
Macadoodle
Traffic Impact Study
Lee's Summit, Missouri

June 7th, 2022



Prepared by:



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INTRODUCTION

The purpose of this traffic impact study is to assess the potential impact on traffic with the Macadoodle liquor store development in the existing Southport Center. The shopping center is located on the northwest corner of the intersection of Route 291 and SW Market Street/SW 16th Street in Lee's Summit, Missouri. The location of the development in relation to the street network is shown in Figure 1.

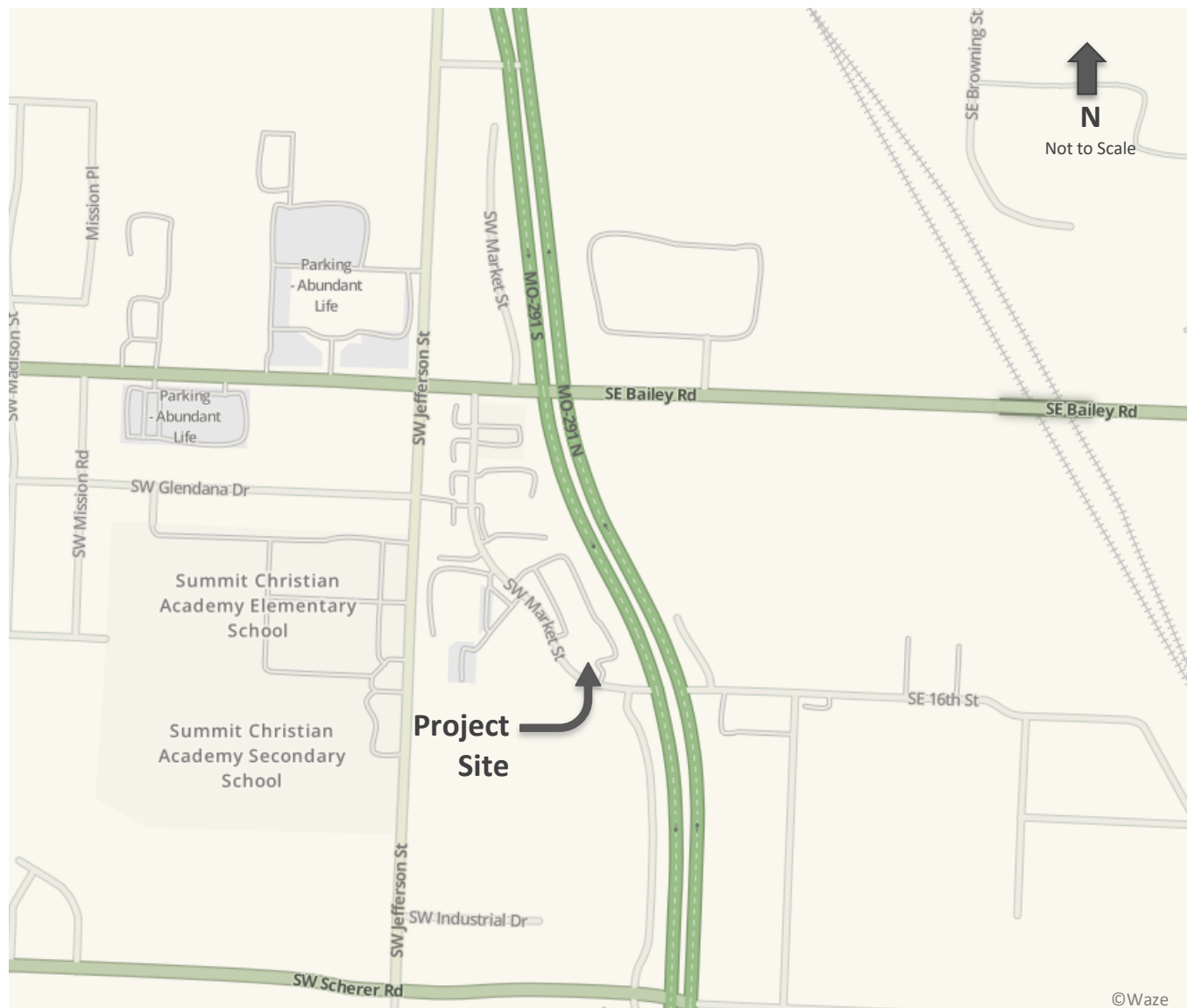


Figure 1–Development Location

EXISTING CONDITIONS

The site is located in Lee's Summit, Missouri, on the northwest corner of the intersection of MO 291 and SW Market Street/SW 16th Street. The Macadoodle liquor store will be going into the existing Summit Park Church location in the Southport Center. The shopping center currently has four vacant sites, two insurance agencies, a taekwondo studio, and a real estate office.

Street Network and Traffic Control

The development is accessed by SW Market Street running north-south at SW Persels Road and tee-ing into southbound MO 291, which is Right In/Right Out (RIRO). SW Market Street is a two-lane collector road with a double yellow centerline. There is no posted speed limit.

MO 291 is a north-south four-lane divided highway with a southbound right-turn lane. The posted speed limit is 45 miles per hour (mph). Traffic on SW Market Street is only able to turn right onto MO 291. The intersection of SW Market Street and MO 291 is stop controlled with SW Market Street stopping.

SW Persels Road is a two-lane east-west arterial with a left-turn lane and a posted speed limit of 35 mph. The intersection of SW Market Street and SW Persels Road is stop controlled with SW Market Street stopping.

SW Jefferson Street is a two-lane north-south arterial with a two-way left-turn center lane and a posted speed limit of 35 mph. The intersection of SW Jefferson Street and SW Persels Road is signalized.

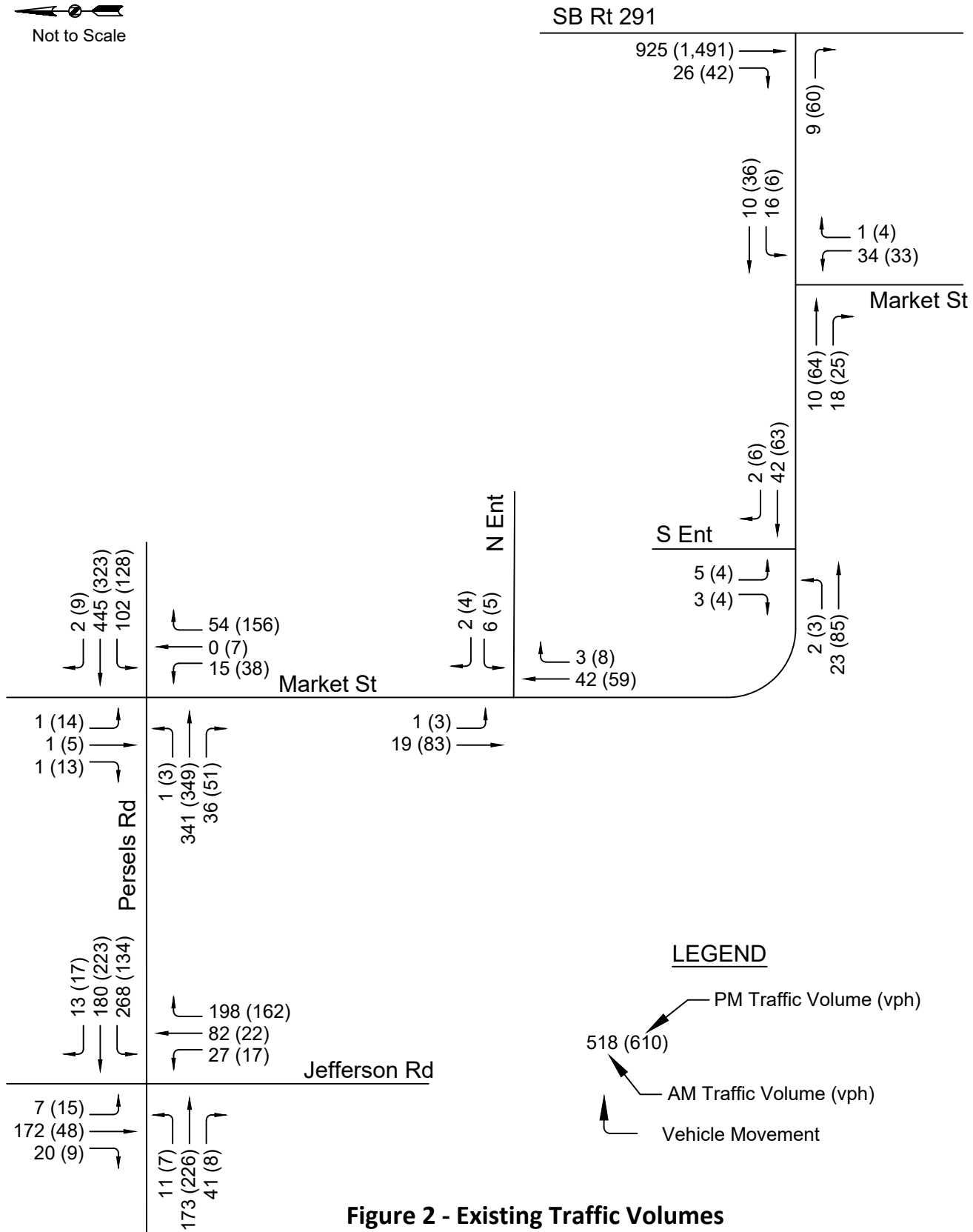
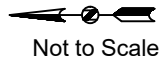
Traffic Volumes

Intersections included in the analysis for this study are:

- SW Market Street and SW Persels Road
- SW Market Street and SW Market Street/US 291
- SW Market Street and two existing access points
- SW Persels Road and SW Jefferson Street

The turning movement traffic counts were completed on Tuesday, February 8th, 2022, for the peak volume time periods. Morning traffic counts were conducted from 7:00 A.M. until 9:00 A.M. and afternoon traffic counts were from 4:00 P.M. until 6:00 P.M. The morning peak period was determined to be from 7:15 A.M. until 8:15 A.M. and the afternoon peak period was determined to be from 4:00 P.M. until 5:00 P.M.

Existing traffic volumes are shown on Figure 2. Traffic counts are included in the Appendix.



PROPOSED CONDITIONS

The Macadoodle development is a planned 10,000 square foot liquor store.

Access Plan

The site will be accessed via two access existing points off SW Market Street. There is a third access point into the development, however, based on the location and design that will primarily be for truck traffic.

Sight Distance

No sight distance was measured at the access points as they are existing.

Crash Analysis

Crash data was not analyzed as part of this study.

Trip Generation

The expected trip generation for the development was estimated using the 10th Edition of the Trip Generation Handbook published by the Institute of Transportation Engineers. The trip generation was based on Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 A.M. along with Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 P.M. criteria for Liquor Store.

Estimates for the expected trips generated by the development are provided in Table 1.

Table 1 – Trip Generation					
ITE Land Use Code	Units	A.M.		P.M.	
		Trips In (vph)	Trips Out (vph)	Trips In (vph)	Trips Out (vph)
899 – Liquor Store	10,000 Sq Ft	22	21	65	64

Trip Distribution

The trip distribution pattern was determined for the site based on the existing directional traffic pattern of the peak period and based on a general analysis of the surrounding area. The detailed distribution patterns can be found in the appendix. Based on the existing traffic patterns, the type of development, and the metropolitan population centers, the new trips were assigned onto the roadway network, as shown below for the morning and afternoon periods.

Trip distribution during the morning peak period:

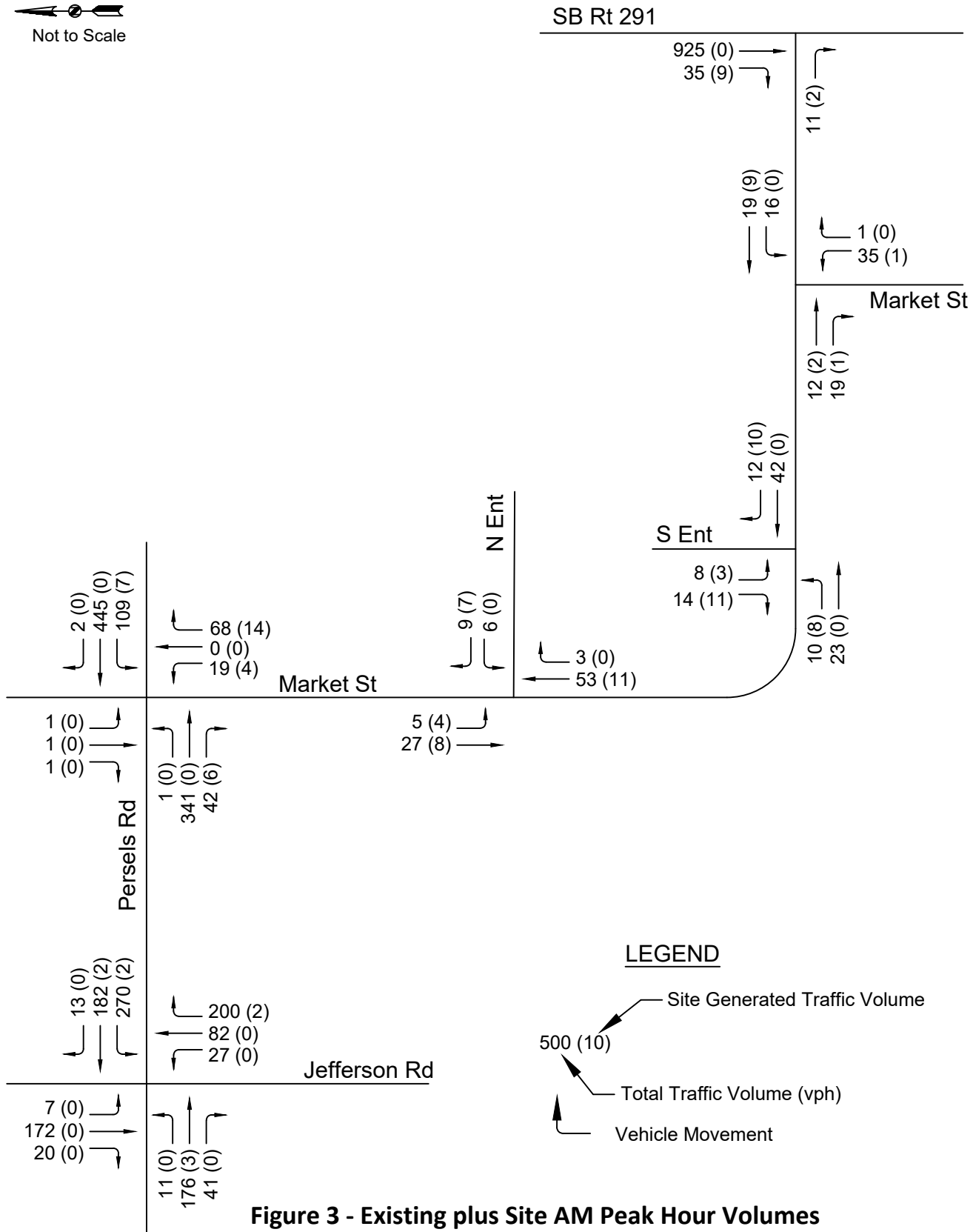
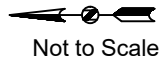
- 20% to/25% from SW Jefferson St
- 65% to/30% from SE Bailey Rd/MO 291
- 10% to/40% from MO 291 R/O
- 5% to/from SW Market St (to the south)

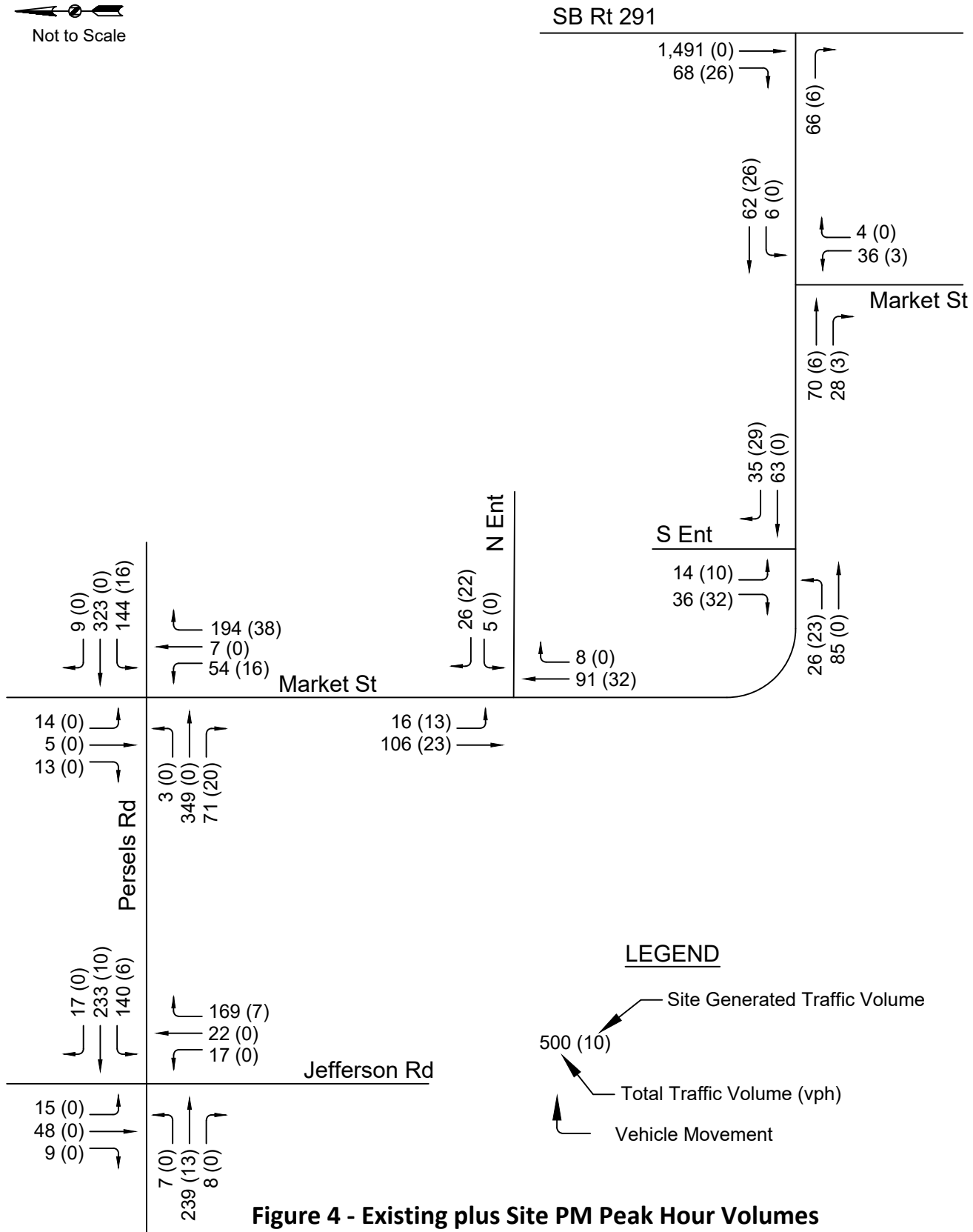
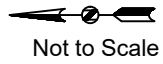
Trip distribution during the afternoon peak period:

- 25% to/30% from SW Jefferson St
- 60% to/25% from SE Bailey Rd/MO 291
- 10% to/40% from MO 291 R/O
- 5% to/from SW Market St (to the south)

Existing Plus Site Traffic Volumes

The expected development site-generated traffic volumes were added to the existing traffic. The volumes are shown on Figures 3 and 4.





