

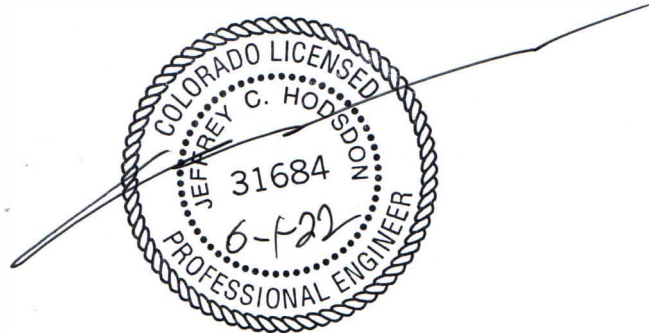


LSC TRANSPORTATION CONSULTANTS, INC.  
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Bradley Point Filing No.1  
Transportation Memorandum  
(LSC #204800)  
May 31, 2022  
PCD File No. MS-21-002

Traffic Engineer's Statement

This traffic report and supporting information were prepared under my responsible charge and they comport with the standard of care. So far as is consistent with the standard of care, said report was prepared in general conformance with the criteria established by the County for traffic reports.



Developer's Statement

I, the Developer, have read and will comply with all commitments made on my behalf within this report.

*Stephen J. Schmitt, Manager, Member*

6-1-2022  
Date

# Bradley Point Filing No. 1

## Traffic Memorandum

Prepared for:

Bradley Point, LLC  
2010 Fox Mountain Point  
Colorado Springs, Colorado 80906

Contact: Mr. Steve Schnurr

MAY 31, 2022

---

LSC Transportation Consultants  
Prepared by: Jeffrey C. Hodsdon, P.E.

LSC #204800



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May 31, 2022

Mr. Steve Schnurr  
Bradley Point, LLC  
2010 Fox Mountain Point  
Colorado Springs, Colorado 80906

RE: Bradley Point Filing No. 1  
Traffic Memorandum  
El Paso County, Colorado  
LSC #204800

Dear Mr. Schnurr:

In response to your request, LSC Transportation Consultants, Inc. has prepared this traffic memorandum for the proposed Bradley Point Filing 1 development. The location is proposed to be used as a holding area for landscaping materials only to be access by employees, not the general public. As shown in Figure 1, the site is located northeast of the US Highway 85/South Academy Boulevard interchange in El Paso County, Colorado (El Paso County parcel IDs 6503400040 and 6503400038). This memorandum has been prepared for submittal to El Paso County and the Colorado Department of Transportation (CDOT).

## REPORT CONTENTS

The preparation of this report included the following:

- An inventory of existing roadway and traffic conditions on the adjacent and nearby roadway system, including surface conditions, functional classification, widths, pavement markings, traffic control signs, posted speed limits, intersection and access spacing, roadway and intersection alignments, roadway grades, and auxiliary turn lanes;
- Current average weekday traffic (AWT) volumes on US Highway 85 (US Hwy 85);
- Estimated weekday morning and evening peak-hour traffic volumes on US Hwy 85;
- Projections of 20-year background traffic volumes on the study-area streets;
- The proposed site land use;
- Estimates of average weekday and weekday peak-hour trip generation for the proposed land use;
- Assignment of the site-generated traffic to the site access point and US Hwy 85 adjacent to the site;



- Projected resulting total peak-hour intersection traffic volumes at the site access;
- Projected total daily (ADT) volumes on the study-area streets;
- Intersection level of service analysis at the site access intersection
- Queuing and auxiliary lane analysis at the site access; and
- Findings and recommendations.

## **RECENT TRAFFIC REPORTS**

LSC is not aware of any traffic studies completed within the study area in the last five years.

## **LAND USE AND ACCESS**

The 9.5-acre property is proposed to be used for loading trailers with landscaping product for delivery. The property will not be open to the general public but will only be accessed by employees of the landscaping supply company.

Three on-site employees are anticipated, with additional employees, including truck drivers, associated with this operation. During the months of January and February, about 10 truckloads per day are anticipated. During the peak season, which occurs March thru June, operation will run for 10 hours per day with approximately six truckloads per hour. This would translate to an average of about 60 truckloads per day. The anticipated maximum daily would be up to 80 loads per day. By July, the truck traffic would taper back down to about 10 truckloads per day.

Figure 1 shows the site location relative to the adjacent and nearby streets and roadways. As shown, the development is located northeast of the US Hwy 85/South Academy Boulevard interchange. The property currently has a single full-movement access onto US Hwy 85. The access is planned to shift 215 feet to the north of its current location. The new access location, preferred by CDOT, would align with the frontage road access on the west side of the highway. Figure 2 provides the site context map and access location.

## **EXISTING ROAD AND TRAFFIC CONDITIONS**

Figure 1 shows the streets adjacent to and in the vicinity of the site. Adjacent streets serving the site are identified below followed by a brief description of each:

**US Highway 85** is a NR-A (non-rural principal arterial) that runs north/south parallel to I-25. The roadway has four-lanes south of the site access. The two northbound lanes merge into a single lane adjacent to the site access. The roadway has a painted median. The posted speed limit is 50 miles per hour (mph) adjacent to the site.

### Existing Traffic Volumes

Figure 3 shows the peak-hour and daily traffic volumes based on traffic counts conducted in March 2022. These counts have been adjusted based on traffic data from the Colorado Department of Transportation (CDOT) Online Transportation Information System (OTIS).

### Pedestrian, Bicycle, and Public Transit Access

Address the proposed Polar Point (private drive) construction and existing traffic accessing the railroad property and closure of the existing driveway.

There are no sidewalks or trails in the vicinity of the site. Mountain Metropolitan Transit Route 27 passes the site on South Academy Boulevard. However, there are no stops within a half mile of the proposed development.

### FUTURE BACKGROUND CONDITIONS

Background traffic is traffic that is anticipated to occur without the addition of the proposed development. Figure 4 shows the projected long-term background traffic volumes for the year 2042. Traffic from the proposed development is not included in the 2042 background traffic volumes.

Estimated 2040 background traffic volumes are based on CDOT 20-year factor for the roadway. It is estimated that US Hwy 85 will experience 0.74 percent/year growth.

### TRIP GENERATION

Estimates of site-generated vehicle trips for the proposed development were made using information provided by the applicant regarding the planned usage of the site - a storage and product truck loading operation. The ITE Warehousing land use (ITE Code 150) was selected as the most applicable ITE land use category. However, the standard published trip-generation rates for this land use category were adjusted to account for the unique nature of the proposed use of the site, as described in the land use section above. The vehicle-trip calculations reflect the planned three employees that will be working on-site.

Table 1 provides a summary of the trip-generation forecast for the site. These estimates are representative of **the busy season (March through May)**. Other months of the year would have significantly lower trip generation. As shown, the proposed land use is estimated to generate approximately 130 total daily trips on the average weekday during the spring busy season. During the morning peak hour, approximately 6 vehicles would enter, and 6 vehicles would exit the site. During the evening peak hour, approximately 6 vehicles would enter, and 6 vehicles would exit. All peak-hour vehicles trips would be **truck trips**, and truck trips have been used in the analysis in this report.

**Table 1: Estimated Site Vehicle-Trip Generation**

Analysis Period	Weekday		
	In	Out	Total
Morning Peak Hour	6	6	12
Afternoon Peak Hour	6	6	12
Daily	65	65	130

A detailed trip-generation estimate for the site, including adjusted ITE trip-generation rates, is presented in Table 3 (attached).

Table 4 (attached) provides, for reference only, a trip-generation estimate based on the unadjusted, nationally published trip-generation rates from *Trip Generation, 10th Edition, 2017* by the Institute of Transportation Engineers (ITE) for land use 150. As shown, the application of unadjusted ITE rates results in lower trip generation than calculated in Table 3. To be conservative, the higher trip-generation rates from Table 3 (and Table 2) have been used for the analysis.

#### **TRIP DISTRIBUTION AND ASSIGNMENT**

Estimating the directional distribution of site-generated vehicle trips to the study-area roads and intersections is a necessary component in determining the site's traffic impacts. Figure 5 shows the percentages of the site-generated vehicle trips projected to be oriented to/from the north and south via US Hwy 85. As shown, it is estimated that most traffic would be oriented to/from the south where there is access to South Academy Boulevard and a route to/from Interstate 25.

Site-generated traffic volumes have been estimated at the site access, as shown in Figure 5. These volumes have been calculated by applying the directional distribution percentages to the trip generation estimates (from Table 3).

#### **TOTAL TRAFFIC**

##### **Short-Term Total Traffic Volumes**

Figure 6 shows the sum of the existing traffic volumes (from Figure 3) and site-generated peak-hour traffic volumes (shown in Figure 5). These volumes represent the projected short-term total traffic including site traffic. Laneage and traffic control at the study-area intersections are also shown in this figure.

##### **2040 Total Traffic Volumes**

Figure 7 shows the sum of the long-term background traffic volumes (from Figure 4) and site-generated peak-hour traffic volumes (shown in Figure 5). These volumes represent the

projected long-term total traffic following the site development. Laneage and traffic control at the study-area intersections are also shown in this figure.

**LEVEL OF SERVICE ANALYSIS**

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection and is indicated on a scale from “A” to “F.” LOS A is indicative of little congestion or delay. LOS F indicates a high level of congestion or delay. Table 2 shows the level of service delay ranges for signalized and unsignalized intersections.

**Table 2: Intersection Levels of Service Delay Ranges**

Level of Service	Signalized Intersections	Unsignalized Intersections
	Average Control Delay (seconds per vehicle)	Average Control Delay (seconds per vehicle) <sup>(1)</sup>
A	10.0 sec or less	10.0 sec or less
B	10.1-20.0 sec	10.1-15.0 sec
C	20.1-35.0 sec	15.1-25.0 sec
D	35.1-55.0 sec	25.1-35.0 sec
E	55.1-80.0 sec	35.1-50.0 sec
F	80.1 sec or more	50.1 sec or more

(1) For unsignalized intersections, if V/C ratio is greater than 1.0 the level of service is LOS F, regardless of the projected average control delay per vehicle.

The site access has been analyzed to determine the projected intersection levels of service for short- and long-term total traffic scenarios for the morning and afternoon peak-hour periods. The level of service is based on the Highway Capacity Manual (HCM) methodology.

In both the short-term and long-term scenarios, the southbound left turn into the site operates at LOS A during the peak hours. The westbound approach is anticipated to operate at LOS E during the morning peak hour in the short-term scenario. In the long-term scenario, this movement is projected to operate at LOS F during the morning peak hour. The projected volumes are relatively low; however, with projected higher delay, a shift in operations (primarily exiting trucks) from peak periods to off-peak periods could result. Upstream traffic signals will provide periodic gaps in through traffic, which can be utilized for left turns out of the site onto southbound Highway 85. The exiting vehicles will primarily be regular users of the access.

