Appendix A

Typical Cross Sections

Figure 1 - Typical Cross Section on 17th Street between C and B Streets

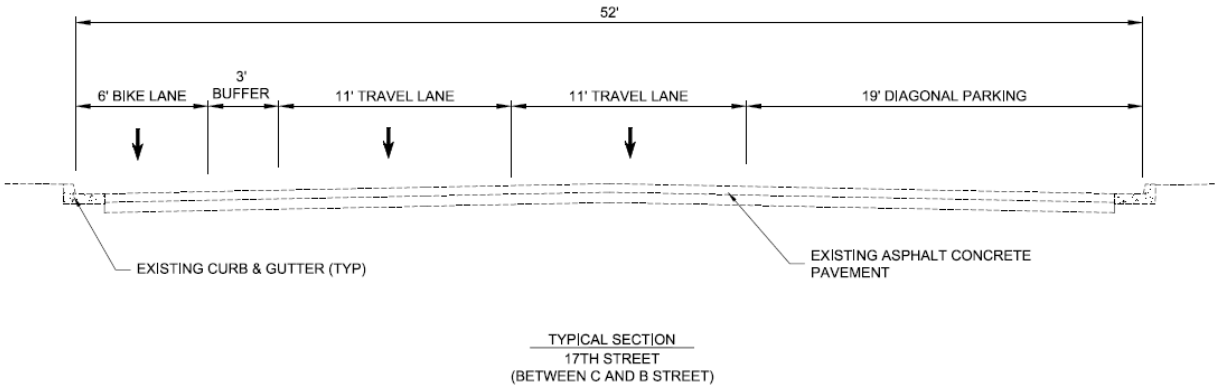


Figure 2 - Typical Cross Section on 19th Street between C Street & Broadway

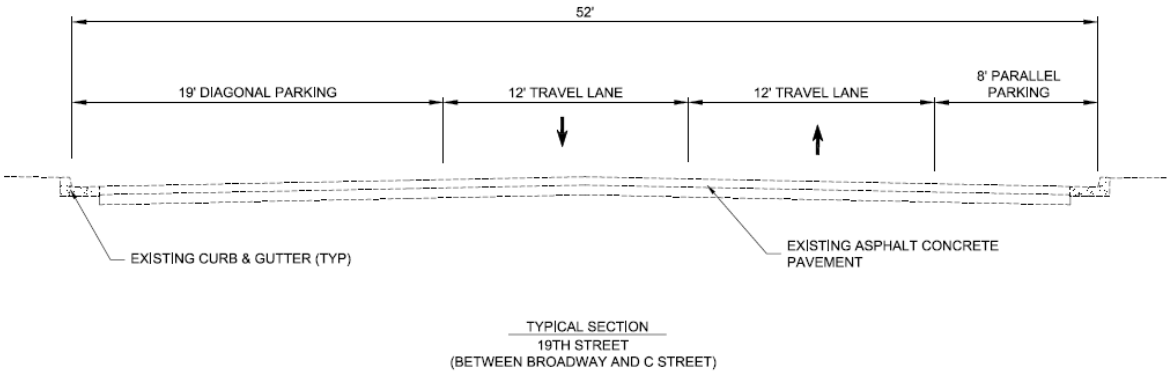


Figure 3 - Typical Cross Section on 19th Street between B and C Streets

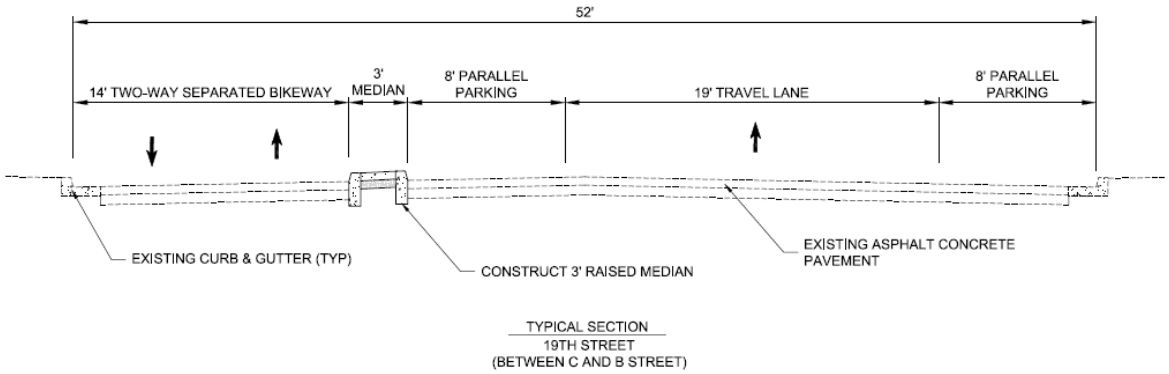


Figure 4 - Typical Cross Section on Pershing Drive/17th Street between B Street and I-5 Onramp (NB)

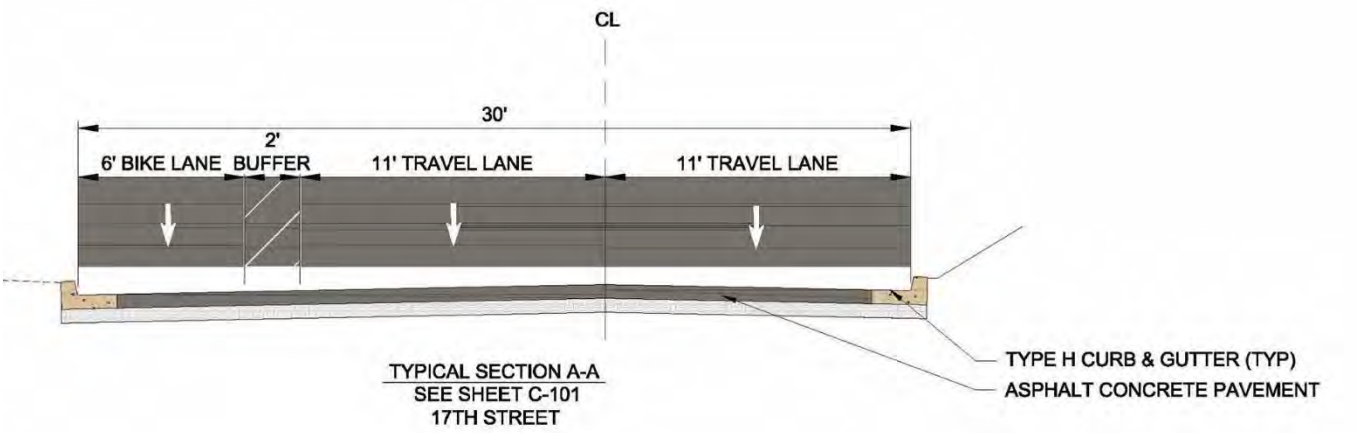


Figure 5 - Typical Cross Section on Pershing Drive/19th Street between B Street and I-5 onramp (NB)

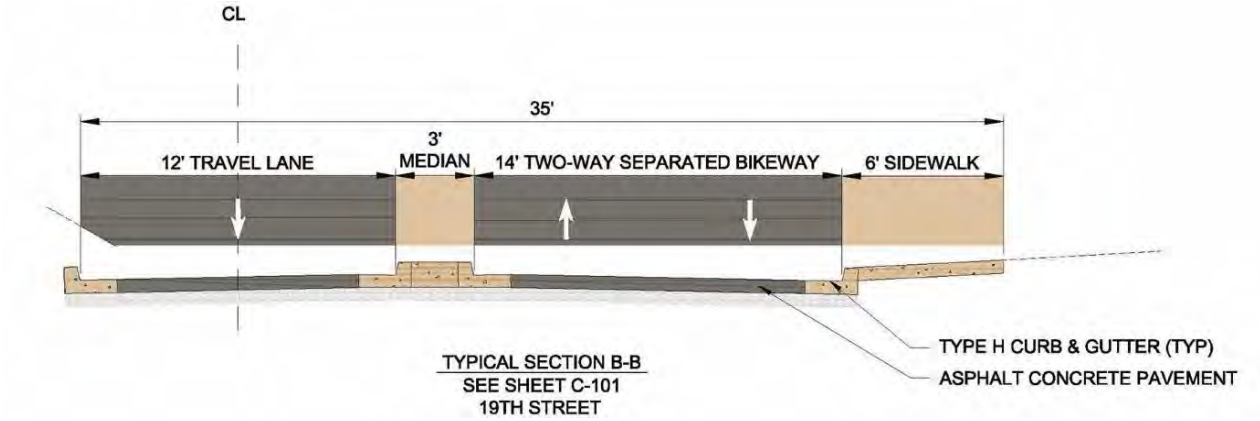
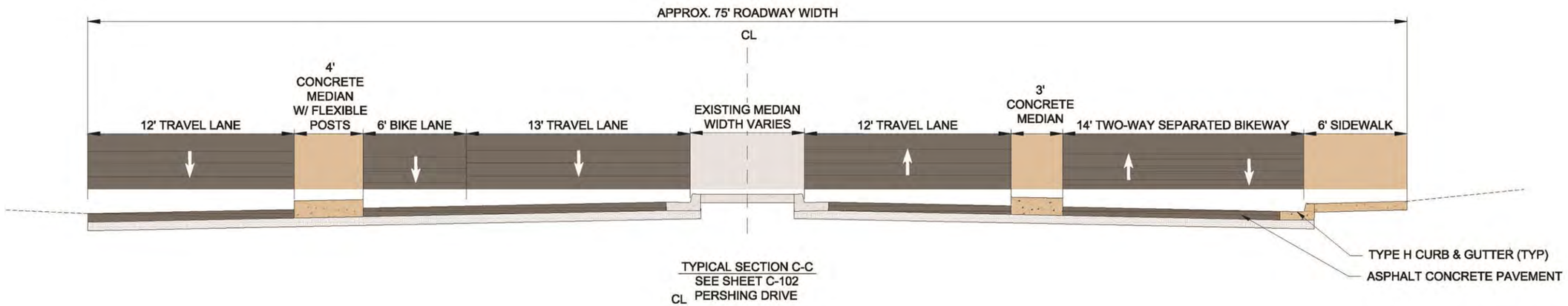


Figure 6 - Typical Cross Section on Pershing Drive North of I-5 off ramp (NB) (top section)

Typical Cross Section on Pershing Drive near the Intersection with Florida Drive/26th Street (bottom section)



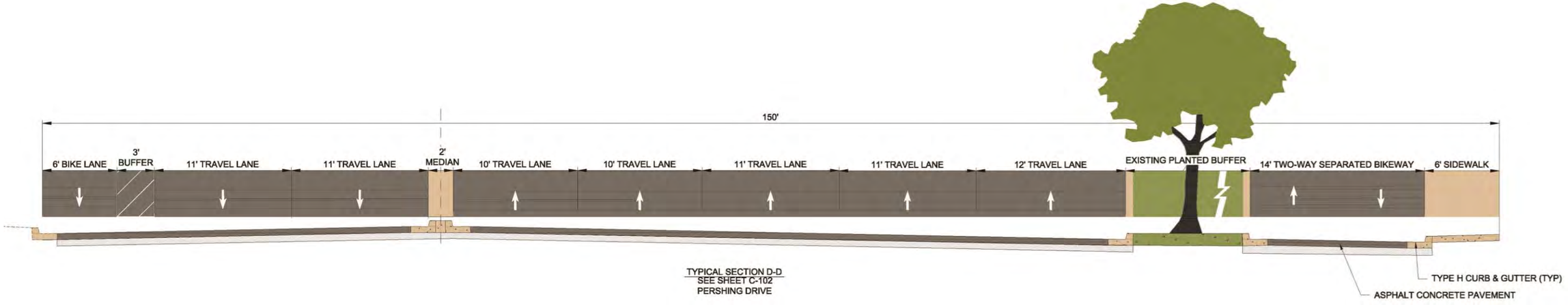


Figure 7 - Typical Cross Section on Pershing Drive between Florida Drive/26th Street and Redwood Street (NB)

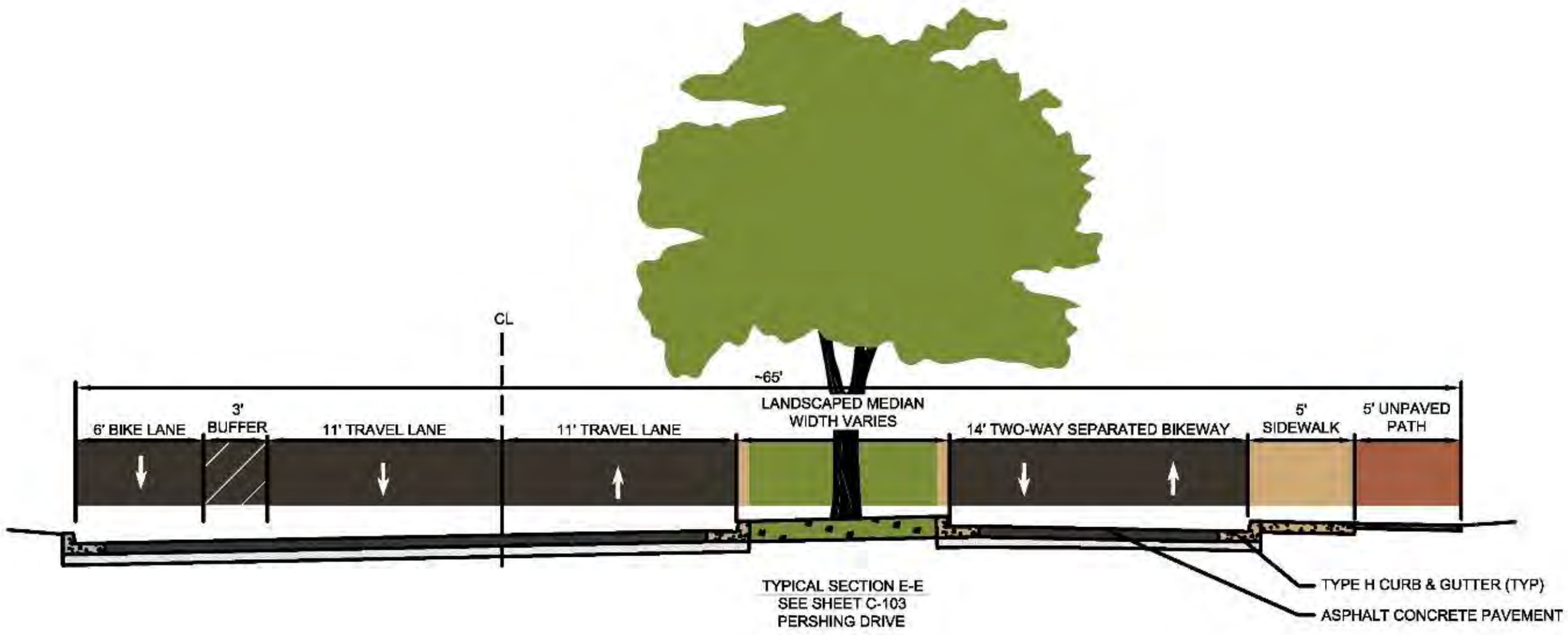


Figure 8 - Typical Cross Section on Pershing Drive between Florida Drive/26th Street and Redwood Street (NB)

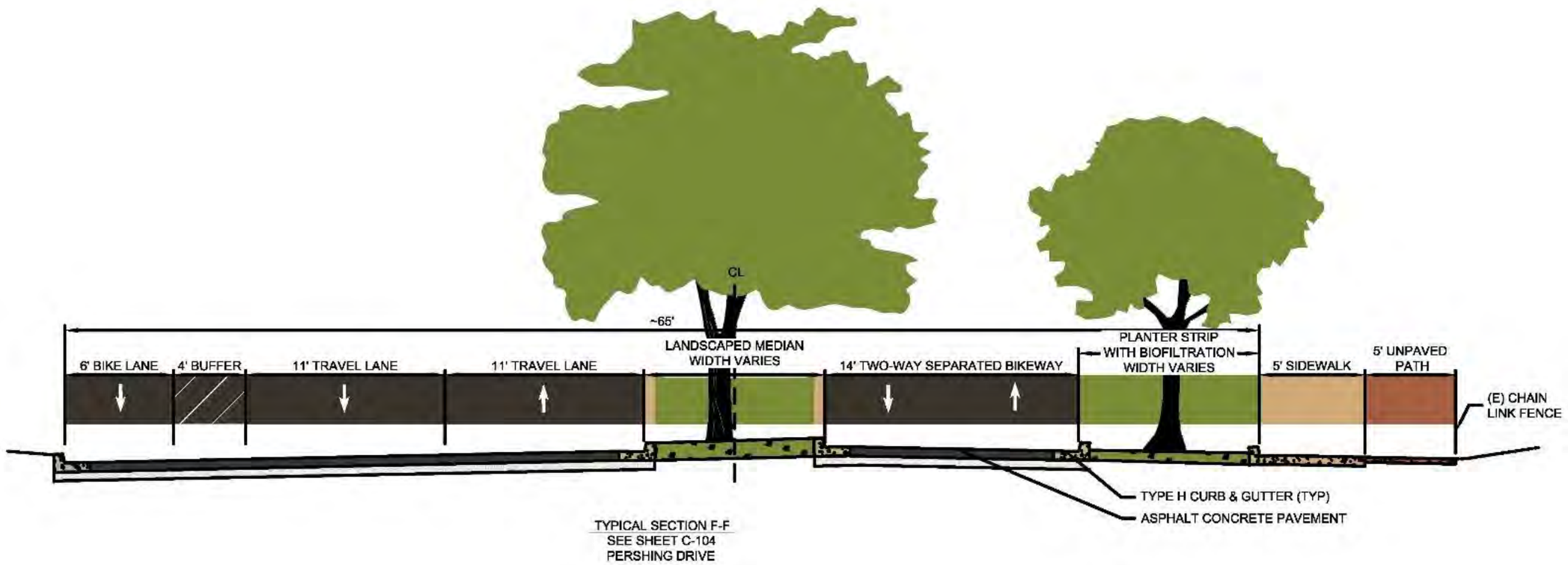


Figure 9 - Typical Cross Section on Pershing Drive between Redwood and Upas Streets (NB)

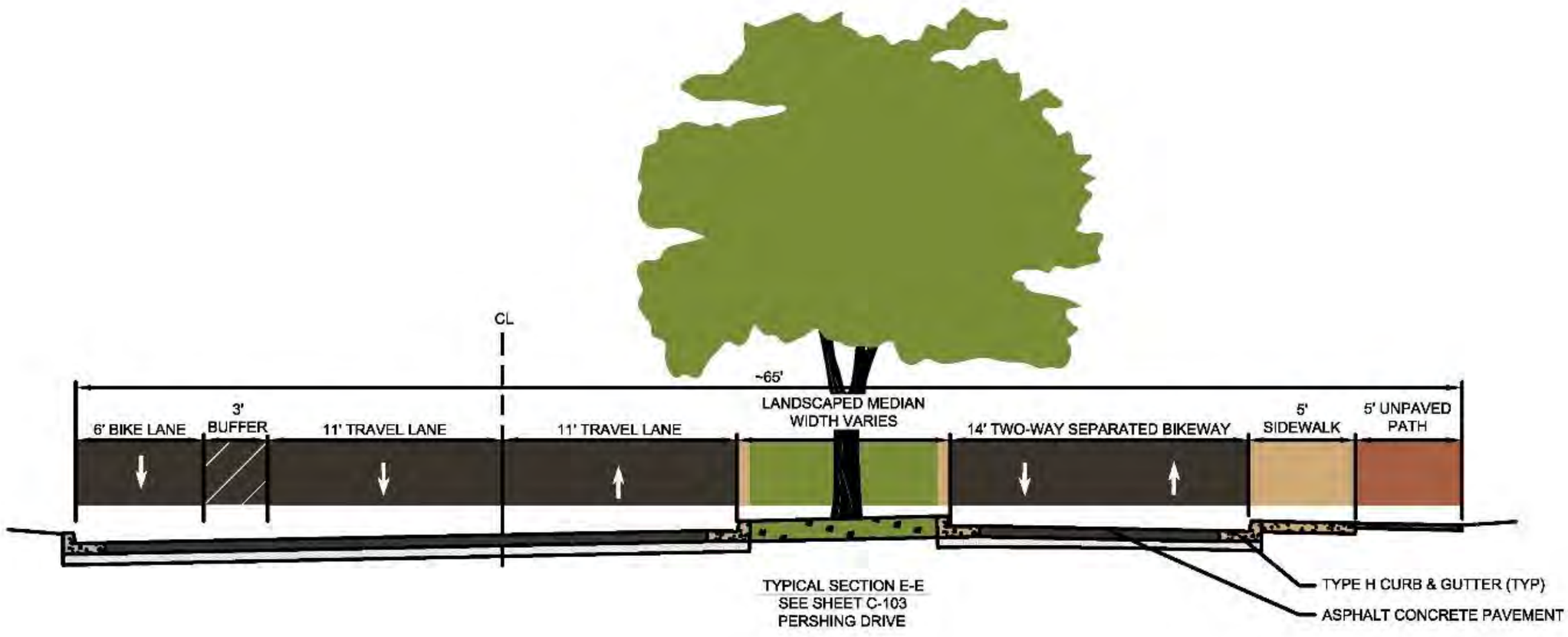
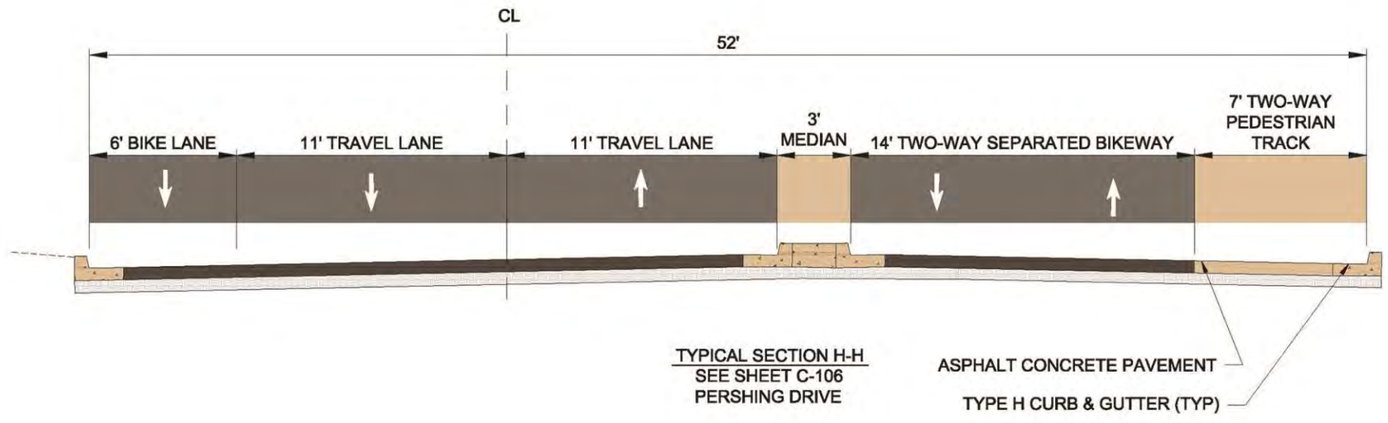


Figure 10 - Typical Section on Pershing Drive South of Upas Street (NB)



Note: Pedestrian track represents a paved pedestrian pathway, flush with the surface of the separated bikeway.

Figure 11 - Typical Cross Section on Upas Street between Pershing Drive and Utah Street

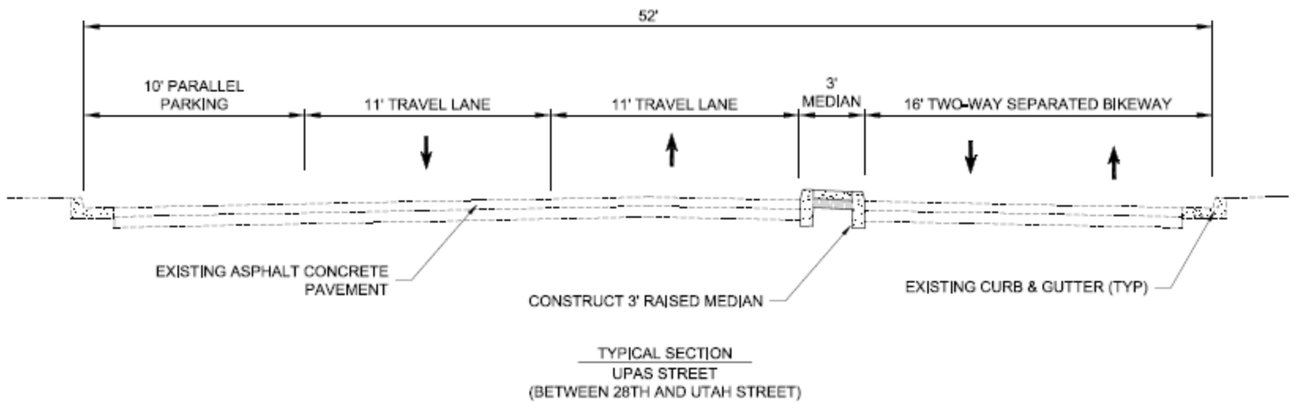
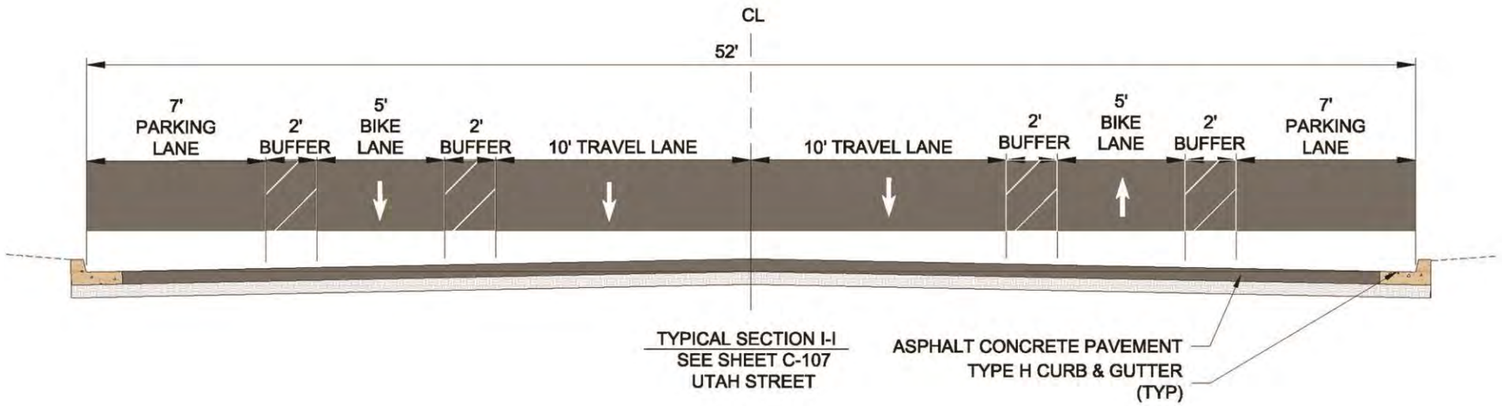


Figure 12 - Typical Cross Section on Utah Street between Upas and Landis Streets



Appendix B

City of San Diego Traffic Significance Thresholds, Level of Service Definitions, and Analysis Methods

Appendix B

City of San Diego

Significance Thresholds for Traffic

Level of Service with Project*	Allowable Change due to Project Impact**					
	Freeways		Roadway Sections		Intersections	Ramps***
	V/C	Speed (mph)	V/C	Speed (mph)	Delay (sec.)	Delay (min.)
E	0.01	1	0.02	1	2	2
F	0.005	0.5	0.01	0.5	1	1

Notes:

* All level of service measurements are based upon HCM procedures for peak-hour conditions. However, V/C ratios for Roadway Segments may be estimated on an ADT/24-hour traffic volume basis (using Table 2 or an equivalent LOS chart for each jurisdiction). The acceptable LOS for freeways, roadways, and intersections is generally "D" ("C" for undeveloped locations). For metered freeway ramps, project traffic impacts are generally acceptable if they do not cause any traffic queues to exceed ramp storage capacities.

** If a proposed project's traffic causes the values shown in the table to be exceeded, the impacts are determined to be significant. These impact changes may be measured from acceptable computer programs or expanded manual spreadsheets. The project applicant shall then identify feasible mitigation within the Traffic Impact Study [TIS] report that will maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project is "E" or "F," the project applicant shall be responsible for mitigating significant impact changes.

***See Attachment B for ramp metering analysis.

Key: V/C = Volume to Capacity ratio

Speed = Speed measured in miles per hour

Delay = Average stopped delay per vehicle measured in seconds, or minutes

LOS = Level of Service

Roadway Segment Level of Service Definitions

LOS	V/C	Congestion/Delay	Traffic Description
(Used for surface streets, freeways, expressways and conventional highways)			
"A"	≤0.41	None	Free flow.
"B"	>0.41-0.62	None	Free to stable flow, light to moderate volumes.
"C"	>0.62-0.80	None to minimal	Stable flow, moderate volumes, freedom to maneuver noticeably restricted.
"D"	>0.80-0.92	Minimal to substantial	Approaches unstable flow, heavy volumes, very limited freedom to maneuver.
"E"	>0.92-1.00	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor.
(Used for surface streets and conventional highways)			
"F"	>1.00	Considerable	Forced or breakdown flow. Delay measured in average travel speed (MPH). Signalized segments experience delays >60.0 seconds/vehicle.
(Used for freeways and expressways)			
"F(0)"	>1.00-1.25	Considerable 0-1 hour delay	Forced flow, heavy congestion, long queues form behind breakdown points, stop and go.
"F(1)"	>1.25-1.35	Severe 1-2 hour delay	Very heavy congestion, very long queues.
"F(2)"	>1.35-1.45	Very Severe 2-3 hour delay	Extremely heavy congestion, longer queues, more numerous breakdown points, longer stop periods.
"F(3)"	>1.45	Extremely Severe 3+ hours of delay	Gridlock

Source: Caltrans, 1992.

Level of Service (LOS) Definitions

The concept of LOS is defined as a qualitative measure describing operational conditions within a traffic stream, and the motorist's and/or passengers' perception of operations. A LOS definition generally describes these conditions in terms of such factors as speed, travel time, freedom to maneuver, comfort, convenience, and safety. Levels of service for freeway segments can generally be categorized as shown in the table above.