Signal Warrant Study

It may be considered justified to install a traffic signal at a location if one or more of the traffic signal warrants listed in the 2009 MUTCD is met. The traffic signal warrants are:

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

Warrant 3 was evaluated at SW Market Street and SW Persels Road as part of this study for the existing and existing plus site conditions.

Warrant 3: Peak Hour

The peak hour warrant is satisfied if either of the two following conditions are met:

A: This condition is satisfied if any of the following conditions are met for a period of one hour during an average day:

1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a stop sign equals or exceeds: 4 vehicles-hours for a one-lane approach or five vehicle hours for a two-lane approach and
2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes and
3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

(Condition A is not being examined in this study)

B: The peak hour warrant is satisfied if the vehicles per hour on both approaches of the major street and the vehicles on the higher volume approach of the minor street for one hour fall above the 2009 MUTCD Warrant 3 curve.

Warrant Analysis

The traffic volumes at SW Market Street and SW Persels Road are not expected to warrant a signal for the existing or existing plus site conditions. The raw data and curves from the 2009 MUTCD are included in the Appendix.

CAPACITY

The capacity analysis for the study intersections was completed using the methodology outlined in the Highway Capacity Manual, 6th Edition. The volume and capacity analysis was completed using Trafficware SYNCHRO software (latest version). The criteria for determining Level of Service (LOS) for signalized and unsignalized study intersections and access points is based on the average vehicle delay and is outlined in Table 2 below. Level of Service is defined as the measure of the quality of traffic flow and is graded from “A” to “F” – with “A” being the best situation and “F” being the worst.

Table 2 – Intersection Level of Service		
Level of Service (LOS)	Average Control Delay (sec/veh)	
	Unsignalized	Signalized
A	< 10	< 10
B	< 15	< 20
C	< 25	< 35
D	< 35	< 55
E	< 50	< 80
F	≥ 50	≥ 80

Existing Conditions

SW Persels Road and SW Jefferson Street

All approaches operate at a LOS D or above for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles. The overall LOS for the intersection is a LOS C during the morning peak period and a LOS B during the afternoon peak period.

SW Market Street and SW Persels Road

All approaches operate at a LOS D or above for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

SW Market Street and SW Market Street/MO 291

The through movements of MO291 at the intersection of SW Market Street is not stop controlled and therefore operates in a free-flow condition. The only allowed turning movements are a right turn onto SW Market Street or a right turn from SW Market Street onto MO291. The southbound right turn operates at a LOS A for both morning and afternoon peak periods. The eastbound right turn operates at a LOS C or better and has sufficient capacity for queuing vehicles.

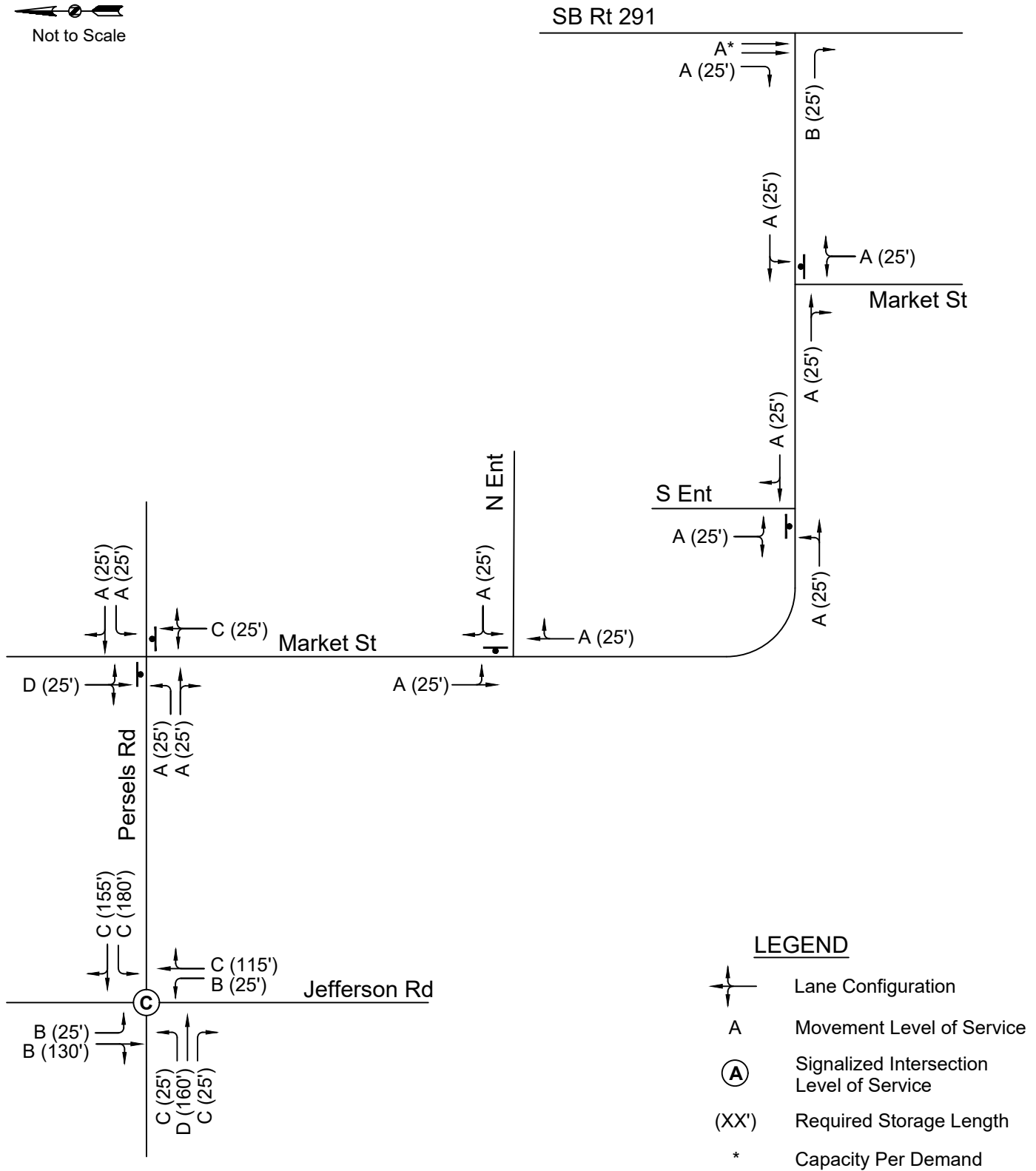
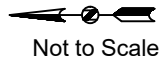
SW Market Street and North Entrance

All approaches operate at a LOS A and the intersection has sufficient capacity for queuing vehicles.

SW Market Street and South Entrance

All approaches operate at a LOS A and the intersection has sufficient capacity for queuing vehicles.

The results of the capacity analysis for the existing morning and afternoon peak hour conditions along with lane configuration and queue lengths are shown on Figures 5 and 6.



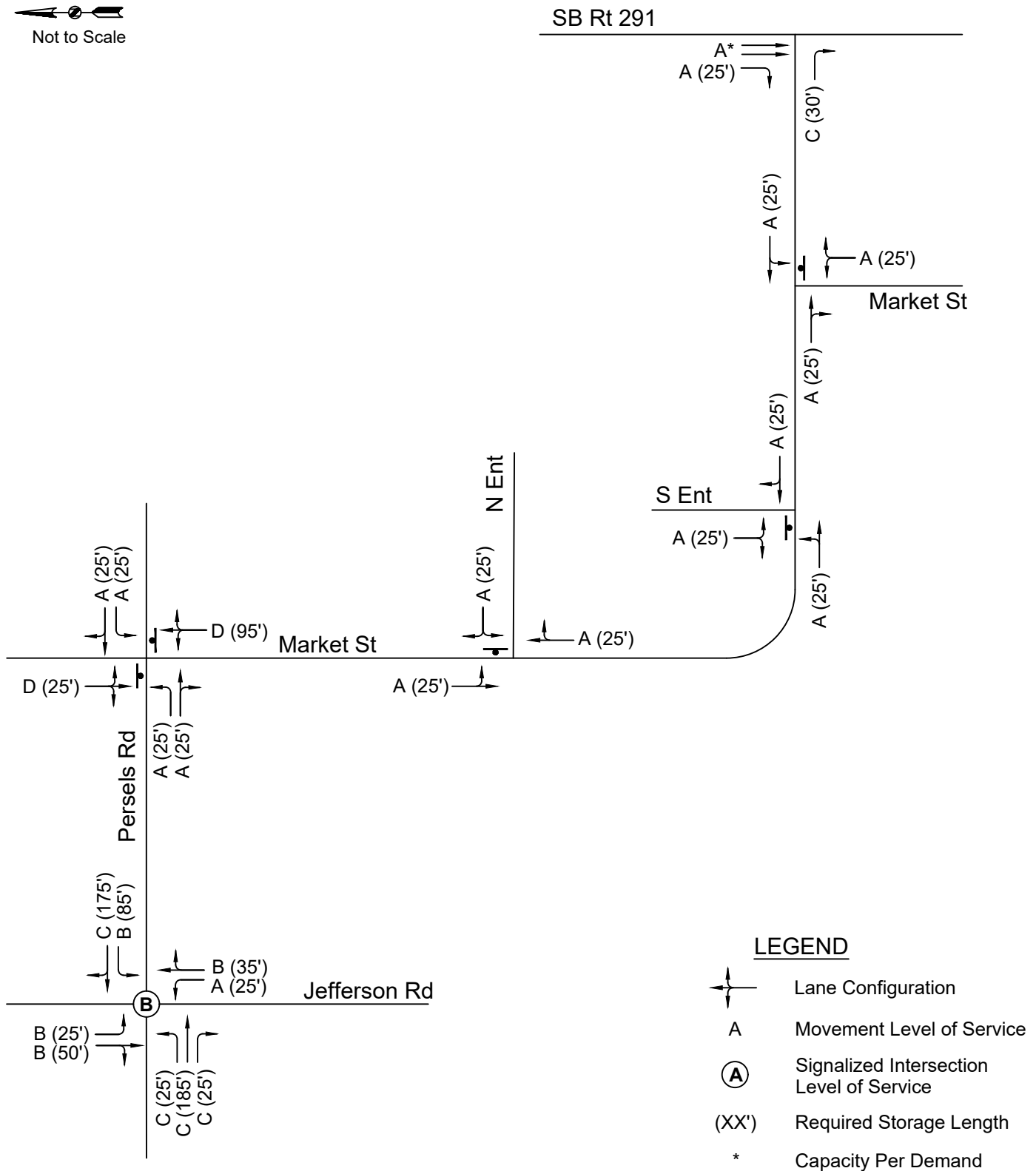
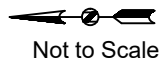


Figure 6 - Existing PM Level of Service

Existing Plus Site Conditions

SW Persels Road and SW Jefferson Street

Analysis for this intersection was completed with signal timings optimized to account for the additional development traffic. There is no significant change in operations of this intersection from the Existing Conditions. All approaches continue to operate at a LOS D or above for the morning and afternoon peak periods and the intersection has sufficient capacity for queuing vehicles.

SW Market Street and SW Persels Road

During the afternoon peak period, the northbound and southbound movement drops to a LOS E. The storage length is adequate for this movement and the expected delay is 49.2 seconds for the northbound movement and 38.1 seconds for the southbound movement. The LOS for the average control delay drops from a LOS D to LOS E at 35 seconds. The northbound queue length is expected to be 185 feet. The intersection does not warrant a signal at this time.

There is sufficient roadway width to re-stripe the northbound lanes for a left turn lane and a shared through/right lane. This lane configuration would decrease the northbound queue lengths to 50 feet. The northbound left lane would still operate at a LOS E however, the northbound shared through/right lane would operate at a LOS C.

SW Market Street and SW Market Street/MO 291

The through movements of MO291 at the intersection of SW Market Street are not stop controlled and therefore operates in a free-flow condition. The only allowed turning movements are a right turn onto SW Market Street or a right turn from SW Market Street onto Route 291. The southbound right turn operates at a LOS A for both morning and afternoon peak periods. The eastbound right turn operates at a LOS C or better and has sufficient capacity for queuing vehicles.

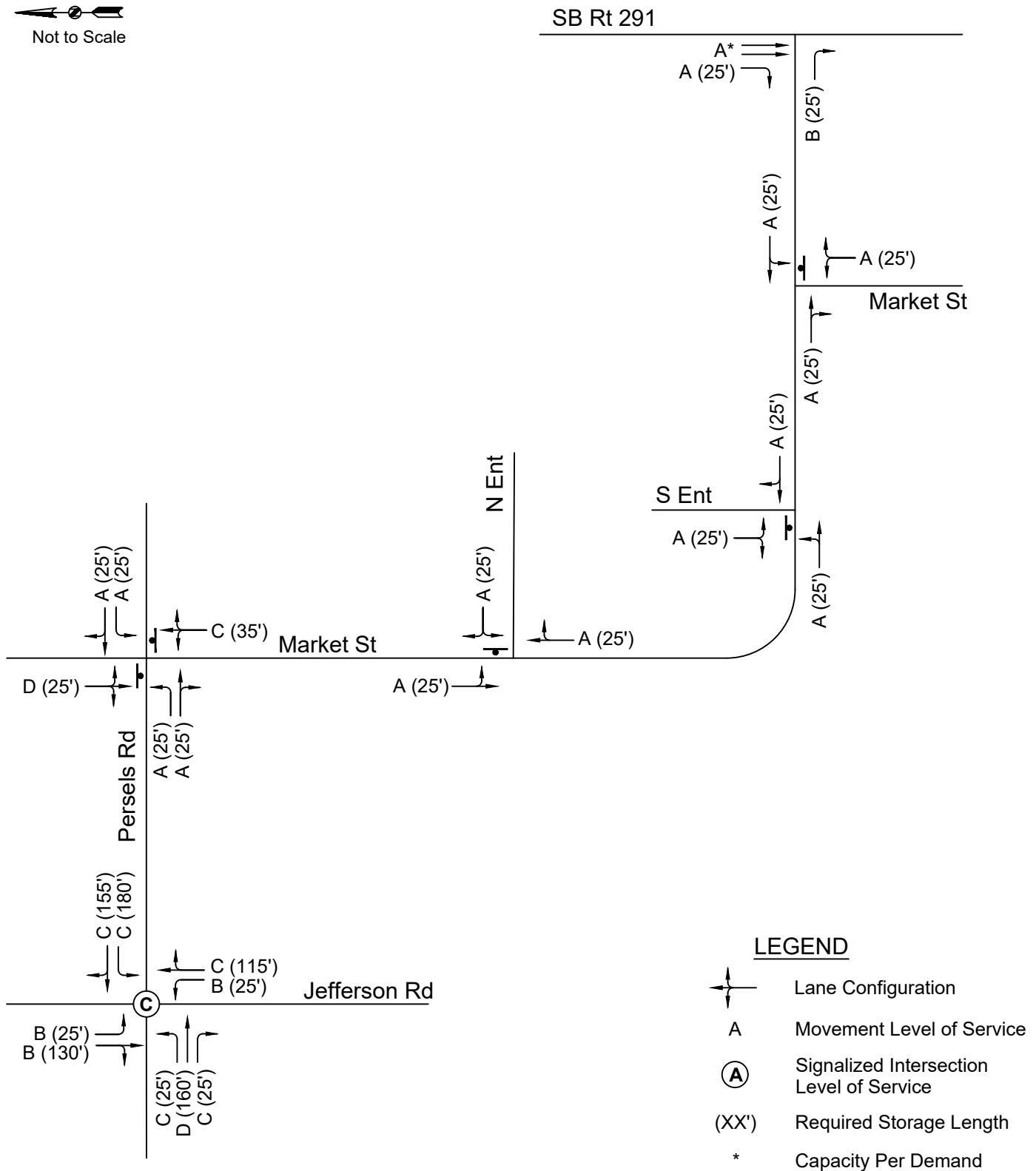
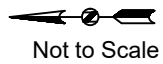
SW Market Street and North Entrance

