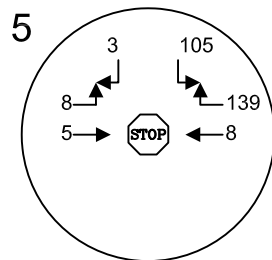
SR 305 / MADISON AVE MADISON AVE / HIGH SCHOOL RD



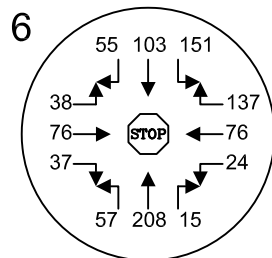
SR 305 / HIGH SCHOOL RD MADISON AVE / WYATT WAY



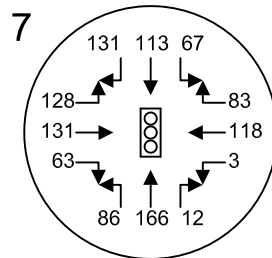
GROW AVE / WINSLOW WAY



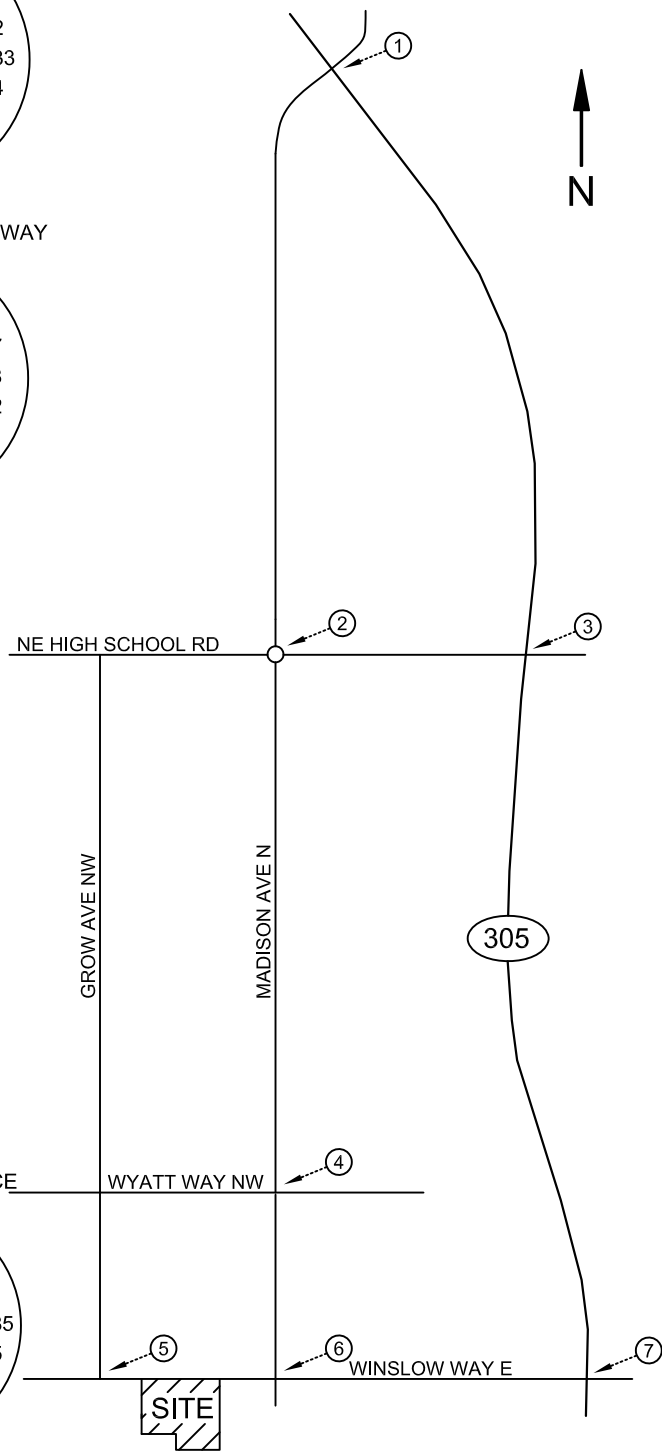
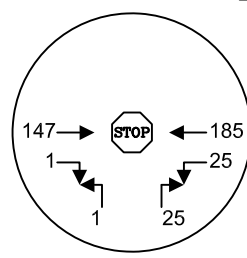
WINSLOW WAY / MADISON AVE



SR 305 / WINSLOW WAY



WINSLOW / ENTRANCE



4.4 Future Level of Service

Level of service analyses were made of the forecast 2021 peak hour volumes without (background) and with project related trips added to the key roadways and intersections. Delays for the study intersections under future conditions are shown in the table below.

Table 4: Forecast 2021 Weekday Peak Hour Level of Service

Delays given in seconds per vehicle

Ref #	Intersection	<i>AM Peak Hour</i>				<i>PM Peak Hour</i>			
		Without		With		Without		With	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
<u>Signalized</u>									
1	SR 305 / Madison Ave	B	13.0	B	13.2	B	17.4	B	17.7
3	SR 305 / High School Rd	C	24.9	C	24.9	D	37.5	D	37.6
7	SR 305 / Winslow Way	B	19.5	B	19.7	C	28.1	C	28.6
<u>Roundabout</u>									
2	Madison Ave / High School Rd	C	15.3	C	15.6	B	14.3	B	14.5
<u>All-Way Stop</u>									
4	Madison Ave / Wyatt Way	B	13.7	B	13.9	C	23.4	C	24.6
5	Grow Ave / Winslow Way	A	8.3	A	8.3	A	7.7	A	7.7
6	Madison Ave / Winslow Way	B	11.1	B	11.6	B	12.3	B	12.7
<u>Stop</u>									
	Entrance / Winslow Way	--	--	B	10.5	--	--	A	9.3

Forecast 2021 Weekday AM & PM Peak Hours:

All study intersections are shown to continue to meet City and WSDOT LOS standards without or with project traffic included at LOS D or better. The Winslow Hotel project is not shown to significantly impact the study area and all intersections have sufficient capacity to support the additional volumes.

4.5 Left Turn Warrant

Procedures described in WSDOT's Design Manual, *Exhibit 1310-7a Left-Turn Storage Guidelines* were used to determine left turn needs on Winslow Way E at the project's entrance assuming the use of one entrance only. Based on forecast 2021 PM peak hour volumes, a left turn lane would not be warranted. See appendix for left turn nomograph.

4.6 2039 Peak Hour Volumes

Table 5 shows the estimated future PM peak hour volumes at the study intersections, along with the project trips and percentage of project traffic of the totals.

Table 5: Forecast 2039 Weekday PM Peak Hour Project Trips and Intersection Volumes

Ref #	Intersection	Project Trips	Intersection Volume	Project %
<u>Signalized</u>				
1	SR 305 / Madison Ave	16	1914	0.8
3	SR 305 / High School Rd	2	2295	0.1
7	SR 305 / Winslow Way	25	1290	1.9
<u>Roundabout</u>				
2	Madison Ave / High School Rd	14	2217	0.6
<u>All-Way Stop</u>				
4	Madison Ave / Wyatt Way	14	1462	1.0
5	Grow Ave / Winslow Way	2	318	0.6
6	Madison Ave / Winslow Way	50	1139	4.4

As shown, the project would be a small contributor to overall traffic with project accounting for less than one percent overall intersection volumes with the exception of two intersections: Madison Ave / Winslow Way (4.4%) and SR 305 / Winslow Way (1.9%). No significant impact is anticipated from project traffic.

5. SUMMARY

The Winslow Hotel project proposes for the construction of an 87-room hotel in the Winslow area of Bainbridge Island. The subject property is located on the south side of Winslow Way E on parcels: 272502-4-097-2000 & 272502-4-098-2009. Existing on-site is an 11,659-sf retail/office building and a 1,574-sf unoccupied dwelling unit which will both be removed for new construction. A conceptual site plan illustrating access to Winslow Way is presented in Figure 2. A total of 123 on-site parking stalls is proposed to accommodate projected parking demands from an independent parking study. Existing delays within the study area are summarized in Table 1 and show all intersections currently meeting City or WSDOT Level of Service (LOS) standards.

The hotel is anticipated to generate approximately 41 AM and 52 PM peak hour trips. The existing uses on the site of office and a restaurant generate an estimated 27 existing PM peak hour trips resulting in a net of 25 PM peak hour trips with the construction of the hotel.

Forecast 2021 peak hour delays are shown to remain meeting or exceeding City or WSDOT LOS standards. Based on future conditions at the project access, left turn storage is not needed on Winslow Way E.

The project would be expected to pay city of Bainbridge Island traffic impact fees including receiving credit for the existing uses.

Based on the above analysis, no off-site mitigation is identified at this time.

WINSLOW HOTEL
TRAFFIC IMPACT ANALYSIS

APPENDIX

Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

Project Name: Winslow Hotel

Intersection: SR 305 NE & Madison Ave N

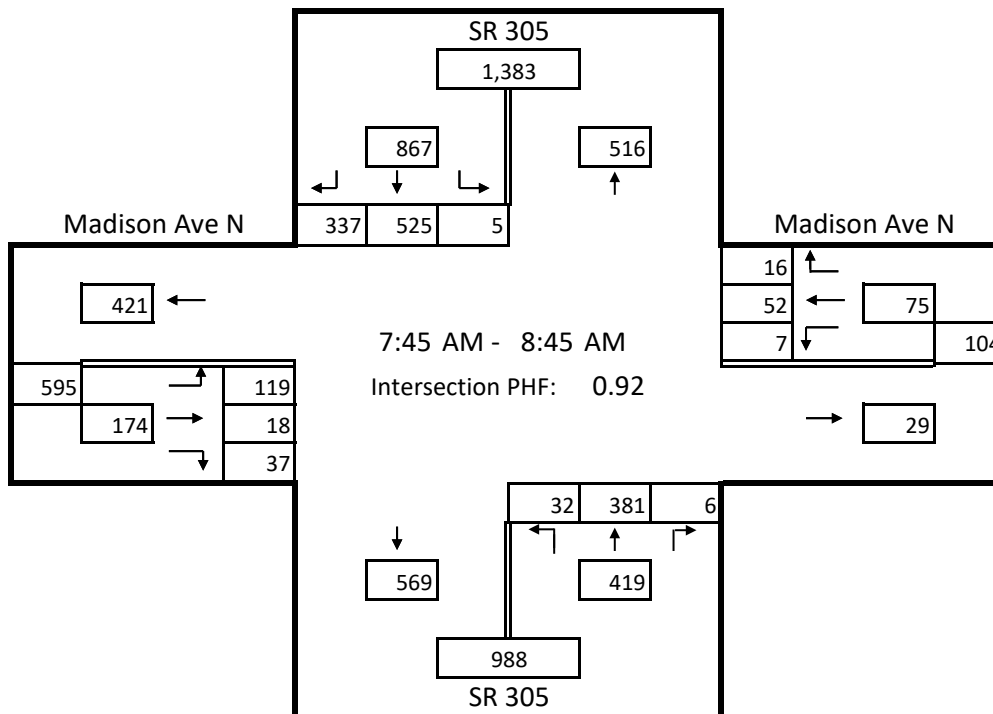
Jurisdiction: City of Bainbridge

Date of Count: 12/4/2018

Project Number: 4218

Time Period	Southbound SR 305				Westbound Madison Ave N				Northbound SR 305				Eastbound Madison Ave N				Total
	HV	R	T	L	HV	R	T	L	HV	R	T	L	HV	R	T	L	
7:00 AM	3	48	104	0	0	2	4	0	3	3	54	2	2	4	0	17	246
7:15 AM	3	71	131	0	0	7	3	0	2	2	55	0	0	6	2	9	291
7:30 AM	4	94	153	0	0	1	23	2	2	0	63	5	0	13	4	16	380
7:45 AM	5	90	117	1	0	3	12	3	9	2	124	7	2	6	8	41	430
8:00 AM	5	74	141	2	0	5	7	1	4	2	74	5	0	5	4	30	359
8:15 AM	4	77	146	1	0	3	12	0	1	1	73	8	3	18	3	22	372
8:30 AM	4	96	121	1	0	5	21	3	7	1	110	12	0	8	3	26	418
8:45 AM	3	74	148	1	1	2	9	5	5	1	90	2	0	6	6	25	378
Total	31	624	1,061	6	1	28	91	14	33	12	643	41	7	66	30	186	2,874

Peak Hour	7:45 AM to 8:45 AM																Total
Peak Total	18	337	525	5	0	16	52	7	21	6	381	32	5	37	18	119	1,535
Heavy Veh.	1.8%				0.8%				4.7%				2.5%				
PHF	0.97				0.65				0.79				0.79				



Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

Project Name: Winslow Hotel

Intersection: SR 305 NE & Madison Ave N

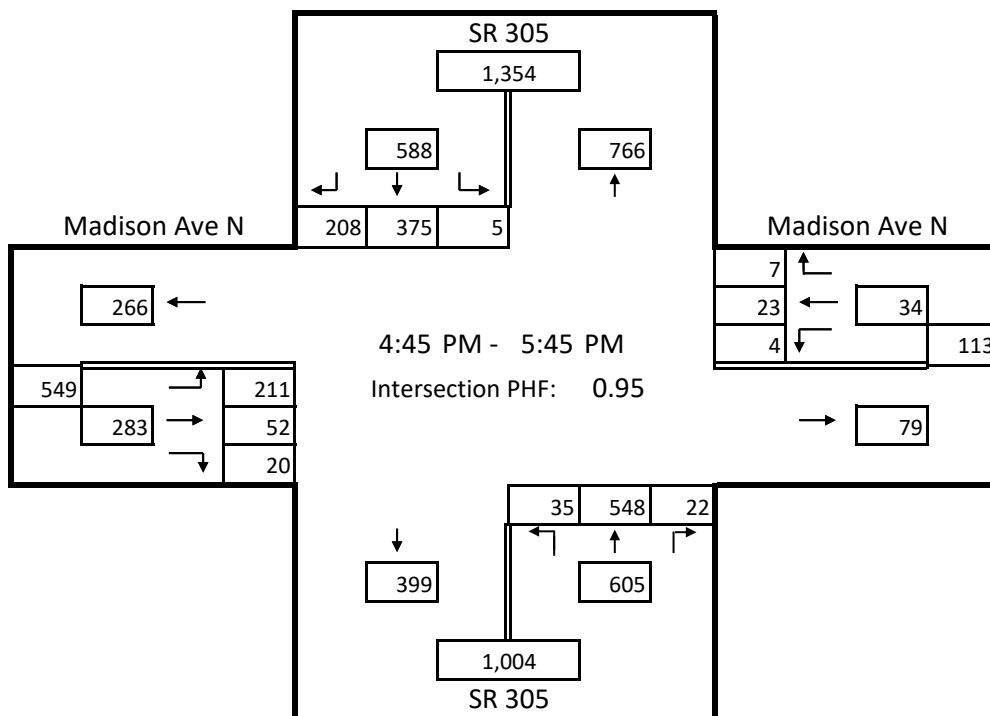
Jurisdiction: City of Bainbridge

Date of Count: 12/4/2018

Project Number: 4218

Time Period	Southbound SR 305				Westbound Madison Ave N				Northbound SR 305				Eastbound Madison Ave N				Total
	HV	R	T	L	HV	R	T	L	HV	R	T	L	HV	R	T	L	
4:00 PM	11	42	107	3	0	1	5	1	1	3	120	3	2	2	11	64	376
4:15 PM	2	55	100	0	0	3	4	0	3	3	95	2	1	7	8	64	347
4:30 PM	2	47	84	1	0	1	6	4	7	11	101	7	0	4	12	45	332
4:45 PM	3	62	89	3	1	1	6	1	0	6	120	14	0	5	17	59	387
5:00 PM	4	43	115	1	0	5	6	1	0	3	114	5	2	5	16	46	366
5:15 PM	2	63	105	1	0	1	7	2	0	5	103	4	1	6	8	68	376
5:30 PM	2	40	66	0	0	0	4	0	8	8	211	12	0	4	11	38	404
5:45 PM	0	36	64	0	0	4	9	0	0	2	131	2	0	3	5	48	304
Total	26	388	730	9	1	16	47	9	19	41	995	49	6	36	88	432	2,892

Peak Hour	4:45 PM to 5:45 PM																	Total
Peak Total	11	208	375	5	1	7	23	4	8	22	548	35	3	20	52	211	1,510	
Heavy Veh.	2.3%				1.4%				1.8%				1.1%					
PHF	0.87				0.71				0.65				0.86					



Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

Project Name: Winslow Hotel

Intersection: Madison Ave N & High School Rd NW

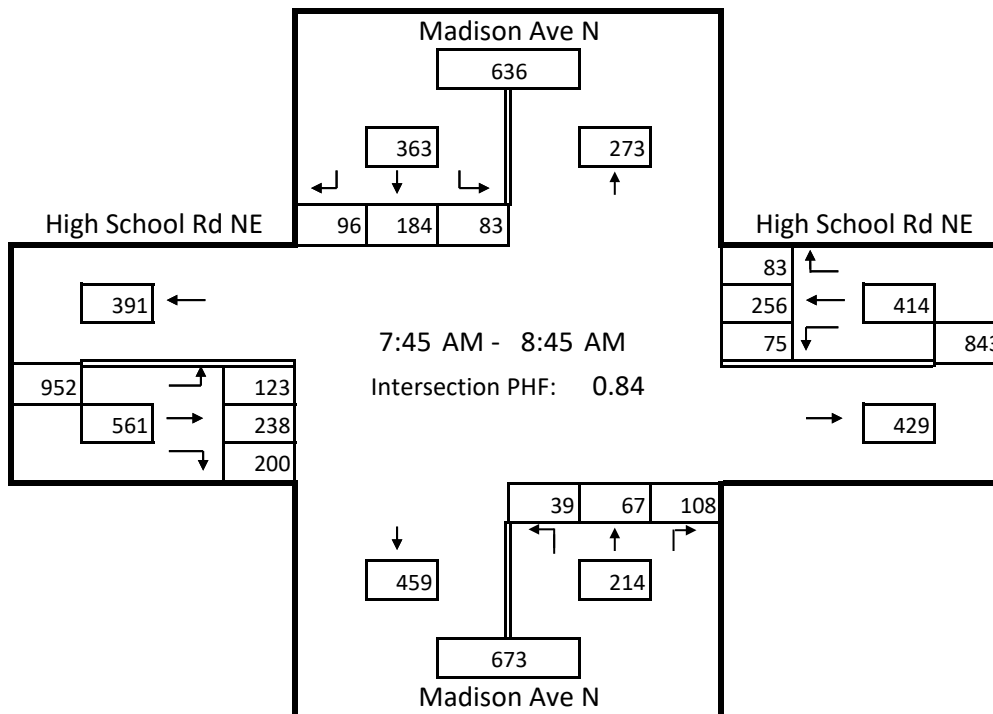
Date of Count: 12/4/2018

Jurisdiction: City of Bainbridge

Project Number: 4218

Time Period	Southbound Madison Ave N				Westbound High School Rd NE				Northbound Madison Ave N				Eastbound High School Rd NE				Total
	HV	R	T	L	HV	R	T	L	HV	R	T	L	HV	R	T	L	
7:00 AM	3	7	26	11	1	3	17	6	0	10	10	3	3	21	34	11	166
7:15 AM	3	17	19	8	0	7	13	14	0	14	13	3	0	24	26	10	171
7:30 AM	3	31	36	11	4	18	57	27	0	19	16	8	3	47	46	32	358
7:45 AM	4	26	36	23	1	17	54	18	0	17	12	8	2	62	69	44	393
8:00 AM	2	14	53	16	1	15	51	16	2	25	12	6	0	39	65	21	338
8:15 AM	3	30	46	19	0	22	66	23	2	23	14	8	3	42	45	29	375
8:30 AM	1	26	49	25	3	29	85	18	0	43	29	17	0	57	59	29	470
8:45 AM	2	16	30	28	0	27	67	8	1	36	17	7	1	24	64	27	355
Total	21	167	295	141	10	138	410	130	5	187	123	60	12	316	408	203	2,626

Peak Hour	7:45 AM to 8:45 AM																Total
Peak Total	10	96	184	83	5	83	256	75	4	108	67	39	5	200	238	123	1,552
Heavy Veh.	3.5%				1.5%				1.4%				1.3%				
PHF	0.91				0.78				0.60				0.80				



Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

Project Name: Winslow Hotel

Intersection: Madison Ave N & High School Rd NW

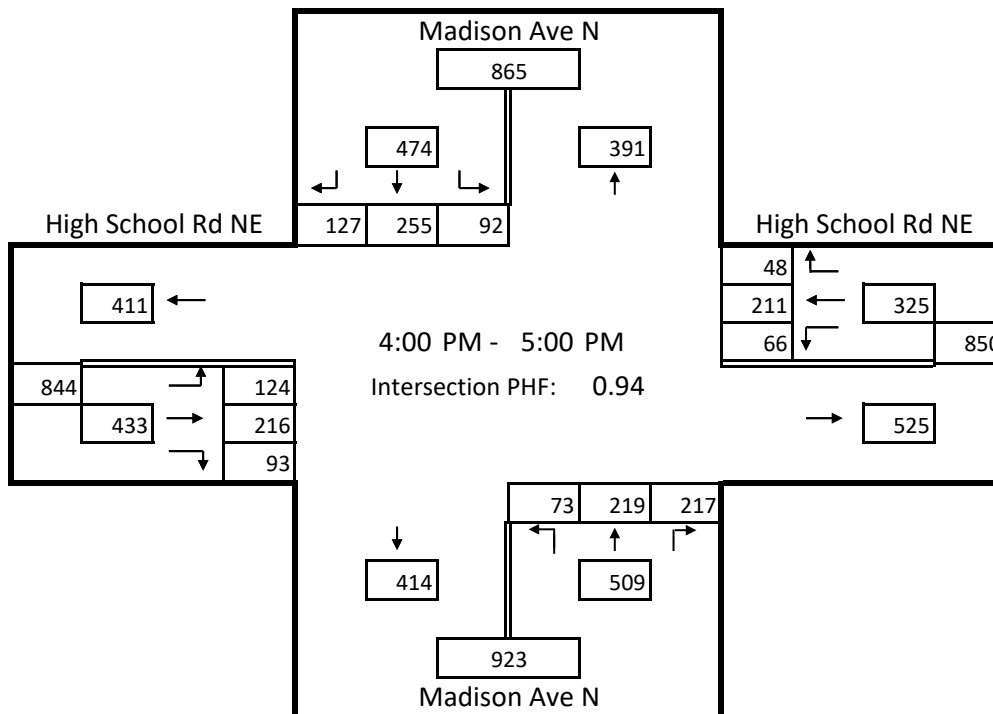
Date of Count: 12/4/2018

Jurisdiction: City of Bainbridge

Project Number: 4218

Time Period	Southbound Madison Ave N				Westbound High School Rd NE				Northbound Madison Ave N				Eastbound High School Rd NE				Total
	HV	R	T	L	HV	R	T	L	HV	R	T	L	HV	R	T	L	
4:00 PM	1	33	59	29	1	13	53	26	3	66	54	18	0	27	53	32	468
4:15 PM	1	30	60	24	1	17	47	9	1	66	59	21	1	25	55	28	445
4:30 PM	4	29	71	21	0	10	58	11	1	47	52	19	0	19	49	26	417
4:45 PM	0	35	65	18	0	8	53	20	0	38	54	15	1	22	59	38	426
5:00 PM	0	42	65	17	1	20	47	13	0	60	56	8	4	38	53	30	454
5:15 PM	0	38	56	20	0	16	51	13	0	50	44	11	1	41	57	25	423
5:30 PM	2	43	94	14	0	18	49	14	0	37	54	20	2	25	48	18	438
5:45 PM	1	25	77	25	2	15	36	12	0	31	57	9	0	25	27	20	362
Total	9	275	547	168	5	117	394	118	5	395	430	121	9	222	401	217	3,433

Peak Hour	4:00 PM to 5:00 PM																Total
Peak Total	6	127	255	92	2	48	211	66	5	217	219	73	2	93	216	124	1,741
Heavy Veh.	0.9%				0.8%				0.5%				1.1%				
PHF	0.98				0.88				0.87				0.91				



Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

Project Name: Winslow Hotel

Intersection: SR 305 & High School Rd NE

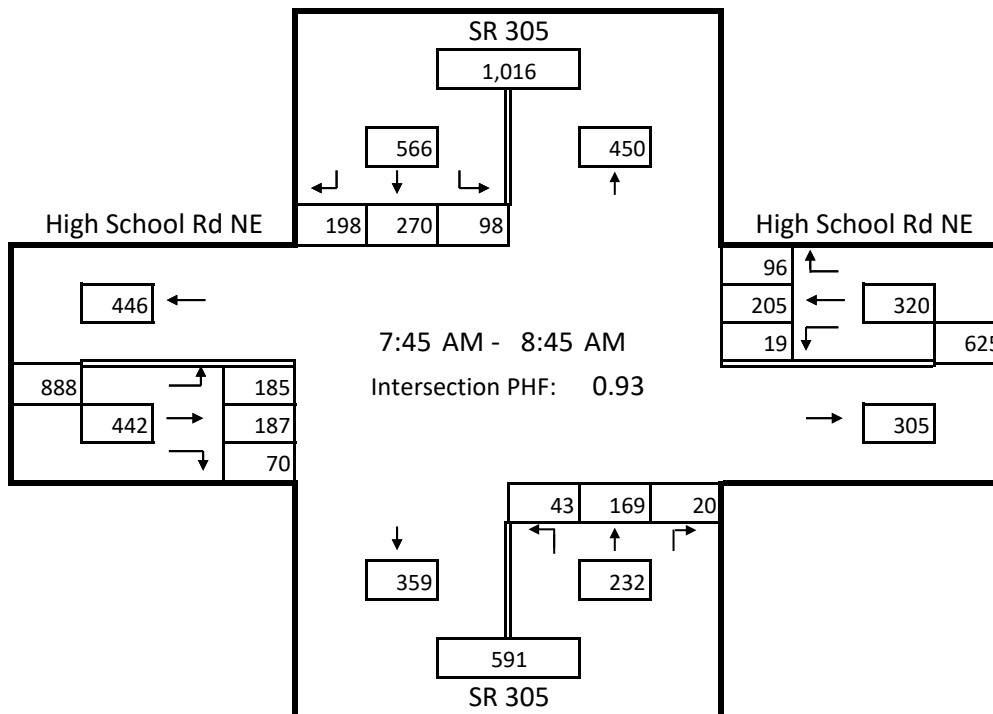
Date of Count: 12/4/2018

Jurisdiction: City of Bainbridge

Project Number: 4218

Time Period	Southbound SR 305				Westbound High School Rd NE				Northbound SR 305				Eastbound High School Rd NE				Total
	HV	R	T	L	HV	R	T	L	HV	R	T	L	HV	R	T	L	
7:00 AM	1	32	47	25	1	12	21	5	4	7	20	8	1	7	13	22	226
7:15 AM	2	39	79	23	1	11	22	8	1	0	13	6	1	15	18	22	261
7:30 AM	5	45	92	26	2	19	44	7	2	1	16	2	3	27	42	40	373
7:45 AM	4	39	60	25	0	19	52	3	9	8	68	15	1	17	49	45	414
8:00 AM	4	67	60	20	1	26	40	3	4	1	20	8	1	18	39	47	359
8:15 AM	0	51	77	25	2	19	63	10	1	4	29	8	2	28	37	41	397
8:30 AM	4	41	73	28	1	32	50	3	5	7	52	12	1	7	62	52	430
8:45 AM	3	62	63	27	0	21	44	8	2	7	22	7	3	15	46	50	380
Total	23	376	551	199	8	159	336	47	28	35	240	66	13	134	306	319	2,840

Peak Hour	7:45 AM to 8:45 AM																Total
Peak Total	12	198	270	98	4	96	205	19	19	20	169	43	5	70	187	185	1,560
Heavy Veh.	2.0%				1.5%				8.2%				1.7%				
PHF	0.92				0.87				0.64				0.91				



Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

Project Name: Winslow Hotel

Intersection: SR 305 NE & High School Rd NE

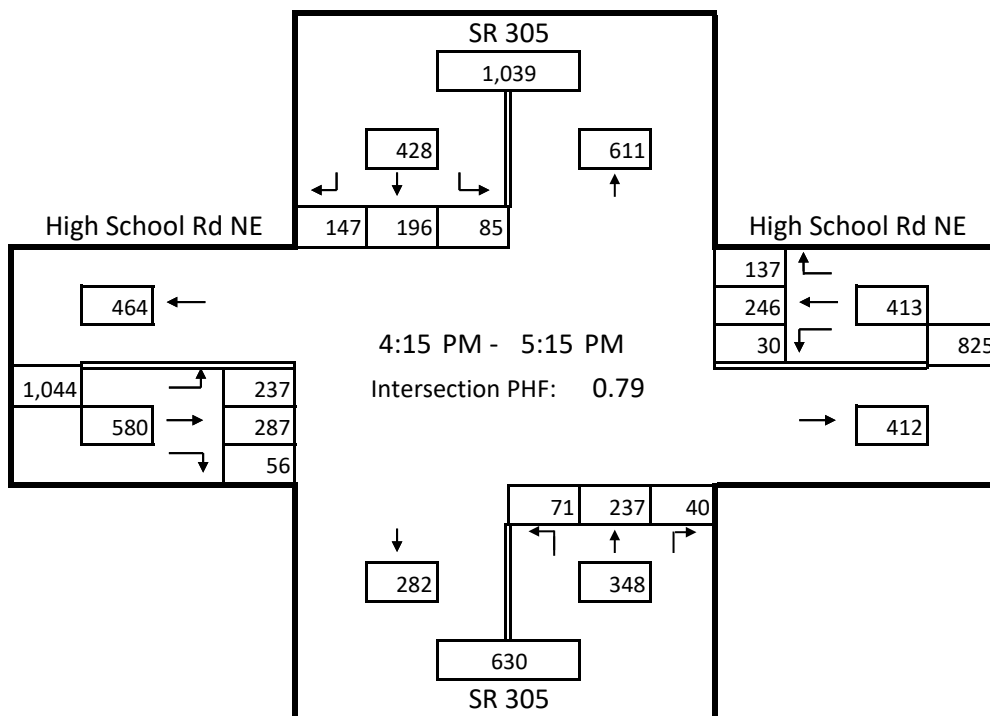
Jurisdiction: City of Bainbridge

Date of Count: 12/4/2018

Project Number: 4218

Time Period	Southbound SR 305				Westbound High School Rd NE				Northbound SR 305				Eastbound High School Rd NE				Total
	HV	R	T	L	HV	R	T	L	HV	R	T	L	HV	R	T	L	
4:00 PM	6	33	54	22	0	27	75	9	0	5	39	7	1	15	52	69	414
4:15 PM	4	40	53	26	1	25	62	7	1	6	19	13	3	21	79	53	413
4:30 PM	2	32	40	13	1	50	71	11	12	20	140	43	0	10	71	52	568
4:45 PM	1	41	46	22	0	33	57	5	0	9	34	8	0	9	67	70	402
5:00 PM	6	34	57	24	1	29	56	7	0	5	44	7	2	16	70	62	420
5:15 PM	4	36	57	31	0	23	52	6	0	1	25	3	0	18	72	63	391
5:30 PM	1	24	28	14	1	34	74	7	9	13	165	68	0	9	47	37	531
5:45 PM	1	26	32	16	0	25	49	5	1	8	53	13	0	5	47	54	335
Total	25	266	367	168	4	246	496	57	23	67	519	162	6	103	505	460	3,474

Peak Hour	4:15 PM to 5:15 PM																Total
Peak Total	13	147	196	85	3	137	246	30	13	40	237	71	5	56	287	237	1,769
Heavy Veh.	3.1%				0.5%				3.1%				0.6%				
PHF	0.90				0.78				0.43				0.95				



Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

Project Name: Winslow Hotel

Intersection: Madison Ave N & Wyatt Way NW

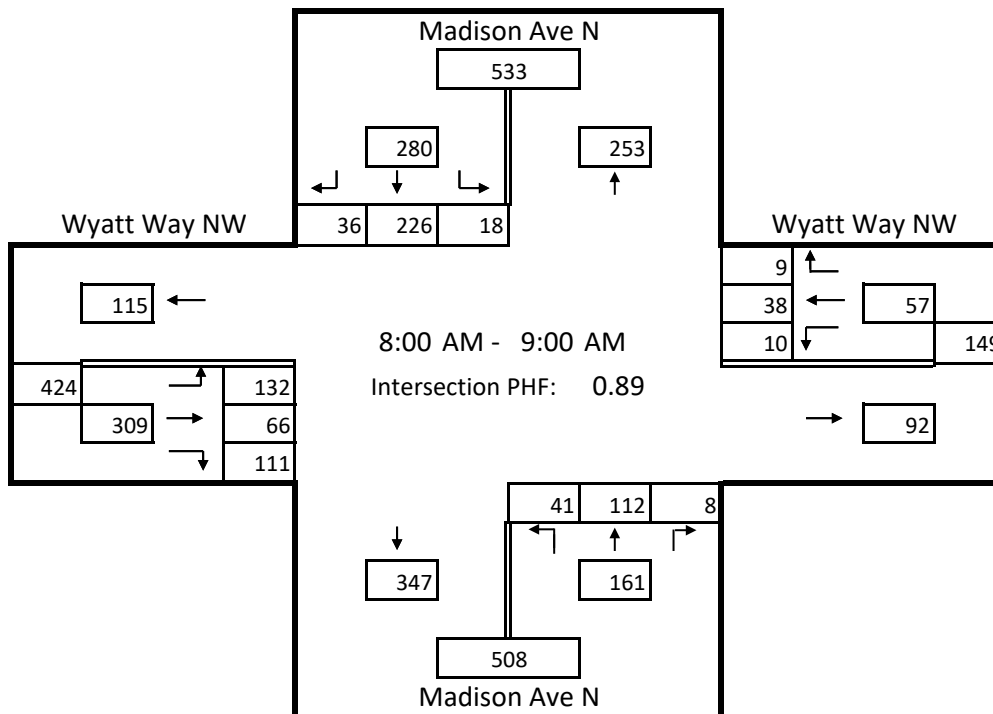
Jurisdiction: City of Bainbridge

Date of Count: 12/4/2018

Project Number: 4218

Time Period	Southbound Madison Ave N				Westbound Wyatt Way NW				Northbound Madison Ave N				Eastbound Wyatt Way NW				Total
	HV	R	T	L	HV	R	T	L	HV	R	T	L	HV	R	T	L	
7:00 AM	0	0	29	3	0	1	6	1	3	0	10	14	0	14	5	5	91
7:15 AM	3	3	28	4	0	2	0	2	0	0	10	7	0	20	8	8	95
7:30 AM	0	3	32	1	1	2	3	1	0	1	18	12	2	39	22	19	156
7:45 AM	0	8	62	7	0	1	11	1	2	0	20	12	1	25	22	23	195
8:00 AM	1	6	52	5	0	0	6	0	1	1	23	11	2	22	16	23	169
8:15 AM	0	11	62	4	1	2	3	4	0	0	37	12	0	27	18	29	210
8:30 AM	0	7	47	4	0	5	16	2	1	4	33	12	0	31	19	48	229
8:45 AM	0	12	65	5	0	2	13	4	1	3	19	6	0	31	13	32	206
Total	4	50	377	33	2	15	58	15	8	9	170	86	5	209	123	187	1,351

Peak Hour	8:00 AM to 9:00 AM																Total
Peak Total	1	36	226	18	1	9	38	10	3	8	112	41	2	111	66	132	807
Heavy Veh.	0.9%				2.3%				3.0%				1.0%				
PHF	0.85				0.62				0.82				0.79				



Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

Project Name: Winslow Hotel

Intersection: Madison Ave N & Wyatt Way NW

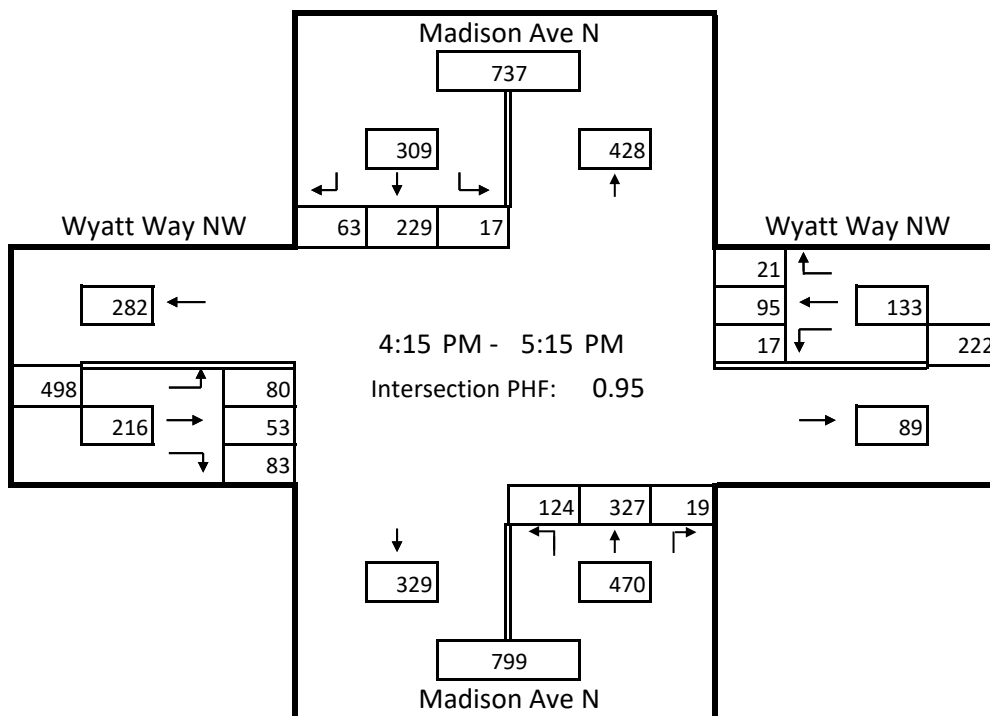
Jurisdiction: City of Bainbridge

Date of Count: 12/4/2018

Project Number: 4218

Time Period	Southbound Madison Ave N				Westbound Wyatt Way NW				Northbound Madison Ave N				Eastbound Wyatt Way NW				Total
	HV	R	T	L	HV	R	T	L	HV	R	T	L	HV	R	T	L	
4:00 PM	1	17	59	6	1	5	14	4	0	1	71	28	4	21	10	24	266
4:15 PM	0	13	64	3	0	4	17	7	1	6	85	20	0	23	21	26	290
4:30 PM	0	19	51	1	1	6	37	2	1	4	69	40	0	19	10	12	272
4:45 PM	0	13	58	7	0	4	20	4	0	3	89	35	0	13	8	19	273
5:00 PM	0	18	56	6	0	7	21	4	0	6	84	29	3	28	14	23	299
5:15 PM	0	5	68	5	0	3	16	2	0	4	66	22	0	26	12	18	247
5:30 PM	1	10	47	2	2	11	58	2	1	3	62	40	0	14	3	12	268
5:45 PM	1	11	44	2	0	6	21	4	0	3	73	40	0	20	4	17	246
Total	3	106	447	32	4	46	204	29	0	30	599	254	7	164	82	151	2,158

Peak Hour	4:15 PM to 5:15 PM																Total
Peak Total	0	63	229	17	1	21	95	17	2	19	327	124	3	83	53	80	1,128
Heavy Veh.	0.5%				1.4%				0.0%				1.8%				
PHF	0.97				0.74				0.00				0.77				



Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

Project Name: Winslow Hotel

Intersection: Grow Ave NW & Winslow Way W

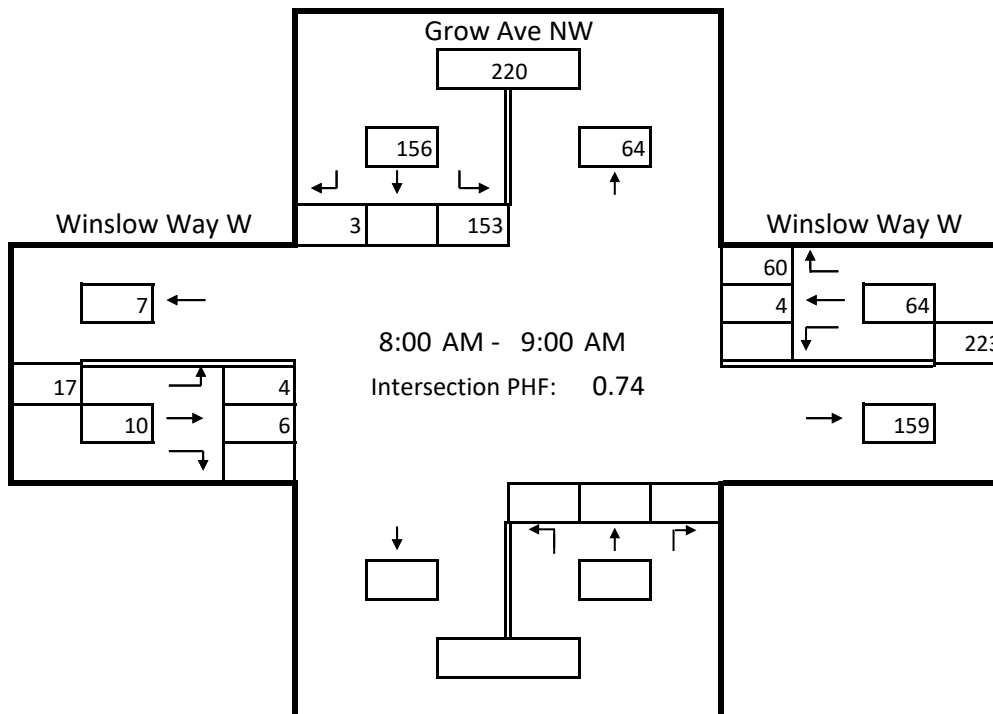
Date of Count: 12/4/2018

Jurisdiction: City of Bainbridge

Project Number: 4218

Time Period	Southbound Grow Ave NW				Westbound Winslow Way W				Northbound				Eastbound Winslow Way W				Total
	HV	R	T	L	HV	R	T	L	HV	R	T	L	HV	R	T	L	
7:00 AM	0	0		6	0	6	0						0		0	0	12
7:15 AM	0	0		13	2	10	0						0		3	0	28
7:30 AM	1	0		25	0	7	0						0		1	2	36
7:45 AM	0	1		30	0	14	0						0		0	0	45
8:00 AM	0	1		25	0	14	0						0		2	2	44
8:15 AM	1	1		52	1	21	0						0		2	1	79
8:30 AM	1	1		41	0	15	2						0		1	0	61
8:45 AM	0	0		35	0	10	2						0		1	1	49
Total	3	4		227	3	97	4						0		10	6	354

Peak Hour	8:00 AM to 9:00 AM																Total
Peak Total	2	3		153	1	60	4						0		6	4	230
Heavy Veh.	1.3%				3.0%								0.0%				
PHF	0.74				0.76								0.63				



Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

Project Name: Winslow Hotel

Intersection: Grow Ave NW & Winslow Way W

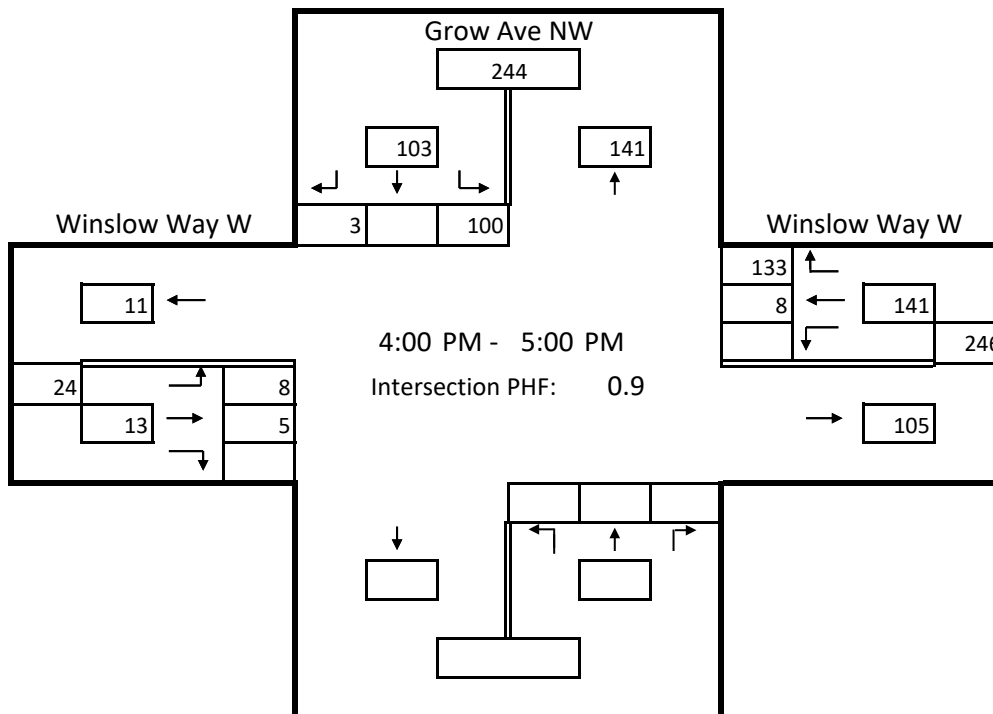
Jurisdiction: City of Bainbridge

Date of Count: 12/4/2018

Project Number: 4218

Time Period	Southbound Grow Ave NW				Westbound Winslow Way W				Northbound				Eastbound Winslow Way W				Total
	HV	R	T	L	HV	R	T	L	HV	R	T	L	HV	R	T	L	
4:00 PM	0	0		27	1	28	2						0		1	2	61
4:15 PM	0	0		28	0	28	1						0		1	4	62
4:30 PM	0	2		23	1	38	3						0		3	2	72
4:45 PM	0	1		22	0	39	2						0		0	0	64
5:00 PM	0	3		25	0	28	1						0		0	1	58
5:15 PM	0	5		20	0	29	2						0		1	0	57
5:30 PM	0	0		20	0	27	1						0		2	1	51
5:45 PM	0	0		22	1	31	0						0		2	1	57
Total	0	11		187	3	248	12						0		10	11	482

Peak Hour	4:00 PM to 5:00 PM																Total
Peak Total	0	3		100	2	133	8						0		5	8	257
Heavy Veh.	0.0%				1.2%								0.0%				
PHF	0.92				0.86								0.65				



Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

Project Name: Winslow Hotel

Intersection: Madison Ave N & Winslow Way W

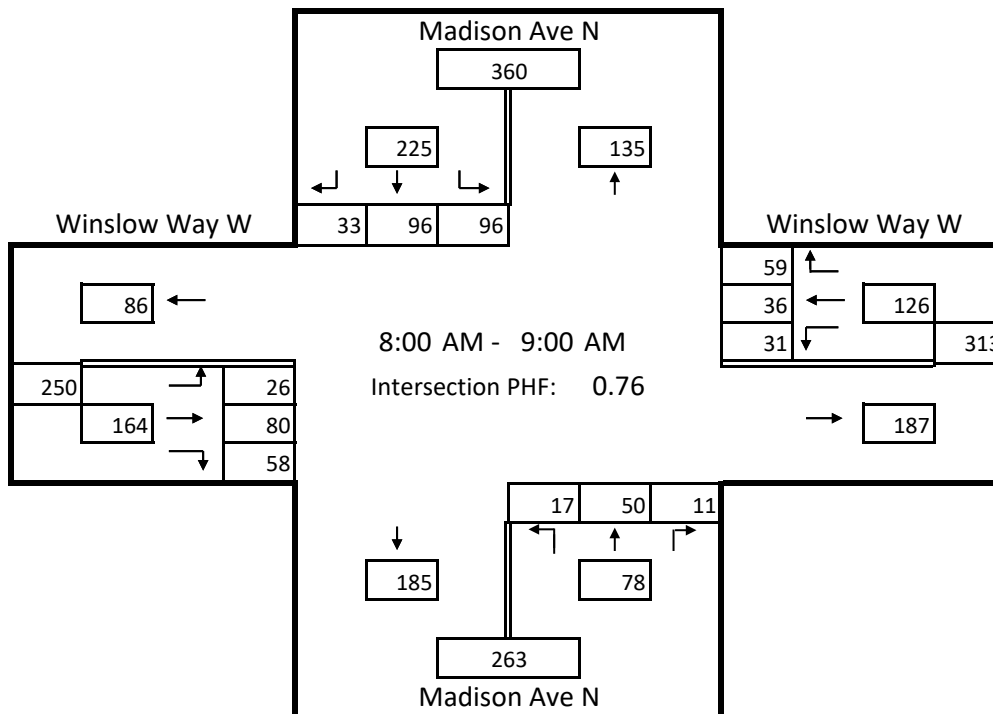
Jurisdiction: City of Bainbridge

Date of Count: 12/4/2018

Project Number: 4218

Time Period	Southbound Madison Ave N				Westbound Winslow Way W				Northbound Madison Ave N				Eastbound Winslow Way W				Total
	HV	R	T	L	HV	R	T	L	HV	R	T	L	HV	R	T	L	
7:00 AM	1	4	14	13	4	15	5	4	0	0	5	1	0	0	5	0	71
7:15 AM	1	3	5	22	1	7	6	7	0	1	12	2	0	0	12	2	81
7:30 AM	3	1	15	48	0	12	3	3	0	2	13	2	1	2	20	3	128
7:45 AM	1	4	16	24	3	12	16	7	0	0	10	0	0	6	13	2	114
8:00 AM	1	5	26	20	0	13	4	8	1	3	10	6	0	7	15	3	122
8:15 AM	0	6	23	30	1	16	9	11	1	4	18	7	1	27	31	13	198
8:30 AM	1	10	20	24	0	17	15	6	3	2	8	2	0	12	19	7	146
8:45 AM	0	12	27	22	1	13	8	6	0	2	14	2	0	12	15	3	137
Total	8	45	146	203	10	105	66	52	5	14	90	22	2	66	130	33	997

Peak Hour	8:00 AM to 9:00 AM																Total
Peak Total	2	33	96	96	2	59	36	31	5	11	50	17	1	58	80	26	593
Heavy Veh.	2.0%				4.5%				4.0%				0.9%				
PHF	0.92				0.83				0.67				0.58				



Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

Project Name: Winslow Hotel

Intersection: Madison Ave N & Winslow Way W

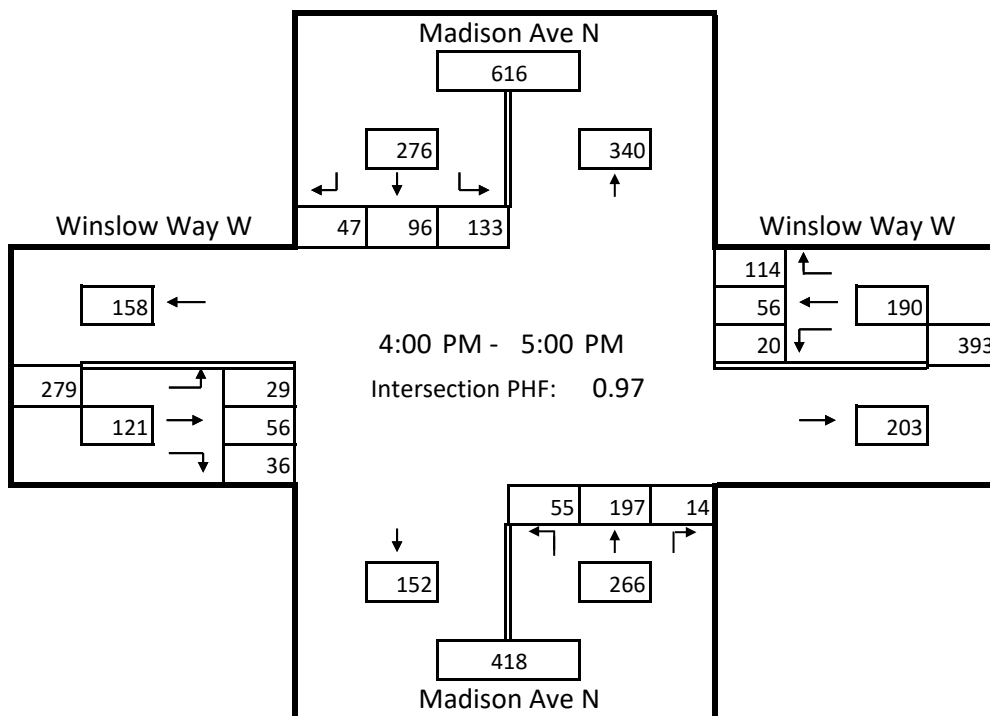
Jurisdiction: City of Bainbridge

Date of Count: 12/4/2018

Project Number: 4218

Time Period	Southbound Madison Ave N				Westbound Winslow Way W				Northbound Madison Ave N				Eastbound Winslow Way W				Total
	HV	R	T	L	HV	R	T	L	HV	R	T	L	HV	R	T	L	
4:00 PM	3	7	25	45	1	20	12	3	0	6	41	13	0	13	12	3	204
4:15 PM	0	10	36	38	0	25	14	6	0	2	48	12	0	7	16	7	221
4:30 PM	0	16	17	27	1	36	22	8	0	2	47	10	0	9	14	11	220
4:45 PM	0	14	18	23	0	33	8	3	0	4	61	20	0	7	14	8	213
5:00 PM	2	4	24	39	0	19	7	5	0	5	46	8	0	2	19	10	190
5:15 PM	0	6	23	51	0	34	10	7	0	2	30	9	0	7	14	6	199
5:30 PM	1	5	23	32	2	46	55	8	0	1	33	7	0	7	11	5	236
5:45 PM	0	6	17	27	0	34	13	7	0	4	31	11	0	10	10	3	173
Total	6	68	183	282	4	247	141	47	0	26	337	90	0	62	110	53	1,656

Peak Hour	4:00 PM to 5:00 PM																Total
Peak Total	3	47	96	133	2	114	56	20	0	14	197	55	0	36	56	29	853
Heavy Veh.	1.1%				0.9%				0.0%				0.0%				
PHF	0.82				0.72				0.00				0.89				



Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

Project Name: Winslow Hotel

Intersection: SR 305 NE & Winslow Way

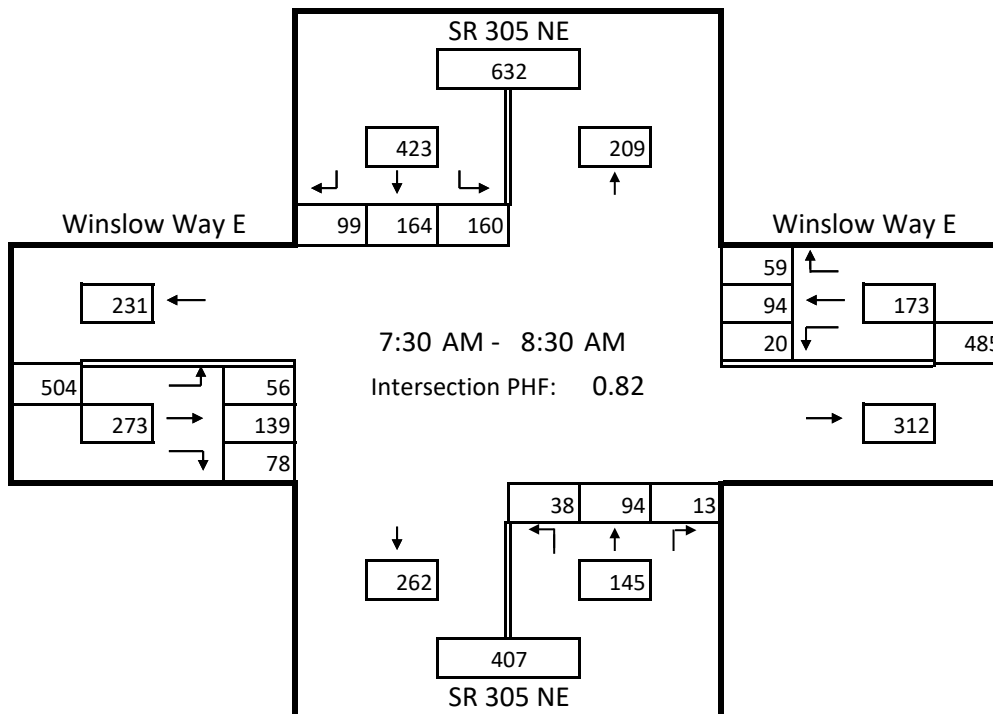
Date of Count: 12/4/2018

Jurisdiction: City of Bainbridge

Project Number: 4218

Time Period	Southbound SR 305 NE				Westbound Winslow Way E				Northbound SR 305 NE				Eastbound Winslow Way E				Total
	HV	R	T	L	HV	R	T	L	HV	R	T	L	HV	R	T	L	
7:00 AM	1	12	30	13	2	14	18	5	4	1	3	4	1	9	9	10	136
7:15 AM	2	19	50	30	2	9	9	2	0	0	0	1	3	21	15	10	173
7:30 AM	5	17	57	60	2	13	23	7	4	2	5	0	3	24	46	9	277
7:45 AM	1	20	26	43	0	22	33	1	9	6	59	30	1	12	49	10	322
8:00 AM	4	34	34	18	2	12	18	3	3	2	8	4	2	16	13	17	190
8:15 AM	0	28	47	39	1	12	20	9	3	3	22	4	1	26	31	20	266
8:30 AM	1	24	43	41	1	15	29	2	7	1	19	12	2	19	27	13	256
8:45 AM	3	34	26	17	2	7	20	0	2	0	7	3	0	1	13	18	153
Total	17	188	313	261	12	104	170	29	32	15	123	58	13	128	203	107	1,773

Peak Hour	7:30 AM to 8:30 AM																Total
Peak Total	10	99	164	160	5	59	94	20	19	13	94	38	7	78	139	56	1,014
Heavy Veh.	2.2%				4.0%				16.3%				3.0%				
PHF	0.79				0.77				0.38				0.86				



Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

Project Name: Winslow Hotel

Intersection: SR 305 NE & Winslow Way

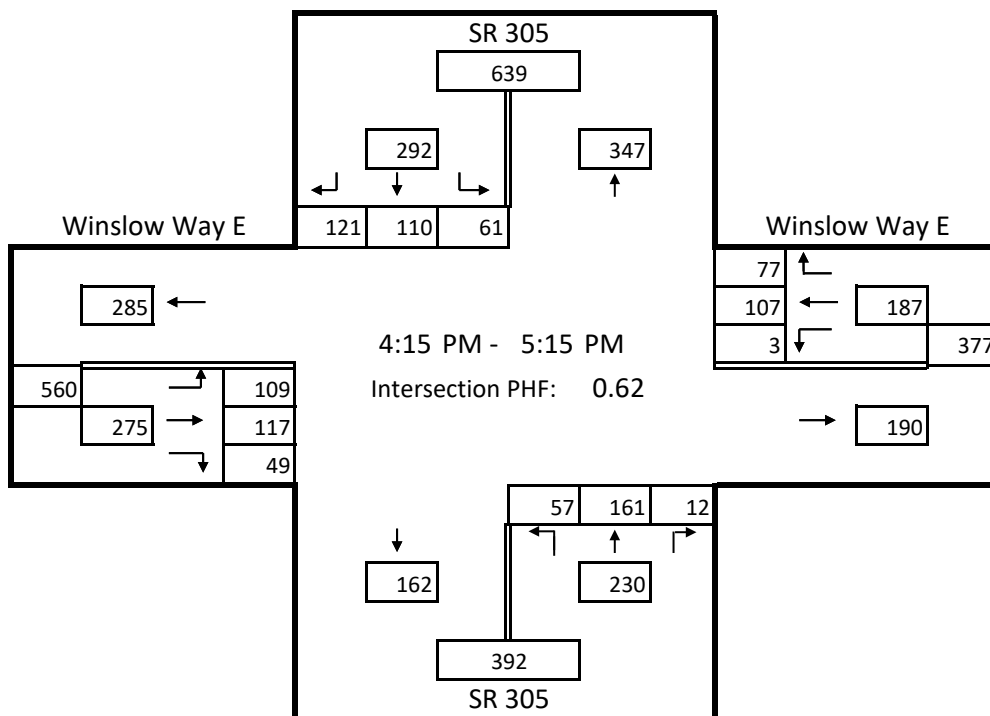
Jurisdiction: City of Bainbridge

Date of Count: 12/4/2018

Project Number: 4218

Time Period	Southbound SR 305				Westbound Winslow Way E				Northbound SR 305				Eastbound Winslow Way E				Total
	HV	R	T	L	HV	R	T	L	HV	R	T	L	HV	R	T	L	
4:00 PM	7	35	27	15	1	11	14	1	0	0	2	2	6	7	30	33	191
4:15 PM	5	33	31	18	1	11	20	2	0	2	43	15	3	18	36	22	260
4:30 PM	2	33	26	13	1	43	50	1	12	10	112	42	2	10	30	24	411
4:45 PM	1	30	17	11	0	11	18	0	1	0	2	0	0	5	16	35	147
5:00 PM	9	25	36	19	0	12	19	0	0	0	4	0	2	16	35	28	205
5:15 PM	3	28	27	14	0	6	22	1	0	0	30	7	1	9	27	18	193
5:30 PM	4	38	13	15	1	8	69	0	13	11	161	75	2	4	21	23	458
5:45 PM	0	20	6	11	0	18	15	2	0	1	4	0	0	4	22	34	137
Total	31	242	183	116	4	120	227	7	26	24	358	141	16	73	217	217	2,002

Peak Hour	4:15 PM to 5:15 PM																Total
Peak Total	17	121	110	61	2	77	107	3	13	12	161	57	7	49	117	109	984
Heavy Veh.	5.7%				1.1%				5.0%				3.2%				
PHF	0.89				0.50				0.35				0.87				



Hotel (310)

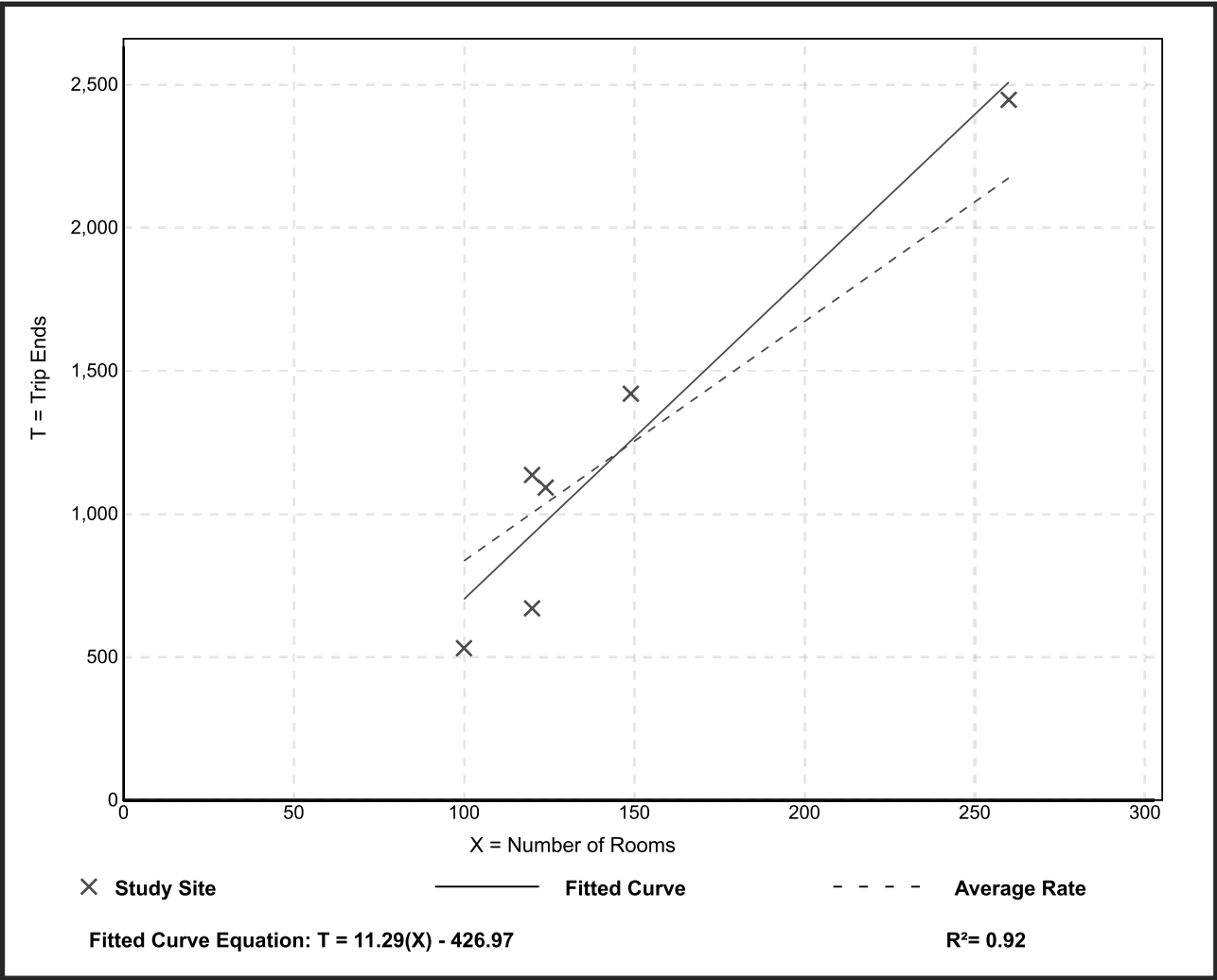
Vehicle Trip Ends vs: Rooms
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 6
Avg. Num. of Rooms: 146
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
8.36	5.31 - 9.53	1.86

