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APPENDIX 6.1: NOISE REFERENCES

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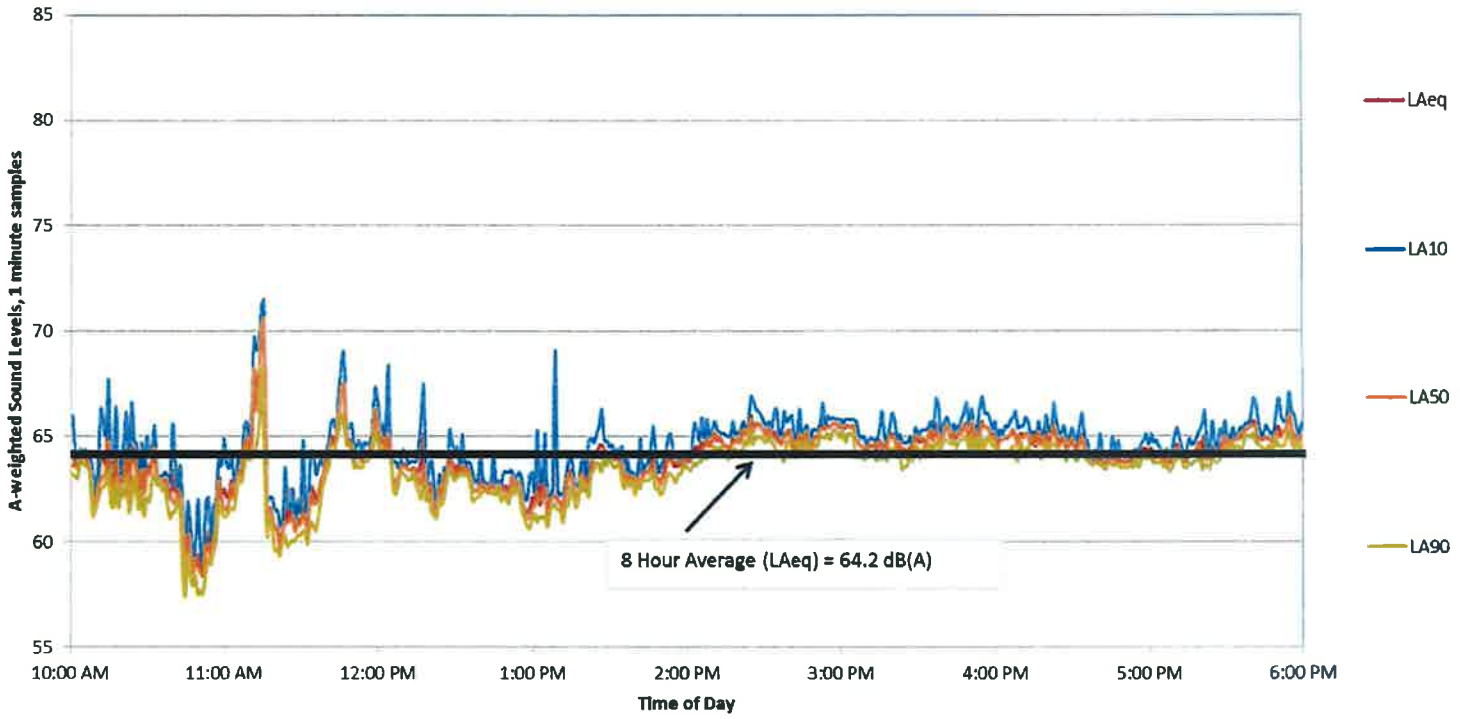


Figure 3. A-weighted Statistical Sound Level Time History Based on One (1) Minute Continuous Data Samples

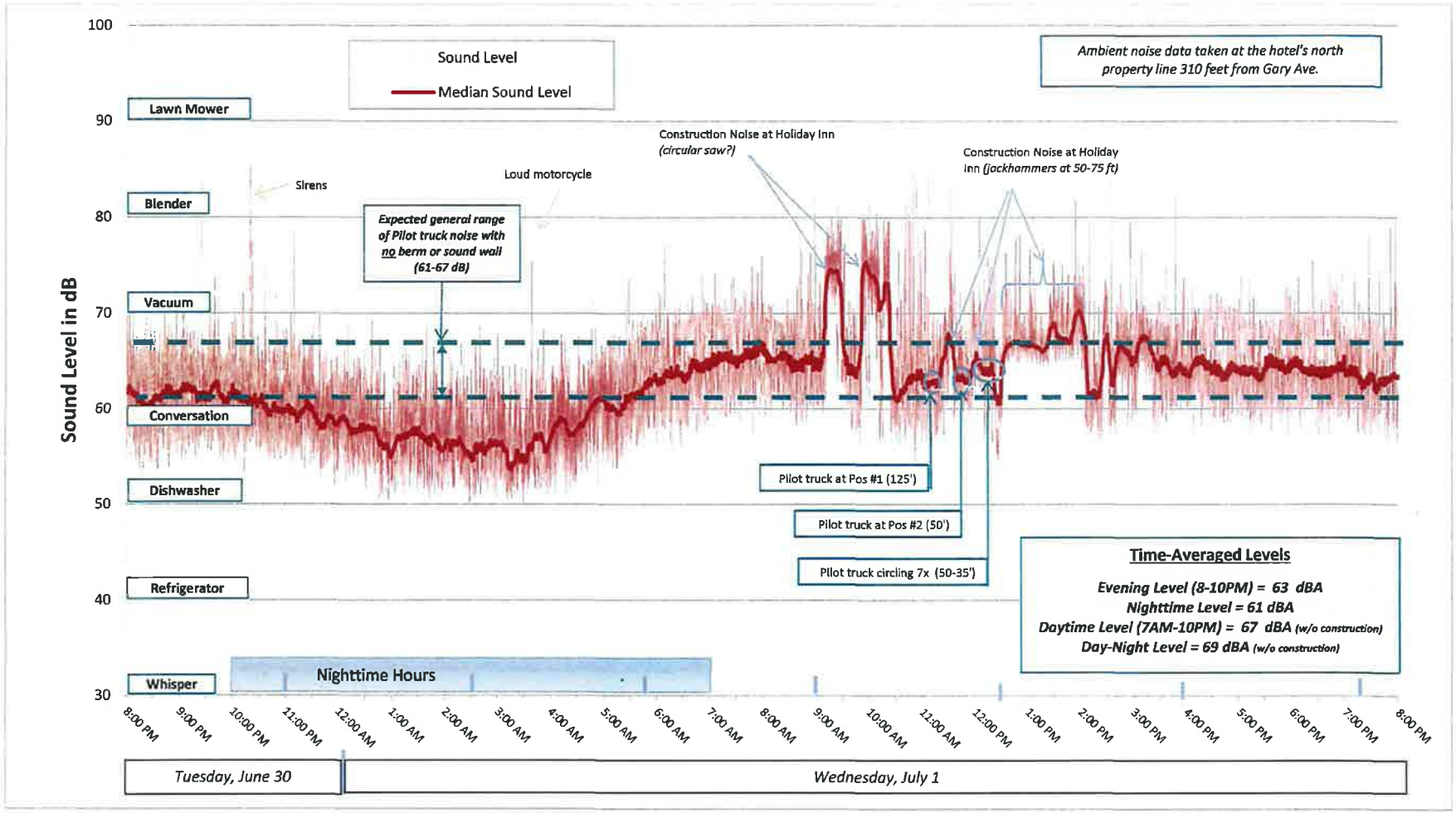
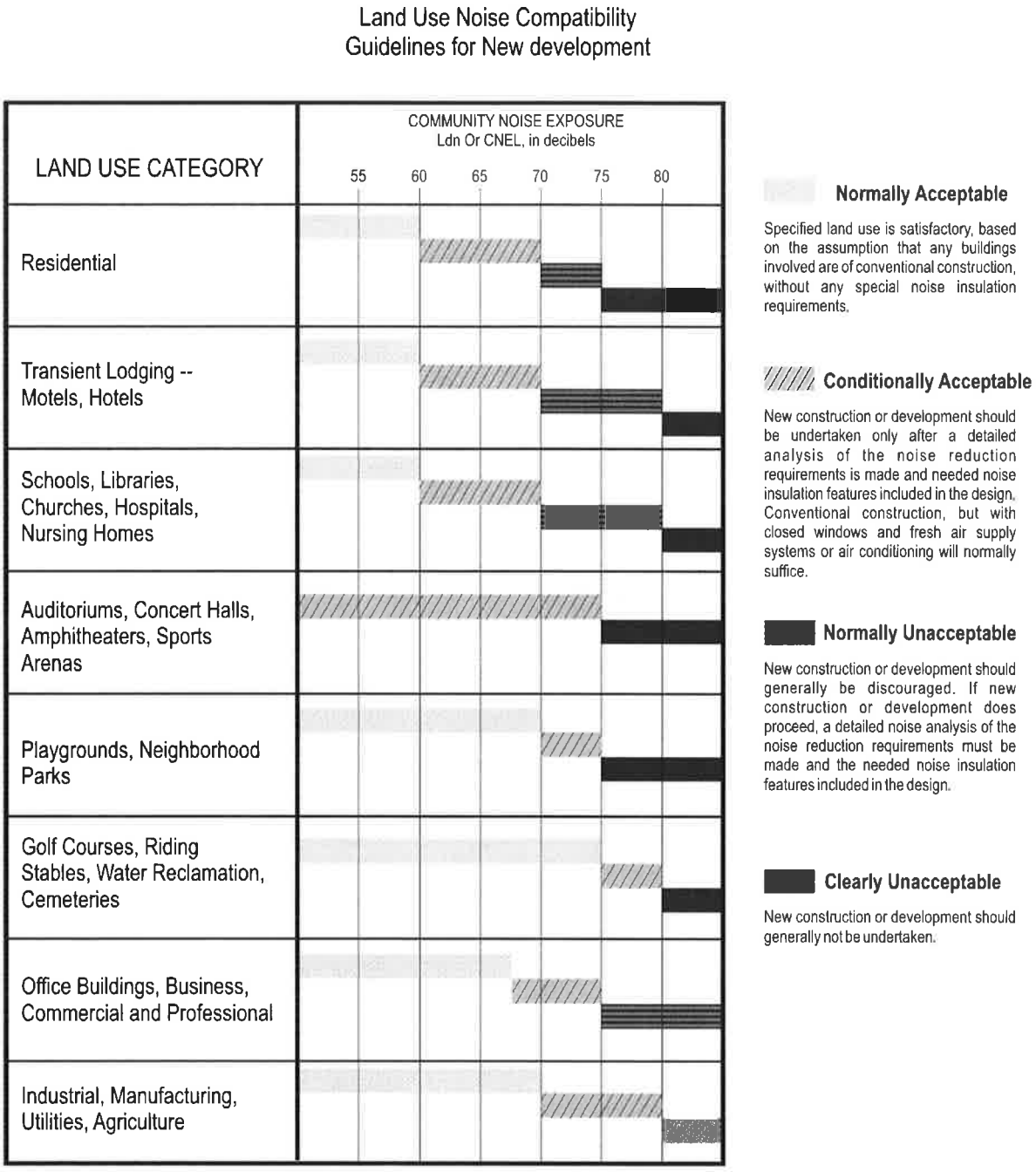

Sound Level
Median Sound Level
Ambient noise data taken at the hotel's north property line 310 feet from Gary Ave.
Sound Level in dB
100
90
80
70
60
50
40
30
Lawn Mower
Blender
Vacuum
Conversation
Dishwasher
Refrigerator
Whisper
Sirens
Loud motorcycle
Construction Noise at Holiday Inn (circular saw?)
Construction Noise at Holiday Inn (jackhammers at 50-75 ft)
Expected general range of Pilot truck noise with no berm or sound wall (61-67 dB)
Pilot truck at Pos #1 (125')
Pilot truck at Pos #2 (50')
Pilot truck circling 7x (50-35')
Time-Averaged Levels
Evening Level (8-10PM) = 63 dBA
Nighttime Level = 61 dBA
Daytime Level (7AM-10PM) = 67 dBA (w/o construction)
Day-Night Level = 69 dBA (w/o construction)
Nighttime Hours
8:00 PM
9:00 PM
10:00 PM
11:00 PM
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
Tuesday, June 30
Wednesday, July 1

Figure HS-1 – Noise Compatibility Guidelines



Appendix HS-1- Noise

The Noise Environment

There are several potentially significant primary sources of community noise within Patterson. These sources include traffic on major roadways and highways, railroad operations, and agricultural and industrial activities.

A community noise survey was conducted to document existing background (ambient) noise levels at four representative locations within the City. The monitoring site locations were located in both residential and commercial areas of the City. Noise measurements were conducted concurrently at the sites, beginning at midnight on March 25, 2010. The monitoring sites are shown in Figure HS-4.

Noise measurements were conducted continuously for a 24-hour period using Larson-Davis Laboratories Model 820 sound level analyzers equipped with Bruel & Kjaer (B&K) Type 4176 ½ inch microphones. The equipment was calibrated with a B&K Type 4230 acoustic calibrator to ensure the accuracy of the measurements and complies with applicable standards of the American National Standards Institute (ANSI) for Type 1 sound level meters. Microphones were located on tripods at approximately five feet above the ground.

Site 1 was located at a self storage facility on North 1st Street between M Street and Olive Avenue. The site is a commercial area with mixed residential uses to the west and agriculture and rural residential uses to the east. The microphone was located approximately 150 feet east of State Route 33 (SR-33) and approximately 230 feet west of North 1st Street. The California Northern Railroad (CFNR) track is located approximately 80 feet to the west, and lies between SR-33 and the site. Measured hourly maximum noise levels ranged from 61-91 dBA during the sample period, and were likely caused by passing vehicles and trains. Background (L_{90}) noise levels ranged from about 50-55 dBA during the morning and afternoon commute hours to about 45-50 dBA during the middle of the afternoon, evening and night time hours. The measured DNL was 62.4 dB.

Site 2 was located at a City water storage facility approximately 475 feet northwest of the intersection of Orange Avenue and Locust Avenue. There are commercial uses located to the west of the site, and agricultural uses to the north, east and south. There are a few existing single-family homes located to the south of the monitoring site. Measured hourly maximum noise levels ranged from 55-86 dBA during the sample period and were likely caused by passing vehicles and trains. Background (L_{90}) noise levels were relatively constant throughout the sample period, and ranged from 53-55 dBA. The predominant background noise source measured at Site 2 was exhaust fans from the Sierra Pacific facility. The measured DNL was 62.1 dB.

Site 3 was located at a City fire station at 1950 Keystone Pacific Parkway. The microphone was located approximately 325 feet east of Park Center Drive and approximately 350 feet south of Keystone Pacific Parkway. The site is surrounded by existing commercial uses and open land. There are existing single-family homes located approximately 1,500 feet east of the monitoring site. Measured hourly maximum noise levels ranged from 55-80 dBA during the sample period and were likely caused by passing trucks. Background (L_{90}) noise levels ranged from below 40 dBA during the late night and early morning hours to about 47 dBA during the morning commute hours. The measured DNL was 55.4 dB.

Site 4 was located in a vacant lot on Peach Blossom Lane between Plumeria Drive and Garden Patch Way. The meter was located in a residential area surrounded by single-family homes. Measured hourly maximum noise levels ranged from 48-73 dBA during the sample period and were likely caused by passing vehicles. Background (L_{90}) noise levels ranged from below 40 dBA during the late night and early morning hours to about 47 dBA late afternoon and early evening hours. The measured DNL was 50.6 dB.

Stationary Noise Sources

Major existing stationary noise sources within the City of Patterson include the central core commercial/industrial area along SR-33, the CFNR tracks and the CVS Pharmacy and Kohls distribution centers on the west side of town. There are also various smaller sources located within the Study Area.

Central Core Commercial/Industrial Area. This commercial/industrial area represents the area east of SR-33 extending from approximately Las Palmas Avenue to Orange Avenue. This area includes Patterson Vegetable, Sierra Pacific, Trinidad Benham, Traina Foods, George Lowry Petroleum, and other agricultural- and industrial- related facilities. Noise levels generated within this area were measured at multiple short-term locations on March 25-26, 2010, as noted in Figure HS-4.

Table HS-4 documents the measured noise levels and locations of the short-term monitoring sites. Noise levels varied widely throughout the area, with the loudest areas being to the north along Las Palmas Avenue in the vicinity of Patterson Vegetable, as well as in the southern portion along 2nd Street near Trinidad Benham. The closest residential uses are the Las Palmas trailer park to the east. Noise measurements were obtained at two locations within the trailer park (Enrique Way/El Camino Drive and Shirlinda Way/Pasa Felix Drive). Noise levels at these locations ranged from approximately 46-52 dBA.

Table HS-4: Measured Noise Levels (Dba)
Central Core Commercial/Industrial Area
March 25-26, 2010

Location	Range (dBA)	Primary Source
Enrique Way and El Camino Drive	50-52	Patterson Vegetable
Las Palmas Avenue and 1st Street	69-71	Patterson Vegetable
110 E Las Palmas Avenue	73-74	Patterson Vegetable
495 S. 2nd Street	66-67	Trinidad Benham
341 S. 1st Street	60-65	Trinidad Benham
Orange Avenue and Locust Avenue	48-51	Traina Foods
Shirlinda Way and Pasa Felix Drive	46-47	Patterson Vegetable
2nd Street and Las Palmas Avenue	64-67	Patterson Vegetable
Salado Avenue and El Circulo Avenue	64-66	Patterson Vegetable
Orange Avenue and 1st Street	54-57	Sierra Pacific
261 Orange Avenue	49-52	Sierra Pacific
Source: Brown-Buntin Associates, Inc.		

CVS Pharmacy Distribution Center. CVS Pharmacy operates a distribution center southwest of the intersection of Keystone Pacific Parkway and Park Center Drive. Noise sources include trucks entering and exiting the facility, rooftop fans, occasional outdoor forklift movements, and back-up warning beepers. Short term noise measurements were obtained at a distance of approximately 500 feet from the east side of the facility as noted in Figure HS-4. Measured noise levels at that site ranged from 42-45 dBA. Long term monitoring Site 3 was also located east of the distribution center, and background noise levels measured for the 24-hour period ranged from approximately 33-48 dBA. Truck traffic along Keystone Pacific Parkway and Rogers Road was observed to represent a greater noise source than activities at the distribution center.

Kohl's Distribution Center. Kohl's Department Store operates a distribution center along the north side of Keystone Pacific Parkway, approximately 1,300 feet northeast of the CVS Pharmacy Distribution Center. Noise sources include trucks entering and exiting the facility, occasional fork lift movements, and back-up warning beepers. Short term noise measurements were obtained at a distance of approximately 800 feet from the south side of the facility as noted in Figure HS-4. Facility-related noise levels at that site ranged from approximately 44-46 dBA. As was the case with the CVS Pharmacy distribution center, activities related to the Kohl's facility were often inaudible above other ambient noise sources, namely roadway vehicle traffic. Truck traffic along Keystone Pacific Parkway and Rogers Road was observed to represent a greater noise source than activities at the distribution center.

Various Commercial/Industrial-related Industries. Observations on March 25, 2010 indicated that there are a number of commercial/industrial-related uses located north of Las Palmas Avenue generally between North 1st Street and SR-33. There are existing residential uses along the east side of North 1st Street in close proximity. Noise levels were measured in front of a residence along North 1st Street at a distance of approximately 60 feet from Peck & Hiller Concrete, and noise levels ranged from approximately 53-61 dBA. Noise sources included welding, cutting, and grinding activities, and truck movements. Additionally, noise measurements were obtained near Designed Mobile Systems, a manufacturer of modular buildings, located west of SR-33 and north of Poppy Avenue. Noise levels were obtained at a nearby residence at 349 Poppy Avenue, and were measured to be in the range of 49-51 dBA. Noise sources included forklift movements and back-up warning beepers. Short-term noise monitoring sites are noted in Figure HS-4.

Roadways

Automobile traffic on roadways is one of the primary sources of noise within the Study Area. The eastern portion of the Study Area is most affected by noise generated by State Route 33, with the existing baseline ranging from 67-69 dB. Additional roadways within the eastern portion of the Study Area which generate significant levels of noise consist of Walnut, Sycamore, and Eucalyptus Avenues; however, these roadways do not generate baseline noise levels in excess of 56 dB.

Within the western portion of the Study Area, a substantial amount of vehicular noise is generated by Interstate-5. Approximately 25,000 vehicles per day travel the I-5 corridor through the Study Area[2], with approximately 25 percent of these vehicles classified as heavy-duty or lighter trucks[3]. Additional roadways within the western portion of the Study Area expected to

[2] TJKM Transportation Consultants Traffic Study for the City of Patterson General Plan, 2010

[3] State of California Department of Transportation, 2006 Annual Average Daily Truck Traffic on the California State Highway System

generate moderate noise levels are Sperry Avenue, Baldwin Road, and Ward Avenue. These roads are rural or transitional connector streets that may have occasionally fast-moving traffic, but are not heavily-traveled at night, causing only moderate levels of noise during the day. It is estimated that noise levels beyond about 65 feet of the centerline of Sperry Avenue are below 60 dBA.

The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) was used to develop DNL contours for I-5, SR-33, and major local roadways. The FHWA Model is an analytical method favored by most state and local agencies, including Caltrans, for highway traffic noise prediction. The FHWA Model is based upon reference energy emission levels for automobiles, medium trucks (2 axles) and heavy trucks (3 or more axles), with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA Model was developed to predict hourly L_{eq} values for free-flowing traffic conditions, and is generally considered to be accurate to within ±1.5 dB. To determine DNL values, it is necessary to estimate the day/night distribution of traffic so that an hourly equivalent traffic volume may be calculated. The FHWA Model assumes a clear view of traffic with no shielding at the receiver location.

Average Daily Traffic (ADT) volumes and speeds used for noise modeling were provided by TJKM Transportation Consultants, the project traffic engineers. The day/night distribution of traffic was estimated by BBA based upon studies along similar roadways. The percentage of trucks on I-5 and SR-33 were obtained from Caltrans. The percentage of trucks on major local streets was estimated by BBA based upon studies along similar roadways. It was assumed that Rogers Road north of Sperry Avenue is a truck route with higher percentages of trucks than other major local streets. Appendix 5.8 summarizes the noise modeling assumptions used to calculate traffic noise exposure for existing conditions along I-5, SR-33 and major local streets.

Table HS-5 summarizes calculated noise exposure at typical building setbacks and the distances to the DNL 60 and 65 dB contours for existing traffic conditions. Figure HS-5 shows the roadways where distances to DNL contours were calculated for existing traffic conditions. The streets are color coded to indicate the approximate distances to the 60 dB DNL contours. Traffic noise exposure information is generalized for flat terrain and the absence of acoustical shielding or reflections that may be caused by site-specific conditions.

Table HS-5: Generalized Traffic Noise Exposure, 2010

Roadway	Segment	DNL @ Typical Setback, dB[1]	Distance, Feet[2]	
			60 dB DNL	65 dB DNL
I-5	n/o Sperry Ave.	73.4	1564	726
	s/o Sperry Ave.	74.0	1705	792
SR-33	w/o Baldwin Rd.	65.4	172	80
	e/o Baldwin Rd.	63.3	125	58
	n/o Zacharias Rd.	62.1	104	48
	s/o Zacharias Rd.	62.5	110	51
	n/o Las Palmas Ave.	62.1	103	48
	s/o Las Palmas Ave.	63.7	132	61
	n/o Sperry Ave.	63.6	131	61
	s/o Sperry Ave.	64.8	156	73
Rogers Rd.	s/o SR-33	52.6	24	11
	n/o Sperry Ave.	63.2	122	57
	s/o Sperry Ave.	---	---	---
Sperry Ave.	w/o Rogers Rd.	62.0	102	47
	e/o Rogers Rd.	61.2	90	42
	w/o Baldwin Rd.	61.0	88	41
	e/o Baldwin Rd.	60.7	83	39
	w/o Ward Ave.	61.2	90	42
	e/o Ward Ave.	61.4	93	43
	w/o SR-33	59.4	69	32
	e/o SR-33	54.8	34	16
Baldwin Rd.	n/o Sperry Ave.	56.2	42	19
	s/o Sperry Ave.	52.3	23	11
	s/o SR-33	49.3	15	7
Ward Ave.	n/o Sperry Ave.	58.4	58	27
	s/o Sperry Ave.	56.2	42	20
Zacharias Rd.	w/o SR-33	50.0	16	7
	e/o SR-33	---	---	---
Eucalyptus Ave.	e/o SR-33	48.1	12	6
Las Palmas Ave	w/o SR-33	59.5	69	32
	e/o SR-33	62.7	113	53
	w/o Poplar Ave.	63.6	130	60
	e/o Poplar Ave.	63.6	130	61
Sycamore Ave.	n/o Las Palmas Ave.	54.3	31	14
	s/o Las Palmas Ave.	56.3	42	20
Poplar Ave.	n/o Las Palmas Ave.	49.1	14	7
W. Main Ave.	n/o Las Palmas Ave.	61.3	91	42
	s/o Las Palmas Ave.	59.9	73	34

Source: Brown-Buntin Associates, Inc.

Notes:

1. Assumed to be 75 feet from the center of all roadways except I-5 where a setback of 200 feet was assumed. Calculations are generalized and do not take into consideration sound walls or other site-specific conditions.
2. From the center of the roadway.

Figure HS-4: Stationary Source Monitoring Sites

Railroads

The California Northern Railroad (CFNR) currently operates freight trains over the Westside Branch of the Union Pacific Railroad (UPRR) through Patterson between Tracy and Los Banos. According to the Federal Railroad Administration rail crossing inventory (01/01/96), an average of six trains per day pass through Patterson. It should be noted that this figure includes switching movements at local industries, and that, based upon field observations, this may be a high estimate for current operations over the line. Freight trains may occur at any time during the day or night. The current maximum train speed through Patterson is 25 mph.

There are approximately 20 public or private roadway grade crossings within the Study Area. Train engineers are required to sound the warning horn when approaching within approximately 1,000 feet of a grade crossing. Train noise levels are therefore higher at locations near grade crossings. Due the number of grade crossings within the Study Area, warning horns are used frequently as trains pass through Patterson.

Noise levels produced by a northbound freight train with two locomotives and 15 cars were recorded by Brown-Buntin Associates, Inc. (BBA) near the M Street grade crossing on March 25, 2010. At a distance of 100 feet from the track, the measured maximum (L_{max}) and Sound Exposure Level (SEL) values were 103.3 and 109.8 dBA, respectively. The SEL is a measure of total sound energy produced by a noise event, normalized to a reference duration of one second. The SEL is not actually heard but is the noise metric used for the calculation of cumulative noise exposure as defined by the DNL. Noise levels produced by passing trains are variable, depending upon speed, length of train, condition of equipment and tracks, perceived safety conflicts of individual train crews and other variables.

Railroad noise exposure within the City of Patterson was calculated based upon the above-described operations data and noise level data for freight train movements recorded by BBA for numerous studies along the UPRR and other railroads in the Central Valley. At a distance of 100 feet from the center of the track, typical freight train pass-bys near a grade crossing have been shown to produce average SEL values of 106.3 dBA. At distances greater than 1,000 feet from a grade crossing, typical freight train pass-bys have been shown to produce average SEL values of 102.1 dBA at 100 feet from the tracks.

It was assumed for the calculations that freight train operations may occur at any time of the day or night. Within 1,000 feet of a grade crossing, the calculated distance to the 60 dB DNL contour for current railroad activity is 575 feet from the center of the tracks. At distances greater than 1,000 feet from a grade crossing, the calculated distance to the 60 dB DNL contour is 288 feet from the center of the tracks. Calculated distances are generalized and do not take into consideration site-specific conditions such as acoustic shielding or reflections caused by nearby buildings.

Aircraft Noise

The Patterson Airport and former Crow's Landing Airfield Facility (CLAF) are located within or affecting the Study Area. Only the Patterson Airport is still active. The Patterson Airport is a private airport consisting of a single 2,500 foot-long runway. According to FAA records, there are 12 aircraft based at the airport and an average of 33 aircraft operations per day. However, no aircraft operations were observed during field studies and aircraft were not observed on the airfield. If aircraft operations do occur, they are sporadic and do not generate significant noise exposure as defined by the CNEL noise metric. However, such operations would be distinctly audible in the vicinity of the airport.

Crows Landing Airfield is currently not in use. However, Stanislaus County has proposed that it be reopened as a general aviation airport as part of the Stanislaus County public airport system. According to the January 2009 draft of the Crows Landing Airport Land Use Compatibility Plan (ALUCP), the airport would reopen with a single 5,300 foot-long runway with approximately 4,000 annual aircraft operations. In the "ultimate" configuration (20 years+), the airfield would have two parallel runways 6,300 feet long and 200,000 annual operations. Operations would be mostly single and twin engine propeller or turboprop aircraft and helicopters, with approximately 10% business jet operations. The airport design aircraft for the ultimate development of the airport is the Gulfstream III business jet.

Noise-Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses that would result in noise exposure that could cause health-related risks to individuals. Places where quiet is essential are also considered noise-sensitive uses. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Other land uses such as parks, historic sites, cemeteries, and recreation areas are also considered sensitive to increases in exterior noise levels. School classrooms, places of assembly, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses.

Table HS-6: Generalized 2030 Traffic Noise Exposure		
Roadway	**Segment**	**DNL @ Typical Setback, dB[1]**
I-5	n/o Sperry Ave.	75.7
	s/o Sperry Ave.	76.2
SR-33	w/o Baldwin Rd.	68.0
	e/o Baldwin Rd.	65.4
	n/o Zacharias Rd.	65.7
	s/o Zacharias Rd.	67.5
	n/o Las Palmas Ave.	66.9
	s/o Las Palmas Ave.	67.3
	n/o Sperry Ave.	66.8
	s/o Sperry Ave.	69.8
Rogers Rd.	s/o SR-33	61.8
	n/o Sperry Ave.	69.1
	s/o Sperry Ave.	61.4
Sperry Ave.	w/o Rogers Rd.	66.8
	e/o Rogers Rd.	67.1
	w/o Baldwin Rd.	68.0
	e/o Baldwin Rd.	67.9
	w/o Ward Ave.	66.3
	e/o Ward Ave.	65.5
	w/o SR-33	63.2
	e/o SR-33	60.4
Baldwin Rd.	n/o Sperry Ave.	63.6
	s/o Sperry Ave.	63.5
	s/o SR-33	59.8
Ward Ave.	n/o Sperry Ave.	64.4
	s/o Sperry Ave.	62.2
Zacharias Rd.	w/o SR-33	64.8
	e/o SR-33	62.9
Eucalyptus Ave.	e/o SR-33	60.3
Las Palmas Ave	w/o SR-33	62.6
	e/o SR-33	65.5
	w/o Poplar Ave.	65.1
	e/o Poplar Ave.	66.3
Sycamore Ave.	n/o Las Palmas Ave.	63.7
	s/o Las Palmas Ave.	63.9
Poplar Ave.	n/o Las Palmas Ave.	60.6
W. Main Ave.	w/o Carpenter Ave.	64.6
W. Main Ave.	e/o Carpenter Ave.	64.2

Source: Brown-Buntin Associates, Inc.

Notes:

1. Assumed to be 75 feet from the center of all roadways except I-5 where a setback of 200 feet was assumed.
2. Calculations are generalized and do not take into consideration sound walls or other site-specific conditions.

Table HS-7: Generalized Buildout Traffic Noise Exposure	
Roadway Segment	**DNL @ Typical Setback, dB[1]**
I-5 n/o Sperry Ave.	77.9
I-5 s/o Sperry Ave.	78.2
Rogers Rd. s/o Zacharias	71.5
Sperry Ave. e/o Rogers Rd.	68.0
Baldwin Rd. n/o Sperry Ave.	63.4
Sperry Ave. e/o Ward Ave.	64.7
Ward Ave. n/o Las Palmas Ave.	63.0
Zacharias Rd. w/o SR-33	68.1
SR-33 n/o Zacharias Rd.	67.8
SR-33 s/o Walnut Ave.	68.8
Ward Ave. n/o Marshall Rd.	65.7
SR-33 s/o Sperry Ave.	68.1
Las Palmas Ave. w/o Sycamore Ave.	66.4
Main St. e/o Carpenter Rd.	65.5

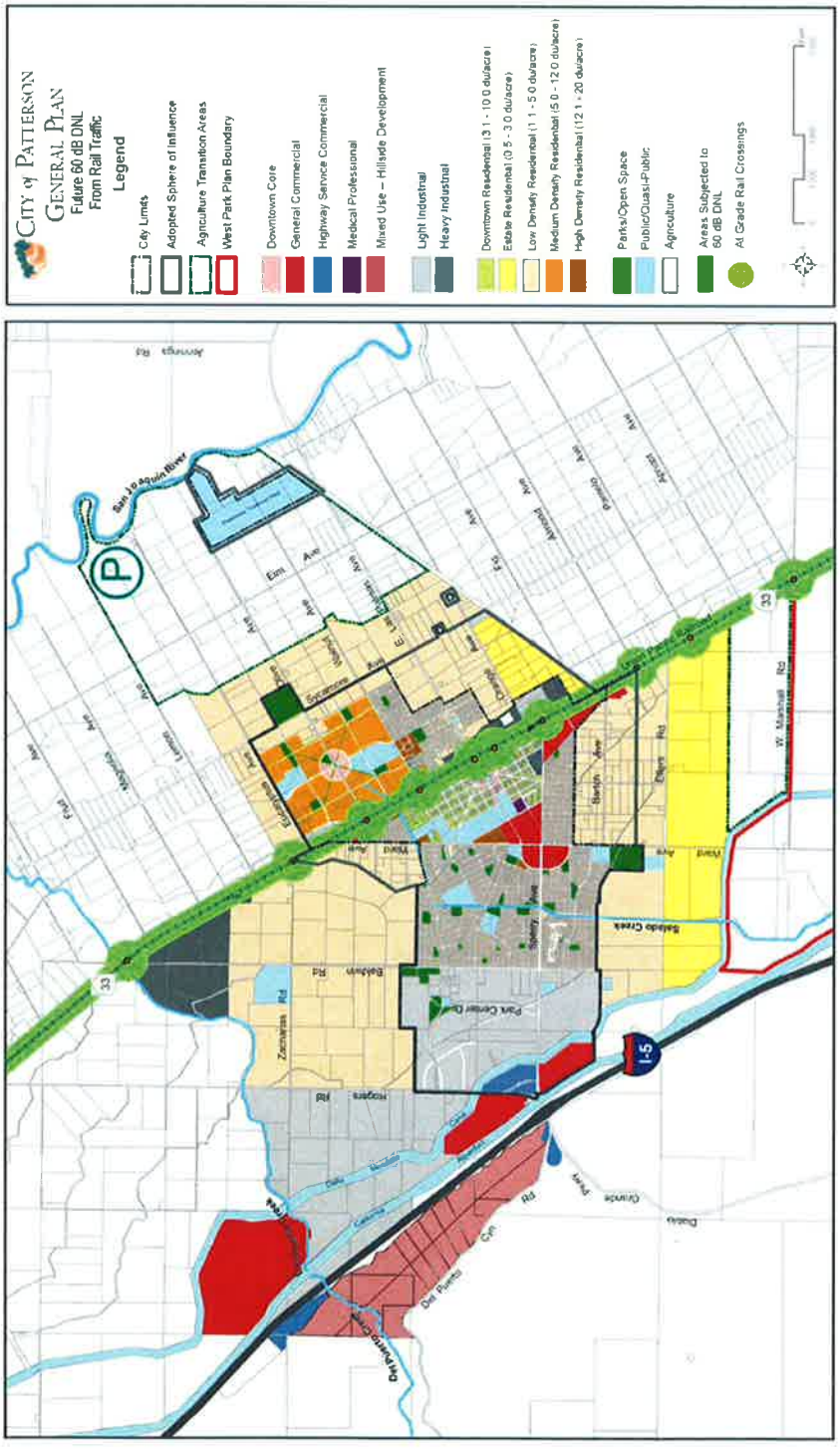
Source: Brown-Buntin Associates, Inc.

Notes:

1. Assumed to be 75 feet from the center of all roadways except I-5 where a setback of 200 feet was assumed.
2. Calculations are generalized and do not take into consideration sound walls or other site-specific conditions.

Figure HS-5: Distance to 60 dB DNL Contour for the 20-Year Timeframe

Figure HS-6: Future 60 dB DNL Contour from Rail Traffic



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APPENDIX 6.2: TRAFFIC IMPACT STUDY

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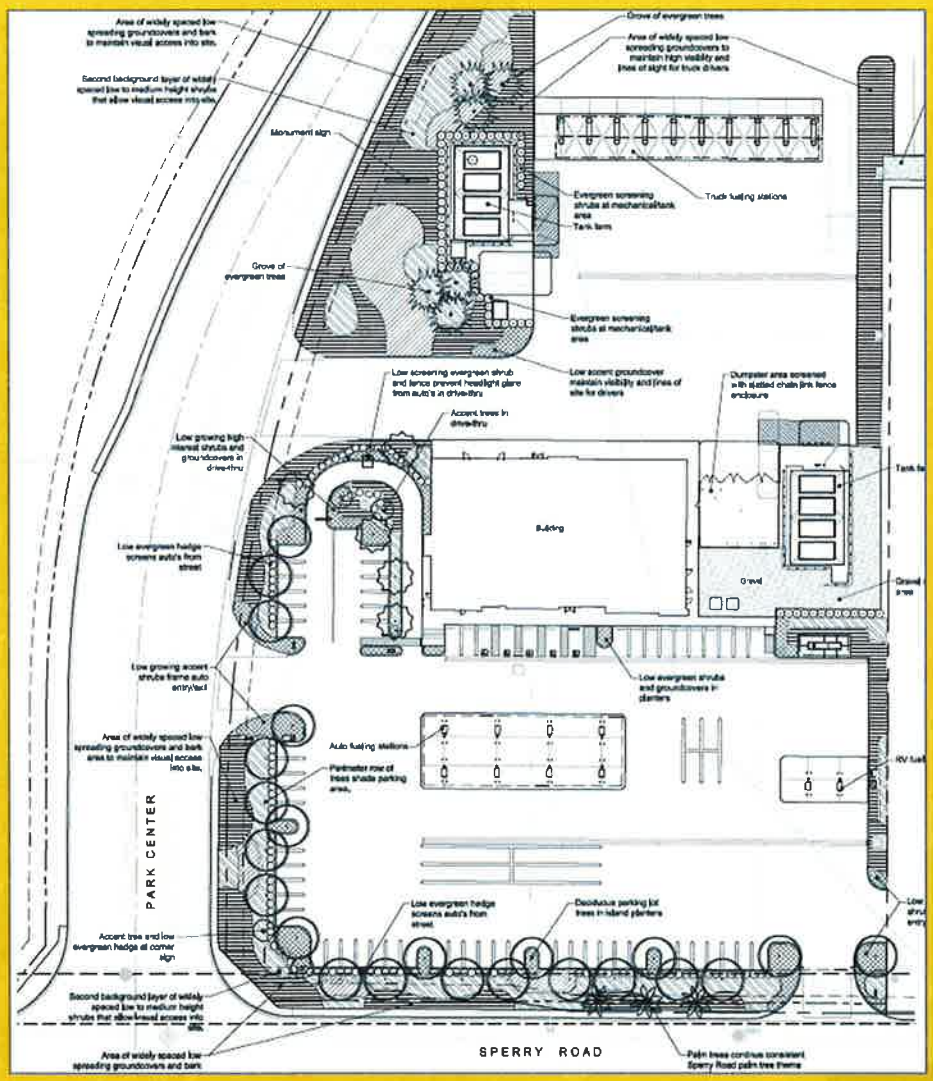
Final Report
TRAFFIC IMPACT STUDY OF PROPOSED PILOT FLYING J TRAVEL CENTER

In the City of Patterson

May 17, 2016



Pilot TRAVEL CENTERS LLC FLYING J

Stantec

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TRAFFIC IMPACT STUDY OF PROPOSED PILOT FLYING J TRAVEL CENTER IN PATTERSON, CA

Final Report

Prepared for:
The City of Patterson

Prepared by:
Stantec Consulting Services Inc.