**QUEUING**

The Synchro reports for the 20-year scenario indicate a 95<sup>th</sup> percentile queue of #580 feet for the southbound through queue extending back to the north from the Highway 95/South Academy westbound ramp intersection. The “#” indicates that the 95<sup>th</sup> percentile volume exceeds capacity

and the queue may be longer and has the potential to occasionally back through the site access during the PM peak period. Although there is this potential, this would likely result in higher delay and waiting to enter the roadway during that signal cycle. The signal timing may also be adjusted in the future. Moreover, the access is in the preferred location as it aligns with an existing access on the west side and allows for a left turn lane into the site.

#### **AUXILIARY TURN LANES**

Discuss access design criteria: does the proposed access meet sight distance requirements (ECM Chapter 2.4), access alignment, access width.

Based on requirements in the CDOT State Highway Access Code, an NR-A highway is required to have a left-turn deceleration lane if the turning volume exceeds 10 vph. A right-turn deceleration lane is required in the turning volume exceeds 25 vph. Using passenger car equivalents for the truck volumes, neither turn meets the threshold for requiring a deceleration lane.

Although a southbound left-turn deceleration lane is not required, there is a painted median that could be restriped for a southbound left-turn lane. There is a northbound left-turn lane for traffic turning onto the west side minor frontage road located across from the proposed site access

### **CONCLUSIONS AND RECOMMENDATIONS**

#### **Trip Generation**

- The site is projected to generate approximately 12 new morning peak hour trips, with 6 inbound and 6 outbound.
- The site is projected to generate approximately 12 new afternoon peak hours trips, with 6 inbound and 6 outbound.
- The site is projected to generate approximately 130 new daily trips (annual average daily trips).

#### **Site-Access Levels of Service**

- The southbound left-turning movement into the site is projected to operate at LOS A or B during peak hours.
- The westbound approach is expected to operate at LOS E in the short term (AM peak hour) and F for the long-term scenario. The projected volumes are relatively low; however, with projected higher delay, a shift in operations (primarily exiting trucks) from peak periods to off-peak periods could result. Upstream traffic signals will provide periodic gaps in through traffic, which can be utilized for left turns out of the site onto southbound Highway 85. The exiting vehicles will primarily be regular users of the access.

#### **Auxiliary Lanes**

- The center striped median on the north leg of the site-access intersection should be restriped for a southbound left-turn lane. It should be noted that a southbound left-turn

lane is not required per the State Highway Access Code based on the projected volumes, but restriping would create a matching left-turn lane opposite the existing northbound left-turn lane and “formalize” the access such that traffic turning left from the north would be less likely to turn from the through lane.

\* \* \* \* \*

Please contact me if you have any questions regarding this report.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By: Jeffrey C. Hodsdon, P.E.  
Principal

JCH/JAB:jas

Enclosures: Tables 3-4  
Figures 1-7  
Traffic Count Data Sheets  
Synchro/Simtraffic Reports

Missing discussion on the following items:  
- State whether the MTCP (Major Transportation Corridors Plan) calls for construction of improvements in the immediate area and if any improvements are reimbursable.  
- State the applicable Road Impact Fees, amount to be paid by developer, and time of payment (approval of Site Development Plan).

# Tables

---



**Table 3: Detailed Trip Generation Estimate**

Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates <sup>(1)</sup>				Total Trips Generated <sup>(3)</sup>					
			Average Weekday	Morning Peak Hour		Afternoon Peak Hour		Average Weekday	Morning Peak Hour		Afternoon Peak Hour	
			Traffic	In	Out	In	Out	Traffic	In	Out	In	Out
150	Warehousing	3 Emp <sup>(2)</sup>	43.33	2.00	2.00	2.00	2.00	130	6	6	6	6
<p>Notes:</p> <p>(1) Standard Institute of Transportation Engineers (ITE) rates were adjusted for this site specific use</p> <p>(2) Emp = Employees</p> <p>(3) Trip Generation Estimate is for March through May. Other months are anticipated to have lower trip generation</p>												
<p>Source: LSC Transportation Consultants, Inc.</p>												



**Table 4: Trip Generation Estimate Based on Unadjusted ITE Rates – For Reference Only**

Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates <sup>(1)</sup>					Total Trips Generated				
			Average Weekday	Morning Peak Hour		Afternoon Peak Hour		Average Weekday	Morning Peak Hour		Afternoon Peak Hour	
			Traffic	In	Out	In	Out	Traffic	In	Out	In	Out
150	Warehousing	3 Emp <sup>(2)</sup>	8.43	1.56	0.61	0.24	0.42	25	5	2	1	1
Notes:												
(1) Source: "Trip Generation, 10th Edition, 2017" by the Institute of Transportation Engineers (ITE)												
(2) Emp = Employees												
Source: LSC Transportation Consultants, Inc.												

# Figures

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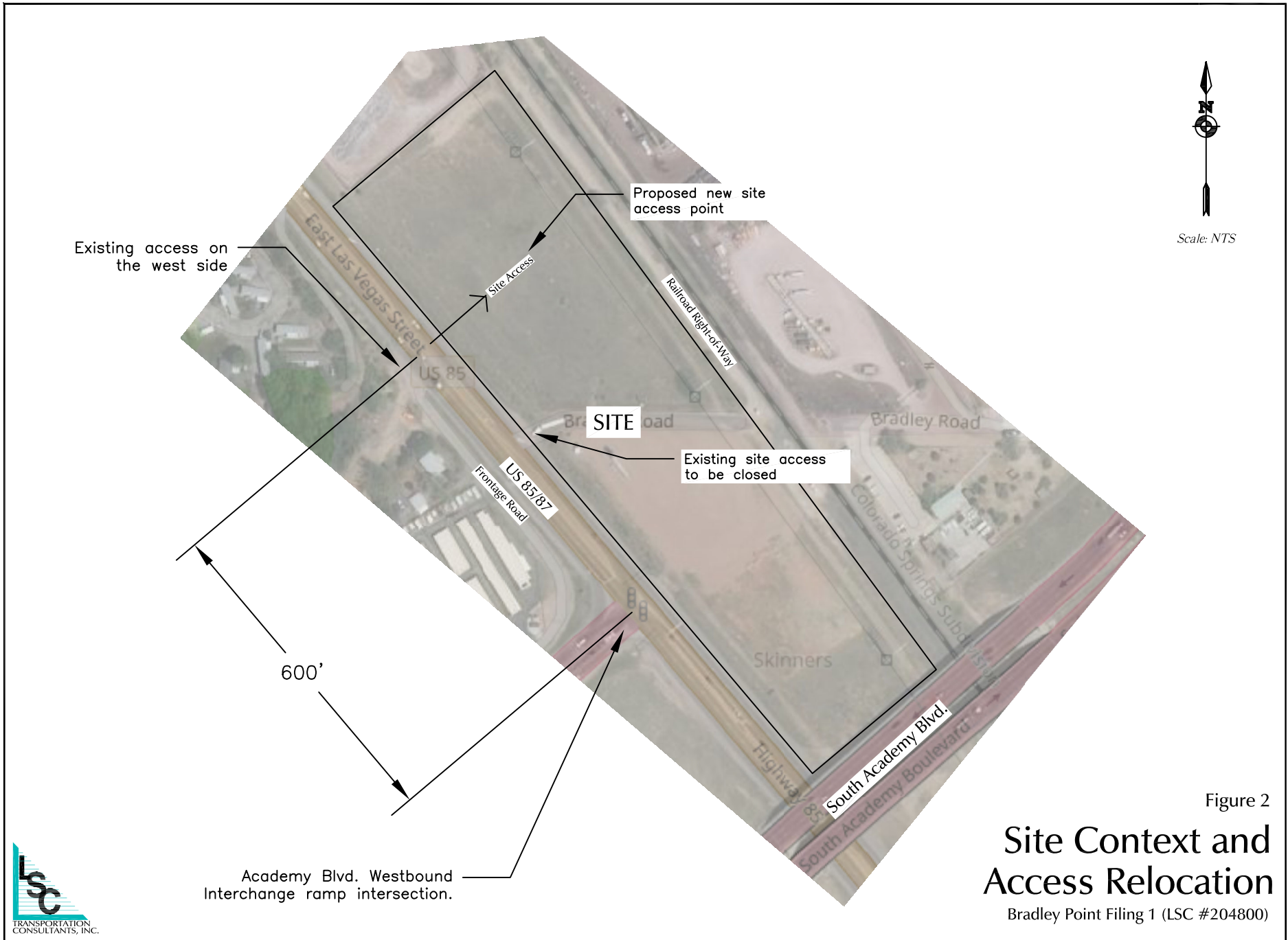




Approximate Scale  
Scale: NTS

Figure 1  
**Vicinity  
Map**

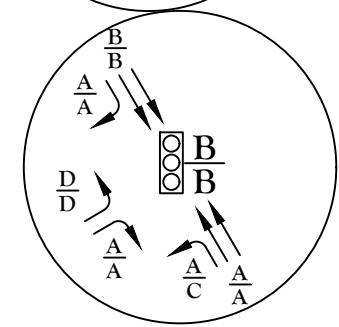
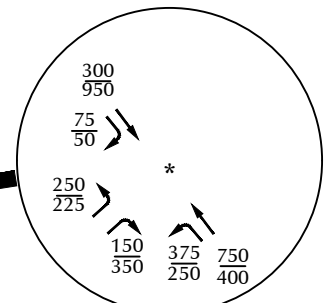
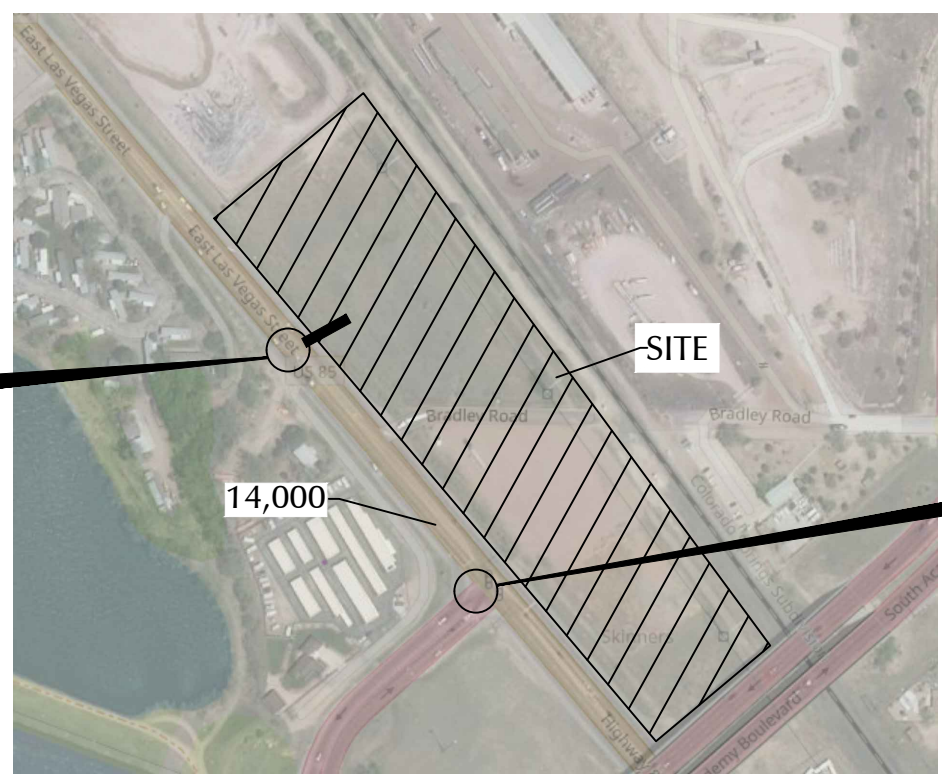
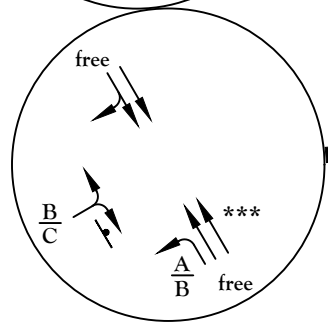
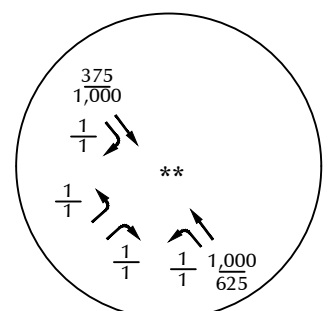
Bradley Point Filing 1 (LSC #204800)