Data Plot and Equation



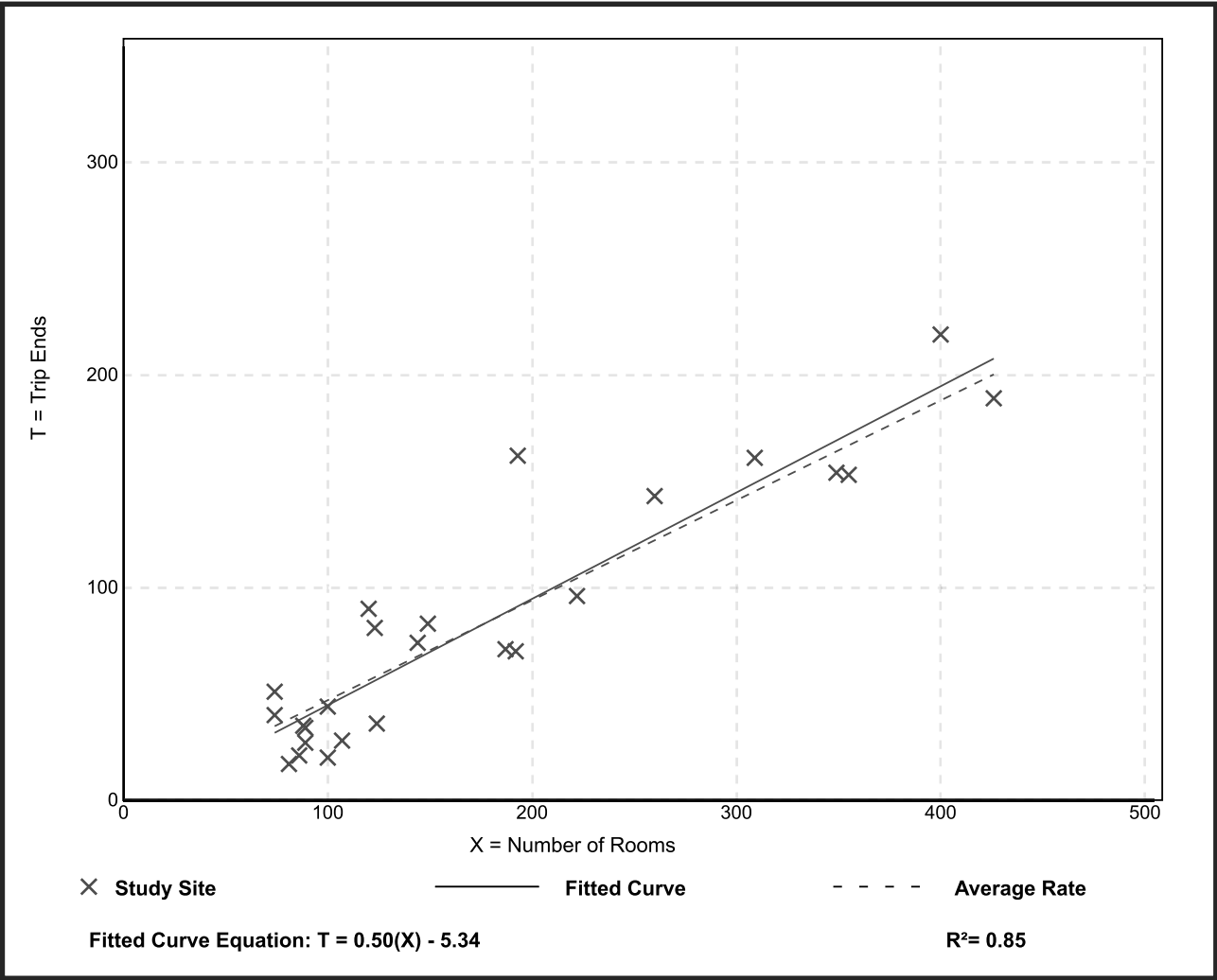
Hotel (310)

Vehicle Trip Ends vs: Rooms
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 25
Avg. Num. of Rooms: 178
Directional Distribution: 59% entering, 41% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.47	0.20 - 0.84	0.14

Data Plot and Equation



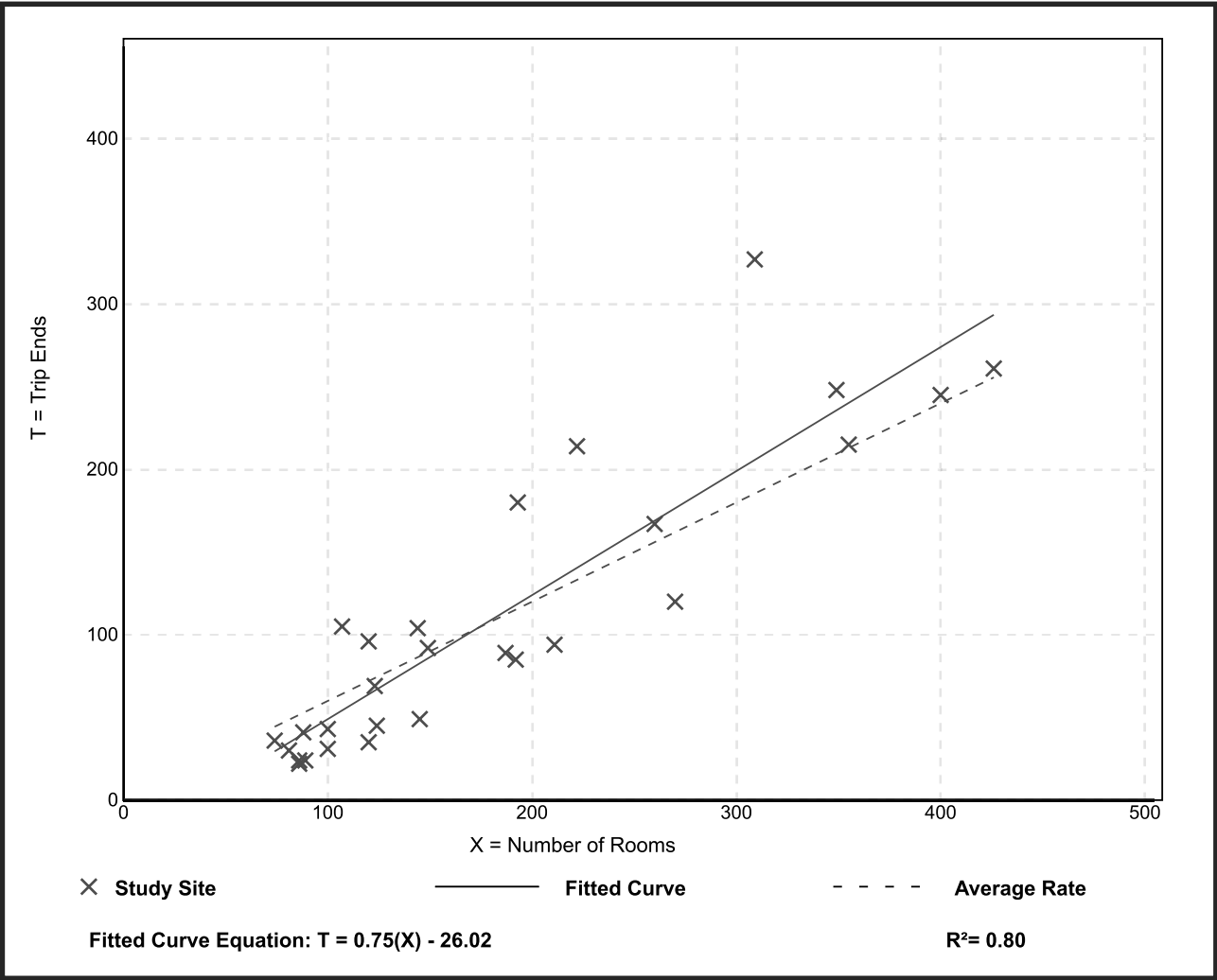
Hotel (310)

Vehicle Trip Ends vs: Rooms
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 28
Avg. Num. of Rooms: 183
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.60	0.26 - 1.06	0.22

Data Plot and Equation



General Office Building (710)

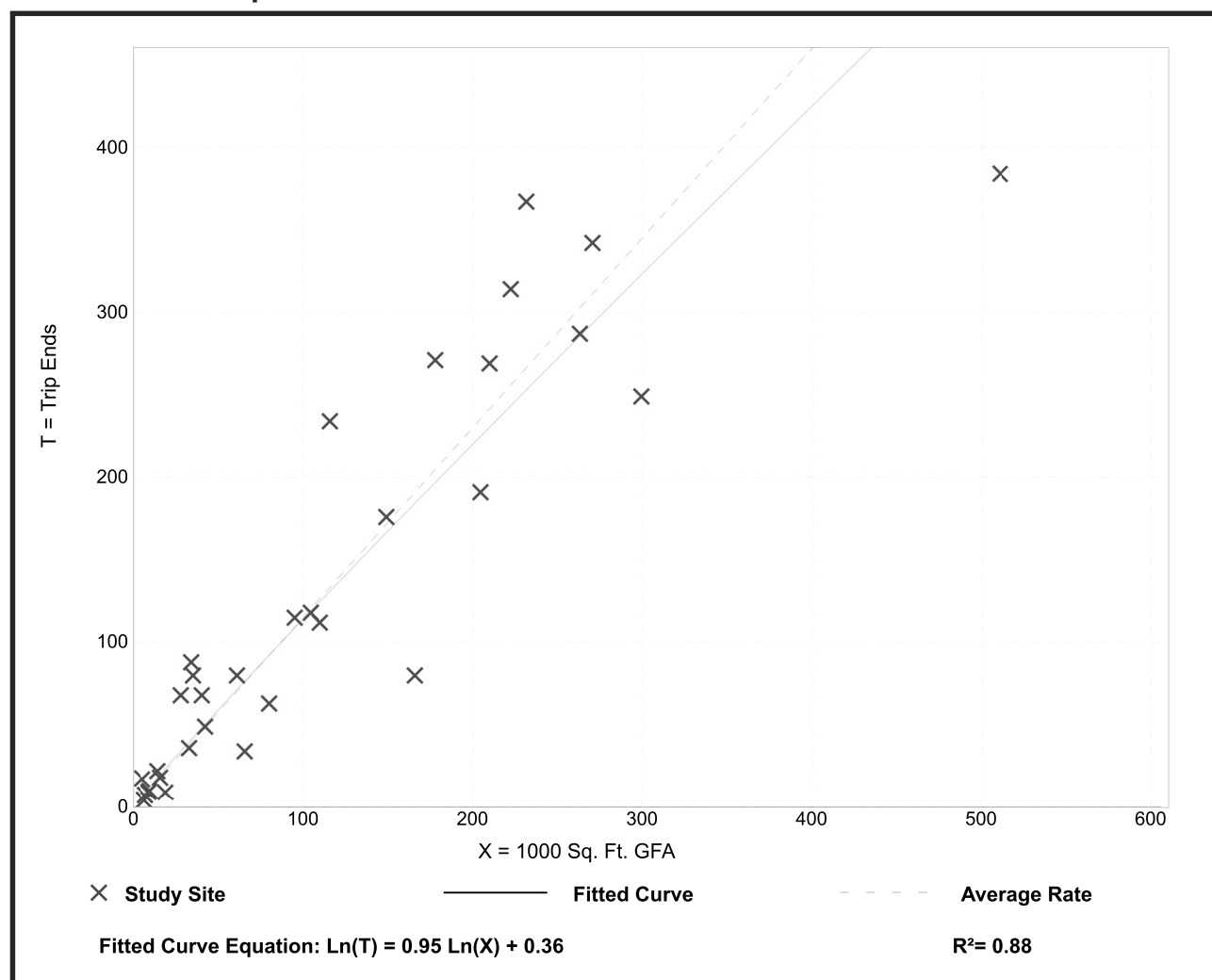
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban
 Number of Studies: 32
 Avg. 1000 Sq. Ft. GFA: 114
 Directional Distribution: 16% entering, 84% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.15	0.47 - 3.23	0.42

Data Plot and Equation



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Quality Restaurant

(931)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 19

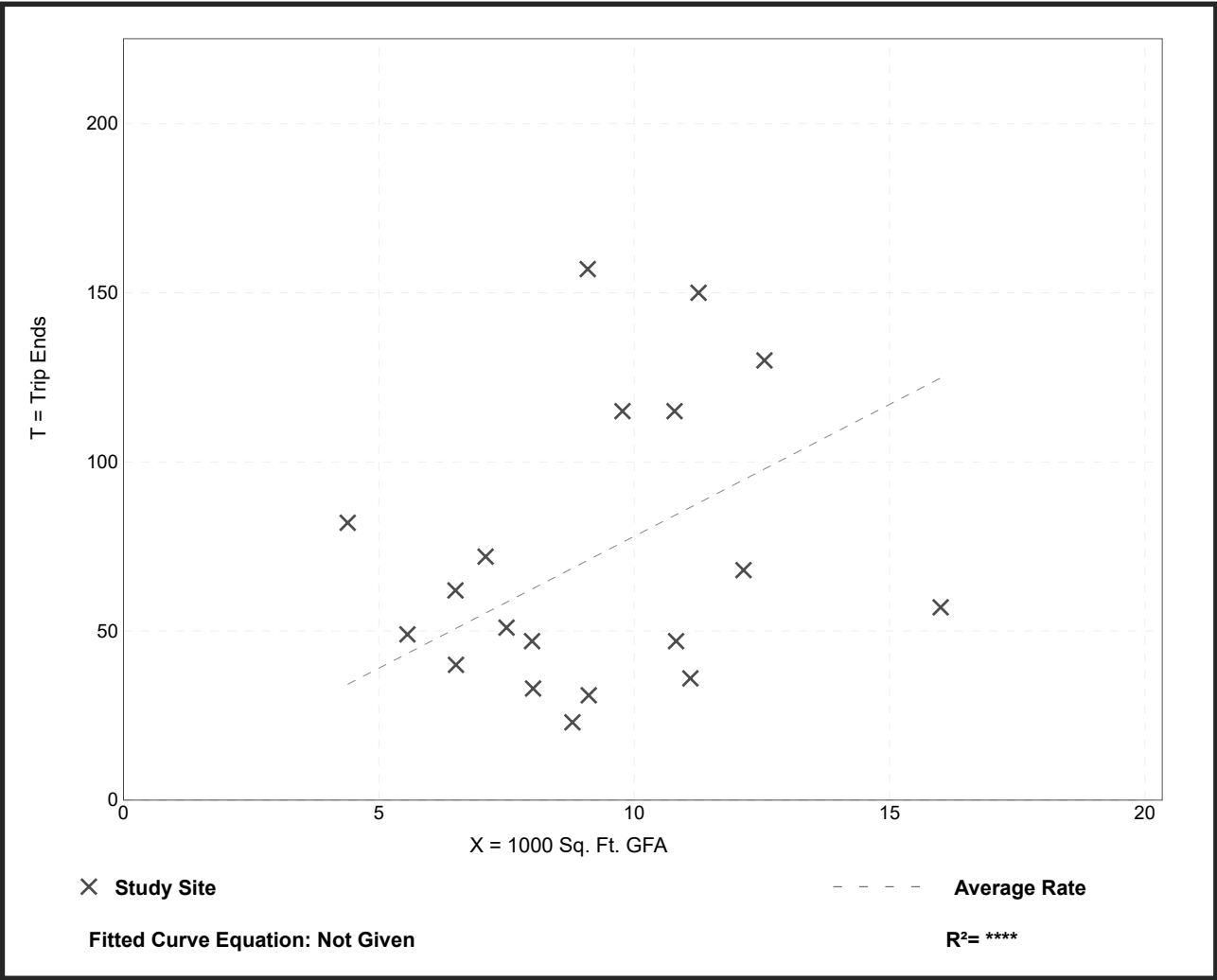
Avg. 1000 Sq. Ft. GFA: 9

Directional Distribution: 67% entering, 33% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
7.80	2.62 - 18.68	4.49

Data Plot and Equation



Forecast Intersection Volumes

Annual Growth Rate: 1 %
of Years to Horizon: 3

2021

AM PEAK HOUR

1		SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
	Existing	337	525	5	16	52	7	6	381	32	37	18	119
	Project Trips	6	1	0	0	0	0	0	1	0	0	0	4
	Pipeline	4	4	0	0	0	0	0	15	0	0	0	6
	Without	351	545	5	16	54	7	6	408	33	38	19	129
	With	357	546	5	16	54	7	6	409	33	38	19	133

2		SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
	Existing	96	184	83	83	256	75	108	67	39	200	238	123
	Project Trips	0	6	0	0	0	0	0	4	0	0	0	0
	Pipeline	0	4	0	0	2	3	9	6	3	2	5	0
	Without	99	194	86	86	266	80	120	75	43	208	250	127
	With	99	200	86	86	266	80	120	79	43	208	250	127

3		SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
	Existing	198	270	98	96	205	19	20	169	43	70	187	185
	Project Trips	0	1	0	0	0	0	0	1	0	0	0	0
	Pipeline	5	0	0	0	0	0	0	0	0	0	0	15
	Without	209	278	101	99	211	20	21	174	44	72	193	206
	With	209	279	101	99	211	20	21	175	44	72	193	206

4		SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
	Existing	36	226	18	9	38	10	8	112	41	111	66	132
	Project Trips	0	6	0	0	0	0	0	4	0	0	0	0
	Pipeline	2	9	4	3	0	3	4	5	1	2	0	1
	Without	39	242	23	12	39	13	12	120	43	116	68	137
	With	39	248	23	12	39	13	12	124	43	116	68	137

5		SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
	Existing	3		153	60	4						6	4
	Project Trips	0		1	1	0						0	0
	Pipeline	0		0	1	0						0	0
	Without	3		158	63	4						6	4
	With	3		159	64	4						6	4

6		SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
	Existing	33	96	96	59	36	31	11	50	17	58	80	26
	Project Trips	6	0	0	0	17	0	0	0	0	0	12	4
	Pipeline	0	1	11	9	0	1	3	2	0	0	0	1
	Without	34	100	110	70	37	33	14	54	18	60	82	28
	With	40	100	110	70	54	33	14	54	18	60	94	32

7		SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
	Existing	99	164	160	59	94	20	13	94	38	78	139	56
	Project Trips	1	0	0	0	2	0	0	0	10	7	1	1
	Pipeline	0	0	0	0	1	0	0	0	7	11	2	0
	Without	102	169	165	61	98	21	13	97	46	91	145	58
	With	103	169	165	61	100	21	13	97	56	98	146	59

PM PEAK HOUR**1**

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	208	375	5	7	23	4	22	548	35	20	52	211
Project Trips	7	1	0	0	0	0	0	1	0	0	0	7
Pipeline	6	24	0	0	0	0	0	21	0	0	0	5
Without	220	410	5	7	24	4	23	586	36	21	54	222
With	227	411	5	7	24	4	23	587	36	21	54	229

2

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	127	255	92	48	211	66	217	219	73	93	216	124
Project Trips	0	7	0	0	0	0	0	7	0	0	0	0
Pipeline	0	6	3	3	16	16	12	5	2	4	12	0
Without	131	269	98	52	233	84	236	231	77	100	235	128
With	131	276	98	52	233	84	236	238	77	100	235	128

3

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	147	196	85	137	246	30	40	237	71	56	287	237
Project Trips	0	1	0	0	0	0	0	1	0	0	0	0
Pipeline	11	-8	21	30	26	17	16	-8	0	0	30	-1
Without	162	194	109	171	279	48	57	236	73	58	326	243
With	162	195	109	171	279	48	57	237	73	58	326	243

4

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	63	229	17	21	95	17	19	327	124	83	53	80
Project Trips	0	7	0	0	0	0	0	7	0	0	0	0
Pipeline	4	15	7	5	0	4	7	17	5	3	1	4
Without	69	251	25	27	98	22	27	354	133	89	56	86
With	69	258	25	27	98	22	27	361	133	89	56	86

5

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	3		100	133	8						5	8
Project Trips	0		1	1	0						0	0
Pipeline	0		1	1	0						0	0
Without	3		104	138	8						5	8
With	3		105	139	8						5	8

6

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	47	96	133	114	56	20	14	197	55	36	56	29
Project Trips	7	0	0	0	18	0	0	0	0	0	18	7
Pipeline	0	4	14	20	0	3	1	5	0	0	0	1
Without	48	103	151	137	58	24	15	208	57	37	58	31
With	55	103	151	137	76	24	15	208	57	37	76	38