Appendix B

City of San Diego
Roadway Capacity Standards

Street Classification	Lanes	Level of Service ADT[1]				
		A	B	C	D	E
Freeway	8 lanes	60,000	84,000	120,000	140,000	150,000
Freeway	6 lanes	45,000	63,000	60,000	70,000	80,000
Freeway	4 lanes	30,000	42,000	60,000	70,000	80,000
Expressway	6 lanes	30,000	42,000	60,000	70,000	80,000
Prime Arterial	6 lanes	25,000	35,000	50,000	55,000	60,000
Major Arterial	6 lanes	20,000	28,000	40,000	45,000	50,000
Major Arterial	4 lanes	15,000	21,000	30,000	35,000	40,000
Collector	4 lanes	10,000	14,000	20,000	25,000	30,000
Collector (no center lane)	4 lanes	5,000	7,000		13,000	15,000
(continuous left-turn lane)	2 lanes			10,000		
Collector (no fronting property)	2 lanes	4,000	5,500	7,500	9,000	10,000
Collector (commercial-industrial fronting)	2 lanes	2,500	3,500	5,000	6,500	8,000
Collector (multi-family)	2 lanes	2,500	3,500	5,000	6,500	8,000
Sub-Collector (single-family)	2 lanes	---	---	2,200	---	---

Legend:

[1]Approximate recommended ADT based upon the City of San Diego Street Design Manual.

Notes:

The volumes and the average daily level of service listed above are only intended as a general planning guideline.

Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

Signalized Intersection Level of Service
Highway Capacity Manual Operational Analysis Method

The operational analysis method for evaluation of signalized intersections presented in the *2000 Highway Capacity Manual* (Transportation Research Board Special Report 209) defines level of service in terms of delay, or more specifically, control stopped delay per vehicle. Delay is a measure of driver and/or passenger discomfort, frustration, fuel consumption, and lost travel time.

Control Stopped Delay Per Vehicle (seconds)	Level of Service (LOS) Characteristics
<10	LOS A describes operations with very low delay. This occurs when progression is extremely favorable, and most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
>10 - 20	LOS B describes operations with generally good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
>20 - 35	LOS C describes operations with higher delays, which may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
>35 - 55	LOS D describes operations with high delay, resulting from some combination of unfavorable progression, long cycle lengths, or high volumes. The influence of congestion becomes more noticeable, and individual cycle failures are noticeable.
>55 - 80	LOS E is considered to be the limit of acceptable delay. Individual cycle failures are frequent occurrences.
>80	LOS F describes a condition of excessively high delay, considered unacceptable to most drivers. This condition often occurs when arrival flow rates exceed the capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes to such delay.

Source: Highway Capacity Manual 2000, Exhibit 16-2

Minor Street Stop and All-Way Stop Controlled Intersection Level of Service

Highway Capacity Manual Operational Analysis Method

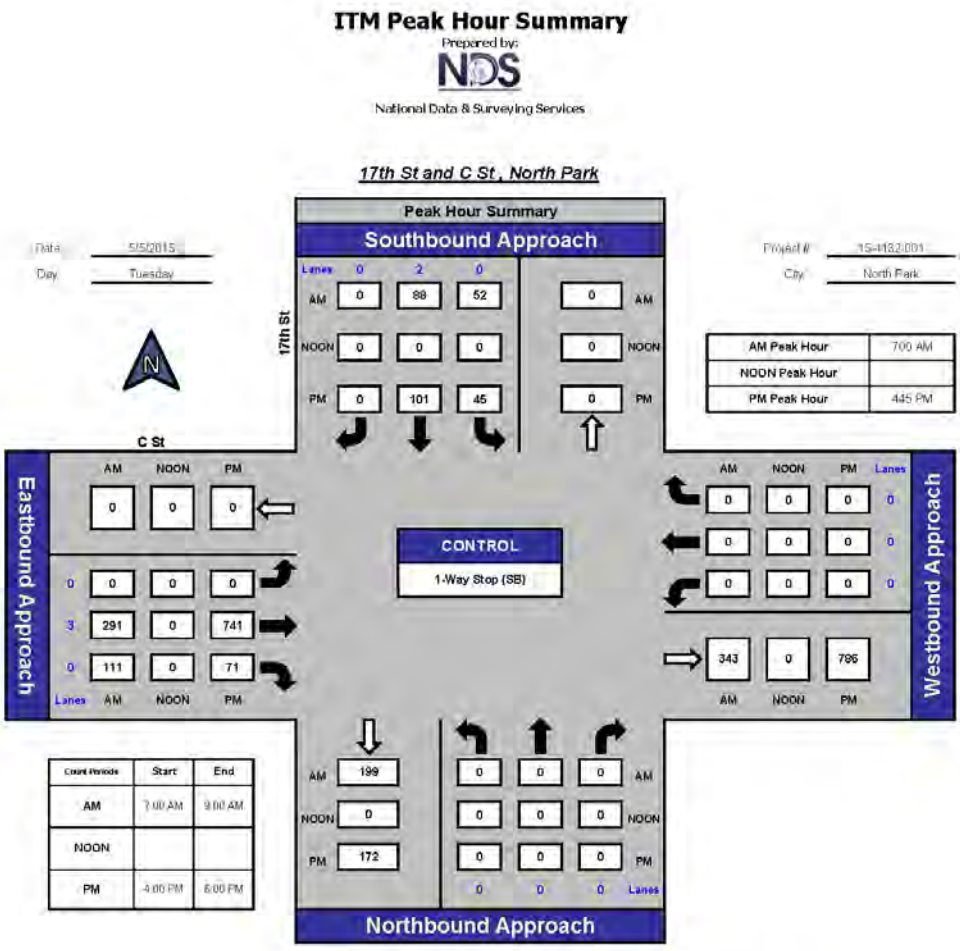
The Highway Capacity Manual (HCM) analysis method for evaluating minor street stop intersections is based on the average total delay for each impeded movement. For all-way stop controlled intersections it is based on the average total delay for the entire intersection. As used here, total delay is defined as the total elapsed time from when a when a vehicle stops at the end of a queue until the vehicle departs from the stop line; this time includes the time required for the vehicle to travel from the last-in-queue to the first-in-queue position. The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. The resulting delay is used to determine the level of service as shown in the following table.

Average Total Delay	Level of Service (LOS) Characteristics
0-10	*LOS A* – Little or no delay
>10 – 15	*LOS B* – Short traffic delay
>15 – 25	*LOS C* – Average traffic delay
>25 – 35	*LOS D* – Long traffic delays
>35 – 50	*LOS E* – Very long traffic delays
>50	*LOS F* – When the demand exceeds the capacity of the lane, extreme delays will be encountered and queuing may cause severe congestion to the intersection.

Source: Highway Capacity Manual 2000, Exhibit 17-22

Appendix C

Traffic Count Data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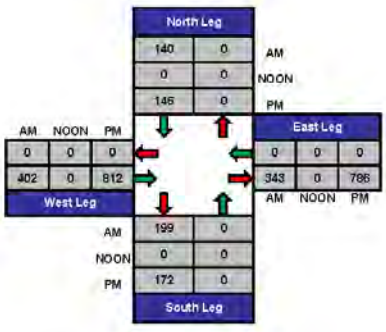
NDS
National Data & Surveying Services
17th St and C St , North Park
Peak Hour Summary
Southbound Approach
Date 5/5/2015
Day Tuesday
Project # 15-1132.001
City North Park
17th St
C St
AM Peak Hour 7:00 AM
NOON Peak Hour
PM Peak Hour 4:45 PM
Eastbound Approach
Westbound Approach
CONTROL
1-Way Stop (SB)
Count Periods Start End
AM 7:00 AM 9:00 AM
NOON
PM 4:00 PM 6:00 PM
Northbound Approach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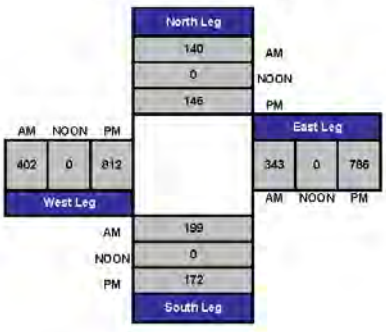
West Leg
South Leg
AM NOON PM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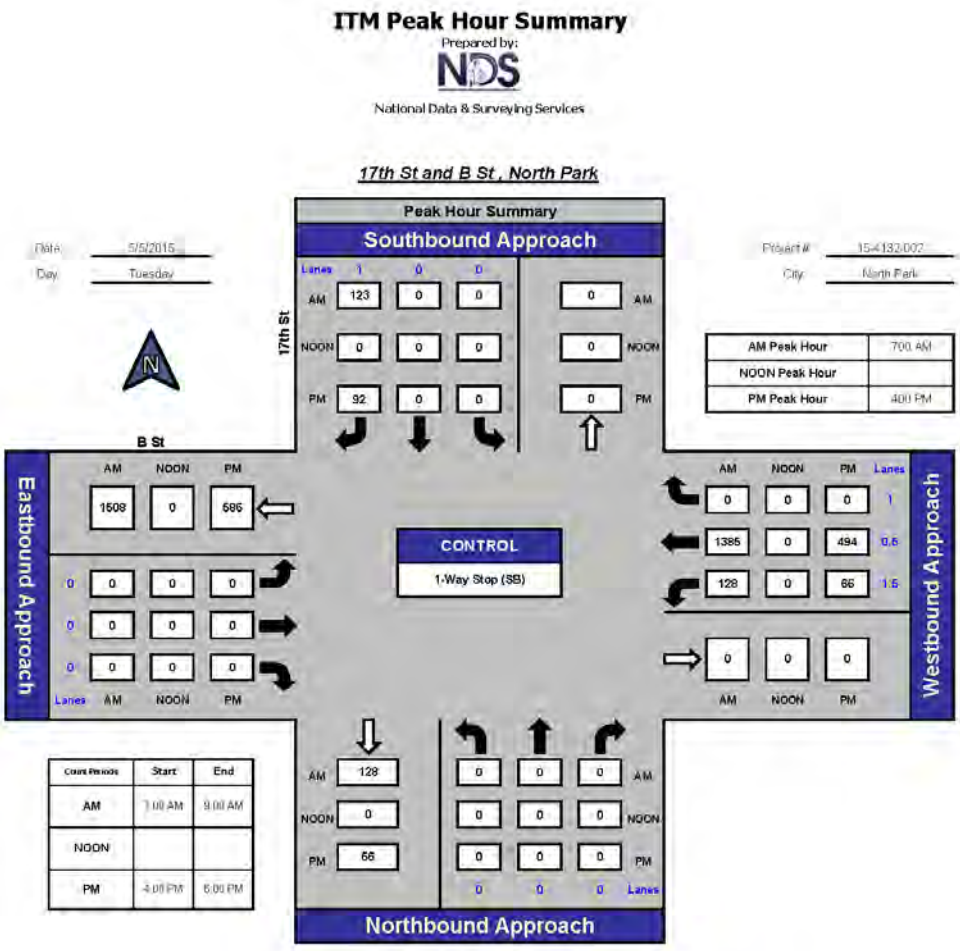
West Leg
South Leg
AM NOON PM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National Data & Surveying Services
17th St and B St , North Park
Peak Hour Summary
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Date 5/5/2015
Day Tuesday
Project # 15-4132.002
City North Park
17th St
B St
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Westbound Approach
CONTROL
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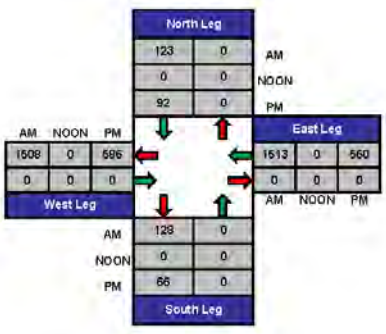
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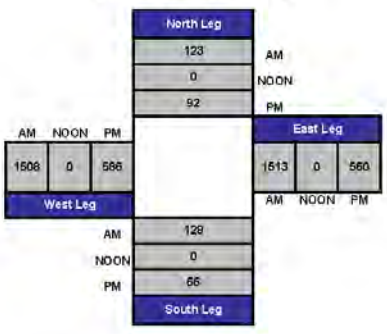
West Leg
South Leg
AM
NOON
PM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South Leg
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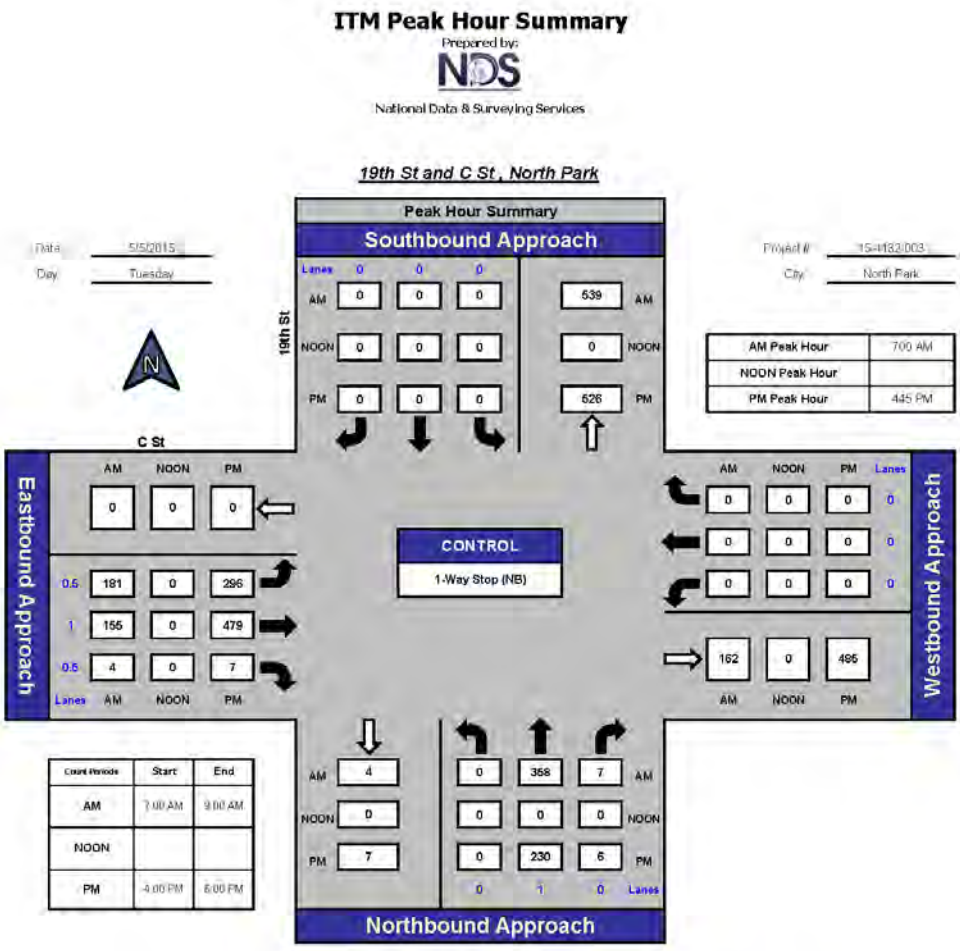
NOON
PM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19th St and C St , North Park
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C St
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PM Peak Hour 4:45 PM
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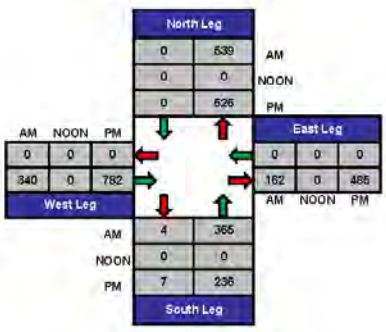
NOON
PM 4:00 PM 6:00 PM
Northbound Approach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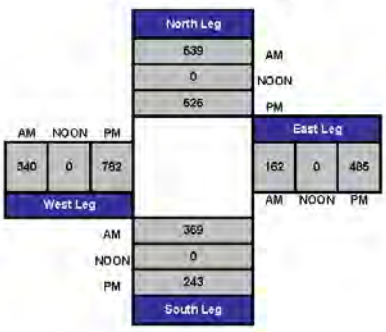
East Leg
West Leg
South Leg
AM NOON PM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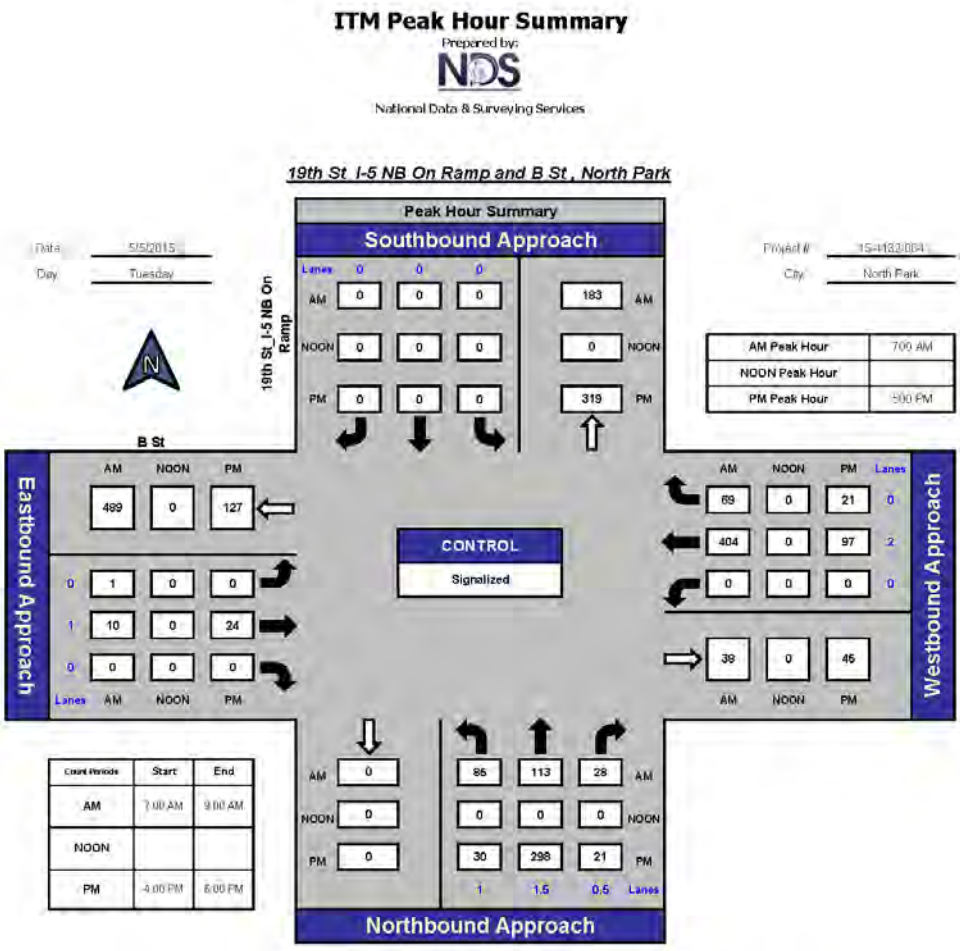
East Leg
West Leg
South Leg
AM NOON PM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National Data & Surveying Services
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Day Tuesday
Project # 15-1132.004
City North Park
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AM Peak Hour 7:00 AM
NOON Peak Hour
PM Peak Hour 5:00 PM
B St
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Westbound Approach
Northbound Approach
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Signalized
Count Periods Start End
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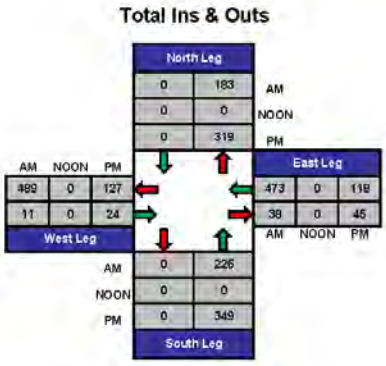
NOON
PM 4:00 PM 6:00 PM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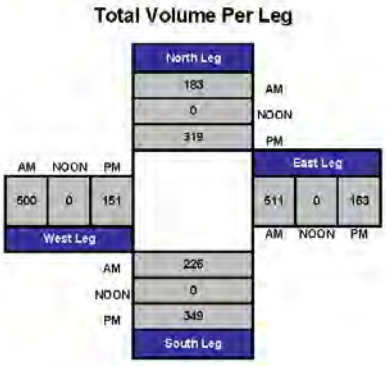
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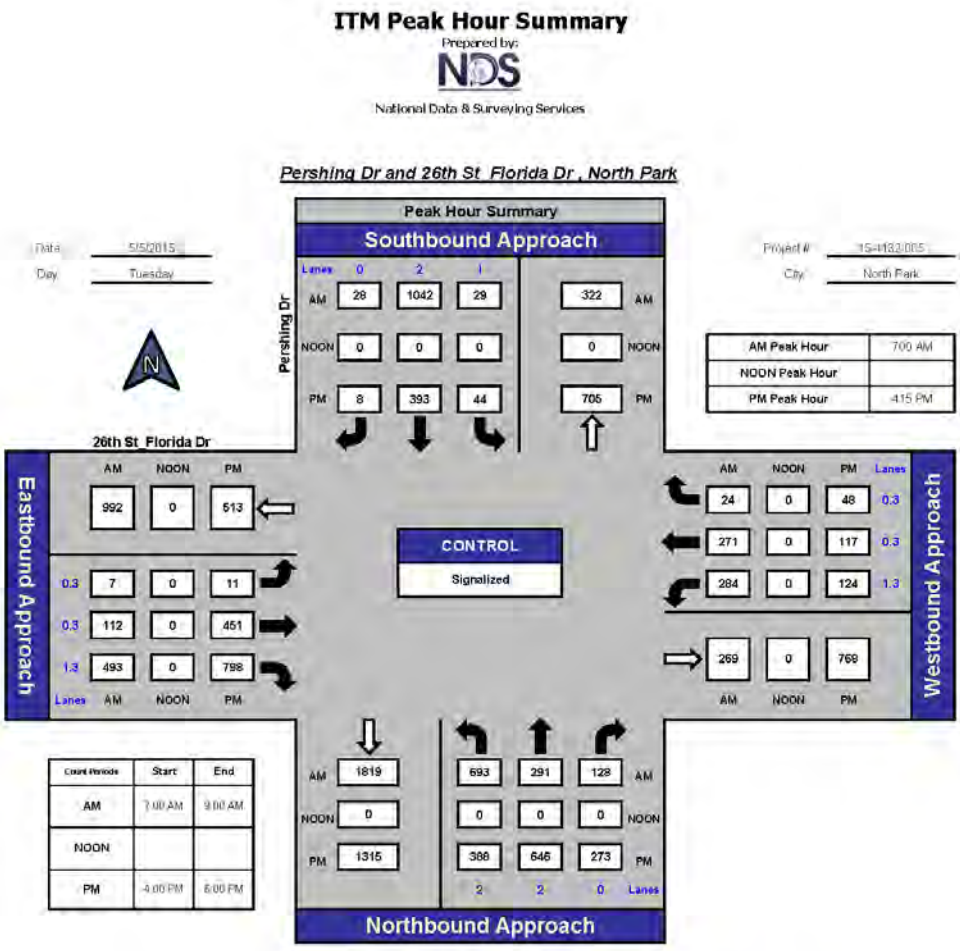
East Leg
West Leg
South Leg
AM
NOON
PM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National Data & Surveying Services
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NOON 0 0 0 0 NOON
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Day Tuesday
Project # 15-HB3005
City North Park
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NOON Peak Hour
PM Peak Hour 4:15 PM
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Eastbound Approach
AM NOON PM
992 0 513
0.3 7 0 11
0.3 112 0 451
1.3 493 0 798
Lanes AM NOON PM
CONTROL
Signalized
Westbound Approach
AM NOON PM Lanes
24 0 48 0.3
271 0 117 0.3
284 0 124 1.3
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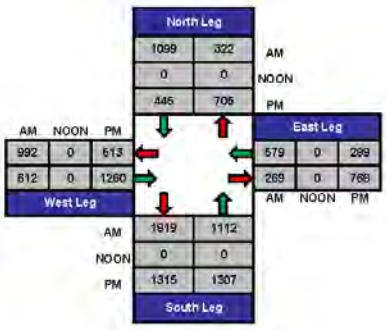
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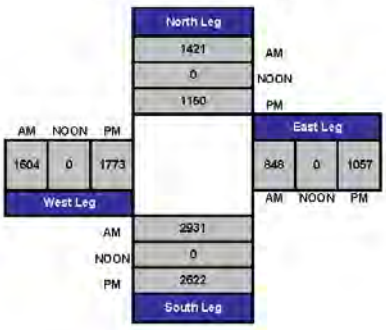
South Leg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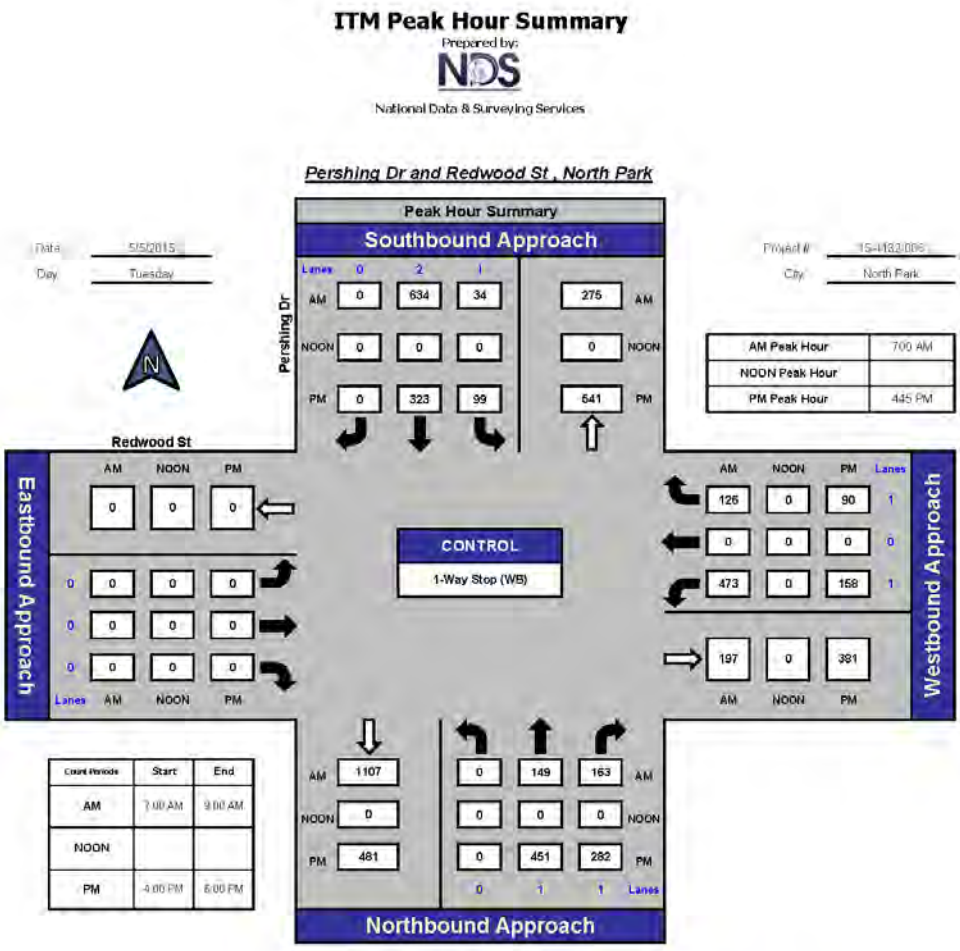
South Leg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National Data & Surveying Services
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Project # 15-4132.005
City North Park
Pershing Dr
AM Peak Hour 7:00 AM
NOON Peak Hour
PM Peak Hour 4:45 PM
Redwood St
Eastbound Approach
Westbound Approach
CONTROL
1-Way Stop (WB)
Count Periods Start End
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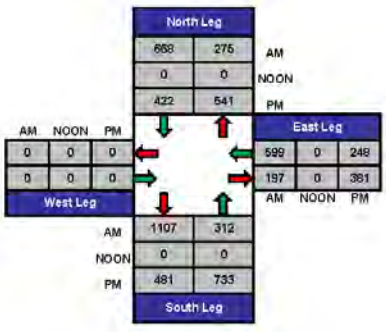
NOON
PM 4:00 PM 6:00 PM
Northbound Approach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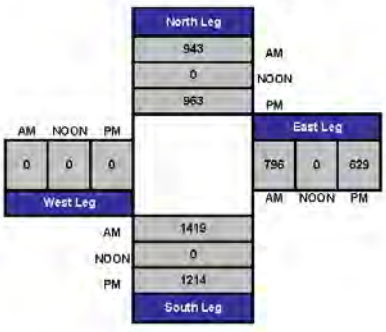
East Leg
West Leg
South Leg
AM NOON PM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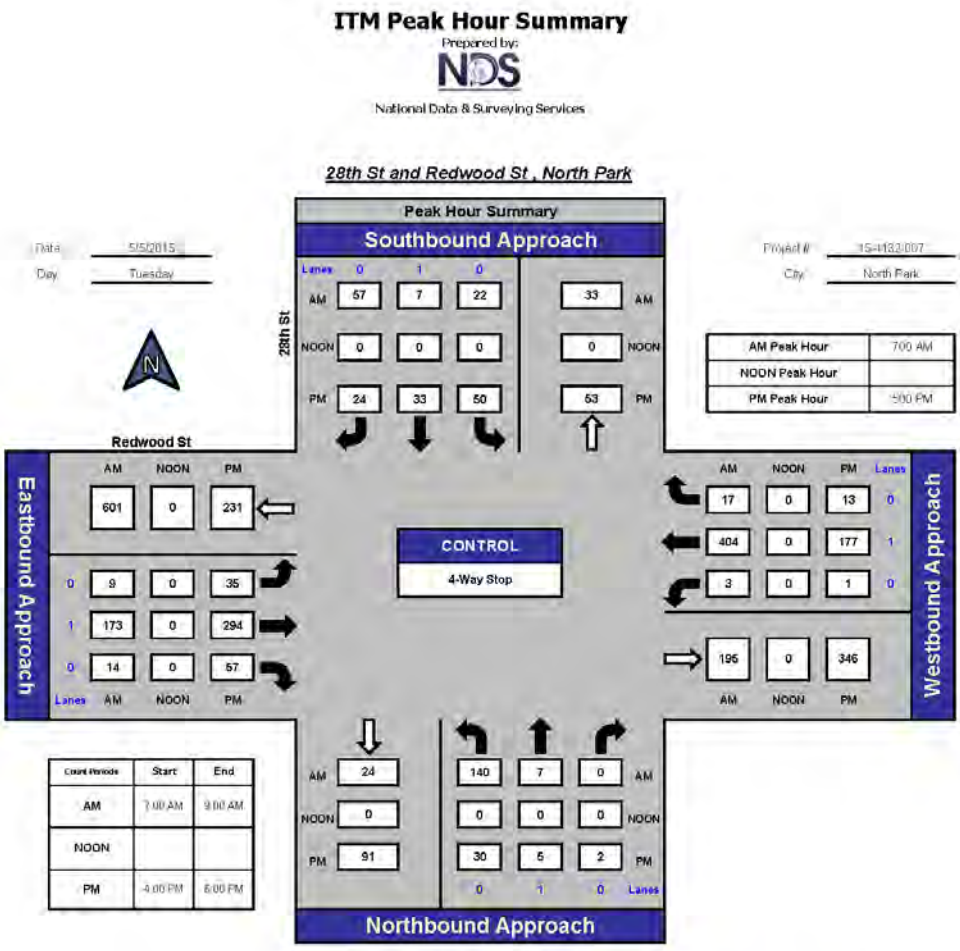
East Leg
West Leg
South Leg
AM NOON PM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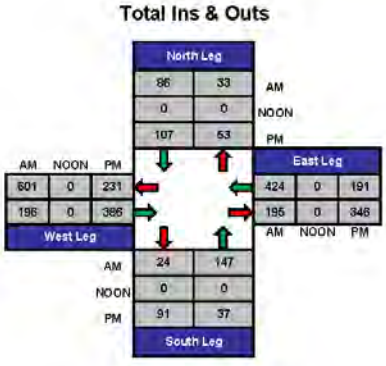
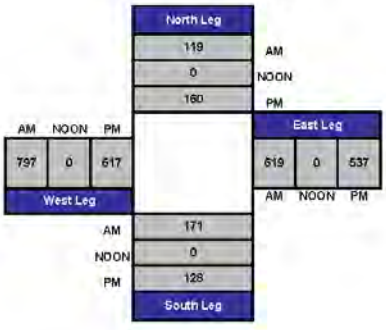
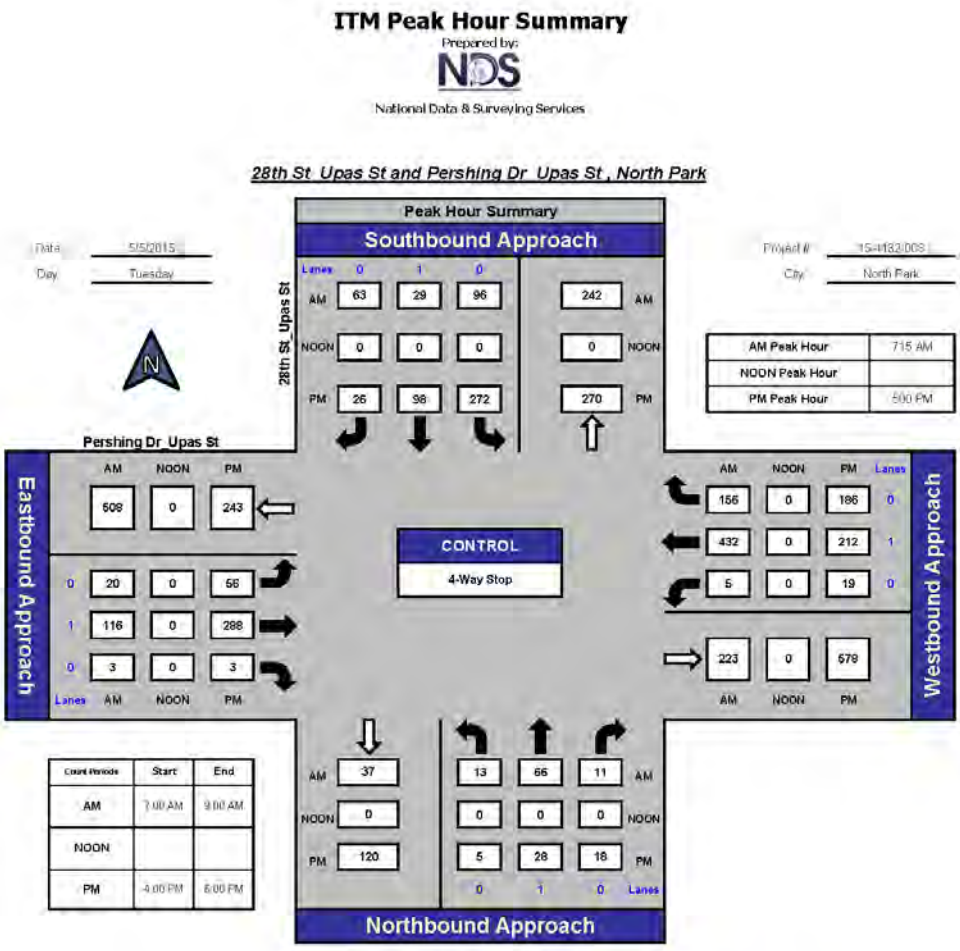
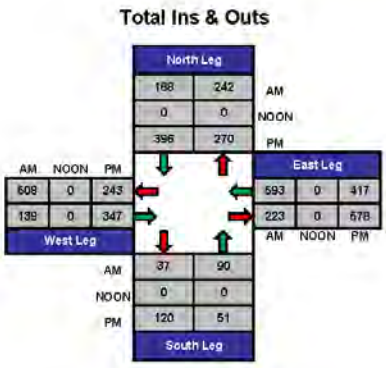
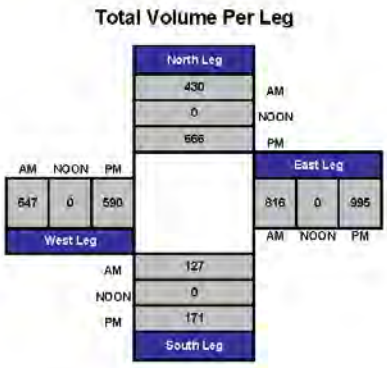
Prepared by:
NDS
National Data & Surveying Services
28th St and Redwood St , North Park
Peak Hour Summary
Southbound Approach
Date 5/5/2015
Day Tuesday
Project # 15-4132.007
City North Park
28th St
Redwood St
AM Peak Hour 700 AM
NOON Peak Hour
PM Peak Hour 500 PM
Eastbound Approach
Westbound Approach
CONTROL
4-Way Stop
Count Periods Start End
AM 7:00 AM 9:00 AM
NOON
PM 4:00 PM 6:00 PM
Northbound Approach