Scale: NTS



\*\*\* Note: the right lane is a merge lane at this location

LEGEND:

$\frac{XX}{XX}$  =  $\frac{\text{AM Weekday Peak-Hour Traffic (vehicles per hour)}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour)}}$  \*Estimated using March 2022 by LSC and CDOT Fall 2021 Counts  
 \*\*Estimated by LSC

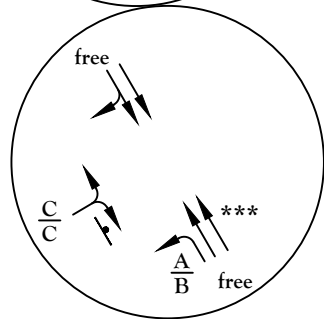
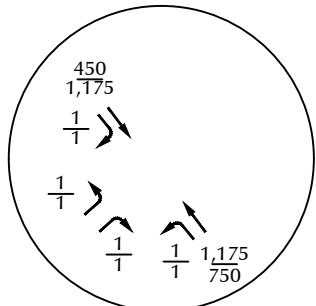
X,XXX = Annual Average Daily Traffic (vehicles per day) (Estimated 2022 AADT)

$\frac{A}{B}$  =  $\frac{\text{AM Individual Movement Peak-Hour Level of Service}}{\text{PM Individual Movement Peak-Hour Level of Service}}$   
 $\frac{C}{D}$  =  $\frac{\text{AM Entire Intersection Peak-Hour Level of Service}}{\text{PM Entire Intersection Peak-Hour Level of Service}}$

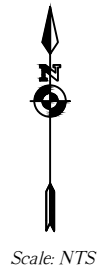
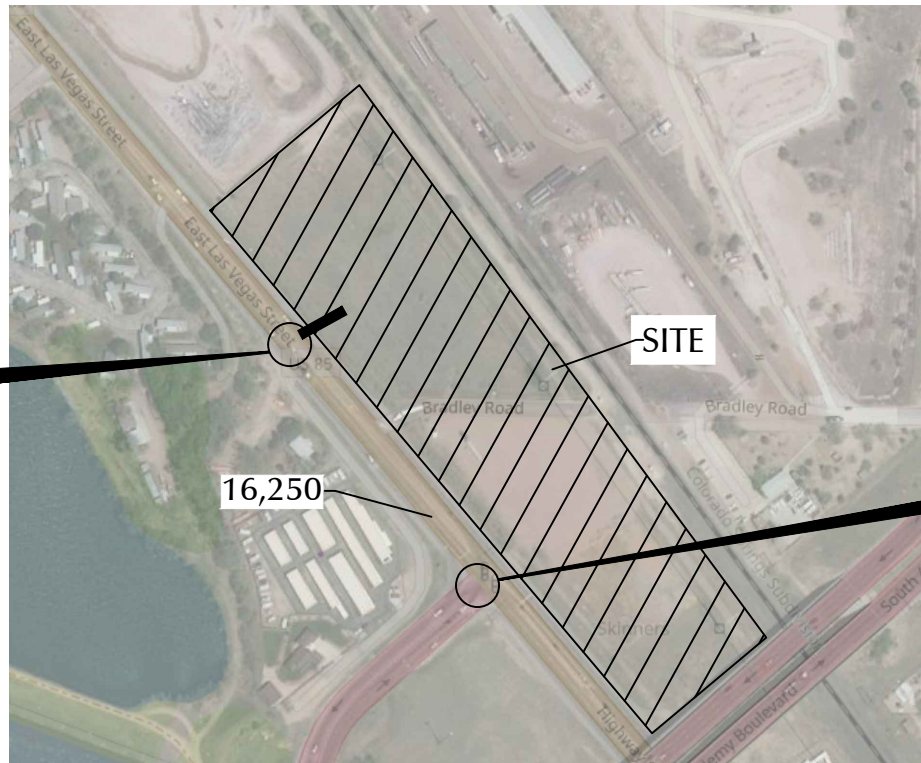
= Stop Sign  
 = Traffic Signal



Figure 3  
**Existing Conditions**  
 Bradley Point Filing 1 (LSC #204800)



\*\*\* Note: the right lane is a merge lane at this location



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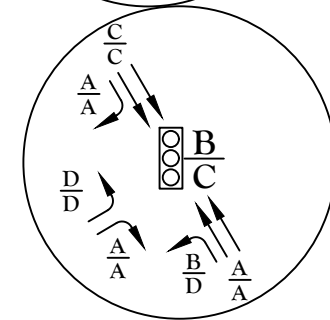
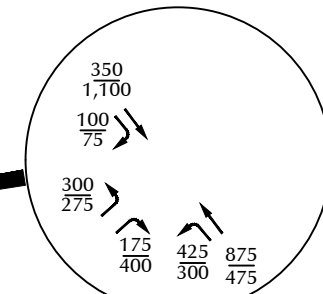
$$\frac{XX}{XX} = \frac{\text{AM Weekday Peak-Hour Traffic (vehicles per hour)}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour)}}$$

X,XXX = Annual Average Daily Traffic (vehicles per day)

- $\frac{A}{B}$  = AM Individual Movement Peak-Hour Level of Service  
PM Individual Movement Peak-Hour Level of Service
- $\frac{C}{D}$  = AM Entire Intersection Peak-Hour Level of Service  
PM Entire Intersection Peak-Hour Level of Service

⊥ = Stop Sign

⊞ = Traffic Signal

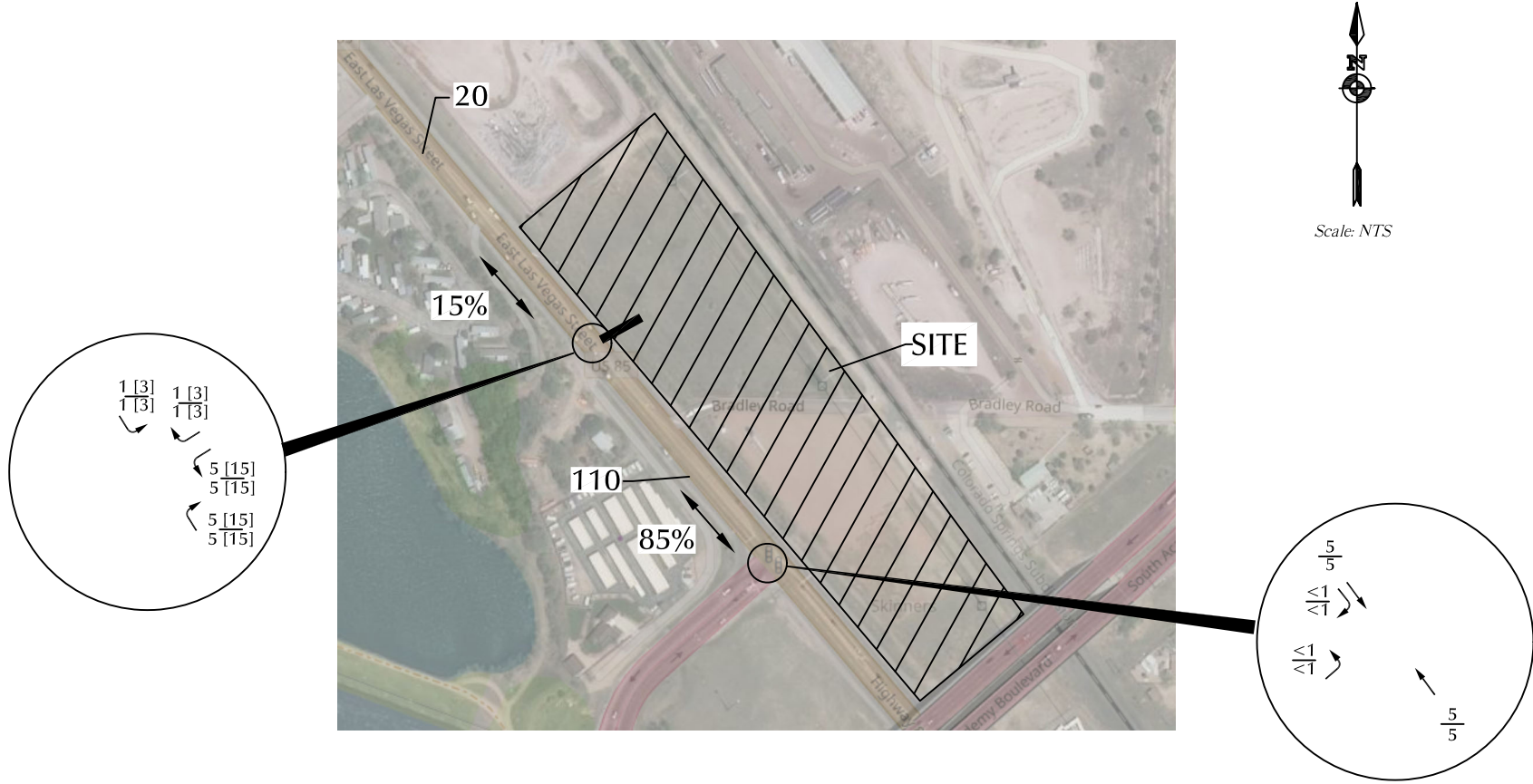


# Long-Term Background Conditions

Figure 4

Bradley Point Filing 1 (LSC #204800)