May 17, 2016

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CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION AND EXECUTIVE SUMMARY

Introduction

The purpose of this traffic impact study is to evaluate potential impacts of the proposed Pilot Flying J Travel Center in Patterson, California. The proposed site is located at the northeast quadrant of the intersection of Sperry Avenue and Park Center Drive and covers approximately 11.3 acres.

Summary

Based on the results of the analysis, the following is a summary of our findings:

Existing Condition

Based on discussions with City and agency staff, ten study intersections were selected for analysis.

- All the intersections operate at acceptable Level of Service (LOS) D or better, except the intersection of Sperry Avenue/I-5 Southbound Ramps, which operates at LOS F during the PM peak hour.
- The 95th percentile queue lengths are contained within the existing turn bays.
- All Sperry Avenue arterial study segments operate at an acceptable LOS C or better during both the AM and PM peak hour.

Existing plus Project

- It is estimated that the project will generate approximately 105 new trips during the AM peak hour and 121 new trips during the PM peak hour.
- Compared to the 2002 West Patterson Business Park Master Plan it is estimated that based on new trips generated, the proposed Pilot Flying J project would generate two less trips during the AM peak hour and three more trips during the PM peak hour. However, based on new and pass-by trips generated, the proposed Pilot Flying J project is estimated to generate 191 more driveway trips during the AM peak hour and 200 more driveway trips during the PM peak hour.
- Similar to the existing conditions, all the intersections operate at acceptable LOS D or better, except the intersection of Sperry Avenue/I-5 Southbound Ramps during the PM peak hour. Project traffic contributes thirty trips (approximately four percent) to the Sperry Avenue/I-5 Southbound Ramps intersection.
- The 95th percentile queue lengths are contained within the existing turn bays.
- All Sperry Avenue arterial study segments operate at an acceptable LOS C or better during both the AM and PM peak hour.
- Three driveways are proposed on Park Center Drive. Stantec recommends a right-turn deceleration lane for the first driveway. The first driveway would be right-in and right-out only. The second is proposed to be truck outbound driveway and the third driveway would be available for full access. The proposed driveway on Sperry Avenue would be right-in and right-out only.

2.0 PURPOSE OF PROJECT AND STUDY APPROACH

2.1 PROJECT OBJECTIVES DESCRIPTION

The purpose of this traffic impact study is to evaluate potential traffic impacts of the proposed Pilot Flying J Travel Center project which consists of 27 fuel pumps (18 for automobiles and RVs and nine (9) for trucks) and a 3,770 square foot fast-food restaurant in the City of Patterson. The proposed site, located at the northeast quadrant of the intersection of Sperry Avenue and Park Center Drive, is approximately 11.3 acres. The proposed project site and vicinity map are shown in **Figure 1**.

2.2 STUDY APPROACH

The following are key steps of the study approach:

- Conduct traffic counts to establish baseline traffic conditions
- Conduct trip generation and distribution of project trips
- Determine the Existing plus Project traffic condition
- Determine impact of project trips based on established Significance Criteria

3.0 SETTING

The following section describes the existing transportation conditions in the vicinity of the study area, including descriptions of the existing street system and intersection operating conditions.

3.1 EXISTING STREET SYSTEM

Interstate 5 (I-5) is a four-lane freeway near Patterson. According to the 2014 traffic counts obtained from the Caltrans website, I-5 carries between 39,000 to 45,000 vehicles per day (vpd) in the vicinity of Sperry Avenue. For regional travel, residents rely primarily on I-5, a major north-south freeway to the west of the city limits. I-5 connects to I-580, approximately 15 miles to the north of Patterson. I-5 and I-580 provide access to regional employment centers in Pleasanton, San Ramon and the rest of the San Francisco Bay Area.

The interchange of I-5/Sperry Avenue is configured as a tight diamond with a narrow underpass road and a steep drop in grade next to the northbound on-ramp. All ramps have one lane in each direction.

State Route 33 (SR 33) is located approximately three miles to the east of I-5. SR 33 provides north-south access to Westley to the north and the City of Newman to the south. Its ADT is approximately 6,000 vpd. It is the main north-south roadway in Patterson.

Sperry Avenue is a two to four lane major arterial roadway that serves as the major route of travel between I-5 to the west and the City of Patterson to the east. Sperry Avenue terminates at

SR 33, three miles east of I-5. Near the freeway, its ADT is ranges between 12,000 to 14,000 vpd.[1]

Park Center Drive is a two lane north-south industrial collector road that connects Sperry Avenue in the south to Keystone Pacific Parkway in the north. The ADT is approximately 1,700 vpd. It currently provides access to major warehouses including Amazon Fulfillment Center, CVS Warehouse and Kohl's Warehouse.

[1] *I-5/Sperry Avenue PAED study report, February 2016*

City of Patterson – Pilot Flying J Center Traffic Study

Site Vicinity & Study Intersections

Figure 1

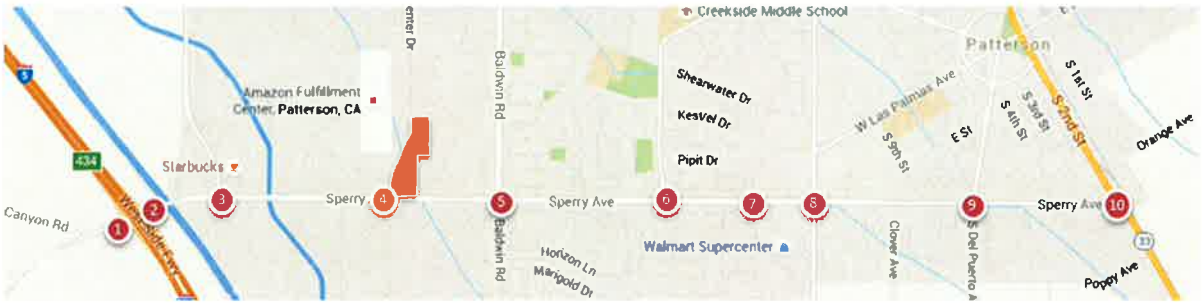
10136- 6/4/15 - CT

3.2 ROADWAY AND INTERSECTION OPERATING CONDITIONS

This section summarizes existing roadway and intersection operating conditions.

Traffic Data Collection
Based on discussions with City staff,[2] the following ten study intersections were selected for analysis:

1. Sperry Avenue/I-5 Southbound Ramps
2. Sperry Avenue/I-5 Northbound Ramps
3. Sperry Avenue/Rogers Road
4. Sperry Avenue/Park Center Drive
5. Sperry Avenue/Baldwin Road
6. Sperry Avenue/American Eagle Avenue
7. Sperry Avenue/Las Palmas Avenue
8. Sperry Avenue/Ward Avenue
9. Sperry Avenue/Del Puerto Avenue
10. Sperry Avenue/SR-33

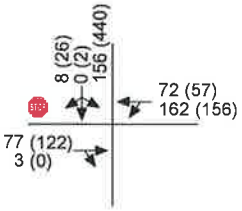
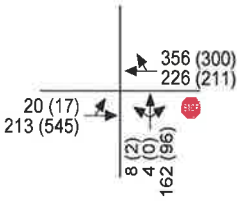
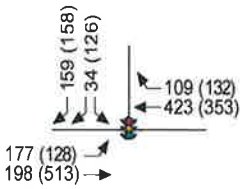
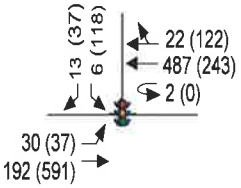
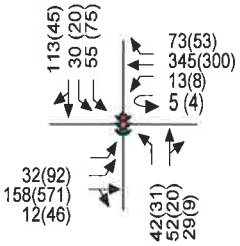
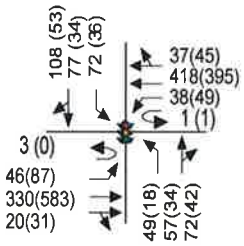
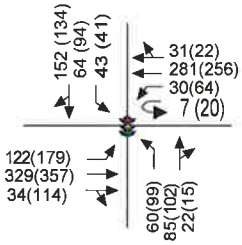
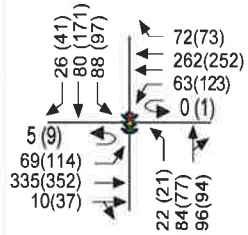
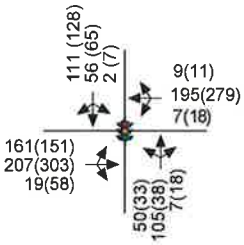
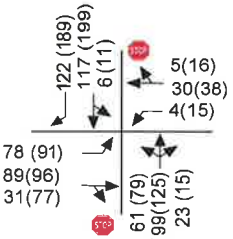


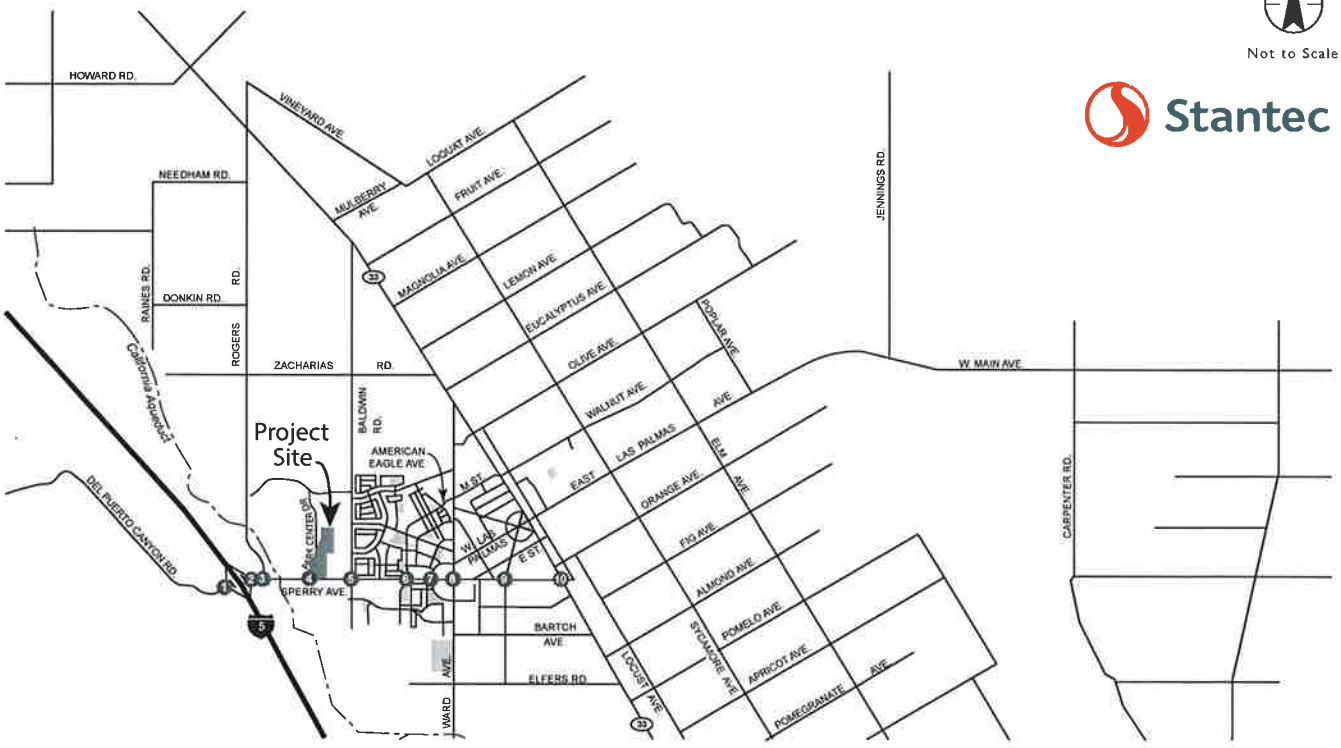
Stantec collected the a.m. and p.m. peak hour intersection turning movement counts in March 2016 for study intersections four through ten. Counts for study intersections one through three were collected in February 2015 for another study in Patterson.[3] **Figure 2** shows the turning movement volumes and lane configuration at each study intersection. Intersection turning movement counts collected by Stantec are included in **Appendix A.**

[2] *Discussions with City of Patterson staff, February 2016*
[3] *To be consistent with an on-going I-5/Sperry Avenue PAED study, February 2016*

City of Patterson – Pilot Flying J Center Traffic Study
Existing Peak Hour Turning Movement Volumes, Lane Geometry & Controls

Figure 2

Intersection #1 Sperry/I-5 SB Ramps	Intersection #2 Sperry/I-5 NB Ramps	Intersection #3 Sperry/Rogers	Intersection #4 Sperry/Park Ctr.	Intersection #5 Sperry/Baldwin
				
Intersection #6 **Sperry/American Eagle**	**Intersection #7** **Sperry/Las Palmas**	**Intersection #8** **Sperry/Ward**	**Intersection #9** **Sperry/S. Del Puerto**	**Intersection #10** **Sperry/SR 33**
				



LEGEND
● Study Intersection
Stop Sign
Traffic Signal
XX AM Peak Hour Volume
(XX) PM Peak Hour Volume

10136- 6/4/15 - CT

3.3 LEVEL OF SERVICE METHODOLOGY

Level of Service is a qualitative index of the performance of an element of the transportation system. Level of Service (LOS) is a rating scale running from A to F, with A indicating no congestion of any kind, and F indicating intolerable congestion and delays.

The 2000 Highway Capacity Manual (HCM) is the standard reference published by the Transportation Research Board, and contains the specific criteria and methods to be used in assessing LOS. There are several software packages that have been developed to implement the HCM analysis. In this study the Synchro software was used to calculate the LOS at the study intersections.

Table 1: Signalized Intersection LOS Criteria

LOS	Driver's Perception and Traffic Operation Description	Delay in Seconds
A	Operations with very low delay occurring with favorable Progression and/or short cycle length.	< 10
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10 - 20
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20 - 35
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	> 35 - 55
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	> 55 - 80
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	> 80

SIGNALIZED INTERSECTIONS

The relationship between average control delay, driver's perception of traffic, and LOS for signalized intersections is summarized in **Table 1.**

UNSIGNALIZED INTERSECTIONS

The method of unsignalized intersection capacity analysis used in this study is from Chapter 10, "Unsignalized Intersections" of the Highway Capacity Manual, Special report No. 209, Transportation Research Board, updated October 2000. This method applies to two-way STOP sign or YIELD sign controlled intersections (or one-way STOP sign or YIELD sign controlled intersections at three-way intersections). At such intersections, drivers on the minor street are forced to use judgment when selecting gaps in the major flow through which to execute crossings or turning maneuvers. Thus, the capacity of the controlled legs of an intersection is based on three factors:

1. The distribution of gaps in the major street traffic stream.
2. Driver judgment in selecting gaps through which to execute their desired maneuvers.
3. Follow-up time required to move into the front-of-queue position.

The level of service criterion for Two-Way STOP controlled intersections is somewhat different from the criterion used for signalized intersections. The primary reason for this is the difference that drivers expect a signalized intersection to carry higher traffic volumes than unsignalized intersections. Additionally, several driver behavior conditions combine to make delays at signalized intersections less onerous than at unsignalized intersections.

The LOS is reported for the minor approach. Depending on the availability of gaps, the minor approach might be operating at LOS D, E, or F while the overall intersection operates at LOS C or better. A minor approach that operates at LOS D, E, or F does not automatically translate into a need for a traffic signal. A signal warrant would still need to be met. There are many instances where only a few vehicles are experiencing LOS D, E, or F on the minor approach while the whole intersection operates at an acceptable LOS. A signal is usually not warranted under such conditions.

Table 2 summarizes the relationship between delay and LOS for unsignalized intersections. At side-street stop-controlled intersections, the delay is calculated for each stop-controlled movement, the left-turn movement from the major street, as well as the intersection average. The intersection average delay and highest movement/approach delay are reported for side street stop-controlled intersections. The City of Patterson Guidelines for Traffic Impact Studies generally defines acceptable citywide unsignalized intersection operations as LOS D (35 seconds of delay per vehicle) or better during the morning and evening peak periods.

Table 2: Unsignalized Intersection LOS Criteria

LOS	Driver's Perception and Traffic Operation Description	Delay in Seconds
A	Little or no delays	< 10
B	Short traffic delays	> 10 – 15
C	Average traffic delays	> 15 - 25
D	Long traffic delays	> 25 – 35
E	Very long traffic delays	> 35 - 50
F	Extreme traffic delays with intersection capacity exceeded	> 50

SEGMENT LEVEL OF SERVICE

The methodology used to assess the operation of roadway segments is from Chapter 15, the Arterials section, of the HCM 2000. Under this methodology, the LOS reflects the difference between the ideal travel speed for the segment and the actual travel speed for the segment.

The LOS is calculated based on the Arterial Class and the Arterial Speed. The Arterial Class is determined from the link distance and the travel time (calculated from the Flow Speed under ideal conditions). The Arterial Speed is based on the segment length and the segment Travel Time. This Travel Time is calculated by adding the Running Time and the Signal Delay experienced by vehicles on the segment. Thus, the Arterial Speed accounts for traffic conditions which impact arterial performance.

QUEUING ANALYSIS

The queuing analysis serves as another method for assessing transportation network operation. Increased traffic from projects can increase queue lengths to a point where turning traffic "spills" from a turning bay and blocks the through traffic, negatively impacting intersection operations. The 95th percentile queue length during the peak hour is used to analyze potential project impacts on queuing and to determine whether the turn bay length is sufficient for the traffic demand. The 95th percentile queue length is typically used for determining the lengths of turning lanes so that traffic does not overflow to block the through lane. Reference to the 95th percentile of queue length means that this queue length should not be exceeded in 95% of all signal cycles. In other words, there is less than a 5% chance in a cycle that the queue length is larger. This is typically the standard used for evaluation by agencies.

3.4 SIGNIFICANCE CRITERIA

The following is the City's criteria of significance to determine the potential impacts associated with a proposed project or action:

The City's 2010 General Plan, Policy III.A.2 states that "The City shall endeavor to maintain a Level of Service (LOS) "D", as defined by the 2000 Highway Capacity Manual (HCM) or subsequent revisions, on all streets and intersections within the City."

County and Caltrans Standards

The minimum acceptable level of service standard for Stanislaus County roadway segments is LOS C. Therefore, this report uses LOS C as the minimum acceptable standard and mitigation measures are recommended where service levels are below LOS C along roadways within Stanislaus County.

Facilities under the jurisdiction of Caltrans include freeway segments, ramps, ramp terminals, and arterials. Although Caltrans has not designated a LOS standard, Caltrans' Guide for the Preparation of Traffic Impact Studies (December 2002) indicates attempts to maintain LOS of a State highway facility between the LOS "C/D" threshold. When existing State highway facilities are operating at higher levels of service than noted above, 20-year forecasts or general plan build-out analysis for the facility should be considered to establish equitable project contributions to local development impact fee programs that address cumulative traffic impacts.

3.4.1 Intersection Level of Service

To accurately model the traffic condition, Stantec created a Synchro traffic analysis model to determine the intersection and segment LOS. The Existing Conditions traffic operations were evaluated based on levels of service criteria using Synchro and SimTraffic. Synchro and SimTraffic form a complete software package for modeling, optimizing, managing and simulating traffic systems.

The micro-simulation model, SimTraffic, was used to determine where traffic congestion was occurring as well as to identify potential causes of congestion, queuing and to evaluate level of

service and delay. The macroscopic simulation model, Synchro, was used to evaluate several measures (such as lane geometries, signal optimization, signal phasing and traffic control) at the study intersections.

The results of the LOS analysis for the existing intersections are shown in **Table 3.** All the intersections operate at acceptable LOS D or better, except the intersection of Sperry Avenue/I-5 Southbound Ramps that operates at LOS F during the PM peak hour. It is currently a One Way Stop Control intersection and would operate at an acceptable LOS if signalized. However, this intersection does not meet a signal warrant with the existing low volumes. Detailed level of service worksheets are provided in Appendix B.

Table 3: Existing LOS of Study Intersections

ID	Intersection	Existing Control	Existing Traffic Condition			
			A.M.		P.M.	
			Delay	LOS	Delay	LOS
1	Sperry Avenue/I-5 SB Ramps	OWSC	19.5	C	165.7	F
2	Sperry Avenue/I-5 NB Ramps	OWSC	12.6	B	15.4	C
3	Sperry Avenue/Rogers Road	Signal	17.7	B	13.5	B
4	Sperry Avenue/Park Center Drive	Signal	6.6	A	9.7	A
5	Sperry Avenue/Baldwin Road	Signal	17.3	B	16.7	B
6	Sperry Avenue/American Eagle Avenue	Signal	15.4	B	14.4	B
7	Sperry Avenue/Las Palmas Avenue	Signal	13.2	B	15.2	B
8	Sperry Avenue/Ward Avenue	Signal	23.1	C	21.6	C
9	Sperry Avenue/S Del Puerto Avenue	Signal	10.9	B	9.1	A
10	Sperry Avenue/SR-33	TWSC	22.6	C	22.3	C

Note:
OWSC = One Way Stop Control
TWSC = Two Way Stop Control

3.4.2 Queuing Analysis

As the project is expected to generate left-turning traffic at several of the study intersections, a supplemental queuing analysis was carried out. The micro-simulation model, SimTraffic, was used to determine where traffic congestion was occurring and to identify potential queuing.

Under existing conditions, the analysis shows sufficient turn bay lengths for all intersections as shown in **Table 4.** Although the southbound queue at the Sperry Avenue/I-5 Southbound Ramp is long, it is contained within the ramp and does not back onto the interstate.

Table 4: Existing Queuing Analysis

ID	Intersection	Turning Movement	Existing Storage Length	Existing Conditions	
				A.M.	P.M.
1	Sperry Avenue/I-5 SB Ramps[1,2]	SBL	0'	102'	548'
		WBL	0'	50'	62'
2	Sperry Avenue/I-5 NB Ramps[1]	NBR	0'	123'	108'
		EBL	0'	89'	96'
3	Sperry Avenue/Rogers Road	EBL	275'	188'	117'
		SBL	55'	69'	104'
4	Sperry Avenue/Park Center Drive	EBL	130'	62'	78'
		SBL	160'	33'	120'
5	Sperry Avenue/Baldwin Road	EBL	130'	41'	92'
		WBL	130'	43'	35'
6	Sperry Avenue/American Eagle Avenue	EBL	130'	67'	100'
		WBL	195'	62'	69'
7	Sperry Avenue/Las Palmas Avenue	EBL	200'	92'	129'
		WBL	350'	54'	85'
8	Sperry Avenue/Ward Avenue	EBL	185'	120'	114'
		WBL	170'	70'	89'
9	Sperry Avenue/S Del Puerto Avenue[1]	EBL	0'	262'	257'
		WBL	0'	114'	119'
10	Sperry Avenue/SR-33[1]	EBL	0'	119'	140'
		NBL	0'	42'	48'

Note 1: No turn bay provided at these locations. Queue length reported for approach.
Note 2: PM queue reported from Synchro analysis.

Traffic Characteristics on Park Center Drive

Stantec conducted a 24-hour traffic classification counts on Park Center Drive, north of Sperry Avenue. The average daily traffic (ADT) is approximately 1,700 vpd. Approximately 27 percent are trucks (2-Axle, 6-Tire Single Units or greater), leaving approximately 73 percent as passenger vehicles. The data showed that less than 10 percent of trucks arrive during the peak AM or PM commute hours. The data also indicated that truck traffic is spread out throughout the day.

As shown in the plot of the volumes in Exhibit I, there are two distinct peaks on Park Center Drive: the AM volume showed southbound peak traffic leaving around 3 AM and northbound peak traffic occurring around 6 AM. Therefore, most of this traffic occurs before the normal commute 7 – 9 AM peaks of adjacent streets.

The PM peak traffic is similar to the peak commute hours of 4 to 6 PM.

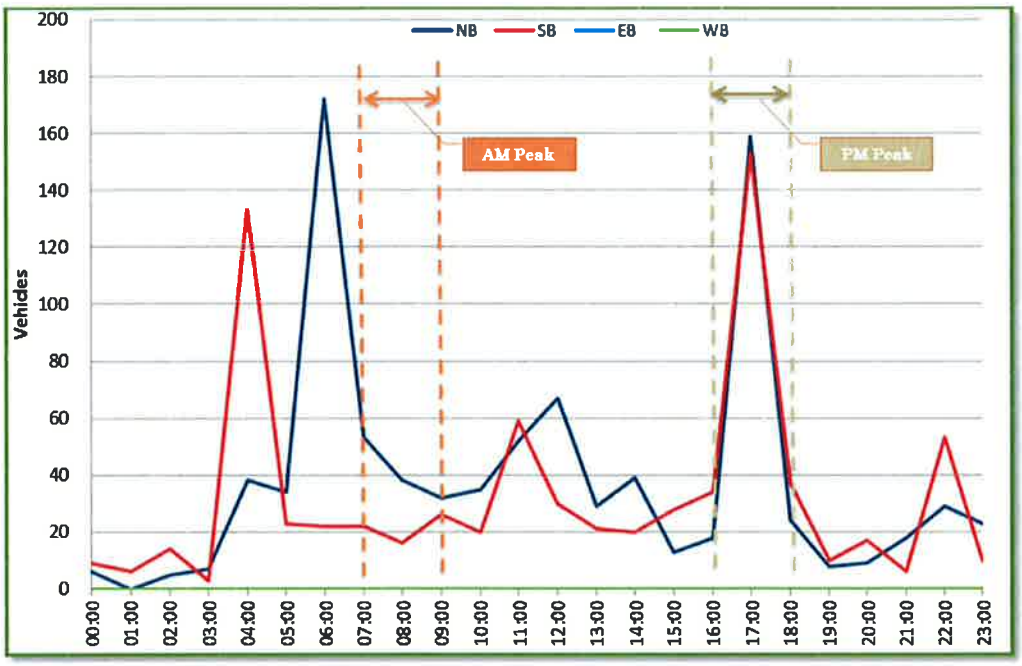


Exhibit I: ADT on Park Center Dr. north of Sperry Ave.

3.4.3 Arterial Segment Level of Service

The existing ADT of Sperry Avenue is approximately 11,420 vpd and 11,130 vpd west and east, respectively, of Park Center Drive. The truck traffic (2-Axle, 6-Tire Single Units or greater) on Sperry Avenue is approximately 16% and 11% west and east, respectively, of Park Center Drive.

Taking into consideration the traffic classification data, the segment level of service for the Existing Conditions was evaluated using the Arterial Level of Service methodology for the three segments between I-5 and the project site. As shown in **Table 5**, all segments operate at LOS C or better in both the westbound and the eastbound direction.

Table 5: Existing Arterial Segment LOS Summary

	Existing Condition							
	Eastbound Peak Hr. Speed				Westbound Peak Hr. Speed			
Segment	A.M.	LOS	P.M.	LOS	A.M.	LOS	P.M.	A.M.
I-5 SB Ramps to Rogers Rd	40.9	A	38.6	A	31.1	B	28.7	B
Rogers Rd to Park Center Dr	41.8	A	37.2	A	29	B	31.5	B
Park Center Dr to Baldwin Rd	26.1	C	27.5	C	33.3	B	28.8	B

4.0 TRIP GENERATION AND DISTRIBUTION METHODOLOGY

The proposed Pilot Flying J Travel Center project consists of a gas station with 27 fuel pumps (18 for automobiles and RVs and nine (9) for trucks) and a fast-food restaurant. The proposed fast-food restaurant is approximately 3,770 square feet. **Figure 3** shows the proposed project site plan.

The site is split into two parts. The first part, on the south end fronting Sperry Avenue, will hold the restaurant and the passenger automobile and RV fuel pumps. Drivers will access this area through two driveways, one on Sperry Avenue and another on Park Center Drive, both driveways right-in, right-out only. The second part of the site is located on the north end and holds the truck fuel pumps. Two driveways on Park Center Drive provide access.

4.1 TRIP GENERATION

Trip generation is defined as the number of "vehicle trips" produced by a particular land use or project. A trip is defined as a one-direction vehicle movement. The total number of trips generated by each land use includes the inbound and outbound trips.

The peak hour trips for trucks fueling per fuel pump were estimated based on similar site data provided by the project developer.[4] The trip generation estimates for the vehicles fueling and the proposed fast-food restaurant were calculated using the standard reference Trip Generation, 9th Edition, published by the Institute of Transportation Engineers (ITE). The estimated potential trip generation of the proposed project is shown in **Table 6.**

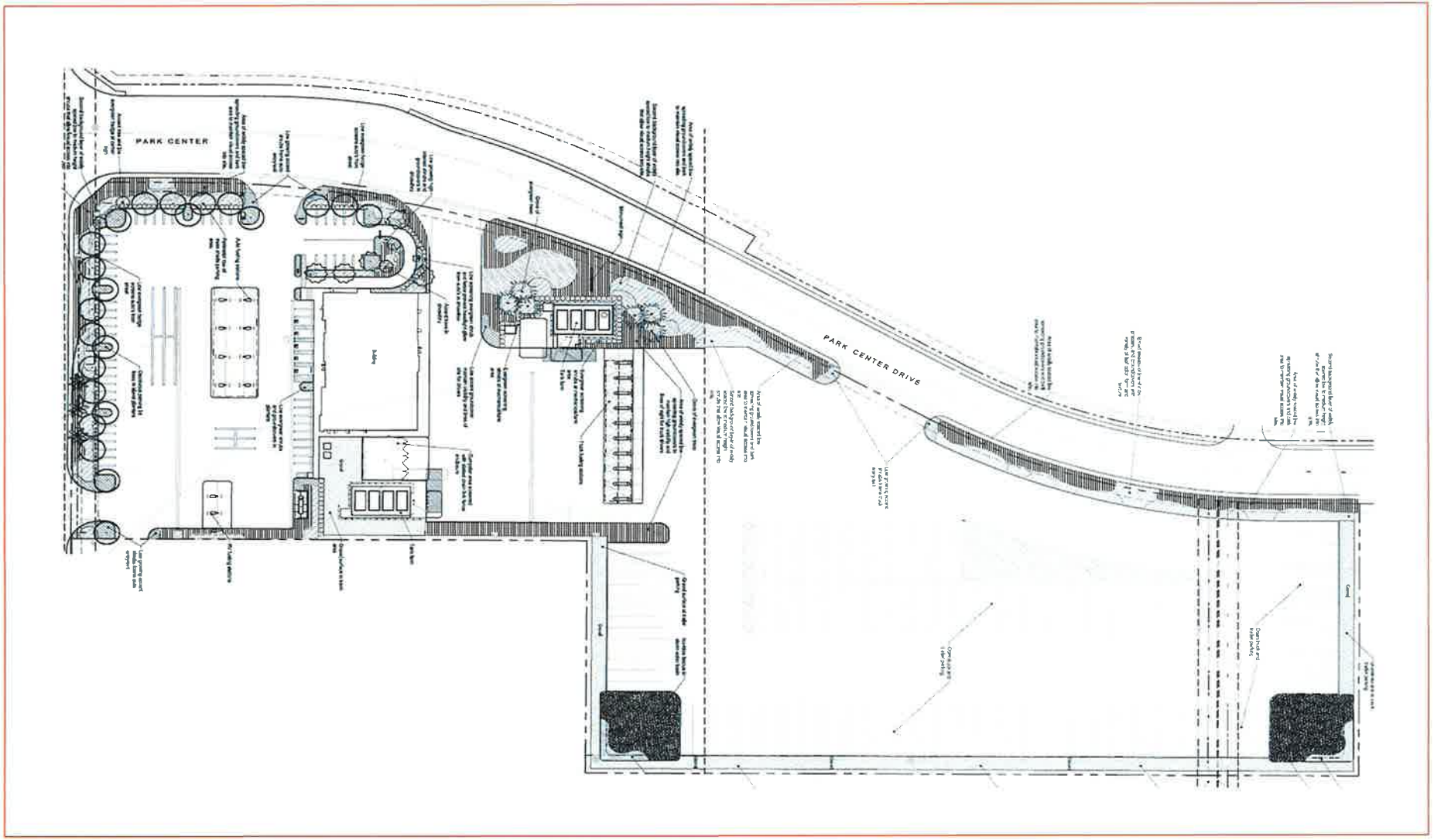
For this study, pass-by trip reduction was applied. ITE trip generation codes 945 and 934 (Gas Station with Convenience Market and Fastfood Restaurant, respectively) result in a percentage of generated trips that are expected to come from existing traffic passing the project site. These trips, known as Pass-By trips, do not result in a route deviation for the existing vehicles as these vehicles are already traveling on a route that provides direct access to the project site. Therefore, these trips result in increased driveway traffic for the project site but do not result in an increase of traffic traveling through the network. Without applying the Pass-By reduction, the trip estimation would affectively double count trips which are attributed to these vehicles.

It is estimated that the project will generate approximately 298 and 318 total driveway trips in the AM peak hour and PM peak hour, respectively. Of these trips, 194 AM and 198 PM trips are attributed to Pass-By generation. Once these trips are removed from the trip generation assessment, the project is estimated to generate approximately 105 new trips during the AM peak hour and 121 new trips during the PM peak hour.

[4] *Joel Andrews, City of Patterson, email on Thursday, March 3, 2016 – Pilot estimated of 350 total truck trips.*

PROPOSED SITE PLAN

FIGURE 3



Stantec

Table 6: Proposed Project Trip Generation

Land Use	ITE Code	Size		A.M. Peak				P.M. Peak			
				Rate	In	Out	Total	Rate	In	Out	Total
Fast-food Restaurant	934	3.77	ksf	45.42	87	84	171	32.65	64	59	123
Trucks Fueling [A]		9	pump	4.85	22	22	44	6.46	29	29	58
Vehicles Fueling	945	18	pump	10.16	91	91	183	13.51	122	122	243
Subtotal					*201*	*197*	*398*		*215*	*210*	*424*
Internal Trips [B]					50	49	99		54	52	106
Pass-By Trips [C]	945				98	96	194		100	98	198
Total New Trips					***53***	***52***	***105***		***61***	***60***	***121***
Total New and Pass-By Trips (Driveway Total)					***150***	***148***	***298***		***161***	***157***	***318***

Note:
A - *Daily truck trips estimated by Pilot Flying J Travel Centers - peak rate derived through comparisons with ITE data for similar use*
B - *Internal trips estimated at 25% by Pilot Flying J Travel Centers*
C - *Pass-by trips for gasoline station estimated at 62 % and 56 % & Fast-food at 49 % & 50 %, respectively for the AM peak and the PM peak hour based on ITE Trip Generation Manual.*
ITE Source: ITE Trip Generation Manual 9th Edition, 2012

4.2 DETERMINE INCREMENTAL DIFFERENCE IN TRIP GENERATION

The proposed project site is located within the Westridge Business Park which was approved as a part of the 2002 West Patterson Business Park Master Plan as shown in Exhibit II.

The trip generation for the originally approved 2002 West Patterson Business Park Master Plan was based on the zoning and model trips rates that were approved at that time. The Westridge Business Park was contained as a part of the larger Traffic Analysis Zones (TAZs) 3 in that report. The trip generation estimates were approximately 1,519 and 1,672 trips respectively during the AM and PM peak hours for the 160 acres contained in TAZ 3.

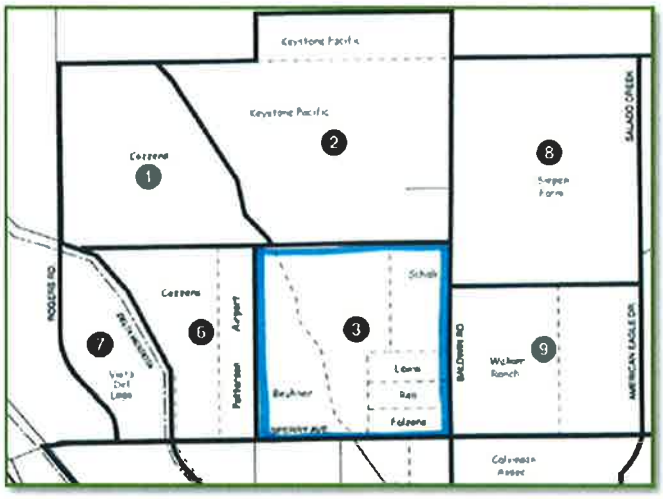


Exhibit II: Traffic Analysis Zones (TAZs) 3 of the 2002 West Patterson Business Park

The proposed Pilot Flying J site of 11.3 acres is approximately seven percent of the 160 acres contained in TAZ 3. Based on the ratio, it is estimated that the original project site could generate approximately 107 and 118 trips respectively during the AM and PM peak hours. Detailed information is shown in Appendix C.

Compared to the originally approved 2002 West Patterson Business Park project, it is estimated that the incremental trip difference based on the proposed Pilot Flying J Travel Center project when compared to the previously assumed land use is shown in **Table 7**.

Table 7: Incremental Difference Project Trip Generation

	AM Peak Hr. Trips	PM Peak Hr. Trips
Estimated Pilot Flying J Site Trips (West Patterson EIR)	107	118
Pilot Flying J New Trips	105	121
Pilot Flying J New & Pass-By	298	318
Difference due to Proposed Project		
Based on New Trips	-2	3
Based on New Trips & Pass-By	191	200

In summary, compared to the originally approved 2002 West Patterson Business Park project , it is estimated that based on new trips generated, the proposed Pilot Flying J project is estimated to generate two less trips during the AM peak hour and three more trips during the PM peak hour.

However, based on new and pass-by trips generated, the proposed Pilot Flying J project is estimated to generate 191 more driveway trips during the AM peak hour and 200 more driveway trips during the PM peak hour.

