TRAFFIC AND PARKING STUDY

Murphy Brothers - Mamaroneck Self Storage
416 Waverly Avenue
Village of Mamaroneck, New York

Prepared for

East Coast North Properties, LLC
and
Murphy Brothers Contracting
Village of Mamaroneck, NY

Prepared by

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Hawthorne, New York

February 8, 2018
Revised January 14, 2019

Project No. 17-060

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1.0 INTRODUCTION

Provident Design Engineering, PLLC (PDE), formerly TRC Engineers, Inc., has been retained by East Coast North Properties, LLC and Murphy Brothers Contracting to review the traffic circulation and the parking conditions for the proposed Mamaroneck Self Storage facility addition to be located at 416 Waverly Avenue in the Village of Mamaroneck. Similar to the storage facility that was recently constructed at the Site (269 units), the additional storage facility (321 units) would replace some existing structures on the site which currently house various contractors/workers. Self Storage facilities tend to generate minimal traffic or parking. The existing Self Storage facility generally has one employee on site, while at times there could be two employees present. With the additional Self Storage units, there will be a maximum of three employees at any one time. In addition to the new Self Storage facility, there will also be a limited amount of retail space (700 sf) along the Waverly Avenue frontage in the existing Self Storage building that will service the Self Storage patrons.

Parking is currently provided on-site, with the provision of additional on-street parking spaces located along Waverly Avenue. Previous to the construction of the original Self

Storage facility, some of the vehicles would have had to back out of their parking spaces directly onto Waverly Avenue.

With the additional Self Storage facility, there will be 25 parking spaces on-site along with four (4) loading spaces as well as the on-street parking spaces.

PDE, TRC at the time, prepared the Traffic and Parking Study for the original Self Storage facility at the Site. To perform this latest Study, PDE followed a similar methodology including performing various observations of the traffic operations at the existing facility, as well as conducted parking counts at various times during the day and week. Utilization data of the Self Storage facility over an extended period of time was also reviewed. PDE conducted traffic analysis for the intersection of Waverly Avenue and Fenimore Road as well as at the Site Driveways.

The following is a summary of PDE's observations and findings in relation to the Self Storage facility in regards to traffic operations and parking.

2.0 TRAFFIC AND PARKING GENERATION

PDE has reviewed the amount of traffic that is generated by the proposed Self Storage facility utilizing the Institute of Transportation Engineers' (ITE) publication, "Trip Generation", 10th Edition, for this type of facility (ITE Land Use 151). The 310 additional storage units would conservatively generate approximately 3 entering vehicles and 3 exiting vehicles in the Peak AM Hour and approximately 2 entering vehicles and 3 exiting vehicles during the Peak PM Roadway Hour. During the Weekend Peak Hour, the 310 additional storage units would generate similar amounts, 3 entering vehicles and 2 exiting vehicles. This is minimal traffic and in general, the same vehicle that enters is also the vehicle that exits within the hour, as well as the occasional employee potentially entering or exiting. This minimal traffic will have no impact upon traffic operating conditions in the area. It is less traffic than utilized the previous uses of the site.

The following Table is a summary of the Weekday Peak Hour Trip Generation:

TABLE NO. 1
TRIP GENERATION
FOR ADDITIONAL 321 STORAGE UNITS

	Weekday Peak AM Roadway Hour			**Weekday Peak PM Roadway Hour**
ENTER	3			2
EXIT	3			3

The 700 sf of retail space will also generate minimal traffic as the retail will be limited to Self Storage supplies. The ITE 10th Edition (Land Use 920) estimates that this space would conservatively generate approximately 2 entering vehicles and 0 exiting vehicles in the Weekday Peak AM Hour and approximately 2 entering vehicles and 3 exiting vehicles during the Peak PM Roadway Hour. In reality, there would be even less traffic than these amounts as the employee for the retail portion will be the same as for the Self Storage portion and the customers would be the Self Storage patrons. Similar conditions would be experienced during the Weekend Peak Hour.

The supporting information from the ITE 10th Edition is contained in Appendix D.

Parking Generation

A Self Storage facility of a total of 590 units, based upon the Institute of Transportation Engineers' (ITE) publication "Parking Generation", 4th Edition, would generate a Peak parking demand of 8 spaces. The supporting information from the ITE 4th Edition is contained in Appendix D.

The 700-sf retail space is estimated to generate a parking demand of approximately two parking spaces but would actually require much less as the retail will be limited to self

storage supplies and be sold to the self storage patrons. In addition, the employee for the self storage supplies will be the same as the employee for the self storage facility.

Parking is described in more detail in Section 4.0 below.

3.0 TRAFFIC CIRCULATION AND OPERATIONS

Existing Circulation

The previous site was served by various curbcuts and driveways along both Waverly Avenue and Fenimore Road. The access was "cleaned up" with the construction of the original Self Storage Building, which also improved the safety along Waverly Avenue as vehicles were backing out onto Waverly Avenue. Along Waverly Avenue currently, the access to the northern portion of the site is an unsignalized entrance/exit (with only right turns out permitted). A second curbcut along Waverly Avenue is located at the southern end of the site and serves the Self Storage Building and other contractor/worker parking but does not provide a vehicular connection to the rest of the property.

Along Fenimore Road, there is an existing curbcut between the barn and the front building that was converted to a right turn exiting movement only as part of the original Self Storage project. An additional curbcut provides limited access to the barn area. Vehicles sometimes back out of this driveway onto Fenimore Road.

Future Circulation and Operations

The number of curbcuts under the future scenario with the additional Self Storage facility

will be reduced from four to two. The curbcut along Waverly Avenue currently serving the northern portion of the facility will be closed. The curbcut that currently serves the southern portion of the site along Waverly Avenue will remain.

The curbcut along Fenimore Road between the barn and the front building will remain an exit only driveway (right turns only). The curbcut that serves the barn will be removed.

All of the driveways will remain unsignalized under STOP control.

In addition to the modifications to the driveways, the internal circulation at the site will also be improved. Elimination of some of the buildings will improve traffic flow. In addition, as illustrated on the Site Plan, circulation will become more organized and striped islands will be provided to provide clearer direction. The signage also will be upgraded to improve traffic control. The northern portion will now be connected with the southern portion of the site. These improvements will significantly improve traffic flow throughout the site as well as improve Waverly Avenue and Fenimore Road by reducing the number of curbcuts.

Adjacent Roadway Network

The intersection of Waverly Avenue and Fenimore Road is controlled by a multi-phase

traffic signal. PDE conducted traffic counts at this intersection as well as at the Site Driveways. The Peak Hours for the intersection are 7:30 AM to 8:30 AM and 4:45 PM to 5:45 PM. The Existing Traffic Volumes are illustrated on Figure 1 in Appendix A. PDE also conducted Level of Service capacity analyses for the intersection of Waverly Avenue and Fenimore Road and the Site Driveways. "Build" conditions were also analyzed and incorporate a background growth rate in addition to the Site modifications including the additional Self Storage units as illustrated on Figure 2. Copies of these analyses are contained in Appendix B.

Table No. 2 summarizes the Levels of Services for the intersection and the Site Driveways:

TABLE NO. 2
LEVEL OF SERVICE

Intersection	AM Peak		PM Peak	
	Existing	Build	Existing	Build
Fenimore Road & Waverly Avenue	C 22.7	C 22.8	C 21.5	C 21.6
Fenimore Road and Existing Exit Driveway	C 15.0	c 15.1	a 0.0	a 0.0
Waverly Avenue & Existing Driveway 1 (Contractor Offices)	b 14.7	- -	c 15.0	- -
Waverly Avenue & Existing Driveway 2 (Self-Storage)	b 11.1	b 13.6	b 12.0	b 12.2

Note: Signalized intersection Levels of Service are represented by Upper Case letters while unsignalized intersections are represented by lower case letters. Average Delay is provided below the Levels of Service and is illustrated in seconds per vehicle. To be conservative, no credit was taken for the traffic contractors/workers at the Site that will no longer be present during the Build condition.

As illustrated in the Table above, the analysis shows that the intersection of Fenimore Road and Waverly Avenue currently operates at Level of Service C in the Peak AM and PM Hours and these Levels of Service will remain. The Site Driveways will also continue to operate at Level of Service C or better. Thus, good Levels of Service are maintained at each of the intersections/driveways. To be conservative, no credit was taken for the traffic contractors/workers at the Site that will no longer be present during the Build condition, which would remove approximately 19 vehicles. Thus there will actually be less vehicles than current.

As described in Section 2.0, the Self Storage facility will not generate significant traffic and will not have any significant impact upon the traffic operating conditions of this intersection or on the Site Driveways and adjacent streets.

4.0 PARKING

a. Existing Parking Conditions

The current parking spaces on-site are split between two separate lots, as well as on-street parking spaces along Waverly Avenue.

PDE conducted parking observations on various days (both weekdays and weekends) and at various times throughout the day at the site. There were very few vehicles ever parked for the existing Self Storage facility and there were never times that ample parking spaces was not available on the property.

In addition, PDE reviewed data for the entrance and exit into the existing Self Storage facility from July 1, 2017 to August 24, 2017. These indicated that the maximum number of parking spaces for the Self Storage facility utilized at any one time throughout the entire period was five spaces, which included two parking spaces utilized by employees. A copy of this data is contained in Appendix C.