LEGEND:

$$\frac{XX}{XX} = \frac{\text{AM Weekday Peak-Hour Traffic (vehicles per hour) [PCE*]}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour) [PCE*]}} \quad *PCE = \text{Passenger car equivalent}$$

X,XXX = Average Daily Traffic (vehicles per day)

$\overleftrightarrow{XX\%}$  = Estimated Percent Directional Distribution

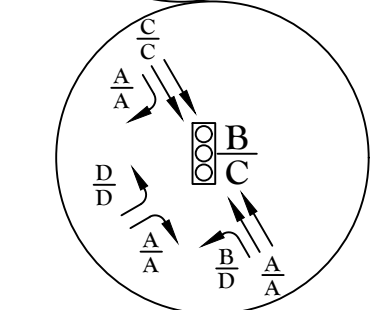
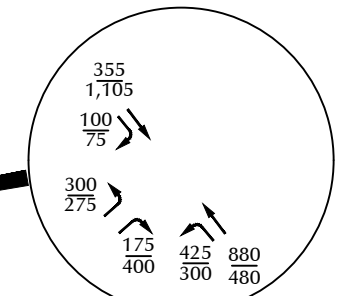
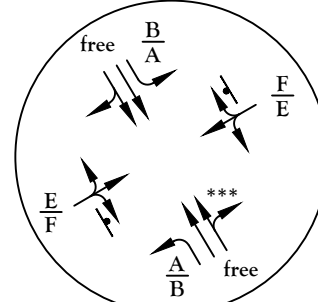
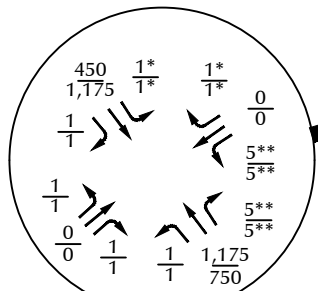
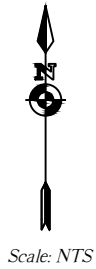
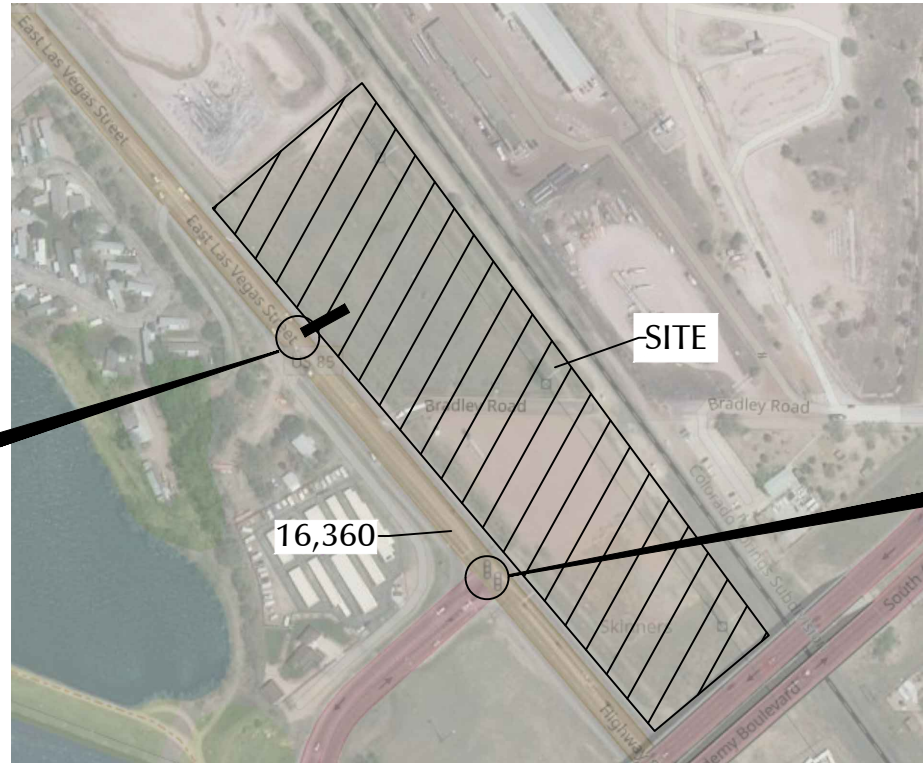
Figure 5  
**Estimated Distribution  
 and Site-Generated Traffic**

Bradley Point Filing 1 (LSC #204800)









\*PCE = 3  
 \*\* PCE = 15  
 \*\*\* Note: the right lane is a merge lane at this location  
 PCE = Passenger car equivalent

LEGEND:

$\frac{XX}{XX}$  = AM Weekday Peak-Hour Traffic (vehicles per hour)  
 PM Weekday Peak-Hour Traffic (vehicles per hour)

X,XXX = Annual Average Daily Traffic (vehicles per day)

$\frac{A}{B}$  = AM Individual Movement Peak-Hour Level of Service  
 PM Individual Movement Peak-Hour Level of Service

$\frac{C}{D}$  = AM Entire Intersection Peak-Hour Level of Service  
 PM Entire Intersection Peak-Hour Level of Service

⊥ = Stop Sign

⊞ = Traffic Signal

# Long-Term Total Traffic Conditions

Figure 7

Bradley Point Filing 1 (LSC #204800)



# Traffic Counts

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# LSC Transportation Consultants, Inc.

2504 E Pikes Peak Ave, Suite 304  
 Colorado Springs, CO 80909  
 719-633-2868

File Name : Hwy 85-87 - Academy Blvd WB Ramps AM  
 Site Code : S214990  
 Start Date : 3/24/2022  
 Page No : 1

### Groups Printed- Unshifted

Start Time	Hwy 85-87 Southbound					Westbound					Hwy 85-87 Northbound					Academy Blvd WB Ramps Eastbound					Int. Total
	R	T	L	U	App. Total	R	T	L	U	App. Total	R	T	L	U	App. Total	R	T	L	U	App. Total	
06:30 AM	6	45	0	0	51	0	0	0	0	0	0	118	93	0	211	30	0	45	0	75	337
06:45 AM	5	46	0	0	51	0	0	0	0	0	0	117	71	0	188	31	0	66	0	97	336
Total	11	91	0	0	102	0	0	0	0	0	0	235	164	0	399	61	0	111	0	172	673
07:00 AM	6	42	0	0	48	0	0	0	0	0	0	120	78	0	198	26	0	38	0	64	310
07:15 AM	10	60	0	0	70	0	0	0	0	0	0	147	95	0	242	21	0	48	0	69	381
07:30 AM	10	61	0	0	71	0	0	0	0	0	0	158	93	0	251	33	0	54	0	87	409
07:45 AM	5	51	0	0	56	0	0	0	0	0	0	137	79	0	216	53	0	54	0	107	379
Total	31	214	0	0	245	0	0	0	0	0	0	562	345	0	907	133	0	194	0	327	1479
08:00 AM	6	49	0	0	55	0	0	0	0	0	0	115	78	0	193	15	0	44	0	59	307
08:15 AM	9	76	0	0	85	0	0	0	0	0	0	96	63	0	159	16	0	23	0	39	283
Grand Total	57	430	0	0	487	0	0	0	0	0	0	1008	650	0	1658	225	0	372	0	597	2742
Apprch %	11.7	88.3	0	0		0	0	0	0	0	0	60.8	39.2	0		37.7	0	62.3	0		
Total %	2.1	15.7	0	0	17.8	0	0	0	0	0	0	36.8	23.7	0	60.5	8.2	0	13.6	0	21.8	

# LSC Transportation Consultants, Inc.

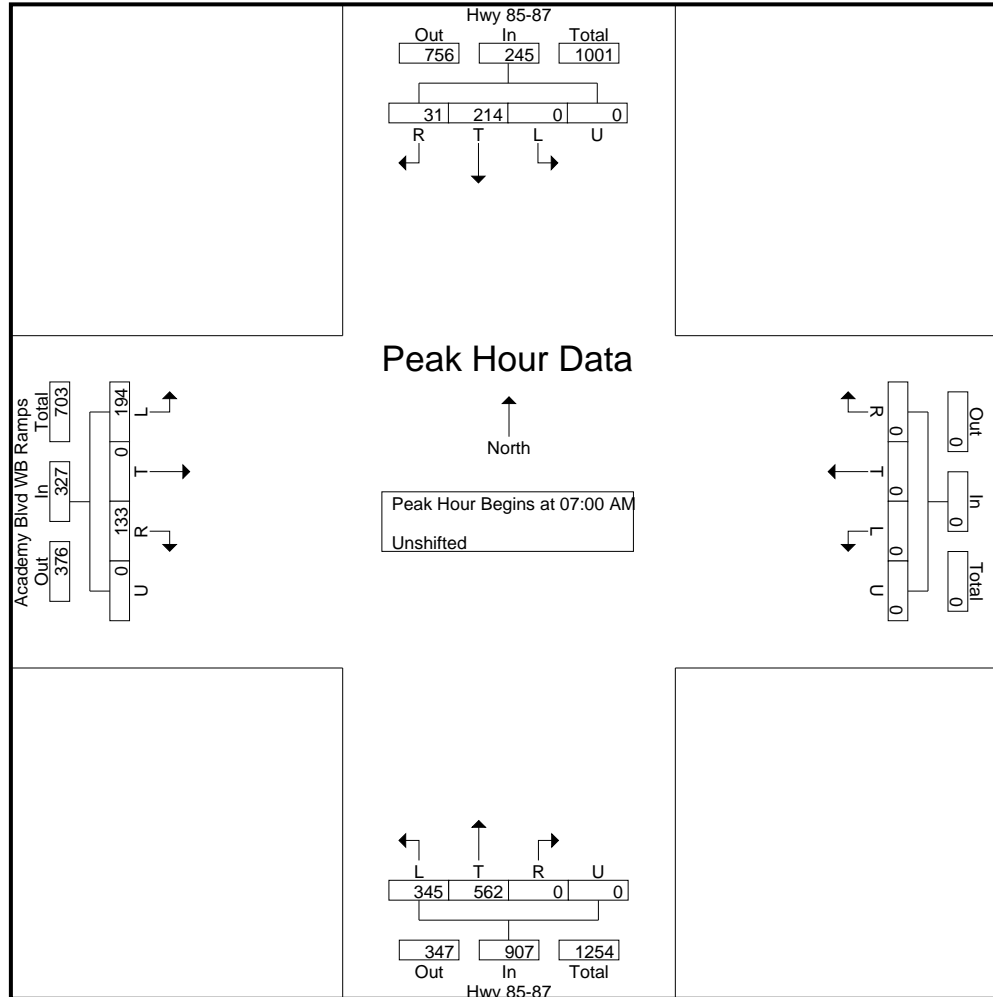
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File Name : Hwy 85-87 - Academy Blvd WB Ramps AM