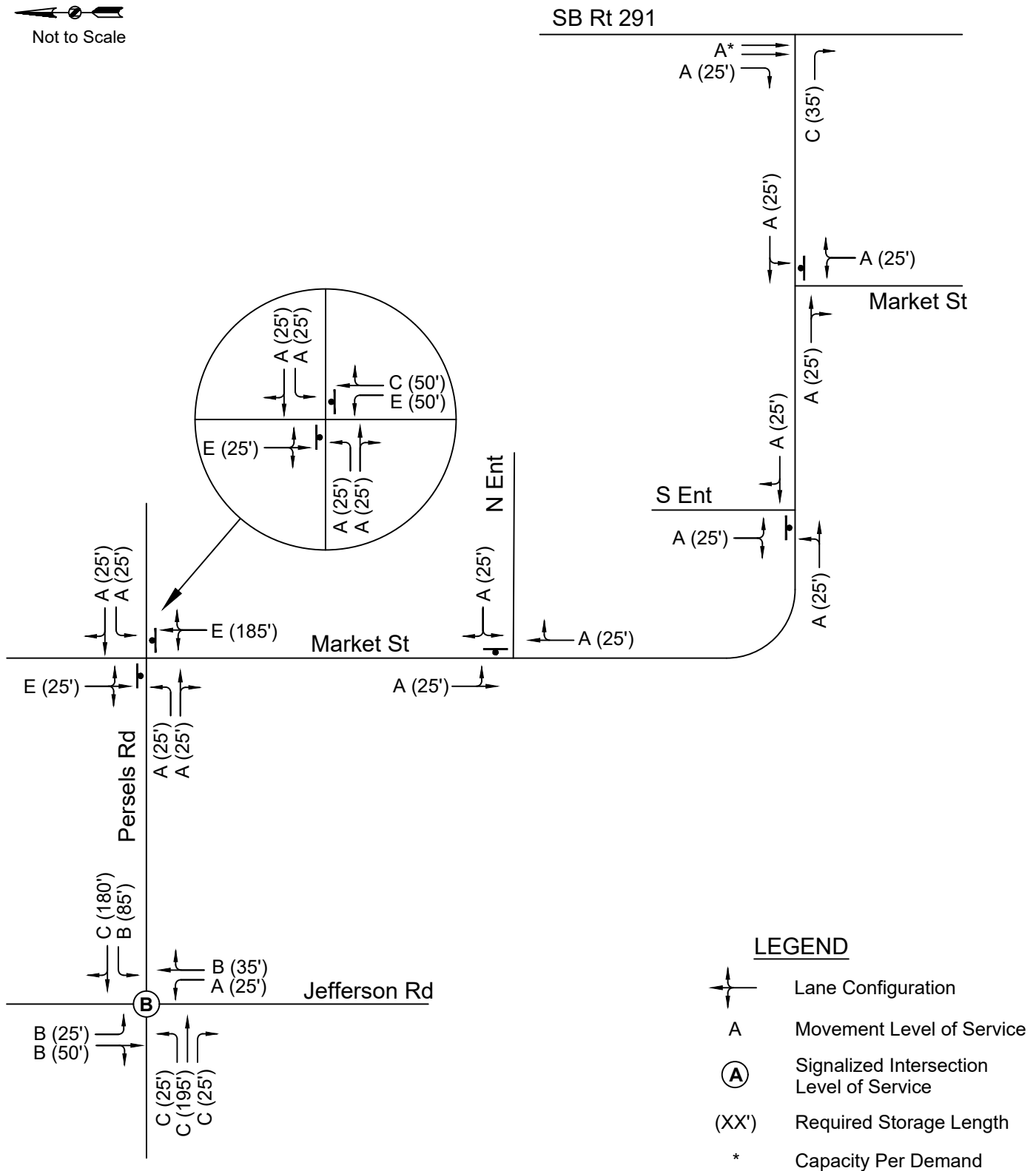
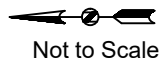
All approaches continue to operate at a LOS A with the additional site traffic and the intersection has sufficient capacity for queuing vehicles.

SW Market Street and South Entrance

All approaches continue to operate at a LOS A with the additional site traffic and the intersection has sufficient capacity for queuing vehicles.

The results of the analysis is shown for the morning and afternoon peak hour conditions along with lane configuration and queue lengths in Figures 7 and 8.





RECOMMENDATIONS

This study documents the findings of the traffic analysis of the expected traffic for the Macadoodle development in Lee's Summit, Missouri. The study includes an analysis of the existing conditions, existing plus site conditions, and future conditions.

Based on the results of the SYNCHRO analysis, observations from the field, and engineering judgment, the following recommendations are made:

- Monitor the signalized SW Persels Road and SW Jefferson Road intersection as additional development occurs and adjust signal timings as necessary.
- Re-stripe the northbound lanes of SW Market Street and SW Persels Road to provide a left turn lane and a shared through/right turn lane.

APPENDIX

Rt 291 & Market
AM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
7:00	0	0	5	5	0	0	0	0	0	0	0	0	0	179	1	180	185
7:15	0	0	4	4	0	0	0	0	0	0	0	0	0	258	3	261	265
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	235	4	239	239
7:45	0	0	2	2	0	0	0	0	0	0	0	0	0	246	5	251	253
8:00	0	0	3	3	0	0	0	0	0	0	0	0	0	186	14	200	203
8:15	0	0	6	6	0	0	0	0	0	0	0	0	0	224	1	225	231
8:30	0	0	3	3	0	0	0	0	0	0	0	0	0	234	4	238	241
8:45	0	0	7	7	0	0	0	0	0	0	0	0	0	207	10	217	224
Total	0	0	30	30	0	0	0	0	0	0	0	0	0	1769	42	1811	1841

PHF																					Int. Total
Time	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
7:15	0	0	4	4	0.56	0	0	0	0	#DIV/0!	0	0	0	0	#DIV/0!	0	258	3	261	0.91	265
7:30	0	0	0	0		0	0	0	0		0	0	0	0		0	235	4	239		239
7:45	0	0	2	2		0	0	0	0		0	0	0	0		0	246	5	251		253
8:00	0	0	3	3		0	0	0	0		0	0	0	0		0	186	14	200		203
Total	0	0	9	9		0	0	0	0		0	0	0	0		0	925	26	951		960

Persels & Jefferson
AM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
7:00	2	52	2	56	27	42	3	72	2	2	19	23	0	9	1	10	161
7:15	2	39	9	50	64	36	2	102	2	5	27	34	1	25	5	31	217
7:30	4	27	10	41	84	34	2	120	6	21	78	105	2	67	4	73	339
7:45	0	44	7	51	51	49	4	104	3	2	24	29	1	30	2	33	217
8:00	5	58	15	78	69	54	5	128	16	54	69	139	3	50	9	62	407
8:15	1	63	3	67	32	41	3	76	5	22	45	72	4	8	6	18	233
8:30	1	27	0	28	23	27	1	51	0	3	15	18	2	3	1	6	103
8:45	1	39	4	44	23	29	3	55	2	3	16	21	1	4	4	9	129
Total	16	349	50	415	373	312	23	708	36	112	293	441	14	196	32	242	1806

PHF																					Int. Total
Time	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
7:15	2	39	9	50	0.71	64	36	2	102	0.89	2	5	27	34	0.55	1	25	5	31	0.68	217
7:30	4	27	10	41		84	34	2	120		6	21	78	105		2	67	4	73		339
7:45	0	44	7	51		51	49	4	104		3	2	24	29		1	30	2	33		217
8:00	5	58	15	78		69	54	5	128		16	54	69	139		3	50	9	62		407
Total	11	168	41	220		268	173	13	454		27	82	198	307		7	172	20	199		1180

Persels & Market
AM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
7:00	0	62	9	71	14	67	1	82	4	0	6	10	0	0	0	0	163
7:15	0	67	6	73	19	101	0	120	2	0	12	14	0	0	0	0	207
7:30	1	101	6	108	24	123	0	147	1	0	13	14	0	0	1	1	270
7:45	0	60	6	66	36	92	1	129	6	0	16	22	1	1	0	2	219
8:00	0	113	18	131	23	129	1	153	6	0	13	19	0	0	0	0	303
8:15	0	99	16	115	15	70	1	86	5	0	19	24	0	0	0	0	225
8:30	0	40	9	49	17	50	2	69	3	0	20	23	1	0	1	2	143
8:45	0	51	8	59	28	50	1	79	5	2	19	26	3	1	1	5	169
Total	1	593	78	672	176	682	7	865	32	2	118	152	5	2	3	10	1699

PHF																					Int. Total
Time	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
7:15	0	67	6	73	0.72	19	101	0	120	0.9	2	0	12	14	0.78	0	0	0	0	0.38	207
7:30	1	101	6	108		24	123	0	147		1	0	13	14		0	0	1	1		270
7:45	0	60	6	66		36	92	1	129		6	0	16	22		1	1	0	2		219
8:00	0	113	18	131		23	129	1	153		6	0	13	19		0	0	0	0		303
Total	1	341	36	378		102	445	2	549		15	0	54	69		1	1	1	3		999

Rt 291 & Market
PM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
16:00	0	0	9	9	0	0	0	0	0	0	0	0	0	306	9	315	324
16:15	0	0	10	10	0	0	0	0	0	0	0	0	0	413	5	418	428
16:30	0	0	18	18	0	0	0	0	0	0	0	0	0	383	22	405	423
16:45	0	0	23	23	0	0	0	0	0	0	0	0	0	389	6	395	418
17:00	0	0	14	14	0	0	0	0	0	0	0	0	0	426	4	430	444
17:15	0	0	9	9	0	0	0	0	1	0	0	1	0	413	4	417	427
17:30	0	0	6	6	0	0	0	0	0	0	0	0	0	395	5	400	406
17:45	0	0	2	2	0	0	0	0	0	0	0	0	0	290	6	296	298
Total	0	0	91	91	0	0	0	0	1	0	0	1	0	3015	61	3076	3168

PHF																					Int. Total
Time	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
4:00	0	0	9	9	0.65	0	0	0	0	#DIV/0!	0	0	0	0	#DIV/0!	0	306	9	315	0.92	324
4:15	0	0	10	10		0	0	0	0		0	0	0	0		0	413	5	418		428
4:30	0	0	18	18		0	0	0	0		0	0	0	0		0	383	22	405		423
4:45	0	0	23	23		0	0	0	0		0	0	0	0		0	389	6	395		418
Total	0	0	60	60		0	0	0	0		0	0	0	0		0	1491	42	1533		1593

Persels & Jefferson
PM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
16:00	2	57	1	60	31	53	7	91	3	10	57	70	5	15	3	23	244
16:15	2	53	3	58	40	52	3	95	7	2	36	45	3	6	3	12	210
16:30	2	55	1	58	30	49	5	84	3	4	44	51	3	14	2	19	212
16:45	1	60	3	64	33	66	2	101	4	6	25	35	4	13	1	18	218
17:00	1	36	3	40	20	67	5	92	2	10	46	58	4	6	1	11	201
17:15	3	57	3	63	33	48	7	88	1	1	31	33	4	2	7	13	197
17:30	1	39	3	43	14	74	3	91	2	4	28	34	3	1	4	8	176
17:45	1	41	2	44	24	88	5	117	0	2	10	12	3	4	5	12	185
Total	13	398	19	430	225	497	37	759	22	39	277	338	29	61	26	116	1643

PHF																				Int. Total	
Time	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total		PHF
4:00	2	57	1	60	0.94	31	53	7	91	0.92	3	10	57	70	0.72	5	15	3	23	0.78	244
4:15	2	53	3	58		40	52	3	95		7	2	36	45		3	6	3	12		210
4:30	2	55	1	58		30	49	5	84		3	4	44	51		3	14	2	19		212
4:45	1	60	3	64		33	66	2	101		4	6	25	35		4	13	1	18		218
Total	7	225	8	240		134	220	17	371		17	22	162	201		15	48	9	72		884

Persels & Market
PM

Time	Eastbound				Westbound				Northbound				Southbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
16:00	2	100	8	110	27	76	1	104	17	2	39	58	6	1	1	8	280
16:15	0	87	11	98	34	85	4	123	7	3	39	49	3	3	6	12	282
16:30	0	92	17	109	35	60	2	97	8	1	41	50	2	1	4	7	263
16:45	1	70	15	86	32	102	2	136	6	1	37	44	3	0	2	5	271
17:00	0	79	9	88	24	78	1	103	11	0	30	41	1	0	0	1	233
17:15	1	78	12	91	21	82	4	107	9	0	21	30	2	1	1	4	232
17:30	0	70	8	78	17	79	0	96	9	0	19	28	2	0	1	3	205
17:45	0	40	6	46	18	108	1	127	8	0	16	24	2	0	2	4	201
Total	4	616	86	706	208	670	15	893	75	7	242	324	21	6	17	44	1967

PHF																					Int. Total
Time	EB Left	EB Thru	EB Right	EB Total	PHF	WB Left	WB Thru	WB Right	WB Total	PHF	NB Left	NB Thru	NB Right	NB Total	PHF	SB Left	SB Thru	SB Right	SB Total	PHF	
4:00	2	100	8	110	0.92	27	76	1	104	0.85	17	2	39	58	0.87	6	1	1	8	0.67	280
4:15	0	87	11	98		34	85	4	123		7	3	39	49		3	3	6	12		282
4:30	0	92	17	109		35	60	2	97		8	1	41	50		2	1	4	7		263
4:45	1	70	15	86		32	102	2	136		6	1	37	44		3	0	2	5		271
Total	3	349	51	403		128	323	9	460		38	7	156	201		14	5	13	32		1096

Ashton Farms Site Trip Generation

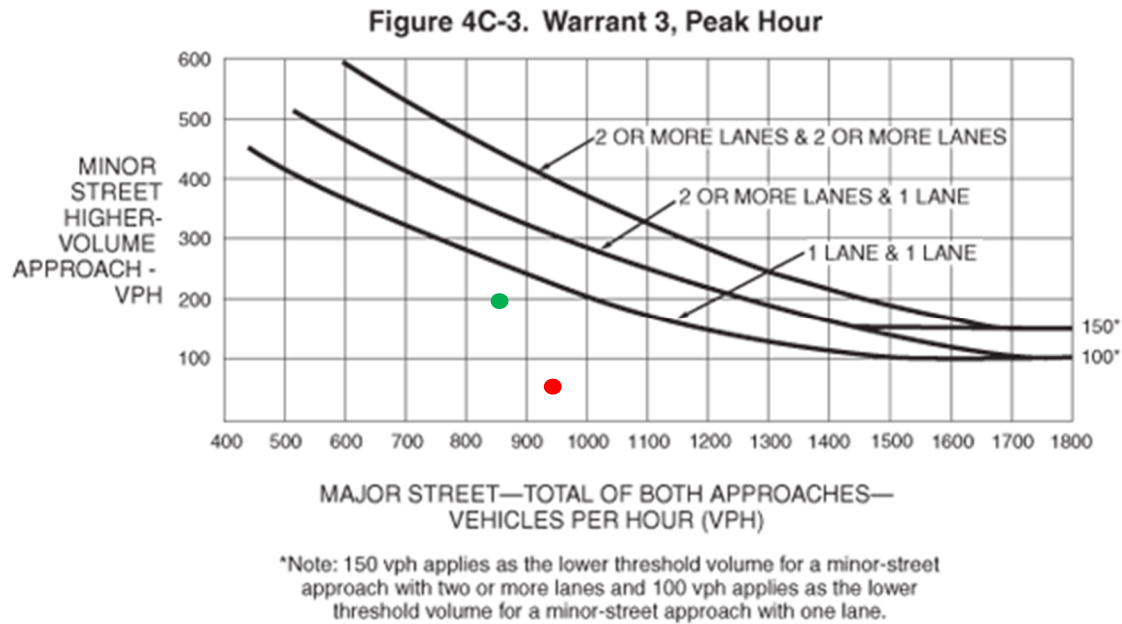
ITE Trip Generation Manual - 10th Edition

Highlighted text indicates trips used in Synchro and Warrant Analysis

Land Use	ITE Code	Size	Units	Equation	Trips (Eq.)	Av. Rate	Trips (Av. Rate)	In%	Out%	Trips In	Trips Out
Liquor Store (Weekday)	899	10	1000 Sq Ft	n/a	n/a	101.49	1015	50%	50%	508	507
Liquor Store (AM Peak Hour of Generator)	899	10	1000 Sq Ft	$T=4.14(X)+1.97$	43	4.55	46	51%	49%	22	21
Liquor Store (PM)	899	10	1000 Sq Ft	$\ln(T)=0.43\ln(X)+3.87$	129	16.37	164	50%	50%	65	64

