

April 22, 2025

Cynthia Mancha
City of Brawley
383 Main Street
Brawley, CA 92227

Re: Brawley Mixed Use Master Plan Development – Traffic Analysis Update Memorandum

Michael Baker International (Michael Baker) conducted a Transportation Impact Analysis (TIA) on January 7, 2025 for the proposed Brawley Mixed-Use Master Plan Development (proposed Project). In April 2025, the Project applicant modified the Project site plan, reducing the overall commercial space proposed while increasing the number of hotel rooms, as outlined in **Table 1**. The updated Project site plan is provided in **Exhibit 1**. This technical memorandum has been prepared to assess whether the revised Project's traffic impact alters the original findings of the previously prepared TIA.

TABLE 1: BRAWLEY MIXED USE DEVELOPMENT LAND USE COMPARISON

Land Use	Previous Site Plan	Updated Site Plan	Change (+/-)
Multi-Family Residential	408 Units	408 Units	No Change
Shopping Plaza	85,000 SF	65,500 SF	-19,500 SF
Shopping Center	240,000 SF	243,000 SF	+3,000 SF
Hotel	100 Rooms	150 Rooms	+50 Rooms

SF = square feet

Project Trip Generation

In order to calculate the vehicular trips forecast to be generated by the Project, trip rates from the *Institute of Transportation Engineers (ITE) 11th Edition Trip Generation Manual* were utilized, refer to **Table 2**.

TABLE 2: ITE TRIP GENERATION RATES

Land Use	ITE Code ¹	Daily Trip Rate	AM Peak Hour Rate		PM Peak Hour Rate	
			Total	In : Out	Total	In : Out
Multi-Family Residential	220	6.74 /DU	0.40 /DU	24% : 76%	0.51 /DU	63% : 37%
Shopping Plaza	821	67.52 /KSF	1.73 /KSF	62% : 38%	5.91 /KSF	49% : 51%
Shopping Center	820	37.01 /KSF	0.84 /KSF	62% : 38%	3.40 /KSF	48% : 52%
Hotel	310	7.99 /Room	0.46 /KSF	56% : 44%	0.59 /KSF	51% : 49%

¹ Source: ITE Trip Generation Manual, 11th Edition.

Table 3 presents the Previous Project Trip Generation identified in the January 2025 TIA for the prior Project design, which shows a total of 15,150 daily vehicle trips with 489 AM and 1,247 PM peak hour trips.

TABLE 3: PREVIOUS PROJECT TRIP GENERATION

Land Use	Pad	Intensity	Daily Trips	AM Peak Hour Trips		PM Peak Hour Trips	
				Total	In : Out	Total	In : Out
Multi-Family Residential	-	408 DU	2750	163	39 : 124	208	131 : 77
Shopping Plaza	1 thru 8	85 KSF	5739	147	91 : 56	441	216 : 225
Shopping Center	10 thru 12	240 KSF	8882	202	125 : 77	816	392 : 424
<i>Pass-By Trips Reduction (34%)¹</i>			-3020	-69	-43 : -26	-277	-133 : -144
<i>Sub-Total Shopping Center Trips</i>			5862	133	83 : 51	539	259 : 280
Hotel	9	100 Rooms	799	46	26 : 20	59	30 : 29
TOTAL TRIP GENERATION			15150	489	239 : 251	1247	636 : 611

Notes:

DU = Dwelling Unit

KSF = 1,000 Square Feet

¹ ITE Trip Generation Handbook

Table 4 presents the Updated Project Trip Generation per the updated site plan which shows the revised Project is expected to generate a total of 14,307 daily vehicle trips with 480 AM and 1,182 PM peak hour trips.