Site Code : S214990

Start Date : 3/24/2022

Page No : 3



# LSC Transportation Consultants, Inc.

2504 E Pikes Peak Ave, Suite 304  
 Colorado Springs, CO 80909  
 719-633-2868

File Name : Hwy 85-87 - Academy Blvd WB Ramps PM  
 Site Code : S214990  
 Start Date : 3/23/2022  
 Page No : 1

### Groups Printed- Unshifted

Start Time	Hwy 85-87 Southbound					Westbound					Hwy 85-87 Northbound					Academy Blvd WB Ramps Eastbound					Int. Total
	R	T	L	U	App. Total	R	T	L	U	App. Total	R	T	L	U	App. Total	R	T	L	U	App. Total	
04:00 PM	6	183	0	0	189	0	0	0	0	0	0	85	49	0	134	70	0	35	0	105	428
04:15 PM	4	181	0	1	186	0	0	0	0	0	0	95	58	0	153	65	0	27	0	92	431
04:30 PM	5	188	0	0	193	0	0	0	0	0	0	95	55	2	152	80	0	27	0	107	452
04:45 PM	6	186	0	0	192	0	0	0	0	0	0	82	64	1	147	76	0	22	0	98	437
Total	21	738	0	1	760	0	0	0	0	0	0	357	226	3	586	291	0	111	0	402	1748
05:00 PM	2	198	0	1	201	0	0	0	0	0	0	69	47	0	116	71	0	39	0	110	427
05:15 PM	3	198	0	0	201	0	0	0	0	0	0	103	69	1	173	100	0	30	2	132	506
05:30 PM	4	146	0	0	150	0	0	0	0	0	0	77	62	1	140	57	0	35	0	92	382
05:45 PM	4	132	0	0	136	0	0	0	0	0	0	76	50	2	128	64	0	27	0	91	355
Total	13	674	0	1	688	0	0	0	0	0	0	325	228	4	557	292	0	131	2	425	1670
Grand Total	34	1412	0	2	1448	0	0	0	0	0	0	682	454	7	1143	583	0	242	2	827	3418
Apprch %	2.3	97.5	0	0.1		0	0	0	0	0	0	59.7	39.7	0.6		70.5	0	29.3	0.2		
Total %	1	41.3	0	0.1	42.4	0	0	0	0	0	0	20	13.3	0.2	33.4	17.1	0	7.1	0.1	24.2	

# LSC Transportation Consultants, Inc.

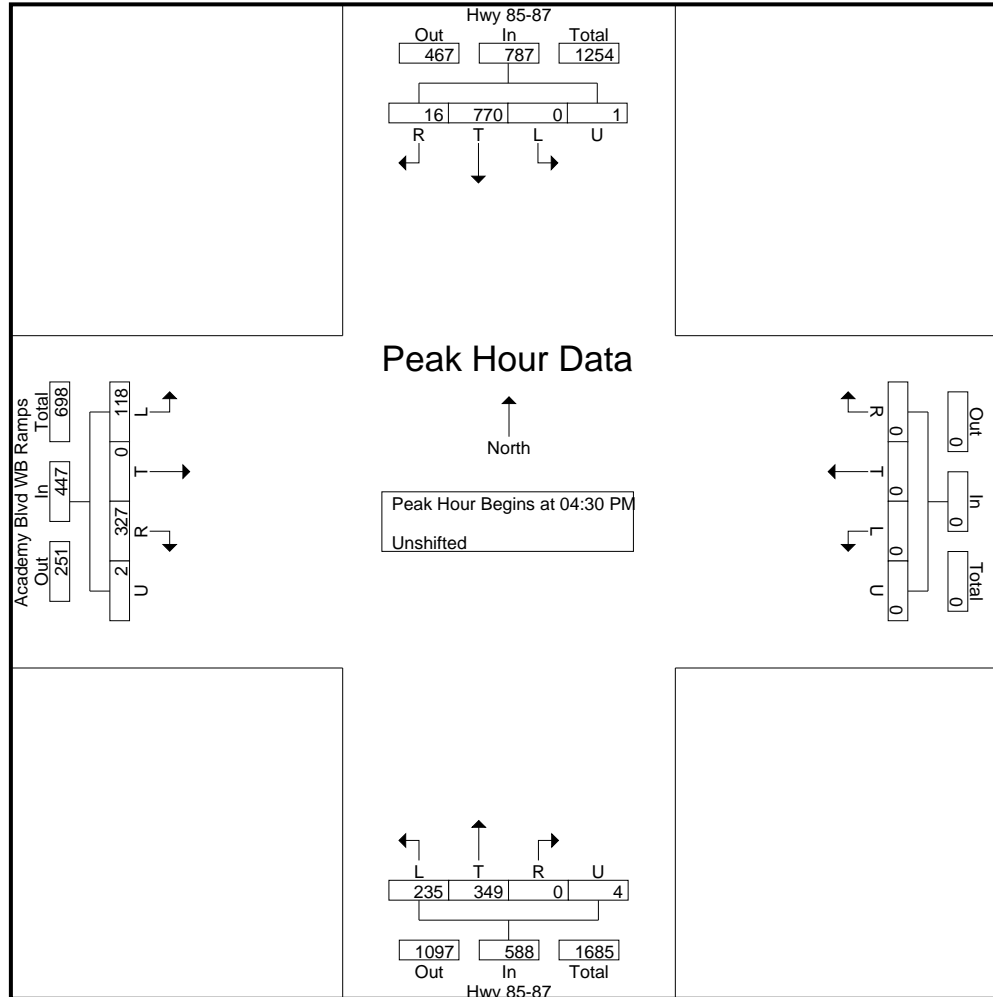
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File Name : Hwy 85-87 - Academy Blvd WB Ramps PM

Site Code : S214990

Start Date : 3/23/2022

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# Levels of Service

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Lanes, Volumes, Timings  
1: US 85 & Academy Blvd WB Ramps

Existing  
AM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	250	150	375	750	300	75
Future Volume (vph)	250	150	375	750	300	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	230			220
Storage Lanes	1	1	1			1
Taper Length (ft)	25		215			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.483			
Satd. Flow (perm)	1770	1583	900	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		163				82
Link Speed (mph)	35			50	50	
Link Distance (ft)	563			1069	422	
Travel Time (s)	11.0			14.6	5.8	
Peak Hour Factor	0.92	0.92	0.95	0.95	0.92	0.92
Adj. Flow (vph)	272	163	395	789	326	82
Shared Lane Traffic (%)						
Lane Group Flow (vph)	272	163	395	789	326	82
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			18	18	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Free	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		Free	2			6



# Lanes, Volumes, Timings

## 1: US 85 & Academy Blvd WB Ramps

Existing  
AM

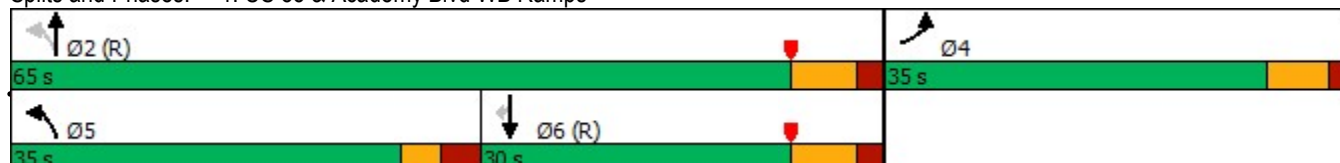


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4		5			
Switch Phase						
Minimum Initial (s)	5.0		5.0	15.0	15.0	15.0
Minimum Split (s)	11.5		11.0	22.0	22.0	22.0
Total Split (s)	35.0		35.0	65.0	30.0	30.0
Total Split (%)	35.0%		35.0%	65.0%	30.0%	30.0%
Maximum Green (s)	28.5		29.0	58.0	23.0	23.0
Yellow Time (s)	4.5		3.0	5.0	5.0	5.0
All-Red Time (s)	2.0		3.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0	-3.0	-3.0	-3.0
Total Lost Time (s)	5.5		5.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	C-Max	C-Max	C-Max
Act Effect Green (s)	21.5	100.0	68.0	69.0	47.6	47.6
Actuated g/C Ratio	0.22	1.00	0.68	0.69	0.48	0.48
v/c Ratio	0.71	0.10	0.52	0.32	0.19	0.10
Control Delay	46.5	0.1	9.1	5.5	17.8	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.5	0.1	9.1	5.5	17.8	5.5
LOS	D	A	A	A	B	A
Approach Delay	29.1			6.7	15.3	
Approach LOS	C			A	B	
Queue Length 50th (ft)	162	0	72	73	60	0
Queue Length 95th (ft)	229	0	137	103	115	32
Internal Link Dist (ft)	483			989	342	
Turn Bay Length (ft)			230			220
Base Capacity (vph)	522	1583	872	2440	1683	796
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.10	0.45	0.32	0.19	0.10

### Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 88 (88%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 13.3  
 Intersection LOS: B  
 Intersection Capacity Utilization 58.4%  
 ICU Level of Service B  
 Analysis Period (min) 15

### Splits and Phases: 1: US 85 & Academy Blvd WB Ramps



HCM 6th TWSC  
2: W Access & US 85/West-Side Frontage Road

Existing  
AM

Intersection						
Int Delay, s/veh	0					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑↑		↖	↑	↘	
Traffic Vol, veh/h	375	1	1	1000	1	1
Future Vol, veh/h	375	1	1	1000	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	93	93	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	408	1	1	1075	1	1

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	409	0	1486 205
Stage 1	-	-	-	-	409 -
Stage 2	-	-	-	-	1077 -
Critical Hdwy	-	-	4.13	-	6.63 6.93
Critical Hdwy Stg 1	-	-	-	-	5.83 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	-	-	2.219	-	3.519 3.319
Pot Cap-1 Maneuver	-	-	1148	-	126 802
Stage 1	-	-	-	-	640 -
Stage 2	-	-	-	-	326 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1148	-	126 802
Mov Cap-2 Maneuver	-	-	-	-	246 -
Stage 1	-	-	-	-	640 -
Stage 2	-	-	-	-	326 -

Approach	SE	NW	NE
HCM Control Delay, s	0	0	14.6
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	377	1148	-	-	-
HCM Lane V/C Ratio	0.007	0.001	-	-	-
HCM Control Delay (s)	14.6	8.1	-	-	-
HCM Lane LOS	B	A	-	-	-
HCM 95th %tile Q(veh)	0	0	-	-	-

Lanes, Volumes, Timings  
1: US 85 & Academy Blvd WB Ramps

Existing  
PM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	225	350	250	400	950	50
Future Volume (vph)	225	350	250	400	950	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	230			220
Storage Lanes	1	1	1			1
Taper Length (ft)	25		215			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.167			
Satd. Flow (perm)	1770	1583	311	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		380				47
Link Speed (mph)	35			50	50	
Link Distance (ft)	563			1069	422	
Travel Time (s)	11.0			14.6	5.8	
Peak Hour Factor	0.92	0.92	0.95	0.95	0.92	0.92
Adj. Flow (vph)	245	380	263	421	1033	54
Shared Lane Traffic (%)						
Lane Group Flow (vph)	245	380	263	421	1033	54
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			18	18	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Free	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		Free	2			6