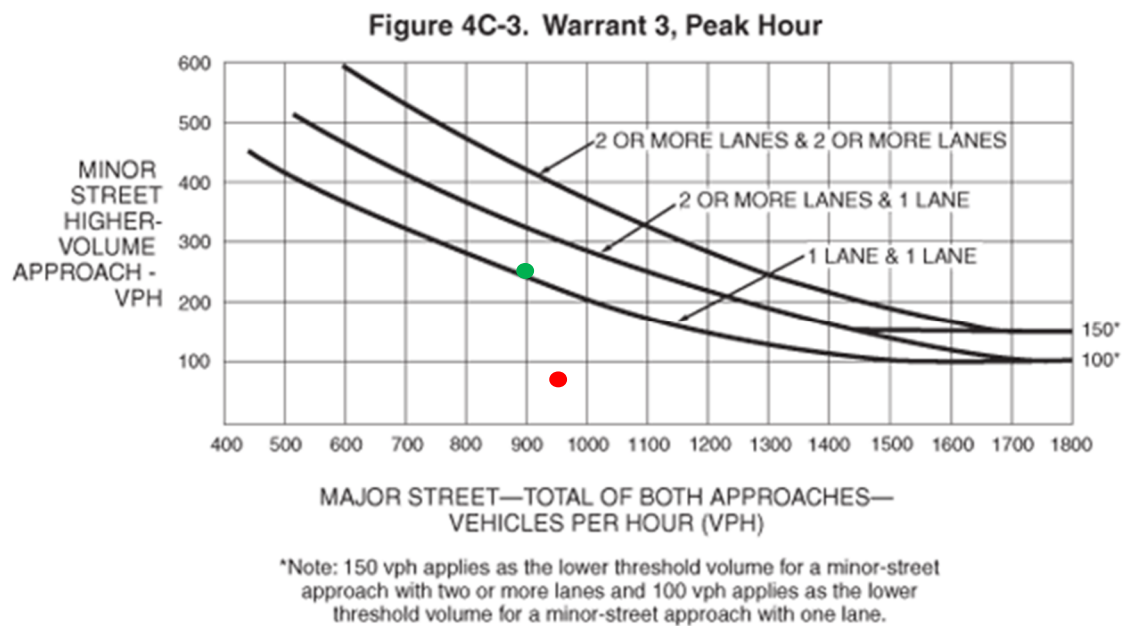
EXISTING

Market and Persels - AM & PM



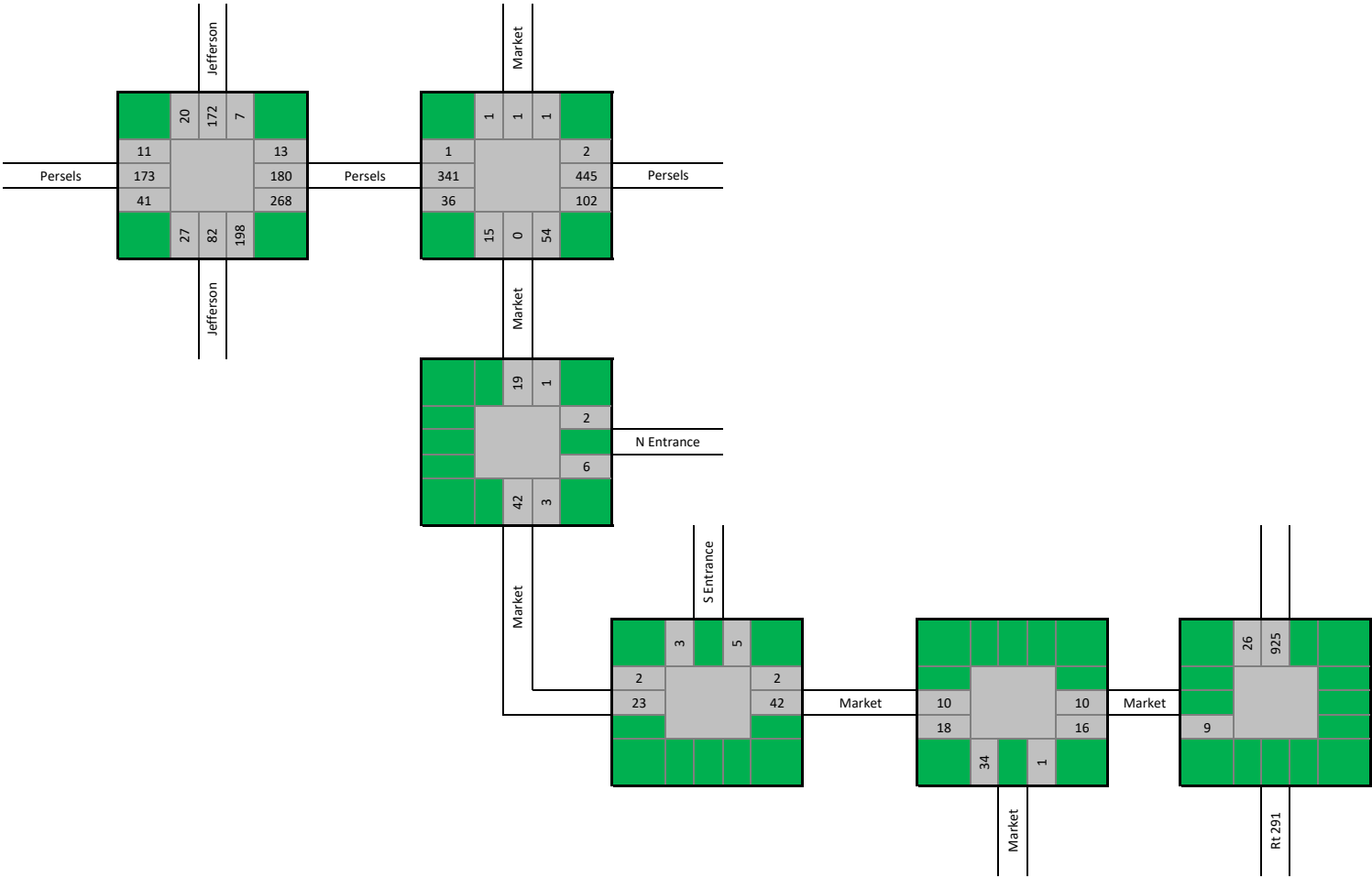
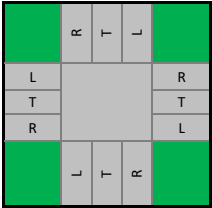
EXISTING PLUS SITE

Market and Persels - AM & PM



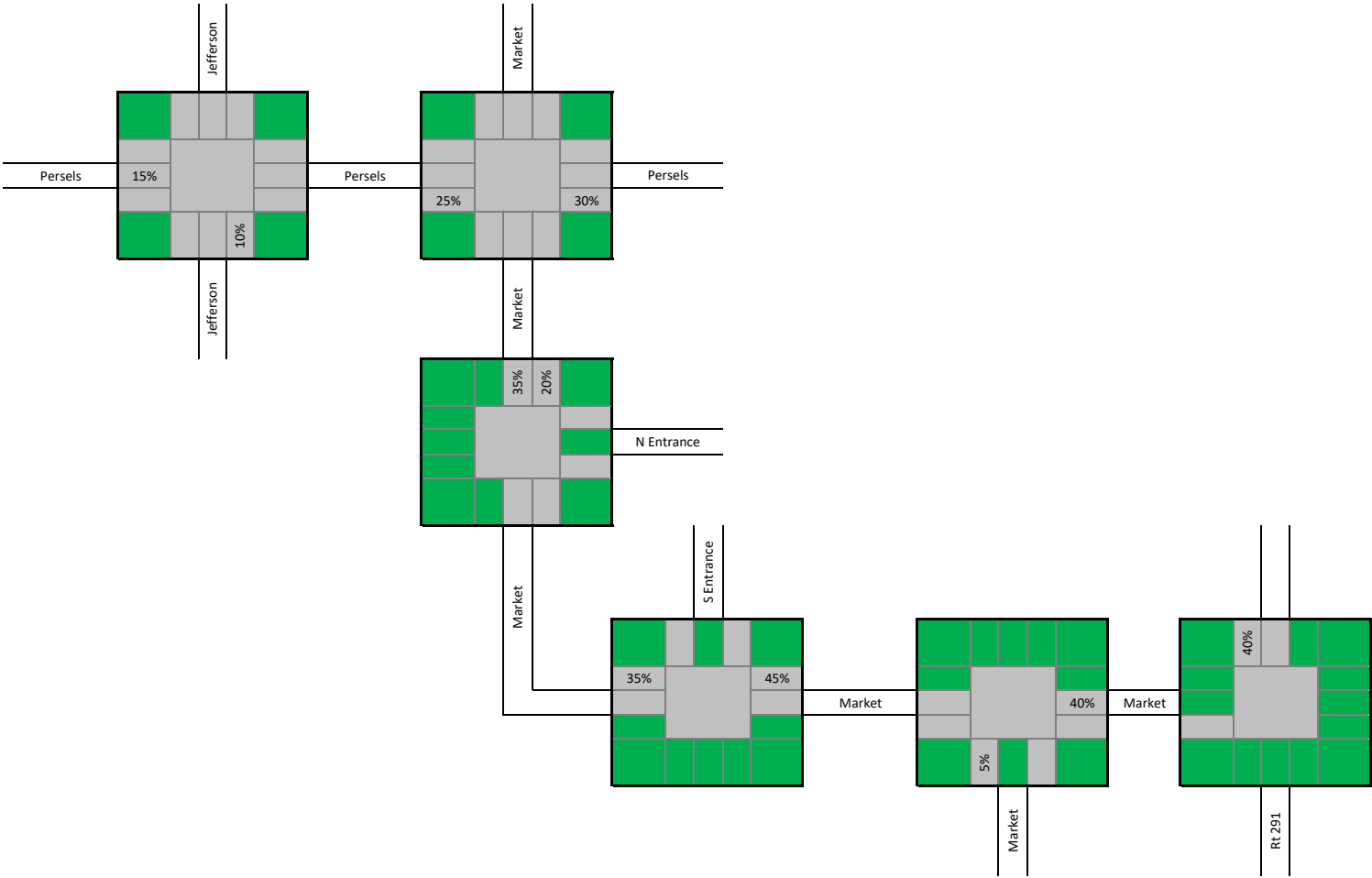
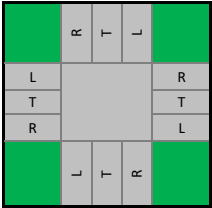
Existing AM Peak Hour Traffic

Legend



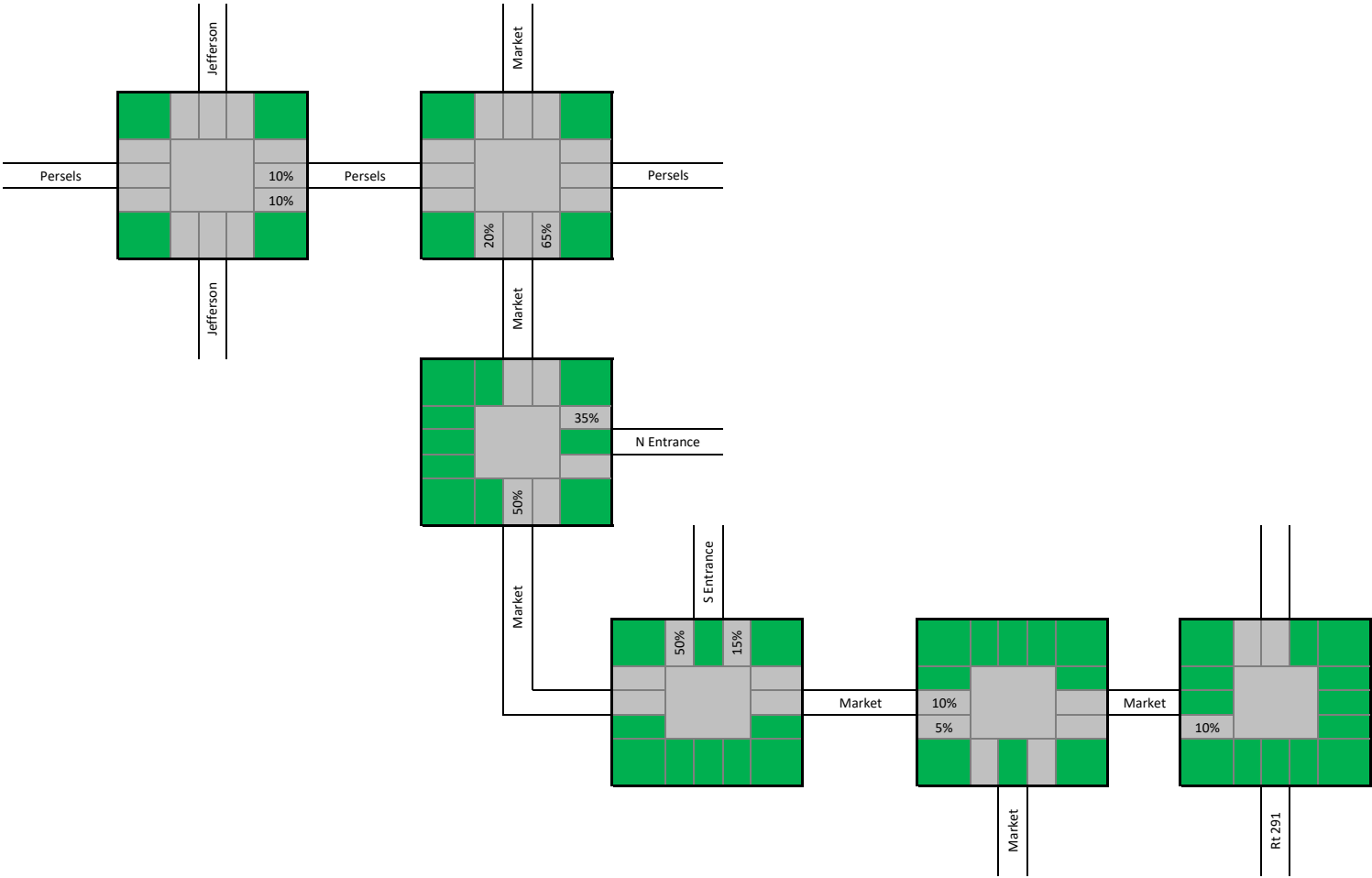
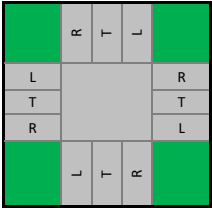
AM Distribution In

Legend



AM Distribution Out

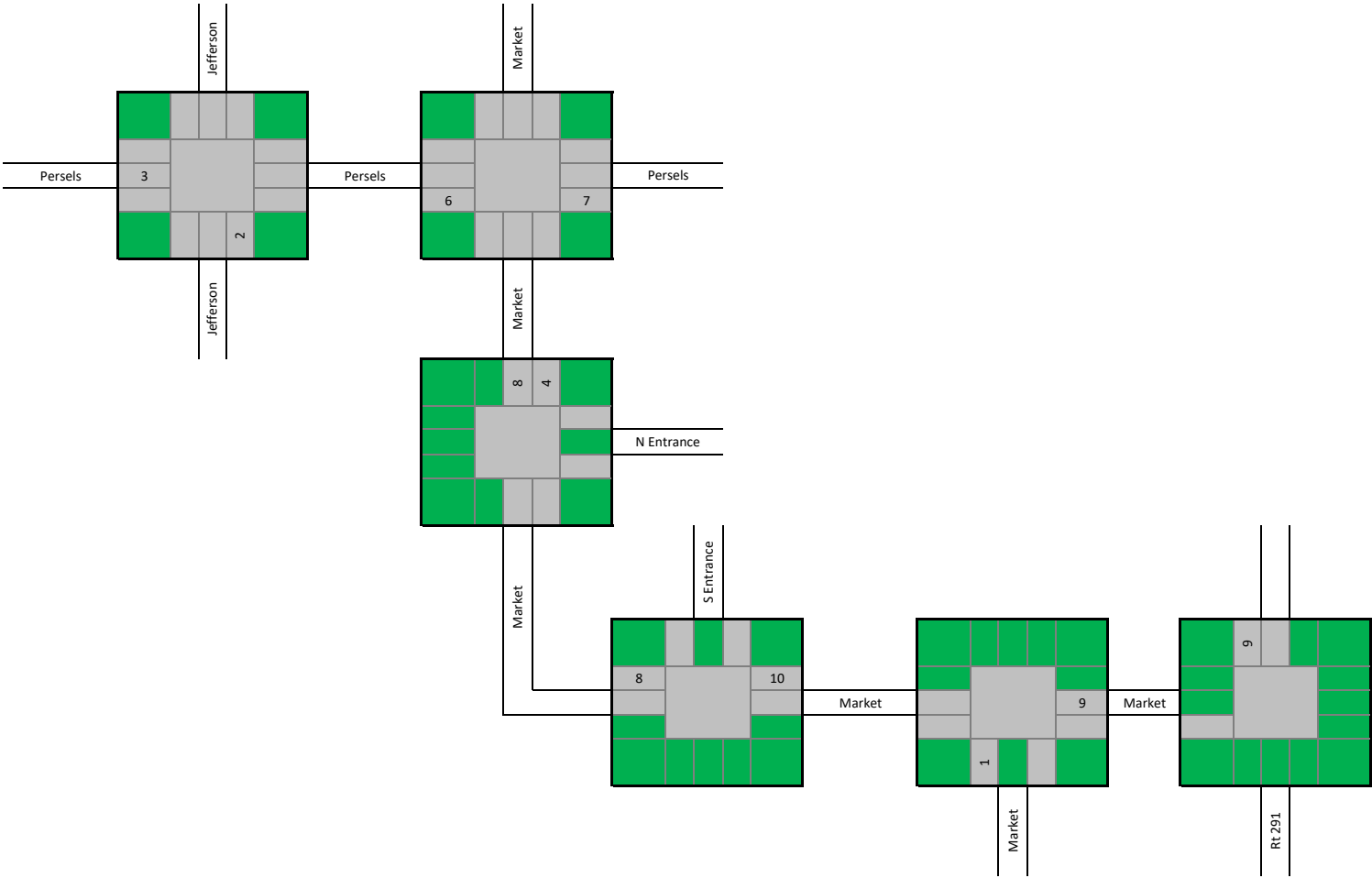
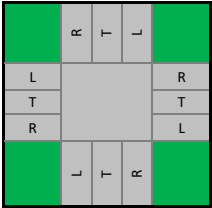
Legend