4.3 TRIP DISTRIBUTION

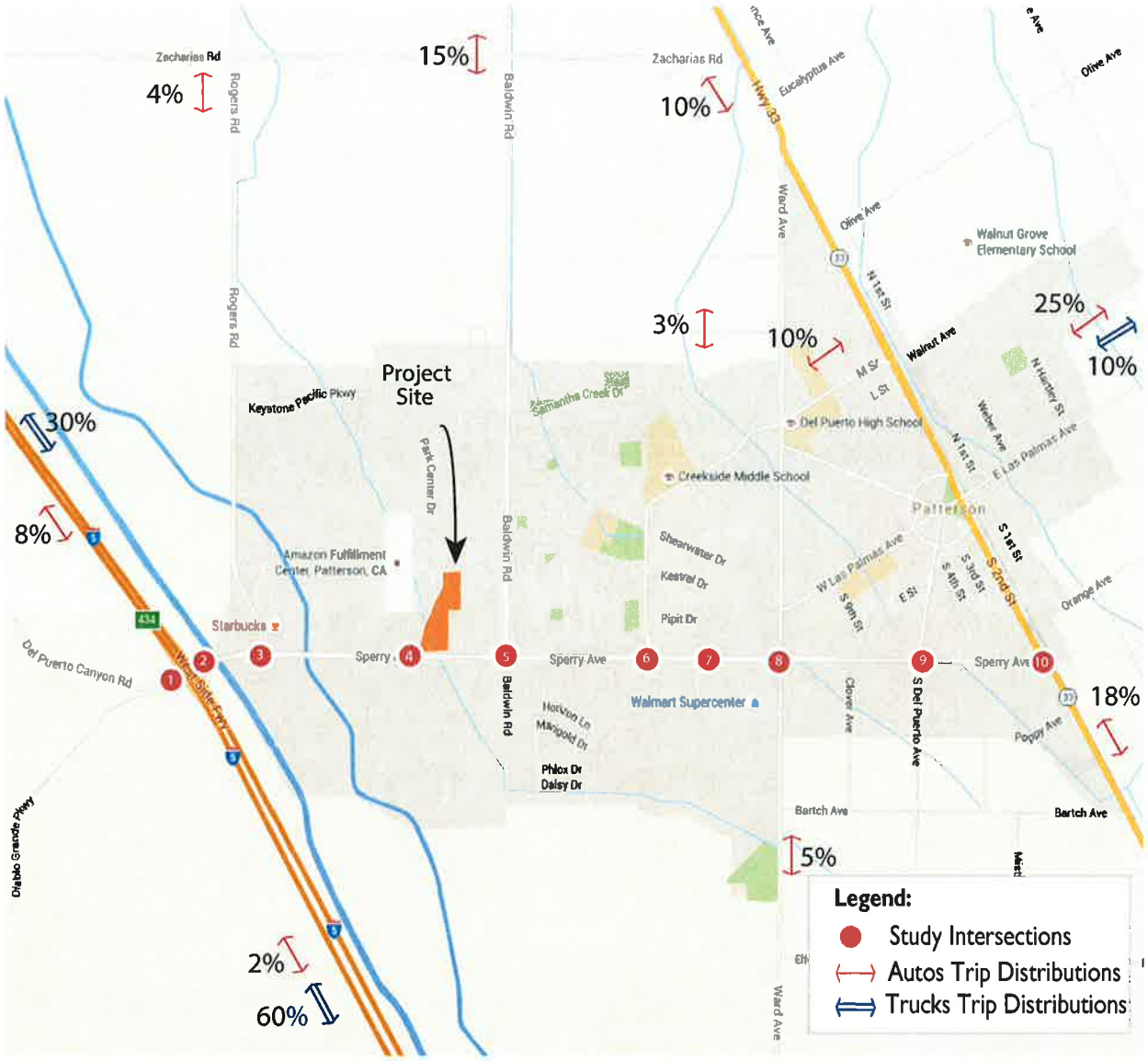
Trip distribution is a process that determines in what proportion vehicles would be expected to travel between a project site and various destinations outside the project study area. The process of trip assignment determines the various routes that vehicles would take from the project site to each destination using the estimated trip distribution.

The project is expected to "generate" and "attract" trips throughout the City and from other locations throughout the area. Directional trip distribution for project generated trips was estimated based upon use of the Patterson Travel Demand Forecast Model, existing traffic flow patterns, geographic location of the project site, and location of other similar destinations. The estimated trip distribution patterns are shown on Error! Reference source not found.. Peak hour plots of the Patterson model select zone trip distribution for the site are contained in Appendix C. It was assumed that majority of truck trips would be coming from I-5.[5]

Based on input from City and agency staff, the weekday AM and PM peak hour traffic conditions for the following scenarios were analyzed:

- Existing Traffic Condition
- Existing plus Project Traffic Condition

[5] *Based on likely truck origins/destinations assumptions and conversations with Pilot Flying J Center*


Zacharias Rd
4%
15%
Zacharias Rd
10%
Rogers Rd
Baldwin Rd
Hwy 33
Ward Ave
Olive Ave
Walnut Grove Elementary School
3%
10%
25%
10%
Walnut Ave
Project Site
Keystone Pacific Pkwy
Samantha Creek Dr
Del Puerto High School
30%
8%
Park Center Dr
Creekside Middle School
Patterson
Amazon Fulfillment Center, Patterson, CA
Shearwater Dr
Kestrel Dr
Pipit Dr
W Las Palmas Ave
E Las Palmas Ave
Starbucks
Del Puerto Canyon Rd
West Sister Expy
Sperry
Sperry Ave
Walmart Supercenter
Horizon Ln
Marigold Dr
Phlox Dr
Daisy Dr
Clover Ave
S Del Puerto Ave
Poppy Ave
18%
Bartch Ave
5%
Diablo Grande Pkwy
2%
60%
Legend:
Study Intersections
Autos Trip Distributions
Trucks Trip Distributions

5.0 EXISTING PLUS PROJECT TRAFFIC CONDITION

This section presents the assessment of potential transportation impacts of the proposed project.

5.1 INTERSECTION LEVEL OF SERVICE ANALYSIS

Figure 5 shows the Existing plus Project peak hour turning movement volumes and lane geometry. Detailed level of service worksheets are provided in Appendix C.

Table 8 shows the LOS under Existing plus Project conditions. Similar to the Existing Conditions, the intersections operate at acceptable LOS D or better, except the intersection of Sperry Avenue/I-5 Southbound Ramps during the PM peak hour. The project contributes 30 trips (approximately four percent of traffic) to the Sperry Avenue/I-5 Southbound Ramps intersection during the PM peak hour. This Intersection is currently stop controlled and would operate at a better LOS if signalized; however, this intersection does not meet volume-based signal warrants.

Table 8: Existing plus Project Intersection LOS

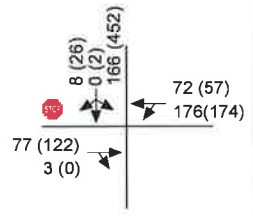
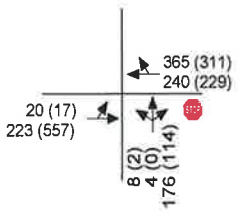
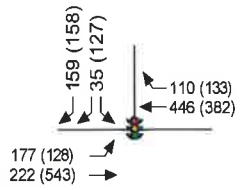
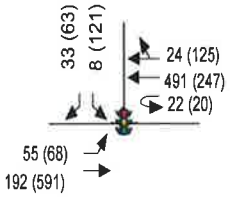
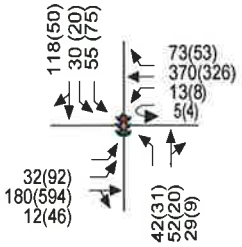
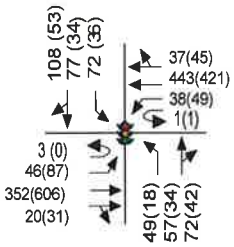
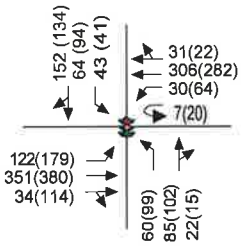
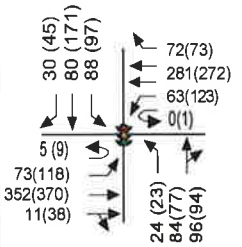
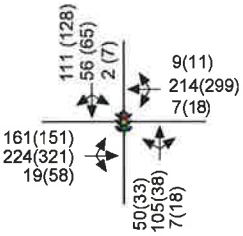
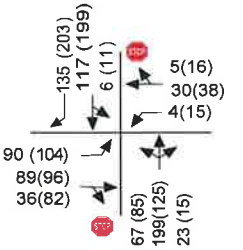
			Existing Plus Project Condition				A.M.		P.M.	
	Intersection	Existing Control	A.M.		P.M.		Proj. Trips	Percent Traffic	Proj. Trips	Percent Traffic
			Delay	LOS	Delay	LOS				
1	Sperry Avenue/ I-5 SB Ramps	OWSC	21.7	C	219.5	F	24	4.8	30	3.6
2	Sperry Avenue/ I-5 NB Ramps	OWSC	13	B	16.2	C	47	4.5	59	4.8
3	Sperry Avenue/ Rogers Road	Signal	17.8	B	13.6	B	49	4.3	61	4.1
4	Sperry Avenue/ Park Center Drive	Signal	8.1	A	15.1	B	73	8.8	87	7.0
5	Sperry Avenue/ Baldwin Road	Signal	17.7	B	15.8	B	52	5.1	54	4.1
6	Sperry Avenue/ American Eagle Avenue	Signal	15.8	B	15.4	B	47	3.4	49	3.4
7	Sperry Avenue/ Las Palmas Avenue	Signal	13.3	B	16.8	B	47	3.6	49	3.2
8	Sperry Avenue/ Ward Avenue	Signal	22.5	C	20.7	C	47	3.7	49	3.2
9	Sperry Avenue/ S Del Puerto Avenue	Signal	11.2	B	9.1	A	36	3.7	38	3.3
10	Sperry Avenue/ SR-33	TWSC	25.1	D	24.9	C	36	4.5	38	3.8

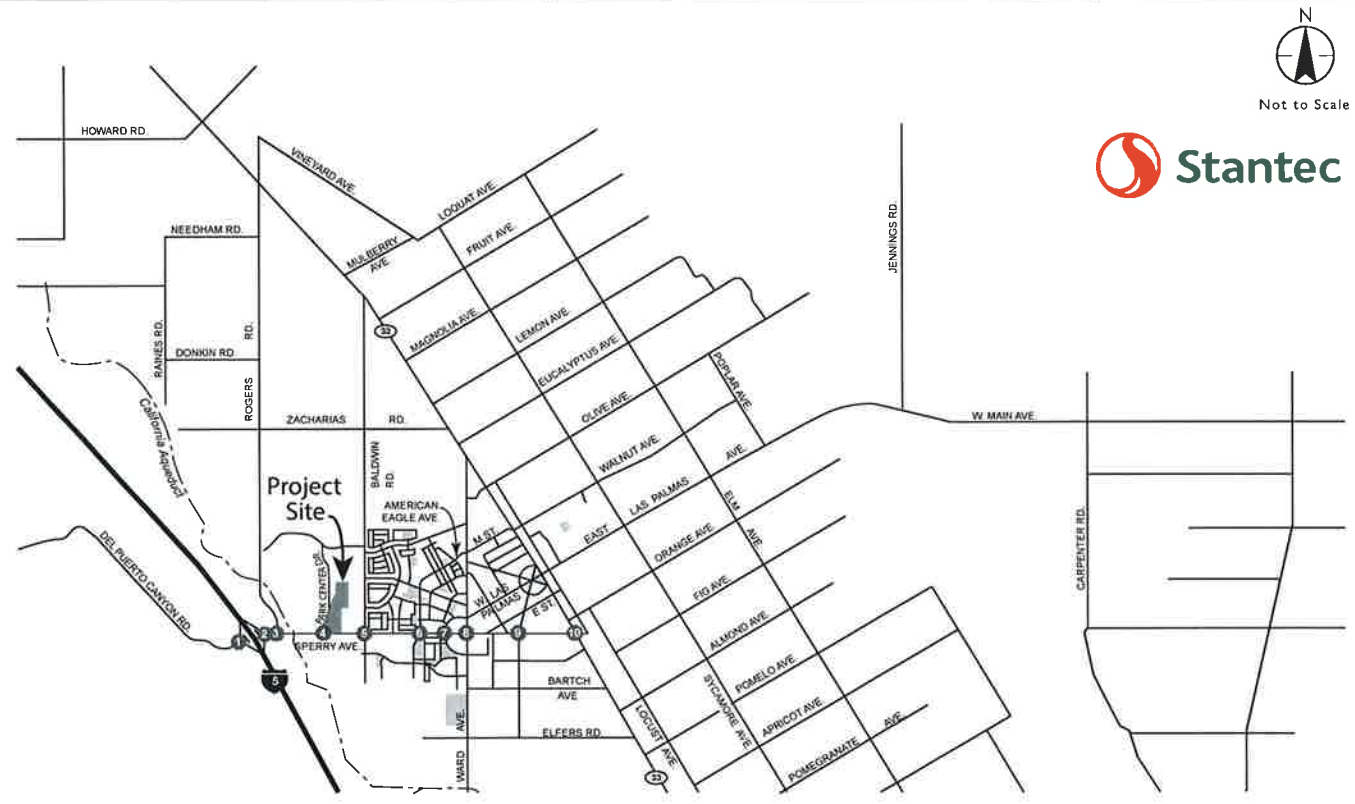
Note:
OWSC = One Way Stop Control
TWSC = Two Way Stop Control

City of Patterson – Pilot Flying J Center Traffic Study

Existing Plus Project Peak Hour Turning Movement Volumes, Lane Geometry & Controls

Figure 5

Intersection #1 Sperry/I-5 SB Ramps	Intersection #2 Sperry/I-5 NB Ramps	Intersection #3 Sperry/Rogers	Intersection #4 Sperry/Park Ctr.	Intersection #5 Sperry/Baldwin
				
Intersection #6 Sperry/American Eagle	**Intersection #7 Sperry/Las Palmas**	**Intersection #8 Sperry/Ward**	**Intersection #9 Sperry/S. Del Puerto**	**Intersection #10 Sperry/SR 33**
				



LEGEND

- Study Intersection
- Stop Sign
- Traffic Signal
- XX AM Peak Hour Volume
- (XX) PM Peak Hour Volume

5.2 QUEUING ANALYSIS

As the project is expected to generate left-turning traffic at several of the study intersections, a supplemental queuing analysis was carried out. The 95th percentile queue length is typically used for determining the lengths of turning lanes so that traffic does not overflow to block the through lane. The 95th percentile of queue lengths represents the length of queue that should not be exceeded in 95% of all signal cycles. In other words, there is less than a 5% chance in any cycle that the queue length is larger.

Under Existing plus Project Conditions, the analysis shows sufficient turn bay lengths for all locations as shown in **Table 9**. It is noted that the 95th percentile southbound queue at the Sperry Avenue/I-5 Southbound Ramp increases by about five vehicles from the Existing Conditions. This queue is contained within the ramp and does not back onto the interstate. The table shows slight reductions in queue length from Existing Conditions to Existing plus Project Conditions at some locations, which is due to signal optimization.

Table 9: Existing Plus Project Queuing Analysis

ID	Intersection	Turning Movement	Existing Storage Length	Existing Plus Project Conditions	
				A.M.	P.M.
1	Sperry Avenue/I-5 SB Ramps[1,2]	SBL	0'	110'	646'
		WBL	0'	53'	63'
2	Sperry Avenue/I-5 NB Ramps[1]	NBR	0'	160'	107'
		EBL	0'	91'	125'
3	Sperry Avenue/Rogers Road	EBL	275'	188'	117'
		SBL	204'	66'	94'
4	Sperry Avenue/Park Center Drive	EBL	130'	83'	117'
		SBL	160'	41'	115'
5	Sperry Avenue/Baldwin Road	EBL	130'	47'	85'
		WBL	130'	40'	34'
6	Sperry Avenue/American Eagle Avenue	EBL	130'	67'	111'
		WBL	195'	67'	91'
7	Sperry Avenue/Las Palmas Avenue	EBL	200'	95'	118'
		WBL	350'	56'	84'
8	Sperry Avenue/Ward Avenue	EBL	185'	131'	138'
		WBL	170'	71'	103'
9	Sperry Avenue/S Del Puerto Avenue[1]	EBL	0'	325'	297'
		WBL	0'	127'	145'
10	Sperry Avenue/SR-33[1]	EBL	0'	129'	139'
		NBL	0'	34'	41'

Note 1: No turn bay provided at these locations. Queue length reported for approach.
Note 2: PM queue reported from Synchro analysis.

Sperry Avenue and Park Center Drive Intersection

Currently the intersection of Sperry Avenue and Park Center Drive is a T-intersection. There are two left-turn lanes on the eastbound approach and one left-turn lane on the southbound approach. It is estimated that the projected future queue length for the eastbound and southbound left-turn movements under the Existing plus Project scenario could be accommodated within the existing left-turn storage length.

Currently right-of-way is available to add a second left-turn lane at the southbound left-turn pocket on Park Center Drive. It is recommended that the second left-turn lane should be added when a second through lane is added for eastbound Sperry Avenue.

5.3 ARTERIAL SEGMENT LEVEL OF SERVICE ANALYSIS

Stantec created a Synchro network to evaluate the LOS of the roadway segments. Specifically, the analysis will determine if the existing one lane Sperry Avenue eastbound travel between I-5 and Baldwin Road would operate acceptably with the addition of future project traffic.

The Sperry Avenue arterial segment level of service for the Existing plus Project Conditions was evaluated using the Arterial Level of Service methodology for the three segments between I-5 and the project site. As shown in **Table 10**, all segments operate at LOS C or above in both the westbound and the eastbound direction. Detailed arterial segment level of service worksheets are provided in Appendix C.

Table 10: Existing Plus Project Arterial Segment LOS Summary

	Existing Plus Project Condition							
	Eastbound Peak Hr. Speed				Westbound Peak Hr. Speed			
Segment	AM	LOS	PM	LOS	AM	LOS	PM	LOS
I-5 SB Ramps to Rogers Rd	40.8	A	38.2	A	30.7	B	28.3	B
Rogers Rd to Park Center Dr	40.9	A	33	B	28.7	B	31.8	B
Park Center Dr to Baldwin Rd	28.2	B	27.2	C	31	B	26.5	C

It could be concluded that the existing Sperry Avenue roadway segment would continue to operate acceptably.

5.4 PROPOSED ACCESS AND CIRCULATION

We understand that the project is proposing to expand westbound Sperry Avenue east of Park Center Drive to two lanes with acceleration/deceleration lanes along the Westridge frontage. Currently eastbound Sperry Avenue is one lane between I-5 and Baldwin Road.

The proposed site plan shows three driveways on Park Center Drive: the first is primarily for passenger vehicle access at approximately 50 feet from Sperry Avenue (centerline to centerline) and two additional driveways further north to the diesel fuel pumps area – assumed primarily for trucks.

To ensure safety, it is critical that appropriate access management is provided within this short distance of Park Center Drive between Sperry Avenue and the project frontage. Stantec has prepared a scaled conceptual drawing of Park Center Drive project frontage to illustrate our recommendation. Stantec used Autoturns to conduct the analysis of truck turning in and out of the driveways. A firetruck with aerial ladder was assumed for safe turning at the first driveway and STAA (Surface Transportation Assistance Act of 1982 that allows large trucks) truck standard was assumed for the other two driveways to the north. Stantec recommends a right-turn deceleration lane for the first two driveways. This will ensure that vehicles could slow down to make the turn into the project driveways safely as well as not impede northbound through traffic. The two northbound lanes would continue and merge into a single lane past the second driveway. The third driveway would be available for full access. Truck traffic would be able to make left-turn to exit at the second driveway. A copy of the scaled conceptual drawing is provided in Appendix C.

Based on the minimum required stopping sight distance analysis at the project driveway, it is recommended that the first driveway on Park Center Drive be designed for right-in and right-out access only as shown on Exhibit III. Currently, a striped median is provided on Park Center Drive along the project frontage. To be effective in ensuring that vehicles would not exit to make a left-turn from the proposed driveways, a raised median (from Sperry Avenue to just past the proposed second driveway) is recommended. The proposed second driveway is located at approximately 320 feet to the north of Sperry Avenue. This is considered adequate stopping sight distance for vehicles to safely make a left-turn out of the proposed driveway to proceed southbound towards Sperry Avenue.

The project proposes a driveway located approximately 320 feet to the east of Park Center Drive. This would be a right-in and right-out only driveway. A deceleration lane is shown on the site plan in Exhibit III which would allow vehicles to decelerate before turning into the project site.

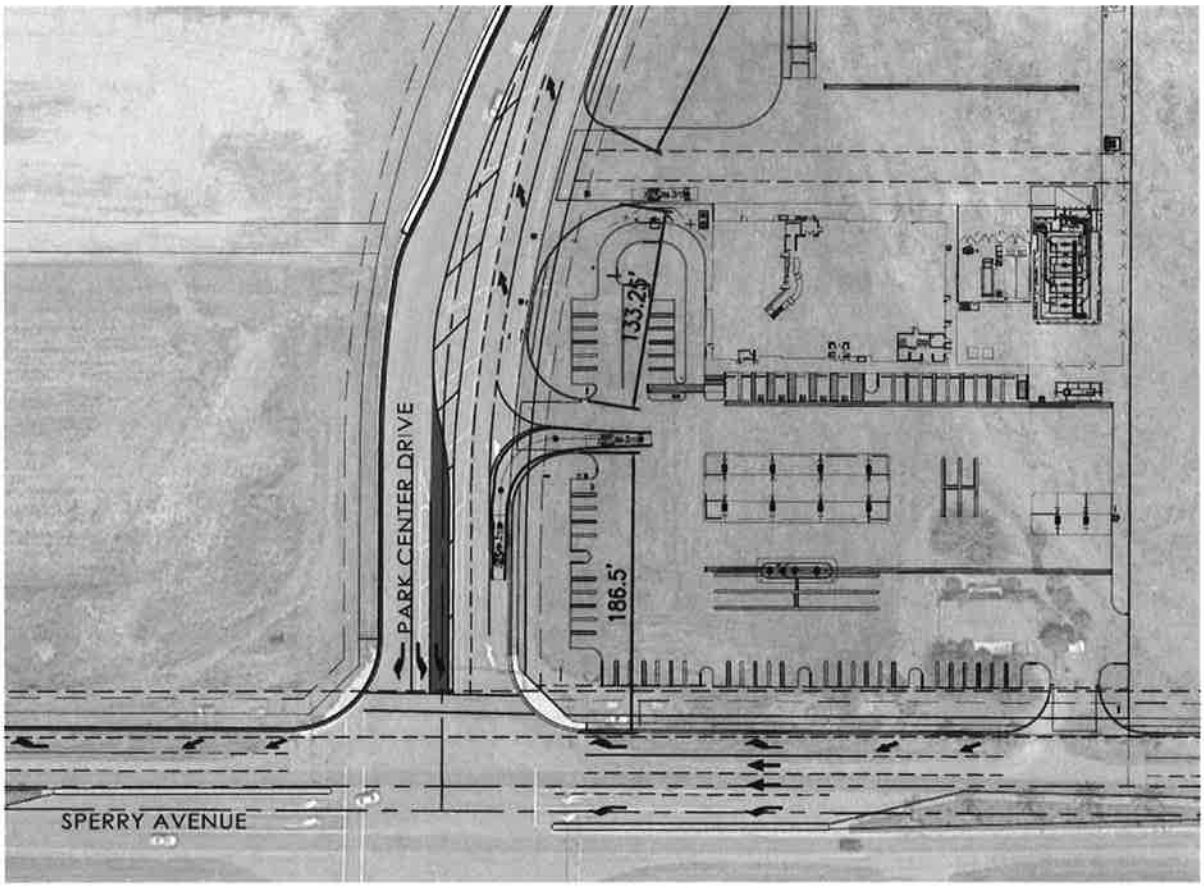


Exhibit III: Access Management on Park Center Drive

6.0 CONCLUSION

Based on the results of the analysis, the following is a summary of our findings:

Existing Condition
Based on discussions with City and agency staff, ten study intersections were selected for analysis.

- All the intersections operate at acceptable Level of Service (LOS) D or better, except the intersection of Sperry Avenue/I-5 Southbound Ramps, which operates at LOS F during the PM peak hour.
- The 95th percentile queue lengths are contained within the existing turn bays.
- All Sperry Avenue arterial study segments operate at an acceptable LOS C or better during both the AM and PM peak hour.

Existing plus Project

- It is estimated that the project will generate approximately 105 new trips during the AM peak hour and 121 new trips during the PM peak hour.
- Compared to the 2002 West Patterson Business Park Master Plan it is estimated that based on new trips generated, the proposed Pilot Flying J project would generate two less trips during the AM peak hour and three more trips during the PM peak hour. However, based on new and pass-by trips generated, the proposed Pilot Flying J project is estimated to generate 191 more driveway trips during the AM peak hour and 200 more driveway trips during the PM peak hour.
- Similar to the existing conditions, all the intersections operate at acceptable LOS D or better, except the intersection of Sperry Avenue/I-5 Southbound Ramps during the PM peak hour. Project traffic contributes thirty trips (approximately four percent) to the Sperry Avenue/I-5 Southbound Ramps intersection.
- The 95th percentile queue lengths are contained within the existing turn bays.
- All Sperry Avenue arterial study segments operate at an acceptable LOS C or better during both the AM and PM peak hour.

Three driveways are proposed on Park Center Drive. Stantec recommends a right-turn deceleration lane for the first driveway. The first driveway would be right-in and right-out only. The second is proposed to be truck outbound driveway and the third driveway would be available for full access. The proposed driveway on Sperry Avenue would be right-in and right-out only.

Appendix A Traffic Volume Counts

Appendix B Intersection LOS Analysis: Existing LOS Calculation Sheets

Appendix C Intersection LOS Analysis: Existing plus Project LOS Calculation Sheets

Appendix A Traffic Volume Counts

ALL TRAFFIC DATA

City of Patterson
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@aldtraffic.com

File Name : 16-7171-004 Park Center Drive & Sperry Avenue
Date : 3/8/2016

Unshifted Count = All Vehicles & Uturns

	Park Center Drive Southbound					Sperry Avenue Westbound					Park Center Drive Northbound					Sperry Avenue Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	1	0	2	0	3	0	118	8	0	126	0	0	0	0	0	6	40	0	0	46	175	0
7:15	0	0	4	0	4	0	116	5	0	121	0	0	0	0	0	7	48	0	0	55	180	0
7:30	4	0	4	0	8	0	114	5	0	119	0	0	0	0	0	10	52	0	0	62	189	0
7:45	2	0	4	0	6	0	131	8	1	140	0	0	0	0	0	4	48	0	0	52	198	1
Total	7	0	14	0	21	0	479	26	1	506	0	0	0	0	0	27	188	0	0	215	742	1
8:00	0	0	1	0	1	0	126	4	1	131	0	0	0	0	0	9	44	0	0	53	185	1
8:15	2	0	2	0	4	0	87	2	0	89	0	0	0	0	0	5	53	0	0	58	151	0
8:30	2	0	1	0	3	0	76	4	0	80	0	0	0	0	0	6	34	0	0	40	123	0
8:45	3	0	4	0	7	0	74	5	0	79	0	0	0	0	0	4	40	0	0	44	130	0
Total	7	0	8	0	15	0	363	15	1	379	0	0	0	0	0	24	171	0	0	195	589	1
16:00	7	0	1	0	8	0	51	3	0	54	0	0	0	0	0	2	125	0	0	127	189	0
16:15	6	0	3	0	9	0	59	1	0	60	0	0	0	0	0	4	128	0	0	132	201	0
16:30	9	0	4	0	13	0	56	2	2	60	0	0	0	0	0	6	127	0	0	133	206	2
16:45	1	0	2	0	3	0	59	2	0	61	0	0	0	0	0	0	128	0	0	128	192	0
Total	23	0	10	0	33	0	225	8	2	235	0	0	0	0	0	12	508	0	0	520	788	2
17:00	6	0	4	0	10	0	72	9	0	81	0	0	0	0	0	8	132	0	0	140	231	0
17:15	3	0	6	0	9	0	68	23	0	91	0	0	0	0	0	6	157	0	0	163	263	0
17:30	92	0	24	0	116	0	54	33	0	87	0	0	0	0	0	11	158	0	0	169	372	0
17:45	17	0	3	0	20	0	49	57	0	106	0	0	0	0	0	12	144	0	0	156	282	0
Total	118	0	37	0	155	0	243	122	0	365	0	0	0	0	0	37	591	0	0	628	1148	0
Grand Total	155	0	69	0	224	0	1310	171	4	1485	0	0	0	0	0	100	1458	0	0	1558	3267	4
Apprch %	69.2%	0.0%	30.8%	0.0%		0.0%	88.2%	11.5%	0.3%		0.0%	0.0%	0.0%	0.0%		6.4%	93.6%	0.0%	0.0%			
Total %	4.7%	0.0%	2.1%	0.0%	6.9%	0.0%	40.1%	5.2%	0.1%	45.5%	0.0%	0.0%	0.0%	0.0%	0.0%	3.1%	44.6%	0.0%	0.0%	47.7%	100.0%	

AM PEAK HOUR	Park Center Drive Southbound					Sperry Avenue Westbound					Park Center Drive Northbound					Sperry Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 07:15 to 08:15																					
Peak Hour For Entire Intersection Begins at 07:15																					
7:15	0	0	4	0	4	0	116	5	0	121	0	0	0	0	0	7	48	0	0	55	180
7:30	4	0	4	0	8	0	114	5	0	119	0	0	0	0	0	10	52	0	0	62	189
7:45	2	0	4	0	6	0	131	8	1	140	0	0	0	0	0	4	48	0	0	52	198
8:00	0	0	1	0	1	0	126	4	1	131	0	0	0	0	0	9	44	0	0	53	185
Total Volume	6	0	13	0	19	0	487	22	2	511	0	0	0	0	0	30	192	0	0	222	752
% App Total	31.6%	0.0%	68.4%	0.0%		0.0%	95.3%	4.3%	0.4%		0.0%	0.0%	0.0%	0.0%		13.5%	86.5%	0.0%	0.0%		
PHF	.375	.000	.813	.000	.594	.000	.929	.688	.500	.913	.000	.000	.000	.000	.000	.750	.923	.000	.000	.895	.949

PM PEAK HOUR	Park Center Drive Southbound					Sperry Avenue Westbound					Park Center Drive Northbound					Sperry Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	6	0	4	0	10	0	72	9	0	81	0	0	0	0	0	8	132	0	0	140	231
17:15	3	0	6	0	9	0	68	23	0	91	0	0	0	0	0	6	157	0	0	163	263
17:30	92	0	24	0	116	0	54	33	0	87	0	0	0	0	0	11	158	0	0	169	372
17:45	17	0	3	0	20	0	49	57	0	106	0	0	0	0	0	12	144	0	0	156	282
Total Volume	118	0	37	0	155	0	243	122	0	365	0	0	0	0	0	37	591	0	0	628	1148
% App Total	76.1%	0.0%	23.9%	0.0%		0.0%	66.6%	33.4%	0.0%		0.0%	0.0%	0.0%	0.0%		5.9%	94.1%	0.0%	0.0%		
PHF	.321	.000	.385	.000	.334	.000	.844	.535	.000	.861	.000	.000	.000	.000	.000	.771	.935	.000	.000	.929	.772

ALL TRAFFIC DATA

City of Patterson
All Vehicles & Uturns On Unshifted
Nothing On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7171-005 Baldwin Road & Sperry Avenue
Date : 3/8/2016

Unshifted Count = All Vehicles & Uturns

	Baldwin Road Southbound					Sperry Avenue Westbound					Baldwin Road Northbound					Sperry Avenue Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	7	0	18	0	25	4	91	6	0	101	12	4	6	0	22	6	27	3	0	36	184	0
7:15	8	2	25	0	35	1	86	18	0	105	10	10	9	0	29	7	42	2	0	51	220	0
7:30	25	7	21	0	53	3	78	15	1	97	13	22	8	0	43	6	43	2	0	51	244	1
7:45	16	10	27	0	53	4	102	25	1	132	11	18	8	0	37	13	37	2	0	52	274	1
Total	56	19	91	0	166	12	357	64	2	435	46	54	31	0	131	32	149	9	0	190	922	2
8:00	6	11	40	0	57	5	79	15	3	102	8	2	4	0	14	6	36	6	0	48	221	3
8:15	9	2	24	0	35	4	59	9	0	72	8	5	0	0	13	14	37	2	1	54	174	1
8:30	11	1	11	0	23	0	63	10	0	73	7	2	2	0	11	6	34	0	0	40	147	0
8:45	6	2	15	0	23	6	48	14	0	68	11	4	3	0	18	3	40	1	0	44	153	0
Total	32	16	90	0	138	15	249	48	3	315	34	13	9	0	56	29	147	9	1	186	695	4
16:00	20	7	8	0	35	4	38	11	0	53	6	1	1	0	8	17	98	8	0	123	219	0
16:15	17	3	15	0	35	3	43	10	0	56	8	3	4	0	15	18	105	9	0	132	238	0
16:30	23	10	7	0	40	0	42	15	0	57	6	13	20	0	39	23	110	8	0	141	277	0
16:45	14	10	6	0	30	4	51	18	0	73	4	4	1	0	9	16	95	14	0	125	237	0
Total	74	30	36	0	140	11	174	54	0	239	24	21	26	0	71	74	408	39	0	521	971	0
17:00	25	9	10	0	44	2	63	18	1	84	9	4	3	0	16	15	114	13	0	142	286	1
17:15	16	2	11	0	29	3	72	16	1	92	9	8	3	0	20	26	115	12	0	153	294	1
17:30	15	4	12	0	31	1	70	6	0	77	7	6	0	0	13	29	213	12	0	254	375	0
17:45	19	5	12	0	36	2	95	13	2	112	6	2	3	0	11	22	129	9	0	160	319	2
Total	75	20	45	0	140	8	300	53	4	365	31	20	9	0	60	92	571	46	0	709	1274	4
Grand Total	237	85	262	0	584	46	1080	219	9	1354	135	108	75	0	318	227	1275	103	1	1606	3862	10
Apprch %	40.6%	14.6%	44.9%	0.0%		3.4%	79.8%	16.2%	0.7%		42.5%	34.0%	23.6%	0.0%		14.1%	79.4%	6.4%	0.1%			
Total %	6.1%	2.2%	6.8%	0.0%	15.1%	1.2%	28.0%	5.7%	0.2%	35.1%	3.5%	2.8%	1.9%	0.0%	8.2%	5.9%	33.0%	2.7%	0.0%	41.6%	100.0%	

AM PEAK HOUR	Baldwin Road Southbound					Sperry Avenue Westbound					Baldwin Road Northbound					Sperry Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 07:15 to 08:15																					
Peak Hour For Entire Intersection Begins at 07:15																					
7:15	8	2	25	0	35	1	86	18	0	105	10	10	9	0	29	7	42	2	0	51	220
7:30	25	7	21	0	53	3	78	15	1	97	13	22	8	0	43	6	43	2	0	51	244
7:45	16	10	27	0	53	4	102	25	1	132	11	18	8	0	37	13	37	2	0	52	274
8:00	6	11	40	0	57	5	79	15	3	102	8	2	4	0	14	6	36	6	0	48	221
Total Volume	55	30	113	0	198	13	345	73	5	436	42	52	29	0	123	32	158	12	0	202	959
% App Total	27.8%	15.2%	57.1%	0.0%		3.0%	79.1%	16.7%	1.1%		34.1%	42.3%	23.6%	0.0%		15.8%	78.2%	5.9%	0.0%		
PHF	.550	.682	.706	.000	.868	.650	.846	.730	.417	.826	.808	.591	.806	.000	.715	.615	.919	.500	.000	.971	.875

PM PEAK HOUR	Baldwin Road Southbound					Sperry Avenue Westbound					Baldwin Road Northbound					Sperry Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	25	9	10	0	44	2	63	18	1	84	9	4	3	0	16	15	114	13	0	142	286
17:15	16	2	11	0	29	3	72	16	1	92	9	8	3	0	20	26	115	12	0	153	294
17:30	15	4	12	0	31	1	70	6	0	77	7	6	0	0	13	29	213	12	0	254	375
17:45	19	5	12	0	36	2	95	13	2	112	6	2	3	0	11	22	129	9	0	160	319
Total Volume	75	20	45	0	140	8	300	53	4	365	31	20	9	0	60	92	571	46	0	709	1274
% App Total	53.6%	14.3%	32.1%	0.0%		2.2%	82.2%	14.5%	1.1%		51.7%	33.3%	15.0%	0.0%		13.0%	80.5%	6.5%	0.0%		
PHF	.750	.556	.938	.000	.795	.667	.789	.736	.500	.815	.861	.625	.750	.000	.750	.793	.670	.885	.000	.698	.849

ALL TRAFFIC DATA

City of Patterson
All Vehicles & Uturns On Unshifted
Nothing On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7171-006 American Eagle Avenue & Sperry Avenue
Date : 3/8/2016

Unshifted Count = All Vehicles & Uturns

	American Eagle Avenue Southbound					Sperry Avenue Westbound					American Eagle Avenue Northbound					Sperry Avenue Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	3	0	18	0	21	4	79	4	0	87	10	16	16	0	42	6	54	0	2	62	212	2
7:15	11	5	21	0	37	3	86	16	0	105	14	19	14	0	47	13	84	2	2	101	290	2
7:30	21	21	27	0	69	8	113	11	0	132	20	24	37	0	81	16	110	4	0	130	412	0
7:45	29	33	37	0	99	15	135	6	1	157	14	11	15	0	40	11	87	9	0	107	403	1
Total	64	59	103	0	226	30	413	37	1	481	58	70	82	0	210	46	335	15	4	400	1317	5
8:00	11	18	23	0	52	12	84	4	0	100	1	3	6	0	10	6	49	5	1	61	223	1
8:15	5	8	8	0	21	5	68	6	0	79	5	1	9	0	15	9	46	2	0	57	172	0
8:30	8	3	11	0	22	9	54	4	0	67	3	2	7	0	12	4	49	1	0	54	155	0
8:45	6	4	12	0	22	2	66	0	0	68	2	2	11	0	15	3	56	3	0	62	167	0
Total	30	33	54	0	117	28	272	14	0	314	11	8	33	0	52	22	200	11	1	234	717	1
16:00	9	8	9	0	26	19	58	7	0	84	0	4	6	0	10	18	109	6	0	133	253	0
16:15	5	5	7	0	17	11	72	8	0	91	3	9	5	0	17	17	115	6	0	138	263	0
16:30	10	7	7	0	24	15	77	8	1	101	1	9	17	0	27	28	143	7	1	179	331	2
16:45	7	4	8	0	19	9	78	12	0	99	2	7	13	0	22	10	115	7	1	133	273	1
Total	31	24	31	0	86	54	285	35	1	375	6	29	41	0	76	73	482	26	2	583	1120	3
17:00	6	6	11	0	23	15	93	11	0	119	6	8	10	0	24	20	117	11	0	148	314	0
17:15	6	8	8	0	22	15	101	10	1	127	6	12	17	0	35	15	120	7	0	142	326	1
17:30	7	13	14	0	34	11	95	17	0	123	2	5	7	0	14	26	203	9	0	238	409	0
17:45	17	7	20	0	44	8	106	7	0	121	4	9	8	0	21	26	143	4	0	173	359	0
Total	36	34	53	0	123	49	395	45	1	490	18	34	42	0	94	87	583	31	0	701	1408	1
Grand Total	161	150	241	0	552	161	1365	131	3	1660	93	141	198	0	432	228	1600	83	7	1918	4562	10
Apprch %	29.2%	27.2%	43.7%	0.0%		9.7%	82.2%	7.9%	0.2%		21.5%	32.6%	45.8%	0.0%		11.9%	83.4%	4.3%	0.4%			
Total %	3.5%	3.3%	5.3%	0.0%	12.1%	3.5%	29.9%	2.9%	0.1%	36.4%	2.0%	3.1%	4.3%	0.0%	9.5%	5.0%	35.1%	1.8%	0.2%	42.0%	100.0%	