7

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	121	110	61	77	107	3	12	161	57	49	117	119
Project Trips	1	0	0	0	3	0	0	0	10	6	4	1
Pipeline	5	0	4	4	5	0	0	0	17	7	6	4
Without	130	113	67	83	115	3	12	166	76	57	127	127
With	131	113	67	83	118	3	12	166	86	63	131	128

Annual Growth Rate: 1 %
 # of Years to Horizon: 20

2039

AM PEAK HOUR

1	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	337	525	5	16	52	7	6	381	32	37	18	119
Project Trips	6	1	0	0	0	0	0	1	0	0	0	4
Pipeline	4	4	0	0	0	0	0	15	0	0	0	6
Without	415	645	6	20	63	9	7	480	39	45	22	151
With	421	646	6	20	63	9	7	481	39	45	22	155

2	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	96	184	83	83	256	75	108	67	39	200	238	123
Project Trips	0	6	0	0	0	0	0	4	0	0	0	0
Pipeline	0	4	0	0	2	3	9	6	3	2	5	0
Without	117	229	101	101	314	95	141	88	51	246	295	150
With	117	235	101	101	314	95	141	92	51	246	295	150

3	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	20	169	43	70	187	185	198	270	98	96	205	19
Project Trips	0	1	0	0	0	0	0	1	0	0	0	0
Pipeline	5	0	0	0	0	0	0	0	0	0	0	15
Without	29	206	52	85	228	226	242	329	120	117	250	38
With	29	207	52	85	228	226	242	330	120	117	250	38

4	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	36	226	18	9	38	10	8	112	41	111	66	132
Project Trips	0	6	0	0	0	0	0	4	0	0	0	0
Pipeline	2	9	4	3	0	3	4	5	1	2	0	1
Without	46	285	26	14	46	15	14	142	51	137	81	162
With	46	291	26	14	46	15	14	146	51	137	81	162

5	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	3		153	60	4						6	4
Project Trips	0		1	1	0						0	0
Pipeline	0		0	1	0						0	0
Without	4		187	74	5						7	5
With	4		188	75	5						7	5

6	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	33	96	96	59	36	31	11	50	17	58	80	26
Project Trips	6	0	0	0	17	0	0	0	0	0	12	4
Pipeline	0	1	11	9	0	1	3	2	0	0	0	1
Without	40	118	128	81	44	39	16	63	21	71	98	33
With	46	118	128	81	61	39	16	63	21	71	110	37

7	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	99	164	160	59	94	20	13	94	38	78	139	56
Project Trips	1	0	0	0	2	0	0	0	10	7	1	1
Pipeline	0	0	0	0	1	0	0	0	7	11	2	0
Without	121	200	195	72	116	24	16	115	53	106	172	68
With	122	200	195	72	118	24	16	115	63	113	173	69

PM PEAK HOUR**1**

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	208	375	5	7	23	4	22	548	35	20	52	211
Project Trips	7	1	0	0	0	0	0	1	0	0	0	7
Pipeline	6	24	0	0	0	0	0	21	0	0	0	5
Without	260	482	6	9	28	5	27	690	43	24	63	262
With	267	483	6	9	28	5	27	691	43	24	63	269

2

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	127	255	92	48	211	66	217	219	73	93	216	124
Project Trips	0	7	0	0	0	0	0	7	0	0	0	0
Pipeline	0	6	3	3	16	16	12	5	2	4	12	0
Without	155	317	115	62	273	97	277	272	91	117	276	151
With	155	324	115	62	273	97	277	279	91	117	276	151

3

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	147	196	85	137	246	30	40	237	71	56	287	237
Project Trips	0	1	0	0	0	0	0	1	0	0	0	0
Pipeline	11	-8	21	30	26	17	16	-8	0	0	30	-1
Without	190	231	125	197	326	54	65	281	87	68	380	288
With	190	232	125	197	326	54	65	282	87	68	380	288

4

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	63	229	17	21	95	17	19	327	124	83	53	80
Project Trips	0	7	0	0	0	0	0	7	0	0	0	0
Pipeline	4	15	7	5	0	4	7	17	5	3	1	4
Without	81	294	28	31	116	25	30	416	156	104	66	102
With	81	301	28	31	116	25	30	423	156	104	66	102

5

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	3		100	133	8						5	8
Project Trips	0		1	1	0						0	0
Pipeline	0		1	1	0						0	0
Without	4		123	163	10						6	10
With	4		124	164	10						6	10

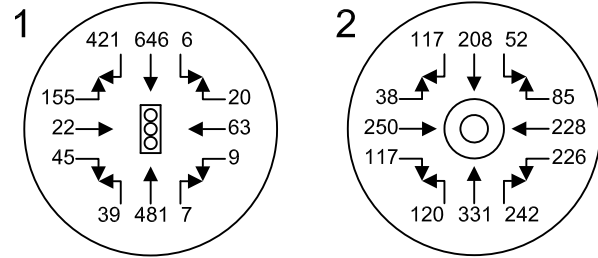
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	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	47	96	133	114	56	20	14	197	55	36	56	29
Project Trips	7	0	0	0	18	0	0	0	0	0	18	7
Pipeline	0	4	14	20	0	3	1	5	0	0	0	1
Without	57	121	176	159	68	27	18	245	67	44	68	36
With	64	121	176	159	86	27	18	245	67	44	86	43

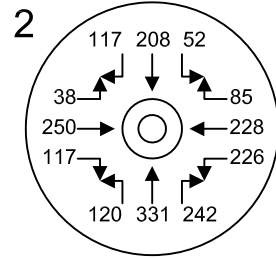
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	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	121	110	61	77	107	3	12	161	57	49	117	119
Project Trips	1	0	0	0	3	0	0	0	10	6	4	1
Pipeline	5	0	4	4	5	0	0	0	17	7	6	4
Without	153	134	78	98	136	4	15	196	87	67	149	149
With	154	134	78	98	139	4	15	196	97	73	153	150

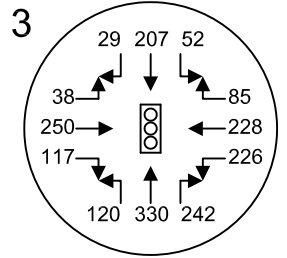
SR 305 / MADISON AVE MADISON AVE / HIGH SCHOOL RD



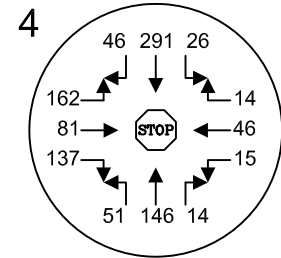
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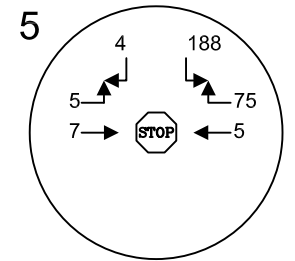
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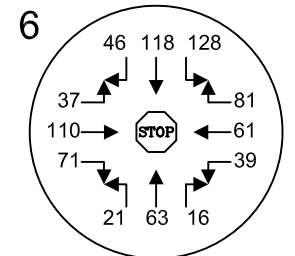
MADISON AVE / WYATT WAY



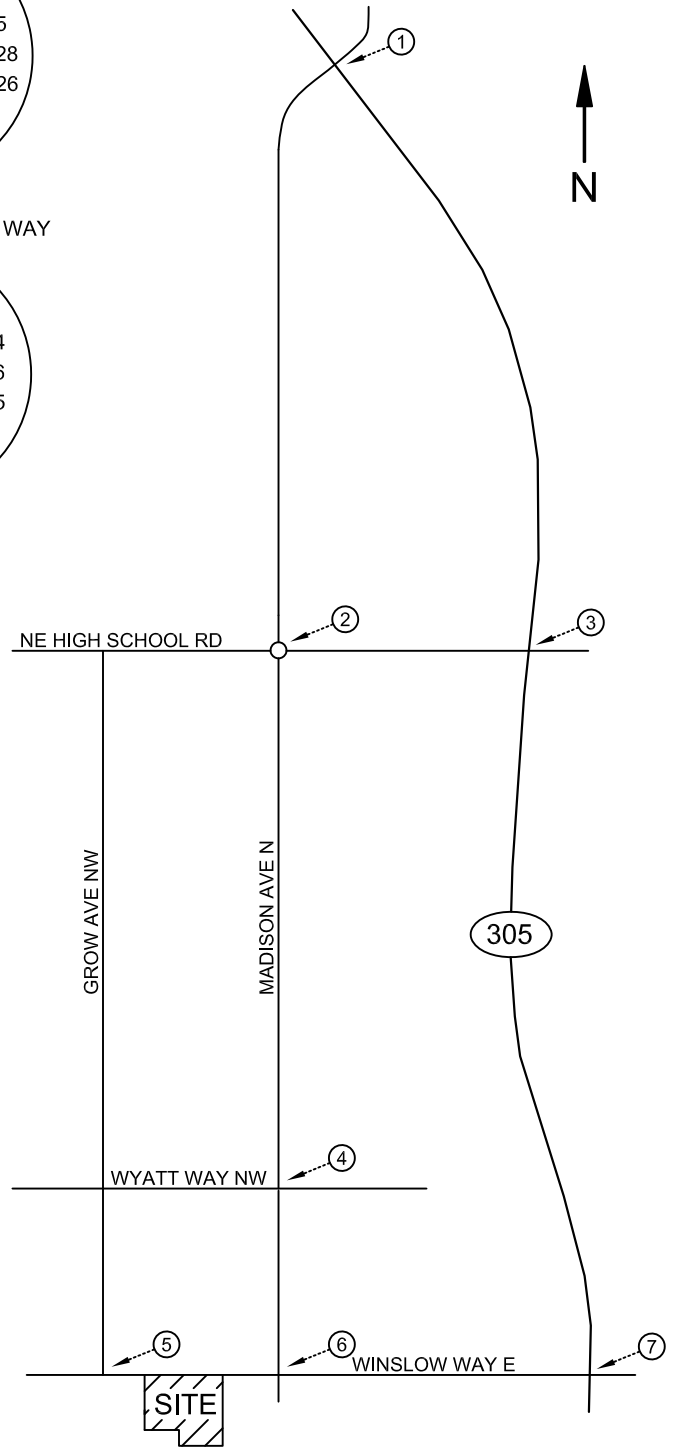
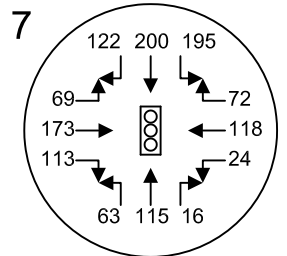
GROW AVE / WINSLOW WAY



WINSLOW WAY / MADISON AVE



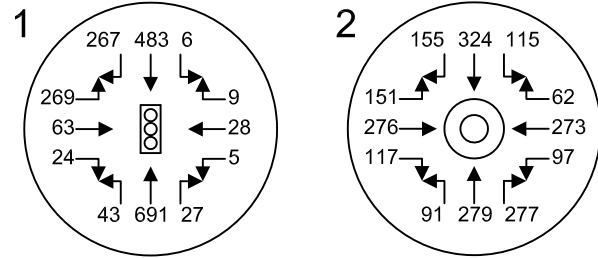
SR 305 / WINSLOW WAY



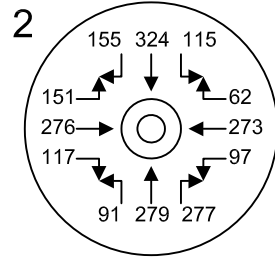
HEATH & ASSOCIATES
TRAFFIC AND CIVIL ENGINEERING

WINSLOW HOTEL
2039 AM PEAK HOUR VOLUMES WITH PROJECT
FIGURE 1 - APPENDIX

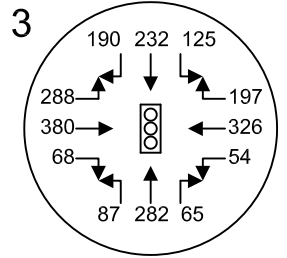
SR 305 / MADISON AVE MADISON AVE / HIGH SCHOOL RD



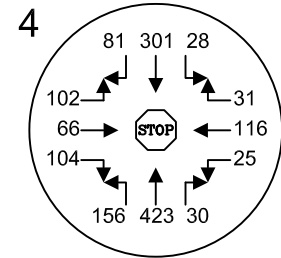
MADISON AVE / HIGH SCHOOL RD



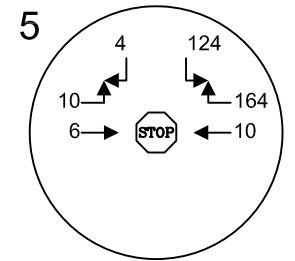
SR 305 / HIGH SCHOOL RD



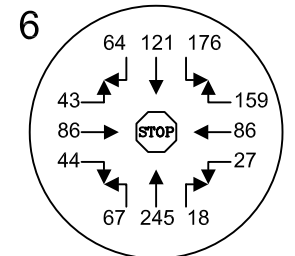
MADISON AVE / WYATT WAY



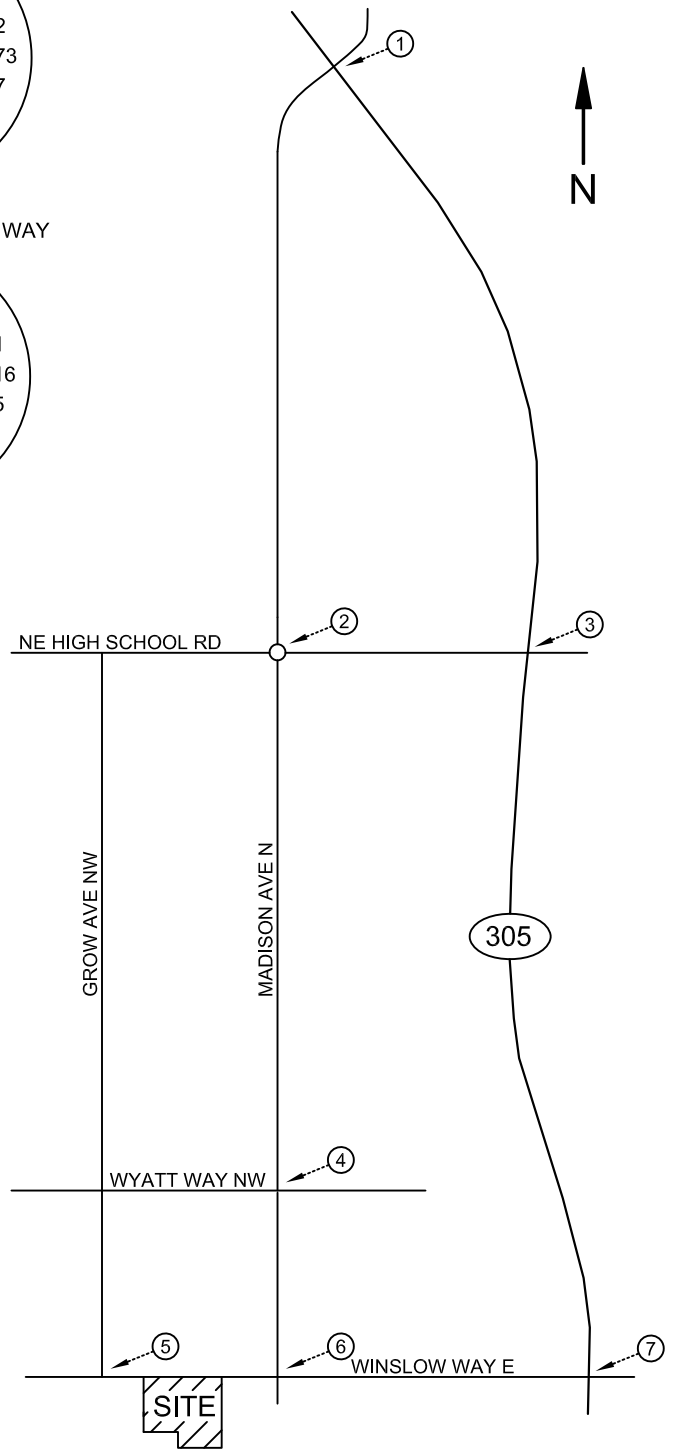
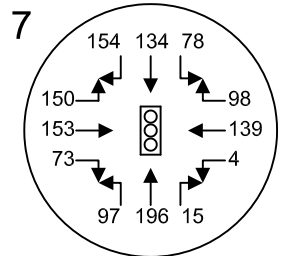
GROW AVE / WINSLOW WAY



WINSLOW WAY / MADISON AVE



SR 305 / WINSLOW WAY



HEATH & ASSOCIATES
TRAFFIC AND CIVIL ENGINEERING

WINSLOW HOTEL
2039 PM PEAK HOUR VOLUMES WITH PROJECT
FIGURE 2 - APPENDIX

Lanes, Volumes, Timings
1: SR 305 & Madison Ave

Existing AM Peak Hour

01/17/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	18	37	7	52	16	32	381	6	5	525	337
Future Volume (vph)	119	18	37	7	52	16	32	381	6	5	525	337
Satd. Flow (prot)	0	1732	0	0	1819	0	1719	1806	0	1770	1863	1583
Flt Permitted		0.745			0.964		0.950			0.950		
Satd. Flow (perm)	0	1334	0	0	1763	0	1719	1806	0	1770	1863	1583
Satd. Flow (RTOR)		23			17			2				366
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	129	20	40	8	57	17	35	414	7	5	571	366
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	189	0	0	82	0	35	421	0	5	571	366
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								6
Total Split (s)	22.5	22.5		22.5	22.5		9.5	28.0		9.5	28.0	28.0
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	4.5
Act Effect Green (s)		11.3			11.1		5.4	26.3		5.4	24.8	24.8
Actuated g/C Ratio		0.26			0.25		0.12	0.60		0.12	0.56	0.56
v/c Ratio		0.53			0.18		0.17	0.39		0.02	0.54	0.35
Control Delay		20.0			13.4		25.2	10.0		24.0	14.5	2.8
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		20.0			13.4		25.2	10.0		24.0	14.5	2.8
LOS		B			B		C	A		C	B	A
Approach Delay		20.0			13.4			11.2			10.0	
Approach LOS		B			B			B			A	
Queue Length 50th (ft)		31			11		7	51		1	78	0
Queue Length 95th (ft)		100			44		36	197		10	#329	44
Internal Link Dist (ft)		948			635			1618			511	
Turn Bay Length (ft)							250			250		590
Base Capacity (vph)		604			790		211	1169		217	1143	1112
Starvation Cap Reductn		0			0		0	0		0	0	0
Spillback Cap Reductn		0			0		0	0		0	0	0
Storage Cap Reductn		0			0		0	0		0	0	0
Reduced v/c Ratio		0.31			0.10		0.17	0.36		0.02	0.50	0.33

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 44

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 11.6

Intersection LOS: B

Intersection Capacity Utilization 51.6%

ICU Level of Service A

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: SR 305 & Madison Ave

 Ø1	 Ø2	 Ø4
9.5 s	28 s	22.5 s
 Ø5	 Ø6	 Ø8
9.5 s	28 s	22.5 s

Lanes, Volumes, Timings
3: SR 305 & NE High School Rd

Existing AM Peak Hour

01/17/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	187	70	19	205	96	43	169	20	98	270	198
Future Volume (vph)	185	187	70	19	205	96	43	169	20	98	270	198
Satd. Flow (prot)	1681	1761	1583	1770	1863	1583	1671	3289	0	1770	1863	1583
Flt Permitted	0.950	0.995		0.950			0.950			0.950		
Satd. Flow (perm)	1681	1761	1583	1770	1863	1583	1671	3289	0	1770	1863	1583
Satd. Flow (RTOR)			143			143		15				213
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	8%	8%	8%	2%	2%	2%
Adj. Flow (vph)	199	201	75	20	220	103	46	182	22	105	290	213
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	179	221	75	20	220	103	46	204	0	105	290	213
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8						6
Total Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	9.5	23.0		12.0	25.5	25.5
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Act Effect Green (s)	13.6	13.6	13.6	12.9	12.9	12.9	5.4	13.1		7.7	17.2	17.2
Actuated g/C Ratio	0.22	0.22	0.22	0.20	0.20	0.20	0.09	0.21		0.12	0.27	0.27
v/c Ratio	0.50	0.59	0.17	0.06	0.58	0.24	0.32	0.29		0.49	0.57	0.36
Control Delay	30.2	32.1	1.2	24.5	32.2	3.6	40.1	23.1		41.4	27.7	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	30.2	32.1	1.2	24.5	32.2	3.6	40.1	23.1		41.4	27.7	5.9
LOS	C	C	A	C	C	A	D	C		D	C	A
Approach Delay		26.5			23.2			26.3			22.4	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	68	87	0	7	84	0	19	34		42	108	0
Queue Length 95th (ft)	146	176	4	25	165	21	#60	70		#119	206	50
Internal Link Dist (ft)		1037			642			2308			1618	
Turn Bay Length (ft)	235		215	225		225	250			250		125
Base Capacity (vph)	520	545	588	547	576	588	143	1056		228	672	707
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.34	0.41	0.13	0.04	0.38	0.18	0.32	0.19		0.46	0.43	0.30

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 63.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 24.3

Intersection LOS: C

Intersection Capacity Utilization 54.2%

ICU Level of Service A

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: SR 305 & NE High School Rd