In addition to the parking for Murphy Brothers, approximately 19 other contractors/workers currently park at the Site. These 19 vehicles will be removed

from the Site after the additional Self Storage units are constructed. Thus there would be less vehicles parking on the Site.

b. Future Parking

To determine the parking that was to be required for the original Self Storage facility at the Site, the parking requirements at other Self Storage facilities in the area was reviewed. The following table, similar to the Table that was contained in the previous Traffic and Parking Study illustrates the parking spaces provided for other Self Storage facilities in Westchester.

TABLE NO. 3
PARKING FOR OTHER SELF STORAGE FACILITIES

Facility	Location	No. of Units	Parking Spaces Initially Required by Zoning	Variance Granted (Parking Spaces to be installed)
Westy's Self Storage	Port Chester	900	83	22
Safeguard Storage	Elmsford	550	68	12
Safeguard Storage	New Rochelle	653	48	14
Westy's Self Storage	Tuckahoe	1,500	N/A	24
Black Mountain	New Rochelle	1,182	N/A	12
Project	*Mamaroneck*	*590*	*137*	*25*

Table No. 4 compares the Parking Spaces per Unit as well as the number of Units per Parking Space for other Self Storage in the area.

TABLE NO. 4 PARKING RATIOS FOR OTHER SELF STORAGE FACILITIES				
Facility	**Location**	**No. of Units**	**Parking Spaces per Unit**	**Units per Parking Space**
Westy's Self Storage	Port Chester	900	0.0244	41
Safeguard Storage	Elmsford	550	0.0218	46
Safeguard Storage	New Rochelle	653	0.0214	47
Westy's Self Storage	Tuckahoe	1,500	0.0160	63
Black Mountain	New Rochelle	1,182	0.0101	99
Project	*Mamaroneck*	*590*	*0.0424*	*24*

As illustrated in the above Tables, some of these other facilities have significantly more storage units yet provide a similar number of parking spaces as proposed for the Mamaroneck Self Storage facility. Observations of the parking in these lots indicate minimal vehicles are parked there.

The Mamaroneck Self Storage facility currently has 1-2 employees on-site at any one time. With additional units, this could increase to a maximum of 3 employees on-site at times. As described earlier, a Self Storage facility of a total of 590 units, based upon the Institute of Transportation Engineers' (ITE) publication "Parking Generation", 4th Edition, would generate a Peak parking demand of 8 spaces. The supporting information from the ITE 4th Edition is contained in Appendix D.

The 700-sf retail space is estimated to require approximately two parking spaces based upon the potential use of Site. The Murphy Brothers Contracting portion of the Site will have four full time employees and two Project Managers on-site and are projected to utilize six parking spaces. Murphy Brothers Contracting will generally not generate any visits from the general public or contractors. The other nineteen contractors/workers that currently park on the Site will no longer be parking there as that usage will be replaced by the additional Self Storage units and thus the overall parking demand will be reduced.

With the proposed additional Self Storage facility and the modifications to the layout of the site, there will be 25 parking spaces provided on-site along with four (4) loading spaces, in addition to the on-street parking spaces. The four loading spaces will be utilized by the patrons of the Self Storage facility, thus freeing up even more parking spaces. Thus the parking to be provided will be sufficient to support the Self Storage facility and the other various uses on the site.

5.0 CONCLUSIONS

The proposed modifications to the internal circulation of the site will improve traffic flow and operations. The elimination of a driveway along Waverly Avenue and the elimination of a curb cut on Fenimore Road will also improve safety within the site and along Waverly Avenue and Fenimore Road such as vehicles will no longer back out of the barn driveway onto Fenimore Road. The additional Self Storage facility will not generate significant traffic and will not impact traffic operating conditions along the adjacent roadways or within the site.

The Self Storage facility with the additional units would conservatively require up to 8 parking spaces while the Murphy Brothers Contracting will require 6 parking spaces and up to 2 parking spaces will be required for the retail space. In addition, the peak of all of the above uses would not occur at the same time, with the Murphy Brothers Contracting peaking in the early morning, the Self Storage facility peaking mid-late morning and the retail portion generating insignificant parking. Thus, the 25 parking spaces to be provided will result in more than sufficient parking be provided for the entire site, including for the additional Self Storage facility. There will be also 4 loading spaces that will be provided and these will be utilized by the patrons of the Self Storage facility, thus freeing up even more parking spaces.

Respectively submitted:

PROVIDENT DESIGN ENGINEERING, PLLC

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Senior Project Manager

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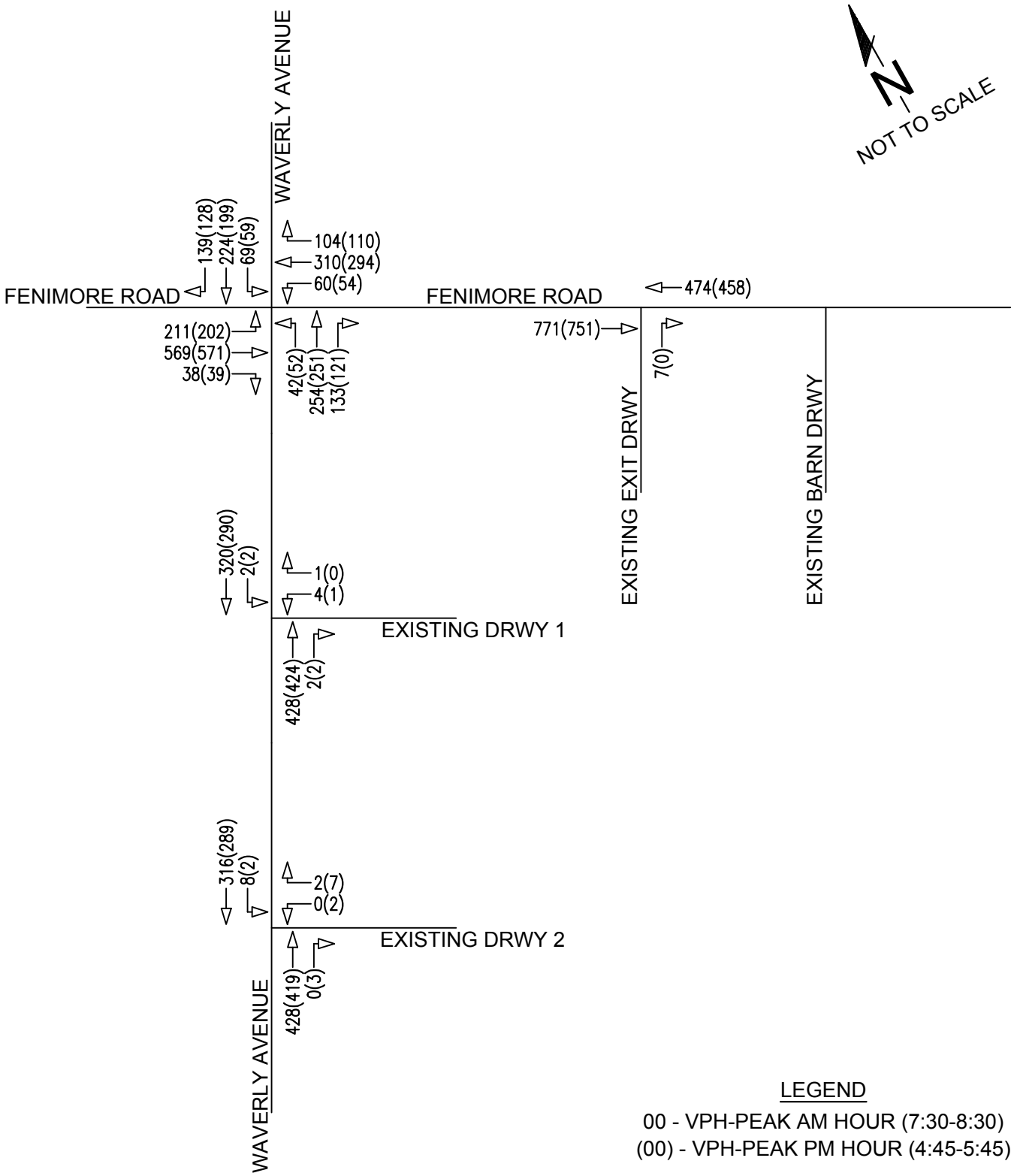
APPENDIX A