AM PEAK HOUR	American Eagle Avenue Southbound					Sperry Avenue Westbound					American Eagle Avenue Northbound					Sperry Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 07:15 to 08:15																					
Peak Hour For Entire Intersection Begins at 07:15																					
7:15	11	5	21	0	37	3	86	16	0	105	14	19	14	0	47	13	84	2	2	101	290
7:30	21	21	27	0	69	8	113	11	0	132	20	24	37	0	81	16	110	4	0	130	412
7:45	29	33	37	0	99	15	135	6	1	157	14	11	15	0	40	11	87	9	0	107	403
8:00	11	18	23	0	52	12	84	4	0	100	1	3	6	0	10	6	49	5	1	61	223
Total Volume	72	77	108	0	257	38	418	37	1	494	49	57	72	0	178	46	330	20	3	399	1328
% App Total	28.0%	30.0%	42.0%	0.0%		7.7%	84.6%	7.5%	0.2%		27.5%	32.0%	40.4%	0.0%		11.5%	82.7%	5.0%	0.8%		
PHF	.621	.583	.730	.000	.649	.633	.774	.578	.250	.787	.613	.594	.486	.000	.549	.719	.750	.556	.375	.767	.806

PM PEAK HOUR	American Eagle Avenue Southbound					Sperry Avenue Westbound					American Eagle Avenue Northbound					Sperry Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	6	6	11	0	23	15	93	11	0	119	6	8	10	0	24	20	117	11	0	148	314
17:15	6	8	8	0	22	15	101	10	1	127	6	12	17	0	35	15	120	7	0	142	326
17:30	7	13	14	0	34	11	95	17	0	123	2	5	7	0	14	26	203	9	0	238	409
17:45	17	7	20	0	44	8	106	7	0	121	4	9	8	0	21	26	143	4	0	173	359
Total Volume	36	34	53	0	123	49	395	45	1	490	18	34	42	0	94	87	583	31	0	701	1408
% App Total	29.3%	27.6%	43.1%	0.0%		10.0%	80.6%	9.2%	0.2%		19.1%	36.2%	44.7%	0.0%		12.4%	83.2%	4.4%	0.0%		
PHF	.529	.654	.663	.000	.699	.817	.932	.662	.250	.965	.750	.708	.618	.000	.671	.837	.718	.705	.000	.736	.861

ALL TRAFFIC DATA

City of Patterson
All Vehicles & Uturns On Unshifted
Nothing On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7171-007 Las Palmas Avenue & Sperry Avenue
Date : 3/8/2016

Unshifted Count = All Vehicles & Uturns

	Las Palmas Avenue Southbound					Sperry Avenue Westbound					Las Palmas Avenue Northbound					Sperry Avenue Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	5	12	24	0	41	4	45	6	0	55	11	13	5	0	29	23	38	7	1	69	194	1
7:15	6	9	21	0	36	3	65	3	1	72	20	20	6	0	46	27	75	8	0	110	264	1
7:30	17	15	50	0	82	4	70	10	2	86	16	32	11	0	59	42	119	6	0	167	394	2
7:45	17	28	52	0	97	11	89	12	1	113	11	18	4	0	33	39	87	9	0	135	378	1
Total	45	64	147	0	256	22	269	31	4	326	58	83	26	0	167	131	319	30	1	481	1230	5
8:00	3	12	29	0	44	12	57	6	3	78	13	15	1	0	29	14	48	11	0	73	224	3
8:15	1	6	13	0	20	10	53	1	1	65	12	16	7	0	35	15	38	5	0	58	178	1
8:30	4	9	13	0	26	6	44	1	1	52	10	15	2	0	27	17	39	8	0	64	169	1
8:45	2	5	21	0	28	7	46	6	2	61	8	10	5	0	23	18	46	10	0	74	186	2
Total	10	32	76	0	118	35	200	14	7	256	43	56	15	0	114	64	171	34	0	269	757	7
16:00	5	17	20	0	42	14	47	4	4	69	12	26	5	0	43	37	70	17	0	124	278	4
16:15	6	18	22	0	46	15	52	3	4	74	16	28	3	0	47	34	66	16	0	116	283	4
16:30	4	23	34	0	61	13	48	10	6	77	23	33	7	0	63	56	92	24	0	172	373	6
16:45	9	16	35	0	60	19	47	10	3	79	20	39	2	0	61	39	60	30	0	129	329	3
Total	24	74	111	0	209	61	194	27	17	299	71	126	17	0	214	166	288	87	0	541	1263	17
17:00	11	21	27	0	59	22	63	4	4	93	25	20	4	0	49	38	73	24	0	135	336	4
17:15	11	17	43	0	71	15	63	8	2	88	23	26	5	0	54	46	75	24	0	145	358	2
17:30	7	31	26	0	64	10	68	6	4	88	27	30	3	0	60	64	119	33	0	216	428	4
17:45	12	25	38	0	75	17	62	4	10	93	24	26	3	0	53	31	90	33	0	154	375	10
Total	41	94	134	0	269	64	256	22	20	362	99	102	15	0	216	179	357	114	0	650	1497	20
Grand Total	120	264	468	0	852	182	919	94	48	1243	271	367	73	0	711	540	1135	265	1	1941	4747	49
Apprch %	14.1%	31.0%	54.9%	0.0%		14.6%	73.9%	7.6%	3.9%		38.1%	51.6%	10.3%	0.0%		27.8%	58.5%	13.7%	0.1%			
Total %	2.5%	5.6%	9.9%	0.0%	17.9%	3.8%	19.4%	2.0%	1.0%	26.2%	5.7%	7.7%	1.5%	0.0%	15.0%	11.4%	23.9%	5.6%	0.0%	40.9%	100.0%	

AM PEAK HOUR	Las Palmas Avenue Southbound					Sperry Avenue Westbound					Las Palmas Avenue Northbound					Sperry Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 07:15 to 08:15																					
Peak Hour For Entire Intersection Begins at 07:15																					
7:15	6	9	21	0	36	3	65	3	1	72	20	20	6	0	46	27	75	8	0	110	264
7:30	17	15	50	0	82	4	70	10	2	86	16	32	11	0	59	42	119	6	0	167	394
7:45	17	28	52	0	97	11	89	12	1	113	11	18	4	0	33	39	87	9	0	135	378
8:00	3	12	29	0	44	12	57	6	3	78	13	15	1	0	29	14	48	11	0	73	224
Total Volume	43	64	152	0	259	30	281	31	7	349	60	85	22	0	167	122	329	34	0	485	1260
% App Total	16.6%	24.7%	58.7%	0.0%		8.6%	80.5%	8.9%	2.0%		35.9%	50.9%	13.2%	0.0%		25.2%	67.8%	7.0%	0.0%		
PHF	.632	.571	.731	.000	.668	.625	.789	.646	.583	.772	.750	.664	.500	.000	.708	.726	.691	.773	.000	.726	.799

PM PEAK HOUR	Las Palmas Avenue Southbound					Sperry Avenue Westbound					Las Palmas Avenue Northbound					Sperry Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	11	21	27	0	59	22	63	4	4	93	25	20	4	0	49	38	73	24	0	135	336
17:15	11	17	43	0	71	15	63	8	2	88	23	26	5	0	54	46	75	24	0	145	358
17:30	7	31	26	0	64	10	68	6	4	88	27	30	3	0	60	64	119	33	0	216	428
17:45	12	25	38	0	75	17	62	4	10	93	24	26	3	0	53	31	90	33	0	154	375
Total Volume	41	94	134	0	269	64	256	22	20	362	99	102	15	0	216	179	357	114	0	650	1497
% App Total	15.2%	34.9%	49.8%	0.0%		17.7%	70.7%	6.1%	5.5%		45.8%	47.2%	6.9%	0.0%		27.5%	54.9%	17.5%	0.0%		
PHF	.854	.758	.779	.000	.897	.727	.941	.688	.500	.973	.917	.850	.750	.000	.900	.699	.750	.864	.000	.752	.874

ALL TRAFFIC DATA

City of Patterson
All Vehicles & Uturns On Unshifted
Nothing On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7171-008 Ward Avenue & Sperry Avenue
Date : 3/8/2016

Unshifted Count = All Vehicles & Uturns

	Ward Avenue Southbound					Sperry Avenue Westbound					Ward Avenue Northbound					Sperry Avenue Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	5	15	4	0	24	11	42	15	0	68	4	13	16	0	33	11	47	1	0	59	184	0
7:15	15	14	2	0	31	13	53	26	0	92	5	14	10	0	29	16	74	5	2	97	249	2
7:30	31	22	5	0	58	8	68	23	0	99	6	38	40	0	84	24	116	2	0	142	383	0
7:45	32	19	15	0	66	24	88	14	0	126	7	22	32	0	61	20	97	2	1	120	373	1
Total	83	70	26	0	179	56	251	78	0	385	22	87	98	0	207	71	334	10	3	418	1189	3
8:00	10	25	4	0	39	18	53	9	0	80	4	10	14	0	28	9	48	1	2	60	207	2
8:15	7	22	1	0	30	23	53	10	0	86	3	17	16	0	36	23	31	1	0	55	207	0
8:30	12	26	6	0	44	16	37	16	0	69	2	10	18	0	30	16	40	0	0	56	199	0
8:45	13	12	5	0	30	13	42	16	0	71	2	12	14	0	28	14	39	2	2	57	186	2
Total	42	85	16	0	143	70	185	51	0	306	11	49	62	0	122	62	158	4	4	228	799	4
16:00	29	40	5	0	74	28	45	16	1	90	10	18	19	0	47	25	75	6	1	107	318	2
16:15	16	36	8	0	60	28	59	15	0	102	6	16	21	0	43	19	78	7	1	105	310	1
16:30	24	35	12	0	71	34	59	21	0	114	4	19	10	0	33	27	94	3	3	127	345	3
16:45	18	47	11	0	76	32	50	19	0	101	8	30	16	0	54	23	58	8	4	93	324	4
Total	87	158	36	0	281	122	213	71	1	407	28	83	66	0	177	94	305	24	9	432	1297	10
17:00	16	50	10	0	76	39	65	13	0	117	6	14	23	0	43	19	72	16	1	108	344	1
17:15	25	45	9	0	79	32	71	19	0	122	7	18	24	0	49	31	84	4	2	121	371	2
17:30	29	32	13	0	74	21	54	22	0	97	5	19	24	0	48	29	103	9	1	142	361	1
17:45	27	44	9	0	80	31	62	19	1	113	3	26	23	0	52	35	93	8	5	141	386	6
Total	97	171	41	0	309	123	252	73	1	449	21	77	94	0	192	114	352	37	9	512	1462	10
Grand Total	309	484	119	0	912	371	901	273	2	1547	82	296	320	0	698	341	1149	75	25	1590	4747	27
Apprch %	33.9%	53.1%	13.0%	0.0%		24.0%	58.2%	17.6%	0.1%		11.7%	42.4%	45.8%	0.0%		21.4%	72.3%	4.7%	1.6%			
Total %	6.5%	10.2%	2.5%	0.0%	19.2%	7.8%	19.0%	5.8%	0.0%	32.6%	1.7%	6.2%	6.7%	0.0%	14.7%	7.2%	24.2%	1.6%	0.5%	33.5%	100.0%	

AM PEAK HOUR	Ward Avenue Southbound					Sperry Avenue Westbound					Ward Avenue Northbound					Sperry Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 07:15 to 08:15																					
Peak Hour For Entire Intersection Begins at 07:15																					
7:15	15	14	2	0	31	13	53	26	0	92	5	14	10	0	29	16	74	5	2	97	249
7:30	31	22	5	0	58	8	68	23	0	99	6	38	40	0	84	24	116	2	0	142	383
7:45	32	19	15	0	66	24	88	14	0	126	7	22	32	0	61	20	97	2	1	120	373
8:00	10	25	4	0	39	18	53	9	0	80	4	10	14	0	28	9	48	1	2	60	207
Total Volume	88	80	26	0	194	63	262	72	0	397	22	84	96	0	202	69	335	10	5	419	1212
% App Total	45.4%	41.2%	13.4%	0.0%		15.9%	66.0%	18.1%	0.0%		10.9%	41.6%	47.5%	0.0%		16.5%	80.0%	2.4%	1.2%		
PHF	.688	.800	.433	.000	.735	.656	.744	.692	.000	.788	.786	.553	.600	.000	.601	.719	.722	.500	.625	.738	.791

PM PEAK HOUR	Ward Avenue Southbound					Sperry Avenue Westbound					Ward Avenue Northbound					Sperry Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	16	50	10	0	76	39	65	13	0	117	6	14	23	0	43	19	72	16	1	108	344
17:15	25	45	9	0	79	32	71	19	0	122	7	18	24	0	49	31	84	4	2	121	371
17:30	29	32	13	0	74	21	54	22	0	97	5	19	24	0	48	29	103	9	1	142	361
17:45	27	44	9	0	80	31	62	19	1	113	3	26	23	0	52	35	93	8	5	141	386
Total Volume	97	171	41	0	309	123	252	73	1	449	21	77	94	0	192	114	352	37	9	512	1462
% App Total	31.4%	55.3%	13.3%	0.0%		27.4%	56.1%	16.3%	0.2%		10.9%	40.1%	49.0%	0.0%		22.3%	68.8%	7.2%	1.8%		
PHF	.836	.855	.788	.000	.966	.788	.887	.830	.250	.920	.750	.740	.979	.000	.923	.814	.854	.578	.450	.901	.947

ALL TRAFFIC DATA

City of Patterson
All Vehicles & Uturns On Unshifted
Nothing On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7171-009 Del Puerto Avenue & Sperry Avenue
Date : 3/8/2016

Unshifted Count = All Vehicles & Uturns

	Del Puerto Avenue Southbound					Sperry Avenue Westbound					Del Puerto Avenue Northbound					Sperry Avenue Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	0	0	9	0	9	1	31	1	0	33	19	5	4	0	28	15	47	1	0	63	133	0
7:15	0	7	17	0	24	0	57	2	0	59	14	22	1	0	37	30	46	3	0	79	199	0
7:30	1	8	31	0	40	2	36	5	0	43	20	32	1	0	53	41	65	4	0	110	246	0
7:45	1	31	37	0	69	2	53	1	0	56	11	39	5	0	55	56	58	5	0	119	299	0
Total	2	46	94	0	142	5	177	9	0	191	64	98	11	0	173	142	216	13	0	371	877	0
8:00	0	10	26	0	36	3	49	1	0	53	5	12	0	0	17	34	38	7	0	79	185	0
8:15	0	6	18	0	24	1	45	2	0	48	7	8	8	0	23	20	32	3	0	55	150	0
8:30	0	6	23	0	29	4	39	0	0	43	4	8	5	0	17	19	49	1	0	69	158	0
8:45	0	5	20	0	25	0	40	2	0	42	5	9	5	0	19	33	39	5	0	77	163	0
Total	0	27	87	0	114	8	173	5	0	186	21	37	18	0	76	106	158	16	0	280	656	0
16:00	1	13	36	0	50	2	57	2	0	61	5	10	0	0	15	33	67	13	0	113	239	0
16:15	1	10	28	0	39	1	49	2	0	52	11	14	1	0	26	35	56	11	0	102	219	0
16:30	3	14	36	0	53	3	74	4	0	81	7	9	1	0	17	45	62	12	0	119	270	0
16:45	1	10	34	0	45	1	66	3	0	70	8	16	0	0	24	35	58	10	0	103	242	0
Total	6	47	134	0	187	7	246	11	0	264	31	49	2	0	82	148	243	46	0	437	970	0
17:00	2	17	36	0	55	4	79	5	0	88	5	9	7	0	21	23	66	15	0	104	268	0
17:15	1	15	31	0	47	5	76	1	0	82	15	12	4	0	31	37	67	11	0	115	275	0
17:30	1	12	35	0	48	5	52	1	0	58	8	10	4	0	22	47	82	19	0	148	276	0
17:45	3	21	26	0	50	4	72	4	0	80	5	7	3	0	15	44	88	13	0	145	290	0
Total	7	65	128	0	200	18	279	11	0	308	33	38	18	0	89	151	303	58	0	512	1109	0
Grand Total	15	185	443	0	643	38	875	36	0	949	149	222	49	0	420	547	920	133	0	1600	3612	0
Apprch %	2.3%	28.8%	68.9%	0.0%		4.0%	92.2%	3.8%	0.0%		35.5%	52.9%	11.7%	0.0%		34.2%	57.5%	8.3%	0.0%			
Total %	0.4%	5.1%	12.3%	0.0%	17.8%	1.1%	24.2%	1.0%	0.0%	26.3%	4.1%	6.1%	1.4%	0.0%	11.6%	15.1%	25.5%	3.7%	0.0%	44.3%	100.0%	

AM PEAK HOUR	Del Puerto Avenue Southbound					Sperry Avenue Westbound					Del Puerto Avenue Northbound					Sperry Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 07:15 to 08:15																					
Peak Hour For Entire Intersection Begins at 07:15																					
7:15	0	7	17	0	24	0	57	2	0	59	14	22	1	0	37	30	46	3	0	79	199
7:30	1	8	31	0	40	2	36	5	0	43	20	32	1	0	53	41	65	4	0	110	246
7:45	1	31	37	0	69	2	53	1	0	56	11	39	5	0	55	56	58	5	0	119	299
8:00	0	10	26	0	36	3	49	1	0	53	5	12	0	0	17	34	38	7	0	79	185
Total Volume	2	56	111	0	169	7	195	9	0	211	50	105	7	0	162	161	207	19	0	387	929
% App Total	1.2%	33.1%	65.7%	0.0%		3.3%	92.4%	4.3%	0.0%		30.9%	64.8%	4.3%	0.0%		41.6%	53.5%	4.9%	0.0%		
PHF	.500	.452	.750	.000	.612	.583	.855	.450	.000	.894	.625	.673	.350	.000	.736	.719	.796	.679	.000	.813	.777

PM PEAK HOUR	Del Puerto Avenue Southbound					Sperry Avenue Westbound					Del Puerto Avenue Northbound					Sperry Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	2	17	36	0	55	4	79	5	0	88	5	9	7	0	21	23	66	15	0	104	268
17:15	1	15	31	0	47	5	76	1	0	82	15	12	4	0	31	37	67	11	0	115	275
17:30	1	12	35	0	48	5	52	1	0	58	8	10	4	0	22	47	82	19	0	148	276
17:45	3	21	26	0	50	4	72	4	0	80	5	7	3	0	15	44	88	13	0	145	290
Total Volume	7	65	128	0	200	18	279	11	0	308	33	38	18	0	89	151	303	58	0	512	1109
% App Total	3.5%	32.5%	64.0%	0.0%		5.8%	90.6%	3.6%	0.0%		37.1%	42.7%	20.2%	0.0%		29.5%	59.2%	11.3%	0.0%		
PHF	.583	.774	.889	.000	.909	.900	.883	.550	.000	.875	.550	.792	.643	.000	.718	.803	.861	.763	.000	.865	.956

ALL TRAFFIC DATA

City of Patterson
All Vehicles & Uturns On Unshifted
Nothing On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7171-010 SR-33 & Sperry Avenue
Date : 3/8/2016

Unshifted Count = All Vehicles & Uturns

	SR-33 Southbound					Sperry Avenue Westbound					SR-33 Northbound					Sperry Avenue Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	2	22	15	0	39	2	8	1	0	11	14	28	5	0	47	19	21	7	0	47	144	0
7:15	1	22	26	0	49	2	9	2	0	13	20	39	5	0	64	17	14	6	0	37	163	0
7:30	1	33	23	0	57	1	8	1	0	10	15	58	4	0	77	24	29	7	0	60	204	0
7:45	2	34	35	0	71	1	8	1	0	10	16	65	10	0	91	24	25	7	0	56	228	0
Total	6	111	99	0	216	6	33	5	0	44	65	190	24	0	279	84	89	27	0	200	739	0
8:00	2	28	38	0	68	0	5	1	0	6	10	37	4	0	51	13	21	11	0	45	170	0
8:15	0	21	25	0	46	2	10	1	0	13	11	25	5	0	41	17	16	7	0	40	140	0
8:30	2	22	29	0	53	1	4	3	0	8	13	30	4	0	47	25	20	8	0	53	161	0
8:45	3	28	27	0	58	2	6	1	0	9	8	32	4	0	44	15	17	6	0	38	149	0
Total	7	99	119	0	225	5	25	6	0	36	42	124	17	0	183	70	74	32	0	176	620	0
16:00	1	48	35	0	84	4	18	4	0	26	14	30	8	0	52	25	32	12	0	69	231	0
16:15	3	37	33	0	73	3	4	1	0	8	11	30	3	0	44	22	21	21	0	64	189	0
16:30	3	59	49	0	111	8	9	5	0	22	20	22	2	0	44	22	18	19	0	59	236	0
16:45	2	55	43	0	100	5	7	4	0	16	20	39	6	0	65	23	24	18	0	65	246	0
Total	9	199	160	0	368	20	38	14	0	72	65	121	19	0	205	92	95	70	0	257	902	0
17:00	4	41	51	0	96	2	12	4	0	18	21	32	3	0	56	26	19	21	0	66	236	0
17:15	2	44	46	0	92	0	10	3	0	13	18	32	4	0	54	20	35	19	0	74	233	0
17:30	3	46	37	0	86	2	9	2	0	13	15	33	2	0	50	29	29	24	0	82	231	0
17:45	2	28	46	0	76	2	14	2	0	18	13	33	6	0	52	46	27	18	0	91	237	0
Total	11	159	180	0	350	6	45	11	0	62	67	130	15	0	212	121	110	82	0	313	937	0
Grand Total	33	568	558	0	1159	37	141	36	0	214	239	565	75	0	879	367	368	211	0	946	3198	0
Apprch %	2.8%	49.0%	48.1%	0.0%		17.3%	65.9%	16.8%	0.0%		27.2%	64.3%	8.5%	0.0%		38.8%	38.9%	22.3%	0.0%			
Total %	1.0%	17.8%	17.4%	0.0%	36.2%	1.2%	4.4%	1.1%	0.0%	6.7%	7.5%	17.7%	2.3%	0.0%	27.5%	11.5%	11.5%	6.6%	0.0%	29.6%	100.0%	

AM PEAK HOUR	SR-33 Southbound					Sperry Avenue Westbound					SR-33 Northbound					Sperry Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 07:15 to 08:15																					
Peak Hour For Entire Intersection Begins at 07:15																					
7:15	1	22	26	0	49	2	9	2	0	13	20	39	5	0	64	17	14	6	0	37	163
7:30	1	33	23	0	57	1	8	1	0	10	15	58	4	0	77	24	29	7	0	60	204
7:45	2	34	35	0	71	1	8	1	0	10	16	65	10	0	91	24	25	7	0	56	228
8:00	2	28	38	0	68	0	5	1	0	6	10	37	4	0	51	13	21	11	0	45	170
Total Volume	6	117	122	0	245	4	30	5	0	39	61	199	23	0	283	78	89	31	0	198	765
% App Total	2.4%	47.8%	49.8%	0.0%		10.3%	76.9%	12.8%	0.0%		21.6%	70.3%	8.1%	0.0%		39.4%	44.9%	15.7%	0.0%		
PHF	.750	.860	.803	.000	.863	.500	.833	.625	.000	.750	.763	.765	.575	.000	.777	.813	.767	.705	.000	.825	.839

PM PEAK HOUR	SR-33 Southbound					Sperry Avenue Westbound					SR-33 Northbound					Sperry Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	3	59	49	0	111	8	9	5	0	22	20	22	2	0	44	22	18	19	0	59	236
16:45	2	55	43	0	100	5	7	4	0	16	20	39	6	0	65	23	24	18	0	65	246
17:00	4	41	51	0	96	2	12	4	0	18	21	32	3	0	56	26	19	21	0	66	236
17:15	2	44	46	0	92	0	10	3	0	13	18	32	4	0	54	20	35	19	0	74	233
Total Volume	11	199	189	0	399	15	38	16	0	69	79	125	15	0	219	91	96	77	0	264	951
% App Total	2.8%	49.9%	47.4%	0.0%		21.7%	55.1%	23.2%	0.0%		36.1%	57.1%	6.8%	0.0%		34.5%	36.4%	29.2%	0.0%		
PHF	.688	.843	.926	.000	.899	.469	.792	.800	.000	.784	.940	.801	.625	.000	.842	.875	.686	.917	.000	.892	.966

Prepared by National Data & Surveying Services

CLASSIFICATION

Park Center Drive north of Sperry Avenue

Day: Tuesday
Date: 3/8/2016

City: Patterson
Project #: 16-7172-002n

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	4	1	0	3	0	0	7	0	0	0	0	0	15
01:00	0	3	1	0	1	0	0	1	0	0	0	0	0	6
02:00	0	12	0	0	3	0	0	2	2	0	0	0	0	19
03:00	0	5	2	0	1	0	0	2	0	0	0	0	0	10
04:00	0	150	14	0	5	0	0	1	1	0	0	0	0	171
05:00	1	31	4	2	9	3	0	6	1	0	0	0	0	57
06:00	0	156	8	0	16	3	0	10	1	0	0	0	0	194
07:00	0	34	7	0	16	1	0	15	2	0	0	0	0	75
08:00	0	24	1	3	7	1	0	12	5	0	1	0	0	54
09:00	0	26	4	1	8	1	0	14	4	0	0	0	0	58
10:00	0	24	6	0	5	1	0	14	5	0	0	0	0	55
11:00	0	74	6	1	12	1	0	8	9	0	0	0	0	111
12:00 PM	0	60	8	2	11	1	0	11	4	0	0	0	0	97
13:00	0	24	5	1	3	1	0	11	5	0	0	0	0	50
14:00	0	26	1	1	4	2	0	13	12	0	0	0	0	59
15:00	0	16	1	0	6	1	0	7	10	0	0	0	0	41
16:00	1	33	1	0	9	0	0	7	1	0	0	0	0	52
17:00	0	253	26	0	24	0	0	3	6	0	0	0	0	312
18:00	0	41	5	0	5	0	0	7	3	0	0	0	0	61
19:00	0	5	2	0	1	0	0	7	3	0	0	0	0	18
20:00	0	13	1	0	1	0	0	9	2	0	0	0	0	26
21:00	0	11	1	0	0	1	0	10	1	0	0	0	0	24
22:00	0	66	3	0	6	0	0	6	1	0	0	0	0	82
23:00	0	25	2	0	3	0	0	3	0	0	0	0	0	33
Totals	2	1116	110	11	159	17		186	78		1			1680
% of Totals	0%	66%	7%	1%	9%	1%		11%	5%		0%			100%

AM Volumes	1	543	54	7	86	11	0	92	30	0	1	0	0	825
% AM	0%	32%	3%	0%	5%	1%		5%	2%		0%			49%
AM Peak Hour	05:00	06:00	04:00	08:00	06:00	05:00		07:00	11:00		08:00			06:00
Volume	1	156	14	3	16	3		15	9		1			194
PM Volumes	1	573	56	4	73	6	0	94	48	0	0	0	0	855
% PM	0%	34%	3%	0%	4%	0%		6%	3%					51%
PM Peak Hour	16:00	17:00	17:00	12:00	17:00	14:00		14:00	14:00					17:00
Volume	1	253	26	2	24	2		13	12					312

Directional Peak Periods All Classes	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%
	129		8%	147		9%	364		22%	1040		62%

Classification Definitions

1 Motorcycles	**4** Buses	**7** > =4-Axle Single Units	**10** >=6-Axle Single Trailers	**13** >=7-Axle Multi-Trailers
2 Passenger Cars	**5** 2-Axle, 6-Tire Single Units	**8** <=4-Axle Single Trailers	**11** <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	**6** 3-Axle Single Units	**9** 5-Axle Single Trailers	**12** 6-Axle Multi-Trailers	

Prepared by National Data & Surveying Services

CLASSIFICATION

Park Center Drive north of Sperry Avenue

Day: Tuesday
Date: 3/8/2016

City: Patterson
Project #: 16-7172-002n

North Bound

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	1	1	0	1	0	0	3	0	0	0	0	0	6
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	3	0	0	0	0	0	2	0	0	0	0	0	5
03:00	0	4	2	0	0	0	0	1	0	0	0	0	0	7
04:00	0	35	1	0	1	0	0	1	0	0	0	0	0	38
05:00	1	22	3	0	2	3	0	3	0	0	0	0	0	34
06:00	0	143	8	0	10	2	0	9	0	0	0	0	0	172
07:00	0	31	4	0	5	1	0	11	1	0	0	0	0	53
08:00	0	22	1	1	2	1	0	9	2	0	0	0	0	38
09:00	0	18	3	0	1	1	0	6	3	0	0	0	0	32
10:00	0	17	6	0	3	1	0	8	0	0	0	0	0	35
11:00	0	32	1	1	5	1	0	6	6	0	0	0	0	52
12:00 PM	0	42	4	1	7	1	0	10	2	0	0	0	0	67
13:00	0	12	2	0	1	1	0	9	4	0	0	0	0	29
14:00	0	15	1	1	3	2	0	10	7	0	0	0	0	39
15:00	0	4	0	0	1	1	0	4	3	0	0	0	0	13
16:00	0	9	1	0	2	0	0	6	0	0	0	0	0	18
17:00	0	134	13	0	8	0	0	2	2	0	0	0	0	159
18:00	0	15	1	0	2	0	0	5	1	0	0	0	0	24
19:00	0	0	0	0	0	0	0	6	2	0	0	0	0	8
20:00	0	5	0	0	0	0	0	4	0	0	0	0	0	9
21:00	0	8	1	0	0	1	0	8	0	0	0	0	0	18
22:00	0	24	0	0	1	0	0	4	0	0	0	0	0	29
23:00	0	19	0	0	1	0	0	3	0	0	0	0	0	23
Totals	1	615	53	4	56	16		130	33					908
% of Totals	0%	68%	6%	0%	6%	2%		14%	4%					100%

AM Volumes	1	328	30	2	30	10	0	59	12	0	0	0	0	472
% AM	0%	36%	3%	0%	3%	1%		6%	1%					52%
AM Peak Hour	05:00	06:00	06:00	08:00	06:00	05:00		07:00	11:00					06:00
Volume	1	143	8	1	10	3		11	6					172
PM Volumes	0	287	23	2	26	6	0	71	21	0	0	0	0	436
% PM		32%	3%	0%	3%	1%		8%	2%					48%
PM Peak Hour		17:00	17:00	12:00	17:00	14:00		12:00	14:00					17:00
Volume		134	13	1	8	2		10	7					159

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	91	10%	96	11%	177	19%	544	60%

Classification Definitions

1 Motorcycles
2 Passenger Cars
3 2-Axle, 4-Tire Single Units
4 Buses
5 2-Axle, 6-Tire Single Units
6 3-Axle Single Units
7 > =4-Axle Single Units
8 <=4-Axle Single Trailers
9 5-Axle Single Trailers
10 >=6-Axle Single Trailers
11 <=5-Axle Multi-Trailers
12 6-Axle Multi-Trailers
13 >=7-Axle Multi-Trailers

Prepared by National Data & Surveying Services

CLASSIFICATION

Park Center Drive north of Sperry Avenue

Day: Tuesday
Date: 3/8/2016

City: Patterson
Project #: 16-7172-002ns

South Bound

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	3	0	0	2	0	0	4	0	0	0	0	0	9
01:00	0	3	1	0	1	0	0	1	0	0	0	0	0	6
02:00	0	9	0	0	3	0	0	0	2	0	0	0	0	14
03:00	0	1	0	0	1	0	0	1	0	0	0	0	0	3
04:00	0	115	13	0	4	0	0	0	1	0	0	0	0	133
05:00	0	9	1	2	7	0	0	3	1	0	0	0	0	23
06:00	0	13	0	0	6	1	0	1	1	0	0	0	0	22
07:00	0	3	3	0	11	0	0	4	1	0	0	0	0	22
08:00	0	2	0	2	5	0	0	3	3	0	1	0	0	16
09:00	0	8	1	1	7	0	0	8	1	0	0	0	0	26
10:00	0	7	0	0	2	0	0	6	5	0	0	0	0	20
11:00	0	42	5	0	7	0	0	2	3	0	0	0	0	59
12:00 PM	0	18	4	1	4	0	0	1	2	0	0	0	0	30
13:00	0	12	3	1	2	0	0	2	1	0	0	0	0	21
14:00	0	11	0	0	1	0	0	3	5	0	0	0	0	20
15:00	0	12	1	0	5	0	0	3	7	0	0	0	0	28
16:00	1	24	0	0	7	0	0	1	1	0	0	0	0	34
17:00	0	119	13	0	16	0	0	1	4	0	0	0	0	153
18:00	0	26	4	0	3	0	0	2	2	0	0	0	0	37
19:00	0	5	2	0	1	0	0	1	1	0	0	0	0	10
20:00	0	8	1	0	1	0	0	5	2	0	0	0	0	17
21:00	0	3	0	0	0	0	0	2	1	0	0	0	0	6
22:00	0	42	3	0	5	0	0	2	1	0	0	0	0	53
23:00	0	6	2	0	2	0	0	0	0	0	0	0	0	10
Totals	1	501	57	7	103	1		56	45		1			772
% of Totals	0%	65%	7%	1%	13%	0%		7%	6%		0%			100%

AM Volumes	0	215	24	5	56	1	0	33	18	0	1	0	0	353
% AM		28%	3%	1%	7%	0%		4%	2%		0%			46%
AM Peak Hour		04:00	04:00	05:00	07:00	06:00		09:00	10:00		08:00			04:00
Volume		115	13	2	11	1		8	5		1			133
PM Volumes	1	286	33	2	47	0	0	23	27	0	0	0	0	419
% PM	0%	37%	4%	0%	6%			3%	3%					54%
PM Peak Hour	16:00	17:00	17:00	12:00	17:00			20:00	15:00					17:00
Volume	1	119	13	1	16			5	7					153

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	38	5%	51	7%	187	24%	496	64%

Classification Definitions

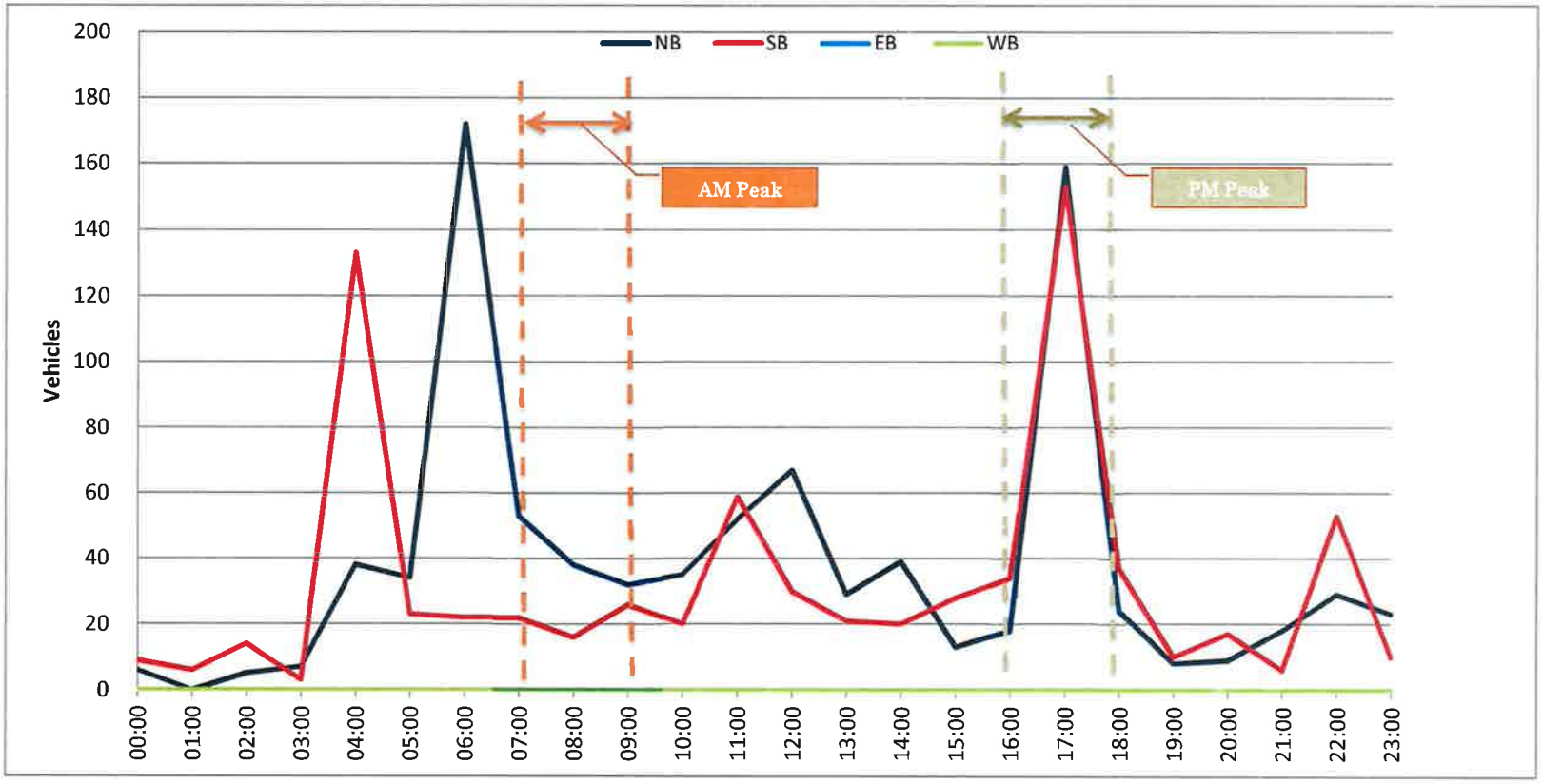
1 Motorcycles	4 Buses	7 > =4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