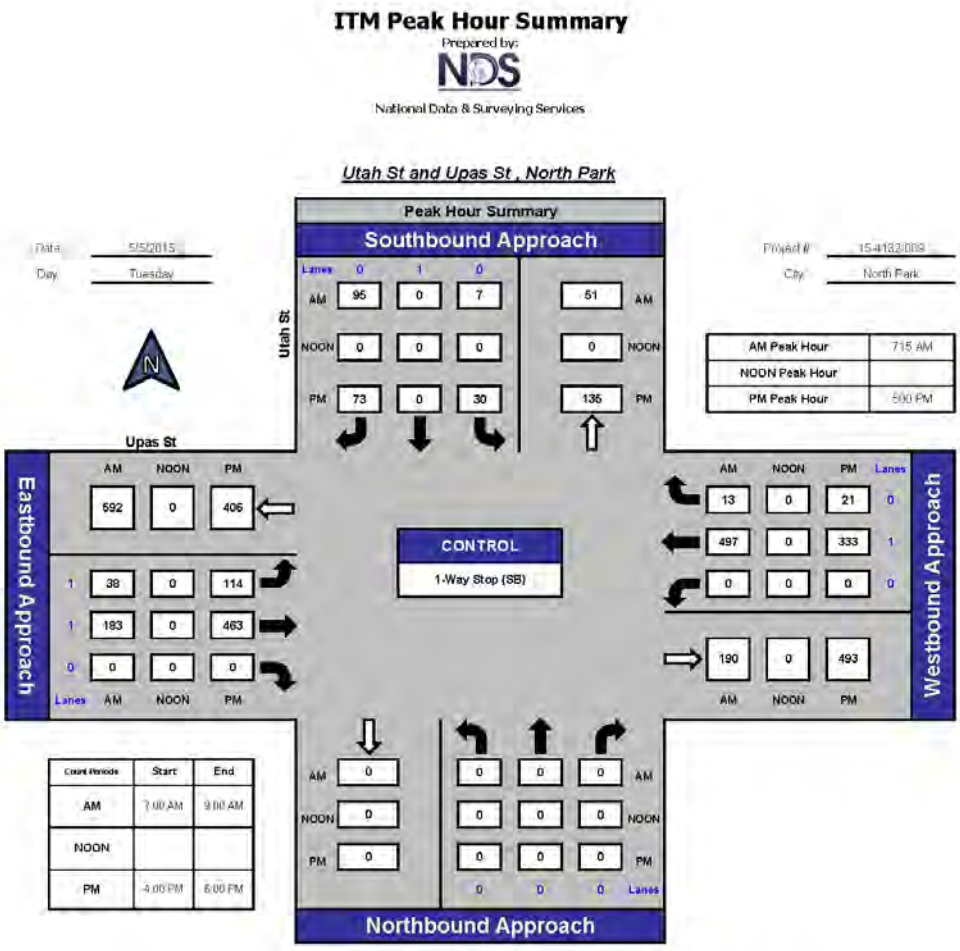

Total Ins & Outs
North Leg
East Leg
West Leg
South Leg

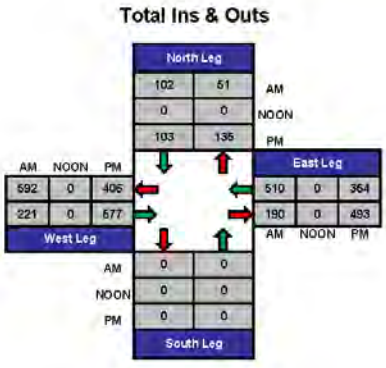

Total Volume Per Leg
North Leg
East Leg
West Leg
South Leg

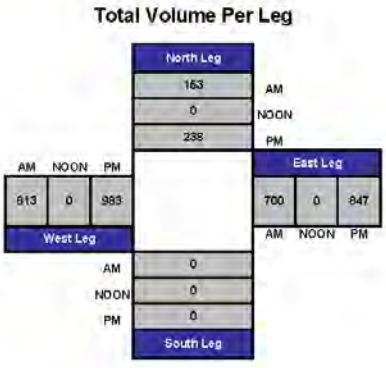

ITM Peak Hour Summary
Prepared by:
NDS
National Data & Surveying Services
28th St_Upas St and Pershing Dr_Upas St , North Park
Peak Hour Summary
Southbound Approach
Date 5/5/2015
Day Tuesday
Project # 15-H132-003
City North Park
28th St_Upas St
AM Peak Hour 715 AM
NOON Peak Hour
PM Peak Hour 500 PM
Pershing Dr_Upas St
Eastbound Approach
Westbound Approach
CONTROL
4-Way Stop
Count Periods Start End
AM 7:00 AM 9:00 AM
NOON
PM 4:00 PM 6:00 PM
Northbound Approach

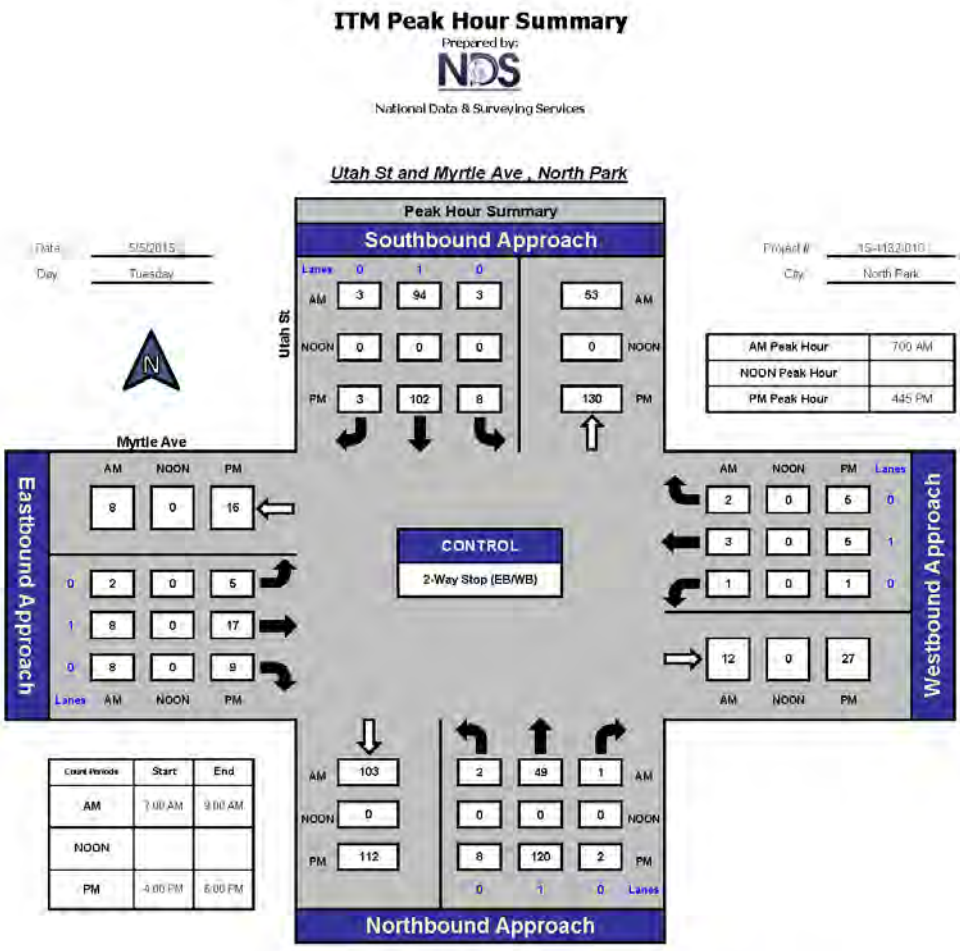

Total Ins & Outs
North Leg
East Leg
West Leg
South Leg
AM
NOON
PM

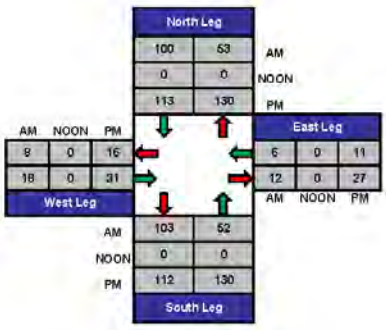

Total Volume Per Leg
North Leg
East Leg
West Leg
South Leg
AM
NOON
PM

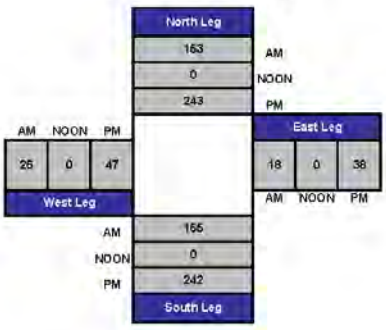

ITM Peak Hour Summary
Prepared by:
NDS
National Data & Surveying Services
Utah St and Upas St , North Park
Peak Hour Summary
Southbound Approach
Utah St
Upas St
Eastbound Approach
Westbound Approach
Northbound Approach
CONTROL
1-Way Stop (SB)
AM Peak Hour 715 AM
NOON Peak Hour
PM Peak Hour 500 PM
Count Periods Start End
AM 7:00 AM 9:00 AM
NOON
PM 4:00 PM 6:00 PM

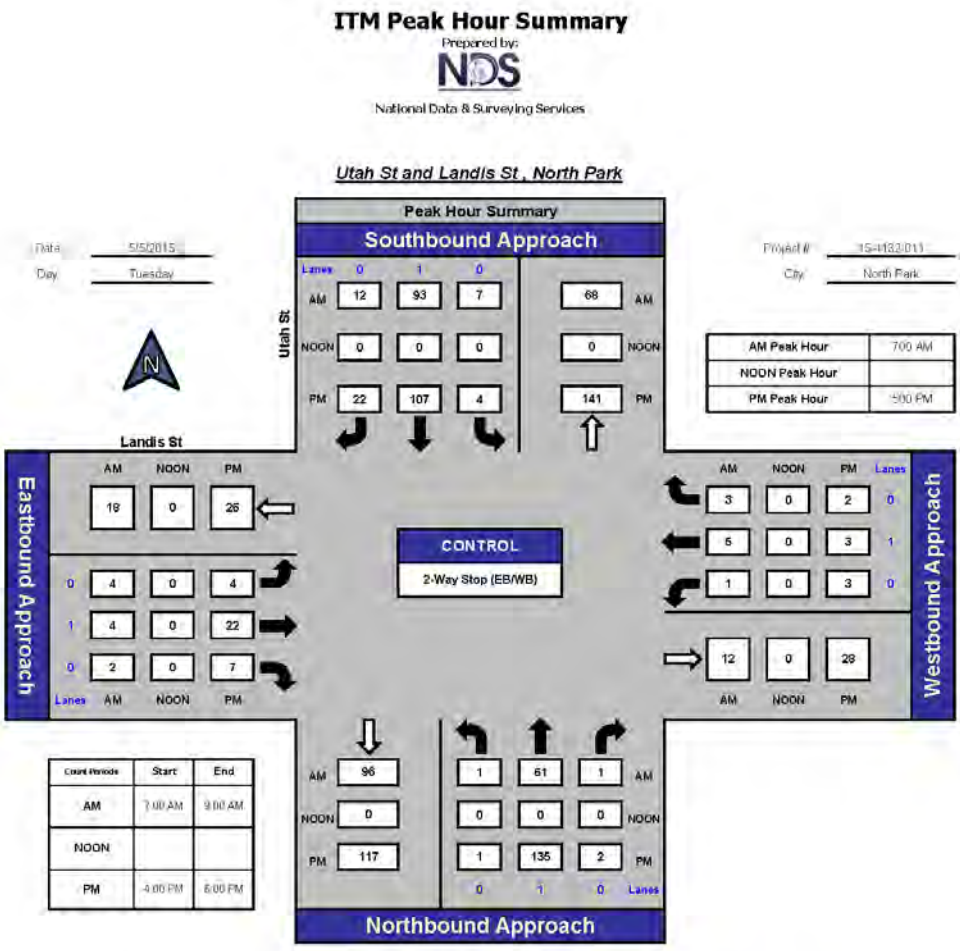

Total Ins & Outs
North Leg
East Leg
West Leg
South Leg

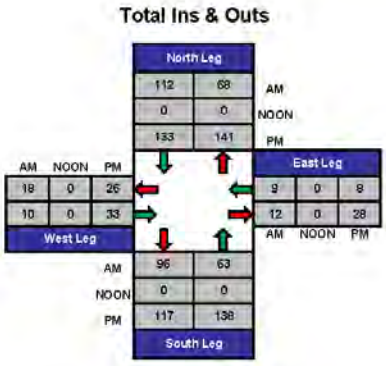

Total Volume Per Leg
North Leg
East Leg
West Leg
South Leg

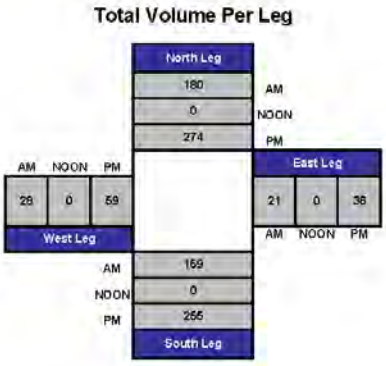

ITM Peak Hour Summary
Prepared by:
NDS
National Data & Surveying Services
Utah St and Myrtle Ave , North Park
Peak Hour Summary
Southbound Approach
Northbound Approach
Eastbound Approach
Westbound Approach
Utah St
Myrtle Ave
Date 5/5/2015
Day Tuesday
Project # 15-113.2010
City North Park
AM Peak Hour 7:00 AM
NOON Peak Hour
PM Peak Hour 4:45 PM
CONTROL
2-Way Stop (EB/WB)
Count Periods Start End
AM 7:00 AM 9:00 AM
NOON
PM 4:00 PM 6:00 PM

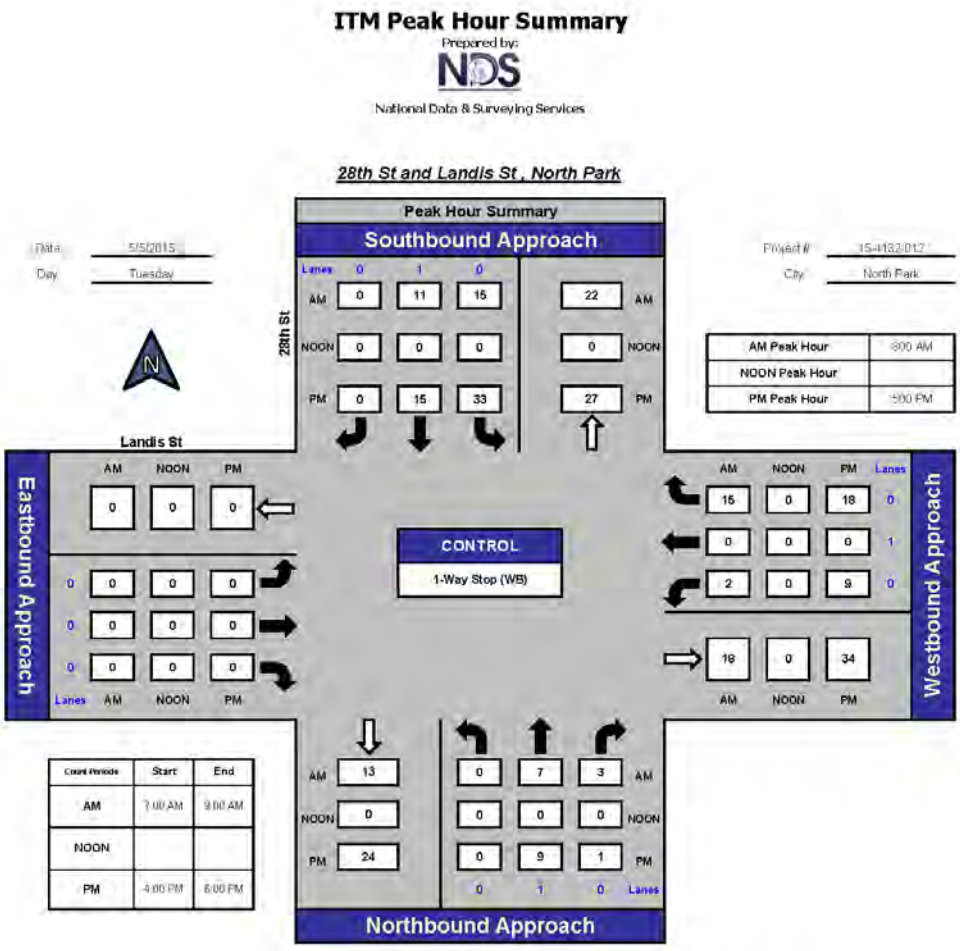

Total Ins & Outs
North Leg
East Leg
West Leg
South Leg
AM
NOON
PM

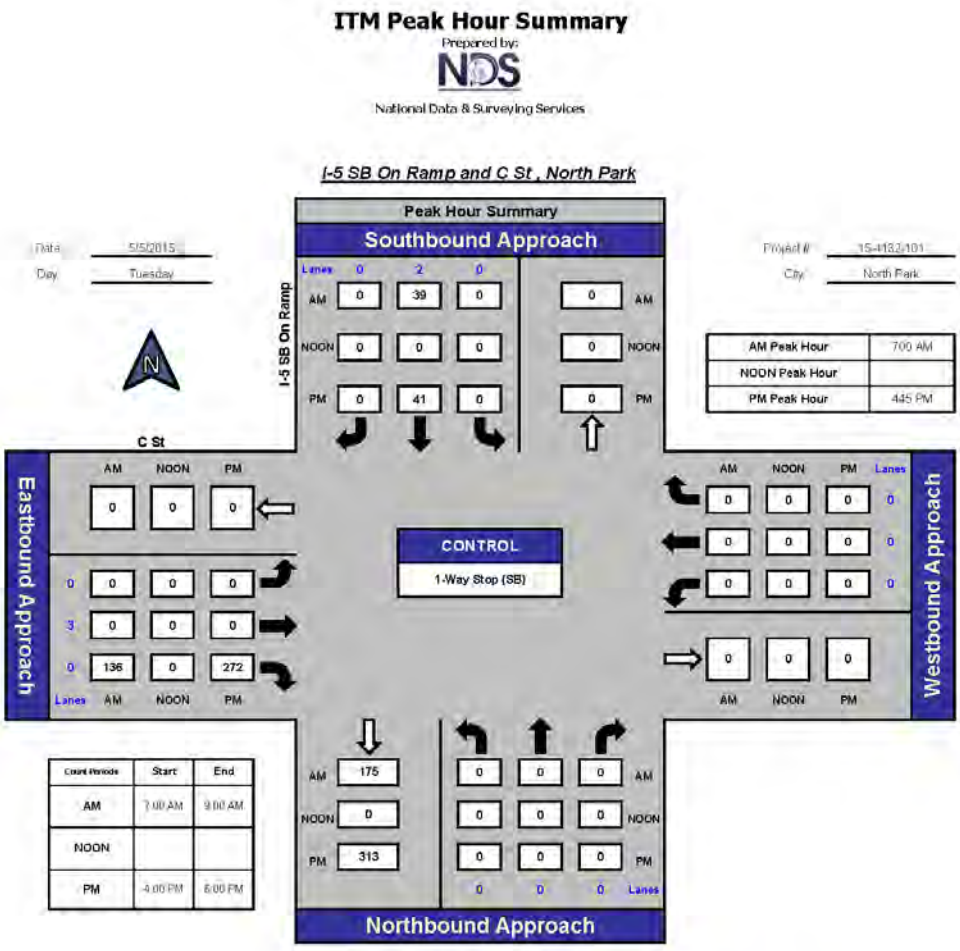

Total Volume Per Leg
North Leg
East Leg
West Leg
South Leg
AM
NOON
PM

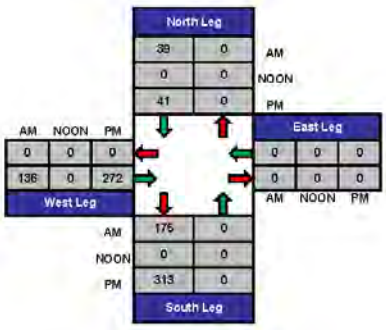

ITM Peak Hour Summary
Prepared by:
NDS
National Data & Surveying Services
Utah St and Landis St , North Park
Peak Hour Summary
Southbound Approach
Utah St
Landis St
Eastbound Approach
Westbound Approach
Northbound Approach
CONTROL
2-Way Stop (EB/WB)
AM Peak Hour 700 AM
NOON Peak Hour
PM Peak Hour 500 PM
Count Periods Start End
AM 7:00 AM 9:00 AM
NOON
PM 4:00 PM 6:00 PM