Figures



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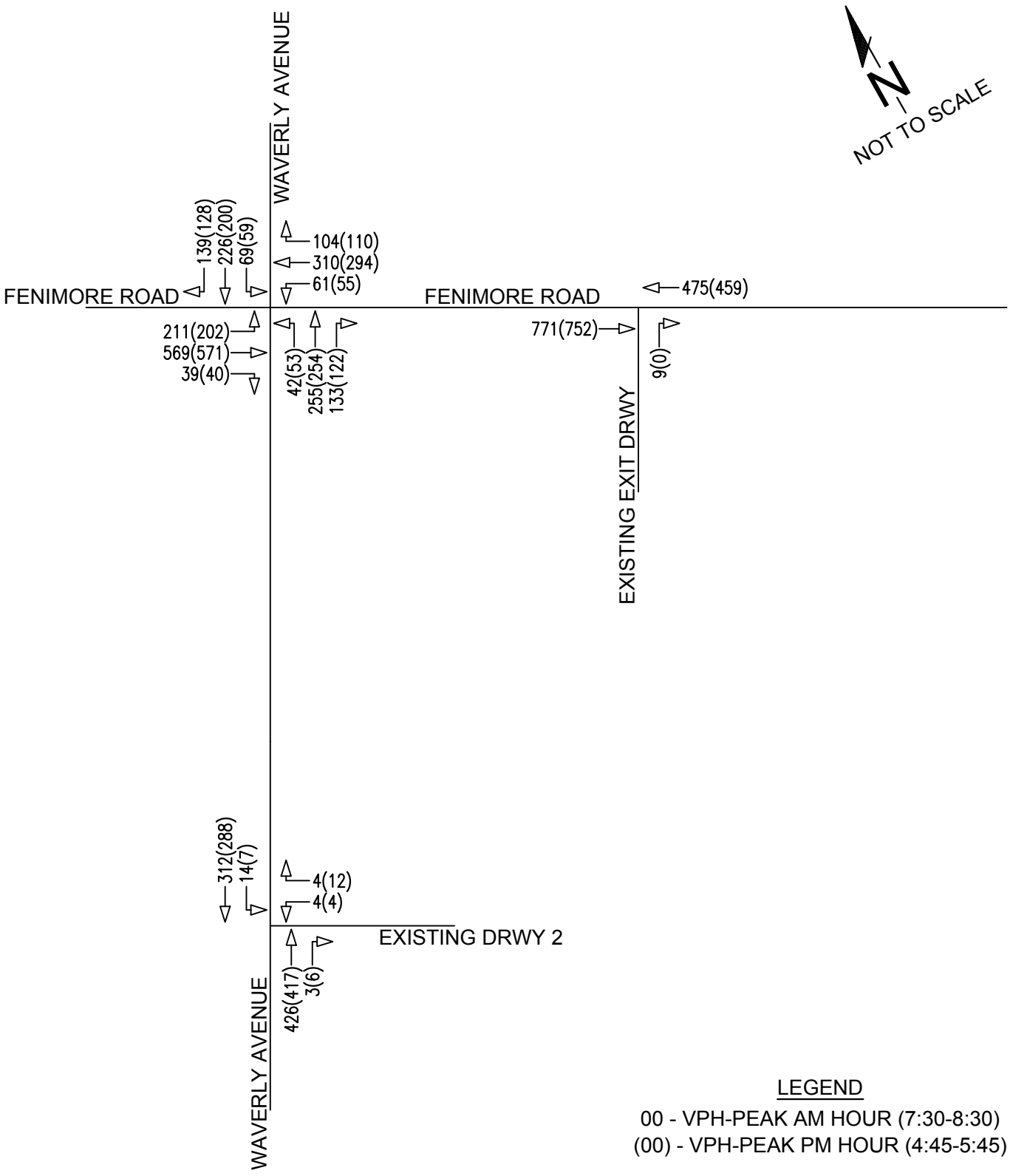
Existing Traffic Volumes
Mamaroneck, Westchester, NY

Figure No. 01



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Build Traffic Figures
Mamaroneck, Westchester, NY

Figure No. 02

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APPENDIX B

Level of Service Analysis

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	211	569	38	60	310	104	42	254	133	69	224	139
Future Volume (veh/h)	211	569	38	60	310	104	42	254	133	69	224	139
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	229	618	41	65	337	113	46	276	145	75	243	151
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	542	1068	899	366	795	667	202	362	190	183	338	210
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
Prop Arrive On Green	0.10	0.57	0.57	0.43	0.43	0.43	0.32	0.32	0.32	0.32	0.32	0.32
Ln Grp Delay, s/veh	13.2	13.5	7.8	19.3	18.1	15.1	36.3	0.0	34.8	42.7	0.0	32.7
Ln Grp LOS	B	B	A	B	B	B	D		C	D		C
Approach Vol, veh/h		888			515			467			469	
Approach Delay, s/veh		13.1			17.6			34.9			34.3	
Approach LOS		B			B			C			C	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Case No		6.0		3.0		6.0	1.2	5.0
Phs Duration (G+Y+Rc), s		30.0		52.0		30.0	12.0	40.0
Change Period (Y+Rc), s		4.0		5.0		4.0	4.0	5.0
Max Green (Gmax), s		26.0		47.0		26.0	8.0	35.0
Max Allow Headway (MAH), s		5.3		5.1		5.3	3.8	5.1
Max Q Clear (g_c+I1), s		22.1		19.4		26.1	7.5	12.4
Green Ext Time (g_e), s		2.1		8.4		0.0	0.0	7.9
Prob of Phs Call (p_c)		1.00		1.00		1.00	1.00	1.00
Prob of Max Out (p_x)		0.00		0.00		0.00	0.00	0.00
Left-Turn Movement Data								
Assigned Mvmt		5				1	7	3
Mvmt Sat Flow, veh/h		985				962	1774	769
Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		1142		1863		1067		1863
Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		600		1568		663		1563
Left Lane Group Data								
Assigned Mvmt	0	5	0	0	0	1	7	3
Lane Assignment							(Pr/Pm)	

Lanes in Grp	0	1	0	0	0	1	1	1
Grp Vol (v), veh/h	0	46	0	0	0	75	229	65
Grp Sat Flow (s), veh/h/ln	0	985	0	0	0	962	1774	769
Q Serve Time (g_s), s	0.0	3.6	0.0	0.0	0.0	6.2	5.5	4.8
Cycle Q Clear Time (g_c), s	0.0	20.1	0.0	0.0	0.0	24.1	5.5	10.2
Perm LT Sat Flow (s_l), veh/h/ln	0	985	0	0	0	962	935	769
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	26.0	0.0	0.0	0.0	26.0	37.0	35.0
Perm LT Serve Time (g_u), s	0.0	9.5	0.0	0.0	0.0	8.2	24.6	29.6
Perm LT Q Serve Time (g_ps), s	0.0	3.6	0.0	0.0	0.0	6.2	4.0	4.8
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00
Lane Grp Cap (c), veh/h	0	202	0	0	0	183	542	366
V/C Ratio (X)	0.00	0.23	0.00	0.00	0.00	0.41	0.42	0.18
Avail Cap (c_a), veh/h	0	202	0	0	0	183	542	366
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d1), s/veh	0.0	33.6	0.0	0.0	0.0	36.1	10.8	18.3
Incr Delay (d2), s/veh	0.0	2.6	0.0	0.0	0.0	6.6	2.4	1.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	36.3	0.0	0.0	0.0	42.7	13.2	19.3
1st-Term Q (Q1), veh/ln	0.0	1.0	0.0	0.0	0.0	1.7	2.6	1.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.3	0.4	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00
%ile Back of Q (50%), veh/ln	0.0	1.1	0.0	0.0	0.0	2.0	3.0	1.1
%ile Storage Ratio (RQ%)	0.00	0.56	0.00	0.00	0.00	0.78	0.94	0.29
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment				T				T
Lanes in Grp	0	0	0	1	0	0	0	1
Grp Vol (v), veh/h	0	0	0	618	0	0	0	337
Grp Sat Flow (s), veh/h/ln	0	0	0	1863	0	0	0	1863
Q Serve Time (g_s), s	0.0	0.0	0.0	17.4	0.0	0.0	0.0	10.4
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	17.4	0.0	0.0	0.0	10.4
Lane Grp Cap (c), veh/h	0	0	0	1068	0	0	0	795
V/C Ratio (X)	0.00	0.00	0.00	0.58	0.00	0.00	0.00	0.42
Avail Cap (c_a), veh/h	0	0	0	1068	0	0	0	795
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	11.2	0.0	0.0	0.0	16.4
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.3	0.0	0.0	0.0	1.7
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	13.5	0.0	0.0	0.0	18.1
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	8.8	0.0	0.0	0.0	5.3

2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.4
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	9.4	0.0	0.0	0.0	5.7
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	1.08	0.00	0.00	0.00	1.32
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	421	0	41	0	394	0	113
Grp Sat Flow (s), veh/h/ln	0	1742	0	1568	0	1729	0	1563
Q Serve Time (g_s), s	0.0	17.8	0.0	0.9	0.0	16.5	0.0	3.7
Cycle Q Clear Time (g_c), s	0.0	17.8	0.0	0.9	0.0	16.5	0.0	3.7
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.34	0.00	1.00	0.00	0.38	0.00	1.00
Lane Grp Cap (c), veh/h	0	552	0	899	0	548	0	667
V/C Ratio (X)	0.00	0.76	0.00	0.05	0.00	0.72	0.00	0.17
Avail Cap (c_a), veh/h	0	552	0	899	0	548	0	667
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	25.2	0.0	7.7	0.0	24.8	0.0	14.5
Incr Delay (d2), s/veh	0.0	9.6	0.0	0.1	0.0	7.9	0.0	0.5
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	34.8	0.0	7.8	0.0	32.7	0.0	15.1
1st-Term Q (Q1), veh/ln	0.0	8.5	0.0	0.4	0.0	7.9	0.0	1.6
2nd-Term Q (Q2), veh/ln	0.0	1.5	0.0	0.0	0.0	1.2	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	10.0	0.0	0.4	0.0	9.1	0.0	1.7
%ile Storage Ratio (RQ%)	0.00	4.98	0.00	0.14	0.00	0.53	0.00	0.42
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	22.7
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	771	0	0	474	0	7
Future Vol, veh/h	771	0	0	474	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
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	838	0	0	515	0	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	838
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	0	0	-	0	366
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	366
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	366	-	-
HCM Lane V/C Ratio	0.021	-	-
HCM Control Delay (s)	15	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.1	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	1	428	2	2	320
Future Vol, veh/h	4	1	428	2	2	320
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	4	1	465	2	2	348