Prepared by NDS/ATD

Project #: 16-7172-002n **City:** Patterson

Location: Park Center Drive north of Sperry Avenue **Date:** 3/8/2016

Park Center Drive north of Sperry Avenue



Prepared by National Data & Surveying Services

CLASSIFICATION

Sperry Avenue west of Park Center Drive

Day: Tuesday
Date: 3/8/2016

City: Patterson
Project #: 16-7172-001e

East Bound

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	65	9	0	6	0	0	4	0	0	0	0	0	84
01:00	0	56	3	0	2	0	0	1	0	0	0	0	0	62
02:00	0	33	4	0	0	0	0	2	0	0	1	0	0	40
03:00	0	26	2	0	3	0	0	2	0	0	0	0	0	33
04:00	0	30	4	2	2	0	0	2	0	0	0	0	0	40
05:00	0	58	6	0	5	1	0	5	1	0	0	0	0	76
06:00	0	98	15	2	15	1	0	11	1	0	0	0	0	143
07:00	0	147	27	1	19	2	0	15	1	0	0	0	0	212
08:00	0	128	31	2	16	1	0	15	3	0	0	0	0	196
09:00	0	117	21	2	23	1	0	9	1	0	0	0	0	174
10:00	0	129	20	2	21	1	0	14	1	0	0	0	0	188
11:00	0	159	26	3	23	1	0	8	4	0	0	0	0	224
12:00 PM	0	198	40	1	36	0	0	15	3	0	0	0	0	293
13:00	1	215	37	2	29	2	0	13	3	0	0	0	0	302
14:00	1	264	45	2	31	1	0	11	7	0	0	0	0	362
15:00	1	301	52	1	45	1	0	8	1	0	0	0	0	410
16:00	2	394	65	1	48	1	0	7	2	0	0	0	0	520
17:00	2	492	68	0	59	1	0	6	2	0	0	0	0	630
18:00	1	398	55	0	47	1	0	6	2	0	0	0	0	510
19:00	3	300	30	0	33	0	0	7	2	0	0	0	0	375
20:00	0	208	23	0	23	0	0	6	2	0	0	0	0	262
21:00	1	157	20	0	17	2	0	10	1	0	0	0	0	208
22:00	0	139	17	0	8	0	0	5	0	0	0	0	0	169
23:00	0	93	5	0	9	0	0	6	0	0	1	0	0	114
Totals	12	4205	625	21	520	17		188	37		2			5627
% of Totals	0%	75%	11%	0%	9%	0%		3%	1%		0%			100%

AM Volumes	0	1046	168	14	135	8	0	88	12	0	1	0	0	1472
% AM		19%	3%	0%	2%	0%		2%	0%		0%			26%
AM Peak Hour		11:00	08:00	11:00	09:00	07:00		07:00	11:00		02:00			11:00
Volume		159	31	3	23	2		15	4		1			224
PM Volumes	12	3159	457	7	385	9	0	100	25	0	1	0	0	4155
% PM	0%	56%	8%	0%	7%	0%		2%	0%		0%			74%
PM Peak Hour	19:00	17:00	17:00	13:00	17:00	13:00		12:00	14:00		23:00			17:00
Volume	3	492	68	2	59	2		15	7		1			630

Directional Peak Periods All Classes	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%
	408		7%	595		11%	1150		20%	3474		62%

Classification Definitions

1 Motorcycles	**4** Buses	**7** > =4-Axle Single Units	**10** >=6-Axle Single Trailers	**13** >=7-Axle Multi-Trailers
2 Passenger Cars	**5** 2-Axle, 6-Tire Single Units	**8** <=4-Axle Single Trailers	**11** <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	**6** 3-Axle Single Units	**9** 5-Axle Single Trailers	**12** 6-Axle Multi-Trailers	

Prepared by National Data & Surveying Services

CLASSIFICATION

Sperry Avenue west of Park Center Drive

Day: Tuesday
Date: 3/8/2016

City: Patterson
Project #: 16-7172-001ew

West Bound

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	18	5	0	5	1	0	4	0	0	0	0	0	33
01:00	0	23	2	0	4	0	0	2	0	0	1	0	0	32
02:00	0	43	5	0	7	4	0	4	1	0	1	0	0	65
03:00	0	159	40	2	31	2	0	5	0	0	0	0	0	239
04:00	2	339	62	0	63	3	0	1	0	0	0	0	0	470
05:00	0	317	62	1	84	1	0	6	0	0	0	0	0	471
06:00	1	305	75	1	77	1	0	6	0	0	0	0	0	466
07:00	0	340	79	3	55	4	0	8	0	0	0	0	0	489
08:00	0	236	78	2	38	4	0	10	1	0	0	0	0	369
09:00	2	186	48	1	34	10	0	14	2	0	0	0	0	297
10:00	0	145	49	0	27	4	0	13	4	0	0	0	0	242
11:00	0	199	48	6	45	2	0	5	3	0	1	0	0	309
12:00 PM	0	219	47	0	43	5	0	5	3	0	0	0	0	322
13:00	2	147	30	1	28	5	0	5	3	0	0	0	0	221
14:00	0	154	31	1	30	1	0	5	6	0	0	0	0	228
15:00	3	168	41	2	28	6	0	1	7	0	0	0	0	256
16:00	0	156	37	1	30	2	0	3	3	0	0	0	0	232
17:00	0	192	37	0	37	2	0	2	6	0	0	0	0	276
18:00	0	166	40	1	27	3	0	1	1	0	0	0	0	239
19:00	0	115	18	0	14	1	0	1	1	0	0	0	0	150
20:00	0	87	23	0	15	1	0	2	2	0	0	0	0	130
21:00	0	79	14	0	8	1	0	4	0	0	0	0	0	106
22:00	0	67	17	0	9	1	0	5	0	0	0	0	0	99
23:00	0	37	8	0	3	1	0	2	0	0	0	0	0	51
Totals	10	3897	896	22	742	65		114	43		3			5792
% of Totals	0%	67%	15%	0%	13%	1%		2%	1%		0%			100%

AM Volumes	5	2310	553	16	470	36	0	78	11	0	3	0	0	3482
% AM	0%	40%	10%	0%	8%	1%		1%	0%		0%			60%
AM Peak Hour	04:00	07:00	07:00	11:00	05:00	09:00		09:00	10:00		01:00			07:00
Volume	2	340	79	6	84	10		14	4		1			489
PM Volumes	5	1587	343	6	272	29	0	36	32	0	0	0	0	2310
% PM	0%	27%	6%	0%	5%	1%		1%	1%					40%
PM Peak Hour	15:00	12:00	12:00	15:00	12:00	15:00		12:00	15:00					12:00
Volume	3	219	47	2	43	6		5	7					322

Directional Peak Periods All Classes	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%
	858	⟷	15%	543	⟷	9%	508	⟷	9%	3883	⟷	67%

Classification Definitions

1 Motorcycles
2 Passenger Cars
3 2-Axle, 4-Tire Single Units
4 Buses
5 2-Axle, 6-Tire Single Units
6 3-Axle Single Units
7 > =4-Axle Single Units
8 <=4-Axle Single Trailers
9 5-Axle Single Trailers
10 >=6-Axle Single Trailers
11 <=5-Axle Multi-Trailers
12 6-Axle Multi-Trailers
13 >=7-Axle Multi-Trailers

Prepared by National Data & Surveying Services

CLASSIFICATION

Sperry Avenue west of Park Center Drive

Day: Tuesday
Date: 3/8/2016

City: Patterson
Project #: 16-7172-001e

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	83	14	0	11	1	0	8	0	0	0	0	0	117
01:00	0	79	5	0	6	0	0	3	0	0	1	0	0	94
02:00	0	76	9	0	7	4	0	6	1	0	2	0	0	105
03:00	0	185	42	2	34	2	0	7	0	0	0	0	0	272
04:00	2	369	66	2	65	3	0	3	0	0	0	0	0	510
05:00	0	375	68	1	89	2	0	11	1	0	0	0	0	547
06:00	1	403	90	3	92	2	0	17	1	0	0	0	0	609
07:00	0	487	106	4	74	6	0	23	1	0	0	0	0	701
08:00	0	364	109	4	54	5	0	25	4	0	0	0	0	565
09:00	2	303	69	3	57	11	0	23	3	0	0	0	0	471
10:00	0	274	69	2	48	5	0	27	5	0	0	0	0	430
11:00	0	358	74	9	68	3	0	13	7	0	1	0	0	533
12:00 PM	0	417	87	1	79	5	0	20	6	0	0	0	0	615
13:00	3	362	67	3	57	7	0	18	6	0	0	0	0	523
14:00	1	418	76	3	61	2	0	16	13	0	0	0	0	590
15:00	4	469	93	3	73	7	0	9	8	0	0	0	0	666
16:00	2	550	102	2	78	3	0	10	5	0	0	0	0	752
17:00	2	684	105	0	96	3	0	8	8	0	0	0	0	906
18:00	1	564	95	1	74	4	0	7	3	0	0	0	0	749
19:00	3	415	48	0	47	1	0	8	3	0	0	0	0	525
20:00	0	295	46	0	38	1	0	8	4	0	0	0	0	392
21:00	1	236	34	0	25	3	0	14	1	0	0	0	0	314
22:00	0	206	34	0	17	1	0	10	0	0	0	0	0	268
23:00	0	130	13	0	12	1	0	8	0	0	1	0	0	165
Totals	22	8102	1521	43	1262	82		302	80		5			11419
% of Totals	0%	71%	13%	0%	11%	1%		3%	1%		0%			100%

AM Volumes	5	3356	721	30	605	44	0	166	23	0	4	0	0	4954
% AM	0%	29%	6%	0%	5%	0%		1%	0%		0%			43%
AM Peak Hour	04:00	07:00	08:00	11:00	06:00	09:00		10:00	11:00		02:00			07:00
Volume	2	487	109	9	92	11		27	7		2			701
PM Volumes	17	4746	800	13	657	38	0	136	57	0	1	0	0	6465
% PM	0%	42%	7%	0%	6%	0%		1%	0%		0%			57%
PM Peak Hour	15:00	17:00	17:00	13:00	17:00	13:00		12:00	14:00		23:00			17:00
Volume	4	684	105	3	96	7		20	13		1			906

Directional Peak Periods All Classes	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%
	1266		11%	1138		10%	1658		15%	7357		64%

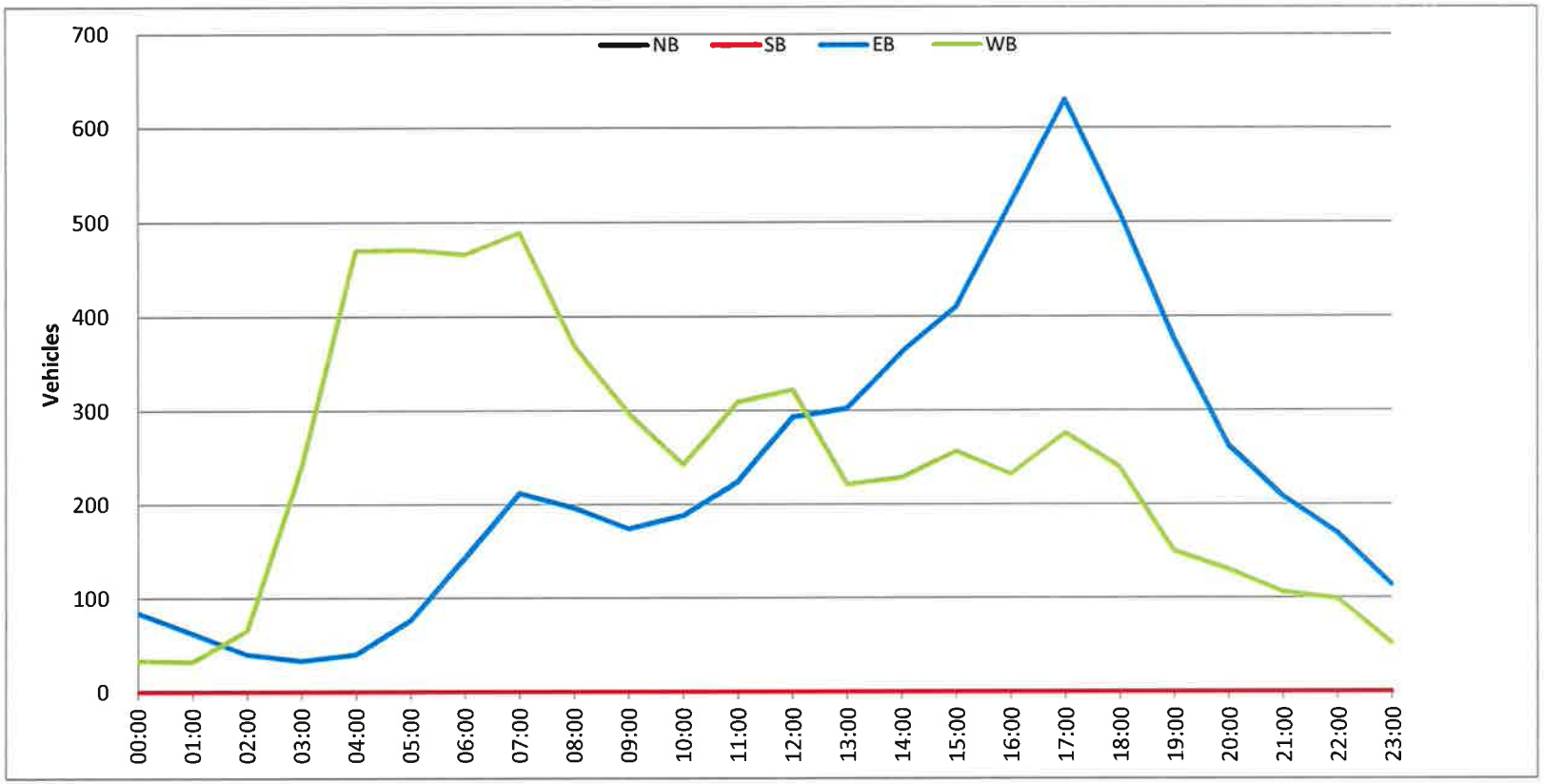
Classification Definitions

1 Motorcycles
2 Passenger Cars
3 2-Axle, 4-Tire Single Units
4 Buses
5 2-Axle, 6-Tire Single Units
6 3-Axle Single Units
7 > =4-Axle Single Units
8 <=4-Axle Single Trailers
9 5-Axle Single Trailers
10 >=6-Axle Single Trailers
11 <=5-Axle Multi-Trailers
12 6-Axle Multi-Trailers
13 >=7-Axle Multi-Trailers

Prepared by NDS/ATD

Project #: 16-7172-001e **City:** Patterson

Location: Sperry Avenue west of Park Center Drive **Date:** 3/8/2016



Prepared by National Data & Surveying Services

CLASSIFICATION

Sperry Avenue between Baldwin Road and Walker Ranch Parkway

Day: Tuesday
Date: 3/8/2016

City: Patterson
Project #: 16-7172-003e

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	82	4	0	5	0	0	0	0	0	0	0	0	91
01:00	0	63	8	0	3	0	0	1	0	0	1	0	0	76
02:00	0	70	8	0	5	1	0	4	0	0	2	0	0	90
03:00	0	130	32	2	25	0	0	5	1	0	0	0	0	195
04:00	1	371	51	2	48	2	0	3	1	0	0	0	0	479
05:00	0	275	60	0	60	1	0	8	1	0	0	0	0	405
06:00	0	403	87	2	71	1	0	8	0	0	0	0	0	572
07:00	0	483	114	1	68	2	0	13	1	0	0	0	0	682
08:00	0	347	108	2	45	1	0	14	2	0	0	0	0	519
09:00	0	288	81	1	49	2	0	10	2	0	0	0	0	433
10:00	1	302	81	0	47	0	0	15	1	0	0	0	0	447
11:00	0	384	102	4	62	3	0	8	7	0	0	0	0	570
12:00 PM	2	465	105	3	67	4	0	14	4	0	0	0	0	664
13:00	3	388	109	4	41	3	0	12	1	0	0	0	0	561
14:00	1	463	102	2	41	1	0	4	4	0	0	0	0	618
15:00	3	518	119	1	62	0	0	5	5	0	0	0	0	713
16:00	3	580	112	0	65	0	0	5	2	0	0	0	0	767
17:00	2	820	144	0	75	1	0	7	1	0	0	0	0	1050
18:00	1	568	90	1	44	1	0	2	1	0	0	0	0	708
19:00	1	408	56	0	22	0	0	3	0	0	0	0	0	490
20:00	0	270	35	0	26	0	0	1	0	0	0	0	0	332
21:00	1	214	38	0	15	1	0	4	0	0	0	0	0	273
22:00	0	194	28	0	9	0	0	2	0	0	0	0	0	233
23:00	0	140	14	0	5	0	0	3	0	0	1	0	0	163
Totals	19	8226	1688	25	960	24		151	34		4			11131
% of Totals	0%	74%	15%	0%	9%	0%		1%	0%		0%			100%
AM Volumes	2	3198	736	14	488	13	0	89	16	0	3	0	0	4559
% AM	0%	29%	7%	0%	4%	0%		1%	0%		0%			41%
AM Peak Hour	04:00	07:00	07:00	11:00	06:00	11:00		10:00	11:00		02:00			07:00
Volume	1	483	114	4	71	3		15	7		2			682
PM Volumes	17	5028	952	11	472	11	0	62	18	0	1	0	0	6572
% PM	0%	45%	9%	0%	4%	0%		1%	0%		0%			59%
PM Peak Hour	13:00	17:00	17:00	13:00	17:00	12:00		12:00	15:00		23:00			17:00
Volume	3	820	144	4	75	4		14	5		1			1050

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	1201	11%	1225	11%	1817	16%	6888	62%

Classification Definitions

1 Motorcycles	**4** Buses	**7** > =4-Axle Single Units	**10** >=6-Axle Single Trailers	**13** >=7-Axle Multi-Trailers
2 Passenger Cars	**5** 2-Axle, 6-Tire Single Units	**8** <=4-Axle Single Trailers	**11** <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	**6** 3-Axle Single Units	**9** 5-Axle Single Trailers	**12** 6-Axle Multi-Trailers	

Prepared by National Data & Surveying Services

CLASSIFICATION

Sperry Avenue between Baldwin Road and Walker Ranch Parkway

Day: Tuesday
Date: 3/8/2016

City: Patterson
Project #: 16-7172-003e

East Bound

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	58	3	0	1	0	0	0	0	0	0	0	0	62
01:00	0	44	6	0	1	0	0	1	0	0	0	0	0	52
02:00	0	33	3	0	0	0	0	0	0	0	1	0	0	37
03:00	0	15	2	0	3	0	0	1	0	0	0	0	0	21
04:00	0	120	6	2	2	0	0	1	0	0	0	0	0	131
05:00	0	41	5	0	4	0	0	4	1	0	0	0	0	55
06:00	0	72	19	1	5	0	0	3	0	0	0	0	0	100
07:00	0	167	43	0	16	2	0	8	1	0	0	0	0	237
08:00	0	138	36	1	8	0	0	10	1	0	0	0	0	194
09:00	0	130	45	1	13	0	0	6	0	0	0	0	0	195
10:00	0	153	29	0	17	0	0	7	0	0	0	0	0	206
11:00	0	198	40	1	16	1	0	6	3	0	0	0	0	265
12:00 PM	1	218	54	1	15	0	0	6	3	0	0	0	0	298
13:00	1	240	66	1	15	3	0	6	0	0	0	0	0	332
14:00	1	302	54	1	13	0	0	2	2	0	0	0	0	375
15:00	0	317	69	0	23	0	0	4	2	0	0	0	0	415
16:00	2	420	70	0	27	0	0	2	2	0	0	0	0	523
17:00	1	549	92	0	30	1	0	4	0	0	0	0	0	677
18:00	1	377	59	0	15	1	0	2	1	0	0	0	0	456
19:00	1	265	40	0	7	0	0	2	0	0	0	0	0	315
20:00	0	178	21	0	13	0	0	1	0	0	0	0	0	213
21:00	1	142	23	0	7	1	0	2	0	0	0	0	0	176
22:00	0	126	15	0	2	0	0	0	0	0	0	0	0	143
23:00	0	94	9	0	0	0	0	2	0	0	1	0	0	106
Totals	9	4397	809	9	253	9		80	16		2			5584
% of Totals	0%	79%	14%	0%	5%	0%		1%	0%		0%			100%

AM Volumes	0	1169	237	6	86	3	0	47	6	0	1	0	0	1555
% AM		21%	4%	0%	2%	0%		1%	0%		0%			28%
AM Peak Hour		11:00	09:00	04:00	10:00	07:00		08:00	11:00		02:00			11:00
Volume		198	45	2	17	2		10	3		1			265
PM Volumes	9	3228	572	3	167	6	0	33	10	0	1	0	0	4029
% PM	0%	58%	10%	0%	3%	0%		1%	0%		0%			72%
PM Peak Hour	16:00	17:00	17:00	12:00	17:00	13:00		12:00	12:00		23:00			17:00
Volume	2	549	92	1	30	3		6	3		1			677

Directional Peak Periods All Classes	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%
	431		8%	630		11%	1200		21%	3323		60%

Classification Definitions

1 Motorcycles	**4** Buses	**7** > =4-Axle Single Units	**10** >=6-Axle Single Trailers	**13** >=7-Axle Multi-Trailers
2 Passenger Cars	**5** 2-Axle, 6-Tire Single Units	**8** <=4-Axle Single Trailers	**11** <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	**6** 3-Axle Single Units	**9** 5-Axle Single Trailers	**12** 6-Axle Multi-Trailers	

Prepared by National Data & Surveying Services

CLASSIFICATION

Sperry Avenue between Baldwin Road and Walker Ranch Parkway

Day: Tuesday
Date: 3/8/2016

City: Patterson
Project #: 16-7172-003ew

West Bound

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	24	1	0	4	0	0	0	0	0	0	0	0	29
01:00	0	19	2	0	2	0	0	0	0	0	1	0	0	24
02:00	0	37	5	0	5	1	0	4	0	0	1	0	0	53
03:00	0	115	30	2	22	0	0	4	1	0	0	0	0	174
04:00	1	251	45	0	46	2	0	2	1	0	0	0	0	348
05:00	0	234	55	0	56	1	0	4	0	0	0	0	0	350
06:00	0	331	68	1	66	1	0	5	0	0	0	0	0	472
07:00	0	316	71	1	52	0	0	5	0	0	0	0	0	445
08:00	0	209	72	1	37	1	0	4	1	0	0	0	0	325
09:00	0	158	36	0	36	2	0	4	2	0	0	0	0	238
10:00	1	149	52	0	30	0	0	8	1	0	0	0	0	241
11:00	0	186	62	3	46	2	0	2	4	0	0	0	0	305
12:00 PM	1	247	51	2	52	4	0	8	1	0	0	0	0	366
13:00	2	148	43	3	26	0	0	6	1	0	0	0	0	229
14:00	0	161	48	1	28	1	0	2	2	0	0	0	0	243
15:00	3	201	50	1	39	0	0	1	3	0	0	0	0	298
16:00	1	160	42	0	38	0	0	3	0	0	0	0	0	244
17:00	1	271	52	0	45	0	0	3	1	0	0	0	0	373
18:00	0	191	31	1	29	0	0	0	0	0	0	0	0	252
19:00	0	143	16	0	15	0	0	1	0	0	0	0	0	175
20:00	0	92	14	0	13	0	0	0	0	0	0	0	0	119
21:00	0	72	15	0	8	0	0	2	0	0	0	0	0	97
22:00	0	68	13	0	7	0	0	2	0	0	0	0	0	90
23:00	0	46	5	0	5	0	0	1	0	0	0	0	0	57
Totals	10	3829	879	16	707	15		71	18		2			5547
% of Totals	0%	69%	16%	0%	13%	0%		1%	0%		0%			100%

AM Volumes	2	2029	499	8	402	10	0	42	10	0	2	0	0	3004
% AM	0%	37%	9%	0%	7%	0%		1%	0%		0%			54%
AM Peak Hour	04:00	06:00	08:00	11:00	06:00	04:00		10:00	11:00		01:00			06:00
Volume	1	331	72	3	66	2		8	4		1			472
PM Volumes	8	1800	380	8	305	5	0	29	8	0	0	0	0	2543
% PM	0%	32%	7%	0%	5%	0%		1%	0%					46%
PM Peak Hour	15:00	17:00	17:00	13:00	12:00	12:00		12:00	15:00					17:00
Volume	3	271	52	3	52	4		8	3					373

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	770	14%	595	11%	617	11%	3565	64%

Classification Definitions

1 Motorcycles	**4** Buses	**7** > =4-Axle Single Units	**10** >=6-Axle Single Trailers	**13** >=7-Axle Multi-Trailers
2 Passenger Cars	**5** 2-Axle, 6-Tire Single Units	**8** <=4-Axle Single Trailers	**11** <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	**6** 3-Axle Single Units	**9** 5-Axle Single Trailers	**12** 6-Axle Multi-Trailers	

Prepared by NDS/ATD

Project #: 16-7172-003e **City:** Patterson

Location: Sperry Avenue between Baldwin Road and **Date:** 3/8/2016

Appendix B Intersection LOS Analysis: Existing LOS Calculation Sheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	77	3	162	72	0	0	0	0	156	0	8
Future Volume (Veh/h)	0	77	3	162	72	0	0	0	0	156	0	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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)	0	82	3	172	77	0	0	0	0	166	0	9
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	77			85			514	504	84	504	506	77
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	77			85			514	504	84	504	506	77
tC, single (s)	4.1			4.3			7.1	6.5	6.2	7.3	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.2			2.4			3.5	4.0	3.3	3.7	4.0	3.5
p0 queue free %	100			88			100	100	100	59	100	99
cM capacity (veh/h)	1535			1411			426	415	981	409	414	939

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	85	249	175
Volume Left	0	172	166
Volume Right	3	0	9
cSH	1700	1411	422
Volume to Capacity	0.05	0.12	0.42
Queue Length 95th (ft)	0	10	50
Control Delay (s)	0.0	5.8	19.5
Lane LOS		A	C
Approach Delay (s)	0.0	5.8	19.5
Approach LOS			C

Intersection Summary				
Average Delay	9.5			
Intersection Capacity Utilization	35.2%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	213	0	0	226	356	8	4	162	0	0	0
Future Volume (Veh/h)	20	213	0	0	226	356	8	4	162	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	22	229	0	0	243	383	9	4	174	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					1256							
pX, platoon unblocked	0.79						0.79	0.79		0.79	0.79	0.79
vC, conflicting volume	626			229			708	899	229	884	708	434
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	391			229			494	737	229	718	494	148
tC, single (s)	4.3			4.1			7.5	6.9	6.6	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.8	4.3	3.6	3.5	4.0	3.3
p0 queue free %	97			100			97	98	76	100	100	100
cM capacity (veh/h)	852			1351			334	235	729	201	368	713

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	251	626	187
Volume Left	22	0	9
Volume Right	0	383	174
cSH	852	1700	661
Volume to Capacity	0.03	0.37	0.28
Queue Length 95th (ft)	2	0	29
Control Delay (s)	1.1	0.0	12.6
Lane LOS	A		B
Approach Delay (s)	1.1	0.0	12.6
Approach LOS			B

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	51.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	177	198	423	109	34	159
Future Volume (vph)	177	198	423	109	34	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.5	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1543	1681	1863	1553	1752	2389
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1543	1681	1863	1553	1752	2389
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	192	215	460	118	37	173
RTOR Reduction (vph)	0	0	0	77	0	152
Lane Group Flow (vph)	192	215	460	41	37	21
Heavy Vehicles (%)	17%	13%	2%	4%	3%	19%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	5	2	6		7	4
Permitted Phases				6		
Actuated Green, G (s)	11.9	38.5	20.1	20.1	7.1	7.1
Effective Green, g (s)	11.9	38.5	20.1	20.1	7.1	7.1
Actuated g/C Ratio	0.20	0.66	0.35	0.35	0.12	0.12
Clearance Time (s)	6.5	6.5	6.5	6.5	6.0	6.0
Vehicle Extension (s)	3.0	5.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	316	1113	644	537	214	291
v/s Ratio Prot	c0.12	0.13	c0.25		c0.02	0.01
v/s Ratio Perm				0.03		
v/c Ratio	0.61	0.19	0.71	0.08	0.17	0.07
Uniform Delay, d1	21.0	3.8	16.5	12.8	22.9	22.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.3	0.2	3.8	0.1	0.4	0.1
Delay (s)	24.3	4.0	20.3	12.8	23.3	22.7
Level of Service	C	A	C	B	C	C
Approach Delay (s)		13.5	18.7		22.8	
Approach LOS		B	B		C	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	58.1	Sum of lost time (s)	19.0
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	30	192	0	2	0	487	22	0	0	0	6	0
Future Volume (vph)	30	192	0	2	0	487	22	0	0	0	6	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.5			4.2	5.5					4.6	
Lane Util. Factor	0.97	1.00			0.97	1.00					1.00	
Frt	1.00	1.00			1.00	0.99					1.00	
Flt Protected	0.95	1.00			0.95	1.00					0.95	
Satd. Flow (prot)	2382	1792			3502	1859					1357	
Flt Permitted	0.95	1.00			0.95	1.00					0.95	
Satd. Flow (perm)	2382	1792			3502	1859					1357	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	32	202	0	2	0	513	23	0	0	0	6	0
RTOR Reduction (vph)	0	0	0	0	0	1	0	0	0	0	0	0
Lane Group Flow (vph)	32	202	0	0	2	535	0	0	0	0	6	0
Heavy Vehicles (%)	47%	6%	0%	0%	0%	1%	14%	0%	0%	0%	33%	0%
Turn Type	Prot	NA		Prot	Prot	NA					Perm	
Protected Phases	5	2		1	1	6						
Permitted Phases											4	
Actuated Green, G (s)	0.9	27.0			0.9	27.0					0.9	
Effective Green, g (s)	0.9	27.0			0.9	27.0					0.9	
Actuated g/C Ratio	0.02	0.63			0.02	0.63					0.02	
Clearance Time (s)	4.2	5.5			4.2	5.5					4.6	
Vehicle Extension (s)	3.0	4.0			3.0	4.0					3.0	
Lane Grp Cap (vph)	49	1122			73	1164					28	
v/s Ratio Prot	c0.01	0.11			0.00	c0.29						
v/s Ratio Perm											c0.00	
v/c Ratio	0.65	0.18			0.03	0.46					0.21	
Uniform Delay, d1	20.9	3.4			20.7	4.2					20.8	
Progression Factor	1.00	1.00			1.00	1.00					1.00	
Incremental Delay, d2	27.1	0.1			0.2	0.4					3.8	
Delay (s)	48.0	3.5			20.8	4.6					24.6	
Level of Service	D	A			C	A					C	
Approach Delay (s)		9.6				4.7			0.0			22.1
Approach LOS		A				A			A			C

Intersection Summary			
HCM 2000 Control Delay	6.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	43.1	Sum of lost time (s)	14.3
Intersection Capacity Utilization	40.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	13
Future Volume (vph)	13
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.6
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	956
Flt Permitted	1.00
Satd. Flow (perm)	956
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	14
RTOR Reduction (vph)	14
Lane Group Flow (vph)	0
Heavy Vehicles (%)	69%
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	0.9
Effective Green, g (s)	0.9
Actuated g/C Ratio	0.02
Clearance Time (s)	4.6
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	19
v/s Ratio Prot	
v/s Ratio Perm	0.00
v/c Ratio	0.02
Uniform Delay, d1	20.7
Progression Factor	1.00
Incremental Delay, d2	0.3
Delay (s)	21.0
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	32	158	12	5	13	345	73	42	52	29	55	30
Future Volume (vph)	32	158	12	5	13	345	73	42	52	29	55	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.5			4.2	5.5	5.5	4.2	4.6		4.2	4.6
Lane Util. Factor	0.97	1.00			1.00	1.00	1.00	1.00	1.00		0.97	1.00
Frt	1.00	0.99			1.00	1.00	0.85	1.00	0.95		1.00	0.88
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (prot)	3433	1843			1770	1863	1583	1770	1763		3433	1642
Flt Permitted	0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (perm)	3433	1843			1770	1863	1583	1770	1763		3433	1642
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	36	180	14	6	15	392	83	48	59	33	62	34
RTOR Reduction (vph)	0	2	0	0	0	0	50	0	15	0	0	103
Lane Group Flow (vph)	36	192	0	0	21	392	33	48	77	0	63	59
Turn Type	Prot	NA		Prot	Prot	NA	Perm	Prot	NA		Prot	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases							6					
Actuated Green, G (s)	2.8	22.6			2.9	22.7	22.7	3.7	10.4		3.2	9.9
Effective Green, g (s)	2.8	22.6			2.9	22.7	22.7	3.7	10.4		3.2	9.9
Actuated g/C Ratio	0.05	0.39			0.05	0.39	0.39	0.06	0.18		0.06	0.17
Clearance Time (s)	4.2	5.5			4.2	5.5	5.5	4.2	4.6		4.2	4.6
Vehicle Extension (s)	2.0	5.0			5.0	5.0	5.0	2.0	3.0		2.0	3.0
Lane Grp Cap (vph)	166	723			89	734	623	113	318		190	282
v/s Ratio Prot	0.01	0.10			c0.01	c0.21		c0.03	c0.04		0.02	0.04
v/s Ratio Perm							0.02					
v/c Ratio	0.22	0.27			0.24	0.53	0.05	0.42	0.24		0.33	0.21
Uniform Delay, d1	26.3	11.9			26.3	13.4	10.8	25.9	20.2		26.2	20.5
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.2	0.4			2.8	1.4	0.1	0.9	0.4		0.4	0.4
Delay (s)	26.6	12.3			29.1	14.8	10.9	26.9	20.6		26.5	20.9
Level of Service	C	B			C	B	B	C	C		C	C
Approach Delay (s)		14.5				14.7			22.8			22.5
Approach LOS		B				B			C			C

Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	57.6	Sum of lost time (s)	18.5
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	113
Future Volume (vph)	113
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.88
Adj. Flow (vph)	128
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	3	46	330	20	1	38	418	37	49	57	72	72
Future Volume (vph)	3	46	330	20	1	38	418	37	49	57	72	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5			6.5	6.5		6.5	6.5		6.5
Lane Util. Factor		1.00	0.95			1.00	0.95		1.00	1.00		1.00
Frt		1.00	0.99			1.00	0.99		1.00	0.92		1.00
Flt Protected		0.95	1.00			0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1770	3508			1770	3496		1770	1706		1770
Flt Permitted		0.95	1.00			0.95	1.00		0.62	1.00		0.66
Satd. Flow (perm)		1770	3508			1770	3496		1148	1706		1222
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	4	57	407	25	1	47	516	46	60	70	89	89
RTOR Reduction (vph)	0	0	7	0	0	0	11	0	0	72	0	0
Lane Group Flow (vph)	0	61	425	0	0	48	551	0	60	87	0	89
Turn Type	Prot	Prot	NA		Prot	Prot	NA		Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases									8			4
Actuated Green, G (s)		3.9	18.4			2.5	17.0		9.6	9.6		9.6
Effective Green, g (s)		3.9	18.4			2.5	17.0		9.6	9.6		9.6
Actuated g/C Ratio		0.08	0.37			0.05	0.34		0.19	0.19		0.19
Clearance Time (s)		6.5	6.5			6.5	6.5		6.5	6.5		6.5
Vehicle Extension (s)		3.0	4.0			3.0	4.0		3.0	3.0		3.0
Lane Grp Cap (vph)		138	1290			88	1188		220	327		234
v/s Ratio Prot		c0.03	0.12			0.03	c0.16			0.05		
v/s Ratio Perm									0.05			0.07
v/c Ratio		0.44	0.33			0.55	0.46		0.27	0.27		0.38
Uniform Delay, d1		22.0	11.4			23.2	12.9		17.2	17.2		17.6
Progression Factor		1.00	1.00			1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		2.3	0.2			6.7	0.4		0.7	0.4		1.0
Delay (s)		24.3	11.6			29.9	13.3		17.9	17.6		18.6
Level of Service		C	B			C	B		B	B		B
Approach Delay (s)			13.1				14.6			17.7		
Approach LOS			B				B			B		

Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	77	108
Future Volume (vph)	77	108
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.5	
Lane Util. Factor	1.00	
Frt	0.91	
Flt Protected	1.00	
Satd. Flow (prot)	1700	
Flt Permitted	1.00	
Satd. Flow (perm)	1700	
Peak-hour factor, PHF	0.81	0.81
Adj. Flow (vph)	95	133
RTOR Reduction (vph)	79	0
Lane Group Flow (vph)	149	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	9.6	
Effective Green, g (s)	9.6	
Actuated g/C Ratio	0.19	
Clearance Time (s)	6.5	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	326	
v/s Ratio Prot	c0.09	
v/s Ratio Perm		
v/c Ratio	0.46	
Uniform Delay, d1	17.9	
Progression Factor	1.00	
Incremental Delay, d2	1.0	
Delay (s)	18.9	
Level of Service	B	
Approach Delay (s)	18.8	
Approach LOS	B	

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	122	329	34	7	30	281	31	60	85	22	43	64
Future Volume (vph)	122	329	34	7	30	281	31	60	85	22	43	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95			1.00	0.95		1.00	1.00		1.00	1.00
Frt	1.00	0.99			1.00	0.98		1.00	0.97		1.00	0.89
Flt Protected	0.95	1.00			0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3489			1770	3486		1770	1804		1770	1666
Flt Permitted	0.42	1.00			0.49	1.00		0.45	1.00		0.67	1.00
Satd. Flow (perm)	790	3489			913	3486		829	1804		1250	1666
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	152	411	42	9	38	351	39	75	106	28	54	80
RTOR Reduction (vph)	0	10	0	0	0	12	0	0	13	0	0	118
Lane Group Flow (vph)	153	444	0	0	47	378	0	75	121	0	54	152
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA		pm+pt	NA		pm+pt	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases	2			6	6			8			4	
Actuated Green, G (s)	20.6	16.1			15.2	13.4		12.9	10.0		12.9	10.0
Effective Green, g (s)	20.6	16.1			15.2	13.4		12.9	10.0		12.9	10.0
Actuated g/C Ratio	0.44	0.34			0.32	0.29		0.28	0.21		0.28	0.21
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	441	1200			329	998		286	385		376	355
v/s Ratio Prot	c0.03	c0.13			0.01	0.11		c0.02	0.07		0.01	c0.09
v/s Ratio Perm	0.12				0.04			0.06			0.03	
v/c Ratio	0.35	0.37			0.14	0.38		0.26	0.31		0.14	0.43
Uniform Delay, d1	8.1	11.5			11.0	13.4		12.9	15.5		12.7	15.9
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	0.5	0.2			0.2	0.2		0.5	0.5		0.2	0.8
Delay (s)	8.6	11.7			11.2	13.6		13.4	16.0		12.8	16.8
Level of Service	A	B			B	B		B	B		B	B
Approach Delay (s)		10.9				13.3			15.0			16.1
Approach LOS		B				B			B			B