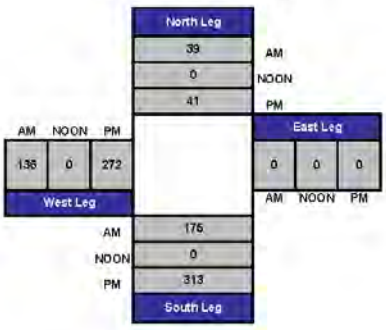

Total Ins & Outs
North Leg
East Leg
West Leg
South Leg

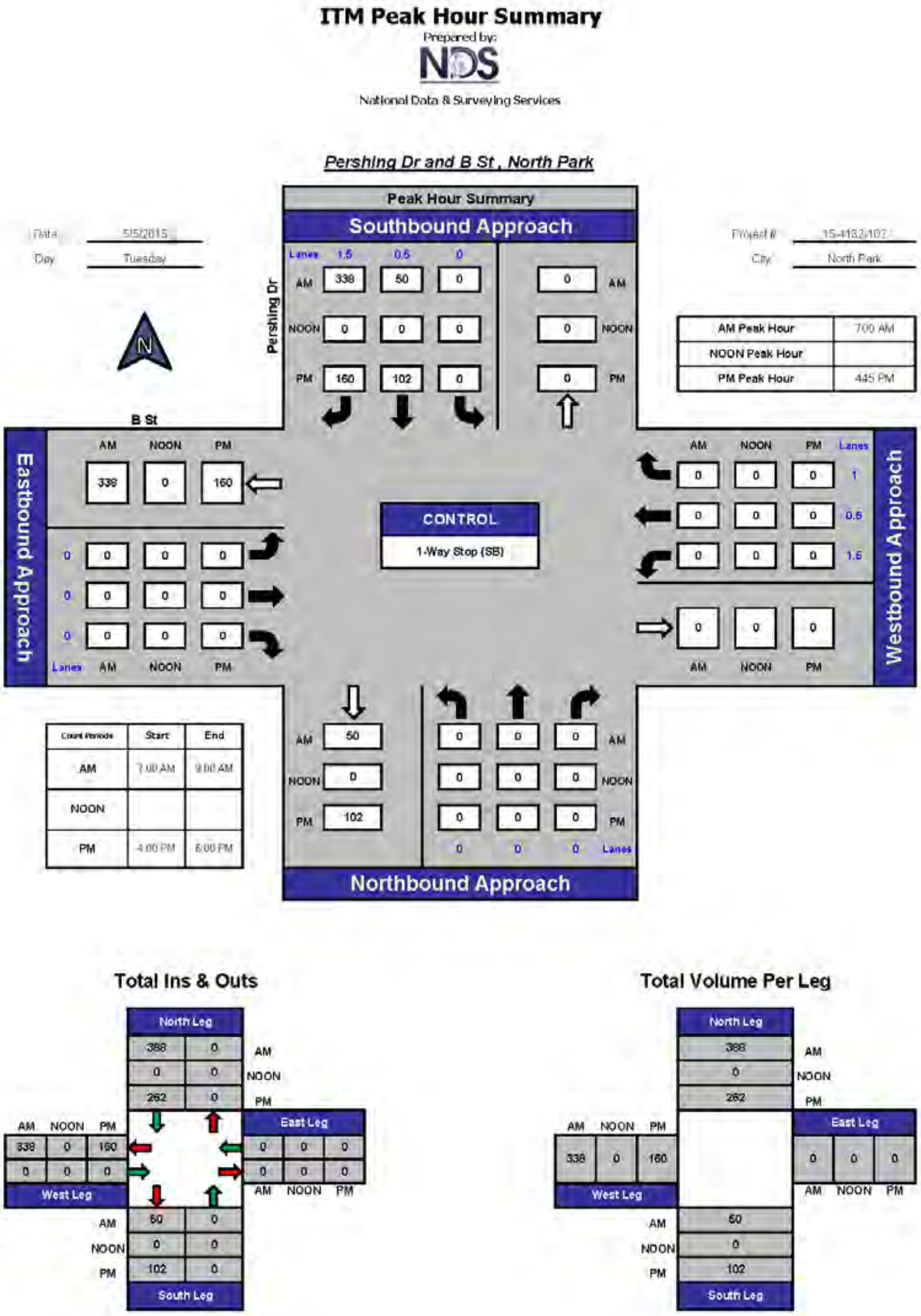

Total Volume Per Leg
North Leg
East Leg
West Leg
South Leg

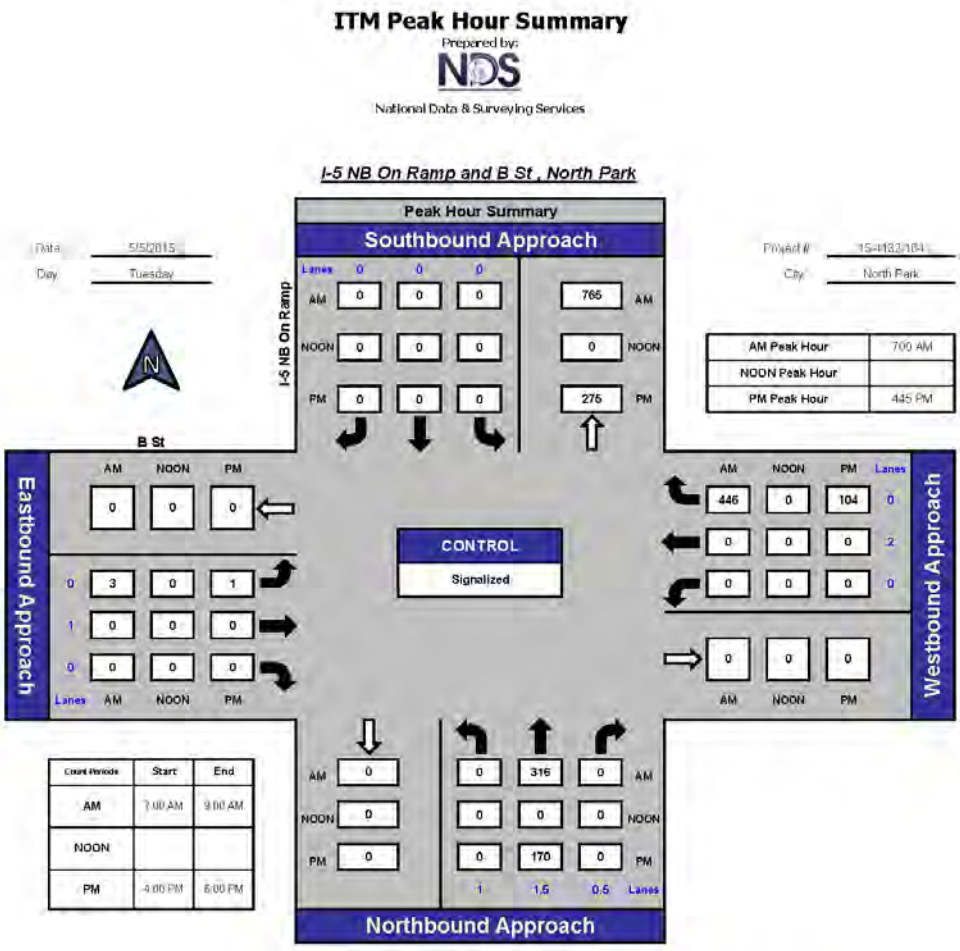

ITM Peak Hour Summary
Prepared by:
NDS
National Data & Surveying Services
28th St and Landis St , North Park
Peak Hour Summary
Southbound Approach
Date 5/5/2015
Day Tuesday
Project # 15-4132012
City North Park
28th St
Landis St
AM Peak Hour 800 AM
NOON Peak Hour
PM Peak Hour 500 PM
Eastbound Approach
Westbound Approach
CONTROL
1-Way Stop (WB)
Count Periods Start End
AM 7:00 AM 9:00 AM
NOON
PM 4:00 PM 6:00 PM
Northbound Approach
Total Ins & Outs
North Leg
East Leg
West Leg
South Leg
Total Volume Per Leg
North Leg
East Leg
West Leg
South Leg

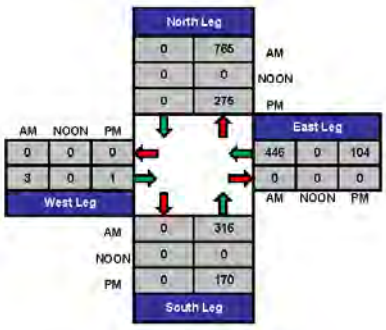

ITM Peak Hour Summary
Prepared by:
NDS
National Data & Surveying Services
I-5 SB On Ramp and C St , North Park
Peak Hour Summary
Southbound Approach
Data 5/5/2015
Day Tuesday
Project # 15-413J101
City North Park
I-5 SB On Ramp
AM Peak Hour 7:00 AM
NOON Peak Hour
PM Peak Hour 4:45 PM
C St
Eastbound Approach
Westbound Approach
CONTROL
1-Way Stop (SB)
Count Periods Start End
AM 7:00 AM 9:00 AM
NOON
PM 4:00 PM 6:00 PM
Northbound Approach

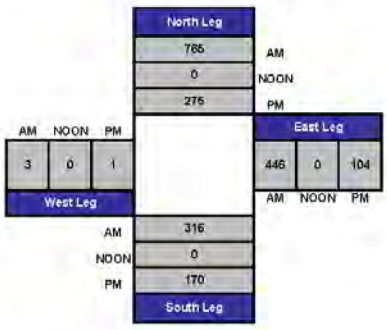

Total Ins & Outs
North Leg
East Leg
West Leg
South Leg
AM NOON PM


Total Volume Per Leg
North Leg
East Leg
West Leg
South Leg
AM NOON PM


ITM Peak Hour Summary
Prepared by:
NDS
National Data & Surveying Services
Pershing Dr and B St , North Park
Peak Hour Summary
Southbound Approach
Date 5/5/2015
Day Tuesday
Project # 15-4182-107
City North Park
Pershing Dr
B St
Lanes 1.5 0.5 0
AM 338 50 0 0
NOON 0 0 0 0
PM 160 102 0 0
AM Peak Hour 7:00 AM
NOON Peak Hour
PM Peak Hour 4:45 PM
Eastbound Approach
AM NOON PM
338 0 160
0 0 0
0 0 0
0 0 0
Lanes 0 0 0
CONTROL
1-Way Stop (SB)
Westbound Approach
AM NOON PM Lanes
0 0 0 1
0 0 0 0.5
0 0 0 1.5
0 0 0
Count Periods Start End
AM 7:00 AM 9:00 AM
NOON
PM 4:00 PM 6:00 PM
AM 50
NOON 0
PM 102
AM 0 0 0
NOON 0 0 0
PM 0 0 0
Lanes 0 0 0
Northbound Approach
Total Ins & Outs
North Leg
388 0 AM
0 0 NOON
262 0 PM
East Leg
0 0 0
0 0 0
AM NOON PM
West Leg
AM NOON PM
338 0 160
0 0 0
South Leg
AM 50 0
NOON 0 0
PM 102 0
Total Volume Per Leg
North Leg
388 AM
0 NOON
262 PM
East Leg
0 0 0
AM NOON PM
West Leg
AM NOON PM
338 0 160
South Leg
AM 50
NOON 0
PM 102

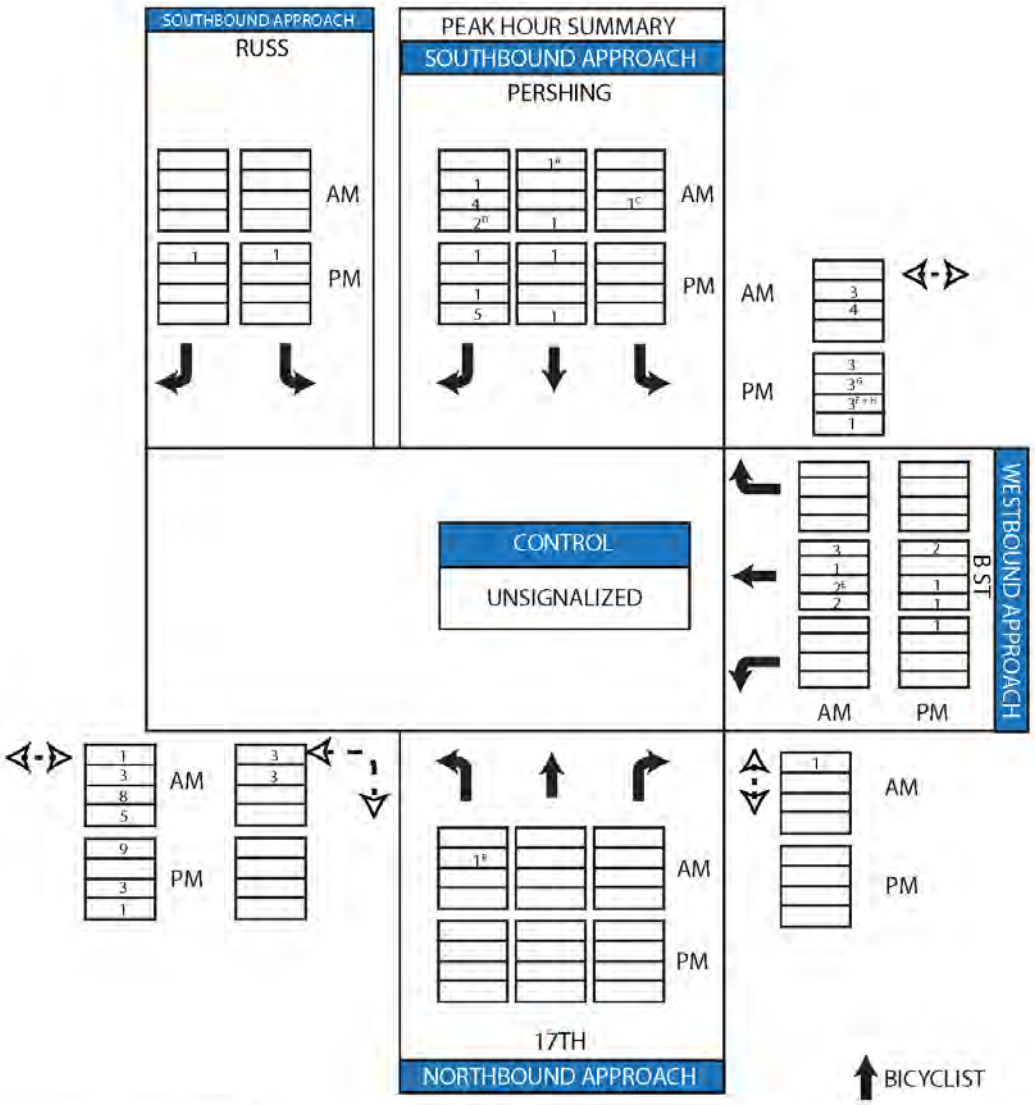

ITM Peak Hour Summary
Prepared by:
NDS
National Data & Surveying Services
I-5 NB On Ramp and B St , North Park
Peak Hour Summary
Southbound Approach
Date 5/5/2015
Day Tuesday
Project # 15-H132/104
City North Park
I-5 NB On Ramp
B St
AM Peak Hour 7:00 AM
NOON Peak Hour
PM Peak Hour 4:45 PM
Eastbound Approach
Westbound Approach
CONTROL
Signalized
Count Periods Start End
AM 7:00 AM 9:00 AM
NOON
PM 4:00 PM 6:00 PM
Northbound Approach


Total Ins & Outs
North Leg
East Leg
West Leg
South Leg
AM
NOON
PM


Total Volume Per Leg
North Leg
East Leg
West Leg
South Leg
AM
NOON
PM

Date: 7/7/2015
Day: Tuesday

PERSHING-17TH-B STREET



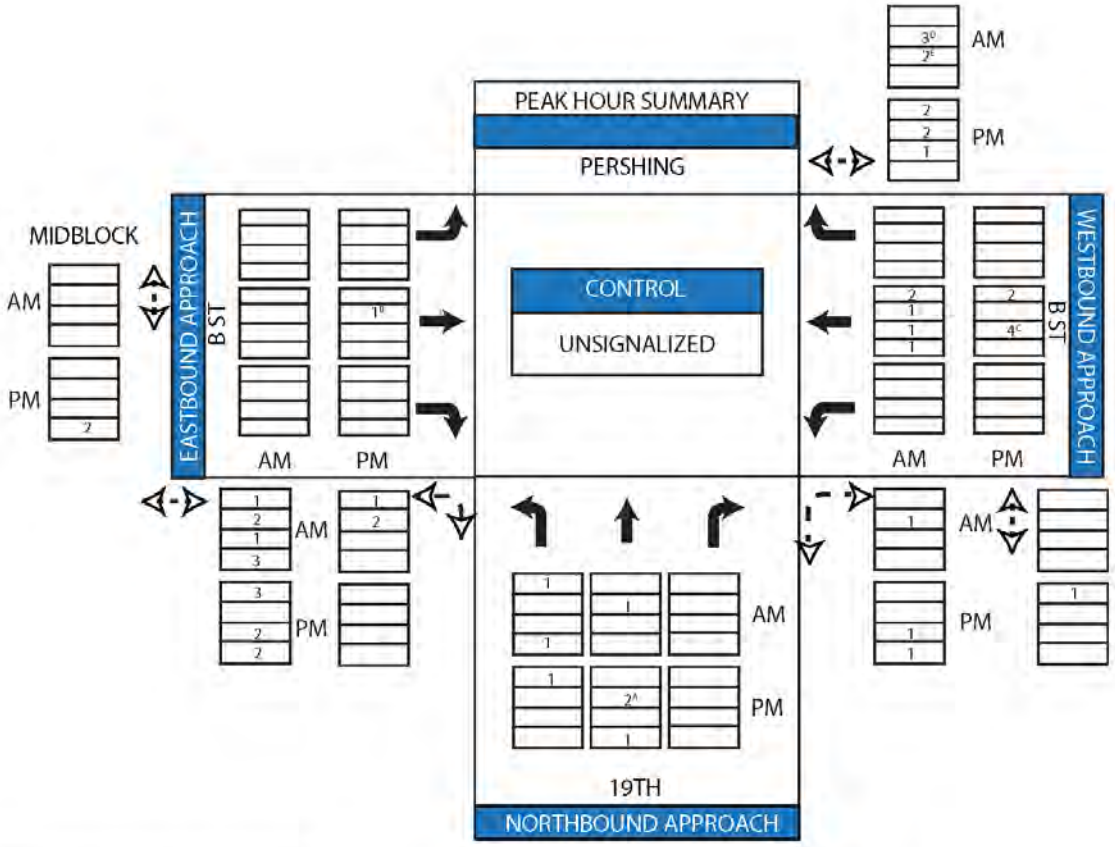
Count Periods	Start	End
AM	6:55	6:55
	7:10	7:10
	7:25	7:25
	7:40	7:40
PM	5:05	5:20
	5:20	5:25
	5:35	5:40
	5:40	5:55

UNUSUAL ACTIVITES:

A - Bicyclist on East Side Sidewalk
B - Bicyclist on West Side Sidewalk
C - Skateborder in bike lane
D - One Bicyclist on sidewalk on B Street
E - One Bicyclist dismounted and walked bike on sidewalk east of intersection
F - One on scooter on sidewalk
G - One walked in west bike lane of Pershing
H - One walking in west bike lane on Pershing

PERSHING - 19TH - B STREET

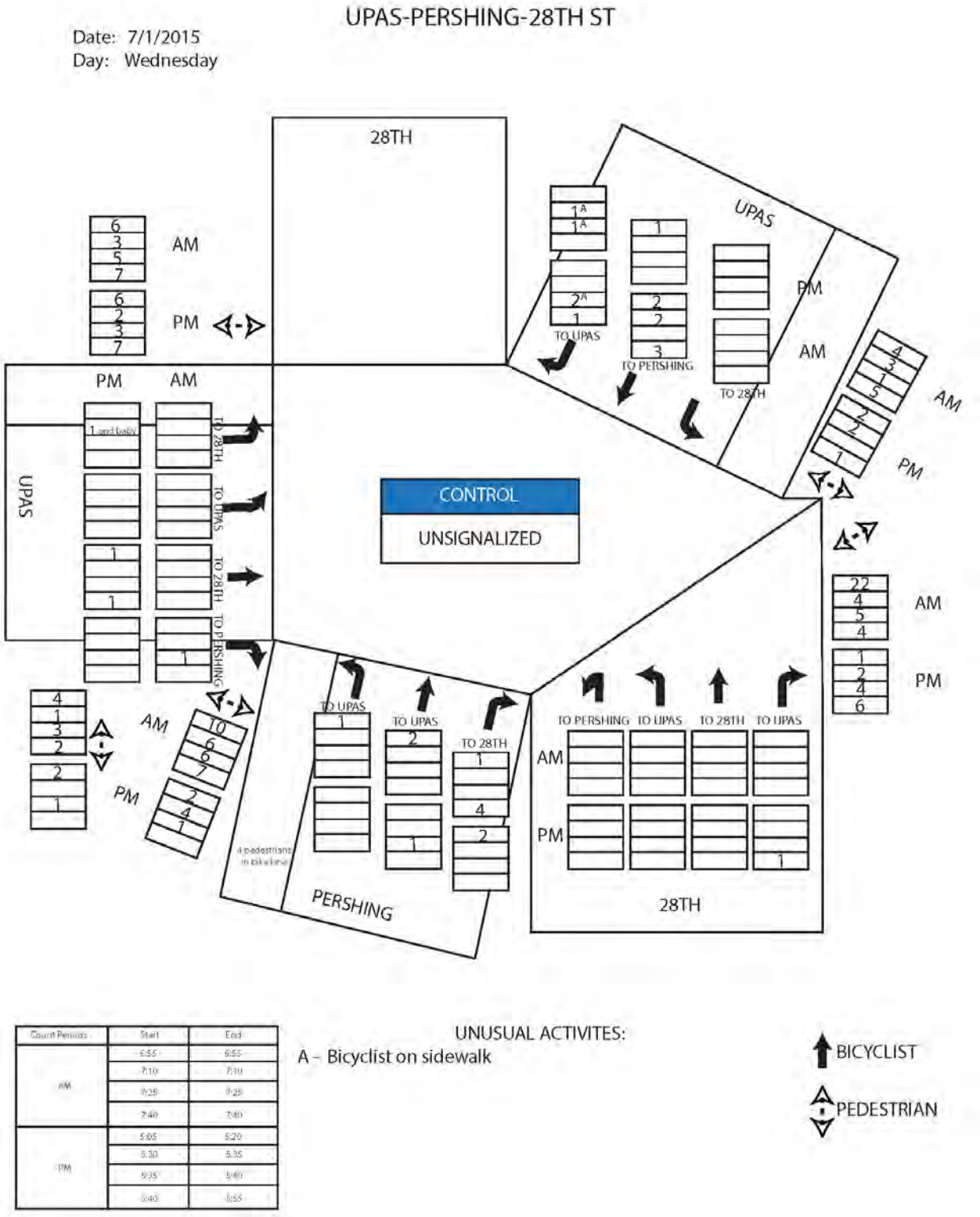
Date: 7/7/2015
Day: Tuesday



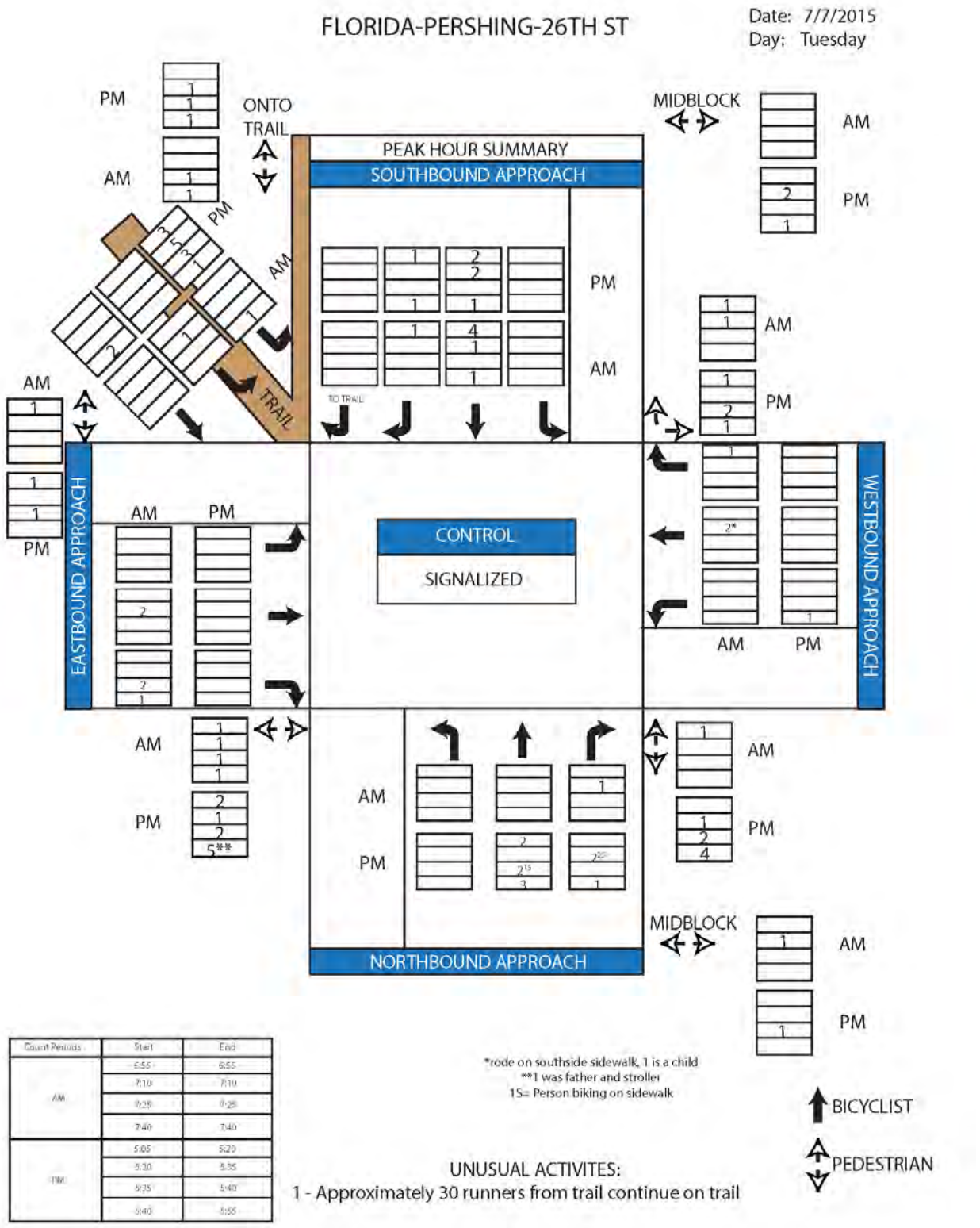
Count Periods	Start	End
AM	6:55	6:55
	7:10	7:10
	7:25	7:25
	7:40	7:40
PM	5:05	5:20
	5:20	5:35
	5:35	5:40
	5:40	5:55

UNUSUAL ACTIVITES:
A - One Bicyclist not in bike lane
B - Bicyclist on north side sidewalk
C - One is person riding scooter in bike lane
D - Stopped in front of I-5 on-ramp, 3 times same person
E - Crossed in front of I-5 on-ramp
F - Midblock crossing from east to west on 19th
G - One person southbound on Pershing turned right onto B St

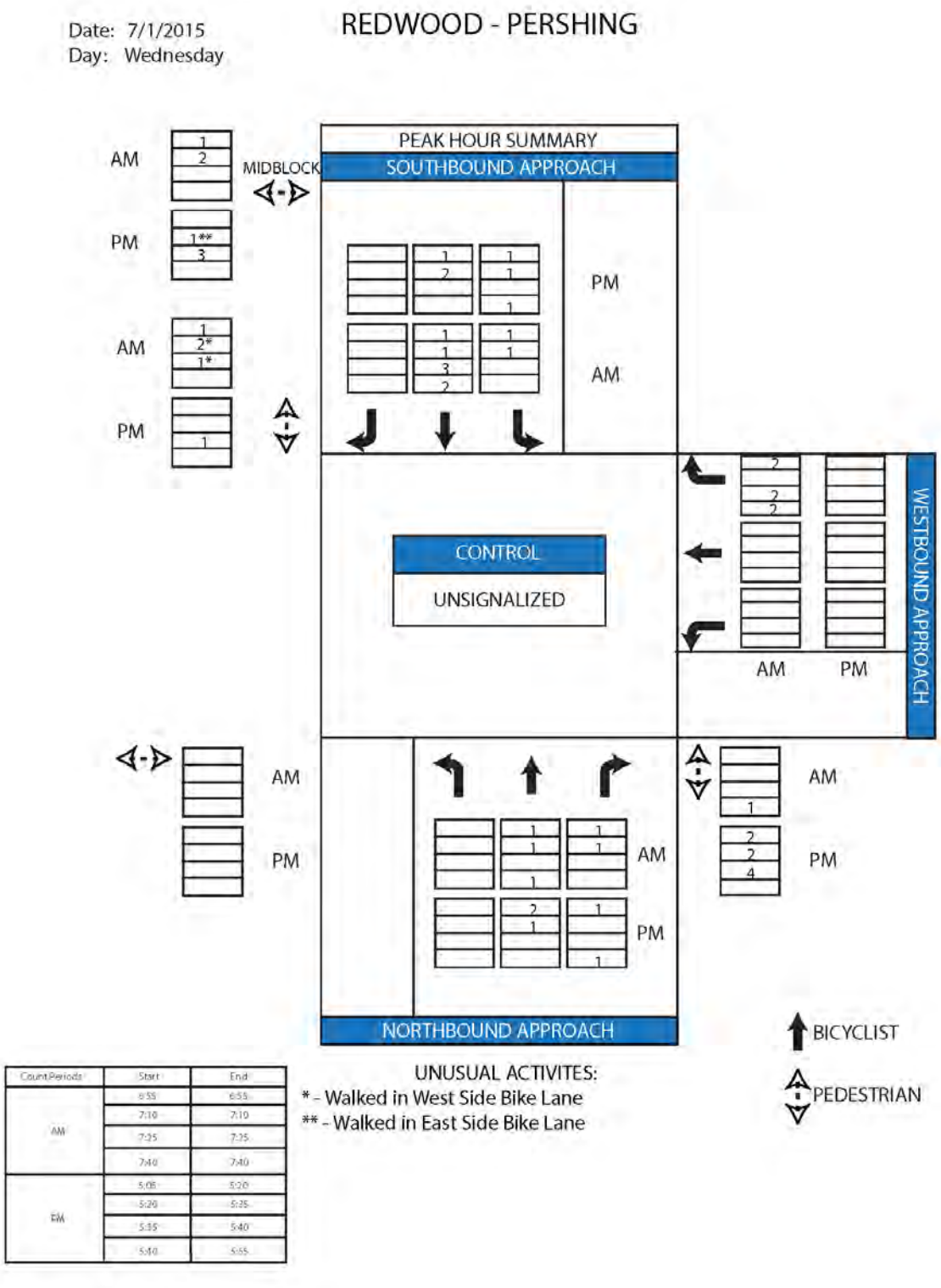
BICYCLIST
PEDESTRIAN



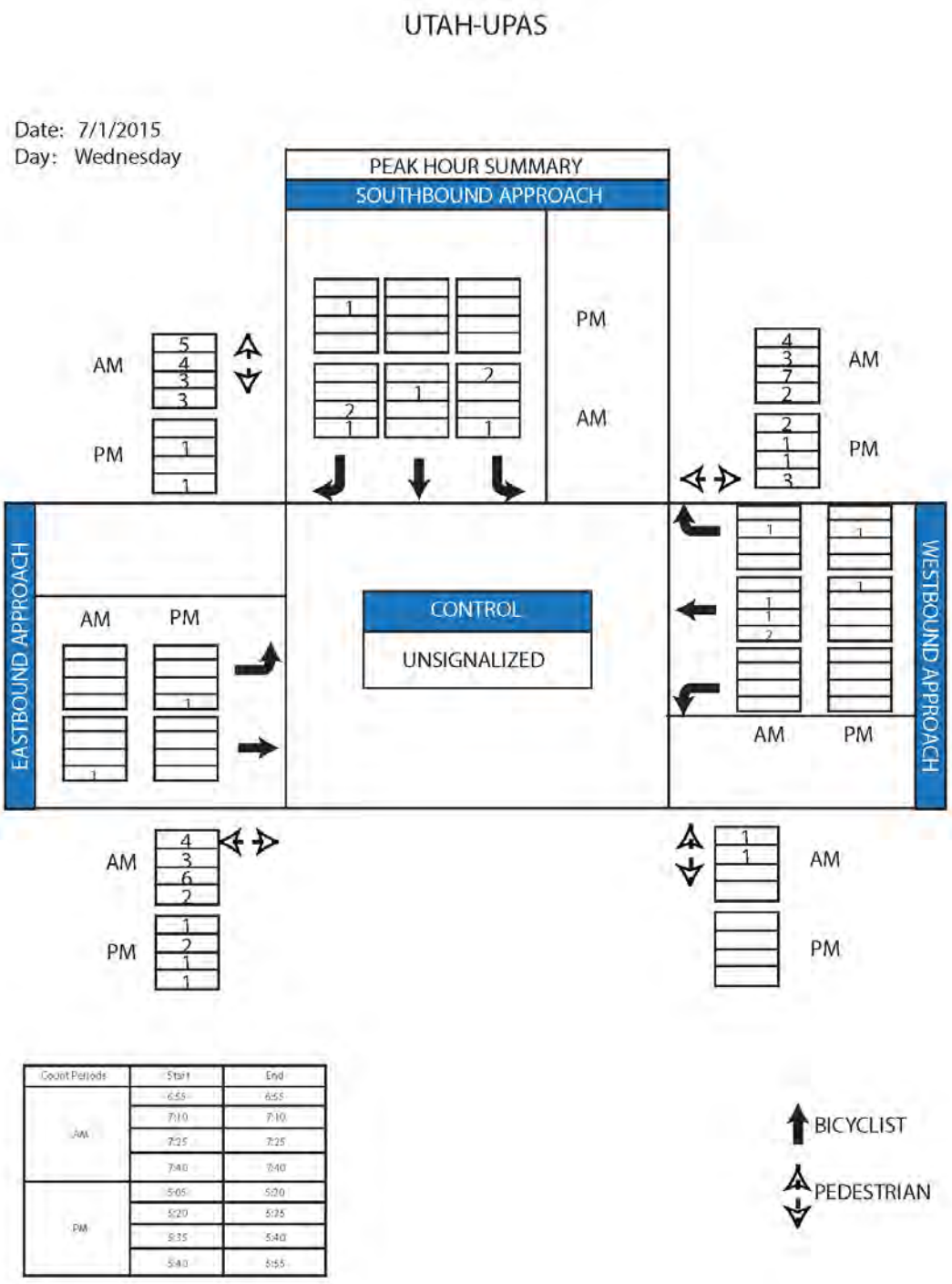
Count Periods	Start	End
AM	6:55	6:55
	7:10	7:10
	7:25	7:25
	7:40	7:40
PM	5:05	5:20
	5:30	5:35
	5:35	5:40
	5:40	5:55