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	818	466	0	0	467	0
Stage 1	466	-	-	-	-	-
Stage 2	352	-	-	-	-	-
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	346	597	-	-	1094	-
Stage 1	632	-	-	-	-	-
Stage 2	712	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	345	597	-	-	1094	-
Mov Cap-2 Maneuver	345	-	-	-	-	-
Stage 1	632	-	-	-	-	-
Stage 2	711	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	377	1094	-
HCM Lane V/C Ratio	-	-	0.014	0.002	-
HCM Control Delay (s)	-	-	14.7	8.3	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	2	428	0	8	316
Future Vol, veh/h	0	2	428	0	8	316
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	0	2	465	0	9	343

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	826	465	0	0	465	0
Stage 1	465	-	-	-	-	-
Stage 2	361	-	-	-	-	-
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	342	597	-	-	1096	-
Stage 1	632	-	-	-	-	-
Stage 2	705	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	339	597	-	-	1096	-
Mov Cap-2 Maneuver	339	-	-	-	-	-
Stage 1	632	-	-	-	-	-
Stage 2	698	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.1	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	597	1096	-
HCM Lane V/C Ratio	-	-	0.004	0.008	-
HCM Control Delay (s)	-	-	11.1	8.3	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	202	571	39	54	294	110	52	251	121	59	199	128
Future Volume (veh/h)	202	571	39	54	294	110	52	251	121	59	199	128
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	220	621	42	59	320	120	57	273	132	64	216	139
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	551	1068	899	363	795	667	231	374	181	196	333	214
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
Prop Arrive On Green	0.10	0.57	0.57	0.43	0.43	0.43	0.32	0.32	0.32	0.32	0.32	0.32
Ln Grp Delay, s/veh	12.8	13.5	7.8	19.2	17.8	15.2	34.6	0.0	33.1	39.0	0.0	29.9
Ln Grp LOS	B	B	A	B	B	B	C		C	D		C
Approach Vol, veh/h		883			499			462			419	
Approach Delay, s/veh		13.1			17.3			33.3			31.3	
Approach LOS		B			B			C			C	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Case No		6.0		3.0		6.0	1.2	5.0
Phs Duration (G+Y+Rc), s		30.0		52.0		30.0	12.0	40.0
Change Period (Y+Rc), s		4.0		5.0		4.0	4.0	5.0
Max Green (Gmax), s		26.0		47.0		26.0	8.0	35.0
Max Allow Headway (MAH), s		5.3		5.1		5.3	3.8	5.1
Max Q Clear (g_c+I1), s		20.7		19.5		24.0	7.2	11.9
Green Ext Time (g_e), s		2.5		8.3		1.1	0.1	7.8
Prob of Phs Call (p_c)		1.00		1.00		1.00	1.00	1.00
Prob of Max Out (p_x)		0.00		0.00		0.00	0.00	0.00

Left-Turn Movement Data								
Assigned Mvmt		5				1	7	3
Mvmt Sat Flow, veh/h		1019				975	1774	766

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		1178		1863		1051		1863

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		570		1568		676		1563

Left Lane Group Data								
Assigned Mvmt	0	5	0	0	0	1	7	3
Lane Assignment							(Pr/Pm)	

Lanes in Grp	0	1	0	0	0	1	1	1
Grp Vol (v), veh/h	0	57	0	0	0	64	220	59
Grp Sat Flow (s), veh/h/ln	0	1019	0	0	0	975	1774	766
Q Serve Time (g_s), s	0.0	4.2	0.0	0.0	0.0	5.1	5.2	4.4
Cycle Q Clear Time (g_c), s	0.0	18.7	0.0	0.0	0.0	22.0	5.2	9.9
Perm LT Sat Flow (s_l), veh/h/ln	0	1019	0	0	0	975	943	766
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	26.0	0.0	0.0	0.0	26.0	37.0	35.0
Perm LT Serve Time (g_u), s	0.0	11.5	0.0	0.0	0.0	9.1	25.3	29.5
Perm LT Q Serve Time (g_ps), s	0.0	4.2	0.0	0.0	0.0	5.1	3.6	4.4
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00
Lane Grp Cap (c), veh/h	0	231	0	0	0	196	551	363
V/C Ratio (X)	0.00	0.25	0.00	0.00	0.00	0.33	0.40	0.16
Avail Cap (c_a), veh/h	0	231	0	0	0	196	551	363
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d1), s/veh	0.0	32.1	0.0	0.0	0.0	34.7	10.6	18.2
Incr Delay (d2), s/veh	0.0	2.5	0.0	0.0	0.0	4.4	2.2	1.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	34.6	0.0	0.0	0.0	39.0	12.8	19.2
1st-Term Q (Q1), veh/ln	0.0	1.2	0.0	0.0	0.0	1.4	2.5	0.9
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.2	0.3	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00
%ile Back of Q (50%), veh/ln	0.0	1.3	0.0	0.0	0.0	1.6	2.8	1.0
%ile Storage Ratio (RQ%)	0.00	0.66	0.00	0.00	0.00	0.63	0.90	0.26
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment				T				T
Lanes in Grp	0	0	0	1	0	0	0	1
Grp Vol (v), veh/h	0	0	0	621	0	0	0	320
Grp Sat Flow (s), veh/h/ln	0	0	0	1863	0	0	0	1863
Q Serve Time (g_s), s	0.0	0.0	0.0	17.5	0.0	0.0	0.0	9.7
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	17.5	0.0	0.0	0.0	9.7
Lane Grp Cap (c), veh/h	0	0	0	1068	0	0	0	795
V/C Ratio (X)	0.00	0.00	0.00	0.58	0.00	0.00	0.00	0.40
Avail Cap (c_a), veh/h	0	0	0	1068	0	0	0	795
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	11.2	0.0	0.0	0.0	16.3
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.3	0.0	0.0	0.0	1.5
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	13.5	0.0	0.0	0.0	17.8
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	9.0	0.0	0.0	0.0	5.0

2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.3
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	9.7	0.0	0.0	0.0	5.3
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	1.10	0.00	0.00	0.00	1.23
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	405	0	42	0	355	0	120
Grp Sat Flow (s), veh/h/ln	0	1748	0	1568	0	1727	0	1563
Q Serve Time (g_s), s	0.0	16.9	0.0	1.0	0.0	14.5	0.0	3.9
Cycle Q Clear Time (g_c), s	0.0	16.9	0.0	1.0	0.0	14.5	0.0	3.9
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.33	0.00	1.00	0.00	0.39	0.00	1.00
Lane Grp Cap (c), veh/h	0	554	0	899	0	548	0	667
V/C Ratio (X)	0.00	0.73	0.00	0.05	0.00	0.65	0.00	0.18
Avail Cap (c_a), veh/h	0	554	0	899	0	548	0	667
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	24.9	0.0	7.7	0.0	24.1	0.0	14.6
Incr Delay (d2), s/veh	0.0	8.2	0.0	0.1	0.0	5.8	0.0	0.6
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	33.1	0.0	7.8	0.0	29.9	0.0	15.2
1st-Term Q (Q1), veh/ln	0.0	8.1	0.0	0.4	0.0	6.9	0.0	1.7
2nd-Term Q (Q2), veh/ln	0.0	1.3	0.0	0.0	0.0	0.9	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	9.4	0.0	0.4	0.0	7.8	0.0	1.8
%ile Storage Ratio (RQ%)	0.00	4.67	0.00	0.15	0.00	0.46	0.00	0.45
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	21.5
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	751	0	0	458	0	0
Future Vol, veh/h	751	0	0	458	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
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	816	0	0	498	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	816
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	0	0	-	0	377
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	377
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	0	424	2	2	290
Future Vol, veh/h	1	0	424	2	2	290
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	1	0	461	2	2	315

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	782	462	0	0	463	0
Stage 1	462	-	-	-	-	-
Stage 2	320	-	-	-	-	-
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	363	600	-	-	1098	-
Stage 1	634	-	-	-	-	-
Stage 2	736	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	362	600	-	-	1098	-
Mov Cap-2 Maneuver	362	-	-	-	-	-
Stage 1	634	-	-	-	-	-
Stage 2	735	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	362	1098	-
HCM Lane V/C Ratio	-	-	0.003	0.002	-
HCM Control Delay (s)	-	-	15	8.3	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	7	419	3	2	289
Future Vol, veh/h	2	7	419	3	2	289
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	2	8	455	3	2	314