AM Trips In

Trips
22

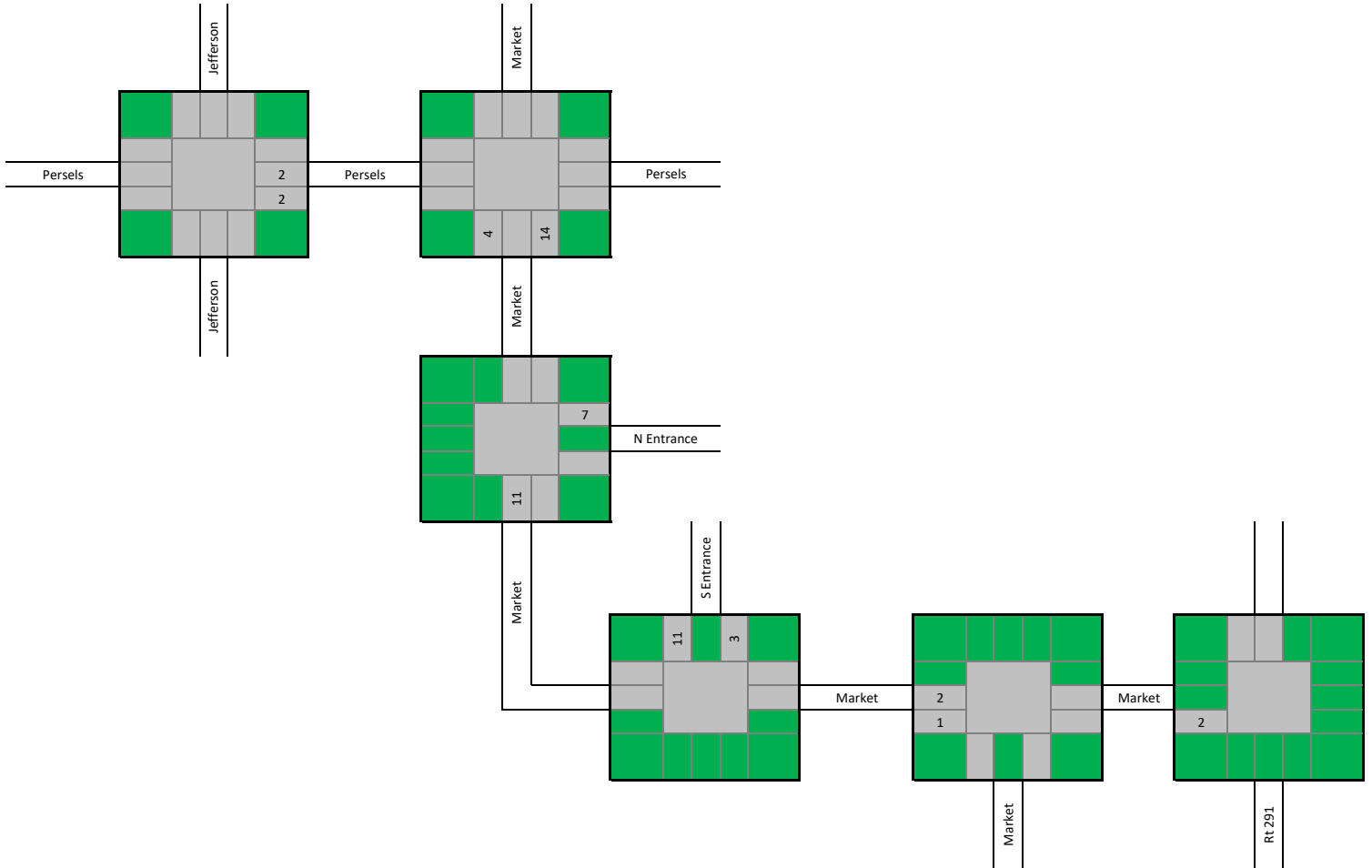
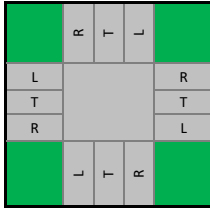
Legend



AM Trips Out

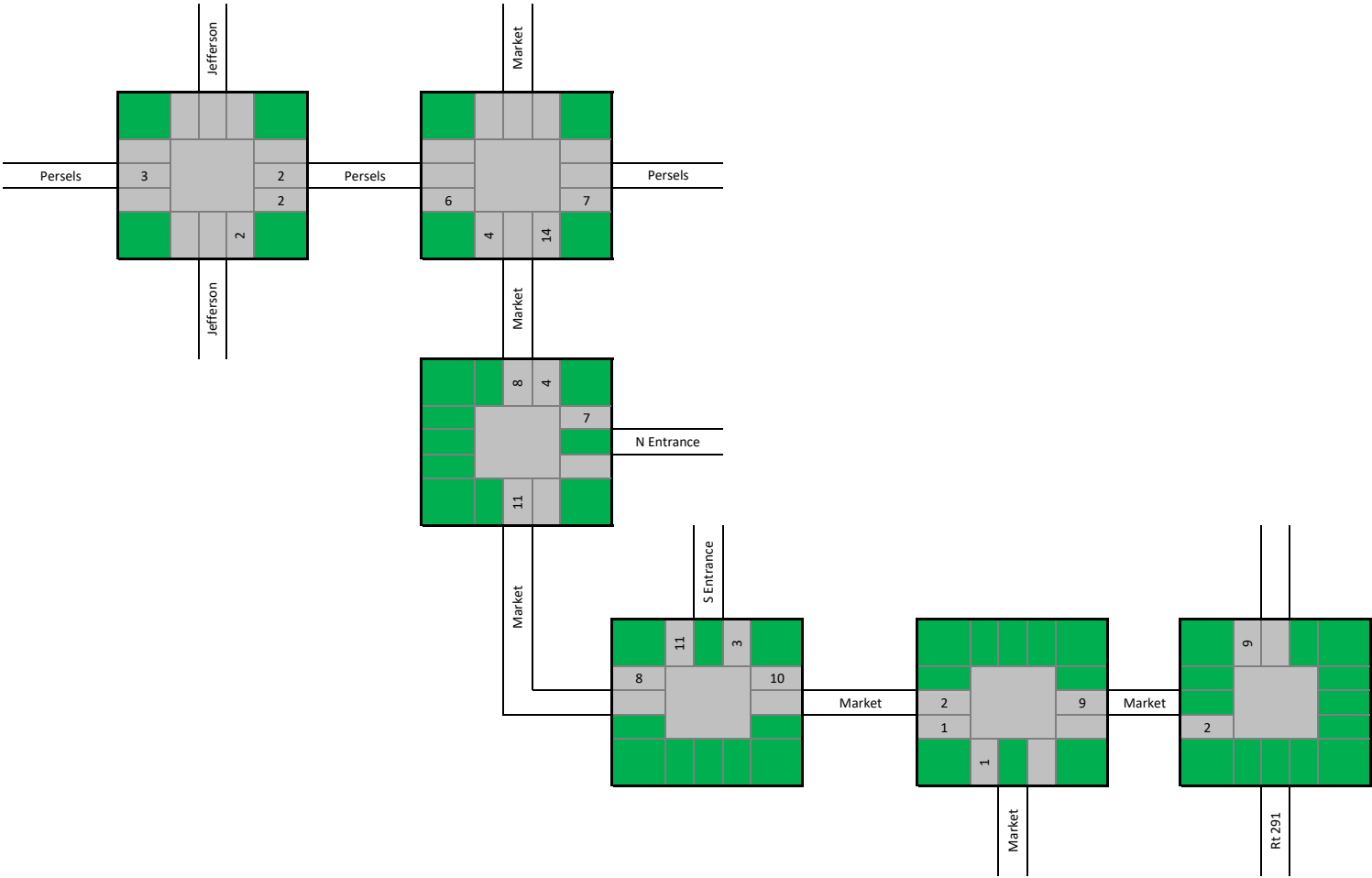
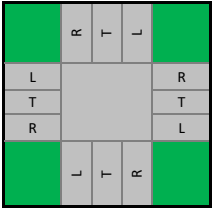
Trips
21

Legend



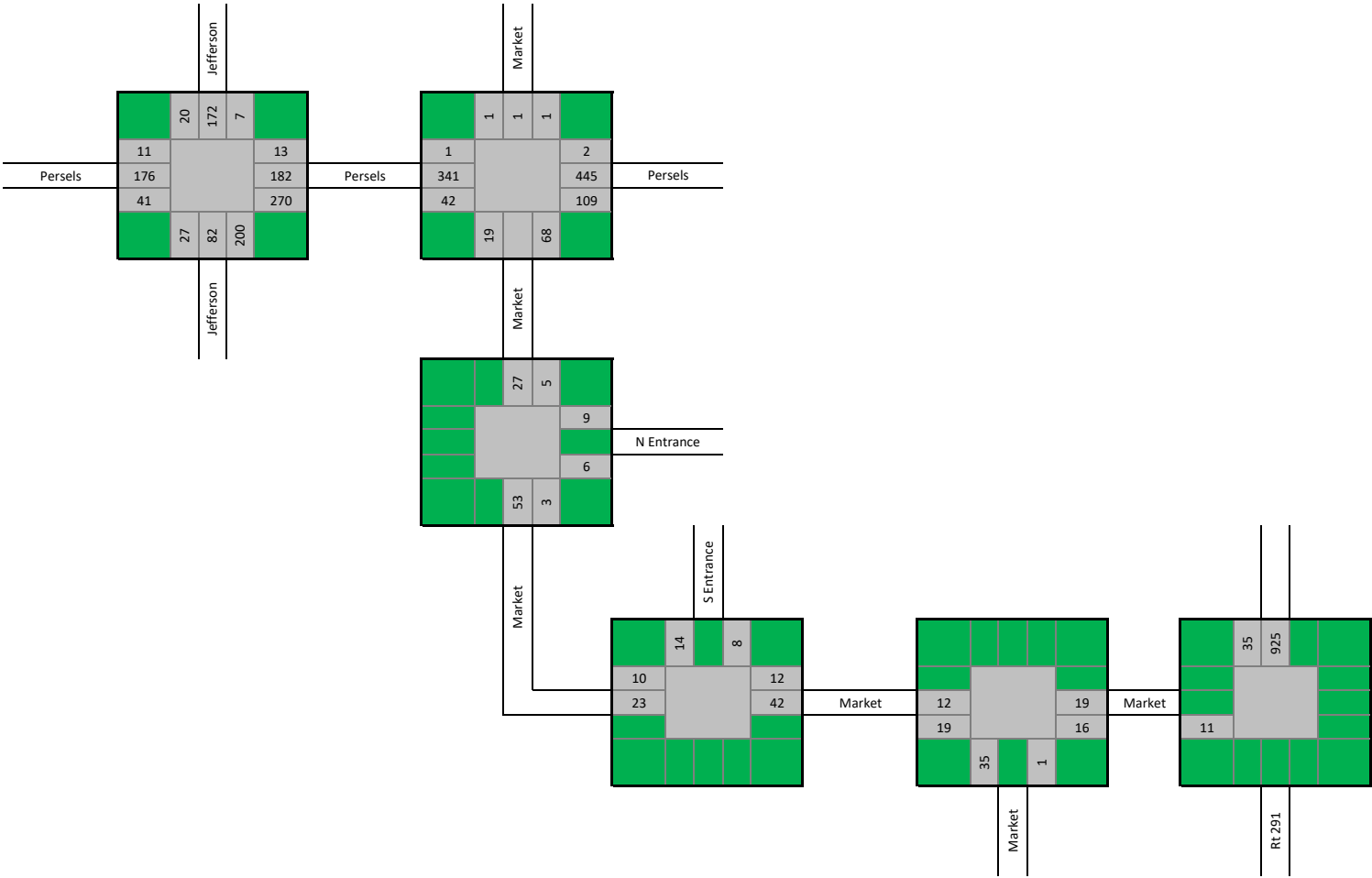
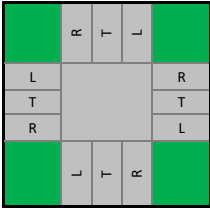
AM Total Trips

Legend



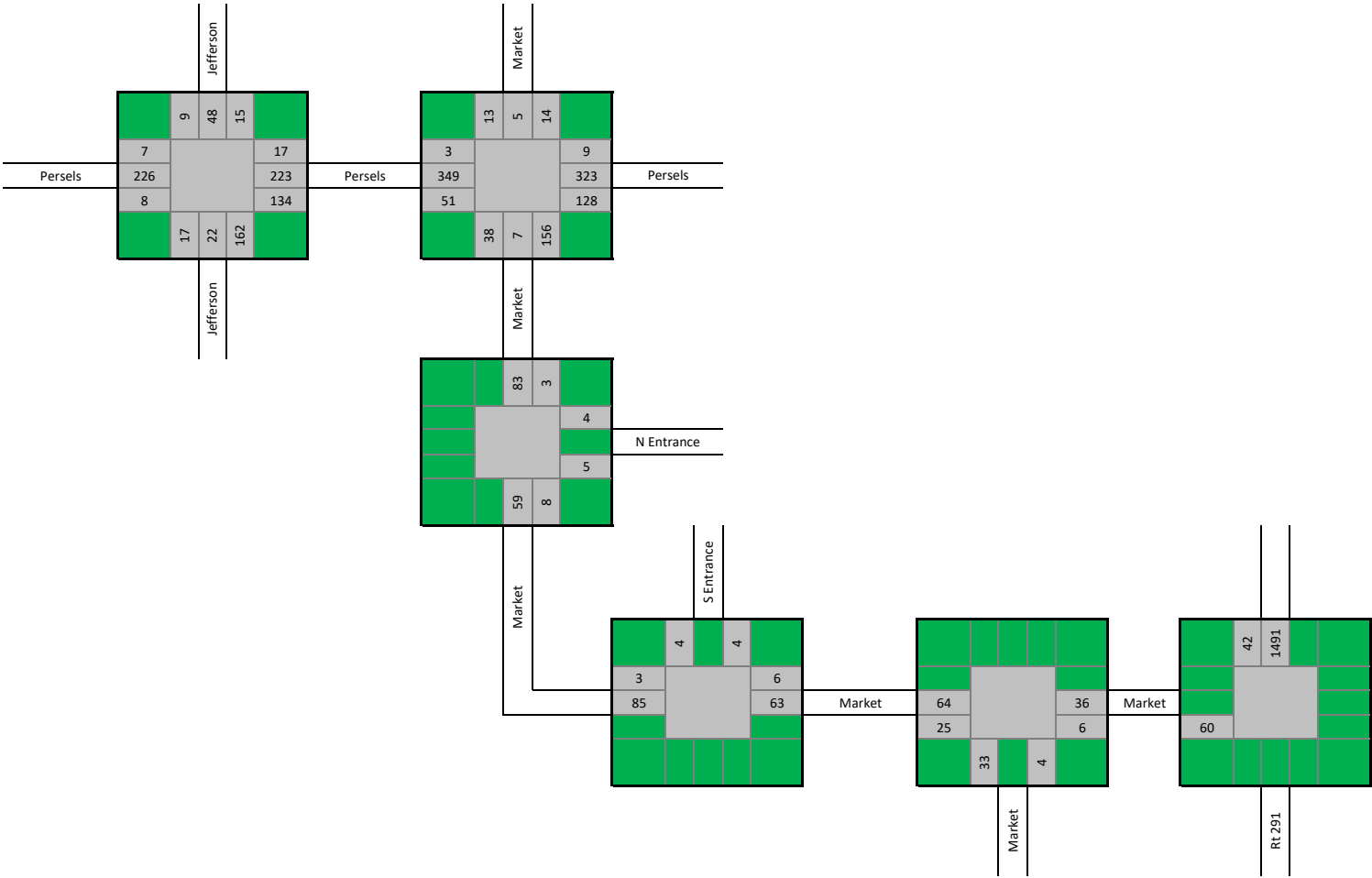
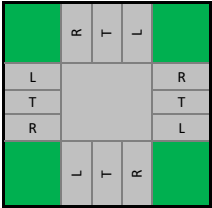
AM Existing plus Site

Legend



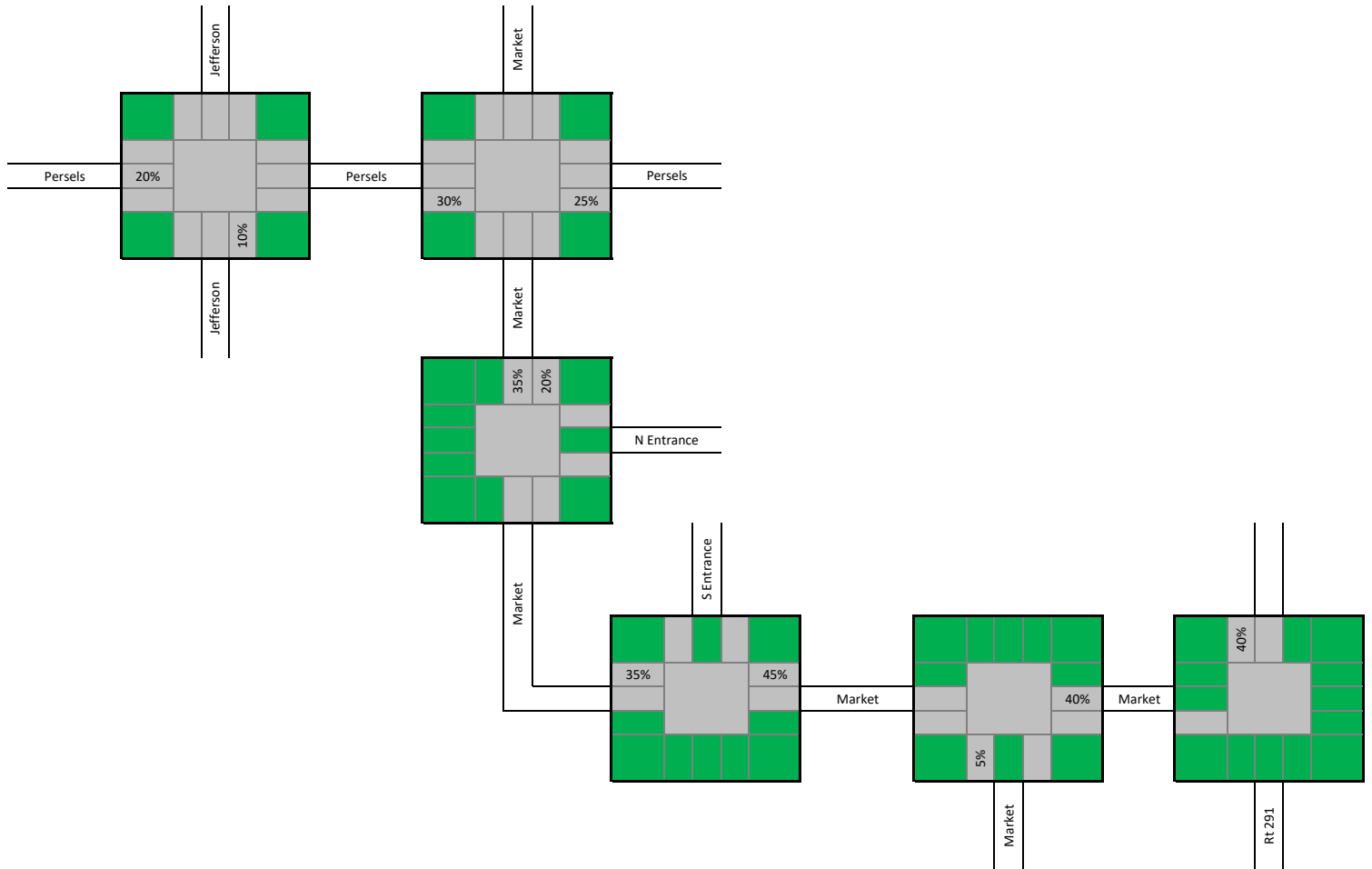
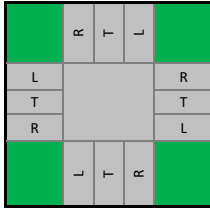
Existing PM Peak Hour Traffic