Count Periods	Start	End
AM	6:55	6:55
	7:10	7:10
	7:25	7:25
	7:40	7:40
PM	5:05	5:20
	5:20	5:35
	5:35	5:40
	5:40	5:55

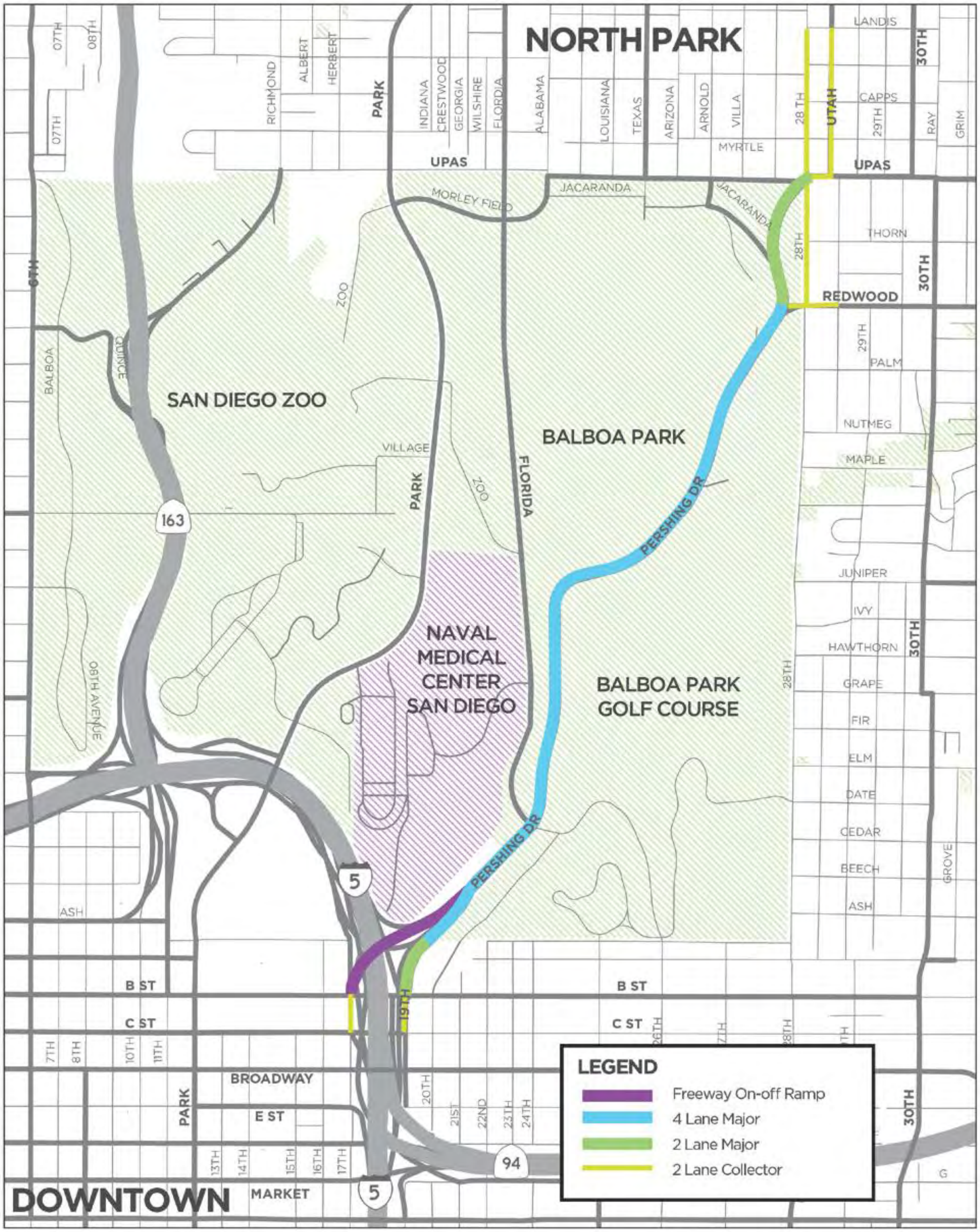


Count Periods	Start	End
AM	6:55	6:55
	7:10	7:10
	7:25	7:25
	7:40	7:40
PM	5:05	5:20
	5:20	5:25
	5:35	5:40
	5:40	5:55


UTAH-UPAS
Date: 7/1/2015
Day: Wednesday
PEAK HOUR SUMMARY
SOUTHBOUND APPROACH
PM
AM
AM
PM
AM
PM
EASTBOUND APPROACH
WESTBOUND APPROACH
CONTROL
UNSIGNALIZED
AM
PM
AM
PM
AM
PM
AM
PM
Count Periods
Start
End
AM
6:55
7:10
7:25
7:40
PM
5:05
5:20
5:35
5:40
5:20
5:35
5:40
5:55
BICYCLIST
PEDESTRIAN

Appendix D

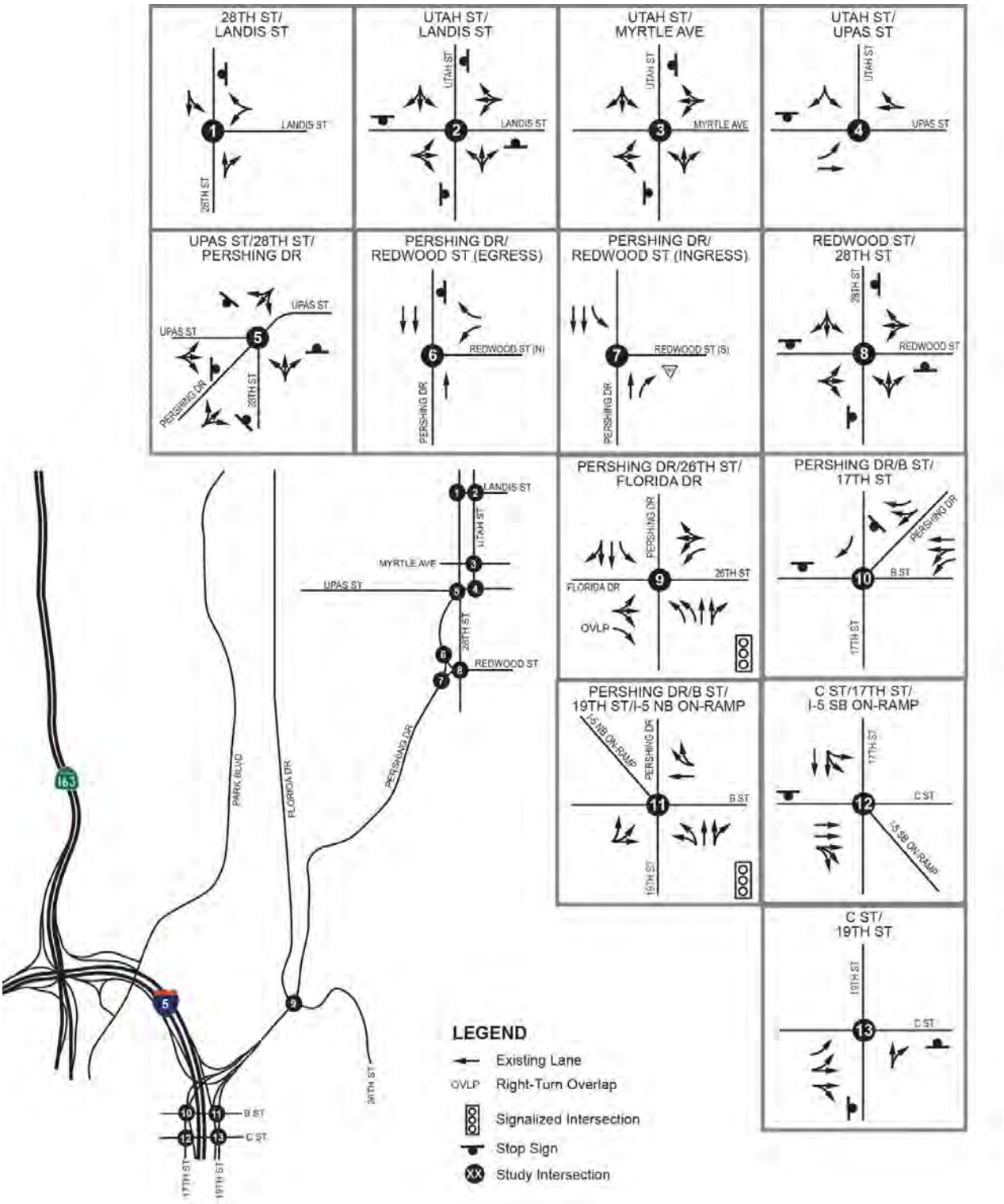
Existing Roadway Classifications


NORTH PARK
SAN DIEGO ZOO
BALBOA PARK
NAVAL MEDICAL CENTER SAN DIEGO
BALBOA PARK GOLF COURSE
DOWNTOWN
PERSHING DR
UPAS
REDWOOD
FLORIDA
PARK
B ST
C ST
BROADWAY
E ST
MARKET
19TH
28TH
30TH
UTAH
163
5
94
LEGEND
Freeway On-off Ramp
4 Lane Major
2 Lane Major
2 Lane Collector

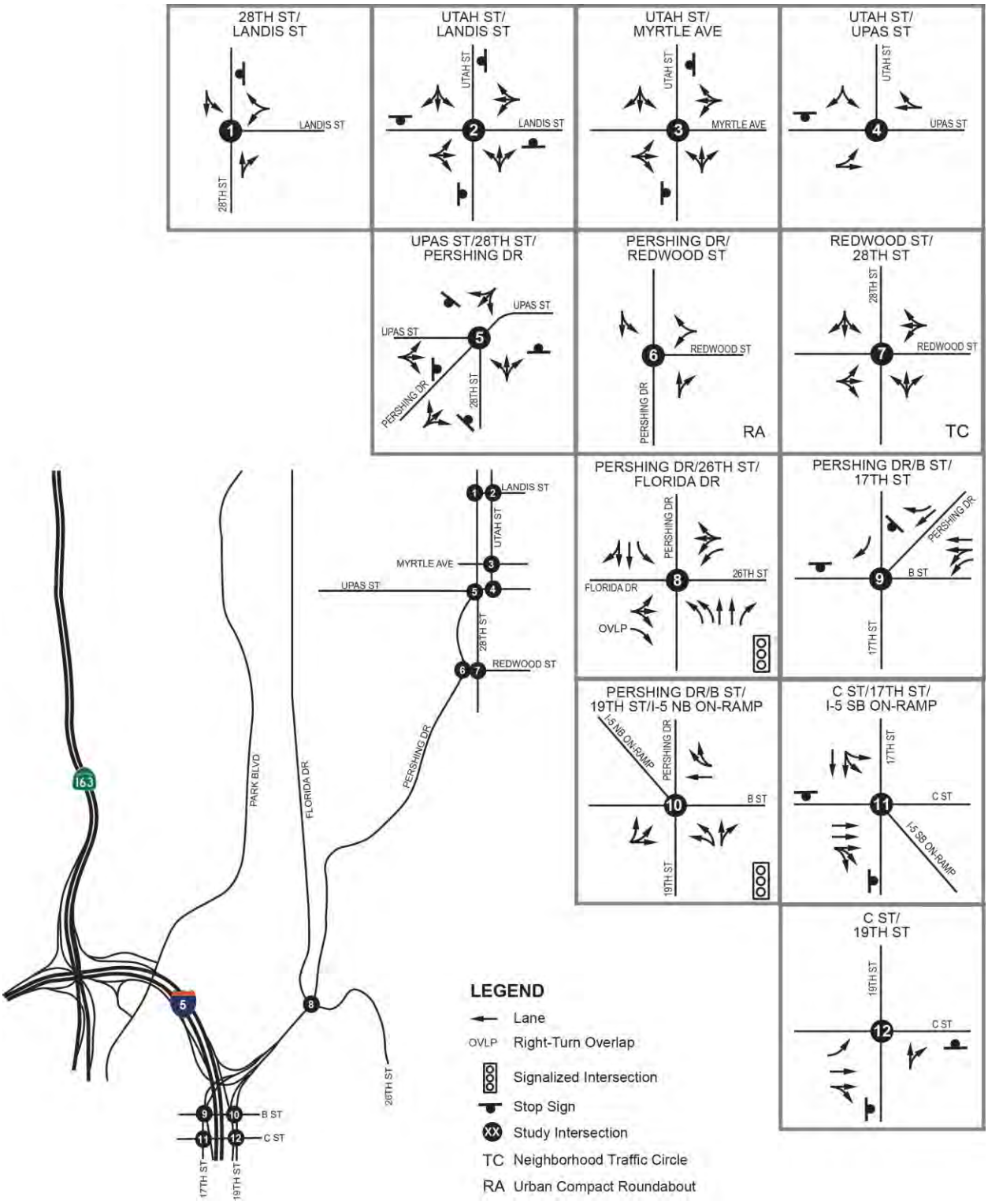
Appendix E

Intersection Geometries

Existing Intersection Geometries



Proposed Intersection Geometries



Appendix F

Segment & Intersection Analysis Tables & Graphics
Existing (2015) Conditions: With and Without the Project

Roadway Level of Service – Existing Conditions With and Without the Project

Segment	Volume (AADT)	Existing Conditions without Project				Existing Conditions with Project				Change in V/C	Exceeds City of San Diego Criteria?
		Lanes	Capacity	V/C	LOS	Lanes	Capacity	V/C	LOS		
Pershing Drive											
Upas St. to Jacaranda Pl.	7176	2-L C(SM)	15000	0.48	B	2-L C SM	15000	0.48	B	0.00	No
Jacaranda Pl. to Redwood St.	11855	3-L C (CL)	22500	0.53	C	2-L C SM	15000	0.79	D	0.26	No
Redwood St. to Florida Dr./26th St.	15735	4-L MA	40000	0.39	B	2-L MA	20000	0.79	D	0.39	No
Florida Dr./26th St. to I-5 Ramps	37476	4-L MA	40000	0.94	E	4-L MA	40000	0.94	E	0.00	No
I-5 Ramps to North of B St.	7488	3-L MA	30000	0.25	A	2-L MA	20000	0.37	A	0.12	No
North of B St. to B St.	7488	4-L MA	40000	0.19	A	3-L MA	30000	0.25	A	0.06	No
17th Street											
B St. to C St.	2244	2-L C (OW)	15000	0.15	A	2-L C (OW)	15000	0.15	A	0.00	No
19th Street											
B St. to C St.	5364	2-L C (OW)	15000	0.36	B	1-L C (OW)	7500	0.72	D	0.36	No

Notes: North of B Street refers to the area Pershing Drive approximately 200 feet north of B Street where Pershing Drive's southbound leg expands to two travel lanes.

LOS = level of service
V/C = volume-to-capacity ratio
AADT = annual average daily traffic
OW = one-way
C = collector
MA = major arterial
CL = center, turn lane
SM = separated media

Intersection Level of Service – Existing Conditions With and Without the Project

Intersection	Intersection Control	Existing Without Project		Intersection Control	Existing with Project		Change in Delay	Exceeds City of San Diego Criteria?
		Delay	LOS		Delay	LOS		
A.M. Peak Hour								
Pershing Dr. and Redwood St. Egress	MSS*	60.6	F	RA	20.1	C	-40.5	No
Pershing Dr. and Redwood St. Ingress	MSS	0.2	A					
28th St. and Redwood St.	AWS**	14.4	B	TC	8.3	A	-6.1	No
Pershing Dr. and Florida Dr./26th St.	TS	>80.0	F	TS	>80.0	F	0.0	No
Pershing Dr./17th St. and B St.	MSS	>80.0	F	AWS	42.1	E	-37.9	No
Pershing Dr./19th St. and B St.	TS	17.8	B	TS	24.0	C	6.2	No
17th St. and C St.	MSS	13.9	B	AWS	9.3	A	-4.6	No
19th St. and C St.	AWS	14.1	B	AWS	14.5	B	0.4	No
P.M. Peak Hour								
Pershing Dr. and Redwood St. Egress	MSS	18.1	C	RA	13.9	B	-4.2	No
Pershing Dr. and Redwood St. Ingress	MSS	1.8	A					
28th St. and Redwood St.	AWS	11.0	B	TC	6.8	A	-4.2	No
Pershing Dr. and Florida Dr./26th St.	TS	76.7	E	TS	57.5	E	-19.2	No
Pershing Dr./17th St. and B St.	MSS	18.9	C	AWS	9.9	A	-9.0	No
Pershing Dr./19th St. and B St.	TS	11.1	B	TS	16.9	B	5.8	No
17th St. and C St.	MSS	29.4	D	AWS	12.5	B	-16.9	No
19th St. and C St.	AWS	12.4	B	AWS	12.9	B	0.5	No

Note: The intersection of Pershing Drive/19th Street and B Street includes the addition of a diagonal bike crossing with a dedicated signal phase as part of the 'Existing with Project" conditions.
The equations for HCM were established with validation up to 80 seconds and are not validated beyond that threshold so reporting the exact seconds of delay would be utilizing the equations beyond their capability or intent.
Source: Appendix G, Appendix H.
LOS = level of service
MSS = Minor Street Stop
AWS = All Way Stop
TS = Traffic Signal
RA = Roundabout
TC = Traffic Circle

Appendix G

Intersection Analysis Worksheets Existing (2015) Conditions: Without the Project

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	473	126	149	0	0	634
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	509	135	160	0	0	682
Pedestrians						1
Lane Width (ft)						12.0
Walking Speed (ft/s)						4.0
Percent Blockage						0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	501	161			160	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	501	161			160	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	84			100	
cM capacity (veh/h)	499	855			1416	

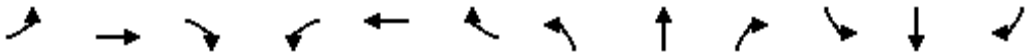
Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	509	135	160	341	341
Volume Left	509	0	0	0	0
Volume Right	0	135	0	0	0
cSH	499	855	1700	1700	1700
Volume to Capacity	1.02	0.16	0.09	0.20	0.20
Queue Length 95th (ft)	360	14	0	0	0
Control Delay (s)	74.1	10.0	0.0	0.0	0.0
Lane LOS	F	B			
Approach Delay (s)	60.6		0.0	0.0	
Approach LOS	F				

Intersection Summary			
Average Delay	26.3		
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	149	163	34	1073
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	0	160	175	37	1154
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	810	160			160	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	810	160			160	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			97	
cM capacity (veh/h)	309	856			1416	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	160	175	37	577	577
Volume Left	0	0	37	0	0
Volume Right	0	175	0	0	0
cSH	1700	1700	1416	1700	1700
Volume to Capacity	0.09	0.10	0.03	0.34	0.34
Queue Length 95th (ft)	0	0	2	0	0
Control Delay (s)	0.0	0.0	7.6	0.0	0.0
Lane LOS			A		
Approach Delay (s)	0.0		0.2		
Approach LOS					

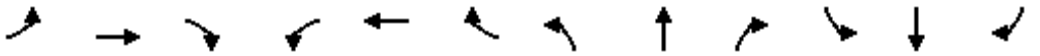
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	9	173	14	3	404	17	140	7	0	22	7	57
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	10	194	16	3	454	19	157	8	0	25	8	64

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	220	476	165	97
Volume Left (vph)	10	3	157	25
Volume Right (vph)	16	19	0	64
Hadj (s)	0.00	0.01	0.22	-0.31
Departure Headway (s)	5.4	5.1	6.1	5.8
Degree Utilization, x	0.33	0.67	0.28	0.16
Capacity (veh/h)	614	688	520	528
Control Delay (s)	11.1	17.8	11.5	9.8
Approach Delay (s)	11.1	17.8	11.5	9.8
Approach LOS	B	C	B	A

Intersection Summary				
Delay	14.4			
Level of Service	B			
Intersection Capacity Utilization	44.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	112	493	284	271	24	693	291	128	29	1042	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.3	4.4	4.9	4.9		4.4	6.0		4.4	6.5	
Lane Util. Factor		0.95	0.95	0.95	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes		0.99	0.99	1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.91	0.85	1.00	0.99		1.00	0.95		1.00	1.00	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1584	1490	1681	1740		3433	3355		1770	3524	
Flt Permitted		1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1584	1490	1681	1740		3433	3355		1770	3524	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	7	117	514	296	282	25	722	303	133	30	1085	29
RTOR Reduction (vph)	0	62	52	0	3	0	0	36	0	0	1	0
Lane Group Flow (vph)	0	268	256	266	334	0	722	400	0	30	1113	0
Confl. Peds. (#/hr)			4						1			1
Confl. Bikes (#/hr)			2			2						6
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	
Protected Phases	4	4	5	3	3		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)		23.0	41.5	18.1	18.1		18.5	43.8		4.5	29.3	
Effective Green, g (s)		23.0	41.5	18.1	18.1		18.5	43.8		4.5	29.3	
Actuated g/C Ratio		0.21	0.38	0.16	0.16		0.17	0.40		0.04	0.27	
Clearance Time (s)		5.3	4.4	4.9	4.9		4.4	6.0		4.4	6.5	
Vehicle Extension (s)		2.0	2.0	2.0	2.0		2.0	3.8		2.0	3.5	
Lane Grp Cap (vph)		331	562	276	286		577	1335		72	938	
v/s Ratio Prot		c0.17	0.08	0.16	c0.19		c0.21	0.12		0.02	c0.32	
v/s Ratio Perm			0.10									
v/c Ratio		0.81	0.46	0.96	1.17		1.25	0.30		0.42	1.19	
Uniform Delay, d1		41.4	25.8	45.6	46.0		45.8	22.6		51.5	40.4	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		13.3	0.2	43.7	107.2		126.9	0.6		1.4	94.6	
Delay (s)		54.7	26.0	89.3	153.2		172.7	23.2		52.9	134.9	
Level of Service		D	C	F	F		F	C		D	F	
Approach Delay (s)		40.8			125.0			116.4			132.8	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	109.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	21.1
Intersection Capacity Utilization	100.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

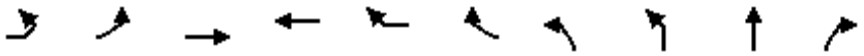
Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #10 Pershing Dr/17th St and B St

Average Delay (sec/veh): 20.3 Worst Case Level Of Service: F[62695.6]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	0	0	0	0		0	0	0	1	2		0	0	0	0	0		1	1	1	0	0	
Volume Module:																								
Base Vol:	0		0		0		0		50		461		0		0		0		128		1385		0	
Growth 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	
Initial Bse:	0		0		0		0		50		461		0		0		0		128		1385		0	
Added Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
PasserByVol:	0		0		0		0		0		0		0		0		0		0		0		0	
Initial Fut:	0		0		0		0		50		461		0		0		0		128		1385		0	
User 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	
PHF Adj:	0.93		0.93		0.93		0.93		0.93		0.93		0.93		0.93		0.93		0.93		0.93		0.93	
PHF Volume:	0		0		0		0		54		496		0		0		0		138		1489		0	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
FinalVolume:	0		0		0		0		54		496		0		0		0		138		1489		0	
Critical Gap Module:																								
Critical Gp:	xxxxx		xxxx		xxxxx		xxxxx		6.5		6.2		xxxxx		xxxx		xxxxx		4.1		xxxx		xxxxx	
FollowUpTim:	xxxxx		xxxx		xxxxx		xxxxx		4.0		3.3		xxxxx		xxxx		xxxxx		2.2		xxxx		xxxxx	
Capacity Module:																								
Cnflict Vol:	xxxx		xxxx		xxxxx		xxxx		1765		745		xxxx		xxxx		xxxxx		0		xxxx		xxxxx	
Potent Cap.:	xxxx		xxxx		xxxxx		xxxx		85		418		xxxx		xxxx		xxxxx		1636		xxxx		xxxxx	
Move Cap.:	xxxx		xxxx		xxxxx		xxxx		78		418		xxxx		xxxx		xxxxx		1636		xxxx		xxxxx	
Volume/Cap:	xxxx		xxxx		xxxx		xxxx		0.69		1.19		xxxx		xxxx		xxxx		0.08		xxxx		xxxx	
Level Of Service Module:																								
2Way95thQ:	xxxx		xxxx		xxxxx		xxxx		xxxx		5.6		xxxx		xxxx		xxxxx		0.1		xxxx		xxxxx	
Control Del:	xxxxx		xxxx		xxxxx		xxxxx		xxxx		39.3		xxxxx		xxxx		xxxxx		7.3		xxxx		xxxxx	
LOS by Move:	*		*		*		*		*		E		*		*		*		A		*		*	
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx		xxxx		xxxxx		xxxx		xxxx		201		xxxx		xxxx		xxxxx		1		xxxx		xxxxx	
SharedQueue:	xxxxx		xxxx		xxxxx		xxxxx		xxxx		5.6		xxxxx		xxxx		xxxxx		10.9		xxxx		xxxxx	
Shrd ConDel:	xxxxx		xxxx		xxxxx		xxxxx		xxxx		138.0		xxxxx		xxxx		xxxxx		62696		xxxx		xxxxx	
Shared LOS:	*		*		*		*		*		F		*		*		*		F		*		*	
ApproachDel:	xxxxxx						78.7						xxxxxx						xxxxxx					
ApproachLOS:	*						F						*						*					

Note: Queue reported is the number of cars per lane.



Movement	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations										
Volume (vph)	3	1	10	404	446	69	85	316	113	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0	4.0			4.0	4.0	
Lane Util. Factor			1.00	1.00	1.00			1.00	0.95	
Frpb, ped/bikes			1.00	1.00	0.98			1.00	1.00	
Flpb, ped/bikes			1.00	1.00	1.00			1.00	1.00	
Frt			1.00	1.00	0.85			1.00	0.97	
Flt Protected			0.99	1.00	1.00			0.95	1.00	
Satd. Flow (prot)			1838	1863	1545			1770	3427	
Flt Permitted			0.93	1.00	1.00			0.95	1.00	
Satd. Flow (perm)			1734	1863	1545			1770	3427	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	3	1	11	425	469	73	89	333	119	29
RTOR Reduction (vph)	0	0	0	0	10	0	0	0	16	0
Lane Group Flow (vph)	0	0	15	425	532	0	0	422	132	0
Confl. Bikes (#/hr)					5					1
Turn Type	Perm	Perm	NA	NA	Perm		Perm	Perm	NA	
Protected Phases			4	4					2	
Permitted Phases	4	4			4		2	2		
Actuated Green, G (s)			26.0	26.0	26.0			26.0	26.0	
Effective Green, g (s)			26.0	26.0	26.0			26.0	26.0	
Actuated g/C Ratio			0.43	0.43	0.43			0.43	0.43	
Clearance Time (s)			4.0	4.0	4.0			4.0	4.0	
Vehicle Extension (s)			3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)			751	807	669			767	1485	
v/s Ratio Prot				0.23					0.04	
v/s Ratio Perm			0.01		c0.34			c0.24		
v/c Ratio			0.02	0.53	0.79			0.55	0.09	
Uniform Delay, d1			9.7	12.5	14.7			12.6	10.0	
Progression Factor			1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2			0.0	2.5	9.5			2.8	0.1	
Delay (s)			9.8	14.9	24.2			15.5	10.1	
Level of Service			A	B	C			B	B	
Approach Delay (s)			9.8	20.1					14.1	
Approach LOS			A	C					B	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #12 17th St and C St

Average Delay (sec/veh): 3.5 Worst Case Level Of Service: B[13.9]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 1 1 0 0			0 0 2 1 0			0 0 0 0 0		
Volume Module:												
Base Vol:	0	0	0	52	127	0	0	291	247	0	0	0
Growth 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
Initial Bse:	0	0	0	52	127	0	0	291	247	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	52	127	0	0	291	247	0	0	0
User 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
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	0	0	57	138	0	0	316	268	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	57	138	0	0	316	268	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	105	585	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	897	426	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	897	426	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.06	0.32	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	0.6	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	15.1	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	C	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	558	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	13.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	B	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			13.9			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the number of cars per lane.