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	775	457	0	0	459	0
Stage 1	457	-	-	-	-	-
Stage 2	318	-	-	-	-	-
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	366	604	-	-	1102	-
Stage 1	638	-	-	-	-	-
Stage 2	738	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	365	604	-	-	1102	-
Mov Cap-2 Maneuver	365	-	-	-	-	-
Stage 1	638	-	-	-	-	-
Stage 2	737	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	527	1102	-
HCM Lane V/C Ratio	-	-	0.019	0.002	-
HCM Control Delay (s)	-	-	12	8.3	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	211	569	39	61	310	104	42	255	133	69	226	139
Future Volume (veh/h)	211	569	39	61	310	104	42	255	133	69	226	139
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	229	618	42	66	337	113	46	277	145	75	246	151
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	542	1068	899	365	795	667	200	363	190	183	340	209
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
Prop Arrive On Green	0.10	0.57	0.57	0.43	0.43	0.43	0.32	0.32	0.32	0.32	0.32	0.32
Ln Grp Delay, s/veh	13.2	13.5	7.8	19.4	18.1	15.1	36.5	0.0	34.9	42.8	0.0	32.9
Ln Grp LOS	B	B	A	B	B	B	D		C	D		C
Approach Vol, veh/h		889			516			468			472	
Approach Delay, s/veh		13.1			17.6			35.0			34.5	
Approach LOS		B			B			D			C	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Case No		6.0		3.0		6.0	1.2	5.0
Phs Duration (G+Y+Rc), s		30.0		52.0		30.0	12.0	40.0
Change Period (Y+Rc), s		4.0		5.0		4.0	4.0	5.0
Max Green (Gmax), s		26.0		47.0		26.0	8.0	35.0
Max Allow Headway (MAH), s		5.3		5.1		5.3	3.8	5.1
Max Q Clear (g_c+I1), s		22.2		19.4		26.2	7.5	12.4
Green Ext Time (g_e), s		2.0		8.4		0.0	0.0	7.9
Prob of Phs Call (p_c)		1.00		1.00		1.00	1.00	1.00
Prob of Max Out (p_x)		0.00		0.00		0.00	0.00	0.00

Left-Turn Movement Data								
Assigned Mvmt		5				1	7	3
Mvmt Sat Flow, veh/h		982				961	1774	768

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		1144		1863		1072		1863

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		599		1568		658		1563

Left Lane Group Data								
Assigned Mvmt	0	5	0	0	0	1	7	3
Lane Assignment							(Pr/Pm)	

Lanes in Grp	0	1	0	0	0	1	1	1
Grp Vol (v), veh/h	0	46	0	0	0	75	229	66
Grp Sat Flow (s), veh/h/ln	0	982	0	0	0	961	1774	768
Q Serve Time (g_s), s	0.0	3.6	0.0	0.0	0.0	6.3	5.5	4.9
Cycle Q Clear Time (g_c), s	0.0	20.2	0.0	0.0	0.0	24.2	5.5	10.3
Perm LT Sat Flow (s_l), veh/h/ln	0	982	0	0	0	961	935	768
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	26.0	0.0	0.0	0.0	26.0	37.0	35.0
Perm LT Serve Time (g_u), s	0.0	9.3	0.0	0.0	0.0	8.1	24.6	29.6
Perm LT Q Serve Time (g_ps), s	0.0	3.6	0.0	0.0	0.0	6.3	4.0	4.9
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00
Lane Grp Cap (c), veh/h	0	200	0	0	0	183	542	365
V/C Ratio (X)	0.00	0.23	0.00	0.00	0.00	0.41	0.42	0.18
Avail Cap (c_a), veh/h	0	200	0	0	0	183	542	365
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d1), s/veh	0.0	33.8	0.0	0.0	0.0	36.1	10.8	18.3
Incr Delay (d2), s/veh	0.0	2.7	0.0	0.0	0.0	6.7	2.4	1.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	36.5	0.0	0.0	0.0	42.8	13.2	19.4
1st-Term Q (Q1), veh/ln	0.0	1.0	0.0	0.0	0.0	1.7	2.6	1.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.3	0.4	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00
%ile Back of Q (50%), veh/ln	0.0	1.1	0.0	0.0	0.0	2.0	3.0	1.2
%ile Storage Ratio (RQ%)	0.00	0.32	0.00	0.00	0.00	0.78	0.94	0.29
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment				T				T
Lanes in Grp	0	0	0	1	0	0	0	1
Grp Vol (v), veh/h	0	0	0	618	0	0	0	337
Grp Sat Flow (s), veh/h/ln	0	0	0	1863	0	0	0	1863
Q Serve Time (g_s), s	0.0	0.0	0.0	17.4	0.0	0.0	0.0	10.4
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	17.4	0.0	0.0	0.0	10.4
Lane Grp Cap (c), veh/h	0	0	0	1068	0	0	0	795
V/C Ratio (X)	0.00	0.00	0.00	0.58	0.00	0.00	0.00	0.42
Avail Cap (c_a), veh/h	0	0	0	1068	0	0	0	795
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	11.2	0.0	0.0	0.0	16.4
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.3	0.0	0.0	0.0	1.7
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	13.5	0.0	0.0	0.0	18.1
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	8.8	0.0	0.0	0.0	5.3

2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.4
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	9.4	0.0	0.0	0.0	5.7
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	1.08	0.00	0.00	0.00	1.32
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	422	0	42	0	397	0	113
Grp Sat Flow (s), veh/h/ln	0	1742	0	1568	0	1730	0	1563
Q Serve Time (g_s), s	0.0	17.9	0.0	1.0	0.0	16.7	0.0	3.7
Cycle Q Clear Time (g_c), s	0.0	17.9	0.0	1.0	0.0	16.7	0.0	3.7
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.34	0.00	1.00	0.00	0.38	0.00	1.00
Lane Grp Cap (c), veh/h	0	552	0	899	0	549	0	667
V/C Ratio (X)	0.00	0.76	0.00	0.05	0.00	0.72	0.00	0.17
Avail Cap (c_a), veh/h	0	552	0	899	0	549	0	667
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	25.2	0.0	7.7	0.0	24.8	0.0	14.5
Incr Delay (d2), s/veh	0.0	9.7	0.0	0.1	0.0	8.1	0.0	0.5
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	34.9	0.0	7.8	0.0	32.9	0.0	15.1
1st-Term Q (Q1), veh/ln	0.0	8.6	0.0	0.4	0.0	7.9	0.0	1.6
2nd-Term Q (Q2), veh/ln	0.0	1.5	0.0	0.0	0.0	1.2	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	10.0	0.0	0.4	0.0	9.2	0.0	1.7
%ile Storage Ratio (RQ%)	0.00	1.34	0.00	0.15	0.00	0.54	0.00	0.42
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	22.8
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	771	0	0	475	0	9
Future Vol, veh/h	771	0	0	475	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
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	838	0	0	516	0	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	838
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	0	0	-	0	366
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	366
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	366	-	-
HCM Lane V/C Ratio	0.027	-	-
HCM Control Delay (s)	15.1	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.1	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	4	426	3	14	312
Future Vol, veh/h	4	4	426	3	14	312
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	4	4	463	3	15	339

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	835	465	0	0	466	0
Stage 1	465	-	-	-	-	-
Stage 2	370	-	-	-	-	-
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	338	597	-	-	1095	-
Stage 1	632	-	-	-	-	-
Stage 2	699	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	332	597	-	-	1095	-
Mov Cap-2 Maneuver	332	-	-	-	-	-
Stage 1	632	-	-	-	-	-
Stage 2	687	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.6	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	427	1095	-
HCM Lane V/C Ratio	-	-	0.02	0.014	-
HCM Control Delay (s)	-	-	13.6	8.3	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	202	571	40	55	294	110	53	254	122	59	200	128
Future Volume (veh/h)	202	571	40	55	294	110	53	254	122	59	200	128
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	220	621	43	60	320	120	58	276	133	64	217	139
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	551	1068	899	363	795	667	230	374	180	193	334	214
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
Prop Arrive On Green	0.10	0.57	0.57	0.43	0.43	0.43	0.32	0.32	0.32	0.32	0.32	0.32
Ln Grp Delay, s/veh	12.8	13.5	7.8	19.2	17.8	15.2	34.8	0.0	33.5	39.4	0.0	30.0
Ln Grp LOS	B	B	A	B	B	B	C		C	D		C
Approach Vol, veh/h		884			500			467			420	
Approach Delay, s/veh		13.1			17.3			33.6			31.4	
Approach LOS		B			B			C			C	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Case No		6.0		3.0		6.0	1.2	5.0
Phs Duration (G+Y+Rc), s		30.0		52.0		30.0	12.0	40.0
Change Period (Y+Rc), s		4.0		5.0		4.0	4.0	5.0
Max Green (Gmax), s		26.0		47.0		26.0	8.0	35.0
Max Allow Headway (MAH), s		5.3		5.1		5.3	3.8	5.1
Max Q Clear (g_c+I1), s		20.8		19.5		24.3	7.2	12.0
Green Ext Time (g_e), s		2.5		8.3		1.0	0.1	7.8
Prob of Phs Call (p_c)		1.00		1.00		1.00	1.00	1.00
Prob of Max Out (p_x)		0.00		0.00		0.00	0.00	0.00

Left-Turn Movement Data							
Assigned Mvmt		5			1	7	3
Mvmt Sat Flow, veh/h		1018			972	1774	766

Through Movement Data							
Assigned Mvmt		2		4		6	8
Mvmt Sat Flow, veh/h		1180		1863		1053	1863

Right-Turn Movement Data							
Assigned Mvmt		12		14		16	18
Mvmt Sat Flow, veh/h		569		1568		674	1563

Left Lane Group Data								
Assigned Mvmt	0	5	0	0	0	1	7	3
Lane Assignment							(Pr/Pm)	