Legend



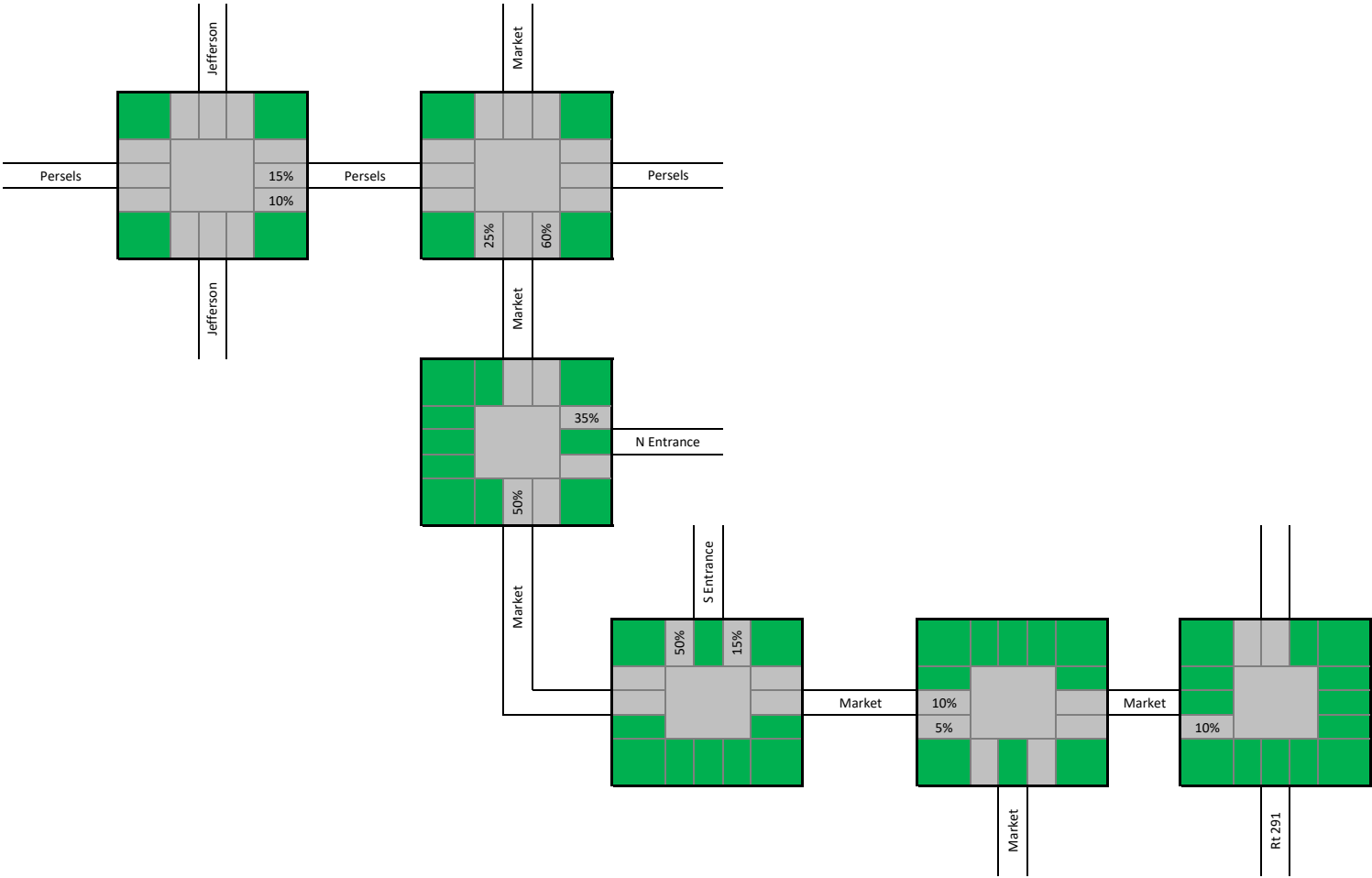
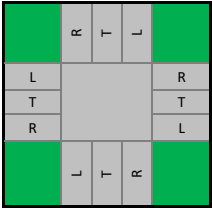
PM Distribution In

Legend



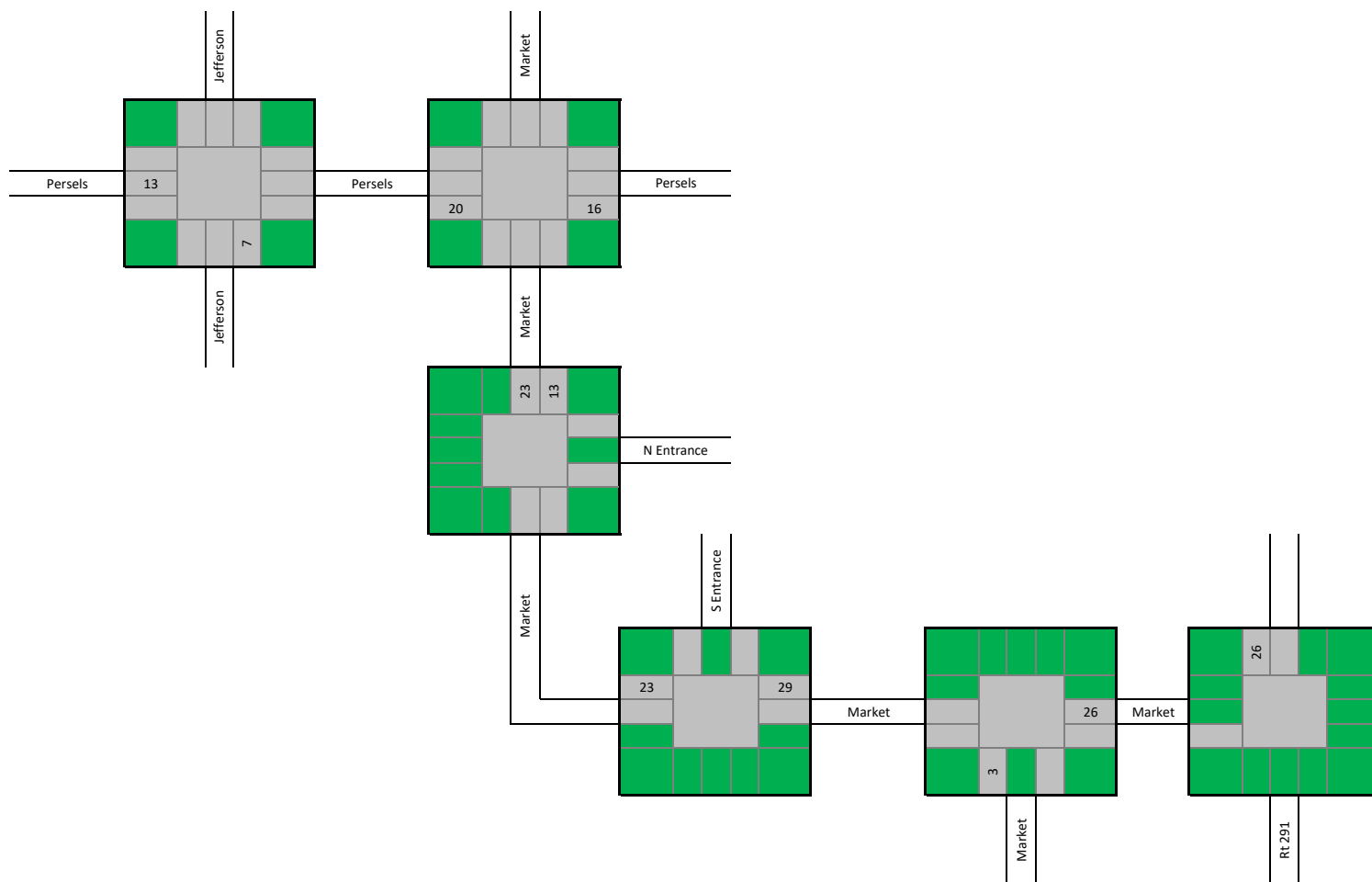
PM Distribution Out

Legend



Trips
65

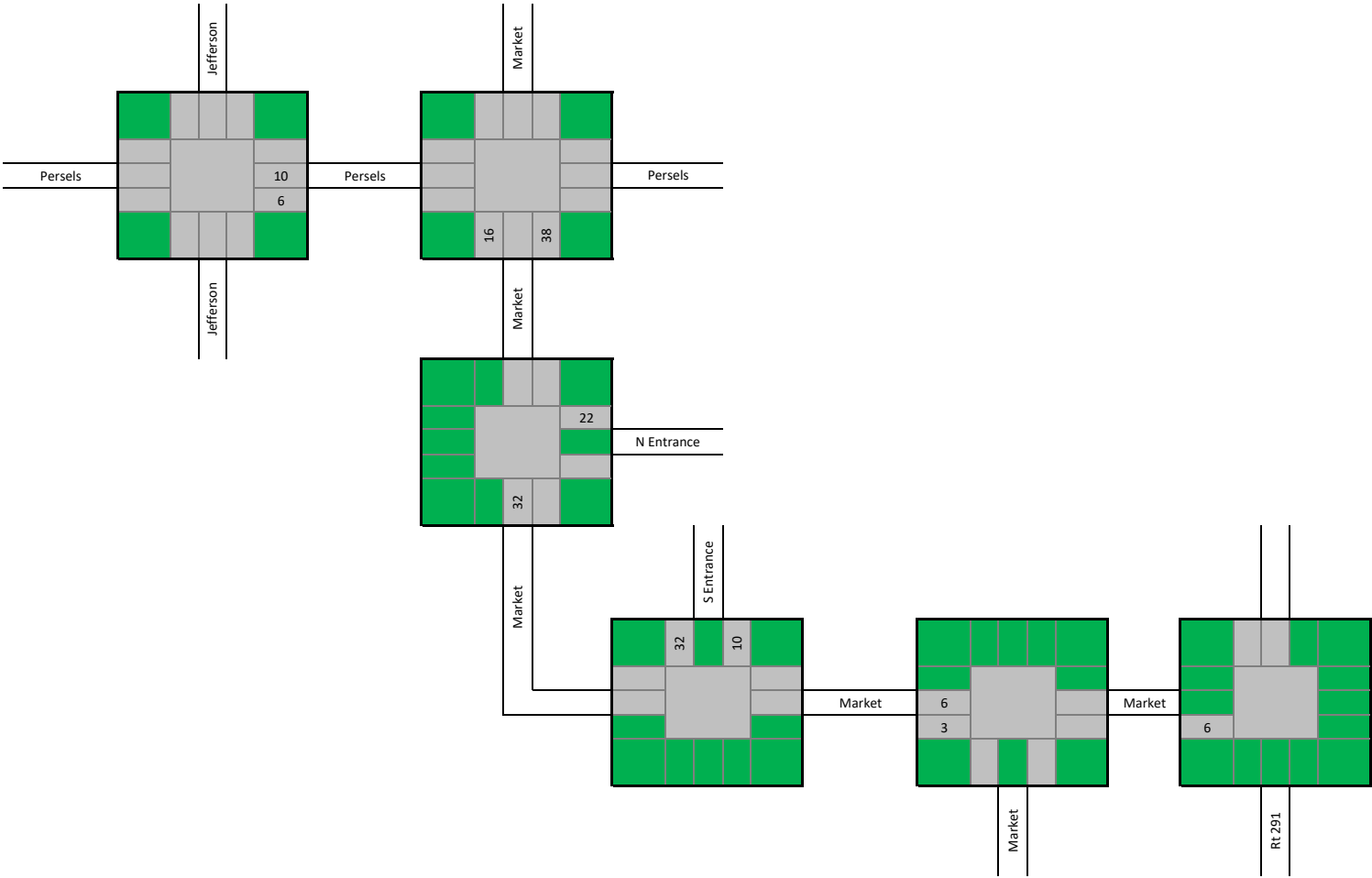
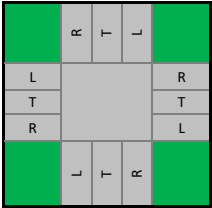
	R	T	L	
L				R
T				T
R				L
	L	T	R	



PM Trips Out

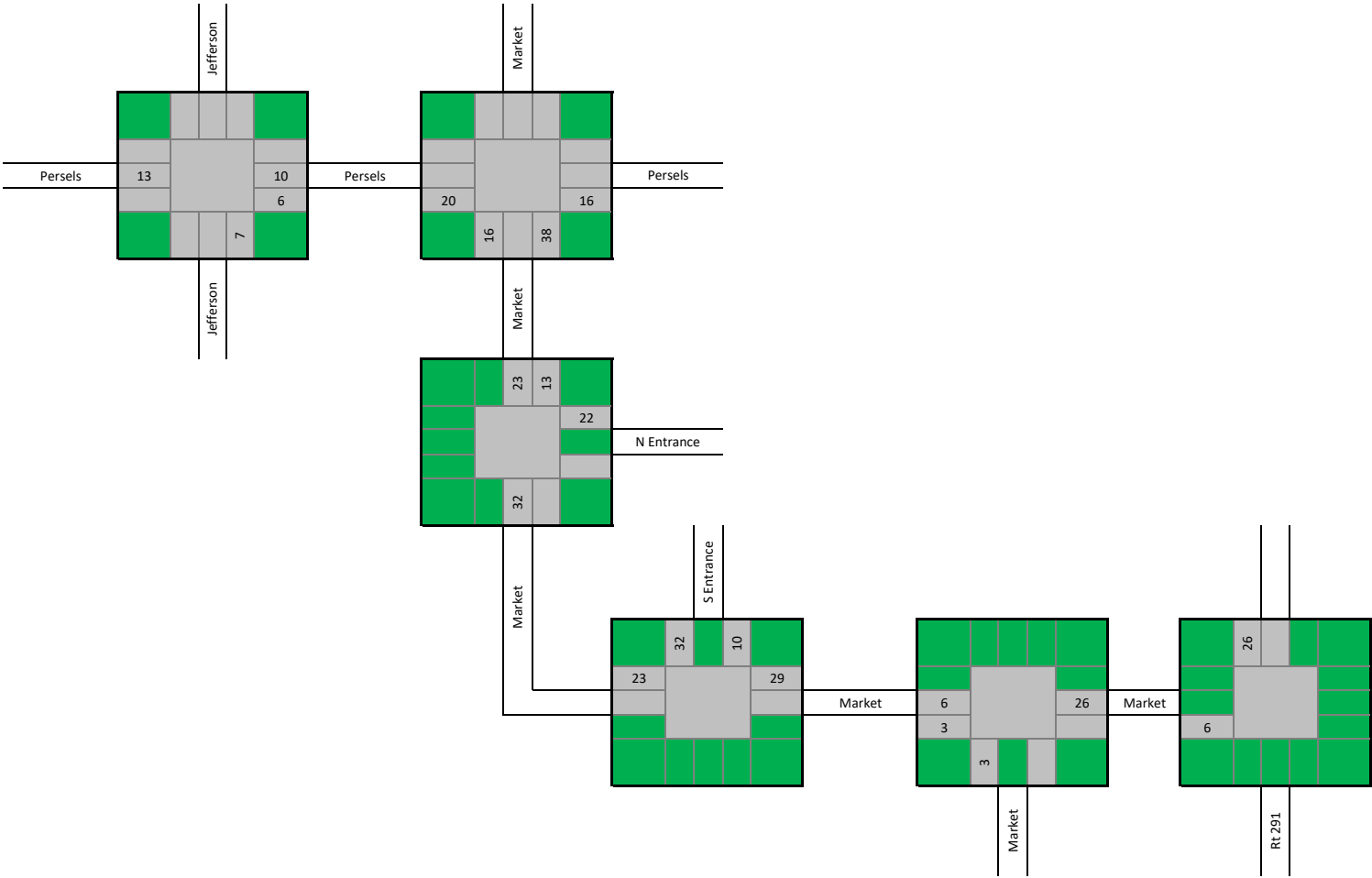
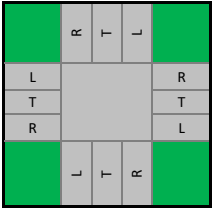
Trips
64