Intersection	
Intersection Delay, s/veh	14.1
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	181	155	4	0	0	0	0	0	0	358	7
Peak Hour Factor	0.92	0.88	0.88	0.88	0.92	0.88	0.88	0.88	0.92	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	206	176	5	0	0	0	0	0	0	407	8
Number of Lanes	0	1	2	0	0	0	0	0	0	0	1	0

Approach	EB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left		EB
Conflicting Lanes Left	0	3
Conflicting Approach Right	NB	
Conflicting Lanes Right	1	0
HCM Control Delay	10.5	17.5
HCM LOS	B	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3
Vol Left, %	0%	100%	48%	0%
Vol Thru, %	98%	0%	52%	95%
Vol Right, %	2%	0%	0%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	365	110	148	82
LT Vol	0	110	71	0
Through Vol	358	0	77	78
RT Vol	7	0	0	4
Lane Flow Rate	415	125	168	93
Geometry Grp	7	7	7	7
Degree of Util (X)	0.636	0.216	0.278	0.146
Departure Headway (Hd)	5.518	6.208	5.943	5.668
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	651	573	599	627
Service Time	3.287	3.997	3.732	3.457
HCM Lane V/C Ratio	0.637	0.218	0.28	0.148
HCM Control Delay	17.5	10.7	11	9.4
HCM Lane LOS	C	B	B	A
HCM 95th-tile Q	4.5	0.8	1.1	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	158	90	451	0	0	323
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	170	97	485	0	0	347
Pedestrians						8
Lane Width (ft)						12.0
Walking Speed (ft/s)						4.0
Percent Blockage						1
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	659	493			485	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	659	493			485	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	57	81			100	
cM capacity (veh/h)	397	518			1074	

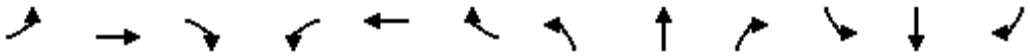
Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	170	97	485	174	174
Volume Left	170	0	0	0	0
Volume Right	0	97	0	0	0
cSH	397	518	1700	1700	1700
Volume to Capacity	0.43	0.19	0.29	0.10	0.10
Queue Length 95th (ft)	52	17	0	0	0
Control Delay (s)	20.7	13.5	0.0	0.0	0.0
Lane LOS	C	B			
Approach Delay (s)	18.1		0.0	0.0	
Approach LOS	C				

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	451	282	99	382
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	0	485	303	106	411
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	903	485			485	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	903	485			485	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			90	
cM capacity (veh/h)	249	528			1074	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	485	303	106	205	205
Volume Left	0	0	106	0	0
Volume Right	0	303	0	0	0
cSH	1700	1700	1074	1700	1700
Volume to Capacity	0.29	0.18	0.10	0.12	0.12
Queue Length 95th (ft)	0	0	8	0	0
Control Delay (s)	0.0	0.0	8.7	0.0	0.0
Lane LOS			A		
Approach Delay (s)	0.0		1.8		
Approach LOS					

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	35	294	57	1	177	13	30	5	2	50	33	24
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	37	313	61	1	188	14	32	5	2	53	35	26

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	411	203	39	114
Volume Left (vph)	37	1	32	53
Volume Right (vph)	61	14	2	26
Hadj (s)	-0.04	-0.01	0.16	-0.01
Departure Headway (s)	4.6	4.8	5.7	5.4
Degree Utilization, x	0.52	0.27	0.06	0.17
Capacity (veh/h)	760	708	543	595
Control Delay (s)	12.4	9.6	9.1	9.5
Approach Delay (s)	12.4	9.6	9.1	9.5
Approach LOS	B	A	A	A

Intersection Summary			
Delay	11.0		
Level of Service	B		
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	451	798	124	117	48	388	646	273	44	393	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.3	4.4	4.9	4.9		4.4	6.0		4.4	6.5	
Lane Util. Factor		0.95	0.95	0.95	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes		0.99	0.98	1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.95	0.85	1.00	0.96		1.00	0.96		1.00	1.00	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1677	1481	1681	1692		3433	3341		1770	3528	
Flt Permitted		1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1677	1481	1681	1692		3433	3341		1770	3528	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	11	470	831	129	122	50	404	673	284	46	409	8
RTOR Reduction (vph)	0	16	81	0	12	0	0	46	0	0	2	0
Lane Group Flow (vph)	0	673	543	116	173	0	404	911	0	46	415	0
Confl. Peds. (#/hr)			10						7			2
Confl. Bikes (#/hr)									7			5
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	
Protected Phases	4	4	5	3	3		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)		31.9	42.5	11.8	11.8		10.6	30.9		4.8	24.6	
Effective Green, g (s)		31.9	42.5	11.8	11.8		10.6	30.9		4.8	24.6	
Actuated g/C Ratio		0.32	0.42	0.12	0.12		0.11	0.31		0.05	0.25	
Clearance Time (s)		5.3	4.4	4.9	4.9		4.4	6.0		4.4	6.5	
Vehicle Extension (s)		2.0	2.0	2.0	2.0		2.0	3.8		2.0	3.5	
Lane Grp Cap (vph)		534	629	198	199		363	1032		84	867	
v/s Ratio Prot		c0.40	0.09	0.07	c0.10		c0.12	c0.27		0.03	0.12	
v/s Ratio Perm			0.28									
v/c Ratio		1.26	0.86	0.59	0.87		1.11	0.88		0.55	0.48	
Uniform Delay, d1		34.0	26.1	41.8	43.3		44.7	32.8		46.5	32.2	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		131.9	11.3	2.8	29.6		81.4	9.3		3.9	0.5	
Delay (s)		166.0	37.4	44.6	72.9		126.1	42.1		50.4	32.7	
Level of Service		F	D	D	E		F	D		D	C	
Approach Delay (s)		104.9			62.0			67.0			34.5	
Approach LOS		F			E			E			C	

Intersection Summary			
HCM 2000 Control Delay	76.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.1
Intersection Capacity Utilization	96.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

General Office Building -- Dowling Associates, Inc. _ P######
Existing Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #10 Pershing Dr/17th St and B St

Average Delay (sec/veh): 6.1 Worst Case Level Of Service: F[33522.9]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0 0	0	0	0 0	0 0	0	1	2	0 0	0	0	0 0	1 1	1	0	0
Volume Module:																
Base Vol:	0	0	0		0	102	252		0	0	0		66	494	0	
Growth 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	
Initial Bse:	0	0	0		0	102	252		0	0	0		66	494	0	
Added Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		0	102	252		0	0	0		66	494	0	
User 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	
PHF Adj:	0.94	0.94	0.94		0.94	0.94	0.94		0.94	0.94	0.94		0.94	0.94	0.94	
PHF Volume:	0	0	0		0	109	268		0	0	0		70	526	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	0	0	0		0	109	268		0	0	0		70	526	0	
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx				
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx				
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	666	263	xxxx	xxxx	xxxxx	0	xxxx	xxxxx				
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	383	781	xxxx	xxxx	xxxxx	1636	xxxx	xxxxx				
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	366	781	xxxx	xxxx	xxxxx	1636	xxxx	xxxxx				
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	0.30	0.34	xxxx	xxxx	xxxx	0.04	xxxx	xxxx				
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	0.9	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx				
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	11.0	xxxxx	xxxx	xxxxx	7.2	xxxx	xxxxx				
LOS by Move:	*	*	*	*	*	B	*	*	*	A	*	*				
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT				
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	482	xxxx	xxxx	xxxxx	1	xxxx	xxxxx				
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	1.8	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx				
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	17.6	xxxxx	xxxx	xxxxx	33523	xxxx	xxxxx				
Shared LOS:	*	*	*	*	*	C	*	*	*	F	*	*				
ApproachDel:	xxxxxx			14.4			xxxxxx			xxxxxx						
ApproachLOS:	*			B			*			*						

Note: Queue reported is the number of cars per lane.

Movement	EBL2	EBT	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations									
Volume (vph)	1	24	97	104	21	30	170	298	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0			4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00			1.00	0.95	
Frpb, ped/bikes		1.00	1.00	0.97			1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00			1.00	1.00	
Frt		1.00	1.00	0.85			1.00	0.99	
Flt Protected		1.00	1.00	1.00			0.95	1.00	
Satd. Flow (prot)		1859	1863	1544			1770	3501	
Flt Permitted		1.00	1.00	1.00			0.95	1.00	
Satd. Flow (perm)		1855	1863	1544			1770	3501	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1	25	101	108	22	31	177	310	22
RTOR Reduction (vph)	0	0	0	12	0	0	0	9	0
Lane Group Flow (vph)	0	26	101	118	0	0	208	324	0
Confl. Peds. (#/hr)									1
Confl. Bikes (#/hr)				6					3
Turn Type	Perm	NA	NA	Perm		Perm	Perm	NA	
Protected Phases		4	4					2	
Permitted Phases	4			4		2	2		
Actuated Green, G (s)		26.0	26.0	26.0			26.0	26.0	
Effective Green, g (s)		26.0	26.0	26.0			26.0	26.0	
Actuated g/C Ratio		0.43	0.43	0.43			0.43	0.43	
Clearance Time (s)		4.0	4.0	4.0			4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)		803	807	669			767	1517	
v/s Ratio Prot			0.05					0.09	
v/s Ratio Perm		0.01		c0.08			c0.12		
v/c Ratio		0.03	0.13	0.18			0.27	0.21	
Uniform Delay, d1		9.8	10.2	10.4			10.9	10.6	
Progression Factor		1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2		0.1	0.3	0.6			0.9	0.3	
Delay (s)		9.8	10.5	11.0			11.8	10.9	
Level of Service		A	B	B			B	B	
Approach Delay (s)		9.8	10.8					11.3	
Approach LOS		A	B					B	

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

General Office Building -- Dowling Associates, Inc. _ P######
Existing Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #12 17th St and C St

Average Delay (sec/veh): 4.3 Worst Case Level Of Service: D[29.4]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		0 1	1 0	0	0 0	2 1	0	0 0	0 0	0
Volume Module:												
Base Vol:	0	0	0	45	142	0	0	741	343	0	0	0
Growth 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
Initial Bse:	0	0	0	45	142	0	0	741	343	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	45	142	0	0	741	343	0	0	0
User 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
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	47	149	0	0	780	361	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	47	149	0	0	780	361	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	260	1141	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	733	202	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	733	202	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.06	0.74	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	1.6	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	32.9	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	D	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	281	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	27.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	D	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			29.4			xxxxxx			xxxxxx		
ApproachLOS:	*			D			*			*		

Note: Queue reported is the number of cars per lane.

Intersection	
Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	296	479	7	0	0	0	0	0	0	230	6
Peak Hour Factor	0.92	0.97	0.97	0.97	0.92	0.97	0.97	0.97	0.92	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	305	494	7	0	0	0	0	0	0	237	6
Number of Lanes	0	1	2	0	0	0	0	0	0	0	1	0

Approach	EB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left		EB
Conflicting Lanes Left	0	3
Conflicting Approach Right	NB	
Conflicting Lanes Right	1	0
HCM Control Delay	12.1	13.5
HCM LOS	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3
Vol Left, %	0%	100%	15%	0%
Vol Thru, %	97%	0%	85%	97%
Vol Right, %	3%	0%	0%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	236	255	281	247
LT Vol	0	255	41	0
Through Vol	230	0	240	240
RT Vol	6	0	0	7
Lane Flow Rate	243	262	290	254
Geometry Grp	7	7	7	7
Degree of Util (X)	0.421	0.423	0.432	0.372
Departure Headway (Hd)	6.227	5.797	5.367	5.273
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	574	617	666	676
Service Time	4.007	3.57	3.141	3.046
HCM Lane V/C Ratio	0.423	0.425	0.435	0.376
HCM Control Delay	13.5	12.8	12.2	11.2
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.1	2.1	2.2	1.7

Appendix H

Intersection Analysis Worksheets Existing (2015) Conditions: With the Project

MOVEMENT SUMMARY

Site: Exi AM

Pershing Dr and Redwood St
Roundabout

Movement Performance - Vehicles

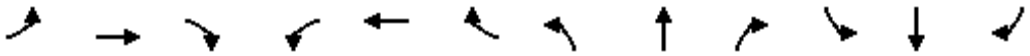
Mov ID	ODMov	Demand Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	ft		per veh	mph
South: Pershing Dr											
8	T1	160	2.0	0.305	6.2	LOS A	2.4	61.8	0.26	0.10	27.4
18	R2	175	2.0	0.305	6.2	LOS A	2.4	61.8	0.26	0.10	26.8
Approach		335	2.0	0.305	6.2	LOS A	2.4	61.8	0.26	0.10	27.1
East: Redwood St											
1	L2	509	2.0	0.603	11.4	LOS B	5.5	140.9	0.62	0.41	24.9
16	R2	135	2.0	0.603	11.4	LOS B	5.5	140.9	0.62	0.41	24.4
Approach		644	2.0	0.603	11.4	LOS B	5.5	140.9	0.62	0.41	24.8
North: Pershing Dr											
7	L2	37	2.0	0.895	35.2	LOS E	18.3	464.4	1.00	1.46	20.3
4	T1	645	2.0	0.895	35.2	LOS E	18.3	464.4	1.00	1.46	20.2
Approach		682	2.0	0.895	35.2	LOS E	18.3	464.4	1.00	1.46	20.3
All Vehicles		1661	2.0	0.895	20.1	LOS C	18.3	464.4	0.70	0.78	23.1

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	220	476	165	97
Demand Flow Rate, veh/h	224	485	168	99
Vehicles Circulating, veh/h	36	178	233	626
Vehicles Exiting, veh/h	688	223	27	37
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.3	10.5	6.0	8.1
Approach LOS	A	B	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	224	485	168	99
Cap Entry Lane, veh/h	1090	946	895	604
Entry HV Adj Factor	0.983	0.981	0.981	0.978
Flow Entry, veh/h	220	476	165	97
Cap Entry, veh/h	1071	928	878	591
V/C Ratio	0.206	0.513	0.188	0.164
Control Delay, s/veh	5.3	10.5	6.0	8.1
LOS	A	B	A	A
95th %tile Queue, veh	1	3	1	1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	112	493	284	271	24	693	291	128	29	1042	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.3	5.3	4.9	4.9		4.4	6.0	4.9	4.4	6.5	
Lane Util. Factor		0.95	0.95	0.95	0.95		0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99	0.98	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.91	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1582	1474	1681	1740		3433	3539	1557	1770	3524	
Flt Permitted		1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1582	1474	1681	1740		3433	3539	1557	1770	3524	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	7	117	514	296	282	25	722	303	133	30	1085	29
RTOR Reduction (vph)	0	38	248	0	2	0	0	0	46	0	1	0
Lane Group Flow (vph)	0	292	60	266	335	0	722	303	87	30	1113	0
Confl. Peds. (#/hr)			4						1			1
Confl. Bikes (#/hr)			2			2						6
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	4	4		8	8		5	2	8	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		31.0	31.0	28.1	28.1		33.3	76.0	104.1	4.1	46.3	
Effective Green, g (s)		31.0	31.0	28.1	28.1		33.3	76.0	104.1	4.1	46.3	
Actuated g/C Ratio		0.19	0.19	0.18	0.18		0.21	0.48	0.65	0.03	0.29	
Clearance Time (s)		5.3	5.3	4.9	4.9		4.4	6.0	4.9	4.4	6.5	
Vehicle Extension (s)		2.0	2.0	2.0	2.0		2.0	3.8	2.0	2.0	3.5	
Lane Grp Cap (vph)		306	285	295	305		715	1683	1014	45	1021	
v/s Ratio Prot		c0.18		0.16	c0.19		c0.21	0.09	0.02	0.02	c0.32	
v/s Ratio Perm			0.04						0.04			
v/c Ratio		0.95	0.21	0.90	1.10		1.01	0.18	0.09	0.67	1.09	
Uniform Delay, d1		63.7	54.1	64.5	65.9		63.3	24.0	10.3	77.2	56.8	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		38.8	0.1	28.1	80.9		36.1	0.1	0.0	25.2	55.8	
Delay (s)		102.5	54.2	92.6	146.7		99.3	24.1	10.3	102.4	112.6	
Level of Service		F	D	F	F		F	C	B	F	F	
Approach Delay (s)		79.2			122.8			69.4			112.3	
Approach LOS		E			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	94.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	159.8	Sum of lost time (s)	21.1
Intersection Capacity Utilization	100.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

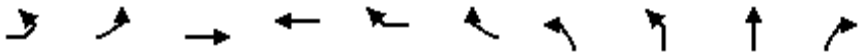
Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #10 Pershing Dr/17th St and B St

Cycle (sec):	0	Critical Vol./Cap.(X):	1.237
Loss Time (sec):	0	Average Delay (sec/veh):	100.4
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 0 0			0 0 1 0 2			0 0 0 0 0			1 0 2 0 0		
Volume Module:												
Base Vol:	0	0	0	0	50	461	0	0	0	128	1385	0
Growth 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
Initial Bse:	0	0	0	0	50	461	0	0	0	128	1385	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	50	461	0	0	0	128	1385	0
User 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
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	0	0	0	0	54	496	0	0	0	138	1489	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	54	496	0	0	0	138	1489	0
PCE 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
MLF 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
FinalVolume:	0	0	0	0	54	496	0	0	0	138	1489	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.00	1.00	2.00	0.00	0.00	0.00	1.00	2.00	0.00
Final Sat.:	0	0	0	0	508	1127	0	0	0	556	1204	0
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	xxxx	0.11	0.44	xxxx	xxxx	xxxx	0.25	1.24	xxxx
Crit Moves:						****					****	
Delay/Veh:	0.0	0.0	0.0	0.0	10.6	14.0	0.0	0.0	0.0	11.3	141	0.0
Delay 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
AdjDel/Veh:	0.0	0.0	0.0	0.0	10.6	14.0	0.0	0.0	0.0	11.3	141	0.0
LOS by Move:	*	*	*	*	B	B	*	*	*	B	F	*
ApproachDel:	xxxxxx			13.7			xxxxxx			129.6		
Delay Adj:	xxxxx			1.00			xxxxx			1.00		
ApprAdjDel:	xxxxxx			13.7			xxxxxx			129.6		
LOS by Appr:	*			B			*			F		
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.1	0.8	0.0	0.0	0.0	0.3	22.1	0.0

Note: Queue reported is the number of cars per lane.



Movement	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations										
Volume (vph)	3	1	10	404	446	69	85	316	113	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0	4.0			4.0	4.0	
Lane Util. Factor			1.00	1.00	1.00			1.00	1.00	
Frpb, ped/bikes			1.00	1.00	0.98			1.00	1.00	
Flpb, ped/bikes			1.00	1.00	1.00			1.00	1.00	
Frt			1.00	1.00	0.85			1.00	0.97	
Flt Protected			0.99	1.00	1.00			0.95	1.00	
Satd. Flow (prot)			1838	1863	1545			1770	1804	
Flt Permitted			0.93	1.00	1.00			0.95	1.00	
Satd. Flow (perm)			1734	1863	1545			1770	1804	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	3	1	11	425	469	73	89	333	119	29
RTOR Reduction (vph)	0	0	0	0	10	0	0	0	15	0
Lane Group Flow (vph)	0	0	15	425	532	0	0	422	133	0
Confl. Bikes (#/hr)					5					1
Turn Type	Perm	Perm	NA	NA	Perm		Perm	Perm	NA	
Protected Phases			4	4					2	
Permitted Phases	4	4			4		2	2		
Actuated Green, G (s)			26.0	26.0	26.0			26.0	26.0	
Effective Green, g (s)			26.0	26.0	26.0			26.0	26.0	
Actuated g/C Ratio			0.43	0.43	0.43			0.43	0.43	
Clearance Time (s)			4.0	4.0	4.0			4.0	4.0	
Vehicle Extension (s)			3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)			751	807	669			767	781	
v/s Ratio Prot				0.23					0.07	
v/s Ratio Perm			0.01		c0.34			c0.24		
v/c Ratio			0.02	0.53	0.79			0.55	0.17	
Uniform Delay, d1			9.7	12.5	14.7			12.6	10.4	
Progression Factor			1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2			0.0	2.5	9.5			2.8	0.5	
Delay (s)			9.8	14.9	24.2			15.5	10.9	
Level of Service			A	B	C			B	B	
Approach Delay (s)			9.8	20.1					14.3	
Approach LOS			A	C					B	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations										
Volume (vph)	3	1	10	404	446	69	85	316	113	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0	4.0			4.0	4.0	
Lane Util. Factor			1.00	1.00	1.00			1.00	1.00	
Frpb, ped/bikes			1.00	1.00	0.98			1.00	1.00	
Flpb, ped/bikes			1.00	1.00	1.00			1.00	1.00	
Frt			1.00	1.00	0.85			1.00	0.97	
Flt Protected			0.99	1.00	1.00			0.95	1.00	
Satd. Flow (prot)			1838	1863	1544			1770	1804	
Flt Permitted			0.93	1.00	1.00			0.95	1.00	
Satd. Flow (perm)			1728	1863	1544			1770	1804	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	3	1	11	425	469	73	89	333	119	29
RTOR Reduction (vph)	0	0	0	0	85	0	0	0	12	0
Lane Group Flow (vph)	0	0	15	425	457	0	0	422	136	0
Confl. Bikes (#/hr)					5					1
Turn Type	Perm	Perm	NA	NA	Perm		Perm	Perm	NA	
Protected Phases			2	2					4	
Permitted Phases	2	2			2		4	4		
Actuated Green, G (s)			26.2	26.2	26.2			26.2	26.2	
Effective Green, g (s)			26.2	26.2	26.2			26.2	26.2	
Actuated g/C Ratio			0.38	0.38	0.38			0.38	0.38	
Clearance Time (s)			4.0	4.0	4.0			4.0	4.0	
Vehicle Extension (s)			3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)			648	699	579			664	677	
v/s Ratio Prot				0.23					0.08	
v/s Ratio Perm			0.01		c0.30			c0.24		
v/c Ratio			0.02	0.61	0.79			0.64	0.20	
Uniform Delay, d1			13.7	17.6	19.4			17.9	14.7	
Progression Factor			1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2			0.1	3.9	10.5			4.6	0.7	
Delay (s)			13.8	21.6	29.8			22.5	15.4	
Level of Service			B	C	C			C	B	
Approach Delay (s)			13.8	26.2					20.6	
Approach LOS			B	C					C	

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #12 17th St and C St

Cycle (sec):	100	Critical Vol./Cap.(X):	0.330
Loss Time (sec):	0	Average Delay (sec/veh):	9.3
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0	1 1	0 0	0	0 2	1 0	0	0 0	0 0 0
Volume Module:												
Base Vol:	0	0	0	52	127	0	0	291	247	0	0	0
Growth 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
Initial Bse:	0	0	0	52	127	0	0	291	247	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	52	127	0	0	291	247	0	0	0
User 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
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	0	0	57	138	0	0	316	268	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	57	138	0	0	316	268	0	0	0
PCE 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
MLF 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
FinalVolume:	0	0	0	57	138	0	0	316	268	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.58	1.42	0.00	0.00	2.00	1.00	0.00	0.00	0.00
Final Sat.:	0	0	0	335	846	0	0	1405	814	0	0	0
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.17	0.16	xxxx	xxxx	0.23	0.33	xxxx	xxxx	xxxx
Crit Moves:				****					****			
Delay/Veh:	0.0	0.0	0.0	9.8	9.5	0.0	0.0	9.2	9.1	0.0	0.0	0.0
Delay 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
AdjDel/Veh:	0.0	0.0	0.0	9.8	9.5	0.0	0.0	9.2	9.1	0.0	0.0	0.0
LOS by Move:	*	*	*	A	A	*	*	A	A	*	*	*
ApproachDel:	xxxxxx			9.6			9.1			xxxxxx		
Delay Adj:	xxxxx			1.00			1.00			xxxxx		
ApprAdjDel:	xxxxxx			9.6			9.1			xxxxxx		
LOS by Appr:	*			A			A			*		
AllWayAvgQ:	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.3	0.5	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Intersection	
Intersection Delay, s/veh	14.5
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	181	155	4	0	0	0	0	0	0	358	7
Peak Hour Factor	0.92	0.88	0.88	0.88	0.92	0.88	0.88	0.88	0.92	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	206	176	5	0	0	0	0	0	0	407	8
Number of Lanes	0	1	2	0	0	0	0	0	0	0	1	0

Approach	EB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left		EB
Conflicting Lanes Left	0	3
Conflicting Approach Right	NB	
Conflicting Lanes Right	1	0
HCM Control Delay	11.1	17.6
HCM LOS	B	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3
Vol Left, %	0%	100%	0%	0%
Vol Thru, %	98%	0%	100%	93%
Vol Right, %	2%	0%	0%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	365	181	103	56
LT Vol	0	181	0	0
Through Vol	358	0	103	52
RT Vol	7	0	0	4
Lane Flow Rate	415	206	117	63
Geometry Grp	7	7	7	7
Degree of Util (X)	0.637	0.355	0.186	0.099
Departure Headway (Hd)	5.53	6.208	5.702	5.652
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	647	574	624	628
Service Time	3.3	3.999	3.493	3.442
HCM Lane V/C Ratio	0.641	0.359	0.188	0.1
HCM Control Delay	17.6	12.4	9.8	9.1
HCM Lane LOS	C	B	A	A
HCM 95th-tile Q	4.6	1.6	0.7	0.3

MOVEMENT SUMMARY

Site: Exi PM

Pershing Dr and Redwood St
Roundabout

Movement Performance - Vehicles

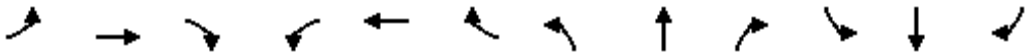
Mov ID	ODMov	Demand Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	ft		per veh	mph
South: Pershing Dr											
8	T1	485	2.0	0.778	18.7	LOS C	11.0	279.8	0.81	0.50	23.8
18	R2	303	2.0	0.778	18.7	LOS C	11.0	279.8	0.81	0.50	23.4
Approach		788	2.0	0.778	18.7	LOS C	11.0	279.8	0.81	0.50	23.6
East: Redwood St											
1	L2	170	2.0	0.364	9.5	LOS A	2.5	64.7	0.77	0.68	25.6
16	R2	97	2.0	0.364	9.5	LOS A	2.5	64.7	0.77	0.68	25.0
Approach		267	2.0	0.364	9.5	LOS A	2.5	64.7	0.77	0.68	25.4
North: Pershing Dr											
7	L2	106	2.0	0.327	6.7	LOS A	2.4	60.3	0.50	0.32	27.0
4	T1	241	2.0	0.327	6.7	LOS A	2.4	60.3	0.50	0.32	26.9
Approach		347	2.0	0.327	6.7	LOS A	2.4	60.3	0.50	0.32	26.9
All Vehicles		1402	2.0	0.778	13.9	LOS B	11.0	279.8	0.72	0.49	24.7

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Intersection Delay, s/veh	6.8
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	411	203	39	114
Demand Flow Rate, veh/h	419	207	40	117
Vehicles Circulating, veh/h	91	76	411	226
Vehicles Exiting, veh/h	252	375	99	57
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.0	5.4	5.5	5.3
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	419	207	40	117
Cap Entry Lane, veh/h	1032	1047	749	901
Entry HV Adj Factor	0.980	0.982	0.973	0.977
Flow Entry, veh/h	411	203	39	114
Cap Entry, veh/h	1011	1028	729	881
V/C Ratio	0.406	0.198	0.053	0.130
Control Delay, s/veh	8.0	5.4	5.5	5.3
LOS	A	A	A	A
95th %tile Queue, veh	2	1	0	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	451	798	124	117	48	388	646	273	44	393	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.3	5.3	4.9	4.9		4.4	6.0	4.9	4.4	6.5	
Lane Util. Factor		0.95	0.95	0.95	0.95		0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99	0.96	1.00	1.00		1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.95	0.85	1.00	0.96		1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1668	1444	1681	1692		3433	3539	1536	1770	3528	
Flt Permitted		1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1668	1444	1681	1692		3433	3539	1536	1770	3528	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	11	470	831	129	122	50	404	673	284	46	409	8
RTOR Reduction (vph)	0	9	222	0	10	0	0	0	137	0	1	0
Lane Group Flow (vph)	0	680	401	116	175	0	404	673	147	46	416	0
Confl. Peds. (#/hr)			10						7			2
Confl. Bikes (#/hr)									7			5
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	4	4		8	8		5	2	8	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		55.7	55.7	18.2	18.2		16.7	35.4	53.6	6.5	24.7	
Effective Green, g (s)		55.7	55.7	18.2	18.2		16.7	35.4	53.6	6.5	24.7	
Actuated g/C Ratio		0.41	0.41	0.13	0.13		0.12	0.26	0.39	0.05	0.18	
Clearance Time (s)		5.3	5.3	4.9	4.9		4.4	6.0	4.9	4.4	6.5	
Vehicle Extension (s)		2.0	2.0	2.0	2.0		2.0	3.8	2.0	2.0	3.5	
Lane Grp Cap (vph)		681	589	224	225		420	918	603	84	638	
v/s Ratio Prot		c0.41		0.07	c0.10		c0.12	c0.19	0.03	0.03	0.12	
v/s Ratio Perm			0.28						0.06			
v/c Ratio		1.00	0.68	0.52	0.78		0.96	0.73	0.24	0.55	0.65	
Uniform Delay, d1		40.3	33.1	55.0	57.2		59.5	46.2	27.8	63.5	51.9	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		33.7	2.6	0.8	14.4		33.8	3.2	0.1	3.9	2.5	
Delay (s)		73.9	35.6	55.9	71.5		93.3	49.4	27.9	67.4	54.4	
Level of Service		E	D	E	E		F	D	C	E	D	
Approach Delay (s)		55.8			65.5			57.9			55.7	
Approach LOS		E			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	57.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	136.4	Sum of lost time (s)	21.1
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

General Office Building -- Dowling Associates, Inc. _ P######
Existing Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #10 Pershing Dr/17th St and B St

Cycle (sec):	0	Critical Vol./Cap.(X):	0.403
Loss Time (sec):	0	Average Delay (sec/veh):	10.5
Optimal Cycle:	0	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 0 0			0 0 1 0 2			0 0 0 0 0			1 0 2 0 0		
Volume Module:												
Base Vol:	0	0	0	0	102	252	0	0	0	66	494	0
Growth 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
Initial Bse:	0	0	0	0	102	252	0	0	0	66	494	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	102	252	0	0	0	66	494	0
User 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
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	0	0	0	0	109	268	0	0	0	70	526	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	109	268	0	0	0	70	526	0
PCE 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
MLF 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
FinalVolume:	0	0	0	0	109	268	0	0	0	70	526	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.00	1.00	2.00	0.00	0.00	0.00	1.00	2.00	0.00
Final Sat.:	0	0	0	0	589	1331	0	0	0	597	1305	0
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	xxxx	0.18	0.20	xxxx	xxxx	xxxx	0.12	0.40	xxxx
Crit Moves:						****					****	
Delay/Veh:	0.0	0.0	0.0	0.0	9.8	9.1	0.0	0.0	0.0	9.4	11.6	0.0
Delay 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
AdjDel/Veh:	0.0	0.0	0.0	0.0	9.8	9.1	0.0	0.0	0.0	9.4	11.6	0.0
LOS by Move:	*	*	*	*	A	A	*	*	*	A	B	*
ApproachDel:	xxxxxx			9.3			xxxxxx			11.3		
Delay Adj:	xxxxx			1.00			xxxxx			1.00		
ApprAdjDel:	xxxxxx			9.3			xxxxxx			11.3		
LOS by Appr:	*			A			*			B		
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.1	0.6	0.0

Note: Queue reported is the number of cars per lane.