Lanes, Volumes, Timings  
 1: US 85 & Academy Blvd WB Ramps

Existing  
 PM

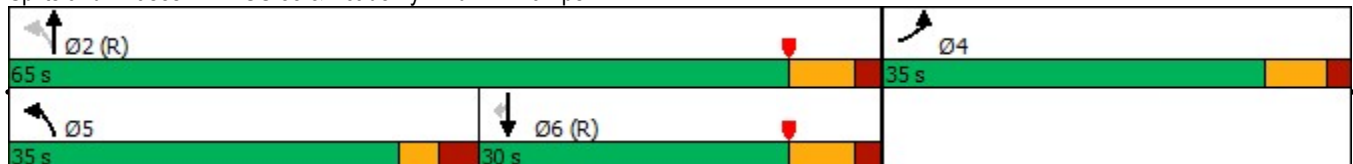


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4		5			
Switch Phase						
Minimum Initial (s)	5.0		5.0	15.0	15.0	15.0
Minimum Split (s)	11.5		11.0	22.0	22.0	22.0
Total Split (s)	35.0		35.0	65.0	30.0	30.0
Total Split (%)	35.0%		35.0%	65.0%	30.0%	30.0%
Maximum Green (s)	28.5		29.0	58.0	23.0	23.0
Yellow Time (s)	4.5		3.0	5.0	5.0	5.0
All-Red Time (s)	2.0		3.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0	-3.0	-3.0	-3.0
Total Lost Time (s)	5.5		5.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	C-Max	C-Max	C-Max
Act Effect Green (s)	20.1	100.0	69.4	70.4	51.9	51.9
Actuated g/C Ratio	0.20	1.00	0.69	0.70	0.52	0.52
v/c Ratio	0.69	0.24	0.64	0.17	0.56	0.06
Control Delay	46.8	0.4	23.2	4.5	19.9	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	0.4	23.2	4.5	19.9	6.8
LOS	D	A	C	A	B	A
Approach Delay	18.6			11.7	19.3	
Approach LOS	B			B	B	
Queue Length 50th (ft)	146	0	67	33	216	2
Queue Length 95th (ft)	211	0	173	52	382	27
Internal Link Dist (ft)	483			989	342	
Turn Bay Length (ft)			230			220
Base Capacity (vph)	522	1583	653	2492	1835	843
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.24	0.40	0.17	0.56	0.06

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 88 (88%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.69  
 Intersection Signal Delay: 16.9  
 Intersection LOS: B  
 Intersection Capacity Utilization 63.8%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 1: US 85 & Academy Blvd WB Ramps



HCM 6th TWSC  
2: W Access & US 85/West-Side Frontage Road

Existing  
PM

Intersection

Int Delay, s/veh 0

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑↑		↖	↑	↘	
Traffic Vol, veh/h	1000	1	1	625	1	1
Future Vol, veh/h	1000	1	1	625	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	95	95	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1087	1	1	658	1	1

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1088	0	1748
Stage 1	-	-	-	-	1088
Stage 2	-	-	-	-	660
Critical Hdwy	-	-	4.13	-	6.63
Critical Hdwy Stg 1	-	-	-	-	5.83
Critical Hdwy Stg 2	-	-	-	-	5.43
Follow-up Hdwy	-	-	2.219	-	3.519
Pot Cap-1 Maneuver	-	-	639	-	85
Stage 1	-	-	-	-	285
Stage 2	-	-	-	-	513
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	639	-	85
Mov Cap-2 Maneuver	-	-	-	-	202
Stage 1	-	-	-	-	285
Stage 2	-	-	-	-	512

Approach	SE	NW	NE
HCM Control Delay, s	0	0	17.7
HCM LOS			C

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	285	639	-	-	-
HCM Lane V/C Ratio	0.009	0.002	-	-	-
HCM Control Delay (s)	17.7	10.6	-	-	-
HCM Lane LOS	C	B	-	-	-
HCM 95th %tile Q(veh)	0	0	-	-	-

Lanes, Volumes, Timings  
1: US 85 & Academy Blvd WB Ramps

Short-Term BG + Site  
AM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	250	150	375	755	305	75
Future Volume (vph)	250	150	375	755	305	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	230			220
Storage Lanes	1	1	1			1
Taper Length (ft)	25		215			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.479			
Satd. Flow (perm)	1770	1583	892	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		163				82
Link Speed (mph)	35			50	50	
Link Distance (ft)	563			1069	422	
Travel Time (s)	11.0			14.6	5.8	
Peak Hour Factor	0.92	0.92	0.93	0.93	0.92	0.92
Adj. Flow (vph)	272	163	403	812	332	82
Shared Lane Traffic (%)						
Lane Group Flow (vph)	272	163	403	812	332	82
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			18	18	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Free	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		Free	2			6

Lanes, Volumes, Timings  
1: US 85 & Academy Blvd WB Ramps

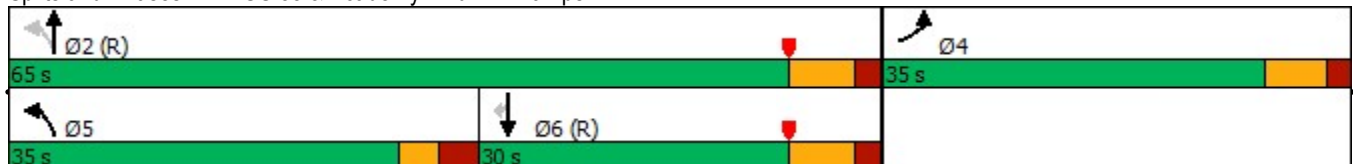


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4		5			
Switch Phase						
Minimum Initial (s)	5.0		5.0	15.0	15.0	15.0
Minimum Split (s)	11.5		11.0	22.0	22.0	22.0
Total Split (s)	35.0		35.0	65.0	30.0	30.0
Total Split (%)	35.0%		35.0%	65.0%	30.0%	30.0%
Maximum Green (s)	28.5		29.0	58.0	23.0	23.0
Yellow Time (s)	4.5		3.0	5.0	5.0	5.0
All-Red Time (s)	2.0		3.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0	-3.0	-3.0	-3.0
Total Lost Time (s)	5.5		5.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	C-Max	C-Max	C-Max
Act Effect Green (s)	21.5	100.0	68.0	69.0	47.3	47.3
Actuated g/C Ratio	0.22	1.00	0.68	0.69	0.47	0.47
v/c Ratio	0.71	0.10	0.54	0.33	0.20	0.10
Control Delay	46.5	0.1	9.5	5.5	18.0	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.5	0.1	9.5	5.5	18.0	5.5
LOS	D	A	A	A	B	A
Approach Delay	29.1			6.9	15.5	
Approach LOS	C			A	B	
Queue Length 50th (ft)	162	0	74	75	61	0
Queue Length 95th (ft)	229	0	147	107	118	32
Internal Link Dist (ft)	483			989	342	
Turn Bay Length (ft)			230			220
Base Capacity (vph)	522	1583	869	2440	1675	792
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.10	0.46	0.33	0.20	0.10

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 88 (88%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 13.3  
 Intersection LOS: B  
 Intersection Capacity Utilization 58.5%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 1: US 85 & Academy Blvd WB Ramps



Intersection												
Int Delay, s/veh	0.6											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	3	375	1	1	1000	15	1	0	1	15	0	3
Future Vol, veh/h	3	375	1	1	1000	15	1	0	1	15	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	345	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	93	93	93	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	408	1	1	1075	16	1	0	1	19	0	4

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	1091	0	0	409	0	0	1502	1508	205	1295	1500	1083
Stage 1	-	-	-	-	-	-	415	415	-	1085	1085	-
Stage 2	-	-	-	-	-	-	1087	1093	-	210	415	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	637	-	-	1148	-	-	92	120	802	129	121	263
Stage 1	-	-	-	-	-	-	586	592	-	262	292	-
Stage 2	-	-	-	-	-	-	261	289	-	773	592	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	637	-	-	1148	-	-	90	119	802	128	120	263
Mov Cap-2 Maneuver	-	-	-	-	-	-	90	119	-	128	120	-
Stage 1	-	-	-	-	-	-	583	589	-	261	292	-
Stage 2	-	-	-	-	-	-	257	289	-	768	589	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0.1	0	27.6	35.7
HCM LOS			D	E

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SERSWLn1
Capacity (veh/h)	162	1148	-	-	637	-	140
HCM Lane V/C Ratio	0.016	0.001	-	-	0.005	-	0.165
HCM Control Delay (s)	27.6	8.1	-	-	10.7	-	35.7
HCM Lane LOS	D	A	-	-	B	-	E
HCM 95th %tile Q(veh)	0	0	-	-	0	-	0.6



Lanes, Volumes, Timings  
1: US 85 & Academy Blvd WB Ramps

Short-Term BG + Site  
PM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	225	350	250	405	955	50
Future Volume (vph)	225	350	250	405	955	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	230			220
Storage Lanes	1	1	1			1
Taper Length (ft)	25		215			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.169			
Satd. Flow (perm)	1770	1583	315	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		376				48
Link Speed (mph)	35			50	50	
Link Distance (ft)	563			1069	430	
Travel Time (s)	11.0			14.6	5.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	242	376	269	435	1027	54
Shared Lane Traffic (%)						
Lane Group Flow (vph)	242	376	269	435	1027	54
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			18	18	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Free	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		Free	2			6

Lanes, Volumes, Timings  
1: US 85 & Academy Blvd WB Ramps

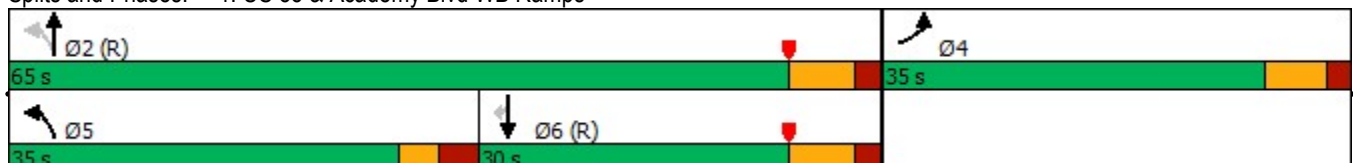


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4		5			
Switch Phase						
Minimum Initial (s)	5.0		5.0	15.0	15.0	15.0
Minimum Split (s)	11.5		11.0	22.0	22.0	22.0
Total Split (s)	35.0		35.0	65.0	30.0	30.0
Total Split (%)	35.0%		35.0%	65.0%	30.0%	30.0%
Maximum Green (s)	28.5		29.0	58.0	23.0	23.0
Yellow Time (s)	4.5		3.0	5.0	5.0	5.0
All-Red Time (s)	2.0		3.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0	-3.0	-3.0	-3.0
Total Lost Time (s)	5.5		5.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	C-Max	C-Max	C-Max
Act Effect Green (s)	19.9	100.0	69.6	70.6	51.8	51.8
Actuated g/C Ratio	0.20	1.00	0.70	0.71	0.52	0.52
v/c Ratio	0.69	0.24	0.64	0.17	0.56	0.06
Control Delay	46.8	0.4	21.8	4.3	20.0	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	0.4	21.8	4.3	20.0	6.7
LOS	D	A	C	A	B	A
Approach Delay	18.5			11.0	19.3	
Approach LOS	B			B	B	
Queue Length 50th (ft)	144	0	45	32	216	2
Queue Length 95th (ft)	209	0	163	50	380	27
Internal Link Dist (ft)	483			989	350	
Turn Bay Length (ft)			230			220
Base Capacity (vph)	522	1583	655	2497	1831	842
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.24	0.41	0.17	0.56	0.06