			
Ø1	Ø2	Ø4	Ø8
12 s	23 s	22.5 s	22.5 s
			
Ø5	Ø6		
9.5 s	25.5 s		

Lanes, Volumes, Timings
7: Winslow Way & SR 305

Existing AM Peak Hour

01/17/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	139	78	20	94	59	38	94	13	160	164	99
Future Volume (vph)	56	139	78	20	94	59	38	94	13	160	164	99
Satd. Flow (prot)	1752	1845	1568	0	1810	1553	0	3029	0	0	3350	0
Flt Permitted	0.950				0.908			0.987			0.981	
Satd. Flow (perm)	1752	1845	1568	0	1659	1553	0	3029	0	0	3350	0
Satd. Flow (RTOR)			95			143		12			47	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	16%	16%	16%	2%	2%	2%
Adj. Flow (vph)	68	170	95	24	115	72	46	115	16	195	200	121
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	170	95	0	139	72	0	177	0	0	516	0
Turn Type	Prot	NA	Perm	Perm	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4			8		2	2		6	6	
Permitted Phases			4	8		8						
Total Split (s)	12.0	34.5	34.5	22.5	22.5	22.5	23.0	23.0		22.5	22.5	
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5		4.5			4.5	
Act Effect Green (s)	7.7	16.8	16.8		10.9	10.9		9.4			14.3	
Actuated g/C Ratio	0.15	0.33	0.33		0.21	0.21		0.18			0.28	
v/c Ratio	0.26	0.28	0.17		0.40	0.16		0.31			0.53	
Control Delay	29.1	15.4	4.4		26.1	1.2		23.4			19.3	
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0			0.0	
Total Delay	29.1	15.4	4.4		26.1	1.2		23.4			19.3	
LOS	C	B	A		C	A		C			B	
Approach Delay		15.1			17.6			23.4			19.3	
Approach LOS		B			B			C			B	
Queue Length 50th (ft)	22	40	0		45	0		28			76	
Queue Length 95th (ft)	58	80	21		91	0		55			123	
Internal Link Dist (ft)		1411			673			704			1304	
Turn Bay Length (ft)	125		100			175						
Base Capacity (vph)	300	1156	1018		683	723		1289			1407	
Starvation Cap Reductn	0	0	0		0	0		0			0	
Spillback Cap Reductn	0	0	0		0	0		0			0	
Storage Cap Reductn	0	0	0		0	0		0			0	
Reduced v/c Ratio	0.23	0.15	0.09		0.20	0.10		0.14			0.37	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 51.5

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 18.5

Intersection LOS: B

Intersection Capacity Utilization 44.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 7: Winslow Way & SR 305



HCM 6th Roundabout
2: Madison Ave & NE High School Rd

Existing AM Peak Hour

01/18/2019

Intersection				
Intersection Delay, s/veh	13.3			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	667	493	255	420
Demand Flow Rate, veh/h	681	503	261	437
Vehicles Circulating, veh/h	422	278	541	449
Vehicles Exiting, veh/h	464	524	562	332
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	19.5	9.2	8.5	11.0
Approach LOS	C	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	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	681	503	261	437
Cap Entry Lane, veh/h	897	1039	795	873
Entry HV Adj Factor	0.980	0.980	0.979	0.962
Flow Entry, veh/h	667	493	255	420
Cap Entry, veh/h	879	1018	778	839
V/C Ratio	0.759	0.484	0.328	0.501
Control Delay, s/veh	19.5	9.2	8.5	11.0
LOS	C	A	A	B
95th %tile Queue, veh	7	3	1	3

Intersection	
Intersection Delay, s/veh	12.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	132	66	111	10	38	9	41	112	8	18	226	36
Future Vol, veh/h	132	66	111	10	38	9	41	112	8	18	226	36
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	148	74	125	11	43	10	46	126	9	20	254	40
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay	13.8	9.6	10.4	13.4
HCM LOS	B	A	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	43%	18%	6%
Vol Thru, %	0%	93%	21%	67%	81%
Vol Right, %	0%	7%	36%	16%	13%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	41	120	309	57	280
LT Vol	41	0	132	10	18
Through Vol	0	112	66	38	226
RT Vol	0	8	111	9	36
Lane Flow Rate	46	135	347	64	315
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.085	0.228	0.511	0.105	0.476
Departure Headway (Hd)	6.648	6.093	5.299	5.888	5.446
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	539	588	680	607	661
Service Time	4.396	3.841	3.34	3.945	3.486
HCM Lane V/C Ratio	0.085	0.23	0.51	0.105	0.477
HCM Control Delay	10	10.6	13.8	9.6	13.4
HCM Lane LOS	A	B	B	A	B
HCM 95th-tile Q	0.3	0.9	2.9	0.4	2.6

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	6	4	60	153	3
Future Vol, veh/h	4	6	4	60	153	3
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	2	2	3	3	2	2
Mvmt Flow	5	8	5	80	204	4
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	7.7	7.3	8.8
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	40%	0%	98%
Vol Thru, %	60%	6%	0%
Vol Right, %	0%	94%	2%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	10	64	156
LT Vol	4	0	153
Through Vol	6	4	0
RT Vol	0	60	3
Lane Flow Rate	13	85	208
Geometry Grp	1	1	1
Degree of Util (X)	0.017	0.092	0.248
Departure Headway (Hd)	4.587	3.89	4.29
Convergence, Y/N	Yes	Yes	Yes
Cap	785	927	834
Service Time	2.59	1.891	2.331
HCM Lane V/C Ratio	0.017	0.092	0.249
HCM Control Delay	7.7	7.3	8.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.3	1

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	80	58	31	36	59	17	50	11	96	96	33
Future Vol, veh/h	26	80	58	31	36	59	17	50	11	96	96	33
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, %	2	2	2	5	5	5	4	4	4	2	2	2
Mvmt Flow	34	105	76	41	47	78	22	66	14	126	126	43
Number of Lanes	0	1	0	0	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	1
HCM Control Delay	11.8	9.5	10.4	10.6
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	22%	16%	46%	0%	100%	0%
Vol Thru, %	64%	49%	54%	0%	0%	74%
Vol Right, %	14%	35%	0%	100%	0%	26%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	78	164	67	59	96	129
LT Vol	17	26	31	0	96	0
Through Vol	50	80	36	0	0	96
RT Vol	11	58	0	59	0	33
Lane Flow Rate	103	216	88	78	126	170
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.174	0.345	0.154	0.115	0.221	0.265
Departure Headway (Hd)	6.112	5.748	6.286	5.343	6.3	5.614
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	587	626	571	671	571	642
Service Time	4.144	3.775	4.018	3.075	4.026	3.34
HCM Lane V/C Ratio	0.175	0.345	0.154	0.116	0.221	0.265
HCM Control Delay	10.4	11.8	10.2	8.8	10.8	10.4
HCM Lane LOS	B	B	B	A	B	B
HCM 95th-tile Q	0.6	1.5	0.5	0.4	0.8	1.1

Lanes, Volumes, Timings
1: SR 305 & Madison Ave

Existing PM Peak Hour
01/17/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	52	20	4	23	7	35	548	22	5	375	208
Future Volume (vph)	211	52	20	4	23	7	35	548	22	5	375	208
Satd. Flow (prot)	0	1778	0	0	1802	0	1770	1852	0	1770	1863	1583
Flt Permitted		0.758			0.960		0.950			0.950		
Satd. Flow (perm)	0	1398	0	0	1740	0	1770	1852	0	1770	1863	1583
Satd. Flow (RTOR)		6			7			4				219
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	222	55	21	4	24	7	37	577	23	5	395	219
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	298	0	0	35	0	37	600	0	5	395	219
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								6
Total Split (s)	22.5	22.5		22.5	22.5		10.0	28.0		9.5	27.5	27.5
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	4.5
Act Effct Green (s)		14.6			14.6		5.7	22.8		5.2	21.0	21.0
Actuated g/C Ratio		0.30			0.30		0.12	0.47		0.11	0.44	0.44
v/c Ratio		0.70			0.07		0.18	0.68		0.03	0.49	0.27
Control Delay		26.8			12.5		25.7	17.4		24.8	14.4	3.3
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		26.8			12.5		25.7	17.4		24.8	14.4	3.3
LOS		C			B		C	B		C	B	A
Approach Delay		26.8			12.5			17.9			10.5	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)		64			5		9	112		1	64	0
Queue Length 95th (ft)		#197			24		37	#357		10	183	35
Internal Link Dist (ft)		948			635			1618			511	
Turn Bay Length (ft)							250			250		590
Base Capacity (vph)		546			679		209	987		190	923	895
Starvation Cap Reductn		0			0		0	0		0	0	0
Spillback Cap Reductn		0			0		0	0		0	0	0
Storage Cap Reductn		0			0		0	0		0	0	0
Reduced v/c Ratio		0.55			0.05		0.18	0.61		0.03	0.43	0.24

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 48.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 16.6

Intersection LOS: B

Intersection Capacity Utilization 60.0%

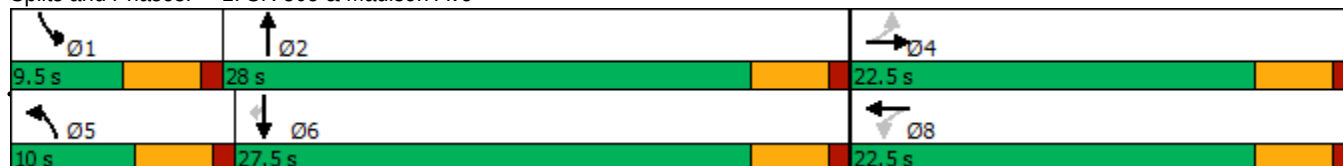
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: SR 305 & Madison Ave



Lanes, Volumes, Timings
3: SR 305 & NE High School Rd

Existing PM Peak Hour

01/17/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	237	287	56	30	246	137	71	237	40	85	196	147
Future Volume (vph)	237	287	56	30	246	137	71	237	40	85	196	147
Satd. Flow (prot)	1681	1763	1583	1770	1863	1583	1752	3428	0	1752	1845	1568
Flt Permitted	0.950	0.996		0.950			0.950			0.950		
Satd. Flow (perm)	1681	1763	1583	1770	1863	1583	1752	3428	0	1752	1845	1568
Satd. Flow (RTOR)			143			173		22				186
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	300	363	71	38	311	173	90	300	51	108	248	186
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	270	393	71	38	311	173	90	351	0	108	248	186
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8						6
Total Split (s)	24.0	24.0	24.0	22.5	22.5	22.5	10.0	23.1		10.4	23.5	23.5
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Act Effect Green (s)	18.8	18.8	18.8	15.8	15.8	15.8	5.6	14.3		6.0	17.1	17.1
Actuated g/C Ratio	0.26	0.26	0.26	0.22	0.22	0.22	0.08	0.20		0.08	0.23	0.23
v/c Ratio	0.62	0.87	0.14	0.10	0.77	0.36	0.68	0.51		0.76	0.57	0.36
Control Delay	32.9	49.3	0.6	25.0	42.2	7.0	63.0	27.6		69.9	32.6	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	32.9	49.3	0.6	25.0	42.2	7.0	63.0	27.6		69.9	32.6	6.6
LOS	C	D	A	C	D	A	E	C		E	C	A
Approach Delay		38.6			29.3			34.9			31.1	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	120	187	0	14	136	0	43	73		52	110	0
Queue Length 95th (ft)	180	#297	0	34	198	32	#99	96		#118	155	32
Internal Link Dist (ft)		1037			642			2308			1618	
Turn Bay Length (ft)	235		215	225		225	250			250		125
Base Capacity (vph)	454	476	532	441	464	524	133	899		143	485	549
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.59	0.83	0.13	0.09	0.67	0.33	0.68	0.39		0.76	0.51	0.34

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 73.1

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 33.9

Intersection LOS: C

Intersection Capacity Utilization 57.5%

ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: SR 305 & NE High School Rd

			
10.4 s	23.1 s	24 s	22.5 s
			
10 s	23.5 s		

Lanes, Volumes, Timings
7: Winslow Way & SR 305

Existing PM Peak Hour

01/17/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	109	117	49	3	107	77	57	161	12	61	110	121
Future Volume (vph)	109	117	49	3	107	77	57	161	12	61	110	121
Satd. Flow (prot)	1770	1863	1583	0	1861	1583	0	3370	0	0	3163	0
Flt Permitted	0.950				0.990			0.988			0.990	
Satd. Flow (perm)	1770	1863	1583	0	1844	1583	0	3370	0	0	3163	0
Satd. Flow (RTOR)			82			143		6			195	
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	6%	6%	6%
Adj. Flow (vph)	176	189	79	5	173	124	92	260	19	98	177	195
Shared Lane Traffic (%)												
Lane Group Flow (vph)	176	189	79	0	178	124	0	371	0	0	470	0
Turn Type	Prot	NA	Perm	Perm	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4			8		2	2		6	6	
Permitted Phases			4	8		8						
Total Split (s)	12.0	34.5	34.5	22.5	22.5	22.5	23.0	23.0		22.5	22.5	
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5		4.5			4.5	
Act Effect Green (s)	7.7	23.9	23.9		11.5	11.5		12.3			11.6	
Actuated g/C Ratio	0.12	0.39	0.39		0.19	0.19		0.20			0.19	
v/c Ratio	0.79	0.26	0.12		0.52	0.30		0.55			0.62	
Control Delay	58.8	15.7	4.5		30.0	6.1		26.3			17.7	
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0			0.0	
Total Delay	58.8	15.7	4.5		30.0	6.1		26.3			17.7	
LOS	E	B	A		C	A		C			B	
Approach Delay		30.8			20.2			26.3			17.7	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	64	46	0		59	0		63			46	
Queue Length 95th (ft)	#123	73	9		88	4		80			54	
Internal Link Dist (ft)		1411			673			704			1304	
Turn Bay Length (ft)	125		100			175						
Base Capacity (vph)	222	934	835		554	576		1046			1088	
Starvation Cap Reductn	0	0	0		0	0		0			0	
Spillback Cap Reductn	0	0	0		0	0		0			0	
Storage Cap Reductn	0	0	0		0	0		0			0	
Reduced v/c Ratio	0.79	0.20	0.09		0.32	0.22		0.35			0.43	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 61.7

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 23.9

Intersection LOS: C

Intersection Capacity Utilization 39.1%

ICU Level of Service A

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 7: Winslow Way & SR 305



HCM 6th Roundabout
2: Madison Ave & NE High School Rd

Existing PM Peak Hour Volumes

01/18/2019

Intersection				
Intersection Delay, s/veh	12.1			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	461	345	542	504
Demand Flow Rate, veh/h	471	351	554	514
Vehicles Circulating, veh/h	447	453	470	379
Vehicles Exiting, veh/h	446	571	448	425
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	11.7	9.1	15.1	11.3
Approach LOS	B	A	C	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	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	471	351	554	514
Cap Entry Lane, veh/h	875	869	854	937
Entry HV Adj Factor	0.980	0.982	0.979	0.980
Flow Entry, veh/h	461	345	542	504
Cap Entry, veh/h	857	853	836	918
V/C Ratio	0.538	0.404	0.648	0.548
Control Delay, s/veh	11.7	9.1	15.1	11.3
LOS	B	A	C	B
95th %tile Queue, veh	3	2	5	3

Intersection	
Intersection Delay, s/veh	17.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	80	53	83	17	95	21	124	327	19	17	229	63
Future Vol, veh/h	80	53	83	17	95	21	124	327	19	17	229	63
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	90	60	93	19	107	24	139	367	21	19	257	71
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay	15.1	13	20.3	18.4
HCM LOS	C	B	C	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	37%	13%	6%
Vol Thru, %	0%	95%	25%	71%	74%
Vol Right, %	0%	5%	38%	16%	20%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	124	346	216	133	309
LT Vol	124	0	80	17	17
Through Vol	0	327	53	95	229
RT Vol	0	19	83	21	63
Lane Flow Rate	139	389	243	149	347
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.272	0.7	0.449	0.292	0.602
Departure Headway (Hd)	7.033	6.483	6.656	7.033	6.244
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	510	556	541	510	576
Service Time	4.78	4.231	4.705	5.093	4.294
HCM Lane V/C Ratio	0.273	0.7	0.449	0.292	0.602
HCM Control Delay	12.4	23.1	15.1	13	18.4
HCM Lane LOS	B	C	C	B	C
HCM 95th-tile Q	1.1	5.5	2.3	1.2	4

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	5	8	133	100	3
Future Vol, veh/h	8	5	8	133	100	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	6	9	148	111	3
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	7.6	7.3	8.2
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	62%	0%	97%
Vol Thru, %	38%	6%	0%
Vol Right, %	0%	94%	3%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	13	141	103
LT Vol	8	0	100
Through Vol	5	8	0
RT Vol	0	133	3
Lane Flow Rate	14	157	114
Geometry Grp	1	1	1
Degree of Util (X)	0.018	0.156	0.14
Departure Headway (Hd)	4.381	3.579	4.407
Convergence, Y/N	Yes	Yes	Yes
Cap	805	987	811
Service Time	2.473	1.659	2.449
HCM Lane V/C Ratio	0.017	0.159	0.141
HCM Control Delay	7.6	7.3	8.2
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.6	0.5

Intersection	
Intersection Delay, s/veh	11.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	56	36	20	56	114	55	197	14	133	96	47
Future Vol, veh/h	29	56	36	20	56	114	55	197	14	133	96	47
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	58	37	21	58	118	57	203	14	137	99	48
Number of Lanes	0	1	0	0	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	1
HCM Control Delay	11.2	9.9	13.9	10.6
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	21%	24%	26%	0%	100%	0%
Vol Thru, %	74%	46%	74%	0%	0%	67%
Vol Right, %	5%	30%	0%	100%	0%	33%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	266	121	76	114	133	143
LT Vol	55	29	20	0	133	0
Through Vol	197	56	56	0	0	96
RT Vol	14	36	0	114	0	47
Lane Flow Rate	274	125	78	118	137	147
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.454	0.22	0.141	0.184	0.244	0.232
Departure Headway (Hd)	5.954	6.358	6.49	5.646	6.407	5.668
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	606	564	552	635	561	632
Service Time	3.991	4.408	4.238	3.393	4.146	3.407
HCM Lane V/C Ratio	0.452	0.222	0.141	0.186	0.244	0.233
HCM Control Delay	13.9	11.2	10.3	9.7	11.2	10.1
HCM Lane LOS	B	B	B	A	B	B
HCM 95th-tile Q	2.4	0.8	0.5	0.7	1	0.9

Lanes, Volumes, Timings
1: SR 305 & Madison Ave

2021 AM Peak Hour without Project

01/17/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	19	38	7	54	16	33	408	6	5	545	351
Future Volume (vph)	129	19	38	7	54	16	33	408	6	5	545	351
Satd. Flow (prot)	0	1736	0	0	1803	0	1719	1806	0	1770	1863	1583
Flt Permitted		0.741			0.964		0.950			0.950		
Satd. Flow (perm)	0	1330	0	0	1747	0	1719	1806	0	1770	1863	1583
Satd. Flow (RTOR)		22			17			2				382
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	140	21	41	8	59	17	36	443	7	5	592	382
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	202	0	0	84	0	36	450	0	5	592	382
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								6
Total Split (s)	22.5	22.5		22.5	22.5		9.5	28.0		9.5	28.0	28.0
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	4.5
Act Effect Green (s)		11.8			11.8		5.2	24.9		5.2	23.3	23.3
Actuated g/C Ratio		0.25			0.25		0.11	0.52		0.11	0.49	0.49
v/c Ratio		0.58			0.19		0.19	0.48		0.03	0.65	0.39
Control Delay		22.0			13.5		26.1	11.2		24.4	16.9	3.0
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		22.0			13.5		26.1	11.2		24.4	16.9	3.0
LOS		C			B		C	B		C	B	A
Approach Delay		22.0			13.5			12.3			11.5	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)		36			12		8	58		1	85	0
Queue Length 95th (ft)		108			45		37	213		10	#348	45
Internal Link Dist (ft)		948			635			1618			511	
Turn Bay Length (ft)							250			250		590
Base Capacity (vph)		535			696		187	1014		193	983	1016
Starvation Cap Reductn		0			0		0	0		0	0	0
Spillback Cap Reductn		0			0		0	0		0	0	0
Storage Cap Reductn		0			0		0	0		0	0	0
Reduced v/c Ratio		0.38			0.12		0.19	0.44		0.03	0.60	0.38

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 47.6

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 13.0

Intersection LOS: B

Intersection Capacity Utilization 53.3%

ICU Level of Service A

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: SR 305 & Madison Ave

 Ø1	 Ø2	 Ø4
9.5 s	28 s	22.5 s
 Ø5	 Ø6	 Ø8
9.5 s	28 s	22.5 s

Lanes, Volumes, Timings
3: SR 305 & NE High School Rd

2021 AM Peak Hour without Project

01/17/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	193	72	20	211	99	44	174	21	101	278	209
Future Volume (vph)	206	193	72	20	211	99	44	174	21	101	278	209
Satd. Flow (prot)	1681	1761	1583	1770	1863	1583	1671	3289	0	1770	1863	1583
Flt Permitted	0.950	0.995		0.950			0.950			0.950		
Satd. Flow (perm)	1681	1761	1583	1770	1863	1583	1671	3289	0	1770	1863	1583
Satd. Flow (RTOR)			143			143		15				225
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	8%	8%	8%	2%	2%	2%
Adj. Flow (vph)	222	208	77	22	227	106	47	187	23	109	299	225
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	200	230	77	22	227	106	47	210	0	109	299	225
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8						6
Total Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.9		12.1	25.5	25.5
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Act Effect Green (s)	13.8	13.8	13.8	13.2	13.2	13.2	5.4	13.4		7.8	17.6	17.6
Actuated g/C Ratio	0.22	0.22	0.22	0.21	0.21	0.21	0.08	0.21		0.12	0.28	0.28
v/c Ratio	0.55	0.61	0.17	0.06	0.59	0.24	0.33	0.30		0.51	0.59	0.38
Control Delay	31.8	33.0	1.4	24.6	32.8	3.9	41.1	23.4		42.3	28.1	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	31.8	33.0	1.4	24.6	32.8	3.9	41.1	23.4		42.3	28.1	5.8
LOS	C	C	A	C	C	A	D	C		D	C	A
Approach Delay		27.7			23.7			26.6			22.6	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	78	92	0	8	89	0	20	36		45	114	0
Queue Length 95th (ft)	162	183	6	27	170	22	#62	71		#125	213	51
Internal Link Dist (ft)		1037			642			2308			1618	
Turn Bay Length (ft)	235		215	225		225	250			250		125
Base Capacity (vph)	513	538	583	541	569	583	141	1037		228	664	709
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.39	0.43	0.13	0.04	0.40	0.18	0.33	0.20		0.48	0.45	0.32