Movement	EBL2	EBT	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations									
Volume (vph)	1	24	97	104	21	30	170	298	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0			4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00			1.00	1.00	
Frpb, ped/bikes		1.00	1.00	0.97			1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00			1.00	1.00	
Frt		1.00	1.00	0.85			1.00	0.99	
Flt Protected		1.00	1.00	1.00			0.95	1.00	
Satd. Flow (prot)		1859	1863	1544			1770	1842	
Flt Permitted		1.00	1.00	1.00			0.95	1.00	
Satd. Flow (perm)		1855	1863	1544			1770	1842	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1	25	101	108	22	31	177	310	22
RTOR Reduction (vph)	0	0	0	12	0	0	0	5	0
Lane Group Flow (vph)	0	26	101	118	0	0	208	327	0
Confl. Peds. (#/hr)									1
Confl. Bikes (#/hr)				6					3
Turn Type	Perm	NA	NA	Perm		Perm	Perm	NA	
Protected Phases		4	4					2	
Permitted Phases	4			4		2	2		
Actuated Green, G (s)		26.0	26.0	26.0			26.0	26.0	
Effective Green, g (s)		26.0	26.0	26.0			26.0	26.0	
Actuated g/C Ratio		0.43	0.43	0.43			0.43	0.43	
Clearance Time (s)		4.0	4.0	4.0			4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)		803	807	669			767	798	
v/s Ratio Prot			0.05					c0.18	
v/s Ratio Perm		0.01		c0.08			0.12		
v/c Ratio		0.03	0.13	0.18			0.27	0.41	
Uniform Delay, d1		9.8	10.2	10.4			10.9	11.7	
Progression Factor		1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2		0.1	0.3	0.6			0.9	1.6	
Delay (s)		9.8	10.5	11.0			11.8	13.3	
Level of Service		A	B	B			B	B	
Approach Delay (s)		9.8	10.8					12.7	
Approach LOS		A	B					B	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	38.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBT	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations									
Volume (vph)	1	24	97	104	21	30	170	298	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0			4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00			1.00	1.00	
Frpb, ped/bikes		1.00	1.00	0.97			1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00			1.00	1.00	
Frt		1.00	1.00	0.85			1.00	0.99	
Flt Protected		1.00	1.00	1.00			0.95	1.00	
Satd. Flow (prot)		1859	1863	1542			1770	1842	
Flt Permitted		1.00	1.00	1.00			0.95	1.00	
Satd. Flow (perm)		1854	1863	1542			1770	1842	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1	25	101	108	22	31	177	310	22
RTOR Reduction (vph)	0	0	0	81	0	0	0	4	0
Lane Group Flow (vph)	0	26	101	49	0	0	208	328	0
Confl. Peds. (#/hr)									1
Confl. Bikes (#/hr)				6					3
Turn Type	Perm	NA	NA	Perm		Perm	Perm	NA	
Protected Phases		2	2					4	
Permitted Phases	2			2		4	4		
Actuated Green, G (s)		26.2	26.2	26.2			26.2	26.2	
Effective Green, g (s)		26.2	26.2	26.2			26.2	26.2	
Actuated g/C Ratio		0.38	0.38	0.38			0.38	0.38	
Clearance Time (s)		4.0	4.0	4.0			4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)		695	699	578			664	691	
v/s Ratio Prot			c0.05					c0.18	
v/s Ratio Perm		0.01		0.03			0.12		
v/c Ratio		0.04	0.14	0.08			0.31	0.48	
Uniform Delay, d1		13.8	14.4	14.1			15.4	16.6	
Progression Factor		1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2		0.1	0.4	0.3			1.2	2.3	
Delay (s)		13.9	14.8	14.3			16.7	18.9	
Level of Service		B	B	B			B	B	
Approach Delay (s)		13.9	14.6					18.0	
Approach LOS		B	B					B	

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	38.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

General Office Building -- Dowling Associates, Inc. _ P######
Existing Conditions
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Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #12 17th St and C St

Cycle (sec):	100	Critical Vol./Cap.(X):	0.542
Loss Time (sec):	0	Average Delay (sec/veh):	12.5
Optimal Cycle:	0	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0	1 1	0 0	0	0 2	1 0	0	0 0	0 0
Volume Module:												
Base Vol:	0	0	0	45	142	0	0	741	343	0	0	0
Growth 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
Initial Bse:	0	0	0	45	142	0	0	741	343	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	45	142	0	0	741	343	0	0	0
User 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
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	47	149	0	0	780	361	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	47	149	0	0	780	361	0	0	0
PCE 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
MLF 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
FinalVolume:	0	0	0	47	149	0	0	780	361	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.48	1.52	0.00	0.00	2.05	0.95	0.00	0.00	0.00
Final Sat.:	0	0	0	246	795	0	0	1438	761	0	0	0
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.19	0.19	xxxx	xxxx	0.54	0.47	xxxx	xxxx	xxxx
Crit Moves:				****				****				
Delay/Veh:	0.0	0.0	0.0	11.0	10.7	0.0	0.0	13.6	11.0	0.0	0.0	0.0
Delay 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
AdjDel/Veh:	0.0	0.0	0.0	11.0	10.7	0.0	0.0	13.6	11.0	0.0	0.0	0.0
LOS by Move:	*	*	*	B	B	*	*	B	B	*	*	*
ApproachDel:	xxxxxx			10.8			12.8			xxxxxx		
Delay Adj:	xxxxx			1.00			1.00			xxxxx		
ApprAdjDel:	xxxxxx			10.8			12.8			xxxxxx		
LOS by Appr:	*			B			B			*		
AllWayAvgQ:	0.0	0.0	0.0	0.2	0.2	0.0	0.0	1.1	0.9	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Intersection	
Intersection Delay, s/veh	12.9
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	296	479	7	0	0	0	0	0	0	230	6
Peak Hour Factor	0.92	0.97	0.97	0.97	0.92	0.97	0.97	0.97	0.92	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	305	494	7	0	0	0	0	0	0	237	6
Number of Lanes	0	1	2	0	0	0	0	0	0	0	1	0

Approach	EB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left		EB
Conflicting Lanes Left	0	3
Conflicting Approach Right	NB	
Conflicting Lanes Right	1	0
HCM Control Delay	12.7	13.6
HCM LOS	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3
Vol Left, %	0%	100%	0%	0%
Vol Thru, %	97%	0%	100%	96%
Vol Right, %	3%	0%	0%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	236	296	319	167
LT Vol	0	296	0	0
Through Vol	230	0	319	160
RT Vol	6	0	0	7
Lane Flow Rate	243	305	329	172
Geometry Grp	7	7	7	7
Degree of Util (X)	0.422	0.492	0.484	0.251
Departure Headway (Hd)	6.242	5.799	5.295	5.266
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	572	616	675	677
Service Time	4.024	3.572	3.068	3.039
HCM Lane V/C Ratio	0.425	0.495	0.487	0.254
HCM Control Delay	13.6	14.1	13	9.8
HCM Lane LOS	B	B	B	A
HCM 95th-tile Q	2.1	2.7	2.7	1

Appendix I

Segment & Intersection Analysis Tables & Graphics
Future (2020) Conditions: With and Without the Project

Roadway Level of Service – Future Conditions With and Without the Project

Segment	Volume (AADT)	Future Conditions Without Project				Future Conditions With Project				Change in V/C	Exceeds City of San Diego Criteria?
		Lanes	Capacity	V/C	LOS	Lanes	Capacity	V/C	LOS		
Pershing Drive											
Upas St. to Jacaranda Pl.	6900	2-L C(SM)	15000	0.46	B	2-L C SM	15000	0.46	B	0.00	No
Jacaranda Pl. to Redwood St.	11399	3-L C (CL)	22500	0.51	C	2-L C SM	15000	0.76	D	0.25	No
Redwood Pl. to Florida Dr./26th St.	15130	4-L MA	40000	0.38	B	2-L MA	20000	0.76	D	0.38	No
Florida Dr./26th St. to I-5 Ramps	36035	4-L MA	40000	0.90	E	4-L MA	40000	0.90	E	0.00	No
I-5 Ramps to North of B St.	7200	3-L MA	30000	0.24	A	2-L MA	20000	0.36	A	0.12	No
North of B St. to B St.	7200	4-L MA	40000	0.18	A	3-L MA	30000	0.24	A	0.06	No
17th Street											
B St. to C St.	2158	2-L C (OW)	15000	0.14	A	2-L C (OW)	15000	0.14	A	0.00	No
19th Street											
B St. to C St.	5158	2-L C (OW)	15000	0.34	B	1-L C (OW)	7500	0.69	D	0.34	No

Notes: North of B Street refers to the area Pershing Drive approximately 200 feet north of B Street where Pershing Drive's southbound leg expands to two travel lanes.

LOS = level of service
V/C = volume-to-capacity ratio
AADT = annual average daily traffic
OW = one-way
C = collector
MA = major arterial
CL = center, turn lane
SM = separated media

Intersection Level of Service – Future Conditions With and Without the Project

Intersection	Intersection Control	Future Conditions Without the Project		Intersection Control	Future Conditions With the Project		Change in Delay	Exceeds City of San Diego Criteria?
		Delay	LOS		Delay	LOS		
A.M. Peak Hour								
Pershing Dr. and Redwood St. Egress	MSS*	78.5	F	RA	25.3	D	-53.2	No
Pershing Dr. and Redwood St. Ingress	MSS	0.2	A					
28th St. and Redwood St.	AWS**	15.6	C	TC	8.7	A	-6.9	No
Pershing Dr. and Florida Dr./26th St.	Signal	>80.0	F	TS	>80.0	F	0.0	No
Pershing Dr./17th St. and B St.	MSS	>80.0	F	AWS	50.8	F	-29.2	No
Pershing Dr./19th St. and B St.	Signal	18.8	B	TS	24.7	C	5.9	No
17th St. and C St.	MSS	14.9	B	AWS	9.4	A	-5.5	No
19th St. and C St.	AWS	15.0	B	AWS	15.4	C	0.4	No
P.M. Peak Hour								
Pershing Dr. and Redwood St. Egress	MSS	19.3	C	RA	15.6	C	-3.7	No
Pershing Dr. and Redwood St. Ingress	MSS	1.8	A					
28th St. and Redwood St.	AWS	11.5	B	TC	7	A	-4.5	No
Pershing Dr. and Florida Dr./26th St.	Signal	86.2	F	TS	63.6	E	-22.6	No
Pershing Dr./17th St. and B St.	MSS	20.0	C	AWS	10.1	B	-9.9	No
Pershing Dr./19th St. and B St.	Signal	11.2	B	TS	17.1	B	5.9	No
17th St. and C St.	MSS	32.8	D	AWS	13	B	-19.8	No
19th St. and C St.	AWS	12.8	B	AWS	13.4	B	0.6	No

Note: The intersection of Pershing Drive/19th Street and B Street includes the addition of a diagonal bike crossing with a dedicated signal phase as part of the 'Existing with Project" conditions.

The equations for HCM were established with validation up to 80 seconds and are not validated beyond that threshold so reporting the exact seconds of delay would be utilizing the equations beyond their capability or intent.

Source: Appendix J, Appendix K.

LOS = level of service TS = Traffic Signal
MSS = Minor Street Stop RA = Roundabout
AWS = All Way Stop TC = Traffic Circle

Appendix J

Intersection Analysis Worksheets Future (2020) Conditions: Without the Project

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	492	132	155	0	0	660
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	529	142	167	0	0	710
Pedestrians						1
Lane Width (ft)						12.0
Walking Speed (ft/s)						4.0
Percent Blockage						0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	522	168			167	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	522	168			167	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	83			100	
cM capacity (veh/h)	485	846			1409	

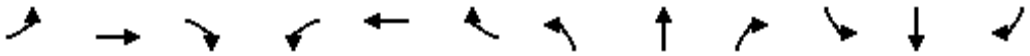
Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	529	142	167	355	355
Volume Left	529	0	0	0	0
Volume Right	0	142	0	0	0
cSH	485	846	1700	1700	1700
Volume to Capacity	1.09	0.17	0.10	0.21	0.21
Queue Length 95th (ft)	428	15	0	0	0
Control Delay (s)	96.8	10.1	0.0	0.0	0.0
Lane LOS	F	B			
Approach Delay (s)	78.5		0.0	0.0	
Approach LOS	F				

Intersection Summary			
Average Delay	34.0		
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	155	170	36	1116
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	0	167	183	39	1200
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	844	167			167	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	844	167			167	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			97	
cM capacity (veh/h)	294	848			1409	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	167	183	39	600	600
Volume Left	0	0	39	0	0
Volume Right	0	183	0	0	0
cSH	1700	1700	1409	1700	1700
Volume to Capacity	0.10	0.11	0.03	0.35	0.35
Queue Length 95th (ft)	0	0	2	0	0
Control Delay (s)	0.0	0.0	7.6	0.0	0.0
Lane LOS			A		
Approach Delay (s)	0.0		0.2		
Approach LOS					

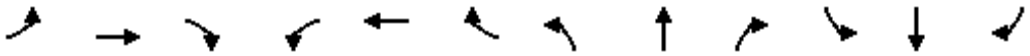
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	10	180	15	4	421	18	146	8	0	23	8	60
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	11	202	17	4	473	20	164	9	0	26	9	67

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	230	498	173	102
Volume Left (vph)	11	4	164	26
Volume Right (vph)	17	20	0	67
Hadj (s)	0.00	0.01	0.22	-0.31
Departure Headway (s)	5.5	5.2	6.3	5.9
Degree Utilization, x	0.35	0.71	0.30	0.17
Capacity (veh/h)	601	676	508	519
Control Delay (s)	11.5	19.9	12.0	10.1
Approach Delay (s)	11.5	19.9	12.0	10.1
Approach LOS	B	C	B	B

Intersection Summary				
Delay	15.6			
Level of Service	C			
Intersection Capacity Utilization	46.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	117	513	296	282	25	721	303	134	31	1084	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.3	4.4	4.9	4.9		4.4	6.0		4.4	6.5	
Lane Util. Factor		0.95	0.95	0.95	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes		0.99	0.99	1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.91	0.85	1.00	0.99		1.00	0.95		1.00	1.00	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1585	1489	1681	1740		3433	3353		1770	3523	
Flt Permitted		1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1585	1489	1681	1740		3433	3353		1770	3523	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	8	122	534	308	294	26	751	316	140	32	1129	31
RTOR Reduction (vph)	0	61	52	0	3	0	0	37	0	0	1	0
Lane Group Flow (vph)	0	283	268	277	348	0	751	419	0	32	1159	0
Confl. Peds. (#/hr)			4						1			1
Confl. Bikes (#/hr)			2			2						6
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	
Protected Phases	4	4	5	3	3		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)		23.8	41.6	18.1	18.1		17.8	43.0		4.5	29.2	
Effective Green, g (s)		23.8	41.6	18.1	18.1		17.8	43.0		4.5	29.2	
Actuated g/C Ratio		0.22	0.38	0.16	0.16		0.16	0.39		0.04	0.27	
Clearance Time (s)		5.3	4.4	4.9	4.9		4.4	6.0		4.4	6.5	
Vehicle Extension (s)		2.0	2.0	2.0	2.0		2.0	3.8		2.0	3.5	
Lane Grp Cap (vph)		342	563	276	286		555	1310		72	935	
v/s Ratio Prot		c0.18	0.08	0.16	c0.20		c0.22	0.12		0.02	c0.33	
v/s Ratio Perm			0.10									
v/c Ratio		0.83	0.48	1.00	1.22		1.35	0.32		0.44	1.24	
Uniform Delay, d1		41.1	25.9	46.0	46.0		46.1	23.3		51.5	40.4	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		14.4	0.2	55.1	125.8		170.5	0.6		1.6	116.8	
Delay (s)		55.5	26.2	101.0	171.7		216.6	24.0		53.1	157.2	
Level of Service		E	C	F	F		F	C		D	F	
Approach Delay (s)		41.4			140.5			143.8			154.4	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	128.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	21.1
Intersection Capacity Utilization	104.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

General Office Building -- Dowling Associates, Inc. _ P######
Existing + Approved + Project Conditions
AM Peak Hour

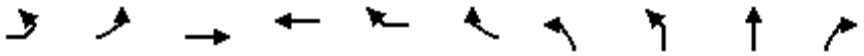
Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #10 Pershing Dr/17th St and B St

Average Delay (sec/veh): 27.2 Worst Case Level Of Service: F[65325.0]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	0	0	0	1 2	0	0	0	0 0	1	1	1	0 0
Volume Module:																
Base Vol:	0	0	0		0	52	480		0	0	0		134	1441		0
Growth 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	
Initial Bse:	0	0	0		0	52	480		0	0	0		134	1441		0
Added Vol:	0	0	0		0	0	0		0	0	0		0	0		0
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0		0
Initial Fut:	0	0	0		0	52	480		0	0	0		134	1441		0
User 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	
PHF Adj:	0.93	0.93	0.93		0.93	0.93	0.93		0.93	0.93	0.93		0.93	0.93	0.93	
PHF Volume:	0	0	0		0	56	516		0	0	0		144	1549		0
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0		0
FinalVolume:	0	0	0		0	56	516		0	0	0		144	1549		0
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx				
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx				
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	1838	775	xxxx	xxxx	xxxxx	0	xxxx	xxxxx				
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	77	401	xxxx	xxxx	xxxxx	1636	xxxx	xxxxx				
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	70	401	xxxx	xxxx	xxxxx	1636	xxxx	xxxxx				
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	0.80	1.29	xxxx	xxxx	xxxx	0.09	xxxx	xxxx				
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	6.4	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx				
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	48.9	xxxxx	xxxx	xxxxx	7.3	xxxx	xxxxx				
LOS by Move:	*	*	*	*	*	E	*	*	*	A	*	*				
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT				
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	185	xxxx	xxxx	xxxxx	1	xxxx	xxxxx				
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.3	xxxxx	xxxx	xxxxx	11.3	xxxx	xxxxx				
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	192.1	xxxxx	xxxx	xxxxx	65325	xxxx	xxxxx				
Shared LOS:	*	*	*	*	*	F	*	*	*	F	*	*				
ApproachDel:	xxxxxx			106.0			xxxxxx			xxxxxx						
ApproachLOS:	*			F			*			*						

Note: Queue reported is the number of cars per lane.



Movement	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations										
Volume (vph)	4	2	11	421	464	72	89	329	118	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0	4.0			4.0	4.0	
Lane Util. Factor			1.00	1.00	1.00			1.00	0.95	
Frpb, ped/bikes			1.00	1.00	0.98			1.00	1.00	
Flpb, ped/bikes			1.00	1.00	1.00			1.00	1.00	
Frt			1.00	1.00	0.85			1.00	0.97	
Flt Protected			0.98	1.00	1.00			0.95	1.00	
Satd. Flow (prot)			1832	1863	1545			1770	3422	
Flt Permitted			0.91	1.00	1.00			0.95	1.00	
Satd. Flow (perm)			1686	1863	1545			1770	3422	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	4	2	12	443	488	76	94	346	124	32
RTOR Reduction (vph)	0	0	0	0	10	0	0	0	18	0
Lane Group Flow (vph)	0	0	18	443	554	0	0	440	138	0
Confl. Bikes (#/hr)					5					1
Turn Type	Perm	Perm	NA	NA	Perm		Perm	Perm	NA	
Protected Phases			4	4					2	
Permitted Phases	4	4			4		2	2		
Actuated Green, G (s)			26.0	26.0	26.0			26.0	26.0	
Effective Green, g (s)			26.0	26.0	26.0			26.0	26.0	
Actuated g/C Ratio			0.43	0.43	0.43			0.43	0.43	
Clearance Time (s)			4.0	4.0	4.0			4.0	4.0	
Vehicle Extension (s)			3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)			730	807	669			767	1482	
v/s Ratio Prot				0.24					0.04	
v/s Ratio Perm			0.01		c0.36			c0.25		
v/c Ratio			0.02	0.55	0.83			0.57	0.09	
Uniform Delay, d1			9.7	12.6	15.0			12.8	10.0	
Progression Factor			1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2			0.1	2.7	11.3			3.1	0.1	
Delay (s)			9.8	15.3	26.3			15.9	10.2	
Level of Service			A	B	C			B	B	
Approach Delay (s)			9.8	21.5					14.4	
Approach LOS			A	C					B	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

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Existing + Approved + Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #12 17th St and C St

Average Delay (sec/veh): 3.7 Worst Case Level Of Service: B[14.9]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		0 1	1 0	0	0 0	2 1	0	0 0	0 0	0
Volume Module:												
Base Vol:	0	0	0	41	147	0	0	303	258	0	0	0
Growth 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
Initial Bse:	0	0	0	41	147	0	0	303	258	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	41	147	0	0	303	258	0	0	0
User 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
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	0	0	45	160	0	0	329	280	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	45	160	0	0	329	280	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	110	610	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	892	412	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	892	412	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.05	0.39	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	0.7	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	15.8	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	C	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	510	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	14.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	B	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			14.9			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the number of cars per lane.

Intersection	
Intersection Delay, s/veh	15
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	189	162	5	0	0	0	0	0	0	373	8
Peak Hour Factor	0.92	0.88	0.88	0.88	0.92	0.88	0.88	0.88	0.92	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	215	184	6	0	0	0	0	0	0	424	9
Number of Lanes	0	1	2	0	0	0	0	0	0	0	1	0

Approach	EB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left		EB
Conflicting Lanes Left	0	3
Conflicting Approach Right	NB	
Conflicting Lanes Right	1	0
HCM Control Delay	10.8	19
HCM LOS	B	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3
Vol Left, %	0%	100%	47%	0%
Vol Thru, %	98%	0%	53%	94%
Vol Right, %	2%	0%	0%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	381	117	153	86
LT Vol	0	117	72	0
Through Vol	373	0	81	81
RT Vol	8	0	0	5
Lane Flow Rate	433	133	174	98
Geometry Grp	7	7	7	7
Degree of Util (X)	0.669	0.232	0.289	0.155
Departure Headway (Hd)	5.562	6.265	5.997	5.719
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	645	567	594	621
Service Time	3.337	4.063	3.794	3.515
HCM Lane V/C Ratio	0.671	0.235	0.293	0.158
HCM Control Delay	19	11	11.3	9.6
HCM Lane LOS	C	B	B	A
HCM 95th-tile Q	5.1	0.9	1.2	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	165	94	470	0	0	336
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	177	101	505	0	0	361
Pedestrians						8
Lane Width (ft)						12.0
Walking Speed (ft/s)						4.0
Percent Blockage						1
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	686	513			505	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	686	513			505	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	53	80			100	
cM capacity (veh/h)	381	503			1056	

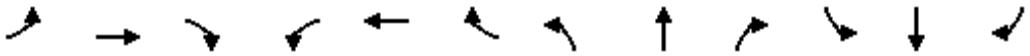
Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	177	101	505	181	181
Volume Left	177	0	0	0	0
Volume Right	0	101	0	0	0
cSH	381	503	1700	1700	1700
Volume to Capacity	0.47	0.20	0.30	0.11	0.11
Queue Length 95th (ft)	60	19	0	0	0
Control Delay (s)	22.4	14.0	0.0	0.0	0.0
Lane LOS	C	B			
Approach Delay (s)	19.3		0.0	0.0	
Approach LOS	C				

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	470	294	103	398
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	0	505	316	111	428
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	941	505			505	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	941	505			505	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			90	
cM capacity (veh/h)	234	512			1056	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	505	316	111	214	214
Volume Left	0	0	111	0	0
Volume Right	0	316	0	0	0
cSH	1700	1700	1056	1700	1700
Volume to Capacity	0.30	0.19	0.10	0.13	0.13
Queue Length 95th (ft)	0	0	9	0	0
Control Delay (s)	0.0	0.0	8.8	0.0	0.0
Lane LOS			A		
Approach Delay (s)	0.0		1.8		
Approach LOS					

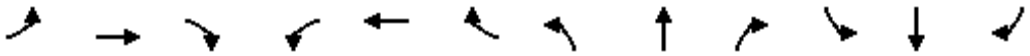
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	37	306	60	2	185	14	32	6	3	52	35	25
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	39	326	64	2	197	15	34	6	3	55	37	27

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	429	214	44	119
Volume Left (vph)	39	2	34	55
Volume Right (vph)	64	15	3	27
Hadj (s)	-0.04	-0.01	0.15	-0.01
Departure Headway (s)	4.6	4.9	5.8	5.5
Degree Utilization, x	0.55	0.29	0.07	0.18
Capacity (veh/h)	751	698	531	584
Control Delay (s)	13.1	9.9	9.3	9.7
Approach Delay (s)	13.1	9.9	9.3	9.7
Approach LOS	B	A	A	A

Intersection Summary			
Delay	11.5		
Level of Service	B		
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	470	830	129	122	50	404	672	284	46	409	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.3	4.4	4.9	4.9		4.4	6.0		4.4	6.5	
Lane Util. Factor		0.95	0.95	0.95	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes		0.99	0.98	1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.95	0.85	1.00	0.96		1.00	0.96		1.00	1.00	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1678	1481	1681	1692		3433	3340		1770	3527	
Flt Permitted		1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1678	1481	1681	1692		3433	3340		1770	3527	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	12	490	865	134	127	52	421	700	296	48	426	9
RTOR Reduction (vph)	0	16	74	0	12	0	0	46	0	0	1	0
Lane Group Flow (vph)	0	702	575	121	180	0	421	950	0	48	434	0
Confl. Peds. (#/hr)			10						7			2
Confl. Bikes (#/hr)									7			5
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	
Protected Phases	4	4	5	3	3		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)		31.9	42.5	10.9	10.9		10.6	31.8		4.8	25.5	
Effective Green, g (s)		31.9	42.5	10.9	10.9		10.6	31.8		4.8	25.5	
Actuated g/C Ratio		0.32	0.42	0.11	0.11		0.11	0.32		0.05	0.26	
Clearance Time (s)		5.3	4.4	4.9	4.9		4.4	6.0		4.4	6.5	
Vehicle Extension (s)		2.0	2.0	2.0	2.0		2.0	3.8		2.0	3.5	
Lane Grp Cap (vph)		535	629	183	184		363	1062		84	899	
v/s Ratio Prot		c0.42	0.10	0.07	c0.11		c0.12	c0.28		0.03	0.12	
v/s Ratio Perm			0.29									
v/c Ratio		1.31	0.91	0.66	0.98		1.16	0.89		0.57	0.48	
Uniform Delay, d1		34.0	27.0	42.8	44.4		44.7	32.5		46.6	31.6	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		153.7	17.6	6.8	58.5		98.2	10.1		5.7	0.5	
Delay (s)		187.7	44.7	49.5	102.9		142.9	42.6		52.3	32.1	
Level of Service		F	D	D	F		F	D		D	C	
Approach Delay (s)		119.8			82.3			72.4			34.1	
Approach LOS		F			F			E			C	

Intersection Summary			
HCM 2000 Control Delay	86.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.1
Intersection Capacity Utilization	99.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

General Office Building -- Dowling Associates, Inc. _ P######
Existing + Approved + Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #10 Pershing Dr/17th St and B St

Average Delay (sec/veh): 6.4 Worst Case Level Of Service: F[34779.6]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0 0	0	0	0 0	0 0	0	1	2	0 0	0	0	0 0	1 1	1	0	0
Volume Module:																
Base Vol:	0	0	0		0	107	263		0	0	0		69	514	0	
Growth 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	
Initial Bse:	0	0	0		0	107	263		0	0	0		69	514	0	
Added Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		0	107	263		0	0	0		69	514	0	
User 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	
PHF Adj:	0.94	0.94	0.94		0.94	0.94	0.94		0.94	0.94	0.94		0.94	0.94	0.94	
PHF Volume:	0	0	0		0	114	280		0	0	0		73	547	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	0	0	0		0	114	280		0	0	0		73	547	0	
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	6.5		6.2	xxxxx	xxxx	xxxxx		4.1	xxxx	xxxxx		
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	4.0		3.3	xxxxx	xxxx	xxxxx		2.2	xxxx	xxxxx		
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	694		273	xxxx	xxxx	xxxxx		0	xxxx	xxxxx		
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	369		770	xxxx	xxxx	xxxxx		1636	xxxx	xxxxx		
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	352		770	xxxx	xxxx	xxxxx		1636	xxxx	xxxxx		
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	0.32		0.36	xxxx	xxxx	xxxx		0.04	xxxx	xxxx		
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx		0.9	xxxx	xxxx	xxxxx		0.1	xxxx	xxxxx		
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx		11.2	xxxxx	xxxx	xxxxx		7.3	xxxx	xxxxx		
LOS by Move:	*	*	*	*	*		B	*	*	*		A	*	*		
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx		466	xxxx	xxxx	xxxxx		1	xxxx	xxxxx		
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx		2.0	xxxxx	xxxx	xxxxx		6.6	xxxx	xxxxx		
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx		18.7	xxxxx	xxxx	xxxxx		34780	xxxx	xxxxx		
Shared LOS:	*	*	*	*	*		C	*	*	*		F	*	*		
ApproachDel:	xxxxxx				15.1			xxxxxx				xxxxxx				
ApproachLOS:	*				C			*				*				

Note: Queue reported is the number of cars per lane.