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	46.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	152
Future Volume (vph)	152
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.80
Adj. Flow (vph)	190
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	69	335	10	63	262	72	22	84	96	88	80
Future Volume (vph)	5	69	335	10	63	262	72	22	84	96	88	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0	6.0	6.0	4.6	6.0		4.6	6.0
Lane Util. Factor		1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	1.00	0.85	1.00	0.92		1.00	1.00
Flt Protected		0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (prot)		1770	3523		1770	3539	1583	1770	1713		1770	1863
Flt Permitted		0.54	1.00		0.46	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (perm)		1009	3523		852	3539	1583	1770	1713		1770	1863
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	6	87	424	13	80	332	91	28	106	122	111	101
RTOR Reduction (vph)	0	0	2	0	0	0	69	0	41	0	0	0
Lane Group Flow (vph)	0	93	435	0	80	332	22	28	187	0	111	101
Turn Type	pm+pt	pm+pt	NA		pm+pt	NA	Perm	Prot	NA		Prot	NA
Protected Phases	5	5	2		1	6		3	8		7	4
Permitted Phases	2	2			6		6					
Actuated Green, G (s)		23.2	17.3		22.6	17.0	17.0	2.6	17.2		7.1	21.7
Effective Green, g (s)		23.2	17.3		22.6	17.0	17.0	2.6	17.2		7.1	21.7
Actuated g/C Ratio		0.33	0.25		0.32	0.24	0.24	0.04	0.25		0.10	0.31
Clearance Time (s)		6.0	6.0		6.0	6.0	6.0	4.6	6.0		4.6	6.0
Vehicle Extension (s)		3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0
Lane Grp Cap (vph)		399	873		349	861	385	65	422		180	579
v/s Ratio Prot		c0.02	c0.12		0.02	0.09		0.02	c0.11		c0.06	c0.05
v/s Ratio Perm		0.06			0.06		0.01					
v/c Ratio		0.23	0.50		0.23	0.39	0.06	0.43	0.44		0.62	0.17
Uniform Delay, d1		16.4	22.5		16.7	22.0	20.3	32.9	22.2		30.0	17.5
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		0.3	0.9		0.3	0.6	0.1	4.5	1.5		6.2	0.3
Delay (s)		16.7	23.5		17.1	22.6	20.4	37.4	23.8		36.2	17.8
Level of Service		B	C		B	C	C	D	C		D	B
Approach Delay (s)			22.3			21.3			25.3			26.0
Approach LOS			C			C			C			C

Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	22.6
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	26
Future Volume (vph)	26
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.79
Adj. Flow (vph)	33
RTOR Reduction (vph)	23
Lane Group Flow (vph)	10
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	21.7
Effective Green, g (s)	21.7
Actuated g/C Ratio	0.31
Clearance Time (s)	6.0
Vehicle Extension (s)	5.0
Lane Grp Cap (vph)	492
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.02
Uniform Delay, d1	16.7
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	16.7
Level of Service	B
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	161	207	19	7	195	9	50	105	7	2	56	111
Future Volume (vph)	161	207	19	7	195	9	50	105	7	2	56	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			4.6			4.6	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.99			0.99			0.99			0.91	
Flt Protected		0.98			1.00			0.98			1.00	
Satd. Flow (prot)		1813			1849			1824			1697	
Flt Permitted		0.74			0.98			0.82			0.99	
Satd. Flow (perm)		1377			1820			1524			1688	
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	206	265	24	9	250	12	64	135	9	3	72	142
RTOR Reduction (vph)	0	3	0	0	2	0	0	3	0	0	112	0
Lane Group Flow (vph)	0	492	0	0	269	0	0	205	0	0	105	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		23.7			23.7			9.2			9.2	
Effective Green, g (s)		23.7			23.7			9.2			9.2	
Actuated g/C Ratio		0.55			0.55			0.21			0.21	
Clearance Time (s)		5.5			5.5			4.6			4.6	
Vehicle Extension (s)		4.0			4.0			3.0			3.0	
Lane Grp Cap (vph)		758			1003			326			361	
v/s Ratio Prot												
v/s Ratio Perm		c0.36			0.15			c0.13			0.06	
v/c Ratio		0.65			0.27			0.63			0.29	
Uniform Delay, d1		6.7			5.1			15.3			14.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.2			0.2			3.8			0.5	
Delay (s)		8.9			5.3			19.1			14.6	
Level of Service		A			A			B			B	
Approach Delay (s)		8.9			5.3			19.1			14.6	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	43.0	Sum of lost time (s)	10.1
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	89	31	4	30	5	61	199	23	6	117	122
Future Volume (Veh/h)	78	89	31	4	30	5	61	199	23	6	117	122
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	93	106	37	5	36	6	73	237	27	7	139	145
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	570	563	139	640	550	250	139			264		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	570	563	139	640	550	250	139			264		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	76	74	96	98	91	99	95			99		
cM capacity (veh/h)	384	411	909	286	418	788	1445			1300		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	236	47	337	146	145
Volume Left	93	5	73	7	0
Volume Right	37	6	27	0	145
cSH	436	461	1445	1300	1700
Volume to Capacity	0.54	0.10	0.05	0.01	0.09
Queue Length 95th (ft)	79	8	4	0	0
Control Delay (s)	22.6	14.3	2.0	0.4	0.0
Lane LOS	C	B	A	A	
Approach Delay (s)	22.6	14.3	2.0	0.2	
Approach LOS	C	B			

Intersection Summary				
Average Delay	7.4			
Intersection Capacity Utilization	46.1%	ICU Level of Service		A
Analysis Period (min)	15			

Arterial Level of Service: EB Sperry Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rogers Rd	II	45	42.0	4.2	46.2	0.53	40.9	A
Park Center Dr	II	45	43.3	3.4	46.7	0.54	41.8	A
Baldwin Rd	II	45	33.5	14.7	48.2	0.35	26.1	C
American Eagle Ave	II	45	46.0	11.9	57.9	0.52	32.5	B
Las Palmas Ave	II	45	28.3	13.3	41.6	0.29	24.8	C
Ward Ave	II	45	21.6	25.5	47.1	0.20	15.1	E
Del Puerto Ave	II	38	46.9	12.7	59.6	0.50	30.4	B
Total	II		261.6	85.7	347.3	2.93	30.3	B

Arterial Level of Service: WB Sperry Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Del Puerto Ave	II	35	48.9	7.2	56.1	0.47	30.2	B
Ward Ave	II	38	46.9	24.9	71.8	0.50	25.3	C
Las Palmas Ave	II	45	21.6	16.0	37.6	0.20	18.9	D
American Eagle Ave	II	45	28.3	15.0	43.3	0.29	23.8	C
Baldwin Rd	II	45	46.0	17.6	63.6	0.52	29.6	B
Park Center Dr	II	45	33.5	4.2	37.7	0.35	33.3	B
Rogers Rd	II	45	43.3	24.0	67.3	0.54	29.0	B
Total	II		268.5	108.9	377.4	2.87	27.4	C

Intersection: 1: I-5 SB Ramps & Sperry Ave

Movement	WB	SB
Directions Served	LT	LTR
Maximum Queue (ft)	72	131
Average Queue (ft)	16	60
95th Queue (ft)	50	102
Link Distance (ft)	297	1081
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: I-5 NB Ramps & Sperry Ave

Movement	EB	WB	NB
Directions Served	LT	TR	LTR
Maximum Queue (ft)	149	30	153
Average Queue (ft)	23	1	74
95th Queue (ft)	89	14	123
Link Distance (ft)	297	735	799
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Sperry Ave & Rogers Rd

Movement	EB	EB	WB	WB	SB	SB	SB
Directions Served	L	T	T	R	L	R	R
Maximum Queue (ft)	203	117	267	72	105	212	120
Average Queue (ft)	110	44	146	32	26	97	14
95th Queue (ft)	188	94	237	61	69	170	67
Link Distance (ft)		375	1422	1422		534	534
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	275				55		
Storage Blk Time (%)					3	31	
Queuing Penalty (veh)					2	12	

Intersection: 4: Park Center Dr & Sperry Ave

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	L	T	UL	TR	L	R
Maximum Queue (ft)	25	71	60	7	128	58	73
Average Queue (ft)	1	25	9	0	38	7	20
95th Queue (ft)	11	62	36	4	98	33	63
Link Distance (ft)			1236		1714		371
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	130	130		130		160	
Storage Blk Time (%)					0		
Queuing Penalty (veh)					0		

Intersection: 5: Baldwin Rd & Sperry Ave

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	UL	T	L	TR	L	L	TR
Maximum Queue (ft)	34	45	111	49	207	76	110	48	77	130
Average Queue (ft)	4	18	41	16	95	27	41	14	31	58
95th Queue (ft)	20	41	90	43	175	61	81	40	65	104
Link Distance (ft)			1714		2650		705			438
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	130	130		130		210		130	130	
Storage Blk Time (%)			0		2				0	0
Queuing Penalty (veh)			0		1				0	0

Intersection: 6: American Eagle Ave & Sperry Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	UL	T	TR	UL	T	TR	L	TR	L	TR
Maximum Queue (ft)	70	133	107	79	148	146	95	130	111	184
Average Queue (ft)	35	65	49	30	71	72	41	64	53	85
95th Queue (ft)	67	114	92	62	124	126	80	111	97	148
Link Distance (ft)		2650	2650		1418	1418		468		384
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	130			195			185		180	
Storage Blk Time (%)		0						0		0
Queuing Penalty (veh)		0						0		0

Intersection: 7: Las Palmas Ave & Sperry Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	UL	T	TR	L	TR	L	TR
Maximum Queue (ft)	112	171	108	67	140	152	95	116	69	174
Average Queue (ft)	53	79	34	23	58	63	36	50	29	78
95th Queue (ft)	92	142	81	54	113	121	72	93	59	136
Link Distance (ft)		1418	1418		951	951		280		333
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	200			350			115		120	
Storage Blk Time (%)		0					0	0		2
Queuing Penalty (veh)		0					0	0		1

Intersection: 8: Ward Ave & Sperry Ave

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	UL	T	TR	UL	T	T	R	L	TR	L	T	R
Maximum Queue (ft)	206	302	150	93	130	139	66	66	195	136	143	34
Average Queue (ft)	50	155	18	34	57	59	28	24	94	64	47	10
95th Queue (ft)	120	257	87	70	103	111	55	56	164	116	103	28
Link Distance (ft)		951	951		319	319			364		231	231
Upstream Blk Time (%)											0	
Queuing Penalty (veh)											0	
Storage Bay Dist (ft)	185			170			165	100		110		
Storage Blk Time (%)	0	6			0	0		0	8	4	1	
Queuing Penalty (veh)	0	5			0	0		0	2	4	1	

Intersection: 9: Del Puerto Ave & Sperry Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	311	142	158	148
Average Queue (ft)	147	63	79	58
95th Queue (ft)	262	114	135	109
Link Distance (ft)	1715	2401	340	462
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: 2nd St & Sperry Ave

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	LTR	LT
Maximum Queue (ft)	142	58	26	54	31
Average Queue (ft)	71	23	5	12	2
95th Queue (ft)	119	50	21	42	16
Link Distance (ft)	2401	319		348	340
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			50		
Storage Blk Time (%)		1			
Queuing Penalty (veh)		0			

Intersection: 33: Sperry Ave

Movement	EB	EB
Directions Served	L	L
Maximum Queue (ft)	3	33
Average Queue (ft)	0	5
95th Queue (ft)	3	24
Link Distance (ft)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	130	130
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 28

Arterial Level of Service: EB Sperry Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
I-5 SB Ramps	1	0.9	18.1	0.2	44
I-5 NB Ramps	2	3.0	8.4	0.1	30
	32	1.9	14.3	0.2	38
Rogers Rd	3	4.2	10.1	0.1	31
	33	2.1	23.1	0.3	45
Park Center Dr	4	1.2	19.6	0.3	47
Baldwin Rd	5	9.2	35.1	0.3	36
American Eagle Ave	6	12.4	42.3	0.5	45
Las Palmas Ave	7	13.7	35.9	0.3	29
Ward Ave	8	25.9	41.4	0.2	17
	35	4.4	10.8	0.1	25
	34	1.1	8.7	0.1	39
Del Puerto Ave	9	12.0	40.1	0.3	30
2nd St	10	13.0	55.0	0.5	31
Total		105.2	363.0	3.4	34

Arterial Level of Service: WB Sperry Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
2nd St	10	7.8	16.8	0.1	14
Del Puerto Ave	9	9.1	46.5	0.5	36
	34	3.4	37.8	0.3	32
	35	0.5	8.6	0.1	39
Ward Ave	8	17.0	22.6	0.1	12
Las Palmas Ave	7	14.6	29.6	0.2	24
American Eagle Ave	6	15.7	38.3	0.3	27
Baldwin Rd	5	11.7	45.6	0.5	41
Park Center Dr	4	7.5	34.2	0.3	37
	33	2.5	22.2	0.3	41
Rogers Rd	3	19.2	41.9	0.3	25
	32	4.2	11.6	0.1	27
I-5 NB Ramps	2	5.7	15.4	0.2	36
I-5 SB Ramps	1	4.0	8.6	0.1	29
Total		123.0	379.7	3.2	31

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	122	0	156	57	0	0	0	0	440	2	26
Future Volume (Veh/h)	0	122	0	156	57	0	0	0	0	440	2	26
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	133	0	170	62	0	0	0	0	478	2	28
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	62			133			564	535	133	535	535	62
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	62			133			564	535	133	535	535	62
tC, single (s)	4.1			4.3			7.1	6.5	6.2	7.3	6.7	6.4
tC, 2 stage (s)												
tF (s)	2.2			2.4			3.5	4.0	3.3	3.7	4.2	3.5
p0 queue free %	100			87			100	100	100	0	99	97
cM capacity (veh/h)	1554			1353			384	397	922	389	375	957

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	133	232	508
Volume Left	0	170	478
Volume Right	0	0	28
cSH	1700	1353	402
Volume to Capacity	0.08	0.13	1.26
Queue Length 95th (ft)	0	11	548
Control Delay (s)	0.0	6.2	165.7
Lane LOS		A	F
Approach Delay (s)	0.0	6.2	165.7
Approach LOS			F

Intersection Summary					
Average Delay	98.1				
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												
Traffic Volume (veh/h)	17	545	0	0	211	300	2	0	96	0	0	0
Future Volume (Veh/h)	17	545	0	0	211	300	2	0	96	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	18	568	0	0	220	313	2	0	100	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					1256							
pX, platoon unblocked	0.89						0.89	0.89		0.89	0.89	0.89
vC, conflicting volume	533			568			980	1137	568	1080	980	376
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	412			568			915	1092	568	1028	915	236
tC, single (s)	4.3			4.1			7.5	6.5	6.6	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.8	4.0	3.6	3.5	4.0	3.3
p0 queue free %	98			100			99	100	78	100	100	100
cM capacity (veh/h)	943			1014			192	189	460	147	239	718

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	586	533	102
Volume Left	18	0	2
Volume Right	0	313	100
cSH	943	1700	448
Volume to Capacity	0.02	0.31	0.23
Queue Length 95th (ft)	1	0	22
Control Delay (s)	0.5	0.0	15.4
Lane LOS	A		C
Approach Delay (s)	0.5	0.0	15.4
Approach LOS			C

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	55.1%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	128	513	353	132	126	158
Future Volume (vph)	128	513	353	132	126	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.5	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1752	1845	1712	1583	1805	2632
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1752	1845	1712	1583	1805	2632
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	129	518	357	133	127	160
RTOR Reduction (vph)	0	0	0	80	0	139
Lane Group Flow (vph)	129	518	357	53	127	21
Heavy Vehicles (%)	3%	3%	11%	2%	0%	8%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	5	2	6		7	4
Permitted Phases				6		
Actuated Green, G (s)	7.7	37.3	23.1	23.1	7.7	7.7
Effective Green, g (s)	7.7	37.3	23.1	23.1	7.7	7.7
Actuated g/C Ratio	0.13	0.65	0.40	0.40	0.13	0.13
Clearance Time (s)	6.5	6.5	6.5	6.5	6.0	6.0
Vehicle Extension (s)	3.0	5.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	234	1196	687	635	241	352
v/s Ratio Prot	0.07	c0.28	c0.21		c0.07	0.01
v/s Ratio Perm				0.03		
v/c Ratio	0.55	0.43	0.52	0.08	0.53	0.06
Uniform Delay, d1	23.3	4.9	13.0	10.7	23.2	21.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.8	0.5	0.7	0.1	2.1	0.1
Delay (s)	26.1	5.5	13.7	10.7	25.3	21.8
Level of Service	C	A	B	B	C	C
Approach Delay (s)		9.6	12.9		23.3	
Approach LOS		A	B		C	

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	57.5	Sum of lost time (s)	19.0
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	591	0	0	243	122	0	0	0	118	0	37
Future Volume (vph)	37	591	0	0	243	122	0	0	0	118	0	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.5			5.5					4.6		4.6
Lane Util. Factor	0.97	1.00			1.00					1.00		1.00
Frt	1.00	1.00			0.95					1.00		0.85
Flt Protected	0.95	1.00			1.00					0.95		1.00
Satd. Flow (prot)	2943	1881			1781					1787		1357
Flt Permitted	0.95	1.00			1.00					0.95		1.00
Satd. Flow (perm)	2943	1881			1781					1787		1357
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Adj. Flow (vph)	48	768	0	0	316	158	0	0	0	153	0	48
RTOR Reduction (vph)	0	0	0	0	20	0	0	0	0	0	0	41
Lane Group Flow (vph)	48	768	0	0	454	0	0	0	0	153	0	7
Heavy Vehicles (%)	19%	1%	0%	0%	2%	0%	0%	0%	0%	1%	0%	19%
Turn Type	Prot	NA		Prot	NA					Perm		Perm
Protected Phases	5	2		1	6							
Permitted Phases										4		4
Actuated Green, G (s)	2.2	35.3			28.9					8.0		8.0
Effective Green, g (s)	2.2	35.3			28.9					8.0		8.0
Actuated g/C Ratio	0.04	0.66			0.54					0.15		0.15
Clearance Time (s)	4.2	5.5			5.5					4.6		4.6
Vehicle Extension (s)	3.0	4.0			4.0					3.0		3.0
Lane Grp Cap (vph)	121	1243			963					267		203
v/s Ratio Prot	0.02	c0.41			0.26							
v/s Ratio Perm										c0.09		0.01
v/c Ratio	0.40	0.62			0.47					0.57		0.04
Uniform Delay, d1	25.0	5.2			7.5					21.1		19.4
Progression Factor	1.00	1.00			1.00					1.00		1.00
Incremental Delay, d2	2.1	1.1			0.5					3.0		0.1
Delay (s)	27.1	6.2			8.0					24.1		19.5
Level of Service	C	A			A					C		B
Approach Delay (s)		7.5			8.0			0.0			23.0	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	53.4	Sum of lost time (s)	14.3
Intersection Capacity Utilization	45.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	92	571	46	4	8	300	53	31	20	9	75	20
Future Volume (vph)	92	571	46	4	8	300	53	31	20	9	75	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.5			4.2	5.5	5.5	4.2	4.6		4.2	4.6
Lane Util. Factor	0.97	1.00			1.00	1.00	1.00	1.00	1.00		0.97	1.00
Frt	1.00	0.99			1.00	1.00	0.85	1.00	0.95		1.00	0.90
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (prot)	3433	1842			1770	1863	1583	1770	1775		3433	1670
Flt Permitted	0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (perm)	3433	1842			1770	1863	1583	1770	1775		3433	1670
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	108	672	54	5	9	353	62	36	24	11	88	24
RTOR Reduction (vph)	0	1	0	0	0	0	28	0	11	0	0	48
Lane Group Flow (vph)	108	725	0	0	14	353	34	36	24	0	88	29
Turn Type	Prot	NA		Prot	Prot	NA	Perm	Prot	NA		Prot	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases							6					
Actuated Green, G (s)	7.0	48.3			1.5	42.8	42.8	2.6	3.0		6.5	6.9
Effective Green, g (s)	7.0	48.3			1.5	42.8	42.8	2.6	3.0		6.5	6.9
Actuated g/C Ratio	0.09	0.62			0.02	0.55	0.55	0.03	0.04		0.08	0.09
Clearance Time (s)	4.2	5.5			4.2	5.5	5.5	4.2	4.6		4.2	4.6
Vehicle Extension (s)	2.0	5.0			5.0	5.0	5.0	2.0	3.0		2.0	3.0
Lane Grp Cap (vph)	308	1143			34	1024	870	59	68		286	148
v/s Ratio Prot	c0.03	c0.39			0.01	0.19		c0.02	c0.01		0.03	c0.02
v/s Ratio Perm							0.02					
v/c Ratio	0.35	0.63			0.41	0.34	0.04	0.61	0.36		0.31	0.19
Uniform Delay, d1	33.3	9.2			37.7	9.7	8.0	37.1	36.5		33.5	32.9
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.3	1.6			16.1	0.4	0.0	12.4	3.2		0.2	0.6
Delay (s)	33.5	10.8			53.8	10.1	8.1	49.5	39.7		33.8	33.5
Level of Service	C	B			D	B	A	D	D		C	C
Approach Delay (s)		13.8				11.3			44.7			33.6
Approach LOS		B				B			D			C

Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	77.8	Sum of lost time (s)	18.5
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	45
Future Volume (vph)	45
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.85
Adj. Flow (vph)	53
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	87	583	31	1	49	395	45	18	34	42	36	34
Future Volume (vph)	87	583	31	1	49	395	45	18	34	42	36	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			6.5	6.5		6.5	6.5		6.5	6.5
Lane Util. Factor	1.00	0.95			1.00	0.95		1.00	1.00		1.00	1.00
Frt	1.00	0.99			1.00	0.98		1.00	0.92		1.00	0.91
Flt Protected	0.95	1.00			0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3512			1770	3485		1770	1709		1770	1693
Flt Permitted	0.95	1.00			0.95	1.00		0.69	1.00		0.70	1.00
Satd. Flow (perm)	1770	3512			1770	3485		1287	1709		1303	1693
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	101	678	36	1	57	459	52	21	40	49	42	40
RTOR Reduction (vph)	0	5	0	0	0	12	0	0	43	0	0	55
Lane Group Flow (vph)	101	709	0	0	58	499	0	21	46	0	42	47
Turn Type	Prot	NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases								8			4	
Actuated Green, G (s)	4.2	21.3			3.9	21.0		6.0	6.0		6.0	6.0
Effective Green, g (s)	4.2	21.3			3.9	21.0		6.0	6.0		6.0	6.0
Actuated g/C Ratio	0.08	0.42			0.08	0.41		0.12	0.12		0.12	0.12
Clearance Time (s)	6.5	6.5			6.5	6.5		6.5	6.5		6.5	6.5
Vehicle Extension (s)	3.0	4.0			3.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	146	1475			136	1443		152	202		154	200
v/s Ratio Prot	c0.06	c0.20			0.03	0.14			0.03			0.03
v/s Ratio Perm								0.02			c0.03	
v/c Ratio	0.69	0.48			0.43	0.35		0.14	0.23		0.27	0.24
Uniform Delay, d1	22.6	10.7			22.3	10.2		20.0	20.2		20.4	20.3
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	13.2	0.3			2.1	0.2		0.4	0.6		1.0	0.6
Delay (s)	35.9	11.0			24.5	10.3		20.4	20.8		21.3	20.9
Level of Service	D	B			C	B		C	C		C	C
Approach Delay (s)		14.1				11.8			20.8			21.0
Approach LOS		B				B			C			C

Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	50.7	Sum of lost time (s)	19.5
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	53
Future Volume (vph)	53
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.86
Adj. Flow (vph)	62
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	179	357	114	20	64	256	22	99	102	15	41	94
Future Volume (vph)	179	357	114	20	64	256	22	99	102	15	41	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95			1.00	0.95		1.00	1.00		1.00	1.00
Frt	1.00	0.96			1.00	0.99		1.00	0.98		1.00	0.91
Flt Protected	0.95	1.00			0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3411			1770	3498		1770	1827		1770	1699
Flt Permitted	0.56	1.00			0.35	1.00		0.41	1.00		0.67	1.00
Satd. Flow (perm)	1040	3411			647	3498		761	1827		1250	1699
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	206	410	131	23	74	294	25	114	117	17	47	108
RTOR Reduction (vph)	0	44	0	0	0	9	0	0	6	0	0	67
Lane Group Flow (vph)	206	497	0	0	97	310	0	114	128	0	47	195
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA		pm+pt	NA		pm+pt	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases	2			6	6			8			4	
Actuated Green, G (s)	17.7	13.4			17.7	13.4		19.7	15.4		14.9	13.0
Effective Green, g (s)	17.7	13.4			17.7	13.4		19.7	15.4		14.9	13.0
Actuated g/C Ratio	0.35	0.26			0.35	0.26		0.39	0.30		0.29	0.25
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	422	896			319	919		379	551		384	433
v/s Ratio Prot	c0.04	c0.15			0.03	0.09		c0.03	0.07		0.00	c0.11
v/s Ratio Perm	0.13				0.08			0.09			0.03	
v/c Ratio	0.49	0.55			0.30	0.34		0.30	0.23		0.12	0.45
Uniform Delay, d1	12.3	16.2			11.6	15.2		10.5	13.4		13.1	16.0
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	0.9	0.7			0.5	0.2		0.4	0.2		0.1	0.7
Delay (s)	13.2	17.0			12.1	15.4		11.0	13.6		13.3	16.7
Level of Service	B	B			B	B		B	B		B	B
Approach Delay (s)		15.9				14.7			12.4			16.2
Approach LOS		B				B			B			B

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	51.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	134
Future Volume (vph)	134
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.87
Adj. Flow (vph)	154
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	9	114	352	37	1	123	252	73	21	77	94	97
Future Volume (vph)	9	114	352	37	1	123	252	73	21	77	94	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0			6.0	6.0	6.0	4.6	6.0		4.6
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00	1.00	1.00		1.00
Frt		1.00	0.99			1.00	1.00	0.85	1.00	0.92		1.00
Flt Protected		0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (prot)		1770	3489			1770	3539	1583	1770	1709		1770
Flt Permitted		0.58	1.00			0.49	1.00	1.00	0.95	1.00		0.95
Satd. Flow (perm)		1089	3489			905	3539	1583	1770	1709		1770
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	9	120	371	39	1	129	265	77	22	81	99	102
RTOR Reduction (vph)	0	0	8	0	0	0	0	58	0	45	0	0
Lane Group Flow (vph)	0	129	402	0	0	130	265	19	22	135	0	102
Turn Type	pm+pt	pm+pt	NA		custom	pm+pt	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2			1	6		3	8		7
Permitted Phases	2	2			1	6		6				
Actuated Green, G (s)		22.8	16.6			22.6	16.5	16.5	2.5	15.3		6.9
Effective Green, g (s)		22.8	16.6			22.6	16.5	16.5	2.5	15.3		6.9
Actuated g/C Ratio		0.34	0.25			0.33	0.24	0.24	0.04	0.23		0.10
Clearance Time (s)		6.0	6.0			6.0	6.0	6.0	4.6	6.0		4.6
Vehicle Extension (s)		3.0	5.0			3.0	5.0	5.0	3.0	5.0		3.0
Lane Grp Cap (vph)		430	858			381	865	386	65	387		180
v/s Ratio Prot		0.03	c0.12			c0.03	0.07		0.01	0.08		c0.06
v/s Ratio Perm		0.07				0.08		0.01				
v/c Ratio		0.30	0.47			0.34	0.31	0.05	0.34	0.35		0.57
Uniform Delay, d1		16.0	21.7			16.1	20.8	19.5	31.7	21.9		28.9
Progression Factor		1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		0.4	0.8			0.5	0.4	0.1	3.1	1.1		4.0
Delay (s)		16.4	22.5			16.7	21.2	19.6	34.8	23.1		32.9
Level of Service		B	C			B	C	B	C	C		C
Approach Delay (s)			21.1				19.7			24.3		
Approach LOS			C				B			C		

Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	67.5	Sum of lost time (s)	22.6
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations	↑	↱
Traffic Volume (vph)	171	41
Future Volume (vph)	171	41
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.0	6.0
Lane Util. Factor	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1863	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1863	1583
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	180	43
RTOR Reduction (vph)	0	30
Lane Group Flow (vph)	180	13
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	19.7	19.7
Effective Green, g (s)	19.7	19.7
Actuated g/C Ratio	0.29	0.29
Clearance Time (s)	6.0	6.0
Vehicle Extension (s)	5.0	5.0
Lane Grp Cap (vph)	543	462
v/s Ratio Prot	c0.10	
v/s Ratio Perm		0.01
v/c Ratio	0.33	0.03
Uniform Delay, d1	18.7	17.1
Progression Factor	1.00	1.00
Incremental Delay, d2	0.8	0.1
Delay (s)	19.5	17.1
Level of Service	B	B
Approach Delay (s)	23.4	
Approach LOS	C	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	303	58	18	279	11	33	38	18	7	65	128
Future Volume (vph)	151	303	58	18	279	11	33	38	18	7	65	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			4.6			4.6	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			1.00			0.97			0.91	
Flt Protected		0.99			1.00			0.98			1.00	
Satd. Flow (prot)		1808			1849			1779			1699	
Flt Permitted		0.80			0.96			0.84			0.99	
Satd. Flow (perm)		1462			1782			1523			1681	
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)	157	316	60	19	291	11	34	40	19	7	68	133
RTOR Reduction (vph)	0	6	0	0	2	0	0	15	0	0	107	0
Lane Group Flow (vph)	0	527	0	0	319	0	0	78	0	0	101	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		23.4			23.4			8.2			8.2	
Effective Green, g (s)		23.4			23.4			8.2			8.2	
Actuated g/C Ratio		0.56			0.56			0.20			0.20	
Clearance Time (s)		5.5			5.5			4.6			4.6	
Vehicle Extension (s)		4.0			4.0			3.0			3.0	
Lane Grp Cap (vph)		820			999			299			330	
v/s Ratio Prot												
v/s Ratio Perm		c0.36			0.18			0.05			c0.06	
v/c Ratio		0.64			0.32			0.26			0.31	
Uniform Delay, d1		6.3			4.9			14.2			14.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.9			0.3			0.5			0.5	
Delay (s)		8.2			5.1			14.6			14.8	
Level of Service		A			A			B			B	
Approach Delay (s)		8.2			5.1			14.6			14.8	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	41.7	Sum of lost time (s)	10.1
Intersection Capacity Utilization	77.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	96	77	15	38	16	79	125	15	11	199	189
Future Volume (Veh/h)	91	96	77	15	38	16	79	125	15	11	199	189
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	94	99	79	15	39	16	81	129	15	11	205	195
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	553	533	205	654	526	136	205			144		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	553	533	205	654	526	136	205			144		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	76	77	91	94	91	98	94			99		
cM capacity (veh/h)	385	423	836	268	427	912	1366			1438		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	272	70	225	216	195
Volume Left	94	15	81	11	0
Volume Right	79	16	15	0	195
cSH	475	496	1366	1438	1700
Volume to Capacity	0.57	0.14	0.06	0.01	0.11
Queue Length 95th (ft)	88	12	5	1	0
Control Delay (s)	22.3	14.4	3.1	0.4	0.0
Lane LOS	C	B	A	A	
Approach Delay (s)	22.3	14.4	3.1	0.2	
Approach LOS	C	B			

Intersection Summary				
Average Delay	8.0			
Intersection Capacity Utilization	54.4%	ICU Level of Service		A
Analysis Period (min)	15			

Arterial Level of Service: EB Sperry Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rogers Rd	II	45	42.0	7.0	49.0	0.53	38.6	A
Park Center Dr	II	45	43.3	9.2	52.5	0.54	37.2	A
Baldwin Rd	II	45	33.5	12.2	45.7	0.35	27.5	C
American Eagle Ave	II	45	46.0	12.6	58.6	0.52	32.1	B
Las Palmas Ave	II	45	28.3	17.4	45.7	0.29	22.5	C
Ward Ave	II	45	21.6	24.0	45.6	0.20	15.6	E
Del Puerto Ave	II	38	46.9	11.2	58.1	0.50	31.2	B
Total	II		261.6	93.6	355.2	2.93	29.7	B

Arterial Level of Service: WB Sperry Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Del Puerto Ave	II	35	48.9	6.3	55.2	0.47	30.7	B
Ward Ave	II	38	46.9	23.2	70.1	0.50	25.9	C
Las Palmas Ave	II	45	21.6	16.5	38.1	0.20	18.7	D
American Eagle Ave	II	45	28.3	11.7	40.0	0.29	25.8	C
Baldwin Rd	II	45	46.0	12.3	58.3	0.52	32.3	B
Park Center Dr	II	45	33.5	10.2	43.7	0.35	28.8	B
Rogers Rd	II	45	43.3	18.7	62.0	0.54	31.5	B
Total	II		268.5	98.9	367.4	2.87	28.1	B

Intersection: 1: I-5 SB Ramps & Sperry Ave

Movement	WB	SB
Directions Served	LT	LTR
Maximum Queue (ft)	73	655
Average Queue (ft)	25	312
95th Queue (ft)	62	610
Link Distance (ft)	297	1081
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: I-5 NB Ramps & Sperry Ave

Movement	EB	WB	NB
Directions Served	LT	TR	LTR
Maximum Queue (ft)	166	9	145
Average Queue (ft)	24	0	59
95th Queue (ft)	96	6	108
Link Distance (ft)	297	735	799
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Sperry Ave & Rogers Rd

Movement	EB	EB	WB	WB	SB	SB	SB
Directions Served	L	T	T	R	L	R	R
Maximum Queue (ft)	143	173	223	69	130	165	68
Average Queue (ft)	64	79	108	31	57	78	9
95th Queue (ft)	117	137	184	55	104	137	44
Link Distance (ft)		375	1422	1422		534	534
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	275				55		
Storage Blk Time (%)					14	22	
Queuing Penalty (veh)					12	28	

Intersection: 4: Park Center Dr & Sperry Ave

Movement	EB	EB	EB	WB	SB	SB
Directions Served	L	L	T	TR	L	R
Maximum Queue (ft)	43	116	252	246	153	82
Average Queue (ft)	6	30	99	92	69	30
95th Queue (ft)	27	78	193	183	120	66
Link Distance (ft)			1236	1714		371
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	130	130			160	
Storage Blk Time (%)			2	3	0	
Queuing Penalty (veh)			1	0	0	

Intersection: 5: Baldwin Rd & Sperry Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	UL	T	R	L	TR	L	L	TR
Maximum Queue (ft)	62	130	295	42	198	3	67	66	65	97	90
Average Queue (ft)	18	43	119	11	85	0	22	24	19	44	39
95th Queue (ft)	49	92	233	35	171	3	52	56	50	84	74
Link Distance (ft)			1714		2650	2650		705			438
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	130	130		130			210		130	130	
Storage Blk Time (%)			5		2					0	0
Queuing Penalty (veh)			6		0					0	0

Intersection: 6: American Eagle Ave & Sperry Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	UL	T	TR	UL	T	TR	L	TR	L	TR
Maximum Queue (ft)	127	180	162	87	129	125	59	102	72	104
Average Queue (ft)	54	81	73	32	63	60	18	47	31	46
95th Queue (ft)	100	152	135	69	111	108	50	84	64	83
Link Distance (ft)		2650	2650		1418	1418		468		384
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	130			195			185		180	
Storage Blk Time (%)	0	1								
Queuing Penalty (veh)	1	1								

Intersection: 7: Las Palmas Ave & Sperry Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	UL	T	TR	L	TR	L	TR
Maximum Queue (ft)	158	178	133	108	115	125	101	122	99	194
Average Queue (ft)	74	89	56	46	49	56	50	54	28	92
95th Queue (ft)	129	154	108	85	91	104	88	99	66	162
Link Distance (ft)		1418	1418		951	951		280		333
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	200			350			115		120	
Storage Blk Time (%)		0					0	0	0	4
Queuing Penalty (veh)		0					0	1	0	2

Intersection: 8: Ward Ave & Sperry Ave

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	UL	T	TR	UL	T	T	R	L	TR	L	T	R
Maximum Queue (ft)	163	296	186	105	118	108	54	62	153	138	165	40
Average Queue (ft)	56	140	29	48	49	42	24	19	74	59	71	13
95th Queue (ft)	114	247	99	89	93	87	48	51	131	112	132	31
Link Distance (ft)		951	951		319	319			364		231	231
Upstream Blk Time (%)											0	
Queuing Penalty (veh)											0	
Storage Bay Dist (ft)	185			170			165	100		110		
Storage Blk Time (%)		4			0				4	2	3	
Queuing Penalty (veh)		5			0				1	3	3	

Intersection: 9: Del Puerto Ave & Sperry Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	316	156	97	126
Average Queue (ft)	142	64	43	52
95th Queue (ft)	257	119	79	95
Link Distance (ft)	1715	2401	340	462
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: 2nd St & Sperry Ave

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	LTR	LT
Maximum Queue (ft)	176	60	43	68	33
Average Queue (ft)	79	27	10	16	2
95th Queue (ft)	140	51	33	48	15
Link Distance (ft)	2401	319		348	340
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			50		
Storage Blk Time (%)		1	0		
Queuing Penalty (veh)		0	0		

Intersection: 33: Sperry Ave

Movement	EB	EB
Directions Served	L	L
Maximum Queue (ft)	3	28
Average Queue (ft)	0	5
95th Queue (ft)	3	22
Link Distance (ft)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	130	130
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 64

Arterial Level of Service: EB Sperry Ave

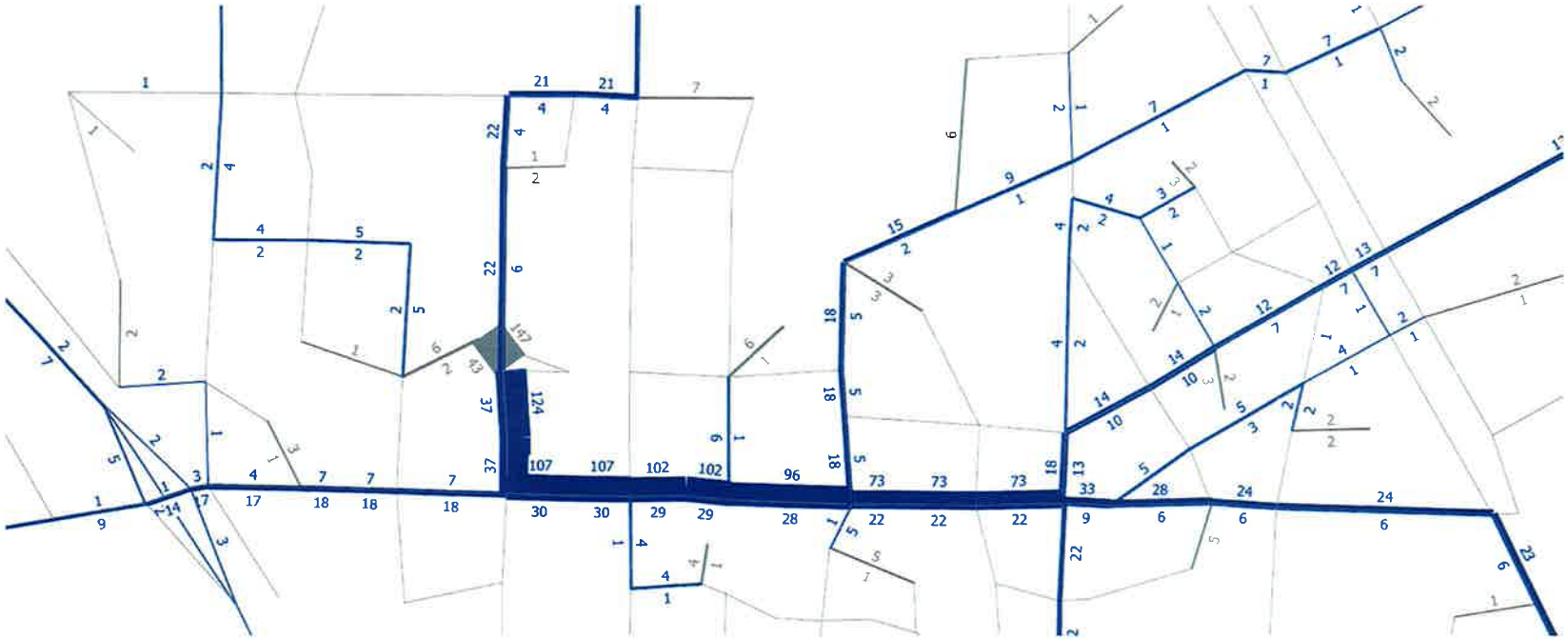
Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
I-5 SB Ramps	1	1.9	19.3	0.2	41
I-5 NB Ramps	2	2.3	7.8	0.1	32
	32	2.0	14.4	0.2	38
Rogers Rd	3	5.7	11.5	0.1	27
	33	3.3	25.4	0.3	41
Park Center Dr	4	9.0	27.4	0.3	33
Baldwin Rd	5	13.9	40.3	0.3	31
American Eagle Ave	6	13.4	53.7	0.5	35
Las Palmas Ave	7	16.5	38.7	0.3	27
Ward Ave	8	25.9	41.2	0.2	17
	35	4.2	10.5	0.1	26
	34	1.0	8.6	0.1	39
Del Puerto Ave	9	14.8	47.3	0.3	26
2nd St	10	12.1	50.2	0.5	34
Total		126.1	396.2	3.4	31