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 88 (88%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.69  
 Intersection Signal Delay: 16.7  
 Intersection LOS: B  
 Intersection Capacity Utilization 64.0%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 1: US 85 & Academy Blvd WB Ramps



Intersection												
Int Delay, s/veh	0.5											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	3	1000	1	1	625	15	1	0	1	15	0	3
Future Vol, veh/h	3	1000	1	1	625	15	1	0	1	15	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	345	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	1075	1	1	672	16	1	0	1	19	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	688	0	0	1076	0	0	1766	1772	538	1226	1764	680
Stage 1	-	-	-	-	-	-	1082	1082	-	682	682	-
Stage 2	-	-	-	-	-	-	684	690	-	544	1082	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	904	-	-	646	-	-	59	83	488	145	84	450
Stage 1	-	-	-	-	-	-	233	293	-	439	449	-
Stage 2	-	-	-	-	-	-	438	445	-	492	293	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	904	-	-	646	-	-	58	83	488	144	84	450
Mov Cap-2 Maneuver	-	-	-	-	-	-	58	83	-	144	84	-
Stage 1	-	-	-	-	-	-	232	292	-	438	448	-
Stage 2	-	-	-	-	-	-	434	444	-	489	292	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0	40.5	30.9
HCM LOS			E	D

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SERSWLn1
Capacity (veh/h)	104	646	-	-	904	-	162
HCM Lane V/C Ratio	0.025	0.002	-	-	0.004	-	0.142
HCM Control Delay (s)	40.5	10.6	-	-	9	-	30.9
HCM Lane LOS	E	B	-	-	A	-	D
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	0.5

Lanes, Volumes, Timings  
1: US 85 & Academy Blvd WB Ramps

2042 Background  
AM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	300	175	425	875	350	100
Future Volume (vph)	300	175	425	875	350	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	230			220
Storage Lanes	1	1	1			1
Taper Length (ft)	25		215			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.432			
Satd. Flow (perm)	1770	1583	805	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		190				109
Link Speed (mph)	35			50	50	
Link Distance (ft)	563			1069	403	
Travel Time (s)	11.0			14.6	5.5	
Peak Hour Factor	0.92	0.92	0.95	0.95	0.92	0.92
Adj. Flow (vph)	326	190	447	921	380	109
Shared Lane Traffic (%)						
Lane Group Flow (vph)	326	190	447	921	380	109
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			18	18	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Free	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		Free	2			6

Lanes, Volumes, Timings  
1: US 85 & Academy Blvd WB Ramps

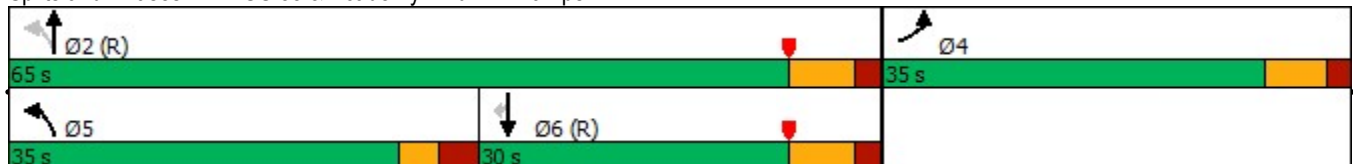


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4		5			
Switch Phase						
Minimum Initial (s)	5.0		5.0	15.0	15.0	15.0
Minimum Split (s)	11.5		11.0	22.0	22.0	22.0
Total Split (s)	35.0		35.0	65.0	30.0	30.0
Total Split (%)	35.0%		35.0%	65.0%	30.0%	30.0%
Maximum Green (s)	28.5		29.0	58.0	23.0	23.0
Yellow Time (s)	4.5		3.0	5.0	5.0	5.0
All-Red Time (s)	2.0		3.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0	-3.0	-3.0	-3.0
Total Lost Time (s)	5.5		5.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	C-Max	C-Max	C-Max
Act Effect Green (s)	24.0	100.0	65.5	66.5	42.5	42.5
Actuated g/C Ratio	0.24	1.00	0.66	0.66	0.42	0.42
v/c Ratio	0.77	0.12	0.63	0.39	0.25	0.15
Control Delay	47.3	0.2	14.5	6.6	21.5	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.3	0.2	14.5	6.6	21.5	5.7
LOS	D	A	B	A	C	A
Approach Delay	30.0			9.1	18.0	
Approach LOS	C			A	B	
Queue Length 50th (ft)	193	0	83	86	80	0
Queue Length 95th (ft)	274	0	218	127	144	39
Internal Link Dist (ft)	483			989	323	
Turn Bay Length (ft)			230			220
Base Capacity (vph)	522	1583	816	2352	1505	736
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.12	0.55	0.39	0.25	0.15

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 88 (88%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.77  
 Intersection Signal Delay: 15.5  
 Intersection LOS: B  
 Intersection Capacity Utilization 64.6%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 1: US 85 & Academy Blvd WB Ramps



Intersection						
Int Delay, s/veh	0					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑↑		↖	↑	↘	
Traffic Vol, veh/h	450	1	1	1175	1	1
Future Vol, veh/h	450	1	1	1175	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	484	1	1	1263	1	1

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	485	0	1750	243
Stage 1	-	-	-	-	485	-
Stage 2	-	-	-	-	1265	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1076	-	85	758
Stage 1	-	-	-	-	586	-
Stage 2	-	-	-	-	264	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1076	-	85	758
Mov Cap-2 Maneuver	-	-	-	-	198	-
Stage 1	-	-	-	-	586	-
Stage 2	-	-	-	-	264	-

Approach	SE	NW	NE
HCM Control Delay, s	0	0	16.6
HCM LOS			C

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	314	1076	-	-	-
HCM Lane V/C Ratio	0.008	0.001	-	-	-
HCM Control Delay (s)	16.6	8.3	-	-	-
HCM Lane LOS	C	A	-	-	-
HCM 95th %tile Q(veh)	0	0	-	-	-

Lanes, Volumes, Timings  
1: US 85 & Academy Blvd WB Ramps

2042 Background  
PM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	275	400	300	475	1000	75
Future Volume (vph)	275	400	300	475	1000	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	230			220
Storage Lanes	1	1	1			1
Taper Length (ft)	25		215			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.131			
Satd. Flow (perm)	1770	1583	244	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		430				68
Link Speed (mph)	35			50	50	
Link Distance (ft)	563			1069	416	
Travel Time (s)	11.0			14.6	5.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.95	0.95
Adj. Flow (vph)	296	430	323	511	1053	79
Shared Lane Traffic (%)						
Lane Group Flow (vph)	296	430	323	511	1053	79
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			18	18	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Free	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		Free	2			6

Lanes, Volumes, Timings  
1: US 85 & Academy Blvd WB Ramps

2042 Background  
PM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4		5			
Switch Phase						
Minimum Initial (s)	5.0		5.0	15.0	15.0	15.0
Minimum Split (s)	11.5		11.0	22.0	22.0	22.0
Total Split (s)	35.0		35.0	65.0	30.0	30.0
Total Split (%)	35.0%		35.0%	65.0%	30.0%	30.0%
Maximum Green (s)	28.5		29.0	58.0	23.0	23.0
Yellow Time (s)	4.5		3.0	5.0	5.0	5.0
All-Red Time (s)	2.0		3.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0	-3.0	-3.0	-3.0
Total Lost Time (s)	5.5		5.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	C-Max	C-Max	C-Max
Act Effect Green (s)	22.8	100.0	66.7	67.7	45.7	45.7
Actuated g/C Ratio	0.23	1.00	0.67	0.68	0.46	0.46
v/c Ratio	0.73	0.27	0.77	0.21	0.65	0.10
Control Delay	46.3	0.4	37.6	5.4	26.4	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.3	0.4	37.6	5.4	26.4	7.8
LOS	D	A	D	A	C	A
Approach Delay	19.1			17.9	25.1	
Approach LOS	B			B	C	
Queue Length 50th (ft)	175	0	129	46	262	4
Queue Length 95th (ft)	246	0	254	68	#500	39
Internal Link Dist (ft)	483			989	336	
Turn Bay Length (ft)			230			220
Base Capacity (vph)	522	1583	620	2395	1616	760
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.27	0.52	0.21	0.65	0.10

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 88 (88%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.77  
 Intersection Signal Delay: 21.3  
 Intersection LOS: C  
 Intersection Capacity Utilization 70.7%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.