Legend



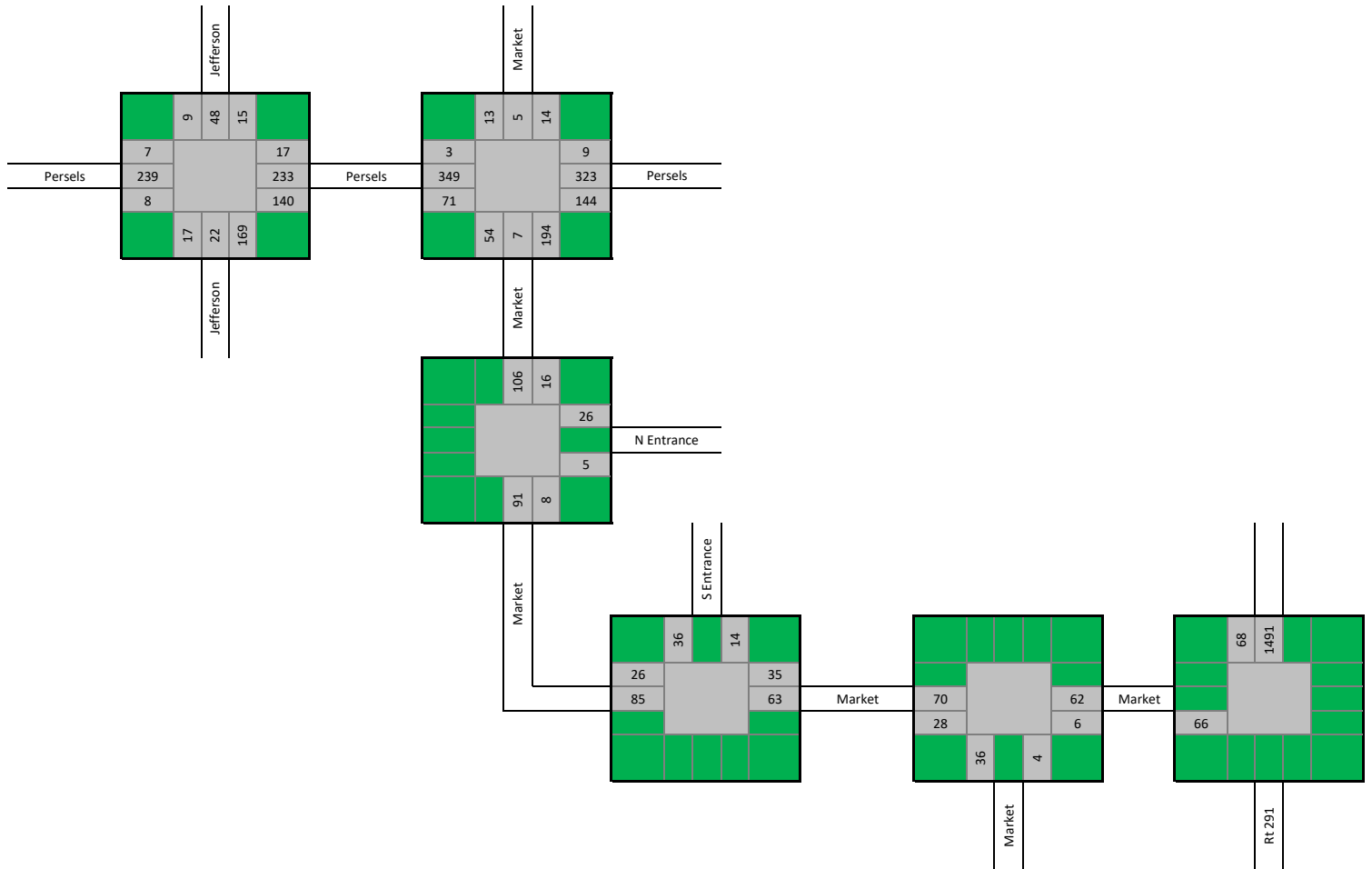
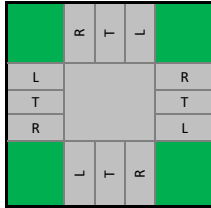
PM Total Trips

Legend



PM Existing plus Site

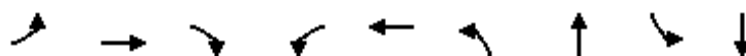
Legend



Queues

5: SW Jefferson St & W Persels Rd

Existing AM



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	15	244	58	301	217	49	509	10	282
v/c Ratio	0.05	0.71	0.13	0.68	0.30	0.10	0.60	0.03	0.37
Control Delay	16.5	44.4	0.6	26.2	19.7	13.2	16.3	12.9	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	44.4	0.6	26.2	19.7	13.2	16.3	12.9	20.2
Queue Length 50th (ft)	5	128	0	115	76	14	132	3	111
Queue Length 95th (ft)	13	156	0	179	151	20	113	9	130
Internal Link Dist (ft)		207			246		1925		147
Turn Bay Length (ft)	115		115	175		115		150	
Base Capacity (vph)	326	433	508	472	746	469	844	321	764
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.56	0.11	0.64	0.29	0.10	0.60	0.03	0.37
Intersection Summary									

HCM 6th Signalized Intersection Summary

5: SW Jefferson St & W Persels Rd

Existing AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	173	41	268	180	13	27	82	198	7	172	20
Future Volume (veh/h)	11	173	41	268	180	13	27	82	198	7	172	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	244	58	301	202	15	49	149	360	10	253	29
Peak Hour Factor	0.71	0.71	0.71	0.89	0.89	0.89	0.55	0.55	0.55	0.68	0.68	0.68
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	309	301	255	415	523	39	498	214	517	284	678	78
Arrive On Green	0.02	0.16	0.16	0.16	0.30	0.30	0.04	0.44	0.44	0.01	0.41	0.41
Sat Flow, veh/h	1781	1870	1585	1781	1720	128	1781	486	1173	1781	1648	189
Grp Volume(v), veh/h	15	244	58	301	0	217	49	0	509	10	0	282
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1847	1781	0	1659	1781	0	1836
Q Serve(g_s), s	0.6	10.1	2.5	10.6	0.0	7.4	1.2	0.0	19.8	0.3	0.0	8.5
Cycle Q Clear(g_c), s	0.6	10.1	2.5	10.6	0.0	7.4	1.2	0.0	19.8	0.3	0.0	8.5
Prop In Lane	1.00		1.00	1.00		0.07	1.00		0.71	1.00		0.10
Lane Grp Cap(c), veh/h	309	301	255	415	0	562	498	0	731	284	0	756
V/C Ratio(X)	0.05	0.81	0.23	0.73	0.00	0.39	0.10	0.00	0.70	0.04	0.00	0.37
Avail Cap(c_a), veh/h	391	433	367	473	0	668	538	0	731	375	0	756
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.2	32.4	29.2	21.7	0.0	21.9	12.8	0.0	18.1	15.3	0.0	16.4
Incr Delay (d2), s/veh	0.1	7.4	0.4	4.8	0.0	0.4	0.1	0.0	5.4	0.0	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	5.0	1.0	4.7	0.0	3.1	0.5	0.0	7.9	0.1	0.0	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.3	39.8	29.7	26.5	0.0	22.4	12.9	0.0	23.5	15.3	0.0	17.8
LnGrp LOS	C	D	C	C	A	C	B	A	C	B	A	B
Approach Vol, veh/h	317			518			558			292		
Approach Delay, s/veh	37.3			24.8			22.6			17.7		
Approach LOS	D			C			C			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.5	39.7	17.4	17.4	7.8	37.4	5.9	28.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	32.9	15.5	18.5	5.1	32.9	5.1	28.9				
Max Q Clear Time (g_c+I1), s	2.3	21.8	12.6	12.1	3.2	10.5	2.6	9.4				
Green Ext Time (p_c), s	0.0	2.6	0.3	0.8	0.0	1.6	0.0	1.1				
Intersection Summary												
HCM 6th Ctrl Delay	25.2											
HCM 6th LOS	C											

HCM 6th TWSC
8: SW Market St & W Persels Rd

Existing AM

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	341	36	102	445	2	15	0	54	1	1	1
Future Vol, veh/h	1	341	36	102	445	2	15	0	54	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	165	-	-	40	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	90	90	90	78	78	78	38	38	38
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	474	50	113	494	2	19	0	69	3	3	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	496	0	0	524	0	0	1225	1223	499	1257	1247	495
Stage 1	-	-	-	-	-	-	501	501	-	721	721	-
Stage 2	-	-	-	-	-	-	724	722	-	536	526	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1068	-	-	1043	-	-	156	179	572	148	173	575
Stage 1	-	-	-	-	-	-	552	543	-	419	432	-
Stage 2	-	-	-	-	-	-	417	431	-	529	529	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1068	-	-	1043	-	-	141	159	572	119	154	575
Mov Cap-2 Maneuver	-	-	-	-	-	-	141	159	-	119	154	-
Stage 1	-	-	-	-	-	-	551	542	-	419	385	-
Stage 2	-	-	-	-	-	-	368	384	-	465	528	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			1.6			19			25.9		
HCM LOS							C			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	344	1068	-	-	1043	-	-	180
HCM Lane V/C Ratio	0.257	0.001	-	-	0.109	-	-	0.044
HCM Control Delay (s)	19	8.4	-	-	8.9	-	-	25.9
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	1	0	-	-	0.4	-	-	0.1

HCM 6th TWSC
10: SB 291 & SW Market St

Existing AM

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	9	0	0	925	6
Future Vol, veh/h	0	9	0	0	925	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	56	56	92	92	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	16	0	0	1016	7

Major/Minor	Minor2	Major2
Conflicting Flow All	- 508	- 0
Stage 1	- -	- -
Stage 2	- -	- -
Critical Hdwy	- 6.94	- -
Critical Hdwy Stg 1	- -	- -
Critical Hdwy Stg 2	- -	- -
Follow-up Hdwy	- 3.32	- -
Pot Cap-1 Maneuver	0 510	- -
Stage 1	0 -	- -
Stage 2	0 -	- -
Platoon blocked, %		- -
Mov Cap-1 Maneuver	- 510	- -
Mov Cap-2 Maneuver	- -	- -
Stage 1	- -	- -
Stage 2	- -	- -

Approach	EB	SB
HCM Control Delay, s	12.3	0
HCM LOS	B	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	510	-	-
HCM Lane V/C Ratio	0.032	-	-
HCM Control Delay (s)	12.3	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-

HCM 6th TWSC
12: SW Market St & N Entrance

Existing AM

Intersection

Int Delay, s/veh 1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	2	42	3	1	19
Future Vol, veh/h	6	2	42	3	1	19
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	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	2	46	3	1	21

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	71	48	0
Stage 1	48	-	-
Stage 2	23	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	933	1021	-
Stage 1	974	-	-
Stage 2	1000	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	932	1021	-
Mov Cap-2 Maneuver	932	-	-
Stage 1	974	-	-
Stage 2	999	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	0.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	953	1558
HCM Lane V/C Ratio	-	-	0.009	0.001
HCM Control Delay (s)	-	-	8.8	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM 6th TWSC
14: SW Market St & S Entrance

Existing AM

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	23	42	2	5	3
Future Vol, veh/h	2	23	42	2	5	3
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	2	25	46	2	5	3

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	48	0	76
Stage 1	-	-	47
Stage 2	-	-	29
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1559	-	927
Stage 1	-	-	975
Stage 2	-	-	994
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1559	-	926
Mov Cap-2 Maneuver	-	-	926
Stage 1	-	-	974
Stage 2	-	-	994

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1559	-	-	-	960
HCM Lane V/C Ratio	0.001	-	-	-	0.009
HCM Control Delay (s)	7.3	0	-	-	8.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

HCM 6th TWSC
15: SW Market St

Existing AM

Intersection

Int Delay, s/veh 4.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	10	18	16	10	34	1
Future Vol, veh/h	10	18	16	10	34	1
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	11	20	17	11	37	1

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	31
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	-	-	1582
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1582
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

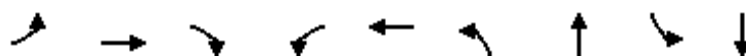
Approach	EB	WB	NB
HCM Control Delay, s	0	4.5	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	932	-	-	1582	-
HCM Lane V/C Ratio	0.041	-	-	0.011	-
HCM Control Delay (s)	9	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Queues

5: SW Jefferson St & W Persels Rd

Existing PM



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	7	240	9	146	260	24	256	19	74
v/c Ratio	0.02	0.60	0.02	0.36	0.40	0.04	0.30	0.03	0.09
Control Delay	13.6	32.3	0.1	16.1	18.7	12.4	5.1	12.5	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.6	32.3	0.1	16.1	18.7	12.4	5.1	12.5	15.6
Queue Length 50th (ft)	1	81	0	33	61	5	6	4	13
Queue Length 95th (ft)	9	181	0	81	173	16	32	15	46
Internal Link Dist (ft)		207			246		1925		147
Turn Bay Length (ft)	115		115	175		115		150	
Base Capacity (vph)	390	792	778	486	966	647	855	557	779
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.30	0.01	0.30	0.27	0.04	0.30	0.03	0.09
Intersection Summary									

HCM 6th Signalized Intersection Summary

5: SW Jefferson St & W Persels Rd

Existing PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	226	8	134	223	17	17	22	162	15	48	9
Future Volume (veh/h)	7	226	8	134	223	17	17	22	162	15	48	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	240	9	146	242	18	24	31	225	19	62	12
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.72	0.72	0.72	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	279	324	274	333	437	32	691	84	607	514	643	125
Arrive On Green	0.01	0.17	0.17	0.09	0.25	0.25	0.03	0.43	0.43	0.02	0.42	0.42
Sat Flow, veh/h	1781	1870	1585	1781	1719	128	1781	196	1419	1781	1523	295
Grp Volume(v), veh/h	7	240	9	146	0	260	24	0	256	19	0	74
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1847	1781	0	1615	1781	0	1817
Q Serve(g_s), s	0.2	7.6	0.3	3.9	0.0	7.7	0.5	0.0	6.8	0.4	0.0	1.5
Cycle Q Clear(g_c), s	0.2	7.6	0.3	3.9	0.0	7.7	0.5	0.0	6.8	0.4	0.0	1.5
Prop In Lane	1.00		1.00	1.00		0.07	1.00		0.88	1.00		0.16
Lane Grp Cap(c), veh/h	279	324	274	333	0	469	691	0	690	514	0	768
V/C Ratio(X)	0.03	0.74	0.03	0.44	0.00	0.55	0.03	0.00	0.37	0.04	0.00	0.10
Avail Cap(c_a), veh/h	447	790	670	528	0	957	827	0	690	658	0	768
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.1	24.6	21.6	17.8	0.0	20.3	9.6	0.0	12.2	10.1	0.0	10.9
Incr Delay (d2), s/veh	0.0	3.3	0.0	0.9	0.0	1.0	0.0	0.0	1.5	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.5	0.1	1.5	0.0	3.1	0.2	0.0	2.4	0.1	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.1	27.9	21.6	18.7	0.0	21.3	9.7	0.0	13.7	10.1	0.0	11.1
LnGrp LOS	C	C	C	B	A	C	A	A	B	B	A	B
Approach Vol, veh/h	256			406			280			93		
Approach Delay, s/veh	27.5			20.4			13.4			10.9		
Approach LOS	C			C			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	31.3	10.1	15.4	6.2	31.0	5.1	20.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	26.5	12.5	26.5	6.5	26.5	6.5	32.5				
Max Q Clear Time (g_c+I1), s	2.4	8.8	5.9	9.6	2.5	3.5	2.2	9.7				
Green Ext Time (p_c), s	0.0	1.4	0.2	1.2	0.0	0.3	0.0	1.4				
Intersection Summary												
HCM 6th Ctrl Delay	19.4											
HCM 6th LOS	B											

HCM 6th TWSC
8: SW Market St & W Persels Rd

Existing PM

Intersection												
Int Delay, s/veh	7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	349	51	128	323	9	38	7	156	14	5	13
Future Vol, veh/h	3	349	51	128	323	9	38	7	156	14	5	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	165	-	-	40	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	85	85	85	87	87	87	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	379	55	151	380	11	44	8	179	15	5	14
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	391	0	0	434	0	0	1110	1106	407	1194	1128	386
Stage 1	-	-	-	-	-	-	413	413	-	688	688	-
Stage 2	-	-	-	-	-	-	697	693	-	506	440	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1168	-	-	1126	-	-	187	210	644	163	204	662
Stage 1	-	-	-	-	-	-	616	594	-	436	447	-
Stage 2	-	-	-	-	-	-	431	445	-	549	578	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1168	-	-	1126	-	-	160	181	644	102	176	662
Mov Cap-2 Maneuver	-	-	-	-	-	-	160	181	-	102	176	-
Stage 1	-	-	-	-	-	-	614	592	-	435	387	-
Stage 2	-	-	-	-	-	-	360	385	-	390	576	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			2.4			27			31		
HCM LOS							D			D		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	388	1168	-	-	1126	-	-	173				
HCM Lane V/C Ratio	0.595	0.003	-	-	0.134	-	-	0.201				
HCM Control Delay (s)	27	8.1	-	-	8.7	-	-	31				
HCM Lane LOS	D	A	-	-	A	-	-	D				
HCM 95th %tile Q(veh)	3.7	0	-	-	0.5	-	-	0.7				

HCM 6th TWSC
10: SB 291 & SW Market St

Existing PM

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	60	0	0	1491	42
Future Vol, veh/h	0	60	0	0	1491	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	65	65	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	92	0	0	1621	46

Major/Minor	Minor2	Major2
Conflicting Flow All	- 811	- 0
Stage 1	- -	- -
Stage 2	- -	- -
Critical Hdwy	- 6.94	- -
Critical Hdwy Stg 1	- -	- -
Critical Hdwy Stg 2	- -	- -
Follow-up Hdwy	- 3.32	- -
Pot Cap-1 Maneuver	0 322	- -
Stage 1	0 -	- -
Stage 2	0 -	- -
Platoon blocked, %		- -
Mov Cap-1 Maneuver	- 322	- -
Mov Cap-2 Maneuver	- -	- -
Stage 1	- -	- -
Stage 2	- -	- -

Approach	EB	SB
HCM Control Delay, s	20.6	0
HCM LOS	C	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	322	-	-
HCM Lane V/C Ratio	0.287	-	-
HCM Control Delay (s)	20.6	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	1.2	-	-

HCM 6th TWSC
12: SW Market St & N Entrance

Existing PM

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	4	59	8	3	83
Future Vol, veh/h	5	4	59	8	3	83
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	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	4	64	9	3	90
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	165	69	0	0	73	0
Stage 1	69	-	-	-	-	-
Stage 2	96	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	826	994	-	-	1527	-
Stage 1	954	-	-	-	-	-
Stage 2	928	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	824	994	-	-	1527	-
Mov Cap-2 Maneuver	824	-	-	-	-	-
Stage 1	954	-	-	-	-	-
Stage 2	926	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.1	0		0.3		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	892	1527	-	
HCM Lane V/C Ratio	-	-	0.011	0.002	-	
HCM Control Delay (s)	-	-	9.1	7.4	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	

HCM 6th TWSC
14: SW Market St & S Entrance

Existing PM

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	85	63	6	4	4
Future Vol, veh/h	3	85	63	6	4	4
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	3	92	68	7	4	4

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	75	0	0 170 72
Stage 1	-	-	- 72 -
Stage 2	-	-	- 98 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1524	-	- 820 990
Stage 1	-	-	- 951 -
Stage 2	-	-	- 926 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1524	-	- 818 990
Mov Cap-2 Maneuver	-	-	- 818 -
Stage 1	-	-	- 949 -
Stage 2	-	-	- 926 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1524	-	-	-	896
HCM Lane V/C Ratio	0.002	-	-	-	0.01
HCM Control Delay (s)	7.4	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

HCM 6th TWSC
15: SW Market St

Existing PM

Intersection

Int Delay, s/veh 2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	64	25	6	36	33	4
Future Vol, veh/h	64	25	6	36	33	4
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	70	27	7	39	36	4