TABLE 4: UPDATED PROJECT TRIP GENERATION

Land Use	Pad	Intensity	Daily Trips	AM Peak Hour Trips		PM Peak Hour Trips	
				Total	In : Out	Total	In : Out
Multi-Family Residential	-	408 DU	2,750	163	39 : 124	208	131 : 77
Shopping Plaza	1 thru 8	65.5 KSF	4,423	113	70 : 43	340	167 : 173
Shopping Center	10 thru 11	243 KSF	8,993	204	127 : 77	826	397 : 429
<i>Pass-By Trips Reduction (34%)¹</i>			-3058	-69	-43 : -26	-281	-135 : -146
<i>Sub-Total Shopping Center Trips</i>			5935	135	84 : 51	545	262 : 283
Hotel	9	150 Rooms	1,199	69	39 : 30	89	45 : 44
TOTAL TRIP GENERATION			14307	480	232 : 248	1182	605 : 577

Notes:

DU = Dwelling Unit

KSF = 1,000 Square Feet

¹ ITE Trip Generation Handbook

As shown in **Table 5**, the revised Project is expected to generate 843 fewer daily vehicle trips, 9 fewer AM peak hour trips, and 65 fewer PM peak hour trips than the previously proposed Project.

TABLE 5: PROJECT TRIP GENERATION COMPARISON

Site Plan	Daily Trips	AM Peak Hour	PM Peak Hour
Previous Project	15,150	489	1,247
Updated Project	14,307	480	1,182
Change (+/-)	-843	-9	-65

Project Trip Assignment

With the revised site plan, the proposed commercial component has been reduced from 325,000 SF to 308,500 SF, reflecting a decrease of 16,500 SF. **Exhibit 3** illustrates the Project Only Trip Assignment for the revised commercial trips at the study intersections (it should be noted that the same study intersections were considered in evaluating the revised site plan as were previously analyzed in the January 2025 TIA). The revised Project site plan maintains a total of 408 residential dwelling units, consistent with the analysis in the previously prepared TIA. As a result, the Project Only trip assignment for the residential uses, as shown in **Exhibit 4**, remains unchanged. **Exhibit 5** provides the Total Project Trip Assignment, incorporating both residential and commercial daily and AM/PM peak hour trips.

Opening Year 2028 Plus Project Analysis

Based on the updated commercial trips, the Opening Year 2028 Plus Project daily and AM/PM peak hour trips were updated and shown in **Exhibit 6**. The Opening Year 2028 Without Project and Opening Year 2028 Plus Project Level of Service (LOS) for the study intersections considered are shown in **Table 6** below. All intersections are forecast to operate at an acceptable LOS (LOS D or better) with the revised Project during both the AM and PM peak hours, similar to that concluded in the January 2025 TIA for the prior Project design.

Roadway segments within the study area were also evaluated based on the updated site plan. **Table 7** shows the LOS results for the study segments under Opening Year 2028 Without and Plus Project conditions. S Brawley Avenue from Malan Street to Wildcat Drive is projected to operate at LOS F under Opening Year 2028 Plus Project conditions. As mentioned in the January 2025 TIA Report, if project-generated traffic causes a roadway to deteriorate to LOS E or below, the roadway segment must be upgraded to its ultimate General Plan Mobility Element classification unless it has already been constructed accordingly. This segment of S Brawley Avenue has already been developed to its ultimate classification as a four-lane arterial. Additionally, the intersections at S Brawley Avenue & Malan Street and S Brawley Avenue & Wildcat Drive are expected to function at acceptable levels (LOS D) during both the AM and PM peak hours with addition of the proposed Project; refer to **Table 6**. Therefore, no improvements are recommended for S Brawley Avenue from Malan Street to Wildcat Drive.