Lanes in Grp	0	1	0	0	0	1	1	1
Grp Vol (v), veh/h	0	58	0	0	0	64	220	60
Grp Sat Flow (s), veh/h/ln	0	1018	0	0	0	972	1774	766
Q Serve Time (g_s), s	0.0	4.3	0.0	0.0	0.0	5.2	5.2	4.5
Cycle Q Clear Time (g_c), s	0.0	18.8	0.0	0.0	0.0	22.3	5.2	10.0
Perm LT Sat Flow (s_l), veh/h/ln	0	1018	0	0	0	972	943	766
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	26.0	0.0	0.0	0.0	26.0	37.0	35.0
Perm LT Serve Time (g_u), s	0.0	11.5	0.0	0.0	0.0	8.9	25.3	29.5
Perm LT Q Serve Time (g_ps), s	0.0	4.3	0.0	0.0	0.0	5.2	3.6	4.5
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00
Lane Grp Cap (c), veh/h	0	230	0	0	0	193	551	363
V/C Ratio (X)	0.00	0.25	0.00	0.00	0.00	0.33	0.40	0.17
Avail Cap (c_a), veh/h	0	230	0	0	0	193	551	363
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d1), s/veh	0.0	32.2	0.0	0.0	0.0	34.9	10.6	18.2
Incr Delay (d2), s/veh	0.0	2.6	0.0	0.0	0.0	4.5	2.2	1.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	34.8	0.0	0.0	0.0	39.4	12.8	19.2
1st-Term Q (Q1), veh/ln	0.0	1.2	0.0	0.0	0.0	1.4	2.5	0.9
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.2	0.3	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00
%ile Back of Q (50%), veh/ln	0.0	1.4	0.0	0.0	0.0	1.6	2.8	1.0
%ile Storage Ratio (RQ%)	0.00	0.38	0.00	0.00	0.00	0.64	0.90	0.26
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment				T				T
Lanes in Grp	0	0	0	1	0	0	0	1
Grp Vol (v), veh/h	0	0	0	621	0	0	0	320
Grp Sat Flow (s), veh/h/ln	0	0	0	1863	0	0	0	1863
Q Serve Time (g_s), s	0.0	0.0	0.0	17.5	0.0	0.0	0.0	9.7
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	17.5	0.0	0.0	0.0	9.7
Lane Grp Cap (c), veh/h	0	0	0	1068	0	0	0	795
V/C Ratio (X)	0.00	0.00	0.00	0.58	0.00	0.00	0.00	0.40
Avail Cap (c_a), veh/h	0	0	0	1068	0	0	0	795
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	11.2	0.0	0.0	0.0	16.3
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.3	0.0	0.0	0.0	1.5
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	13.5	0.0	0.0	0.0	17.8
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	9.0	0.0	0.0	0.0	5.0

2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.3
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	9.7	0.0	0.0	0.0	5.3
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	1.11	0.00	0.00	0.00	1.23
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	409	0	43	0	356	0	120
Grp Sat Flow (s), veh/h/ln	0	1748	0	1568	0	1727	0	1563
Q Serve Time (g_s), s	0.0	17.1	0.0	1.0	0.0	14.5	0.0	3.9
Cycle Q Clear Time (g_c), s	0.0	17.1	0.0	1.0	0.0	14.5	0.0	3.9
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.33	0.00	1.00	0.00	0.39	0.00	1.00
Lane Grp Cap (c), veh/h	0	554	0	899	0	548	0	667
V/C Ratio (X)	0.00	0.74	0.00	0.05	0.00	0.65	0.00	0.18
Avail Cap (c_a), veh/h	0	554	0	899	0	548	0	667
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	25.0	0.0	7.7	0.0	24.1	0.0	14.6
Incr Delay (d2), s/veh	0.0	8.5	0.0	0.1	0.0	5.9	0.0	0.6
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	33.5	0.0	7.8	0.0	30.0	0.0	15.2
1st-Term Q (Q1), veh/ln	0.0	8.2	0.0	0.4	0.0	6.9	0.0	1.7
2nd-Term Q (Q2), veh/ln	0.0	1.3	0.0	0.0	0.0	0.9	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	9.5	0.0	0.4	0.0	7.8	0.0	1.8
%ile Storage Ratio (RQ%)	0.00	1.27	0.00	0.15	0.00	0.46	0.00	0.45
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	21.6
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	752	0	0	459	0	0
Future Vol, veh/h	752	0	0	459	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
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	817	0	0	499	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	817
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	0	0	-	0	376
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	376
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	12	417	6	7	288
Future Vol, veh/h	4	12	417	6	7	288
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	4	13	453	7	8	313

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	785	457	0	0	460	0
Stage 1	457	-	-	-	-	-
Stage 2	328	-	-	-	-	-
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	361	604	-	-	1101	-
Stage 1	638	-	-	-	-	-
Stage 2	730	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	358	604	-	-	1101	-
Mov Cap-2 Maneuver	358	-	-	-	-	-
Stage 1	638	-	-	-	-	-
Stage 2	723	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.2	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	515	1101	-
HCM Lane V/C Ratio	-	-	0.034	0.007	-
HCM Control Delay (s)	-	-	12.2	8.3	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

APPENDIX C

Self Storage Facility Usage Data

DATE	# E	# T	2 in 15	3 IN 15	
	Employees	# Tenants	# X 15 minutes	# X 15 minutes	# of parking Space needed
Saturday, July 1, 2017	1	10	5	1	4
Sunday, July 2, 2017	1	4	2	0	3
Monday, July 3, 2017	1	6	4	0	3
Tuesday, July 4, 2017	0	3	0	0	1
Wednesday, July 5, 2017	2	11	2	0	4
Thursday, July 6, 2017	2	12	5	0	4
Friday, July 7, 2017	2	13	3	3	5
Saturday, July 8, 2017	2	12	3	3	5
Sunday, July 9, 2017	2	11	3	1	5
Monday, July 10, 2017	1	6	1	0	3
Tuesday, July 11, 2017	2	15	3	0	4
Wednesday, July 12, 2017	1	4	0	0	2
Thursday, July 13, 2017	1	14	1	1	4
Friday, July 14, 2017	1	10	2	0	3
Saturday, July 15, 2017	1	11	4	1	4
Sunday, July 16, 2017	1	9	1	0	3
Monday, July 17, 2017	1	21	4	3	4
Tuesday, July 18, 2017	1	16	6	1	4
Wednesday, July 19, 2017	2	10	1	1	5
Thursday, July 20, 2017	1	8	1	1	4
Friday, July 21, 2017	2	9	3	0	4
Saturday, July 22, 2017	1	11	1	0	3
Sunday, July 23, 2017	2	9	3	1	5
Monday, July 24, 2017	1	10	1	0	3
Tuesday, July 25, 2017	1	14	4	0	3
Wednesday, July 26, 2017	2	9	5	0	4
Thursday, July 27, 2017	2	11	3	0	4
Friday, July 28, 2017	2	10	1	1	5
Saturday, July 29, 2017	1	11	1	0	3
Sunday, July 30, 2017	1	7	0	0	2
Monday, July 31, 2017	1	9	3	0	3

DATE	# E (Employees)	# T (# Tenants)	2 in 15 (# X 15 minutes)	3 IN 15 (# X 15 minutes)	(# of parking Space needed)
Tuesday, August 1, 2017	2	13	4	0	4
Wednesday, August 2, 2017	2	9	1	0	4
Thursday, August 3, 2017	1	10	6	0	3
Friday, August 4, 2017	1	8	0	1	4
Saturday, August 5, 2017	2	8	1	1	5
Sunday, August 6, 2017	1	7	0	1	4
Monday, August 7, 2017	2	5	1	0	4
Tuesday, August 8, 2017	2	7	1	0	4
Wednesday, August 9, 2017	1	9	3	2	4
Thursday, August 10, 2017	1	7	1	0	3
Friday, August 11, 2017	2	5	0	0	3
Saturday, August 12, 2017	2	7	3	0	4
Sunday, August 13, 2017	1	6	0	0	2
Monday, August 14, 2017	1	8	3	0	3
Tuesday, August 15, 2017	2	6	0	0	3
Wednesday, August 16, 2017	1	5	1	0	3
Thursday, August 17, 2017	1	4	0	0	2
Friday, August 18, 2017	1	4	0	0	2
Saturday, August 19, 2017	2	8	3	0	4
Sunday, August 20, 2017	1	7	1	0	3
Monday, August 21, 2017	1	7	1	0	3
Tuesday, August 22, 2017	1	10	1	1	4
Wednesday, August 23, 2017	1	6	1	0	3
Thursday, August 24, 2017	1	6	1	0	3

APPENDIX D

Institute of Transportation Engineers Trip Generation and Parking Generation Data

Trip Generation Manual

10th Edition • Volume 2: Data

Industrial (Land Uses 100–199)

SEPTEMBER 2017
INSTITUTE OF TRANSPORTATION ENGINEERS

Land Use: 151
Mini-Warehouse

Description

A mini-warehouse is a building in which a number of storage units or vaults are rented for the storage of goods. They are typically referred to as "self-storage" facilities. Each unit is physically separated from other units, and access is usually provided through an overhead door or other common access point.

Additional Data

Time-of-day distribution data for this land use are presented in Appendix A. For the 10 general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 10:30 and 11:30 a.m. and 1:15 and 2:15 p.m., respectively.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in California, Colorado, Massachusetts, Minnesota, New Jersey, Texas, and Utah.