Arterial Level of Service: WB Sperry Ave

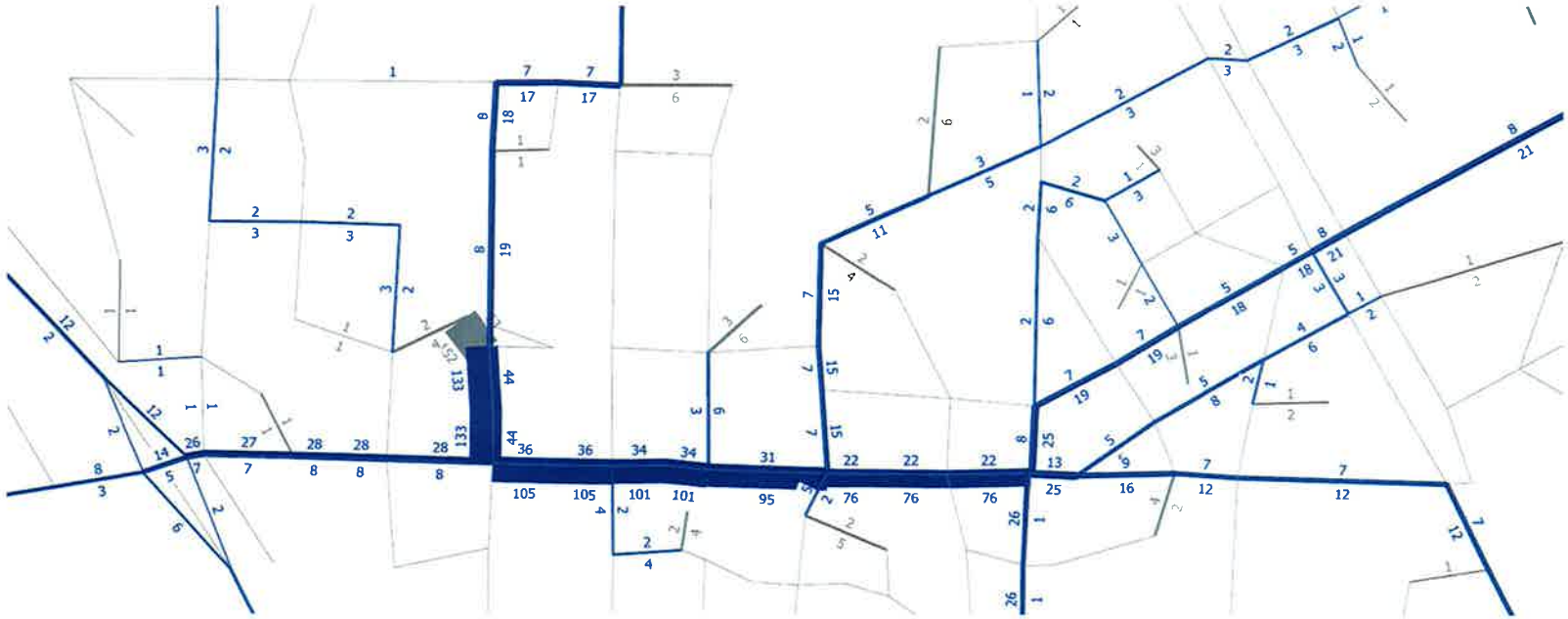
Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
2nd St	10	8.2	17.1	0.1	14
Del Puerto Ave	9	8.1	47.3	0.5	36
	34	3.3	37.7	0.3	32
	35	0.5	8.6	0.1	39
Ward Ave	8	15.8	21.5	0.1	13
Las Palmas Ave	7	15.2	29.3	0.2	24
American Eagle Ave	6	14.1	36.6	0.3	28
Baldwin Rd	5	12.1	48.4	0.5	39
Park Center Dr	4	16.0	42.3	0.3	30
	33	3.5	20.6	0.3	45
Rogers Rd	3	12.7	33.2	0.3	31
	32	3.7	11.1	0.1	28
I-5 NB Ramps	2	5.6	17.0	0.2	32
I-5 SB Ramps	1	4.7	10.4	0.1	24
Total		123.5	381.1	3.2	31

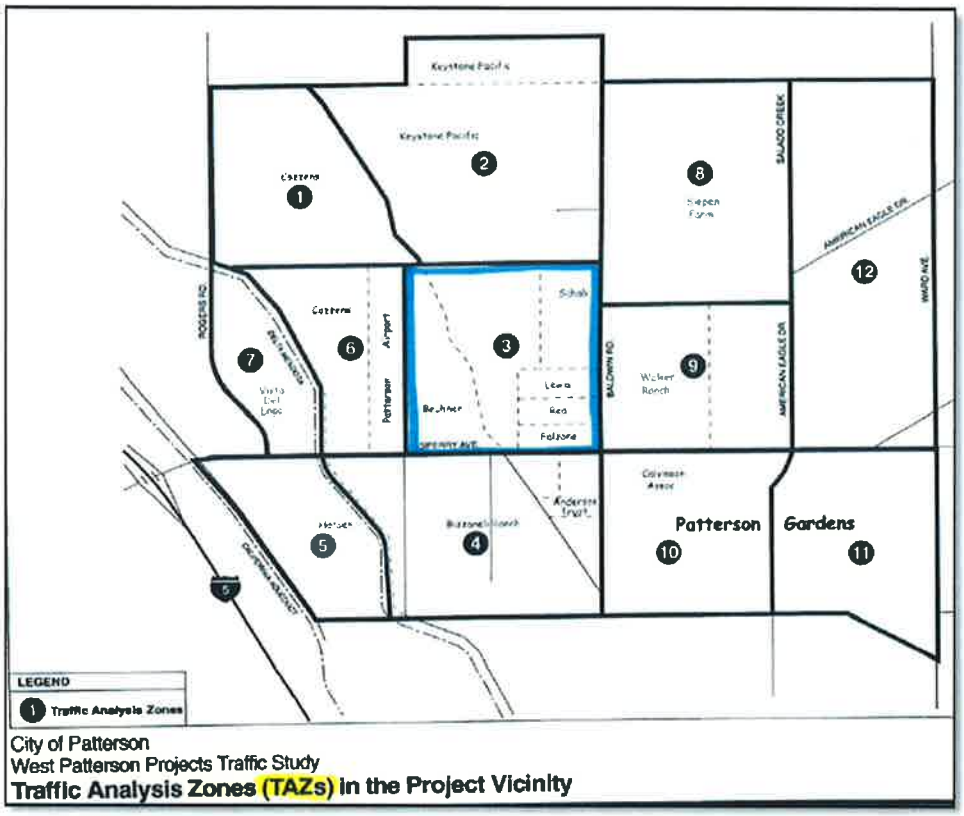
Appendix C Intersection LOS Analysis: Existing plus Project LOS Calculation Sheets

Trip Distribution -Westridge Site AM



Trip Distribution -Westridge Site PM



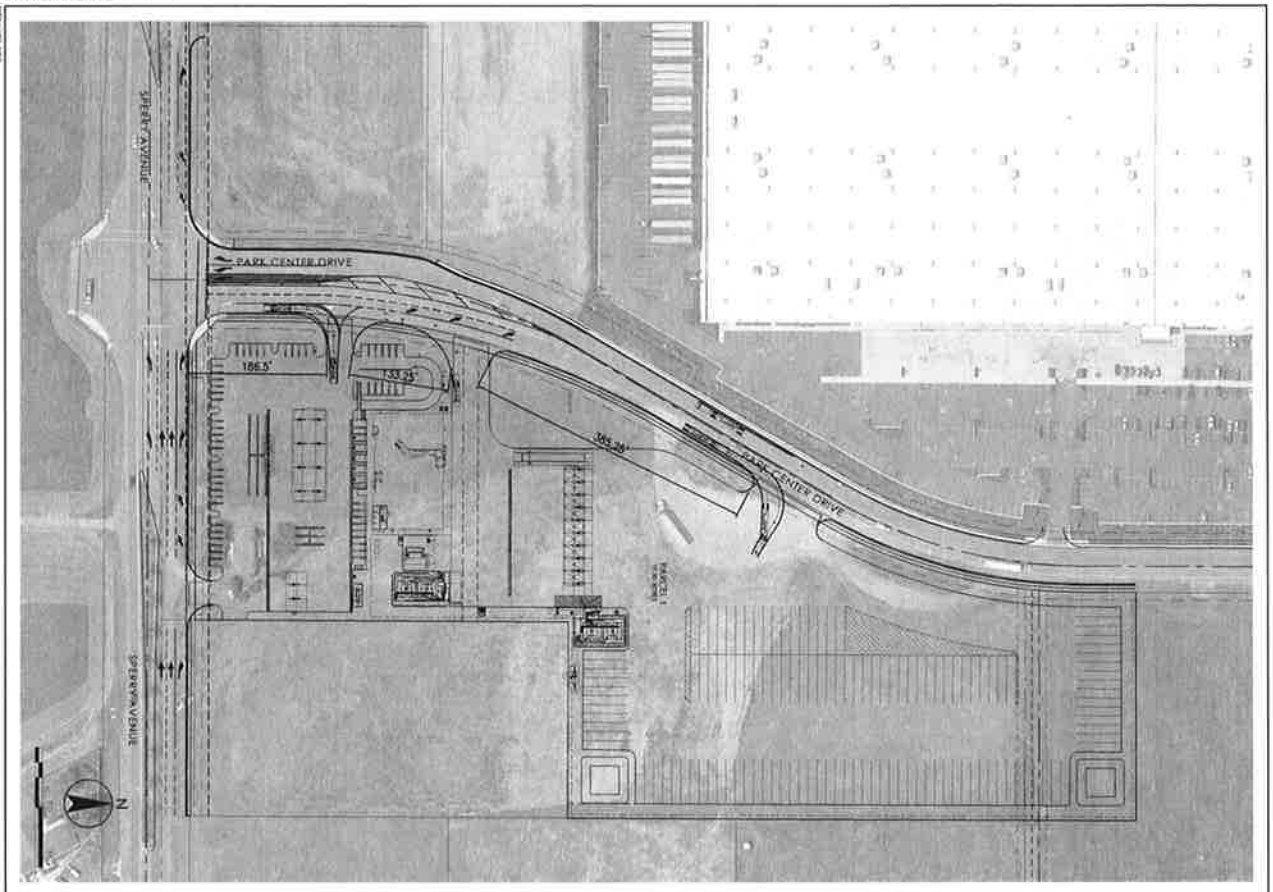


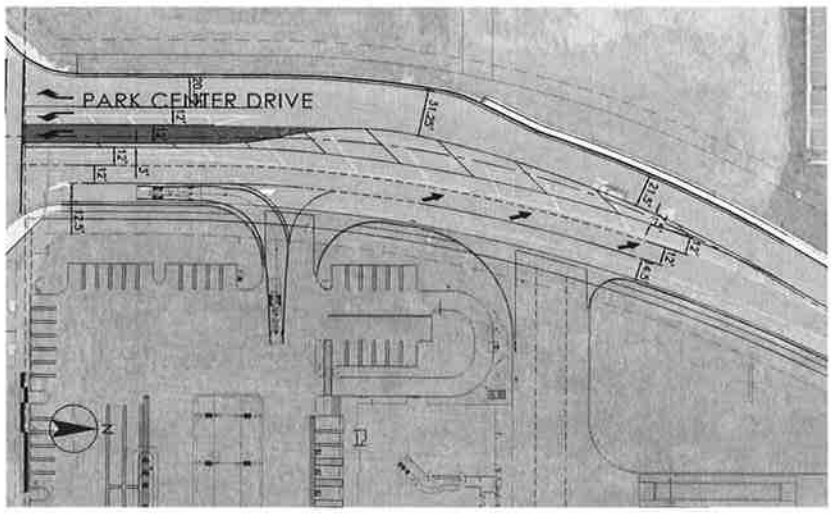
City of Patterson
West Patterson Projects Traffic Study
Traffic Analysis Zones (TAZs) in the Project Vicinity

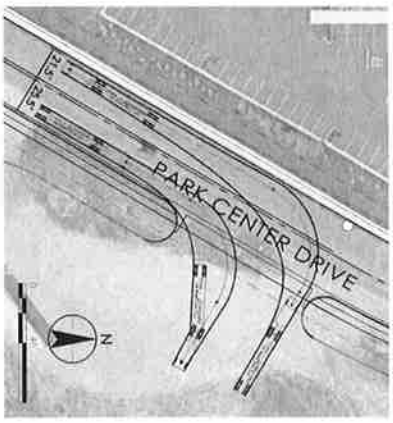
TABLE II: TRIP GENERATION FOR THE WEST PATTERSON PROJECTS

TAZs	Land Use	Name	Size	Units	Emp.	A.M. Peak Hour			P.M. Peak Hour		
						In	Out	Total	In	Out	Total
1	R & D	Cozzens north	439,085	SF	2,435	760	256	1,016	313	791	1,104
	LL Industrial		1,006,236	SF							
2	R & D	Keystone Pacific	627,264	SF	4,555	1,389	461	1,850	562	1,443	2,004
	LL Industrial		2,130,084	SF							
3	R & D	Schali, Beuhner, Lewis, Rea, Falzone	1,599,523	SF	3,178	1,098	420	1,519	513	1,160	1,672
4	R & D	Bizzanelli Ranch, Hansen east	1,704,067	SF	3,385	1,174	478	1,651	546	1,239	1,786
5	Hwy. Comm.	Hansen west	473,933	SF	1,481	641	313	954	351	664	1,015
	LL Industrial		392,040	SF							
6	R & D	Cozzens south.	606,355	SF	1,205	421	160	581	196	444	640
10	Residential	Patterson Gardens (Calvinson west)	440	du		48	170	218	187	71	258
11	Residential	Patterson Gardens (Calvinson east) and Middle School	547	du	746	410	383	793	427	453	880
	Comm./Office	GPA	302,481	SF							
		Total Trips				5,941	2,641	8,582	3,095	6,265	9,360

Note:
SF = square feet
Du = dwelling units







Client/Project
PILOT FLYING J

FLYING J TRAVEL CENTER
I-5, EXIT 434
PATTERSON, CALIFORNIA

Title

Permit-Seal

Revision

Issued

Drawing No.
Revision
Sheet
0
2 of 2

Stantec

1340 TREAT BLVD, SUITE 300
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www.stantec.com

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	77	3	176	72	0	0	0	0	166	0	8
Future Volume (Veh/h)	0	77	3	176	72	0	0	0	0	166	0	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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)	0	82	3	187	77	0	0	0	0	177	0	9
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	77			85			544	534	84	534	536	77
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	77			85			544	534	84	534	536	77
tC, single (s)	4.1			4.3			7.1	6.5	6.2	7.3	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.2			2.4			3.5	4.0	3.3	3.7	4.0	3.5
p0 queue free %	100			87			100	100	100	54	100	99
cM capacity (veh/h)	1535			1411			403	394	981	387	394	939

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	85	264	186
Volume Left	0	187	177
Volume Right	3	0	9
cSH	1700	1411	399
Volume to Capacity	0.05	0.13	0.47
Queue Length 95th (ft)	0	11	60
Control Delay (s)	0.0	5.9	21.7
Lane LOS		A	C
Approach Delay (s)	0.0	5.9	21.7
Approach LOS			C

Intersection Summary			
Average Delay	10.5		
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	223	0	0	240	365	8	4	176	0	0	0
Future Volume (Veh/h)	20	223	0	0	240	365	8	4	176	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	22	240	0	0	258	392	9	4	189	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					1256							
pX, platoon unblocked	0.77						0.77	0.77		0.77	0.77	0.77
vC, conflicting volume	650			240			738	934	240	929	738	454
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	396			240			511	765	240	759	511	142
tC, single (s)	4.3			4.1			7.5	6.9	6.6	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.8	4.3	3.6	3.5	4.0	3.3
p0 queue free %	97			100			97	98	74	100	100	100
cM capacity (veh/h)	828			1339			317	221	718	179	352	702

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	262	650	202
Volume Left	22	0	9
Volume Right	0	392	189
cSH	828	1700	652
Volume to Capacity	0.03	0.38	0.31
Queue Length 95th (ft)	2	0	33
Control Delay (s)	1.1	0.0	13.0
Lane LOS	A		B
Approach Delay (s)	1.1	0.0	13.0
Approach LOS			B

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	53.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	177	222	446	110	35	159
Future Volume (vph)	177	222	446	110	35	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.5	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1543	1681	1863	1553	1752	2389
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1543	1681	1863	1553	1752	2389
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	192	241	485	120	38	173
RTOR Reduction (vph)	0	0	0	78	0	152
Lane Group Flow (vph)	192	241	485	42	38	21
Heavy Vehicles (%)	17%	13%	2%	4%	3%	19%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	5	2	6		7	4
Permitted Phases				6		
Actuated Green, G (s)	11.7	38.8	20.6	20.6	7.0	7.0
Effective Green, g (s)	11.7	38.8	20.6	20.6	7.0	7.0
Actuated g/C Ratio	0.20	0.67	0.35	0.35	0.12	0.12
Clearance Time (s)	6.5	6.5	6.5	6.5	6.0	6.0
Vehicle Extension (s)	3.0	5.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	309	1118	658	548	210	286
v/s Ratio Prot	c0.12	0.14	c0.26		c0.02	0.01
v/s Ratio Perm				0.03		
v/c Ratio	0.62	0.22	0.74	0.08	0.18	0.07
Uniform Delay, d1	21.3	3.8	16.5	12.5	23.1	22.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.9	0.2	4.3	0.1	0.4	0.1
Delay (s)	25.1	4.0	20.8	12.6	23.5	22.9
Level of Service	C	A	C	B	C	C
Approach Delay (s)		13.4	19.2		23.0	
Approach LOS		B	B		C	

Intersection Summary				
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	58.3	Sum of lost time (s)	19.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	55	192	0	22	0	491	24	0	0	0	8	0
Future Volume (vph)	55	192	0	22	0	491	24	0	0	0	8	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.5			4.2	5.5					4.6	
Lane Util. Factor	0.97	1.00			0.97	1.00					1.00	
Frt	1.00	1.00			1.00	0.99					1.00	
Flt Protected	0.95	1.00			0.95	1.00					0.95	
Satd. Flow (prot)	2382	1792			3502	1857					1357	
Flt Permitted	0.95	1.00			0.95	1.00					0.95	
Satd. Flow (perm)	2382	1792			3502	1857					1357	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	58	202	0	23	0	517	25	0	0	0	8	0
RTOR Reduction (vph)	0	0	0	0	0	2	0	0	0	0	0	0
Lane Group Flow (vph)	58	202	0	0	23	540	0	0	0	0	8	0
Heavy Vehicles (%)	47%	6%	0%	0%	0%	1%	14%	0%	0%	0%	33%	0%
Turn Type	Prot	NA		Prot	Prot	NA					Perm	
Protected Phases	5	2		1	1	6						
Permitted Phases											4	
Actuated Green, G (s)	1.9	28.3			0.9	27.3					2.0	
Effective Green, g (s)	1.9	28.3			0.9	27.3					2.0	
Actuated g/C Ratio	0.04	0.62			0.02	0.60					0.04	
Clearance Time (s)	4.2	5.5			4.2	5.5					4.6	
Vehicle Extension (s)	3.0	4.0			3.0	4.0					3.0	
Lane Grp Cap (vph)	99	1114			69	1114					59	
v/s Ratio Prot	c0.02	0.11			0.01	c0.29						
v/s Ratio Perm											c0.01	
v/c Ratio	0.59	0.18			0.33	0.49					0.14	
Uniform Delay, d1	21.4	3.7			22.0	5.1					20.9	
Progression Factor	1.00	1.00			1.00	1.00					1.00	
Incremental Delay, d2	8.6	0.1			2.8	0.5					1.1	
Delay (s)	30.0	3.8			24.8	5.6					22.0	
Level of Service	C	A			C	A					C	
Approach Delay (s)		9.6				6.4			0.0			21.3
Approach LOS		A				A			A			C

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	45.5	Sum of lost time (s)	14.3
Intersection Capacity Utilization	40.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	33
Future Volume (vph)	33
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.6
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	956
Flt Permitted	1.00
Satd. Flow (perm)	956
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	35
RTOR Reduction (vph)	33
Lane Group Flow (vph)	2
Heavy Vehicles (%)	69%
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	2.0
Effective Green, g (s)	2.0
Actuated g/C Ratio	0.04
Clearance Time (s)	4.6
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	42
v/s Ratio Prot	
v/s Ratio Perm	0.00
v/c Ratio	0.04
Uniform Delay, d1	20.8
Progression Factor	1.00
Incremental Delay, d2	0.4
Delay (s)	21.2
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	32	180	12	5	13	370	73	42	52	29	55	30
Future Volume (vph)	32	180	12	5	13	370	73	42	52	29	55	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.5			4.2	5.5	5.5	4.2	4.6		4.2	4.6
Lane Util. Factor	0.97	1.00			1.00	1.00	1.00	1.00	1.00		0.97	1.00
Frt	1.00	0.99			1.00	1.00	0.85	1.00	0.95		1.00	0.88
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (prot)	3433	1845			1770	1863	1583	1770	1763		3433	1640
Flt Permitted	0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (perm)	3433	1845			1770	1863	1583	1770	1763		3433	1640
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	36	205	14	6	15	420	83	48	59	33	62	34
RTOR Reduction (vph)	0	2	0	0	0	0	48	0	28	0	0	112
Lane Group Flow (vph)	36	217	0	0	21	420	35	48	64	0	63	56
Turn Type	Prot	NA		Prot	Prot	NA	Perm	Prot	NA		Prot	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases							6					
Actuated Green, G (s)	1.8	24.2			0.9	23.3	23.3	3.0	9.0		3.2	9.2
Effective Green, g (s)	1.8	24.2			0.9	23.3	23.3	3.0	9.0		3.2	9.2
Actuated g/C Ratio	0.03	0.43			0.02	0.42	0.42	0.05	0.16		0.06	0.16
Clearance Time (s)	4.2	5.5			4.2	5.5	5.5	4.2	4.6		4.2	4.6
Vehicle Extension (s)	2.0	5.0			5.0	5.0	5.0	2.0	3.0		2.0	3.0
Lane Grp Cap (vph)	110	800			28	777	661	95	284		196	270
v/s Ratio Prot	0.01	0.12			c0.01	c0.23		c0.03	c0.04		0.02	0.03
v/s Ratio Perm							0.02					
v/c Ratio	0.33	0.27			0.75	0.54	0.05	0.51	0.23		0.32	0.21
Uniform Delay, d1	26.4	10.1			27.3	12.2	9.7	25.7	20.4		25.3	20.1
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.6	0.4			81.6	1.4	0.1	1.5	0.4		0.3	0.4
Delay (s)	27.0	10.5			108.9	13.6	9.7	27.2	20.8		25.6	20.5
Level of Service	C	B			F	B	A	C	C		C	C
Approach Delay (s)		12.9				16.8			23.0			21.9
Approach LOS		B				B			C			C

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	55.8	Sum of lost time (s)	18.5
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	118
Future Volume (vph)	118
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.88
Adj. Flow (vph)	134
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	3	46	352	20	1	38	443	37	49	57	72	72
Future Volume (vph)	3	46	352	20	1	38	443	37	49	57	72	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5			6.5	6.5		6.5	6.5		6.5
Lane Util. Factor		1.00	0.95			1.00	0.95		1.00	1.00		1.00
Frt		1.00	0.99			1.00	0.99		1.00	0.92		1.00
Flt Protected		0.95	1.00			0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1770	3510			1770	3498		1770	1706		1770
Flt Permitted		0.95	1.00			0.95	1.00		0.62	1.00		0.66
Satd. Flow (perm)		1770	3510			1770	3498		1148	1706		1222
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	4	57	435	25	1	47	547	46	60	70	89	89
RTOR Reduction (vph)	0	0	6	0	0	0	9	0	0	71	0	0
Lane Group Flow (vph)	0	61	454	0	0	48	584	0	60	88	0	89
Turn Type	Prot	Prot	NA		Prot	Prot	NA		Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases									8			4
Actuated Green, G (s)		3.2	18.0			1.9	16.7		9.9	9.9		9.9
Effective Green, g (s)		3.2	18.0			1.9	16.7		9.9	9.9		9.9
Actuated g/C Ratio		0.06	0.37			0.04	0.34		0.20	0.20		0.20
Clearance Time (s)		6.5	6.5			6.5	6.5		6.5	6.5		6.5
Vehicle Extension (s)		3.0	4.0			3.0	4.0		3.0	3.0		3.0
Lane Grp Cap (vph)		114	1281			68	1184		230	342		245
v/s Ratio Prot		c0.03	0.13			0.03	c0.17			0.05		
v/s Ratio Perm									0.05			0.07
v/c Ratio		0.54	0.35			0.71	0.49		0.26	0.26		0.36
Uniform Delay, d1		22.3	11.4			23.4	12.9		16.6	16.6		17.0
Progression Factor		1.00	1.00			1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		4.8	0.2			28.3	0.4		0.6	0.4		0.9
Delay (s)		27.1	11.6			51.7	13.4		17.2	17.0		17.9
Level of Service		C	B			D	B		B	B		B
Approach Delay (s)			13.5				16.3			17.1		
Approach LOS			B				B			B		

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	49.3	Sum of lost time (s)	19.5
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	77	108
Future Volume (vph)	77	108
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.5	
Lane Util. Factor	1.00	
Frt	0.91	
Flt Protected	1.00	
Satd. Flow (prot)	1700	
Flt Permitted	1.00	
Satd. Flow (perm)	1700	
Peak-hour factor, PHF	0.81	0.81
Adj. Flow (vph)	95	133
RTOR Reduction (vph)	84	0
Lane Group Flow (vph)	144	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	9.9	
Effective Green, g (s)	9.9	
Actuated g/C Ratio	0.20	
Clearance Time (s)	6.5	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	341	
v/s Ratio Prot	c0.08	
v/s Ratio Perm		
v/c Ratio	0.42	
Uniform Delay, d1	17.2	
Progression Factor	1.00	
Incremental Delay, d2	0.8	
Delay (s)	18.1	
Level of Service	B	
Approach Delay (s)	18.0	
Approach LOS	B	

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	122	351	34	7	30	306	31	60	85	22	43	64
Future Volume (vph)	122	351	34	7	30	306	31	60	85	22	43	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95			1.00	0.95		1.00	1.00		1.00	1.00
Frt	1.00	0.99			1.00	0.99		1.00	0.97		1.00	0.89
Flt Protected	0.95	1.00			0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3492			1770	3490		1770	1804		1770	1666
Flt Permitted	0.40	1.00			0.48	1.00		0.44	1.00		0.67	1.00
Satd. Flow (perm)	750	3492			888	3490		818	1804		1250	1666
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	152	439	42	9	38	382	39	75	106	28	54	80
RTOR Reduction (vph)	0	9	0	0	0	11	0	0	13	0	0	118
Lane Group Flow (vph)	153	473	0	0	47	411	0	75	121	0	54	152
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA		pm+pt	NA		pm+pt	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases	2			6	6			8			4	
Actuated Green, G (s)	21.3	16.8			15.9	14.1		13.0	10.1		13.0	10.1
Effective Green, g (s)	21.3	16.8			15.9	14.1		13.0	10.1		13.0	10.1
Actuated g/C Ratio	0.45	0.35			0.33	0.30		0.27	0.21		0.27	0.21
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	432	1232			329	1033		281	382		373	353
v/s Ratio Prot	c0.03	c0.14			0.01	0.12		c0.02	0.07		0.01	c0.09
v/s Ratio Perm	0.12				0.04			0.06			0.03	
v/c Ratio	0.35	0.38			0.14	0.40		0.27	0.32		0.14	0.43
Uniform Delay, d1	8.1	11.5			10.8	13.4		13.2	15.8		13.0	16.3
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	0.5	0.2			0.2	0.3		0.5	0.5		0.2	0.8
Delay (s)	8.6	11.7			11.0	13.6		13.7	16.3		13.2	17.1
Level of Service	A	B			B	B		B	B		B	B
Approach Delay (s)		11.0				13.4			15.4			16.4
Approach LOS		B				B			B			B

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	47.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	152
Future Volume (vph)	152
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.80
Adj. Flow (vph)	190
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	73	352	11	63	281	72	24	84	96	88	80
Future Volume (vph)	5	73	352	11	63	281	72	24	84	96	88	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0	6.0	6.0	4.6	6.0		4.6	6.0
Lane Util. Factor		1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	1.00	0.85	1.00	0.92		1.00	1.00
Flt Protected		0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (prot)		1770	3523		1770	3539	1583	1770	1713		1770	1863
Flt Permitted		0.54	1.00		0.44	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (perm)		1004	3523		810	3539	1583	1770	1713		1770	1863
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	6	92	446	14	80	356	91	30	106	122	111	101
RTOR Reduction (vph)	0	0	2	0	0	0	67	0	44	0	0	0
Lane Group Flow (vph)	0	98	458	0	80	356	24	30	184	0	111	101
Turn Type	pm+pt	pm+pt	NA		pm+pt	NA	Perm	Prot	NA		Prot	NA
Protected Phases	5	5	2		1	6		3	8		7	4
Permitted Phases	2	2			6		6					
Actuated Green, G (s)		22.0	17.7		22.0	17.7	17.7	2.0	16.9		7.0	21.9
Effective Green, g (s)		22.0	17.7		22.0	17.7	17.7	2.0	16.9		7.0	21.9
Actuated g/C Ratio		0.32	0.26		0.32	0.26	0.26	0.03	0.25		0.10	0.32
Clearance Time (s)		6.0	6.0		6.0	6.0	6.0	4.6	6.0		4.6	6.0
Vehicle Extension (s)		3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0
Lane Grp Cap (vph)		370	910		320	914	409	51	422		180	595
v/s Ratio Prot		c0.02	c0.13		0.02	0.10		0.02	c0.11		c0.06	0.05
v/s Ratio Perm		0.07			0.06		0.01					
v/c Ratio		0.26	0.50		0.25	0.39	0.06	0.59	0.44		0.62	0.17
Uniform Delay, d1		16.7	21.7		16.6	20.9	19.1	32.8	21.8		29.5	16.8
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		0.4	0.9		0.4	0.6	0.1	16.1	1.5		6.2	0.3
Delay (s)		17.1	22.6		17.0	21.5	19.2	49.0	23.3		35.6	17.0
Level of Service		B	C		B	C	B	D	C		D	B
Approach Delay (s)			21.6			20.4			26.3			25.1
Approach LOS			C			C			C			C

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	68.5	Sum of lost time (s)	22.6
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	30
Future Volume (vph)	30
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.79
Adj. Flow (vph)	38
RTOR Reduction (vph)	26
Lane Group Flow (vph)	12
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	21.9
Effective Green, g (s)	21.9
Actuated g/C Ratio	0.32
Clearance Time (s)	6.0
Vehicle Extension (s)	5.0
Lane Grp Cap (vph)	506
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.02
Uniform Delay, d1	16.0
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	16.0
Level of Service	B
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	161	224	19	7	214	9	50	105	7	2	56	111
Future Volume (vph)	161	224	19	7	214	9	50	105	7	2	56	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			4.6			4.6	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.99			0.99			0.99			0.91	
Flt Protected		0.98			1.00			0.98			1.00	
Satd. Flow (prot)		1815			1850			1824			1697	
Flt Permitted		0.74			0.98			0.82			0.99	
Satd. Flow (perm)		1374			1822			1510			1688	
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	206	287	24	9	274	12	64	135	9	3	72	142
RTOR Reduction (vph)	0	2	0	0	2	0	0	3	0	0	112	0
Lane Group Flow (vph)	0	515	0	0	293	0	0	205	0	0	105	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		24.8			24.8			9.3			9.3	
Effective Green, g (s)		24.8			24.8			9.3			9.3	
Actuated g/C Ratio		0.56			0.56			0.21			0.21	
Clearance Time (s)		5.5			5.5			4.6			4.6	
Vehicle Extension (s)		4.0			4.0			3.0			3.0	
Lane Grp Cap (vph)		770			1022			317			355	
v/s Ratio Prot												
v/s Ratio Perm		c0.37			0.16			c0.14			0.06	
v/c Ratio		0.67			0.29			0.65			0.30	
Uniform Delay, d1		6.8			5.1			15.9			14.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.4			0.2			4.5			0.5	
Delay (s)		9.2			5.3			20.4			15.2	
Level of Service		A			A			C			B	
Approach Delay (s)		9.2			5.3			20.4			15.2	
Approach LOS		A			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	44.2	Sum of lost time (s)	10.1
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	89	36	4	30	5	67	199	23	6	117	135
Future Volume (Veh/h)	90	89	36	4	30	5	67	199	23	6	117	135
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	107	106	43	5	36	6	80	237	27	7	139	161
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	584	577	139	660	564	250	139			264		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	584	577	139	660	564	250	139			264		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	71	74	95	98	91	99	94			99		
cM capacity (veh/h)	373	402	909	273	409	788	1445			1300		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	256	47	344	146	161
Volume Left	107	5	80	7	0
Volume Right	43	6	27	0	161
cSH	428	450	1445	1300	1700
Volume to Capacity	0.60	0.10	0.06	0.01	0.09
Queue Length 95th (ft)	95	9	4	0	0
Control Delay (s)	25.1	14.5	2.2	0.4	0.0
Lane LOS	D	B	A	A	
Approach Delay (s)	25.1	14.5	2.2	0.2	
Approach LOS	D	B			

Intersection Summary				
Average Delay	8.3			
Intersection Capacity Utilization	47.4%	ICU Level of Service		A
Analysis Period (min)	15			

Arterial Level of Service: EB Sperry Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rogers Rd	II	45	42.0	4.4	46.4	0.53	40.8	A
Park Center Dr	II	45	43.3	4.4	47.7	0.54	40.9	A
Baldwin Rd	II	45	33.5	11.1	44.6	0.35	28.2	B
American Eagle Ave	II	45	46.0	12.0	58.0	0.52	32.4	B
Las Palmas Ave	II	45	28.3	13.3	41.6	0.29	24.8	C
Ward Ave	II	45	21.6	24.3	45.9	0.20	15.5	E
Del Puerto Ave	II	38	46.9	13.4	60.3	0.50	30.1	B
Total	II		261.6	82.9	344.5	2.93	30.6	B

Arterial Level of Service: WB Sperry Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Del Puerto Ave	II	35	48.9	7.2	56.1	0.47	30.2	B
Ward Ave	II	38	46.9	23.3	70.2	0.50	25.8	C
Las Palmas Ave	II	45	21.6	16.1	37.7	0.20	18.9	D
American Eagle Ave	II	45	28.3	15.2	43.5	0.29	23.7	C
Baldwin Rd	II	45	46.0	15.6	61.6	0.52	30.5	B
Park Center Dr	II	45	33.5	7.1	40.6	0.35	31.0	B
Rogers Rd	II	45	43.3	24.6	67.9	0.54	28.7	B
Total	II		268.5	109.1	377.6	2.87	27.4	C

Intersection: 1: I-5 SB Ramps & Sperry Ave

Movement	WB	SB
Directions Served	LT	LTR
Maximum Queue (ft)	86	131
Average Queue (ft)	15	66
95th Queue (ft)	53	110
Link Distance (ft)	297	1081
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: I-5 NB Ramps & Sperry Ave

Movement	EB	WB	NB
Directions Served	LT	TR	LTR
Maximum Queue (ft)	130	18	228
Average Queue (ft)	25	1	83
95th Queue (ft)	91	10	160
Link Distance (ft)	297	735	799
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Sperry Ave & Rogers Rd

Movement	EB	EB	WB	WB	SB	SB	SB
Directions Served	L	T	T	R	L	R	R
Maximum Queue (ft)	224	162	282	70	98	221	130
Average Queue (ft)	111	55	154	31	24	102	17
95th Queue (ft)	188	119	247	59	66	180	75
Link Distance (ft)		375	1422	1422		534	534
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	275				55		
Storage Blk Time (%)	0	0			3	31	
Queuing Penalty (veh)	0	0			2	12	

Intersection: 4: Park Center Dr & Sperry Ave

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	L	T	UL	TR	L	R
Maximum Queue (ft)	104	42	97	32	170	63	92
Average Queue (ft)	38	8	21	8	64	10	35
95th Queue (ft)	83	30	65	23	131	41	81
Link Distance (ft)			1236		309		145
Upstream Blk Time (%)							0
Queuing Penalty (veh)							0
Storage Bay Dist (ft)	130	130		130		160	
Storage Blk Time (%)	0		0		1		0
Queuing Penalty (veh)	0		0		0		0

Intersection: 5: Baldwin Rd & Sperry Ave

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	UL	T	L	TR	L	L	TR
Maximum Queue (ft)	62	50	118	47	201	74	106	43	82	123
Average Queue (ft)	22	4	45	15	99	27	43	11	32	57
95th Queue (ft)	47	24	95	40	179	61	81	37	68	101
Link Distance (ft)			1347		2650		705			
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	130	130		130		210		130	130	
Storage Blk Time (%)			0		3					0
Queuing Penalty (veh)			0		1					0