TABLE 6: OPENING YEAR 2028 WITHOUT & PLUS PROJECT AM & PM PEAK HOUR STUDY INTERSECTION LOS

Study Intersection	Traffic Control	Opening Year 2028 Without Project		Opening Year 2028 Plus Project Conditions	
		AM	PM	AM	PM
		Delay ⁽¹⁾ - LOS	Delay ⁽¹⁾ - LOS	Delay ⁽¹⁾ - LOS	Delay ⁽¹⁾ - LOS
1 - 1st Street & Main Street	Signal	32.6 - C	26.2 - C	41.4 - D	40.1 - D
2 - 1st Street & K Street	Signal	25.8 - C	25.3 - C	26.3 - C	28.6 - C
3 - S Brawley Avenue & Malan Street	Signal	34.2 - C	32.7 - C	35.7 - D	39.3 - D
4 - S Brawley Avenue & Wildcat Drive	Signal	37.6 - D	30.5 - C	40.5 - D	33.3 - C
5 - S Brawley Avenue & Legion Road	Signal	36 - D	28.6 - C	41.3 - D	52.7 - D
6 - Project Driveway #1 & Future Legion Road	Signal	Does Not Exist Without Project		19.1 - B	36.7 - D
7 - Project Driveway #2 & Future Legion Road	OWSC	Does Not Exist Without Project		9.6 - A	9.8 - A
8 - Project Driveway #3 & Future Legion Road	OWSC	Does Not Exist Without Project		9.2 - A	9.0 - A
9 - S Brawley Avenue & Future Mead Road	Signal	Does Not Exist Without Project		2.7 - A	6.9 - A
10 - Project Driveway #4 & Future Mead Road	OWSC	Does Not Exist Without Project		8.5 - A	9.0 - A
11 - SR-86 & Keystone Road	Signal	30.8 - C	30.1 - C	34.9 - C	46.1 - D

Note: Deficient intersection operation indicated in **bold**.

⁽¹⁾ Average seconds of delay per vehicle.

LOS = Level of Service. OWSC = One-Way Stop Control.

TABLE 7: OPENING YEAR 2028 WITHOUT & PLUS PROJECT AM & PM PEAK HOUR STUDY INTERSECTION LOS

Roadway	Segment	Classification (No. Lanes)	LOS E Capacity	Opening Year 2028 Without Project			Opening Year 2028 Plus Project			Δ V/C	Improv. Warranted ?
				ADT	V/C	LOS	ADT	V/C	LOS		
1st Street	Main St. to K St.	4-Lane Divided Arterial	36,000	11,866	0.33	A	18,304	0.51	A	0.179	No
	K St. to Malan St.	4-Lane Undivided Arterial	27,000	12,791	0.47	A	19,945	0.74	C	0.265	No
S Brawley Avenue	Malan St. to Wildcat Dr.	4-Lane Undivided Arterial	27,000	21,281	0.79	C	29,150	1.08	F	0.291	No
	Wildcat Dr. to Legion Rd.	4-Lane Undivided Arterial	27,000	14,900	0.55	A	23,484	0.87	D	0.318	No

Note: Deficient roadway segment operations shown in **bold**.

LOS= Level of Service

V/C= Volume to Capacity Ratio

Δ= Difference

Vehicle Miles Traveled (VMT) Analysis

A VMT analysis was completed as part of the original January 2025 TIA. The previous VMT analysis showed the Project's VMT/employee value (9.46) is less than Imperial County's VMT/employee value of 10.04; therefore, no mitigation is required. For the residential component, the total home-based VMT/capita for the Project's Traffic Analysis Zone (TAZ) is 12.55, which is slightly higher than Imperial County's total home-based VMT/capita (12.04). For the Project to have a less-than-significant impact, the total VMT/capita would need to be 10.67 which is 15% below Imperial County's VMT/capita. As such, an 11% reduction in VMT/capita is needed to reduce impacts to less than significant.

The revised Project does not change the findings of the original VMT analysis. The VMT/employee and VMT/capita remain the same, and the revised Project would therefore similarly be required to reduce VMT/capita to avoid a potentially significant VMT-related impact.

Mitigation measure T-1 (Increase Residential Density) as identified in the January 2025 VMT analysis would remain applicable to reduce potential impacts. With implementation of mitigation measure T-1, the Project's VMT/capita would be reduced by 12% which exceeds the 11% needed for the residential component of the Project. Therefore, in accordance with the California Governor's Office of Planning and Research Guidelines, the revised Project is presumed to have a less than significant transportation-related impact, similar to that concluded for the prior Project design in the January 2025 VMT analysis.