Source Numbers

212, 403, 551, 568, 642, 708, 724, 850, 868, 876

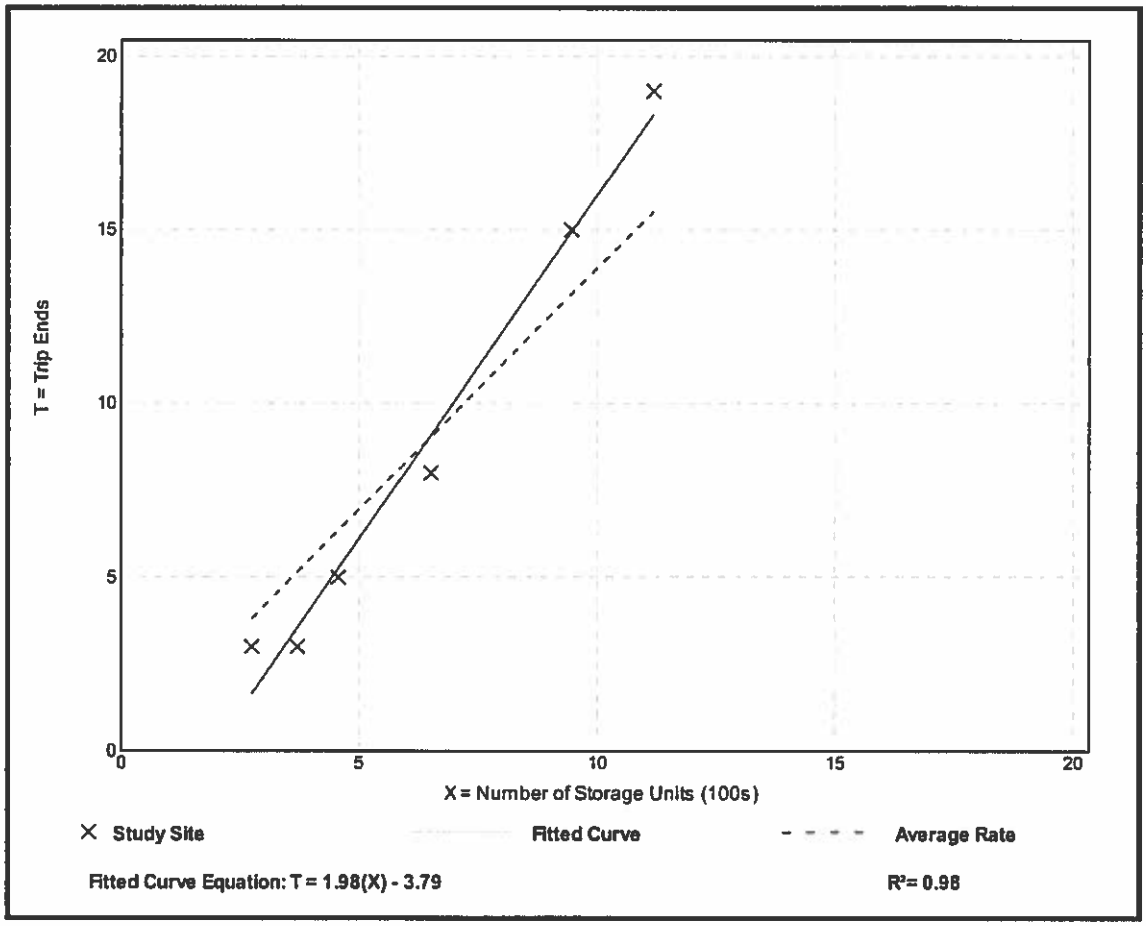
Mini-Warehouse
(151)

Vehicle Trip Ends vs: **Storage Units (100s)**
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: 6
Avg. Num. of Storage Units (100s): 6
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per Storage Unit (100s)

Average Rate	Range of Rates	Standard Deviation
1.39	0.81 - 1.70	0.33

Data Plot and Equation



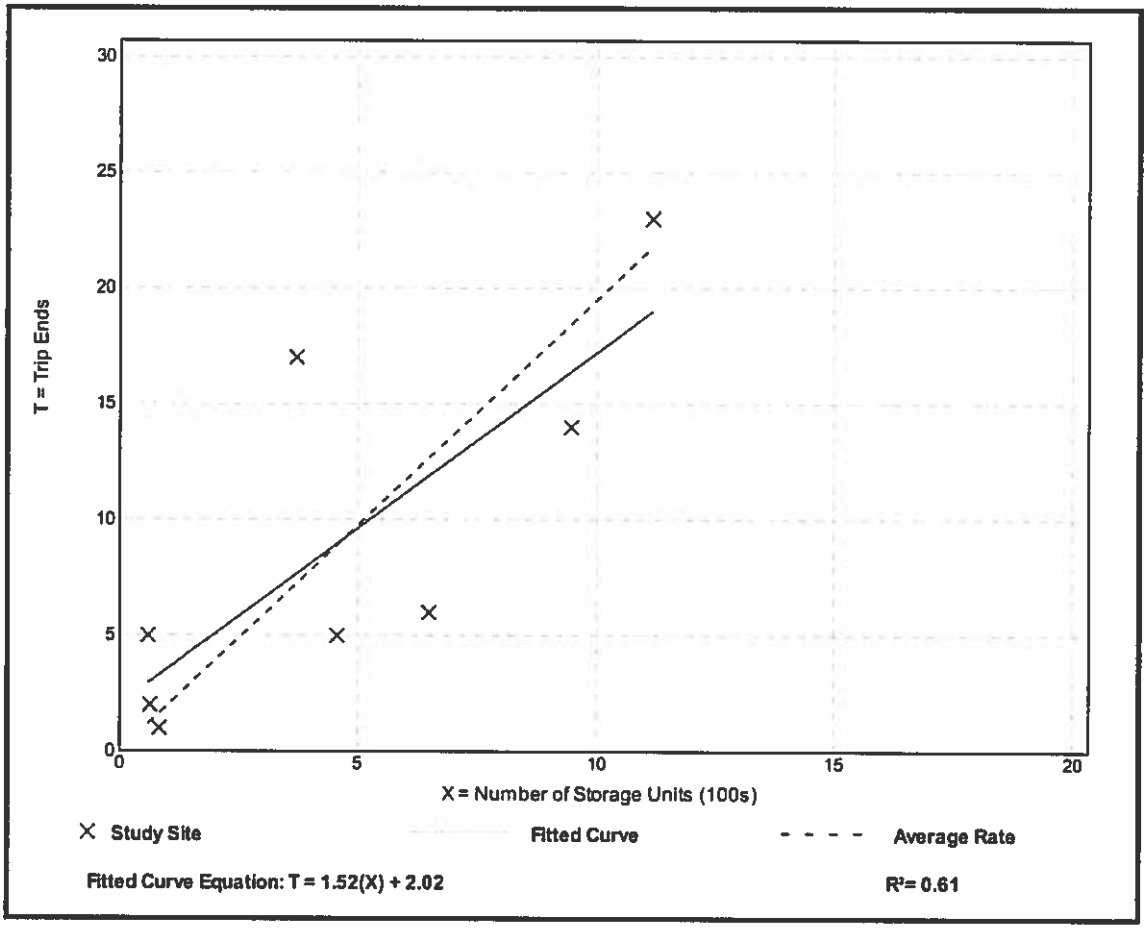
Mini-Warehouse
(151)

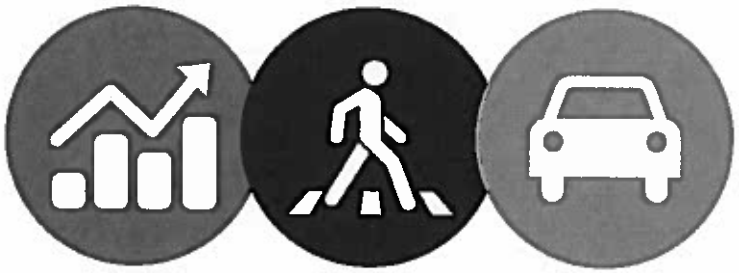
Vehicle Trip Ends vs: **Storage Units (100s)**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 8
Avg. Num. of Storage Units (100s): 5
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Storage Unit (100s)

Average Rate	Range of Rates	Standard Deviation
1.95	0.92 - 8.33	1.40

Data Plot and Equation





Trip Generation Manual

10th Edition • Volume 2: Data

Services (Land Uses 900–999)

SEPTEMBER 2017
INSTITUTE OF TRANSPORTATION ENGINEERS

Land Use: 920
Copy, Print, and Express Ship Store

Description

A copy, print, and express ship store is a facility that offers a variety of copying, printing, binding, and shipping services. Retail sales of a limited range of office-related items including packing and shipping supplies are also commonly available. Technology services, such as computer rental and wireless Internet may also be provided. Copy, print, and express ship stores typically maintain long store hours 7 days a week. Some stores may be open 24 hours a day.

Additional Data

The weekday AM peak hour occurred between 10:30 and 11:30 a.m. The weekday PM peak hour occurred between 3:30 and 4:30 p.m.

The site was surveyed in the 2000s in Texas.