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 64

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 24.9

Intersection LOS: C

Intersection Capacity Utilization 55.7%

ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: SR 305 & NE High School Rd

			
12.1 s	22.9 s	22.5 s	22.5 s
			
9.5 s	25.5 s		

Lanes, Volumes, Timings
7: Winslow Way & SR 305

2021 AM Peak Hour without Project

01/17/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	145	91	21	98	61	46	97	13	165	169	102
Future Volume (vph)	58	145	91	21	98	61	46	97	13	165	169	102
Satd. Flow (prot)	1752	1845	1568	0	1810	1553	0	3026	0	0	3350	0
Flt Permitted	0.950				0.916			0.985			0.981	
Satd. Flow (perm)	1752	1845	1568	0	1673	1553	0	3026	0	0	3350	0
Satd. Flow (RTOR)			111			143		11			46	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	16%	16%	16%	2%	2%	2%
Adj. Flow (vph)	71	177	111	26	120	74	56	118	16	201	206	124
Shared Lane Traffic (%)												
Lane Group Flow (vph)	71	177	111	0	146	74	0	190	0	0	531	0
Turn Type	Prot	NA	Perm	Perm	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4			8		2	2		6	6	
Permitted Phases			4	8		8						
Total Split (s)	12.0	34.5	34.5	22.5	22.5	22.5	23.0	23.0		22.5	22.5	
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5		4.5			4.5	
Act Effect Green (s)	7.3	16.8	16.8		10.8	10.8		9.2			14.1	
Actuated g/C Ratio	0.13	0.31	0.31		0.20	0.20		0.17			0.26	
v/c Ratio	0.31	0.31	0.20		0.44	0.18		0.37			0.59	
Control Delay	30.6	16.0	4.4		27.3	1.4		24.4			21.0	
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0			0.0	
Total Delay	30.6	16.0	4.4		27.3	1.4		24.4			21.0	
LOS	C	B	A		C	A		C			C	
Approach Delay		15.3			18.6			24.4			21.0	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	24	43	0		48	0		31			81	
Queue Length 95th (ft)	61	84	22		95	0		58			130	
Internal Link Dist (ft)		1411			673			704			1304	
Turn Bay Length (ft)	125		100			175						
Base Capacity (vph)	259	1092	973		593	643		1111			1219	
Starvation Cap Reductn	0	0	0		0	0		0			0	
Spillback Cap Reductn	0	0	0		0	0		0			0	
Storage Cap Reductn	0	0	0		0	0		0			0	
Reduced v/c Ratio	0.27	0.16	0.11		0.25	0.12		0.17			0.44	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 54.7

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 19.5

Intersection LOS: B

Intersection Capacity Utilization 46.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 7: Winslow Way & SR 305



Intersection				
Intersection Delay, s/veh	15.3			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	697	514	283	451
Demand Flow Rate, veh/h	711	524	292	469
Vehicles Circulating, veh/h	443	299	564	473
Vehicles Exiting, veh/h	499	557	590	350
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	23.3	10.0	9.5	12.4
Approach LOS	C	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	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	711	524	292	469
Cap Entry Lane, veh/h	878	1017	776	852
Entry HV Adj Factor	0.980	0.980	0.970	0.961
Flow Entry, veh/h	697	514	283	451
Cap Entry, veh/h	861	997	753	819
V/C Ratio	0.810	0.515	0.376	0.551
Control Delay, s/veh	23.3	10.0	9.5	12.4
LOS	C	A	A	B
95th %tile Queue, veh	9	3	2	3

Intersection	
Intersection Delay, s/veh	13.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	137	68	116	13	39	12	43	120	12	23	242	39
Future Vol, veh/h	137	68	116	13	39	12	43	120	12	23	242	39
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	154	76	130	15	44	13	48	135	13	26	272	44
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay	15	10	11	14.8
HCM LOS	B	A	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	43%	20%	8%
Vol Thru, %	0%	91%	21%	61%	80%
Vol Right, %	0%	9%	36%	19%	13%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	43	132	321	64	304
LT Vol	43	0	137	13	23
Through Vol	0	120	68	39	242
RT Vol	0	12	116	12	39
Lane Flow Rate	48	148	361	72	342
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.091	0.257	0.547	0.122	0.529
Departure Headway (Hd)	6.804	6.23	5.459	6.083	5.578
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	525	574	660	585	646
Service Time	4.568	3.994	3.511	4.16	3.632
HCM Lane V/C Ratio	0.091	0.258	0.547	0.123	0.529
HCM Control Delay	10.3	11.2	15	10	14.8
HCM Lane LOS	B	B	B	A	B
HCM 95th-tile Q	0.3	1	3.3	0.4	3.1

Intersection

Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	6	4	63	158	3
Future Vol, veh/h	4	6	4	63	158	3
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	2	2	3	3	2	2
Mvmt Flow	5	8	5	84	211	4
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	7.7	7.3	8.8
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	40%	0%	98%
Vol Thru, %	60%	6%	0%
Vol Right, %	0%	94%	2%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	10	67	161
LT Vol	4	0	158
Through Vol	6	4	0
RT Vol	0	63	3
Lane Flow Rate	13	89	215
Geometry Grp	1	1	1
Degree of Util (X)	0.017	0.097	0.256
Departure Headway (Hd)	4.608	3.905	4.296
Convergence, Y/N	Yes	Yes	Yes
Cap	781	923	833
Service Time	2.611	1.905	2.341
HCM Lane V/C Ratio	0.017	0.096	0.258
HCM Control Delay	7.7	7.3	8.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.3	1

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	82	60	33	37	70	18	54	14	110	100	34
Future Vol, veh/h	28	82	60	33	37	70	18	54	14	110	100	34
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, %	2	2	2	5	5	5	4	4	4	2	2	2
Mvmt Flow	37	108	79	43	49	92	24	71	18	145	132	45
Number of Lanes	0	1	0	0	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	1
HCM Control Delay	12.3	9.8	10.8	11
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	21%	16%	47%	0%	100%	0%
Vol Thru, %	63%	48%	53%	0%	0%	75%
Vol Right, %	16%	35%	0%	100%	0%	25%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	86	170	70	70	110	134
LT Vol	18	28	33	0	110	0
Through Vol	54	82	37	0	0	100
RT Vol	14	60	0	70	0	34
Lane Flow Rate	113	224	92	92	145	176
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.196	0.367	0.165	0.14	0.258	0.281
Departure Headway (Hd)	6.244	5.899	6.438	5.489	6.417	5.731
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	575	611	557	653	560	628
Service Time	4.286	3.934	4.177	3.227	4.151	3.465
HCM Lane V/C Ratio	0.197	0.367	0.165	0.141	0.259	0.28
HCM Control Delay	10.8	12.3	10.5	9.1	11.4	10.7
HCM Lane LOS	B	B	B	A	B	B
HCM 95th-tile Q	0.7	1.7	0.6	0.5	1	1.1

Lanes, Volumes, Timings
1: SR 305 & Madison Ave

2021 PM Peak Hour without Project

01/17/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	222	54	21	4	24	7	36	586	23	5	410	220
Future Volume (vph)	222	54	21	4	24	7	36	586	23	5	410	220
Satd. Flow (prot)	0	1780	0	0	1803	0	1770	1852	0	1770	1863	1583
Flt Permitted		0.757			0.962		0.950			0.950		
Satd. Flow (perm)	0	1397	0	0	1745	0	1770	1852	0	1770	1863	1583
Satd. Flow (RTOR)		6			7			4				232
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	234	57	22	4	25	7	38	617	24	5	432	232
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	313	0	0	36	0	38	641	0	5	432	232
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								6
Total Split (s)	23.0	23.0		23.0	23.0		10.2	32.5		9.5	31.8	31.8
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	4.5
Act Effct Green (s)		15.9			15.9		5.9	24.6		5.2	22.8	22.8
Actuated g/C Ratio		0.31			0.31		0.11	0.48		0.10	0.44	0.44
v/c Ratio		0.72			0.07		0.19	0.72		0.03	0.52	0.28
Control Delay		29.5			13.7		27.9	18.0		27.0	14.9	3.1
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		29.5			13.7		27.9	18.0		27.0	14.9	3.1
LOS		C			B		C	B		C	B	A
Approach Delay		29.5			13.7			18.6			10.9	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)		75			6		11	141		1	82	0
Queue Length 95th (ft)		#234			27		40	#387		11	203	35
Internal Link Dist (ft)		948			635			1618			511	
Turn Bay Length (ft)							250			250		590
Base Capacity (vph)		529			661		205	1092		180	1034	982
Starvation Cap Reductn		0			0		0	0		0	0	0
Spillback Cap Reductn		0			0		0	0		0	0	0
Storage Cap Reductn		0			0		0	0		0	0	0
Reduced v/c Ratio		0.59			0.05		0.19	0.59		0.03	0.42	0.24

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 51.4

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 17.5

Intersection LOS: B

Intersection Capacity Utilization 62.8%

ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: SR 305 & Madison Ave

 Ø1	 Ø2	 Ø4
9.5 s	32.5 s	23 s
 Ø5	 Ø6	 Ø8
10.2 s	31.8 s	23 s

Lanes, Volumes, Timings
3: SR 305 & NE High School Rd

2021 PM Peak Hour without Project

01/17/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	326	58	48	279	171	73	236	57	109	194	162
Future Volume (vph)	243	326	58	48	279	171	73	236	57	109	194	162
Satd. Flow (prot)	1681	1764	1583	1770	1863	1583	1752	3403	0	1752	1845	1568
Flt Permitted	0.950	0.997		0.950			0.950			0.950		
Satd. Flow (perm)	1681	1764	1583	1770	1863	1583	1752	3403	0	1752	1845	1568
Satd. Flow (RTOR)			127			216		30				205
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	308	413	73	61	353	216	92	299	72	138	246	205
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	277	444	73	61	353	216	92	371	0	138	246	205
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8						6
Total Split (s)	29.0	29.0	29.0	24.0	24.0	24.0	12.0	24.0		13.0	25.0	25.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Act Effect Green (s)	23.5	23.5	23.5	18.6	18.6	18.6	7.3	15.1		8.6	19.0	19.0
Actuated g/C Ratio	0.28	0.28	0.28	0.22	0.22	0.22	0.09	0.18		0.10	0.23	0.23
v/c Ratio	0.59	0.90	0.14	0.16	0.86	0.42	0.61	0.58		0.77	0.59	0.40
Control Delay	33.0	53.5	1.5	29.2	54.0	7.2	57.3	32.9		68.2	37.4	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	33.0	53.5	1.5	29.2	54.0	7.2	57.3	32.9		68.2	37.4	7.0
LOS	C	D	A	C	D	A	E	C		E	D	A
Approach Delay		41.6			35.5			37.8			34.0	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)	134	241	0	27	183	0	49	89		74	125	0
Queue Length 95th (ft)	196	#356	0	54	#276	36	#94	113		#146	173	35
Internal Link Dist (ft)		1037			642			2308			1618	
Turn Bay Length (ft)	235		215	225		225	250			250		125
Base Capacity (vph)	495	519	555	415	436	536	158	820		179	464	548
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.56	0.86	0.13	0.15	0.81	0.40	0.58	0.45		0.77	0.53	0.37

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 83.9

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 37.5

Intersection LOS: D

Intersection Capacity Utilization 61.2%

ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: SR 305 & NE High School Rd

			
Ø1	Ø2	Ø4	Ø8
13 s	24 s	29 s	24 s
			
Ø5	Ø6		
12 s	25 s		

Lanes, Volumes, Timings
7: Winslow Way & SR 305

2021 PM Peak Hour without Project
01/17/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	127	57	3	115	83	76	166	12	67	113	130
Future Volume (vph)	127	127	57	3	115	83	76	166	12	67	113	130
Satd. Flow (prot)	1770	1863	1583	0	1861	1583	0	3363	0	0	3156	0
Flt Permitted	0.950				0.990			0.985			0.989	
Satd. Flow (perm)	1770	1863	1583	0	1844	1583	0	3363	0	0	3156	0
Satd. Flow (RTOR)			92			143		6			210	
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	6%	6%	6%
Adj. Flow (vph)	205	205	92	5	185	134	123	268	19	108	182	210
Shared Lane Traffic (%)												
Lane Group Flow (vph)	205	205	92	0	190	134	0	410	0	0	500	0
Turn Type	Prot	NA	Perm	Perm	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4			8		2	2		6	6	
Permitted Phases			4	8		8						
Total Split (s)	12.0	34.5	34.5	22.5	22.5	22.5	23.0	23.0		22.5	22.5	
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5		4.5			4.5	
Act Effect Green (s)	7.7	24.4	24.4		12.0	12.0		13.2			12.1	
Actuated g/C Ratio	0.12	0.38	0.38		0.19	0.19		0.21			0.19	
v/c Ratio	0.95	0.29	0.14		0.55	0.32		0.58			0.65	
Control Delay	87.0	16.5	4.6		31.2	7.0		27.1			18.4	
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0			0.0	
Total Delay	87.0	16.5	4.6		31.2	7.0		27.1			18.4	
LOS	F	B	A		C	A		C			B	
Approach Delay		43.1			21.2			27.1			18.4	
Approach LOS		D			C			C			B	
Queue Length 50th (ft)	79	53	0		66	0		73			51	
Queue Length 95th (ft)	#150	78	10		93	8		88			56	
Internal Link Dist (ft)		1411			673			704			1304	
Turn Bay Length (ft)	125		100			175						
Base Capacity (vph)	215	907	818		538	563		1014			1070	
Starvation Cap Reductn	0	0	0		0	0		0			0	
Spillback Cap Reductn	0	0	0		0	0		0			0	
Storage Cap Reductn	0	0	0		0	0		0			0	
Reduced v/c Ratio	0.95	0.23	0.11		0.35	0.24		0.40			0.47	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 63.6

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 28.1

Intersection LOS: C

Intersection Capacity Utilization 41.4%

ICU Level of Service A

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 7: Winslow Way & SR 305



Intersection				
Intersection Delay, s/veh	14.3			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	492	392	579	529
Demand Flow Rate, veh/h	502	400	591	540
Vehicles Circulating, veh/h	489	474	500	428
Vehicles Exiting, veh/h	479	617	491	446
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	13.7	10.4	18.2	13.3
Approach LOS	B	B	C	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	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	502	400	591	540
Cap Entry Lane, veh/h	838	851	829	892
Entry HV Adj Factor	0.980	0.980	0.980	0.980
Flow Entry, veh/h	492	392	579	529
Cap Entry, veh/h	821	834	812	874
V/C Ratio	0.599	0.470	0.713	0.606
Control Delay, s/veh	13.7	10.4	18.2	13.3
LOS	B	B	C	B
95th %tile Queue, veh	4	3	6	4

Intersection	
Intersection Delay, s/veh	23.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	86	56	89	22	98	27	133	354	27	25	251	69
Future Vol, veh/h	86	56	89	22	98	27	133	354	27	25	251	69
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	97	63	100	25	110	30	149	398	30	28	282	78
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay	17.4	14.5	27.9	24.5
HCM LOS	C	B	D	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	37%	15%	7%
Vol Thru, %	0%	93%	24%	67%	73%
Vol Right, %	0%	7%	39%	18%	20%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	133	381	231	147	345
LT Vol	133	0	86	22	25
Through Vol	0	354	56	98	251
RT Vol	0	27	89	27	69
Lane Flow Rate	149	428	260	165	388
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.307	0.811	0.511	0.344	0.712
Departure Headway (Hd)	7.385	6.823	7.086	7.505	6.61
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	484	527	506	476	543
Service Time	5.162	4.6	5.168	5.603	4.688
HCM Lane V/C Ratio	0.308	0.812	0.514	0.347	0.715
HCM Control Delay	13.4	32.9	17.4	14.5	24.5
HCM Lane LOS	B	D	C	B	C
HCM 95th-tile Q	1.3	7.9	2.9	1.5	5.7

Intersection

Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	5	8	138	104	3
Future Vol, veh/h	8	5	8	138	104	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	6	9	153	116	3
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	7.6	7.4	8.2
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	62%	0%	97%
Vol Thru, %	38%	5%	0%
Vol Right, %	0%	95%	3%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	13	146	107
LT Vol	8	0	104
Through Vol	5	8	0
RT Vol	0	138	3
Lane Flow Rate	14	162	119
Geometry Grp	1	1	1
Degree of Util (X)	0.018	0.162	0.146
Departure Headway (Hd)	4.393	3.586	4.417
Convergence, Y/N	Yes	Yes	Yes
Cap	802	983	808
Service Time	2.491	1.669	2.462
HCM Lane V/C Ratio	0.017	0.165	0.147
HCM Control Delay	7.6	7.4	8.2
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.6	0.5

Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔		↔	↔	
Traffic Vol, veh/h	31	58	37	24	58	137	57	208	15	151	103	48
Future Vol, veh/h	31	58	37	24	58	137	57	208	15	151	103	48
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	60	38	25	60	141	59	214	15	156	106	49
Number of Lanes	0	1	0	0	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	1
HCM Control Delay	11.7	10.4	15	11.3
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	20%	25%	29%	0%	100%	0%
Vol Thru, %	74%	46%	71%	0%	0%	68%
Vol Right, %	5%	29%	0%	100%	0%	32%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	280	126	82	137	151	151
LT Vol	57	31	24	0	151	0
Through Vol	208	58	58	0	0	103
RT Vol	15	37	0	137	0	48
Lane Flow Rate	289	130	85	141	156	156
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.492	0.237	0.157	0.228	0.285	0.253
Departure Headway (Hd)	6.134	6.581	6.674	5.813	6.581	5.848
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	586	543	536	616	545	613
Service Time	4.185	4.649	4.434	3.573	4.332	3.599
HCM Lane V/C Ratio	0.493	0.239	0.159	0.229	0.286	0.254
HCM Control Delay	15	11.7	10.7	10.3	12	10.6
HCM Lane LOS	B	B	B	B	B	B
HCM 95th-tile Q	2.7	0.9	0.6	0.9	1.2	1

Lanes, Volumes, Timings
1: SR 305 & Madison Ave

2021 AM Peak Hour with Project

04/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	19	38	7	54	16	33	409	6	5	546	357
Future Volume (vph)	133	19	38	7	54	16	33	409	6	5	546	357
Satd. Flow (prot)	0	1734	0	0	1803	0	1719	1806	0	1770	1863	1583
Flt Permitted		0.739			0.964		0.950			0.950		
Satd. Flow (perm)	0	1326	0	0	1747	0	1719	1806	0	1770	1863	1583
Satd. Flow (RTOR)		21			17			2				388
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	145	21	41	8	59	17	36	445	7	5	593	388
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	207	0	0	84	0	36	452	0	5	593	388
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								6
Total Split (s)	22.5	22.5		22.5	22.5		9.5	28.0		9.5	28.0	28.0
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	4.5
Act Effect Green (s)		12.0			12.0		5.2	24.9		5.2	23.3	23.3
Actuated g/C Ratio		0.25			0.25		0.11	0.52		0.11	0.49	0.49
v/c Ratio		0.59			0.19		0.19	0.48		0.03	0.65	0.40
Control Delay		22.3			13.5		26.2	11.4		24.4	17.1	3.1
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		22.3			13.5		26.2	11.4		24.4	17.1	3.1
LOS		C			B		C	B		C	B	A
Approach Delay		22.3			13.5			12.5			11.6	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)		38			12		8	60		1	87	0
Queue Length 95th (ft)		111			45		37	215		10	#349	45
Internal Link Dist (ft)		948			635			1618			511	
Turn Bay Length (ft)							250			250		590
Base Capacity (vph)		531			694		186	1010		192	980	1016
Starvation Cap Reductn		0			0		0	0		0	0	0
Spillback Cap Reductn		0			0		0	0		0	0	0
Storage Cap Reductn		0			0		0	0		0	0	0
Reduced v/c Ratio		0.39			0.12		0.19	0.45		0.03	0.61	0.38