Conclusion

Analysis of the revised Project site plan confirms that the proposed modifications, including the reduction in commercial space and increase in number of hotel rooms, do not significantly alter the findings of the previously prepared TIA (January 2025). The revised Project is expected to generate fewer daily and peak-hour vehicle trips compared to the original Project design, thereby reducing the overall traffic impact.

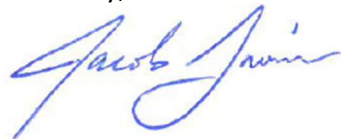
All study intersections are forecast to operate at acceptable levels of service (LOS D or better) under Opening Year 2028 Plus Project conditions for the revised Project site plan, similar to that concluded for the original Project design. While S Brawley Avenue from Malan Street to Wildcat Drive is projected to operate at LOS F, this segment has already been developed to its ultimate classification as a four-lane arterial, and no additional roadway improvements are necessary.

Additionally, the VMT analysis for the revised Project remains consistent with the original TIA findings. Mitigation measure T-1 (Increased Residential Density), as identified in the January 2025 VMT analysis, for the residential component would remain applicable and would achieve the required reduction in VMT/capita, reducing potential impacts to less than significant, similar to the original Project.

Given these findings, transportation-related impacts resulting with the revised Project site plan align with the conclusions of the previously prepared TIA (January 2025). No new significant or substantially increased impacts would result with the revised Project, and no additional mitigation measures or improvements are required or recommended.

Please let us know if you have any questions regarding this analysis.