Movement	EBL2	EBT	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations									
Volume (vph)	2	25	101	109	22	32	177	310	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0			4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00			1.00	0.95	
Frpb, ped/bikes		1.00	1.00	0.97			1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00			1.00	1.00	
Frt		1.00	1.00	0.85			1.00	0.99	
Flt Protected		1.00	1.00	1.00			0.95	1.00	
Satd. Flow (prot)		1856	1863	1544			1770	3501	
Flt Permitted		0.99	1.00	1.00			0.95	1.00	
Satd. Flow (perm)		1846	1863	1544			1770	3501	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2	26	105	114	23	33	184	323	23
RTOR Reduction (vph)	0	0	0	12	0	0	0	9	0
Lane Group Flow (vph)	0	28	105	125	0	0	217	338	0
Confl. Peds. (#/hr)									1
Confl. Bikes (#/hr)				6					3
Turn Type	Perm	NA	NA	Perm		Perm	Perm	NA	
Protected Phases		4	4					2	
Permitted Phases	4			4		2	2		
Actuated Green, G (s)		26.0	26.0	26.0			26.0	26.0	
Effective Green, g (s)		26.0	26.0	26.0			26.0	26.0	
Actuated g/C Ratio		0.43	0.43	0.43			0.43	0.43	
Clearance Time (s)		4.0	4.0	4.0			4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)		799	807	669			767	1517	
v/s Ratio Prot			0.06					0.10	
v/s Ratio Perm		0.02		c0.08			c0.12		
v/c Ratio		0.04	0.13	0.19			0.28	0.22	
Uniform Delay, d1		9.8	10.2	10.5			11.0	10.7	
Progression Factor		1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2		0.1	0.3	0.6			0.9	0.3	
Delay (s)		9.9	10.5	11.1			11.9	11.0	
Level of Service		A	B	B			B	B	
Approach Delay (s)		9.9	10.9					11.3	
Approach LOS		A	B					B	

Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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Existing + Approved + Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #12 17th St and C St

Average Delay (sec/veh): 4.9 Worst Case Level Of Service: D[32.8]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		0 1	1 0	0	0 0	2 1	0	0 0	0 0	0
Volume Module:												
Base Vol:	0	0	0	47	149	0	0	771	357	0	0	0
Growth 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
Initial Bse:	0	0	0	47	149	0	0	771	357	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	47	149	0	0	771	357	0	0	0
User 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
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	49	157	0	0	812	376	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	49	157	0	0	812	376	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	271	1187	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	723	190	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	723	190	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.07	0.83	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	1.9	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	36.7	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	E	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	266	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	2.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	30.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	D	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			32.8			xxxxxx			xxxxxx		
ApproachLOS:	*			D			*			*		

Note: Queue reported is the number of cars per lane.

Intersection	
Intersection Delay, s/veh	12.8
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	308	499	8	0	0	0	0	0	0	240	7
Peak Hour Factor	0.92	0.97	0.97	0.97	0.92	0.97	0.97	0.97	0.92	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	318	514	8	0	0	0	0	0	0	247	7
Number of Lanes	0	1	2	0	0	0	0	0	0	0	1	0

Approach	EB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left		EB
Conflicting Lanes Left	0	3
Conflicting Approach Right	NB	
Conflicting Lanes Right	1	0
HCM Control Delay	12.4	14.1
HCM LOS	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3
Vol Left, %	0%	100%	15%	0%
Vol Thru, %	97%	0%	85%	97%
Vol Right, %	3%	0%	0%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	247	265	293	258
LT Vol	0	265	43	0
Through Vol	240	0	250	250
RT Vol	7	0	0	8
Lane Flow Rate	255	273	302	265
Geometry Grp	7	7	7	7
Degree of Util (X)	0.444	0.443	0.453	0.392
Departure Headway (Hd)	6.283	5.838	5.409	5.313
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	570	612	661	672
Service Time	4.067	3.616	3.186	3.09
HCM Lane V/C Ratio	0.447	0.446	0.457	0.394
HCM Control Delay	14.1	13.2	12.6	11.5
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.3	2.3	2.4	1.9

Appendix K

Intersection Analysis Worksheets Future (2020) Conditions: With the Project

MOVEMENT SUMMARY

Site: 2020 AM

Pershing Dr and Redwood St
Roundabout

Movement Performance - Vehicles

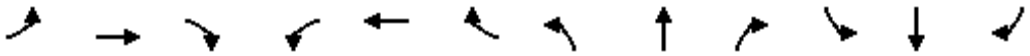
Mov ID	ODMov	Demand Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	ft		per veh	mph
South: Pershing Dr											
8	T1	167	2.0	0.318	6.4	LOS A	2.6	65.5	0.27	0.10	27.4
18	R2	183	2.0	0.318	6.4	LOS A	2.6	65.5	0.27	0.10	26.8
Approach		349	2.0	0.318	6.4	LOS A	2.6	65.5	0.27	0.10	27.1
East: Redwood St											
1	L2	529	2.0	0.632	12.2	LOS B	6.0	153.6	0.66	0.45	24.7
16	R2	142	2.0	0.632	12.2	LOS B	6.0	153.6	0.66	0.45	24.2
Approach		671	2.0	0.632	12.2	LOS B	6.0	153.6	0.66	0.45	24.6
North: Pershing Dr											
7	L2	39	2.0	0.958	46.9	LOS E	24.6	624.6	1.00	1.71	18.4
4	T1	671	2.0	0.958	46.9	LOS E	24.6	624.6	1.00	1.71	18.3
Approach		710	2.0	0.958	46.9	LOS E	24.6	624.6	1.00	1.71	18.3
All Vehicles		1730	2.0	0.958	25.3	LOS D	24.6	624.6	0.72	0.90	21.9

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	230	497	173	102
Demand Flow Rate, veh/h	234	506	176	104
Vehicles Circulating, veh/h	40	187	244	653
Vehicles Exiting, veh/h	717	233	30	40
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.4	11.1	6.2	8.5
Approach LOS	A	B	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	234	506	176	104
Cap Entry Lane, veh/h	1086	937	885	588
Entry HV Adj Factor	0.983	0.981	0.982	0.979
Flow Entry, veh/h	230	497	173	102
Cap Entry, veh/h	1067	920	869	576
V/C Ratio	0.216	0.540	0.199	0.177
Control Delay, s/veh	5.4	11.1	6.2	8.5
LOS	A	B	A	A
95th %tile Queue, veh	1	3	1	1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	117	513	296	282	25	721	303	134	31	1084	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.3	5.3	4.9	4.9		4.4	6.0	4.9	4.4	6.5	
Lane Util. Factor		0.95	0.95	0.95	0.95		0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99	0.98	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.91	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1583	1474	1681	1740		3433	3539	1557	1770	3523	
Flt Permitted		1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1583	1474	1681	1740		3433	3539	1557	1770	3523	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	8	122	534	308	294	26	751	316	140	32	1129	31
RTOR Reduction (vph)	0	38	256	0	2	0	0	0	51	0	1	0
Lane Group Flow (vph)	0	306	64	277	349	0	751	316	89	32	1159	0
Confl. Peds. (#/hr)			4						1			1
Confl. Bikes (#/hr)			2			2						6
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	4	4		8	8		5	2	8	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		32.0	32.0	28.1	28.1		33.3	73.8	101.9	5.4	45.4	
Effective Green, g (s)		32.0	32.0	28.1	28.1		33.3	73.8	101.9	5.4	45.4	
Actuated g/C Ratio		0.20	0.20	0.18	0.18		0.21	0.46	0.64	0.03	0.28	
Clearance Time (s)		5.3	5.3	4.9	4.9		4.4	6.0	4.9	4.4	6.5	
Vehicle Extension (s)		2.0	2.0	2.0	2.0		2.0	3.8	2.0	2.0	3.5	
Lane Grp Cap (vph)		316	294	295	305		714	1633	992	59	1000	
v/s Ratio Prot		c0.19		0.16	c0.20		c0.22	0.09	0.02	0.02	c0.33	
v/s Ratio Perm			0.04						0.04			
v/c Ratio		0.97	0.22	0.94	1.15		1.05	0.19	0.09	0.54	1.16	
Uniform Delay, d1		63.5	53.5	65.1	65.9		63.3	25.5	11.2	76.0	57.3	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		41.7	0.1	35.7	96.8		48.1	0.1	0.0	5.4	82.7	
Delay (s)		105.1	53.6	100.7	162.7		111.4	25.5	11.2	81.4	140.0	
Level of Service		F	D	F	F		F	C	B	F	F	
Approach Delay (s)		80.3			135.4			77.3			138.4	
Approach LOS		F			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	107.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	159.9	Sum of lost time (s)	21.1
Intersection Capacity Utilization	104.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

General Office Building -- Dowling Associates, Inc. _ P######
Existing + Approved Conditions
AM Peak Hour

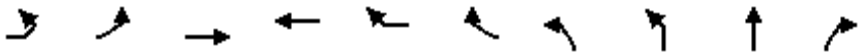
Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #10 Pershing Dr/17th St and B St

Cycle (sec):	0	Critical Vol./Cap.(X):	1.298
Loss Time (sec):	0	Average Delay (sec/veh):	117.2
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	1 0	2	0 0	0 0	0	1 0	2 0	0
Volume Module:												
Base Vol:	0	0	0	0	52	480	0	0	0	134	1441	0
Growth 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
Initial Bse:	0	0	0	0	52	480	0	0	0	134	1441	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	52	480	0	0	0	134	1441	0
User 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
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	0	0	0	0	56	516	0	0	0	144	1549	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	56	516	0	0	0	144	1549	0
PCE 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
MLF 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
FinalVolume:	0	0	0	0	56	516	0	0	0	144	1549	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.00	1.00	2.00	0.00	0.00	0.00	1.00	2.00	0.00
Final Sat.:	0	0	0	0	508	1127	0	0	0	552	1194	0
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	xxxx	0.11	0.46	xxxx	xxxx	xxxx	0.26	1.30	xxxx
Crit Moves:						****					****	
Delay/Veh:	0.0	0.0	0.0	0.0	10.7	14.4	0.0	0.0	0.0	11.5	165	0.0
Delay 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
AdjDel/Veh:	0.0	0.0	0.0	0.0	10.7	14.4	0.0	0.0	0.0	11.5	165	0.0
LOS by Move:	*	*	*	*	B	B	*	*	*	B	F	*
ApproachDel:	xxxxxx			14.0			xxxxxx			152.1		
Delay Adj:	xxxxx			1.00			xxxxx			1.00		
ApprAdjDel:	xxxxxx			14.0			xxxxxx			152.1		
LOS by Appr:	*			B			*			F		
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.1	0.8	0.0	0.0	0.0	0.4	25.9	0.0

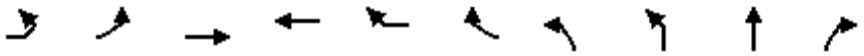
Note: Queue reported is the number of cars per lane.



Movement	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations										
Volume (vph)	4	2	11	421	464	72	89	329	118	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0	4.0			4.0	4.0	
Lane Util. Factor			1.00	1.00	1.00			1.00	1.00	
Frpb, ped/bikes			1.00	1.00	0.98			1.00	1.00	
Flpb, ped/bikes			1.00	1.00	1.00			1.00	1.00	
Frt			1.00	1.00	0.85			1.00	0.97	
Flt Protected			0.98	1.00	1.00			0.95	1.00	
Satd. Flow (prot)			1832	1863	1545			1770	1801	
Flt Permitted			0.91	1.00	1.00			0.95	1.00	
Satd. Flow (perm)			1686	1863	1545			1770	1801	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	4	2	12	443	488	76	94	346	124	32
RTOR Reduction (vph)	0	0	0	0	10	0	0	0	15	0
Lane Group Flow (vph)	0	0	18	443	554	0	0	440	141	0
Confl. Bikes (#/hr)					5					1
Turn Type	Perm	Perm	NA	NA	Perm		Perm	Perm	NA	
Protected Phases			4	4					2	
Permitted Phases	4	4			4		2	2		
Actuated Green, G (s)			26.0	26.0	26.0			26.0	26.0	
Effective Green, g (s)			26.0	26.0	26.0			26.0	26.0	
Actuated g/C Ratio			0.43	0.43	0.43			0.43	0.43	
Clearance Time (s)			4.0	4.0	4.0			4.0	4.0	
Vehicle Extension (s)			3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)			730	807	669			767	780	
v/s Ratio Prot				0.24					0.08	
v/s Ratio Perm			0.01		c0.36			c0.25		
v/c Ratio			0.02	0.55	0.83			0.57	0.18	
Uniform Delay, d1			9.7	12.6	15.0			12.8	10.5	
Progression Factor			1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2			0.1	2.7	11.3			3.1	0.5	
Delay (s)			9.8	15.3	26.3			15.9	11.0	
Level of Service			A	B	C			B	B	
Approach Delay (s)			9.8	21.5					14.6	
Approach LOS			A	C					B	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations										
Volume (vph)	4	2	11	421	464	72	89	329	118	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0	4.0			4.0	4.0	
Lane Util. Factor			1.00	1.00	1.00			1.00	1.00	
Frt			1.00	1.00	0.85			1.00	0.97	
Flt Protected			0.98	1.00	1.00			0.95	1.00	
Satd. Flow (prot)			1832	1863	1583			1770	1805	
Flt Permitted			0.90	1.00	1.00			0.95	1.00	
Satd. Flow (perm)			1678	1863	1583			1770	1805	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	4	2	12	443	488	76	94	346	124	32
RTOR Reduction (vph)	0	0	0	0	85	0	0	0	12	0
Lane Group Flow (vph)	0	0	18	443	479	0	0	440	144	0
Turn Type	Perm	Perm	NA	NA	Perm		Perm	Perm	NA	
Protected Phases			2	2					4	
Permitted Phases	2	2			2		4	4		
Actuated Green, G (s)			26.2	26.2	26.2			26.2	26.2	
Effective Green, g (s)			26.2	26.2	26.2			26.2	26.2	
Actuated g/C Ratio			0.38	0.38	0.38			0.38	0.38	
Clearance Time (s)			4.0	4.0	4.0			4.0	4.0	
Vehicle Extension (s)			3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)			629	699	594			664	677	
v/s Ratio Prot				0.24					0.08	
v/s Ratio Perm			0.01		c0.30			c0.25		
v/c Ratio			0.03	0.63	0.81			0.66	0.21	
Uniform Delay, d1			13.8	17.9	19.5			18.1	14.8	
Progression Factor			1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2			0.1	4.3	11.2			5.2	0.7	
Delay (s)			13.8	22.2	30.7			23.3	15.5	
Level of Service			B	C	C			C	B	
Approach Delay (s)			13.8	27.0					21.2	
Approach LOS			B	C					C	

Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

General Office Building -- Dowling Associates, Inc. _ P######
Existing + Approved Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #12 17th St and C St

Cycle (sec):	100	Critical Vol./Cap.(X):	0.346
Loss Time (sec):	0	Average Delay (sec/veh):	9.4
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0	1 1	0 0	0	0 2	1 0	0	0 0	0 0 0
Volume Module:												
Base Vol:	0	0	0	41	147	0	0	303	258	0	0	0
Growth 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
Initial Bse:	0	0	0	41	147	0	0	303	258	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	41	147	0	0	303	258	0	0	0
User 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
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	0	0	45	160	0	0	329	280	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	45	160	0	0	329	280	0	0	0
PCE 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
MLF 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
FinalVolume:	0	0	0	45	160	0	0	329	280	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.44	1.56	0.00	0.00	2.00	1.00	0.00	0.00	0.00
Final Sat.:	0	0	0	252	926	0	0	1398	809	0	0	0
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.18	0.17	xxxx	xxxx	0.24	0.35	xxxx	xxxx	xxxx
Crit Moves:				****					****			
Delay/Veh:	0.0	0.0	0.0	9.8	9.6	0.0	0.0	9.3	9.3	0.0	0.0	0.0
Delay 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
AdjDel/Veh:	0.0	0.0	0.0	9.8	9.6	0.0	0.0	9.3	9.3	0.0	0.0	0.0
LOS by Move:	*	*	*	A	A	*	*	A	A	*	*	*
ApproachDel:	xxxxxx			9.7			9.3			xxxxxx		
Delay Adj:	xxxxx			1.00			1.00			xxxxx		
ApprAdjDel:	xxxxxx			9.7			9.3			xxxxxx		
LOS by Appr:	*			A			A			*		
AllWayAvgQ:	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.3	0.5	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Intersection	
Intersection Delay, s/veh	15.4
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	189	162	5	0	0	0	0	0	0	373	8
Peak Hour Factor	0.92	0.88	0.88	0.88	0.92	0.88	0.88	0.88	0.92	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	215	184	6	0	0	0	0	0	0	424	9
Number of Lanes	0	1	2	0	0	0	0	0	0	0	1	0

Approach	EB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left		EB
Conflicting Lanes Left	0	3
Conflicting Approach Right	NB	
Conflicting Lanes Right	1	0
HCM Control Delay	11.4	19.1
HCM LOS	B	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3
Vol Left, %	0%	100%	0%	0%
Vol Thru, %	98%	0%	100%	92%
Vol Right, %	2%	0%	0%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	381	189	108	59
LT Vol	0	189	0	0
Through Vol	373	0	108	54
RT Vol	8	0	0	5
Lane Flow Rate	433	215	123	67
Geometry Grp	7	7	7	7
Degree of Util (X)	0.67	0.374	0.196	0.106
Departure Headway (Hd)	5.575	6.265	5.76	5.7
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	645	569	616	622
Service Time	3.352	4.065	3.559	3.498
HCM Lane V/C Ratio	0.671	0.378	0.2	0.108
HCM Control Delay	19.1	12.8	10	9.2
HCM Lane LOS	C	B	A	A
HCM 95th-tile Q	5.1	1.7	0.7	0.4

MOVEMENT SUMMARY

Site: 2020 PM

Pershing Dr and Redwood St
Roundabout

Movement Performance - Vehicles

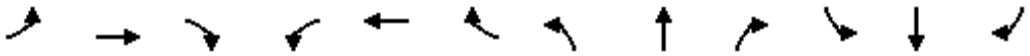
Mov ID	OD Mov	Demand Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	ft		per veh	mph
South: Pershing Dr											
8	T1	505	2.0	0.816	21.3	LOS C	13.2	334.3	0.89	0.57	23.2
18	R2	316	2.0	0.816	21.3	LOS C	13.2	334.3	0.89	0.57	22.7
Approach		822	2.0	0.816	21.3	LOS C	13.2	334.3	0.89	0.57	23.0
East: Redwood St											
1	L2	177	2.0	0.395	10.4	LOS B	2.8	72.2	0.81	0.72	25.4
16	R2	101	2.0	0.395	10.4	LOS B	2.8	72.2	0.81	0.72	24.8
Approach		278	2.0	0.395	10.4	LOS B	2.8	72.2	0.81	0.72	25.2
North: Pershing Dr											
7	L2	111	2.0	0.343	6.9	LOS A	2.5	64.6	0.52	0.34	26.9
4	T1	251	2.0	0.343	6.9	LOS A	2.5	64.6	0.52	0.34	26.8
Approach		361	2.0	0.343	6.9	LOS A	2.5	64.6	0.52	0.34	26.8
All Vehicles		1461	2.0	0.816	15.6	LOS C	13.2	334.3	0.78	0.54	24.3

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Intersection Delay, s/veh	7.0
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	429	214	43	119
Demand Flow Rate, veh/h	438	218	44	122
Vehicles Circulating, veh/h	96	81	429	238
Vehicles Exiting, veh/h	264	392	105	61
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.3	5.5	5.6	5.5
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	438	218	44	122
Cap Entry Lane, veh/h	1027	1042	736	891
Entry HV Adj Factor	0.981	0.982	0.975	0.977
Flow Entry, veh/h	429	214	43	119
Cap Entry, veh/h	1007	1023	717	871
V/C Ratio	0.427	0.209	0.060	0.137
Control Delay, s/veh	8.3	5.5	5.6	5.5
LOS	A	A	A	A
95th %tile Queue, veh	2	1	0	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	470	830	129	122	50	404	672	284	46	409	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.3	5.3	4.9	4.9		4.4	6.0	4.9	4.4	6.5	
Lane Util. Factor		0.95	0.95	0.95	0.95		0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99	0.96	1.00	1.00		1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.95	0.85	1.00	0.96		1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1668	1443	1681	1692		3433	3539	1536	1770	3527	
Flt Permitted		1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1668	1443	1681	1692		3433	3539	1536	1770	3527	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	12	490	865	134	127	52	421	700	296	48	426	9
RTOR Reduction (vph)	0	10	218	0	10	0	0	0	127	0	1	0
Lane Group Flow (vph)	0	708	431	121	182	0	421	700	169	48	434	0
Confl. Peds. (#/hr)			10						7			2
Confl. Bikes (#/hr)									7			5
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	4	4		8	8		5	2	8	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		55.7	55.7	18.7	18.7		16.7	36.5	55.2	6.5	25.8	
Effective Green, g (s)		55.7	55.7	18.7	18.7		16.7	36.5	55.2	6.5	25.8	
Actuated g/C Ratio		0.40	0.40	0.14	0.14		0.12	0.26	0.40	0.05	0.19	
Clearance Time (s)		5.3	5.3	4.9	4.9		4.4	6.0	4.9	4.4	6.5	
Vehicle Extension (s)		2.0	2.0	2.0	2.0		2.0	3.8	2.0	2.0	3.5	
Lane Grp Cap (vph)		673	582	227	229		415	936	614	83	659	
v/s Ratio Prot		c0.42		0.07	c0.11		c0.12	c0.20	0.04	0.03	0.12	
v/s Ratio Perm			0.30						0.07			
v/c Ratio		1.05	0.74	0.53	0.80		1.01	0.75	0.27	0.58	0.66	
Uniform Delay, d1		41.1	35.0	55.6	57.8		60.6	46.5	27.9	64.4	52.0	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		49.4	4.4	1.2	16.2		47.9	3.5	0.1	5.9	2.5	
Delay (s)		90.5	39.4	56.8	74.0		108.5	50.0	28.0	70.3	54.5	
Level of Service		F	D	E	E		F	D	C	E	D	
Approach Delay (s)		66.3			67.4			62.8			56.1	
Approach LOS		E			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	63.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	138.0	Sum of lost time (s)	21.1
Intersection Capacity Utilization	92.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

General Office Building -- Dowling Associates, Inc. _ P######
Existing + Approved Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #10 Pershing Dr/17th St and B St

Cycle (sec):	0	Critical Vol./Cap.(X):	0.422
Loss Time (sec):	0	Average Delay (sec/veh):	10.8
Optimal Cycle:	0	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 0 0			0 0 1 0 2			0 0 0 0 0			1 0 2 0 0		
Volume Module:												
Base Vol:	0	0	0	0	107	263	0	0	0	69	514	0
Growth 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
Initial Bse:	0	0	0	0	107	263	0	0	0	69	514	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	107	263	0	0	0	69	514	0
User 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
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	0	0	0	0	114	280	0	0	0	73	547	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	114	280	0	0	0	73	547	0
PCE 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
MLF 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
FinalVolume:	0	0	0	0	114	280	0	0	0	73	547	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.00	1.00	2.00	0.00	0.00	0.00	1.00	2.00	0.00
Final Sat.:	0	0	0	0	584	1318	0	0	0	592	1295	0
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	xxxx	0.19	0.21	xxxx	xxxx	xxxx	0.12	0.42	xxxx
Crit Moves:						****					****	
Delay/Veh:	0.0	0.0	0.0	0.0	10.0	9.3	0.0	0.0	0.0	9.5	11.9	0.0
Delay 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
AdjDel/Veh:	0.0	0.0	0.0	0.0	10.0	9.3	0.0	0.0	0.0	9.5	11.9	0.0
LOS by Move:	*	*	*	*	A	A	*	*	*	A	B	*
ApproachDel:	xxxxxx			9.5			xxxxxx			11.6		
Delay Adj:	xxxxx			1.00			xxxxx			1.00		
ApprAdjDel:	xxxxxx			9.5			xxxxxx			11.6		
LOS by Appr:	*			A			*			B		
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.1	0.7	0.0

Note: Queue reported is the number of cars per lane.

Movement	EBL2	EBT	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations									
Volume (vph)	2	25	101	109	22	32	177	310	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0			4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00			1.00	1.00	
Frpb, ped/bikes		1.00	1.00	0.97			1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00			1.00	1.00	
Frt		1.00	1.00	0.85			1.00	0.99	
Flt Protected		1.00	1.00	1.00			0.95	1.00	
Satd. Flow (prot)		1856	1863	1544			1770	1842	
Flt Permitted		0.99	1.00	1.00			0.95	1.00	
Satd. Flow (perm)		1846	1863	1544			1770	1842	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2	26	105	114	23	33	184	323	23
RTOR Reduction (vph)	0	0	0	12	0	0	0	5	0
Lane Group Flow (vph)	0	28	105	125	0	0	217	341	0
Confl. Peds. (#/hr)									1
Confl. Bikes (#/hr)				6					3
Turn Type	Perm	NA	NA	Perm		Perm	Perm	NA	
Protected Phases		4	4					2	
Permitted Phases	4			4		2	2		
Actuated Green, G (s)		26.0	26.0	26.0			26.0	26.0	
Effective Green, g (s)		26.0	26.0	26.0			26.0	26.0	
Actuated g/C Ratio		0.43	0.43	0.43			0.43	0.43	
Clearance Time (s)		4.0	4.0	4.0			4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)		799	807	669			767	798	
v/s Ratio Prot			0.06					c0.19	
v/s Ratio Perm		0.02		c0.08			0.12		
v/c Ratio		0.04	0.13	0.19			0.28	0.43	
Uniform Delay, d1		9.8	10.2	10.5			11.0	11.8	
Progression Factor		1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2		0.1	0.3	0.6			0.9	1.7	
Delay (s)		9.9	10.5	11.1			11.9	13.5	
Level of Service		A	B	B			B	B	
Approach Delay (s)		9.9	10.9					12.9	
Approach LOS		A	B					B	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	39.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL2	EBT	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations									
Volume (vph)	2	25	101	109	22	32	177	310	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0			4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00			1.00	1.00	
Frpb, ped/bikes		1.00	1.00	0.97			1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00			1.00	1.00	
Frt		1.00	1.00	0.85			1.00	0.99	
Flt Protected		1.00	1.00	1.00			0.95	1.00	
Satd. Flow (prot)		1856	1863	1542			1770	1842	
Flt Permitted		0.99	1.00	1.00			0.95	1.00	
Satd. Flow (perm)		1845	1863	1542			1770	1842	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2	26	105	114	23	33	184	323	23
RTOR Reduction (vph)	0	0	0	85	0	0	0	4	0
Lane Group Flow (vph)	0	28	105	52	0	0	217	342	0
Confl. Peds. (#/hr)									1
Confl. Bikes (#/hr)				6					3
Turn Type	Perm	NA	NA	Perm		Perm	Perm	NA	
Protected Phases		2	2					4	
Permitted Phases	2			2		4	4		
Actuated Green, G (s)		26.2	26.2	26.2			26.2	26.2	
Effective Green, g (s)		26.2	26.2	26.2			26.2	26.2	
Actuated g/C Ratio		0.38	0.38	0.38			0.38	0.38	
Clearance Time (s)		4.0	4.0	4.0			4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)		692	699	578			664	691	
v/s Ratio Prot			c0.06					c0.19	
v/s Ratio Perm		0.02		0.03			0.12		
v/c Ratio		0.04	0.15	0.09			0.33	0.50	
Uniform Delay, d1		13.8	14.4	14.1			15.5	16.7	
Progression Factor		1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2		0.1	0.5	0.3			1.3	2.5	
Delay (s)		13.9	14.9	14.4			16.8	19.3	
Level of Service		B	B	B			B	B	
Approach Delay (s)		13.9	14.6					18.3	
Approach LOS		B	B					B	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	39.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

General Office Building -- Dowling Associates, Inc. _ P######
Existing + Approved Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #12 17th St and C St

Cycle (sec):	100	Critical Vol./Cap.(X):	0.568
Loss Time (sec):	0	Average Delay (sec/veh):	13.0
Optimal Cycle:	0	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 0 0			0 1 1 0 0			0 0 2 1 0			0 0 0 0 0		
Volume Module:												
Base Vol:	0	0	0	47	149	0	0	771	357	0	0	0
Growth 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
Initial Bse:	0	0	0	47	149	0	0	771	357	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	47	149	0	0	771	357	0	0	0
User 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
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	49	157	0	0	812	376	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	49	157	0	0	812	376	0	0	0
PCE 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
MLF 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
FinalVolume:	0	0	0	49	157	0	0	812	376	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.48	1.52	0.00	0.00	2.05	0.95	0.00	0.00	0.00
Final Sat.:	0	0	0	244	790	0	0	1429	756	0	0	0
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.20	0.20	xxxx	xxxx	0.57	0.50	xxxx	xxxx	xxxx
Crit Moves:				****				****				
Delay/Veh:	0.0	0.0	0.0	11.1	10.9	0.0	0.0	14.3	11.5	0.0	0.0	0.0
Delay 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
AdjDel/Veh:	0.0	0.0	0.0	11.1	10.9	0.0	0.0	14.3	11.5	0.0	0.0	0.0
LOS by Move:	*	*	*	B	B	*	*	B	B	*	*	*
ApproachDel:	xxxxxx			11.0			13.4			xxxxxx		
Delay Adj:	xxxxx			1.00			1.00			xxxxx		
ApprAdjDel:	xxxxxx			11.0			13.4			xxxxxx		
LOS by Appr:	*			B			B			*		
AllWayAvgQ:	0.0	0.0	0.0	0.2	0.2	0.0	0.0	1.3	0.9	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Intersection	
Intersection Delay, s/veh	13.4
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	308	499	8	0	0	0	0	0	0	240	7
Peak Hour Factor	0.92	0.97	0.97	0.97	0.92	0.97	0.97	0.97	0.92	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	318	514	8	0	0	0	0	0	0	247	7
Number of Lanes	0	1	2	0	0	0	0	0	0	0	1	0

Approach	EB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left		EB
Conflicting Lanes Left	0	3
Conflicting Approach Right	NB	
Conflicting Lanes Right	1	0
HCM Control Delay	13.2	14.1
HCM LOS	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3
Vol Left, %	0%	100%	0%	0%
Vol Thru, %	97%	0%	100%	95%
Vol Right, %	3%	0%	0%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	247	308	333	174
LT Vol	0	308	0	0
Through Vol	240	0	333	166
RT Vol	7	0	0	8
Lane Flow Rate	255	318	343	180
Geometry Grp	7	7	7	7
Degree of Util (X)	0.446	0.515	0.508	0.265
Departure Headway (Hd)	6.299	5.838	5.335	5.302
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	568	613	669	672
Service Time	4.086	3.62	3.116	3.083
HCM Lane V/C Ratio	0.449	0.519	0.513	0.268
HCM Control Delay	14.1	14.7	13.6	10
HCM Lane LOS	B	B	B	A
HCM 95th-tile Q	2.3	2.9	2.9	1.1