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 47.8

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 13.2

Intersection LOS: B

Intersection Capacity Utilization 53.6%

ICU Level of Service A

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: SR 305 & Madison Ave

 Ø1	 Ø2	 Ø4
9.5 s	28 s	22.5 s
 Ø5	 Ø6	 Ø8
9.5 s	28 s	22.5 s

Lanes, Volumes, Timings
3: SR 305 & NE High School Rd

2021 AM Peak Hour with Project

04/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	193	72	20	211	99	44	175	21	101	279	209
Future Volume (vph)	206	193	72	20	211	99	44	175	21	101	279	209
Satd. Flow (prot)	1681	1761	1583	1770	1863	1583	1671	3289	0	1770	1863	1583
Flt Permitted	0.950	0.995		0.950			0.950			0.950		
Satd. Flow (perm)	1681	1761	1583	1770	1863	1583	1671	3289	0	1770	1863	1583
Satd. Flow (RTOR)			143			143		15				225
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	8%	8%	8%	2%	2%	2%
Adj. Flow (vph)	222	208	77	22	227	106	47	188	23	109	300	225
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	200	230	77	22	227	106	47	211	0	109	300	225
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8						6
Total Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.9		12.1	25.5	25.5
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Act Effect Green (s)	13.8	13.8	13.8	13.2	13.2	13.2	5.4	13.4		7.8	17.6	17.6
Actuated g/C Ratio	0.22	0.22	0.22	0.21	0.21	0.21	0.08	0.21		0.12	0.28	0.28
v/c Ratio	0.55	0.61	0.17	0.06	0.59	0.24	0.33	0.30		0.51	0.59	0.38
Control Delay	31.8	33.0	1.4	24.6	32.8	3.9	41.1	23.4		42.3	28.2	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	31.8	33.0	1.4	24.6	32.8	3.9	41.1	23.4		42.3	28.2	5.8
LOS	C	C	A	C	C	A	D	C		D	C	A
Approach Delay		27.7			23.7			26.6			22.7	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	80	92	0	8	89	0	20	36		45	114	0
Queue Length 95th (ft)	162	183	6	27	170	22	#62	71		#125	214	51
Internal Link Dist (ft)		1037			642			2308			1618	
Turn Bay Length (ft)	235		215	225		225	250			250		125
Base Capacity (vph)	513	538	583	540	569	583	141	1037		228	664	709
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.39	0.43	0.13	0.04	0.40	0.18	0.33	0.20		0.48	0.45	0.32

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 64

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 24.9

Intersection LOS: C

Intersection Capacity Utilization 55.7%

ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: SR 305 & NE High School Rd

			
12.1 s	22.9 s	22.5 s	22.5 s
			
9.5 s	25.5 s		

Lanes, Volumes, Timings
7: Winslow Way & SR 305

2021 AM Peak Hour with Project

04/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	146	98	21	100	61	56	97	13	165	169	103
Future Volume (vph)	59	146	98	21	100	61	56	97	13	165	169	103
Satd. Flow (prot)	1752	1845	1568	0	1810	1553	0	3022	0	0	3350	0
Flt Permitted	0.950				0.917			0.983			0.981	
Satd. Flow (perm)	1752	1845	1568	0	1675	1553	0	3022	0	0	3350	0
Satd. Flow (RTOR)			120			143		10			47	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	16%	16%	16%	2%	2%	2%
Adj. Flow (vph)	72	178	120	26	122	74	68	118	16	201	206	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	72	178	120	0	148	74	0	202	0	0	533	0
Turn Type	Prot	NA	Perm	Perm	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4			8		2	2		6	6	
Permitted Phases			4	8		8						
Total Split (s)	12.0	34.5	34.5	22.5	22.5	22.5	23.0	23.0		22.5	22.5	
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5		4.5			4.5	
Act Effect Green (s)	7.3	17.0	17.0		10.9	10.9		9.5			14.1	
Actuated g/C Ratio	0.13	0.31	0.31		0.20	0.20		0.17			0.26	
v/c Ratio	0.31	0.31	0.21		0.45	0.18		0.38			0.60	
Control Delay	31.1	16.2	4.4		27.6	1.5		24.6			21.2	
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0			0.0	
Total Delay	31.1	16.2	4.4		27.6	1.5		24.6			21.2	
LOS	C	B	A		C	A		C			C	
Approach Delay		15.3			18.9			24.6			21.2	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	25	44	0		49	0		33			82	
Queue Length 95th (ft)	62	85	23		96	0		62			132	
Internal Link Dist (ft)		1411			673			704			1304	
Turn Bay Length (ft)	125		100			175						
Base Capacity (vph)	257	1083	970		590	639		1100			1210	
Starvation Cap Reductn	0	0	0		0	0		0			0	
Spillback Cap Reductn	0	0	0		0	0		0			0	
Storage Cap Reductn	0	0	0		0	0		0			0	
Reduced v/c Ratio	0.28	0.16	0.12		0.25	0.12		0.18			0.44	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 55.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 19.7

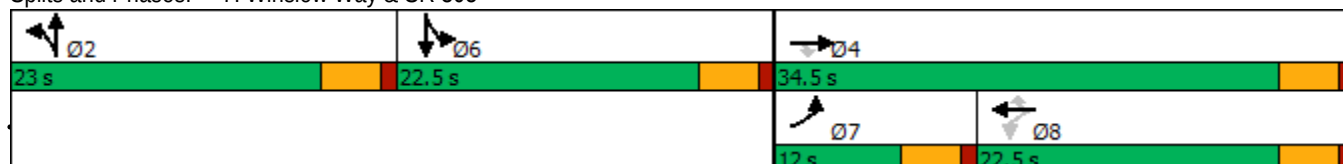
Intersection LOS: B

Intersection Capacity Utilization 46.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 7: Winslow Way & SR 305



Intersection				
Intersection Delay, s/veh	15.6			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	697	514	288	458
Demand Flow Rate, veh/h	711	524	297	477
Vehicles Circulating, veh/h	451	304	564	473
Vehicles Exiting, veh/h	499	557	598	355
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	24.0	10.0	9.6	12.6
Approach LOS	C	B	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	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	711	524	297	477
Cap Entry Lane, veh/h	871	1012	776	852
Entry HV Adj Factor	0.980	0.980	0.970	0.961
Flow Entry, veh/h	697	514	288	458
Cap Entry, veh/h	854	992	753	819
V/C Ratio	0.816	0.518	0.383	0.560
Control Delay, s/veh	24.0	10.0	9.6	12.6
LOS	C	B	A	B
95th %tile Queue, veh	9	3	2	4

Intersection	
Intersection Delay, s/veh	13.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	137	68	116	13	39	12	43	124	12	23	248	39
Future Vol, veh/h	137	68	116	13	39	12	43	124	12	23	248	39
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	154	76	130	15	44	13	48	139	13	26	279	44
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay	15.1	10.1	11.1	15.1
HCM LOS	C	B	B	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	43%	20%	7%
Vol Thru, %	0%	91%	21%	61%	80%
Vol Right, %	0%	9%	36%	19%	13%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	43	136	321	64	310
LT Vol	43	0	137	13	23
Through Vol	0	124	68	39	248
RT Vol	0	12	116	12	39
Lane Flow Rate	48	153	361	72	348
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.092	0.265	0.55	0.122	0.542
Departure Headway (Hd)	6.824	6.253	5.494	6.128	5.597
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	523	573	653	581	641
Service Time	4.588	4.016	3.549	4.208	3.649
HCM Lane V/C Ratio	0.092	0.267	0.553	0.124	0.543
HCM Control Delay	10.3	11.3	15.1	10.1	15.1
HCM Lane LOS	B	B	C	B	C
HCM 95th-tile Q	0.3	1.1	3.4	0.4	3.3

Intersection

Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	6	4	64	159	3
Future Vol, veh/h	4	6	4	64	159	3
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	2	2	3	3	2	2
Mvmt Flow	5	8	5	85	212	4
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	7.7	7.3	8.8
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	40%	0%	98%
Vol Thru, %	60%	6%	0%
Vol Right, %	0%	94%	2%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	10	68	162
LT Vol	4	0	159
Through Vol	6	4	0
RT Vol	0	64	3
Lane Flow Rate	13	91	216
Geometry Grp	1	1	1
Degree of Util (X)	0.017	0.098	0.258
Departure Headway (Hd)	4.613	3.909	4.3
Convergence, Y/N	Yes	Yes	Yes
Cap	780	922	832
Service Time	2.616	1.909	2.343
HCM Lane V/C Ratio	0.017	0.099	0.26
HCM Control Delay	7.7	7.3	8.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.3	1

Intersection	
Intersection Delay, s/veh	11.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔		↔	↔	
Traffic Vol, veh/h	32	94	60	33	54	70	18	54	14	110	100	40
Future Vol, veh/h	32	94	60	33	54	70	18	54	14	110	100	40
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, %	2	2	2	5	5	5	4	4	4	2	2	2
Mvmt Flow	42	124	79	43	71	92	24	71	18	145	132	53
Number of Lanes	0	1	0	0	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	1
HCM Control Delay	13.2	10.2	11.1	11.4
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	21%	17%	38%	0%	100%	0%
Vol Thru, %	63%	51%	62%	0%	0%	71%
Vol Right, %	16%	32%	0%	100%	0%	29%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	86	186	87	70	110	140
LT Vol	18	32	33	0	110	0
Through Vol	54	94	54	0	0	100
RT Vol	14	60	0	70	0	40
Lane Flow Rate	113	245	114	92	145	184
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.202	0.408	0.206	0.143	0.264	0.3
Departure Headway (Hd)	6.424	6.006	6.48	5.577	6.567	5.858
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	558	600	553	642	547	613
Service Time	4.475	4.049	4.226	3.322	4.308	3.599
HCM Lane V/C Ratio	0.203	0.408	0.206	0.143	0.265	0.3
HCM Control Delay	11.1	13.2	10.9	9.3	11.7	11.1
HCM Lane LOS	B	B	B	A	B	B
HCM 95th-tile Q	0.7	2	0.8	0.5	1.1	1.3

Lanes, Volumes, Timings
1: SR 305 & Madison Ave

2021 PM Peak Hour with Project

04/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	229	54	21	4	24	7	36	587	23	5	411	227
Future Volume (vph)	229	54	21	4	24	7	36	587	23	5	411	227
Satd. Flow (prot)	0	1780	0	0	1803	0	1770	1852	0	1770	1863	1583
Flt Permitted		0.756			0.961		0.950			0.950		
Satd. Flow (perm)	0	1396	0	0	1744	0	1770	1852	0	1770	1863	1583
Satd. Flow (RTOR)		6			7			4				239
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	241	57	22	4	25	7	38	618	24	5	433	239
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	320	0	0	36	0	38	642	0	5	433	239
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								6
Total Split (s)	23.0	23.0		23.0	23.0		10.2	32.5		9.5	31.8	31.8
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	4.5
Act Effct Green (s)		16.2			16.2		5.9	24.6		5.2	22.8	22.8
Actuated g/C Ratio		0.31			0.31		0.11	0.48		0.10	0.44	0.44
v/c Ratio		0.73			0.07		0.19	0.73		0.03	0.53	0.29
Control Delay		29.8			13.7		28.1	18.4		27.0	15.1	3.1
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		29.8			13.7		28.1	18.4		27.0	15.1	3.1
LOS		C			B		C	B		C	B	A
Approach Delay		29.8			13.7			18.9			10.9	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)		77			6		11	146		1	84	0
Queue Length 95th (ft)		#241			27		40	#388		11	204	35
Internal Link Dist (ft)		948			635			1618			511	
Turn Bay Length (ft)							250			250		590
Base Capacity (vph)		525			656		203	1084		178	1026	979
Starvation Cap Reductn		0			0		0	0		0	0	0
Spillback Cap Reductn		0			0		0	0		0	0	0
Storage Cap Reductn		0			0		0	0		0	0	0
Reduced v/c Ratio		0.61			0.05		0.19	0.59		0.03	0.42	0.24

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 51.7

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 17.7

Intersection LOS: B

Intersection Capacity Utilization 63.3%

ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: SR 305 & Madison Ave

 Ø1	 Ø2	 Ø4
9.5 s	32.5 s	23 s
 Ø5	 Ø6	 Ø8
10.2 s	31.8 s	23 s

Lanes, Volumes, Timings
3: SR 305 & NE High School Rd

2021 PM Peak Hour with Project

04/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	326	58	48	279	171	73	237	57	109	195	162
Future Volume (vph)	243	326	58	48	279	171	73	237	57	109	195	162
Satd. Flow (prot)	1681	1764	1583	1770	1863	1583	1752	3403	0	1752	1845	1568
Flt Permitted	0.950	0.997		0.950			0.950			0.950		
Satd. Flow (perm)	1681	1764	1583	1770	1863	1583	1752	3403	0	1752	1845	1568
Satd. Flow (RTOR)			127			216		30				205
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	308	413	73	61	353	216	92	300	72	138	247	205
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	277	444	73	61	353	216	92	372	0	138	247	205
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8						6
Total Split (s)	29.0	29.0	29.0	24.0	24.0	24.0	12.0	24.0		13.0	25.0	25.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Act Effect Green (s)	23.5	23.5	23.5	18.5	18.5	18.5	7.3	15.2		8.6	19.0	19.0
Actuated g/C Ratio	0.28	0.28	0.28	0.22	0.22	0.22	0.09	0.18		0.10	0.23	0.23
v/c Ratio	0.59	0.90	0.14	0.16	0.86	0.42	0.61	0.58		0.78	0.59	0.40
Control Delay	33.1	53.7	1.5	29.2	54.2	7.2	57.3	32.9		68.3	37.4	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	33.1	53.7	1.5	29.2	54.2	7.2	57.3	32.9		68.3	37.4	7.0
LOS	C	D	A	C	D	A	E	C		E	D	A
Approach Delay		41.7			35.6			37.7			34.1	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)	134	241	0	27	183	0	49	90		75	126	0
Queue Length 95th (ft)	196	#356	0	54	#276	36	#94	114		#146	174	35
Internal Link Dist (ft)		1037			642			2308			1618	
Turn Bay Length (ft)	235		215	225		225	250			250		125
Base Capacity (vph)	494	519	555	414	436	536	158	819		178	464	547
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.56	0.86	0.13	0.15	0.81	0.40	0.58	0.45		0.78	0.53	0.37

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 83.9

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 37.6

Intersection LOS: D

Intersection Capacity Utilization 61.3%

ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: SR 305 & NE High School Rd

			
13 s	24 s	29 s	24 s
			
12 s	25 s		

Lanes, Volumes, Timings
7: Winslow Way & SR 305

2021 PM Peak Hour with Project

04/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	131	63	3	118	83	86	166	12	67	113	131
Future Volume (vph)	128	131	63	3	118	83	86	166	12	67	113	131
Satd. Flow (prot)	1770	1863	1583	0	1861	1583	0	3359	0	0	3156	0
Flt Permitted	0.950				0.990			0.984			0.989	
Satd. Flow (perm)	1770	1863	1583	0	1844	1583	0	3359	0	0	3156	0
Satd. Flow (RTOR)			102			143		5			211	
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	6%	6%	6%
Adj. Flow (vph)	206	211	102	5	190	134	139	268	19	108	182	211
Shared Lane Traffic (%)												
Lane Group Flow (vph)	206	211	102	0	195	134	0	426	0	0	501	0
Turn Type	Prot	NA	Perm	Perm	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4			8		2	2		6	6	
Permitted Phases			4	8		8						
Total Split (s)	12.0	34.5	34.5	22.5	22.5	22.5	23.0	23.0		22.5	22.5	
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5		4.5			4.5	
Act Effect Green (s)	7.7	24.5	24.5		12.2	12.2		13.5			12.1	
Actuated g/C Ratio	0.12	0.38	0.38		0.19	0.19		0.21			0.19	
v/c Ratio	0.97	0.30	0.15		0.56	0.32		0.60			0.65	
Control Delay	90.3	16.7	4.5		31.6	7.0		27.5			18.6	
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0			0.0	
Total Delay	90.3	16.7	4.5		31.6	7.0		27.5			18.6	
LOS	F	B	A		C	A		C			B	
Approach Delay		43.5			21.6			27.5			18.6	
Approach LOS		D			C			C			B	
Queue Length 50th (ft)	81	55	0		69	0		77			52	
Queue Length 95th (ft)	#151	80	9		95	8		92			56	
Internal Link Dist (ft)		1411			673			704			1304	
Turn Bay Length (ft)	125		100			175						
Base Capacity (vph)	213	898	816		533	560		1002			1063	
Starvation Cap Reductn	0	0	0		0	0		0			0	
Spillback Cap Reductn	0	0	0		0	0		0			0	
Storage Cap Reductn	0	0	0		0	0		0			0	
Reduced v/c Ratio	0.97	0.23	0.13		0.37	0.24		0.43			0.47	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 64.1

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 28.6

Intersection LOS: C

Intersection Capacity Utilization 41.8%

ICU Level of Service A

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 7: Winslow Way & SR 305



Intersection				
Intersection Delay, s/veh	14.5			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	492	392	586	537
Demand Flow Rate, veh/h	502	400	598	548
Vehicles Circulating, veh/h	497	481	500	428
Vehicles Exiting, veh/h	479	617	499	453
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	13.9	10.6	18.6	13.5
Approach LOS	B	B	C	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	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	502	400	598	548
Cap Entry Lane, veh/h	831	845	829	892
Entry HV Adj Factor	0.980	0.980	0.980	0.980
Flow Entry, veh/h	492	392	586	537
Cap Entry, veh/h	815	828	812	874
V/C Ratio	0.604	0.473	0.722	0.615
Control Delay, s/veh	13.9	10.6	18.6	13.5
LOS	B	B	C	B
95th %tile Queue, veh	4	3	6	4

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	86	56	89	22	98	27	133	361	27	25	258	69
Future Vol, veh/h	86	56	89	22	98	27	133	361	27	25	258	69
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	97	63	100	25	110	30	149	406	30	28	290	78
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay	17.7	14.8	29.7	25.8
HCM LOS	C	B	D	D

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	37%	15%	7%
Vol Thru, %	0%	93%	24%	67%	73%
Vol Right, %	0%	7%	39%	18%	20%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	133	388	231	147	352
LT Vol	133	0	86	22	25
Through Vol	0	361	56	98	258
RT Vol	0	27	89	27	69
Lane Flow Rate	149	436	260	165	396
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.308	0.831	0.515	0.352	0.73
Departure Headway (Hd)	7.421	6.86	7.146	7.677	6.646
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	481	523	501	471	542
Service Time	5.211	4.649	5.244	5.677	4.739
HCM Lane V/C Ratio	0.31	0.834	0.519	0.35	0.731
HCM Control Delay	13.5	35.2	17.7	14.8	25.8
HCM Lane LOS	B	E	C	B	D
HCM 95th-tile Q	1.3	8.4	2.9	1.6	6.1

Intersection

Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	5	8	139	105	3
Future Vol, veh/h	8	5	8	139	105	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	6	9	154	117	3
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	7.6	7.4	8.2
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	62%	0%	97%
Vol Thru, %	38%	5%	0%
Vol Right, %	0%	95%	3%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	13	147	108
LT Vol	8	0	105
Through Vol	5	8	0
RT Vol	0	139	3
Lane Flow Rate	14	163	120
Geometry Grp	1	1	1
Degree of Util (X)	0.018	0.163	0.147
Departure Headway (Hd)	4.396	3.588	4.42
Convergence, Y/N	Yes	Yes	Yes
Cap	801	983	809
Service Time	2.494	1.671	2.464
HCM Lane V/C Ratio	0.017	0.166	0.148
HCM Control Delay	7.6	7.4	8.2
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.6	0.5

Intersection	
Intersection Delay, s/veh	12.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔		↔	↔	
Traffic Vol, veh/h	38	76	37	24	76	137	57	208	15	151	103	55
Future Vol, veh/h	38	76	37	24	76	137	57	208	15	151	103	55
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	39	78	38	25	78	141	59	214	15	156	106	57
Number of Lanes	0	1	0	0	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	1
HCM Control Delay	12.5	10.8	15.8	11.6
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	20%	25%	24%	0%	100%	0%
Vol Thru, %	74%	50%	76%	0%	0%	65%
Vol Right, %	5%	25%	0%	100%	0%	35%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	280	151	100	137	151	158
LT Vol	57	38	24	0	151	0
Through Vol	208	76	76	0	0	103
RT Vol	15	37	0	137	0	55
Lane Flow Rate	289	156	103	141	156	163
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.507	0.29	0.194	0.233	0.293	0.272
Departure Headway (Hd)	6.323	6.716	6.769	5.933	6.767	6.011
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	569	532	528	602	529	595
Service Time	4.389	4.797	4.542	3.706	4.534	3.778
HCM Lane V/C Ratio	0.508	0.293	0.195	0.234	0.295	0.274
HCM Control Delay	15.8	12.5	11.2	10.5	12.3	11
HCM Lane LOS	C	B	B	B	B	B
HCM 95th-tile Q	2.9	1.2	0.7	0.9	1.2	1.1

Intersection						
Int Delay, s/veh	6.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	182	1	23	109	1	16
Future Vol, veh/h	182	1	23	109	1	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	2	2	3	3	2	2
Mvmt Flow	243	1	31	145	1	21
Major/Minor	Minor2		Major2			
Conflicting Flow All	207	145	0	0		
Stage 1	207	-	-	-		
Stage 2	0	-	-	-		
Critical Hdwy	6.52	6.22	4.13	-		
Critical Hdwy Stg 1	5.52	-	-	-		
Critical Hdwy Stg 2	-	-	-	-		
Follow-up Hdwy	4.018	3.318	2.227	-		
Pot Cap-1 Maneuver	690	902	-	-		
Stage 1	731	-	-	-		
Stage 2	-	-	-	-		
Platoon blocked, %						
Mov Cap-1 Maneuver	0	902	-	-		
Mov Cap-2 Maneuver	0	-	-	-		
Stage 1	0	-	-	-		
Stage 2	0	-	-	-		
Approach	EB		WB			
HCM Control Delay, s	10.5					
HCM LOS	B					
Minor Lane/Major Mvmt	EBLn1	WBL	WBT			
Capacity (veh/h)	902	-	-			
HCM Lane V/C Ratio	0.271	-	-			
HCM Control Delay (s)	10.5	-	-			
HCM Lane LOS	B	-	-			
HCM 95th %tile O(veh)	1.1	-	-			

Intersection

Int Delay, s/veh 1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	147	1	25	185	1	25
Future Vol, veh/h	147	1	25	185	1	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	160	1	27	201	1	27

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	161
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1418
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1418
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	867	-	-	1418	-
HCM Lane V/C Ratio	0.033	-	-	0.019	-
HCM Control Delay (s)	9.3	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Exhibit 1310-7a Left-Turn Storage Guidelines: Two-Lane, Unsignalized