Sincerely,

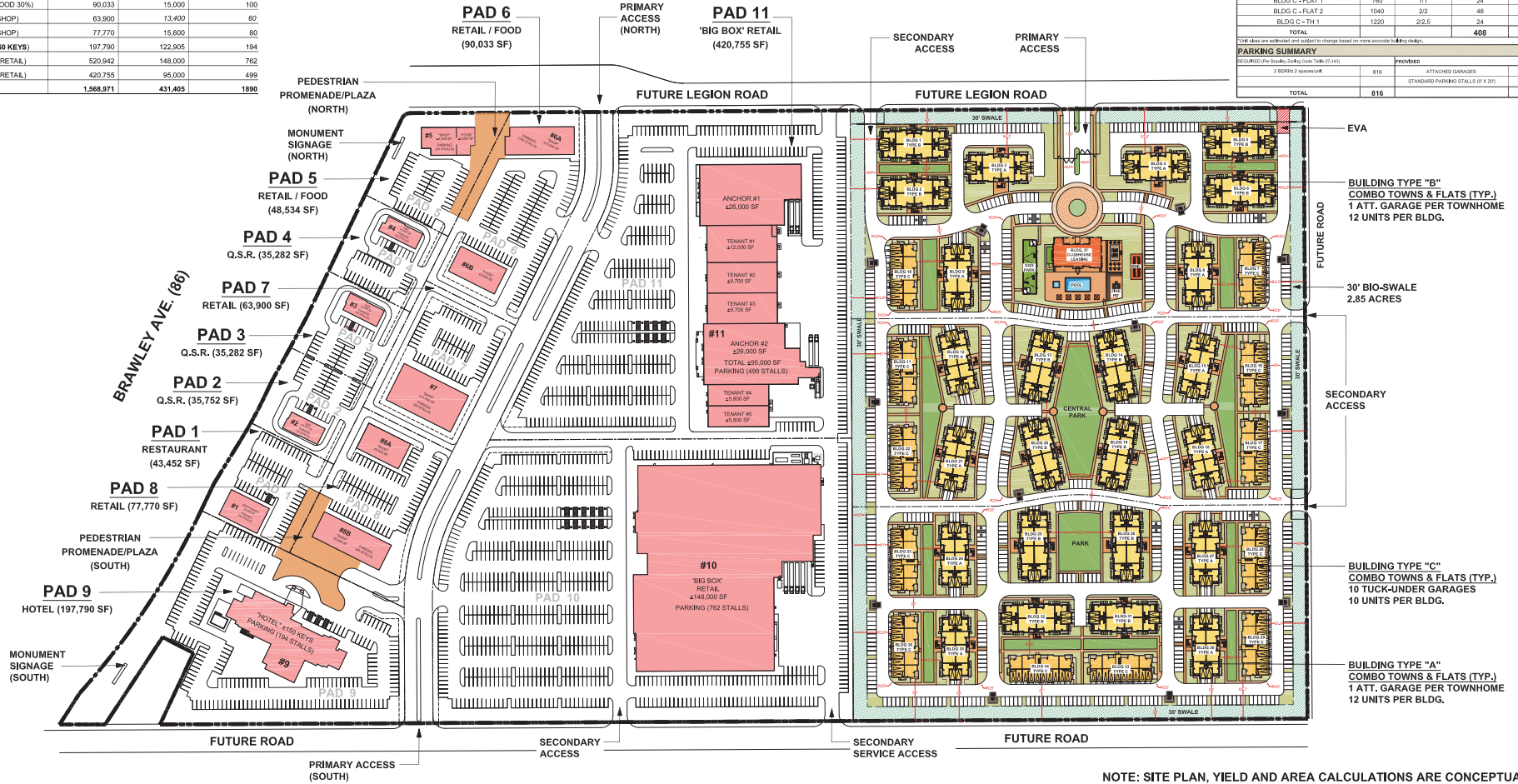


Jacob Swim, TE
Michael Baker International

Enclosed: Opening Year 2028 Plus Project AM and PM Synchro Worksheets

COMMERCIAL PAD SUMMARY TABLE			
SITE AREA		36 ACRES	
PAD SUMMARY			
PAD NUMBER	LOT SIZE (SF)	TOTAL BUILDING AREA(SF)	NO. OF PARKING PROVIDED
#1 (RESTAURANT)	43,452	5,400	56
#2 (Q.S.R.)	35,753	3,200	32
#3 (Q.S.R.)	34,760	3,200	32
#4 (Q.S.R.)	35,282	3,200	33
#5 (RETAIL /FOOD 30%)	48,534	6,500	42
#6 (RETAIL/FOOD 30%)	90,033	15,000	100
#7 (RETAIL / SHOP)	63,900	13,400	60
#8 (RETAIL /SHOP)	77,770	15,600	80
#9 (HOTEL, 150 KEYS)	197,790	122,905	194
#4 (BIG BOX RETAIL)	520,942	148,000	762
#4 (BIG BOX RETAIL)	420,755	95,000	499
TOTAL	1,568,971	431,405	1990

APARTMENT SUMMARY TABLE				
SITE AREA		28.77 ACRES		
TOTAL UNITS		408 UNITS		
DENSITY		14.2 DU/AC		
APARTMENT UNIT SUMMARY				
UNIT PLAN	SQ. FT.	BEDS	UNITS	TOTAL SQ. FT.
BLDG A - UNIT 1	780	1/1	48	36,480
BLDG A - UNIT 2A	1053	2/2	48	50,544
BLDG A - UNIT 2B (TH)	1200	2/2.5	48	57,600
BLDG B - UNIT 2A	1053	2/2	96	101,088
BLDG B - UNIT 2B (TH)	1200	2/2.5	48	57,600
BLDG C - CARTRIDGE 1	715	1/1	24	17,160
BLDG C - FLAT 1	789	1/1	24	18,240
BLDG C - FLAT 2	1040	2/2	48	48,920
BLDG C - TH 1	1220	2/2.5	24	29,280
TOTAL			408	273,288
Note: All data are preliminary and subject to change based on more accurate boundary data.				
PARKING SUMMARY				
REQUIRED (Per Parking Code Table (P-14))		PROVIDED		
2 BDRM 2+ bedroom		816	ATTACHED GARAGES	216
TOTAL		816	STANDARD PARKING STALLS (8' X 20')	620
				836



NOTE: SITE PLAN, YIELD AND AREA CALCULATIONS ARE CONCEPTUAL AND SUBJECT TO CHANGE BASED ON MORE ACCURATE BOUNDARY DATA.