Splits and Phases: 1: US 85 & Academy Blvd WB Ramps



Lanes, Volumes, Timings  
3: US 85 & Academy Blvd EB

2042 Background  
PM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	80	221	256	1249	346	165
Future Volume (vph)	80	221	256	1249	346	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	525			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		140			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.83					
Fr <sub>t</sub>		0.850				0.850
Fl <sub>t</sub> Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Fl <sub>t</sub> Permitted	0.950		0.462			
Satd. Flow (perm)	1473	1583	861	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		240				179
Link Speed (mph)	35			50	50	
Link Distance (ft)	617			1166	1069	
Travel Time (s)	12.0			15.9	14.6	
Confl. Peds. (#/hr)	165					
Peak Hour Factor	0.92	0.92	0.95	0.95	0.92	0.92
Growth Factor	300%	100%	100%	100%	100%	100%
Adj. Flow (vph)	261	240	269	1315	376	179
Shared Lane Traffic (%)						
Lane Group Flow (vph)	261	240	269	1315	376	179
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			18	18	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	

Lanes, Volumes, Timings  
3: US 85 & Academy Blvd EB

2042 Background  
PM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Turn Type	Prot	Free	pm+pt	NA	NA	Perm
Protected Phases	8		5	2	6	
Permitted Phases		Free	2			6
Detector Phase	8		5			
Switch Phase						
Minimum Initial (s)	5.0		5.0	15.0	15.0	15.0
Minimum Split (s)	11.5		11.0	22.0	22.0	22.0
Total Split (s)	35.0		25.0	65.0	40.0	40.0
Total Split (%)	35.0%		25.0%	65.0%	40.0%	40.0%
Maximum Green (s)	28.5		19.0	58.0	33.0	33.0
Yellow Time (s)	4.5		3.0	5.0	5.0	5.0
All-Red Time (s)	2.0		3.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0	-3.0	-3.0	-3.0
Total Lost Time (s)	5.5		5.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	C-Max	C-Max	C-Max
Act Effct Green (s)	21.0	100.0	68.5	69.5	52.0	52.0
Actuated g/C Ratio	0.21	1.00	0.68	0.70	0.52	0.52
v/c Ratio	0.70	0.15	0.38	0.53	0.20	0.20
Control Delay	46.6	0.2	8.3	9.1	4.1	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.6	0.2	8.3	9.1	4.1	0.4
LOS	D	A	A	A	A	A
Approach Delay	24.4			8.9	2.9	
Approach LOS	C			A	A	
Queue Length 50th (ft)	155	0	56	187	17	0
Queue Length 95th (ft)	221	0	111	298	30	m0
Internal Link Dist (ft)	537			1086	989	
Turn Bay Length (ft)			525			
Base Capacity (vph)	522	1583	771	2460	1841	909
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.15	0.35	0.53	0.20	0.20

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 4 (4%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.70  
 Intersection Signal Delay: 10.6  
 Intersection Capacity Utilization 55.7%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service B  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: US 85 & Academy Blvd EB



Intersection						
Int Delay, s/veh	0					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑↑		↖	↑	↘	
Traffic Vol, veh/h	1175	1	1	750	1	1
Future Vol, veh/h	1175	1	1	750	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	93	93	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1237	1	1	806	1	1

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1238	0	2046
Stage 1	-	-	-	-	1238
Stage 2	-	-	-	-	808
Critical Hdwy	-	-	4.13	-	6.63
Critical Hdwy Stg 1	-	-	-	-	5.83
Critical Hdwy Stg 2	-	-	-	-	5.43
Follow-up Hdwy	-	-	2.219	-	3.519
Pot Cap-1 Maneuver	-	-	560	-	55
Stage 1	-	-	-	-	238
Stage 2	-	-	-	-	437
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	560	-	55
Mov Cap-2 Maneuver	-	-	-	-	163
Stage 1	-	-	-	-	238
Stage 2	-	-	-	-	436

Approach	SE	NW	NE
HCM Control Delay, s	0	0	20.4
HCM LOS			C

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	237	560	-	-	-
HCM Lane V/C Ratio	0.011	0.002	-	-	-
HCM Control Delay (s)	20.4	11.4	-	-	-
HCM Lane LOS	C	B	-	-	-
HCM 95th %tile Q(veh)	0	0	-	-	-

Lanes, Volumes, Timings  
1: US 85 & Academy Blvd WB Ramps



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	300	175	425	880	355	100
Future Volume (vph)	300	175	425	880	355	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	230			220
Storage Lanes	1	1	1			1
Taper Length (ft)	25		215			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.428			
Satd. Flow (perm)	1770	1583	797	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		190				109
Link Speed (mph)	35			50	50	
Link Distance (ft)	563			1069	393	
Travel Time (s)	11.0			14.6	5.4	
Peak Hour Factor	0.92	0.92	0.95	0.95	0.92	0.92
Adj. Flow (vph)	326	190	447	926	386	109
Shared Lane Traffic (%)						
Lane Group Flow (vph)	326	190	447	926	386	109
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			18	18	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Free	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		Free	2			6

Lanes, Volumes, Timings  
1: US 85 & Academy Blvd WB Ramps

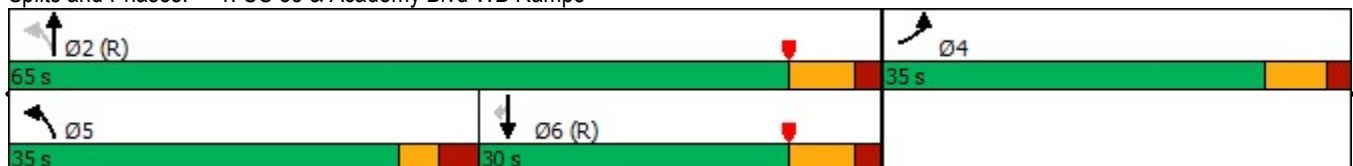


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4		5			
Switch Phase						
Minimum Initial (s)	5.0		5.0	15.0	15.0	15.0
Minimum Split (s)	11.5		11.0	22.0	22.0	22.0
Total Split (s)	35.0		35.0	65.0	30.0	30.0
Total Split (%)	35.0%		35.0%	65.0%	30.0%	30.0%
Maximum Green (s)	28.5		29.0	58.0	23.0	23.0
Yellow Time (s)	4.5		3.0	5.0	5.0	5.0
All-Red Time (s)	2.0		3.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0	-3.0	-3.0	-3.0
Total Lost Time (s)	5.5		5.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	C-Max	C-Max	C-Max
Act Effect Green (s)	24.0	100.0	65.5	66.5	42.5	42.5
Actuated g/C Ratio	0.24	1.00	0.66	0.66	0.42	0.42
v/c Ratio	0.77	0.12	0.63	0.39	0.26	0.15
Control Delay	47.3	0.2	14.6	7.2	21.6	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.3	0.2	14.6	7.2	21.6	5.7
LOS	D	A	B	A	C	A
Approach Delay	30.0			9.6	18.1	
Approach LOS	C			A	B	
Queue Length 50th (ft)	193	0	83	87	81	0
Queue Length 95th (ft)	274	0	227	156	146	39
Internal Link Dist (ft)	483			989	313	
Turn Bay Length (ft)			230			220
Base Capacity (vph)	522	1583	813	2352	1505	736
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.12	0.55	0.39	0.26	0.15

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 88 (88%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.77  
 Intersection Signal Delay: 15.8  
 Intersection LOS: B  
 Intersection Capacity Utilization 64.7%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 1: US 85 & Academy Blvd WB Ramps



Intersection												
Int Delay, s/veh	0.7											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↔	↕↔		↔	↕			↕↔			↕↔	
Traffic Vol, veh/h	3	450	1	1	1175	15	1	0	1	15	0	3
Future Vol, veh/h	3	450	1	1	1175	15	1	0	1	15	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	345	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	95	95	95	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	489	1	1	1237	16	1	0	1	19	0	4

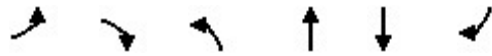
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1253	0	0	490	0	0	1745	1751	245	1498	1743	1245
Stage 1	-	-	-	-	-	-	496	496	-	1247	1247	-
Stage 2	-	-	-	-	-	-	1249	1255	-	251	496	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	553	-	-	1071	-	-	61	85	756	92	86	211
Stage 1	-	-	-	-	-	-	525	544	-	212	244	-
Stage 2	-	-	-	-	-	-	211	242	-	732	544	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	553	-	-	1071	-	-	60	84	756	91	85	211
Mov Cap-2 Maneuver	-	-	-	-	-	-	60	84	-	91	85	-
Stage 1	-	-	-	-	-	-	522	541	-	211	244	-
Stage 2	-	-	-	-	-	-	207	242	-	727	541	-

Approach	SE			NW			NE			SW		
HCM Control Delay, s	0.1			0			38.2			50.9		
HCM LOS							E			F		

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SERSWLn1
Capacity (veh/h)	111	1071	-	-	553	-	101
HCM Lane V/C Ratio	0.023	0.001	-	-	0.006	-	0.228
HCM Control Delay (s)	38.2	8.4	-	-	11.5	-	50.9
HCM Lane LOS	E	A	-	-	B	-	F
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	0.8



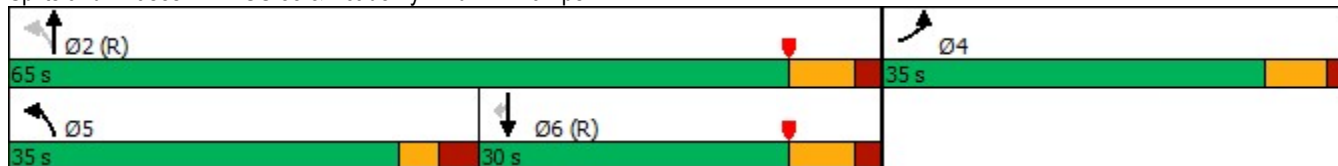
Lanes, Volumes, Timings  
1: US 85 & Academy Blvd WB Ramps



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	275	400	300	480	1105	75
Future Volume (vph)	275	400	300	480	1105	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	230			220
Storage Lanes	1	1	1			1
Taper Length (ft)	25		215			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.099			
Satd. Flow (perm)	1770	1583	184	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		430				62
Link Speed (mph)	35			50	50	
Link Distance (ft)	563			1069	380	
Travel Time (s)	11.0			14.6	5.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.95	0.95
Adj. Flow (vph)	296	430	323	516	1163	79
Shared Lane Traffic (%)						
Lane Group Flow (vph)	296	430	323	516	1163	79
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			18	18	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Free	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		Free	2			6



Splits and Phases: 1: US 85 & Academy Blvd WB Ramps



Intersection												
Int Delay, s/veh	0.6											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↔	↕↔		↔	↕			↕↔			↕↔	
Traffic Vol, veh/h	3	1175	1	1	750	15	1	0	1	15	0	3
Future Vol, veh/h	3	1175	1	1	750	15	1	0	1	15	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	345	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	93	93	93	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	1237	1	1	806	16	1	0	1	19	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	822	0	0	1238	0	0	2062	2068	619	1441	2060	814
Stage 1	-	-	-	-	-	-	1244	1244	-	816	816	-
Stage 2	-	-	-	-	-	-	818	824	-	625	1244	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	805	-	-	560	-	-	36	54	432	101	55	377
Stage 1	-	-	-	-	-	-	185	245	-	370	390	-
Stage 2	-	-	-	-	-	-	369	386	-	440	245	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	805	-	-	560	-	-	35	54	432	100	55	377
Mov Cap-2 Maneuver	-	-	-	-	-	-	35	54	-	100	55	-
Stage 1	-	-	-	-	-	-	184	244	-	369	389	-
Stage 2	-	-	-	-	-	-	365	385	-	437	244	-

Approach	SE			NW			NE			SW		
HCM Control Delay, s	0			0			62.6			44.4		
HCM LOS							F			E		

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SERSWLn1
Capacity (veh/h)	65	560	-	-	805	-	114
HCM Lane V/C Ratio	0.039	0.002	-	-	0.004	-	0.202
HCM Control Delay (s)	62.6	11.4	-	-	9.5	-	44.4
HCM Lane LOS	F	B	-	-	A	-	E
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	0.7