Source Number

608

Copy, Print, and Express Ship Store
(920)

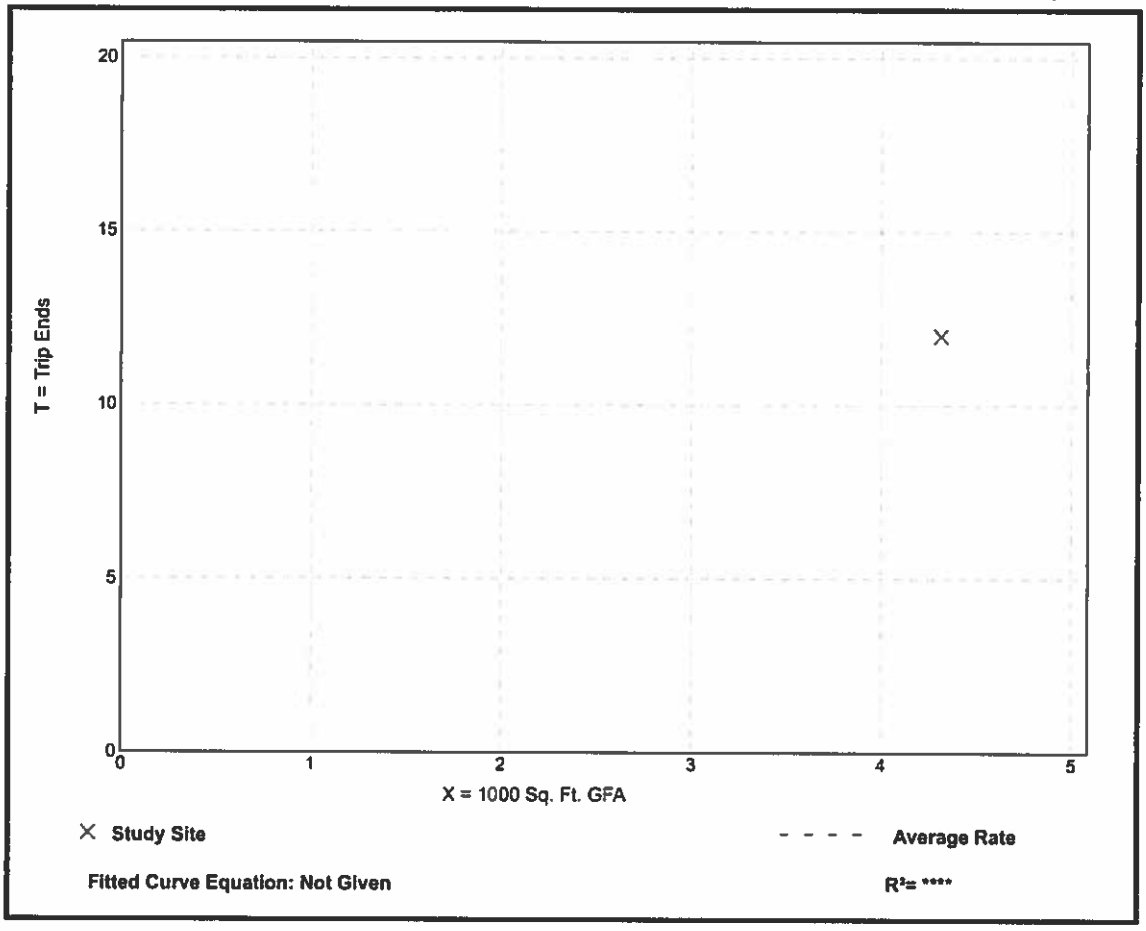
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
1000 Sq. Ft. GFA: 4
Directional Distribution: 75% entering, 25% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
2.78	2.78 - 2.78	*

Data Plot and Equation

Caution – Small Sample Size



Copy, Print, and Express Ship Store
(920)

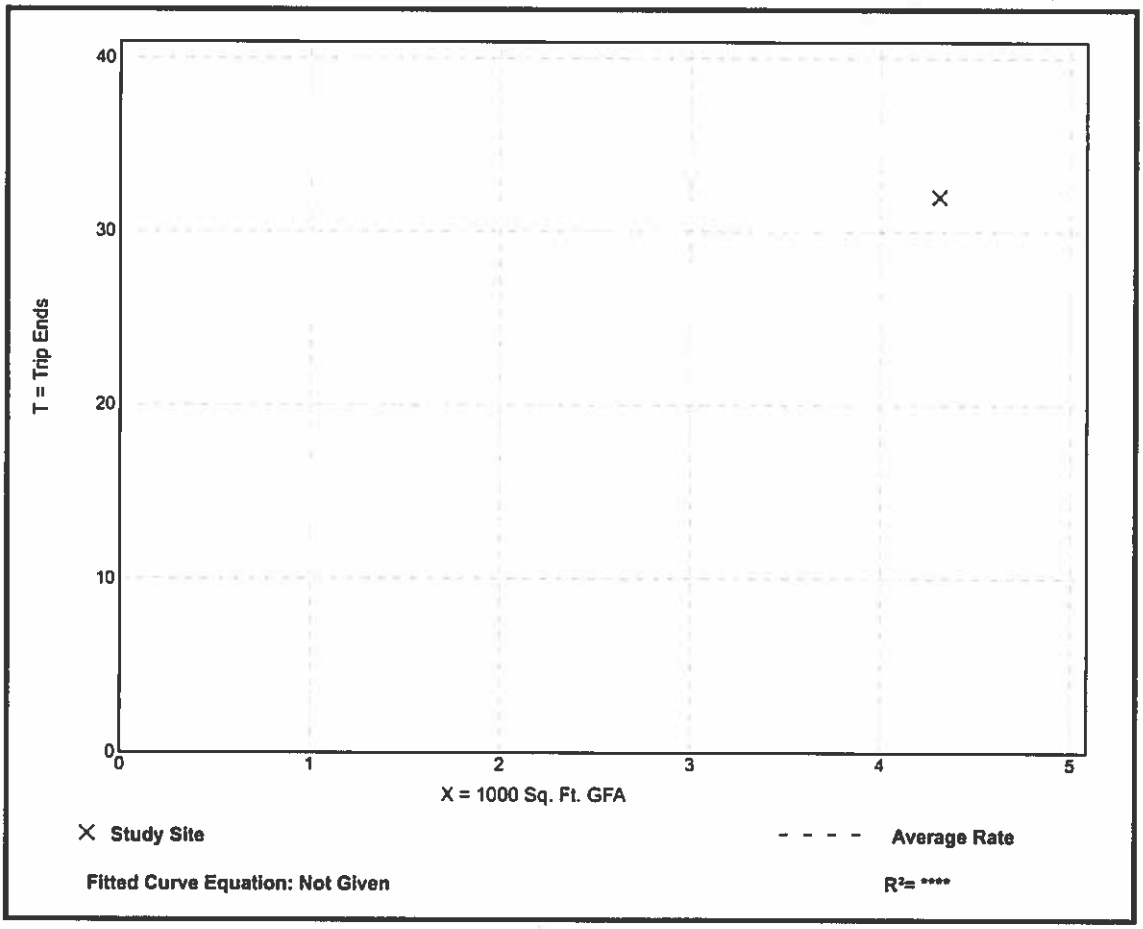
Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	1
1000 Sq. Ft. GFA:	4
Directional Distribution:	44% entering, 56% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
7.42	7.42 - 7.42	*

Data Plot and Equation

Caution – Small Sample Size



4th Edition

Parking Generation

ite

Institute of Transportation Engineers

Land Use: 151
Mini-Warehouse

Description

Mini-warehouses are buildings in which a number of storage units or vaults are rented for the storage of goods. They are typically referred to as "self-storage" facilities. Each unit is physically separated from other units, and access is usually provided through an overhead door or other common access point.

Database Description

- Average parking supply ratio: 0.2 spaces per 1,000 square feet (sq. ft.) gross floor area (GFA) (two study sites).

The Saturday parking demand ratio for a site with 1,400 storage units was 0.77 vehicles per 100 storage units. Parking demand data at this site were collected for six consecutive hours between 1:00 and 7:00 p.m., and the peak period of demand occurred between 4:00 and 5:00 p.m.

The following table presents a time-of-day distribution of parking demand for three study sites.

Based on Vehicles per 1,000 sq. ft. GFA	*Weekday*	
Hour Beginning	Percent of Peak Period	Number of Data Points*
12:00–4:00 a.m.	–	0
5:00 a.m.	–	0
6:00 a.m.	–	0
7:00 a.m.	31	3
8:00 a.m.	24	3
9:00 a.m.	59	3
10:00 a.m.	91	3
11:00 a.m.	100	3
12:00 p.m.	55	3
1:00 p.m.	45	3
2:00 p.m.	46	3
3:00 p.m.	40	2
4:00 p.m.	88	1
5:00 p.m.	27	1
6:00 p.m.	35	1
7:00 p.m.	27	1
8:00 p.m.	–	0
9:00 p.m.	–	0
10:00 p.m.	–	0
11:00 p.m.	–	0

* Subset of database

Study Sites/Years

Canada:
Burnaby, BC (1991); Coquitlam, BC (1991); Richmond, BC (1991)

United States:
Santa Barbara, CA (1998); Hadley, MA (2008)

4th Edition Source Number

1115

Land Use: 151
Mini-Warehouse

Average Peak Period Parking Demand vs. 100 Storage Units
On a: Weekday

Statistic	Peak Period Demand
Peak Period	11:00 a.m.–12:00 p.m.; 4:00–5:00 p.m.
Number of Study Sites	6
Average Size of Study Sites	648 storage units
Average Peak Period Parking Demand	1.35 vehicles per 100 storage units
Standard Deviation	0.34
Coefficient of Variation	25%
Range	1.05–1.96 vehicles per 100 storage units
85th Percentile	1.66 vehicles per 100 storage units
33rd Percentile	1.17 vehicles per 100 storage units