Intersection: 6: American Eagle Ave & Sperry Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	UL	T	TR	UL	T	TR	L	TR	L	TR
Maximum Queue (ft)	75	137	116	77	161	164	98	138	108	164
Average Queue (ft)	33	71	53	32	81	86	42	64	48	80
95th Queue (ft)	67	121	99	67	139	147	82	115	92	136
Link Distance (ft)		2650	2650		1418	1418		468		384
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	130			195			185		180	
Storage Blk Time (%)		0			0			0		0
Queuing Penalty (veh)		0			0			0		0

Intersection: 7: Las Palmas Ave & Sperry Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	UL	T	TR	L	TR	L	TR
Maximum Queue (ft)	116	152	129	68	154	159	99	126	86	182
Average Queue (ft)	54	77	38	24	64	68	39	54	33	81
95th Queue (ft)	95	138	93	56	126	132	77	99	66	138
Link Distance (ft)		1418	1418		951	951		280		333
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	200			350			115		120	
Storage Blk Time (%)		0					0	0	0	2
Queuing Penalty (veh)		0					0	0	0	1

Intersection: 8: Ward Ave & Sperry Ave

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	UL	T	TR	UL	T	T	R	L	TR	L	T	R
Maximum Queue (ft)	183	327	218	85	134	141	61	84	202	124	114	45
Average Queue (ft)	55	167	27	35	61	64	29	26	96	66	45	13
95th Queue (ft)	131	292	132	71	107	117	56	64	168	115	92	32
Link Distance (ft)		951	951		319	319			364			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	185			170			165	100		110		
Storage Blk Time (%)	0	8			0	0		0	8	2	1	
Queuing Penalty (veh)	0	7			0	0		0	2	2	1	

Intersection: 9: Del Puerto Ave & Sperry Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	378	157	156	137
Average Queue (ft)	181	69	79	60
95th Queue (ft)	325	127	131	110
Link Distance (ft)	1715	2401	340	462
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: 2nd St & Sperry Ave

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	LT	R
Maximum Queue (ft)	160	50	26	45	29	31
Average Queue (ft)	78	22	5	9	2	1
95th Queue (ft)	129	46	21	34	15	22
Link Distance (ft)	2401	319		348		
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			50			
Storage Blk Time (%)		1				
Queuing Penalty (veh)		0				

Intersection: 33: Sperry Ave

Movement	EB
Directions Served	L
Maximum Queue (ft)	27
Average Queue (ft)	5
95th Queue (ft)	23
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	130
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 37: Park Center Dr

Movement	WB
Directions Served	R
Maximum Queue (ft)	33
Average Queue (ft)	11
95th Queue (ft)	35
Link Distance (ft)	311
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Arterial Level of Service: EB Sperry Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
I-5 SB Ramps	1	1.0	18.3	0.2	43
I-5 NB Ramps	2	3.0	8.3	0.1	30
	32	1.9	14.2	0.2	39
Rogers Rd	3	5.3	11.1	0.1	28
	33	2.6	24.7	0.3	42
Park Center Dr	4	2.9	21.9	0.3	42
	41	1.0	8.0	0.1	36
Baldwin Rd	5	8.7	28.9	0.3	34
American Eagle Ave	6	13.4	44.6	0.5	42
Las Palmas Ave	7	13.4	35.4	0.3	29
Ward Ave	8	27.8	43.2	0.2	16
	35	4.6	11.0	0.1	25
	34	1.1	8.7	0.1	39
Del Puerto Ave	9	15.9	44.4	0.3	27
2nd St	10	13.5	54.2	0.5	31
Total		116.1	377.0	3.4	32

Arterial Level of Service: WB Sperry Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
2nd St	10	8.2	17.2	0.1	14
Del Puerto Ave	9	10.0	46.1	0.5	37
	34	3.5	37.9	0.3	32
	35	0.5	8.6	0.1	39
Ward Ave	8	17.0	22.5	0.1	12
Las Palmas Ave	7	14.9	30.0	0.2	24
American Eagle Ave	6	17.2	39.9	0.3	26
Baldwin Rd	5	12.7	47.0	0.5	40
	41	7.5	29.2	0.3	33
Park Center Dr	4	5.9	11.4	0.1	25
	33	3.1	23.2	0.3	40
Rogers Rd	3	21.2	43.5	0.3	24
	32	4.3	11.7	0.1	26
I-5 NB Ramps	2	5.7	15.5	0.2	36
I-5 SB Ramps	1	4.2	8.8	0.1	28
Total		136.0	392.6	3.2	30

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	122	0	174	57	0	0	0	0	452	2	26
Future Volume (Veh/h)	0	122	0	174	57	0	0	0	0	452	2	26
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	133	0	189	62	0	0	0	0	491	2	28
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	62			133			602	573	133	573	573	62
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	62			133			602	573	133	573	573	62
tC, single (s)	4.1			4.3			7.1	6.5	6.2	7.3	6.7	6.4
tC, 2 stage (s)												
tF (s)	2.2			2.4			3.5	4.0	3.3	3.7	4.2	3.5
p0 queue free %	100			86			100	100	100	0	99	97
cM capacity (veh/h)	1554			1353			358	372	922	362	350	957

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	133	251	521
Volume Left	0	189	491
Volume Right	0	0	28
cSH	1700	1353	375
Volume to Capacity	0.08	0.14	1.39
Queue Length 95th (ft)	0	12	646
Control Delay (s)	0.0	6.4	219.5
Lane LOS		A	F
Approach Delay (s)	0.0	6.4	219.5
Approach LOS			F

Intersection Summary			
Average Delay	128.1		
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	557	0	0	229	311	2	0	114	0	0	0
Future Volume (Veh/h)	17	557	0	0	229	311	2	0	114	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	18	580	0	0	239	324	2	0	119	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					1256							
pX, platoon unblocked	0.87						0.87	0.87		0.87	0.87	0.87
vC, conflicting volume	563			580			1017	1179	580	1136	1017	401
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	424			580			945	1131	580	1082	945	238
tC, single (s)	4.3			4.1			7.5	6.5	6.6	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.8	4.0	3.6	3.5	4.0	3.3
p0 queue free %	98			100			99	100	74	100	100	100
cM capacity (veh/h)	914			1004			179	175	453	124	225	702

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	598	563	121
Volume Left	18	0	2
Volume Right	0	324	119
cSH	914	1700	441
Volume to Capacity	0.02	0.33	0.27
Queue Length 95th (ft)	2	0	28
Control Delay (s)	0.5	0.0	16.2
Lane LOS	A		C
Approach Delay (s)	0.5	0.0	16.2
Approach LOS			C

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	56.9%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	128	543	382	133	127	158
Future Volume (vph)	128	543	382	133	127	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.5	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1752	1845	1712	1583	1805	2632
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1752	1845	1712	1583	1805	2632
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	129	548	386	134	128	160
RTOR Reduction (vph)	0	0	0	79	0	138
Lane Group Flow (vph)	129	548	386	55	128	22
Heavy Vehicles (%)	3%	3%	11%	2%	0%	8%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	5	2	6		7	4
Permitted Phases				6		
Actuated Green, G (s)	6.3	35.5	22.7	22.7	7.6	7.6
Effective Green, g (s)	6.3	35.5	22.7	22.7	7.6	7.6
Actuated g/C Ratio	0.11	0.64	0.41	0.41	0.14	0.14
Clearance Time (s)	6.5	6.5	6.5	6.5	6.0	6.0
Vehicle Extension (s)	3.0	5.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	198	1178	698	646	246	359
v/s Ratio Prot	0.07	c0.30	c0.23		c0.07	0.01
v/s Ratio Perm				0.03		
v/c Ratio	0.65	0.47	0.55	0.08	0.52	0.06
Uniform Delay, d1	23.6	5.2	12.6	10.1	22.3	20.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.5	0.6	1.0	0.1	2.0	0.1
Delay (s)	31.1	5.8	13.5	10.1	24.3	21.0
Level of Service	C	A	B	B	C	C
Approach Delay (s)		10.6	12.7		22.4	
Approach LOS		B	B		C	

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	55.6	Sum of lost time (s)	19.0
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	68	591	0	20	0	247	125	0	0	0	121	0
Future Volume (vph)	68	591	0	20	0	247	125	0	0	0	121	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.5			4.2	5.5					4.6	
Lane Util. Factor	0.97	1.00			0.97	1.00					1.00	
Frt	1.00	1.00			1.00	0.95					1.00	
Flt Protected	0.95	1.00			0.95	1.00					0.95	
Satd. Flow (prot)	2350	1881			3502	1769					1770	
Flt Permitted	0.95	1.00			0.95	1.00					0.95	
Satd. Flow (perm)	2350	1881			3502	1769					1770	
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Adj. Flow (vph)	88	768	0	26	0	321	162	0	0	0	157	0
RTOR Reduction (vph)	0	0	0	0	0	21	0	0	0	0	0	0
Lane Group Flow (vph)	88	768	0	0	26	462	0	0	0	0	157	0
Heavy Vehicles (%)	49%	1%	0%	0%	0%	2%	2%	0%	0%	0%	2%	0%
Turn Type	Prot	NA		Prot	Prot	NA					Perm	
Protected Phases	5	2		1	1	6						
Permitted Phases											4	
Actuated Green, G (s)	5.8	33.5			1.9	29.6					10.9	
Effective Green, g (s)	5.8	33.5			1.9	29.6					10.9	
Actuated g/C Ratio	0.10	0.55			0.03	0.49					0.18	
Clearance Time (s)	4.2	5.5			4.2	5.5					4.6	
Vehicle Extension (s)	3.0	4.0			3.0	4.0					3.0	
Lane Grp Cap (vph)	224	1039			109	864					318	
v/s Ratio Prot	c0.04	c0.41			0.01	0.26						
v/s Ratio Perm											c0.09	
v/c Ratio	0.39	0.74			0.24	0.53					0.49	
Uniform Delay, d1	25.7	10.2			28.6	10.7					22.4	
Progression Factor	1.00	1.00			1.00	1.00					1.00	
Incremental Delay, d2	1.1	3.0			1.1	0.8					1.2	
Delay (s)	26.9	13.2			29.8	11.5					23.6	
Level of Service	C	B			C	B					C	
Approach Delay (s)		14.6				12.5			0.0			22.6
Approach LOS		B				B			A			C

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	60.6	Sum of lost time (s)	14.3
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	63
Future Volume (vph)	63
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.6
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1062
Flt Permitted	1.00
Satd. Flow (perm)	1062
Peak-hour factor, PHF	0.77
Adj. Flow (vph)	82
RTOR Reduction (vph)	67
Lane Group Flow (vph)	15
Heavy Vehicles (%)	52%
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	10.9
Effective Green, g (s)	10.9
Actuated g/C Ratio	0.18
Clearance Time (s)	4.6
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	191
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.08
Uniform Delay, d1	20.7
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	20.8
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	92	594	46	4	8	326	53	31	20	9	75	20
Future Volume (vph)	92	594	46	4	8	326	53	31	20	9	75	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.5			4.2	5.5	5.5	4.2	4.6		4.2	4.6
Lane Util. Factor	0.97	1.00			1.00	1.00	1.00	1.00	1.00		0.97	1.00
Frt	1.00	0.99			1.00	1.00	0.85	1.00	0.95		1.00	0.89
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (prot)	3433	1843			1770	1863	1583	1770	1775		3433	1664
Flt Permitted	0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (perm)	3433	1843			1770	1863	1583	1770	1775		3433	1664
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	108	699	54	5	9	384	62	36	24	11	88	24
RTOR Reduction (vph)	0	2	0	0	0	0	30	0	10	0	0	55
Lane Group Flow (vph)	108	751	0	0	14	384	32	36	25	0	88	28
Turn Type	Prot	NA		Prot	Prot	NA	Perm	Prot	NA		Prot	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases							6					
Actuated Green, G (s)	5.2	37.6			0.9	33.3	33.3	2.0	2.9		3.8	4.7
Effective Green, g (s)	5.2	37.6			0.9	33.3	33.3	2.0	2.9		3.8	4.7
Actuated g/C Ratio	0.08	0.59			0.01	0.52	0.52	0.03	0.05		0.06	0.07
Clearance Time (s)	4.2	5.5			4.2	5.5	5.5	4.2	4.6		4.2	4.6
Vehicle Extension (s)	2.0	5.0			5.0	5.0	5.0	2.0	3.0		2.0	3.0
Lane Grp Cap (vph)	280	1087			25	973	827	55	80		204	122
v/s Ratio Prot	c0.03	c0.41			0.01	0.21		0.02	0.01		c0.03	c0.02
v/s Ratio Perm							0.02					
v/c Ratio	0.39	0.69			0.56	0.39	0.04	0.65	0.31		0.43	0.23
Uniform Delay, d1	27.7	9.0			31.2	9.1	7.4	30.5	29.4		28.9	27.8
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.3	2.4			39.7	0.6	0.0	19.3	2.2		0.5	1.0
Delay (s)	28.1	11.5			70.9	9.7	7.4	49.8	31.6		29.4	28.8
Level of Service	C	B			E	A	A	D	C		C	C
Approach Delay (s)		13.5				11.3			40.8			29.1
Approach LOS		B				B			D			C

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	63.7	Sum of lost time (s)	18.5
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	50
Future Volume (vph)	50
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.85
Adj. Flow (vph)	59
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	87	606	31	1	49	421	45	18	34	42	36	34
Future Volume (vph)	87	606	31	1	49	421	45	18	34	42	36	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			6.5	6.5		6.5	6.5		6.5	6.5
Lane Util. Factor	1.00	0.95			1.00	0.95		1.00	1.00		1.00	1.00
Frt	1.00	0.99			1.00	0.99		1.00	0.92		1.00	0.91
Flt Protected	0.95	1.00			0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3513			1770	3488		1770	1709		1770	1693
Flt Permitted	0.95	1.00			0.95	1.00		0.69	1.00		0.70	1.00
Satd. Flow (perm)	1770	3513			1770	3488		1287	1709		1303	1693
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	101	705	36	1	57	490	52	21	40	49	42	40
RTOR Reduction (vph)	0	3	0	0	0	6	0	0	45	0	0	57
Lane Group Flow (vph)	101	738	0	0	58	536	0	21	44	0	42	45
Turn Type	Prot	NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases								8			4	
Actuated Green, G (s)	8.7	49.8			5.6	46.7		7.1	7.1		7.1	7.1
Effective Green, g (s)	8.7	49.8			5.6	46.7		7.1	7.1		7.1	7.1
Actuated g/C Ratio	0.11	0.61			0.07	0.57		0.09	0.09		0.09	0.09
Clearance Time (s)	6.5	6.5			6.5	6.5		6.5	6.5		6.5	6.5
Vehicle Extension (s)	3.0	4.0			3.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	187	2133			120	1986		111	147		112	146
v/s Ratio Prot	c0.06	c0.21			0.03	0.15			0.03			0.03
v/s Ratio Perm								0.02			c0.03	
v/c Ratio	0.54	0.35			0.48	0.27		0.19	0.30		0.38	0.31
Uniform Delay, d1	34.8	8.0			36.8	9.0		34.8	35.1		35.4	35.2
Progression Factor	1.00	1.00			0.77	0.99		1.00	1.00		1.00	1.00
Incremental Delay, d2	3.2	0.4			2.9	0.3		0.8	1.2		2.1	1.2
Delay (s)	37.9	8.5			31.4	9.2		35.6	36.3		37.5	36.4
Level of Service	D	A			C	A		D	D		D	D
Approach Delay (s)		12.0				11.3			36.2			36.7
Approach LOS		B				B			D			D

Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	82.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	53
Future Volume (vph)	53
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.86
Adj. Flow (vph)	62
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	179	380	114	20	64	282	22	99	102	15	41	94
Future Volume (vph)	179	380	114	20	64	282	22	99	102	15	41	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95			1.00	0.95		1.00	1.00		1.00	1.00
Frt	1.00	0.97			1.00	0.99		1.00	0.98		1.00	0.91
Flt Protected	0.95	1.00			0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3417			1770	3501		1770	1827		1770	1699
Flt Permitted	0.47	1.00			0.42	1.00		0.25	1.00		0.67	1.00
Satd. Flow (perm)	871	3417			779	3501		461	1827		1250	1699
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	206	437	131	23	74	324	25	114	117	17	47	108
RTOR Reduction (vph)	0	30	0	0	0	6	0	0	7	0	0	71
Lane Group Flow (vph)	206	538	0	0	97	343	0	114	127	0	47	191
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA		pm+pt	NA		pm+pt	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases	2			6	6			8			4	
Actuated Green, G (s)	46.6	36.6			39.6	33.1		26.2	18.3		19.6	15.0
Effective Green, g (s)	46.6	36.6			39.6	33.1		26.2	18.3		19.6	15.0
Actuated g/C Ratio	0.57	0.45			0.48	0.40		0.32	0.22		0.24	0.18
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	604	1525			454	1413		273	407		327	310
v/s Ratio Prot	c0.04	c0.16			0.02	0.10		c0.04	0.07		0.01	c0.11
v/s Ratio Perm	0.15				0.09			0.09			0.03	
v/c Ratio	0.34	0.35			0.21	0.24		0.42	0.31		0.14	0.62
Uniform Delay, d1	8.8	14.9			11.6	16.2		21.1	26.6		24.4	30.8
Progression Factor	0.37	0.64			1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	0.3	0.6			0.2	0.4		1.0	0.4		0.2	3.6
Delay (s)	3.6	10.1			11.9	16.6		22.1	27.0		24.6	34.5
Level of Service	A	B			B	B		C	C		C	C
Approach Delay (s)		8.4				15.5			24.8			33.0
Approach LOS		A				B			C			C

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	82.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	134
Future Volume (vph)	134
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.87
Adj. Flow (vph)	154
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	9	118	370	38	1	123	272	73	23	77	94	97
Future Volume (vph)	9	118	370	38	1	123	272	73	23	77	94	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0			6.0	6.0	6.0	4.6	6.0		4.6
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00	1.00	1.00		1.00
Frt		1.00	0.99			1.00	1.00	0.85	1.00	0.92		1.00
Flt Protected		0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (prot)		1770	3490			1770	3539	1583	1770	1709		1770
Flt Permitted		0.58	1.00			0.47	1.00	1.00	0.95	1.00		0.95
Satd. Flow (perm)		1074	3490			880	3539	1583	1770	1709		1770
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	9	124	389	40	1	129	286	77	24	81	99	102
RTOR Reduction (vph)	0	0	8	0	0	0	0	58	0	48	0	0
Lane Group Flow (vph)	0	133	421	0	0	130	286	19	24	132	0	102
Turn Type	pm+pt	pm+pt	NA		custom	pm+pt	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2			1	6		3	8		7
Permitted Phases	2	2			1	6		6				
Actuated Green, G (s)		20.6	16.3			20.6	16.3	16.3	2.0	14.8		6.8
Effective Green, g (s)		20.6	16.3			20.6	16.3	16.3	2.0	14.8		6.8
Actuated g/C Ratio		0.32	0.25			0.32	0.25	0.25	0.03	0.23		0.10
Clearance Time (s)		6.0	6.0			6.0	6.0	6.0	4.6	6.0		4.6
Vehicle Extension (s)		3.0	5.0			3.0	5.0	5.0	3.0	5.0		3.0
Lane Grp Cap (vph)		387	877			338	890	398	54	390		185
v/s Ratio Prot		0.02	c0.12			c0.03	0.08		0.01	0.08		c0.06
v/s Ratio Perm		0.09				0.10		0.01				
v/c Ratio		0.34	0.48			0.38	0.32	0.05	0.44	0.34		0.55
Uniform Delay, d1		16.3	20.6			16.3	19.7	18.4	30.9	20.9		27.6
Progression Factor		1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		0.5	0.9			0.7	0.4	0.1	5.7	1.1		3.5
Delay (s)		16.8	21.5			17.0	20.2	18.5	36.6	22.0		31.1
Level of Service		B	C			B	C	B	D	C		C
Approach Delay (s)			20.4				19.1			23.7		
Approach LOS			C				B			C		

Intersection Summary			
HCM 2000 Control Delay	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	64.8	Sum of lost time (s)	22.6
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations	↑	↱
Traffic Volume (vph)	171	45
Future Volume (vph)	171	45
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.0	6.0
Lane Util. Factor	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1863	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1863	1583
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	180	47
RTOR Reduction (vph)	0	33
Lane Group Flow (vph)	180	14
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	19.6	19.6
Effective Green, g (s)	19.6	19.6
Actuated g/C Ratio	0.30	0.30
Clearance Time (s)	6.0	6.0
Vehicle Extension (s)	5.0	5.0
Lane Grp Cap (vph)	563	478
v/s Ratio Prot	c0.10	
v/s Ratio Perm		0.01
v/c Ratio	0.32	0.03
Uniform Delay, d1	17.5	15.9
Progression Factor	1.00	1.00
Incremental Delay, d2	0.7	0.1
Delay (s)	18.1	16.0
Level of Service	B	B
Approach Delay (s)	21.8	
Approach LOS	C	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	151	321	58	18	299	11	33	38	18	7	65	128
Future Volume (vph)	151	321	58	18	299	11	33	38	18	7	65	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			4.6			4.6	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.99			1.00			0.97			0.91	
Flt Protected		0.99			1.00			0.98			1.00	
Satd. Flow (prot)		1810			1849			1779			1699	
Flt Permitted		0.80			0.96			0.83			0.99	
Satd. Flow (perm)		1462			1785			1504			1681	
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)	157	334	60	19	311	11	34	40	19	7	68	133
RTOR Reduction (vph)	0	6	0	0	2	0	0	15	0	0	108	0
Lane Group Flow (vph)	0	545	0	0	339	0	0	78	0	0	100	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		24.3			24.3			8.1			8.1	
Effective Green, g (s)		24.3			24.3			8.1			8.1	
Actuated g/C Ratio		0.57			0.57			0.19			0.19	
Clearance Time (s)		5.5			5.5			4.6			4.6	
Vehicle Extension (s)		4.0			4.0			3.0			3.0	
Lane Grp Cap (vph)		835			1020			286			320	
v/s Ratio Prot												
v/s Ratio Perm		c0.37			0.19			0.05			c0.06	
v/c Ratio		0.65			0.33			0.27			0.31	
Uniform Delay, d1		6.2			4.8			14.7			14.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.0			0.3			0.5			0.6	
Delay (s)		8.3			5.1			15.2			15.4	
Level of Service		A			A			B			B	
Approach Delay (s)		8.3			5.1			15.2			15.4	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	42.5	Sum of lost time (s)	10.1
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	96	82	15	38	16	85	125	15	11	199	203
Future Volume (Veh/h)	104	96	82	15	38	16	85	125	15	11	199	203
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	107	99	85	15	39	16	88	129	15	11	205	209
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	567	547	205	674	540	136	205			144		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	567	547	205	674	540	136	205			144		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	71	76	90	94	91	98	94			99		
cM capacity (veh/h)	375	413	836	256	417	912	1366			1438		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	291	70	232	216	209
Volume Left	107	15	88	11	0
Volume Right	85	16	15	0	209
cSH	464	482	1366	1438	1700
Volume to Capacity	0.63	0.15	0.06	0.01	0.12
Queue Length 95th (ft)	106	13	5	1	0
Control Delay (s)	24.9	14.6	3.3	0.4	0.0
Lane LOS	C	B	A	A	
Approach Delay (s)	24.9	14.6	3.3	0.2	
Approach LOS	C	B			

Intersection Summary				
Average Delay	9.0			
Intersection Capacity Utilization	55.8%	ICU Level of Service	B	
Analysis Period (min)	15			

Arterial Level of Service: EB Sperry Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rogers Rd	II	45	42.0	7.5	49.5	0.53	38.2	A
Park Center Dr	II	45	43.3	15.8	59.1	0.54	33.0	B
Baldwin Rd	II	45	33.5	12.8	46.3	0.35	27.2	C
American Eagle Ave	II	45	46.0	9.2	55.2	0.52	34.1	B
Las Palmas Ave	II	45	28.3	10.7	39.0	0.29	26.4	C
Ward Ave	II	45	21.6	22.5	44.1	0.20	16.1	E
Del Puerto Ave	II	38	46.9	11.3	58.2	0.50	31.2	B
Total	II		261.6	89.8	351.4	2.93	30.0	B

Arterial Level of Service: WB Sperry Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Del Puerto Ave	II	35	48.9	6.3	55.2	0.47	30.7	B
Ward Ave	II	38	46.9	21.7	68.6	0.50	26.4	C
Las Palmas Ave	II	45	21.6	18.7	40.3	0.20	17.7	D
American Eagle Ave	II	45	28.3	10.3	38.6	0.29	26.7	C
Baldwin Rd	II	45	46.0	12.6	58.6	0.52	32.1	B
Park Center Dr	II	45	33.5	14.0	47.5	0.35	26.5	C
Rogers Rd	II	45	43.3	18.0	61.3	0.54	31.8	B
Total	II		268.5	101.6	370.1	2.87	27.9	C

Intersection: 1: I-5 SB Ramps & Sperry Ave

Movement	EB	WB	SB
Directions Served	TR	LT	LTR
Maximum Queue (ft)	5	79	950
Average Queue (ft)	0	26	581
95th Queue (ft)	5	63	1092
Link Distance (ft)	1125	297	1081
Upstream Blk Time (%)			10
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: I-5 NB Ramps & Sperry Ave

Movement	EB	WB	NB
Directions Served	LT	TR	LTR
Maximum Queue (ft)	213	6	130
Average Queue (ft)	29	0	63
95th Queue (ft)	125	5	107
Link Distance (ft)	297	735	799
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Sperry Ave & Rogers Rd

Movement	EB	EB	WB	WB	SB	SB	SB
Directions Served	L	T	T	R	L	R	R
Maximum Queue (ft)	140	199	223	61	111	164	86
Average Queue (ft)	69	88	114	30	56	82	5
95th Queue (ft)	117	157	195	52	94	137	40
Link Distance (ft)		375	1422	1422		534	534
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	275				55		
Storage Blk Time (%)					16	22	
Queuing Penalty (veh)					13	28	

Intersection: 4: Park Center Dr & Sperry Ave

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	L	L	T	UL	L	TR	L	R
Maximum Queue (ft)	146	155	311	49	3	230	130	125
Average Queue (ft)	59	26	125	11	0	104	73	53
95th Queue (ft)	117	87	241	32	3	195	115	103
Link Distance (ft)			1236			309		145
Upstream Blk Time (%)							0	0
Queuing Penalty (veh)							0	0
Storage Bay Dist (ft)	130	130		130	130		160	
Storage Blk Time (%)	1	0	5			4	0	0
Queuing Penalty (veh)	7	0	5			1	0	0

Intersection: 5: Baldwin Rd & Sperry Ave

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	UL	T	L	TR	L	L	TR
Maximum Queue (ft)	96	125	314	42	245	63	57	66	102	86
Average Queue (ft)	45	22	134	12	91	24	25	17	43	40
95th Queue (ft)	79	85	260	34	187	53	54	51	82	74
Link Distance (ft)			1347		2650		705			
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	130	130		130		210		130	130	
Storage Blk Time (%)	0		7		3				0	
Queuing Penalty (veh)	1		7		0				0	

Intersection: 6: American Eagle Ave & Sperry Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	UL	T	TR	UL	T	TR	L	TR	L	TR
Maximum Queue (ft)	143	185	170	119	155	151	52	137	100	144
Average Queue (ft)	59	90	75	44	70	70	18	53	35	55
95th Queue (ft)	111	165	145	91	132	131	47	106	77	107
Link Distance (ft)		2650	2650		1418	1418		468		384
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	130			195			185		180	
Storage Blk Time (%)	1	2			0			0		0
Queuing Penalty (veh)	2	2			0			0		0

Intersection: 7: Las Palmas Ave & Sperry Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	UL	T	TR	L	TR	L	TR
Maximum Queue (ft)	150	198	147	105	142	154	122	171	132	271
Average Queue (ft)	65	76	46	44	60	64	56	71	34	129
95th Queue (ft)	118	155	107	84	119	127	98	133	91	225
Link Distance (ft)		1418	1418		951	951		280		333
Upstream Blk Time (%)										0
Queuing Penalty (veh)										0
Storage Bay Dist (ft)	200			350			115		120	
Storage Blk Time (%)		0					1	2	0	13
Queuing Penalty (veh)		0					1	2	0	6

Intersection: 8: Ward Ave & Sperry Ave

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	UL	T	TR	UL	T	T	R	L	TR	L	T	R
Maximum Queue (ft)	219	296	197	128	115	126	63	63	179	113	122	49
Average Queue (ft)	59	148	28	53	53	50	24	22	79	57	67	15
95th Queue (ft)	138	262	106	103	97	98	51	54	143	100	119	36
Link Distance (ft)		951	951		319	319			364			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	185			170			165	100		110		
Storage Blk Time (%)	0	5		0	0	0		0	5	2	3	
Queuing Penalty (veh)	0	7		0	0	0		0	1	3	3	

Intersection: 9: Del Puerto Ave & Sperry Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	368	198	106	123
Average Queue (ft)	162	74	44	58
95th Queue (ft)	297	145	81	102
Link Distance (ft)	1715	2401	340	462
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: 2nd St & Sperry Ave

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	LT	R
Maximum Queue (ft)	178	60	34	52	35	13
Average Queue (ft)	81	28	11	13	2	0
95th Queue (ft)	139	51	33	41	16	13
Link Distance (ft)	2401	319		348		
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			50			
Storage Blk Time (%)		1	0			
Queuing Penalty (veh)		0	0			

Intersection: 33: Sperry Ave

Movement	EB
Directions Served	L
Maximum Queue (ft)	28
Average Queue (ft)	5
95th Queue (ft)	22
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	130
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 37: Park Center Dr

Movement	WB	NB	SB
Directions Served	R	T	T
Maximum Queue (ft)	44	4	5
Average Queue (ft)	24	0	0
95th Queue (ft)	46	4	5
Link Distance (ft)	311	145	701
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Arterial Level of Service: EB Sperry Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
I-5 SB Ramps	1	2.0	19.4	0.2	41
I-5 NB Ramps	2	2.4	7.8	0.1	32
	32	2.2	14.7	0.2	37
Rogers Rd	3	6.0	11.8	0.1	26
	33	3.5	25.7	0.3	40
Park Center Dr	4	11.4	30.1	0.3	31
	41	2.9	9.5	0.1	30
Baldwin Rd	5	13.7	34.4	0.3	28
American Eagle Ave	6	13.0	52.9	0.5	36
Las Palmas Ave	7	12.2	34.5	0.3	30
Ward Ave	8	25.1	40.5	0.2	18
	35	4.3	10.6	0.1	25
	34	1.0	8.6	0.1	39
Del Puerto Ave	9	18.1	50.9	0.3	24
2nd St	10	12.4	50.8	0.5	33
Total		130.2	402.3	3.4	30

Arterial Level of Service: WB Sperry Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
2nd St	10	7.9	17.0	0.1	14
Del Puerto Ave	9	9.0	50.7	0.5	33
	34	3.6	38.1	0.3	32
	35	0.5	8.7	0.1	39
Ward Ave	8	16.0	21.7	0.1	12
Las Palmas Ave	7	16.7	30.9	0.2	23
American Eagle Ave	6	16.3	38.5	0.3	27
Baldwin Rd	5	12.6	49.7	0.5	38
	41	6.1	26.7	0.3	36
Park Center Dr	4	12.9	18.1	0.1	16
	33	3.7	20.3	0.3	45
Rogers Rd	3	13.0	33.3	0.3	31
	32	3.8	11.2	0.1	28
I-5 NB Ramps	2	5.9	17.4	0.2	32
I-5 SB Ramps	1	4.7	10.5	0.1	24
Total		132.7	392.8	3.2	30

To be advertised one time only, Thursday, May 12, 2016 **PO#9203**

PUBLIC NOTICE
THE CITY OF PATTERSON PLANNING COMMISSION
REGULAR MEETING

NOTICE IS HEREBY GIVEN that the City of Patterson Planning Commission will hold a Regular Meeting on **Thursday, May 26, 2016, at 7:00 p.m.,** in the City Council Chambers located at 1 Plaza, Patterson, to consider the following:

Public Hearing: To consider the Pilot/Flying J Use Permit, Vesting Tentative Map and Architectural and Site Plan applications. The proposed project would develop the site with a travel center and a truck yard that includes 20 fuel pumps, of which 10 are for automobiles and recreational vehicles (RVs), and 10 for trucks. The project consists of three components: 1) 14,788 square foot travel center building and parking lot, 2) 2,798 square fast-food restaurant within the travel center building, 3) a designated truck yard, and 4) related signs, landscaping, and other site development amenities.

The project site is located within the West Patterson Projects area, for which the West Patterson Projects EIR was certified in January 9, 2003. The amount of commercial development proposed by this project was included and analyzed in the certified West Patterson Projects EIR. The city has evaluated the project against the environmental checklist, as recommended in Appendix G of the CEQA Guidelines, to compare the environmental impacts of the "proposed project" with those of the "approved project" (i.e., development approved in the West Patterson Projects EIR) and to identify whether the proposed project would likely result in new significant environmental impacts. Based on this analysis, Staff is recommending that no additional environmental is necessary.

At the above noted time and place, testimony from interested persons will be heard by the Planning Commission and duly considered prior to making a recommendation. Any material submitted to the Planning Commission for consideration (photographs, petitions, letters, etc.) will be retained by the City and cannot be returned.

If a challenge to the above application is made in court, persons may be limited to raising only those issues they or someone else raised at the Public Hearing.

Lisa Ochoa, Planning Technician II
Community Development Department

CITY OF PATTERSON
Planning Commission Staff Report
Cuts Unlimited (Roll Up Security Door)
Architectural & Site Plan Review #16-02
May 26, 2016 Meeting

PROJECT SUMMARY

A public hearing to consider the placement of a metal roll-up security door at Cuts Unlimited at 40 S. 3rd Street within the Downtown Core Zone.

APPLICANT AND SITE INFORMATION

Applicant:	**Mario & Adrian Garcia**
Owners:	**Mario & Becky Garcia**
Environmental Review:	**Exempt**
Location:	**40 S. 3rd Street**
Assessor Parcel Number:	**131-008-015**
Building Size:	**1,750 sf**
Parcel Size:	**Approximately 2,719 square feet**
General Plan Designation:	**DC, Downtown Core**
Zoning Designation:	**DC, Downtown Core**
Present Land Use:	**Beauty Salon**
Surrounding Land Uses:	**Commercial Uses**
Recommendation:	**Conditional Approval**

BACKGROUND

At the Planning Commission meeting of May 12th the Commission directed staff to meet with the applicant and further discuss the installation of a mural on the security metal door. On Monday afternoon, staff met with the applicant and informed them that the commission was looking for ways to minimize the look of the door. From previous planning commission meetings, staff informed the applicant that the commission suggested the painting of a mural on the exterior side of the door. The suggestion of a mural appeared to be the commissions only way to minimize the unsightly view of the metal security door. On Wednesday afternoon, staff received two possible mural renditions from the applicant. One option would depict the "Interstate 5 View" and the other option is of the old railroad station. Either option would work based on what the commission has asked; coverage of the metal security door. The murals would include the business hours and telephone number at the top, along the square hood cover for the door. Pictures of the renditions are included for the commissions review.

ENVIRONMENTAL REVIEW

This project is exempt from review under the California Environmental Quality Act according to §15303(c).

ALTERNATIVE ACTIONS

1. Determine that the findings for the Architectural & Site Plan Review can be made, and motion to approve Architectural & Site Plan Review #16-02 subject to the conditions recommended in the staff report.

2. Determine that the findings for the Architectural & Site Plan Review can be made, and motion to approve Architectural & Site Plan Review #16-02 subject to the conditions recommended in the staff report with changes/revisions as may be submitted by the Commission.

3. Determine that the findings for the Architectural & Site Plan Review cannot be made and deny Architectural & Site Plan Review #16-02.

FINDINGS

To approve the architectural and site plan review, the Planning Commission must find the following:

1. That the architectural and general appearance of the structures and grounds shall have architectural unity and be in keeping with the character of the neighborhood as not to be detrimental to the orderly and harmonious development of the city, or to the desirability of investment or occupation in the neighborhood.
2. That the site plan is consistent with this title, any applicable specific plan, any adopted development standards and design guidelines, and the general plan.

RECOMMENDATION

If the Commission finds that the findings can be made, attached are the conditions for the project:

1. That any and all security gates/grilles shall be openable from the inside without the use of a key or special knowledge or effort during periods that the space is occupied. The grills shall remain secured in the full-open position during the period of occupancy by the general public.

2. That where two or more means of egress are required, not more than one-half of the exits or exit access doorways shall be equipped with horizontal sliding or vertical security grilles during the period of occupancy by the general public.

3. That a Fire Department approved knox box be installed in an accessible area.

4. That prior to any work, a building permit shall be obtained.

5. That prior to permit being finaled, the applicant shall install the mural approved by the Planning Commission

6. That the project shall comply with all applicable State and Municipal Codes, and meet the requirements of the Public Works Director, City Engineer, Building Official, Community Development Director, and Fire Chief. Plans submitted for construction shall be overprinted or have attached all conditions of approval.

7. That the applicant shall indemnify, defend, and hold harmless the City of Patterson, its agents, officers, and employees from any and all claims, actions, or proceedings against the City of Patterson, its agents, officers and employees to attack, set aside, void, or annul, any approval by the City of Patterson and its advisory agency, appeal board, or legislative body concerning the project, which action is brought within the time period provided for by the Government Code of the State of California. The City of Patterson shall promptly notify the applicant of any claim, action or proceeding and shall cooperate fully in the defense. If the City fails to do so, the applicant shall not thereafter be responsible to defend, indemnify or hold the City harmless.

Respectfully submitted,

Teresa Rodríguez
Associate Planner

Attachments
Public Notice
Photo of Store Front
Mural Option #1
Mural Option #2
Mural Option #3

PUBLIC NOTICE
THE CITY OF PATTERSON PLANNING COMMISSION
REGULAR MEETING

NOTICE IS HEREBY GIVEN that the City of Patterson Planning Commission will hold a Regular Meeting on **Thursday, April 14, 2016, at 7:00 p.m.,** in the City Council Chambers located at 1 Plaza, Patterson, to consider the following:

Public Hearing: **Architectural & Site Plan Review #16-02 – Cuts Unlimited Roll Up Security Door, 40 S. 3rd Street, APN# 131-008-015**
A public hearing to consider an Architectural & Site Plan Review for the placement of roll up security door at 40 S. 3rd Street. Based on the Downtown Design Guidelines, Planning Commission review is required for placement of this type of screening. Planning Commission will determine whether the design is compatible with the guidelines set out for that area. The project is exempt from review under the California Environmental Quality Act.

At the above noted time and place, testimony from interested persons will be heard by the Planning Commission and duly considered prior to making a recommendation. Any material submitted to the Planning Commission for consideration (photographs, petitions, letters, etc.) will be retained by the City and cannot be returned.

If a challenge to the above application is made in court, persons may be limited to raising only those issues they or someone else raised at the Public Hearing.

Denise Melo, Planning Technician II
Community Development Department


UTS UNLIMITED
UTS UNLIMITED
OPEN
OPEN
UTS UNLIMITED
MASSAGE
OPEN

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