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	97
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	-	-	1496
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1496
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	864	-	-	1496	-
HCM Lane V/C Ratio	0.047	-	-	0.004	-
HCM Control Delay (s)	9.4	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Queues

5: SW Jefferson St & W Persels Rd

Existing plus Site AM

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	15	248	58	303	217	49	513	10	282
v/c Ratio	0.05	0.72	0.13	0.69	0.30	0.10	0.61	0.03	0.37
Control Delay	16.5	44.9	0.6	26.5	19.7	13.3	16.4	12.9	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	44.9	0.6	26.5	19.7	13.3	16.4	12.9	20.2
Queue Length 50th (ft)	5	130	0	116	76	14	134	3	111
Queue Length 95th (ft)	13	158	0	180	151	20	113	9	130
Internal Link Dist (ft)		207			246		1925		147
Turn Bay Length (ft)	115		115	175		115		150	
Base Capacity (vph)	327	433	507	470	746	467	843	317	762
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.57	0.11	0.64	0.29	0.10	0.61	0.03	0.37
Intersection Summary									

HCM 6th Signalized Intersection Summary

5: SW Jefferson St & W Persels Rd

Existing plus Site AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	176	41	270	180	13	27	82	200	7	172	20
Future Volume (veh/h)	11	176	41	270	180	13	27	82	200	7	172	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	248	58	303	202	15	49	149	364	10	253	29
Peak Hour Factor	0.71	0.71	0.71	0.89	0.89	0.89	0.55	0.55	0.55	0.68	0.68	0.68
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	311	305	258	415	527	39	496	211	517	278	675	77
Arrive On Green	0.02	0.16	0.16	0.16	0.31	0.31	0.04	0.44	0.44	0.01	0.41	0.41
Sat Flow, veh/h	1781	1870	1585	1781	1720	128	1781	482	1177	1781	1648	189
Grp Volume(v), veh/h	15	248	58	303	0	217	49	0	513	10	0	282
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1847	1781	0	1659	1781	0	1836
Q Serve(g_s), s	0.6	10.3	2.6	10.7	0.0	7.4	1.2	0.0	20.2	0.3	0.0	8.6
Cycle Q Clear(g_c), s	0.6	10.3	2.6	10.7	0.0	7.4	1.2	0.0	20.2	0.3	0.0	8.6
Prop In Lane	1.00		1.00	1.00		0.07	1.00		0.71	1.00		0.10
Lane Grp Cap(c), veh/h	311	305	258	415	0	566	496	0	728	278	0	753
V/C Ratio(X)	0.05	0.81	0.22	0.73	0.00	0.38	0.10	0.00	0.70	0.04	0.00	0.37
Avail Cap(c_a), veh/h	393	431	365	471	0	665	535	0	728	369	0	753
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.2	32.4	29.2	21.7	0.0	21.9	12.9	0.0	18.3	15.5	0.0	16.5
Incr Delay (d2), s/veh	0.1	7.9	0.4	5.0	0.0	0.4	0.1	0.0	5.7	0.1	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	5.2	1.0	4.7	0.0	3.1	0.5	0.0	8.1	0.1	0.0	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.2	40.3	29.6	26.7	0.0	22.3	13.0	0.0	24.0	15.5	0.0	17.9
LnGrp LOS	C	D	C	C	A	C	B	A	C	B	A	B
Approach Vol, veh/h	321			520			562			292		
Approach Delay, s/veh	37.7			24.9			23.0			17.8		
Approach LOS	D			C			C			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.5	39.7	17.5	17.6	7.8	37.4	5.9	29.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	32.9	15.5	18.5	5.1	32.9	5.1	28.9				
Max Q Clear Time (g_c+I1), s	2.3	22.2	12.7	12.3	3.2	10.6	2.6	9.4				
Green Ext Time (p_c), s	0.0	2.5	0.3	0.8	0.0	1.6	0.0	1.1				
Intersection Summary												
HCM 6th Ctrl Delay	25.5											
HCM 6th LOS	C											

HCM 6th TWSC
8: SW Market St & W Persels Rd

Existing plus Site AM

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	341	42	109	445	2	19	0	68	1	1	1
Future Vol, veh/h	1	341	42	109	445	2	19	0	68	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	165	-	-	40	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	90	90	90	78	78	78	38	38	38
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	474	58	121	494	2	24	0	87	3	3	3
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	496	0	0	532	0	0	1245	1243	503	1286	1271	495
Stage 1	-	-	-	-	-	-	505	505	-	737	737	-
Stage 2	-	-	-	-	-	-	740	738	-	549	534	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1068	-	-	1036	-	-	151	174	569	141	168	575
Stage 1	-	-	-	-	-	-	549	540	-	410	425	-
Stage 2	-	-	-	-	-	-	409	424	-	520	524	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1068	-	-	1036	-	-	135	153	569	109	148	575
Mov Cap-2 Maneuver	-	-	-	-	-	-	135	153	-	109	148	-
Stage 1	-	-	-	-	-	-	548	539	-	410	375	-
Stage 2	-	-	-	-	-	-	357	374	-	440	523	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			1.8			21.1			27.2		
HCM LOS							C			D		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	334	1068	-	-	1036	-	-	170				
HCM Lane V/C Ratio	0.334	0.001	-	-	0.117	-	-	0.046				
HCM Control Delay (s)	21.1	8.4	-	-	8.9	-	-	27.2				
HCM Lane LOS	C	A	-	-	A	-	-	D				
HCM 95th %tile Q(veh)	1.4	0	-	-	0.4	-	-	0.1				

HCM 6th TWSC
10: SB 291 & SW Market St

Existing plus Site AM

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	11	0	0	925	35
Future Vol, veh/h	0	11	0	0	925	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	56	56	92	92	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	20	0	0	1016	38

Major/Minor	Minor2	Major2
Conflicting Flow All	- 508	- 0
Stage 1	- -	- -
Stage 2	- -	- -
Critical Hdwy	- 6.94	- -
Critical Hdwy Stg 1	- -	- -
Critical Hdwy Stg 2	- -	- -
Follow-up Hdwy	- 3.32	- -
Pot Cap-1 Maneuver	0 510	- -
Stage 1	0 -	- -
Stage 2	0 -	- -
Platoon blocked, %		- -
Mov Cap-1 Maneuver	- 510	- -
Mov Cap-2 Maneuver	- -	- -
Stage 1	- -	- -
Stage 2	- -	- -

Approach	EB	SB
HCM Control Delay, s	12.3	0
HCM LOS	B	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	510	-	-
HCM Lane V/C Ratio	0.039	-	-
HCM Control Delay (s)	12.3	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-

HCM 6th TWSC
12: SW Market St & N Entrance

Existing plus Site AM

Intersection

Int Delay, s/veh 1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	9	53	3	5	27
Future Vol, veh/h	6	9	53	3	5	27
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	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	10	58	3	5	29

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	99	60	0
Stage 1	60	-	-
Stage 2	39	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	900	1005	-
Stage 1	963	-	-
Stage 2	983	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	897	1005	-
Mov Cap-2 Maneuver	897	-	-
Stage 1	963	-	-
Stage 2	980	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	1.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	959	1542
HCM Lane V/C Ratio	-	-	0.017	0.004
HCM Control Delay (s)	-	-	8.8	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th TWSC
14: SW Market St & S Entrance

Existing plus Site AM

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	23	42	12	8	14
Future Vol, veh/h	10	23	42	12	8	14
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	11	25	46	13	9	15
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	59	0	-	0	100	53
Stage 1	-	-	-	-	53	-
Stage 2	-	-	-	-	47	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1545	-	-	-	899	1014
Stage 1	-	-	-	-	970	-
Stage 2	-	-	-	-	975	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1545	-	-	-	893	1014
Mov Cap-2 Maneuver	-	-	-	-	893	-
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	975	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.2	0		8.8		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1545	-	-	-	966	
HCM Lane V/C Ratio	0.007	-	-	-	0.025	
HCM Control Delay (s)	7.3	0	-	-	8.8	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

HCM 6th TWSC
15: SW Market St

Existing plus Site AM

Intersection

Int Delay, s/veh 4.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	12	19	16	19	35	1
Future Vol, veh/h	12	19	16	19	35	1
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	13	21	17	21	38	1

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	34
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	-	-	1578
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1578
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

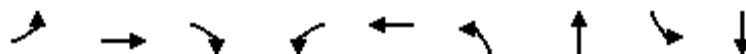
Approach	EB	WB	NB
HCM Control Delay, s	0	3.3	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	917	-	-	1578	-
HCM Lane V/C Ratio	0.043	-	-	0.011	-
HCM Control Delay (s)	9.1	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Queues

5: SW Jefferson St & W Persels Rd

Existing plus Site PM



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	7	254	9	152	271	24	266	19	74
v/c Ratio	0.02	0.64	0.02	0.36	0.38	0.04	0.32	0.04	0.10
Control Delay	13.4	33.7	0.1	15.8	18.1	12.8	5.2	12.9	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.4	33.7	0.1	15.8	18.1	12.8	5.2	12.9	15.9
Queue Length 50th (ft)	1	88	0	34	64	5	7	4	14
Queue Length 95th (ft)	9	192	0	84	180	17	32	16	47
Internal Link Dist (ft)		207			246		1925		147
Turn Bay Length (ft)	115		115	175		115		150	
Base Capacity (vph)	407	740	738	481	907	606	821	508	729
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.34	0.01	0.32	0.30	0.04	0.32	0.04	0.10
Intersection Summary									

HCM 6th Signalized Intersection Summary

5: SW Jefferson St & W Persels Rd

Existing plus Site PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	239	8	140	233	17	17	22	169	15	48	9
Future Volume (veh/h)	7	239	8	140	233	17	17	22	169	15	48	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	254	9	152	253	18	24	31	235	19	62	12
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.72	0.72	0.72	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	282	338	286	336	455	32	681	79	601	495	635	123
Arrive On Green	0.01	0.18	0.18	0.09	0.26	0.26	0.03	0.42	0.42	0.02	0.42	0.42
Sat Flow, veh/h	1781	1870	1585	1781	1725	123	1781	188	1426	1781	1523	295
Grp Volume(v), veh/h	7	254	9	152	0	271	24	0	266	19	0	74
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1848	1781	0	1614	1781	0	1817
Q Serve(g_s), s	0.2	8.2	0.3	4.1	0.0	8.0	0.5	0.0	7.3	0.4	0.0	1.6
Cycle Q Clear(g_c), s	0.2	8.2	0.3	4.1	0.0	8.0	0.5	0.0	7.3	0.4	0.0	1.6
Prop In Lane	1.00		1.00	1.00		0.07	1.00		0.88	1.00		0.16
Lane Grp Cap(c), veh/h	282	338	286	336	0	488	681	0	680	495	0	757
V/C Ratio(X)	0.02	0.75	0.03	0.45	0.00	0.56	0.04	0.00	0.39	0.04	0.00	0.10
Avail Cap(c_a), veh/h	448	779	661	521	0	945	815	0	680	637	0	757
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.0	24.7	21.5	17.8	0.0	20.2	10.0	0.0	12.7	10.5	0.0	11.3
Incr Delay (d2), s/veh	0.0	3.4	0.0	1.0	0.0	1.0	0.0	0.0	1.7	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.7	0.1	1.6	0.0	3.3	0.2	0.0	2.6	0.1	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.1	28.1	21.5	18.7	0.0	21.2	10.0	0.0	14.4	10.5	0.0	11.5
LnGrp LOS	C	C	C	B	A	C	B	A	B	B	A	B
Approach Vol, veh/h	270				423				290			
Approach Delay, s/veh	27.7				20.3				14.1			
Approach LOS	C				C				B			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	31.3	10.4	16.0	6.2	31.0	5.1	21.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	26.5	12.5	26.5	6.5	26.5	6.5	32.5				
Max Q Clear Time (g_c+I1), s	2.4	9.3	6.1	10.2	2.5	3.6	2.2	10.0				
Green Ext Time (p_c), s	0.0	1.5	0.2	1.3	0.0	0.3	0.0	1.5				
Intersection Summary												
HCM 6th Ctrl Delay	19.7											
HCM 6th LOS	B											

HCM 6th TWSC
8: SW Market St & W Persels Rd

Existing plus Site PM

Intersection												
Int Delay, s/veh	12.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	349	71	144	323	9	54	7	194	14	5	13
Future Vol, veh/h	3	349	71	144	323	9	54	7	194	14	5	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	165	-	-	40	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	85	85	85	87	87	87	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	379	77	169	380	11	62	8	223	15	5	14
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	391	0	0	456	0	0	1157	1153	418	1263	1186	386
Stage 1	-	-	-	-	-	-	424	424	-	724	724	-
Stage 2	-	-	-	-	-	-	733	729	-	539	462	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1168	-	-	1105	-	-	173	197	635	147	189	662
Stage 1	-	-	-	-	-	-	608	587	-	417	430	-
Stage 2	-	-	-	-	-	-	412	428	-	527	565	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1168	-	-	1105	-	-	145	166	635	81	160	662
Mov Cap-2 Maneuver	-	-	-	-	-	-	145	166	-	81	160	-
Stage 1	-	-	-	-	-	-	606	585	-	416	364	-
Stage 2	-	-	-	-	-	-	336	363	-	336	563	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			2.7			49.2			38.1		
HCM LOS							E			E		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	354	1168	-	-	1105	-	-	143				
HCM Lane V/C Ratio	0.828	0.003	-	-	0.153	-	-	0.243				
HCM Control Delay (s)	49.2	8.1	-	-	8.8	-	-	38.1				
HCM Lane LOS	E	A	-	-	A	-	-	E				
HCM 95th %tile Q(veh)	7.3	0	-	-	0.5	-	-	0.9				

HCM 6th TWSC
10: SB 291 & SW Market St

Existing plus Site PM

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	66	0	0	1491	68
Future Vol, veh/h	0	66	0	0	1491	68
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	65	65	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	102	0	0	1621	74

Major/Minor	Minor2	Major2
Conflicting Flow All	- 811	- 0
Stage 1	- -	- -
Stage 2	- -	- -
Critical Hdwy	- 6.94	- -
Critical Hdwy Stg 1	- -	- -
Critical Hdwy Stg 2	- -	- -
Follow-up Hdwy	- 3.32	- -
Pot Cap-1 Maneuver	0 322	- -
Stage 1	0 -	- -
Stage 2	0 -	- -
Platoon blocked, %		- -
Mov Cap-1 Maneuver	- 322	- -
Mov Cap-2 Maneuver	- -	- -
Stage 1	- -	- -
Stage 2	- -	- -

Approach	EB	SB
HCM Control Delay, s	21.2	0
HCM LOS	C	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	322	-	-
HCM Lane V/C Ratio	0.315	-	-
HCM Control Delay (s)	21.2	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	1.3	-	-

HCM 6th TWSC
12: SW Market St & N Entrance

Existing plus Site PM

Intersection

Int Delay, s/veh 1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	26	91	8	16	106
Future Vol, veh/h	5	26	91	8	16	106
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	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	28	99	9	17	115

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	253	104	0
Stage 1	104	-	-
Stage 2	149	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	736	951	-
Stage 1	920	-	-
Stage 2	879	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	727	951	-
Mov Cap-2 Maneuver	727	-	-
Stage 1	920	-	-
Stage 2	868	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	906	1483
HCM Lane V/C Ratio	-	-	0.037	0.012
HCM Control Delay (s)	-	-	9.1	7.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th TWSC
14: SW Market St & S Entrance

Existing plus Site PM

Intersection

Int Delay, s/veh 2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	26	85	63	35	14	36
Future Vol, veh/h	26	85	63	35	14	36
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	28	92	68	38	15	39

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	106	0	0 235 87
Stage 1	-	-	- 87 -
Stage 2	-	-	- 148 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1485	-	- 753 971
Stage 1	-	-	- 936 -
Stage 2	-	-	- 880 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1485	-	- 738 971
Mov Cap-2 Maneuver	-	-	- 738 -
Stage 1	-	-	- 917 -
Stage 2	-	-	- 880 -

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1485	-	-	-	892
HCM Lane V/C Ratio	0.019	-	-	-	0.061
HCM Control Delay (s)	7.5	0	-	-	9.3
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

HCM 6th TWSC
15: SW Market St

Existing plus Site PM

Intersection

Int Delay, s/veh 2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	70	28	6	62	36	4
Future Vol, veh/h	70	28	6	62	36	4
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	76	30	7	67	39	4

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	106
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	-	-	1485
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1485
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	827	-	-	1485	-
HCM Lane V/C Ratio	0.053	-	-	0.004	-
HCM Control Delay (s)	9.6	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

HCM 6th TWSC
8: SW Market St & W Persels Rd

Existing plus Site PM

Intersection												
Int Delay, s/veh	6.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	349	71	144	323	9	54	7	194	14	5	13
Future Vol, veh/h	3	349	71	144	323	9	54	7	194	14	5	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	165	-	-	40	-	-	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	85	85	85	87	87	87	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	379	77	169	380	11	62	8	223	15	5	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	391	0	0	456	0	0	1157	1153	418	1263	1186	386
Stage 1	-	-	-	-	-	-	424	424	-	724	724	-
Stage 2	-	-	-	-	-	-	733	729	-	539	462	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1168	-	-	1105	-	-	173	197	635	147	189	662
Stage 1	-	-	-	-	-	-	608	587	-	417	430	-
Stage 2	-	-	-	-	-	-	412	428	-	527	565	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1168	-	-	1105	-	-	145	166	635	81	160	662
Mov Cap-2 Maneuver	-	-	-	-	-	-	145	166	-	81	160	-
Stage 1	-	-	-	-	-	-	606	585	-	416	364	-
Stage 2	-	-	-	-	-	-	336	363	-	336	563	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			2.7			22.1			38.1		
HCM LOS							C			E		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	145	578	1168	-	-	1105	-	-	143
HCM Lane V/C Ratio	0.428	0.4	0.003	-	-	0.153	-	-	0.243
HCM Control Delay (s)	47.2	15.3	8.1	-	-	8.8	-	-	38.1
HCM Lane LOS	E	C	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	1.9	1.9	0	-	-	0.5	-	-	0.9