Source: W Design & Architects, 03/09/2025

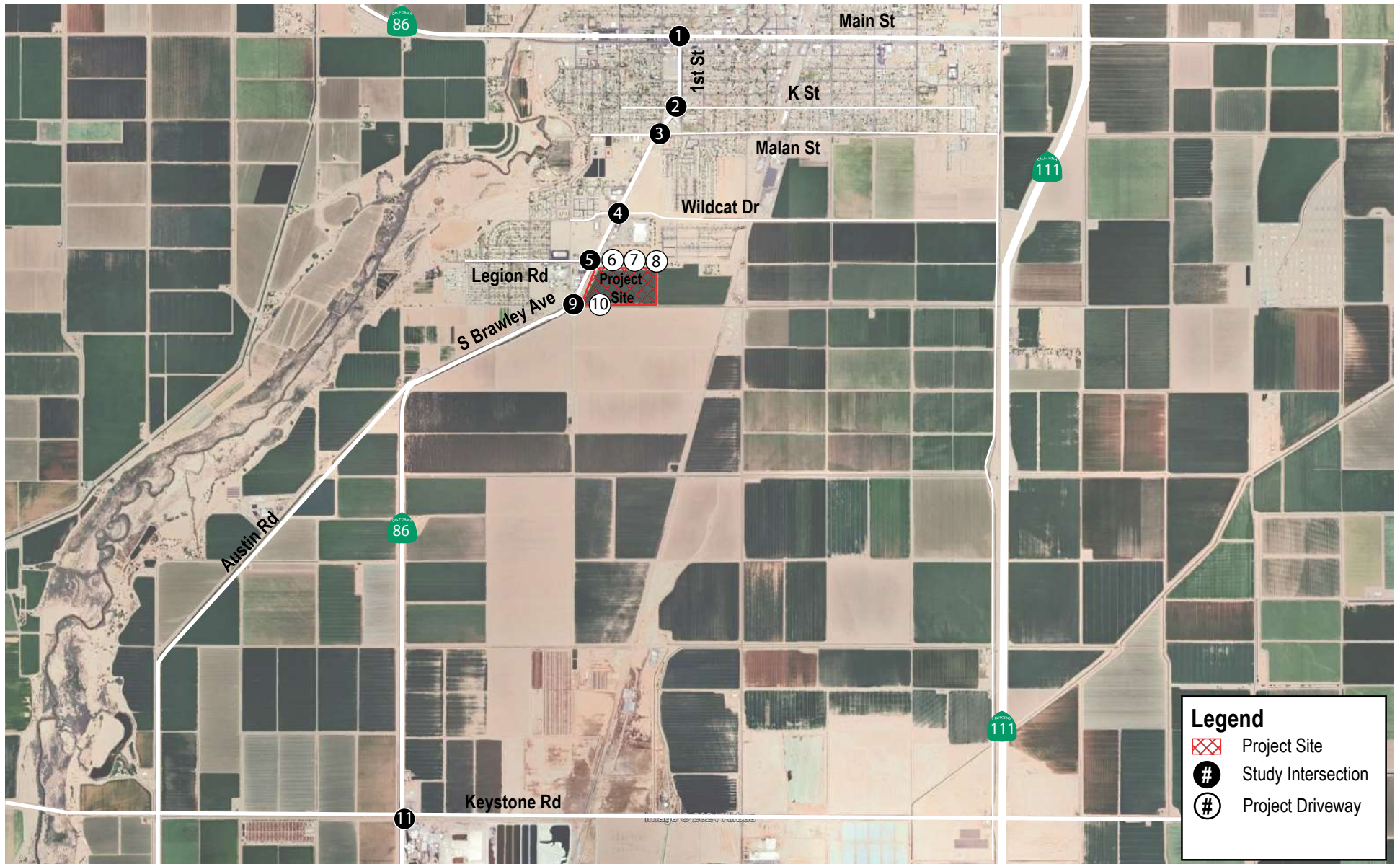


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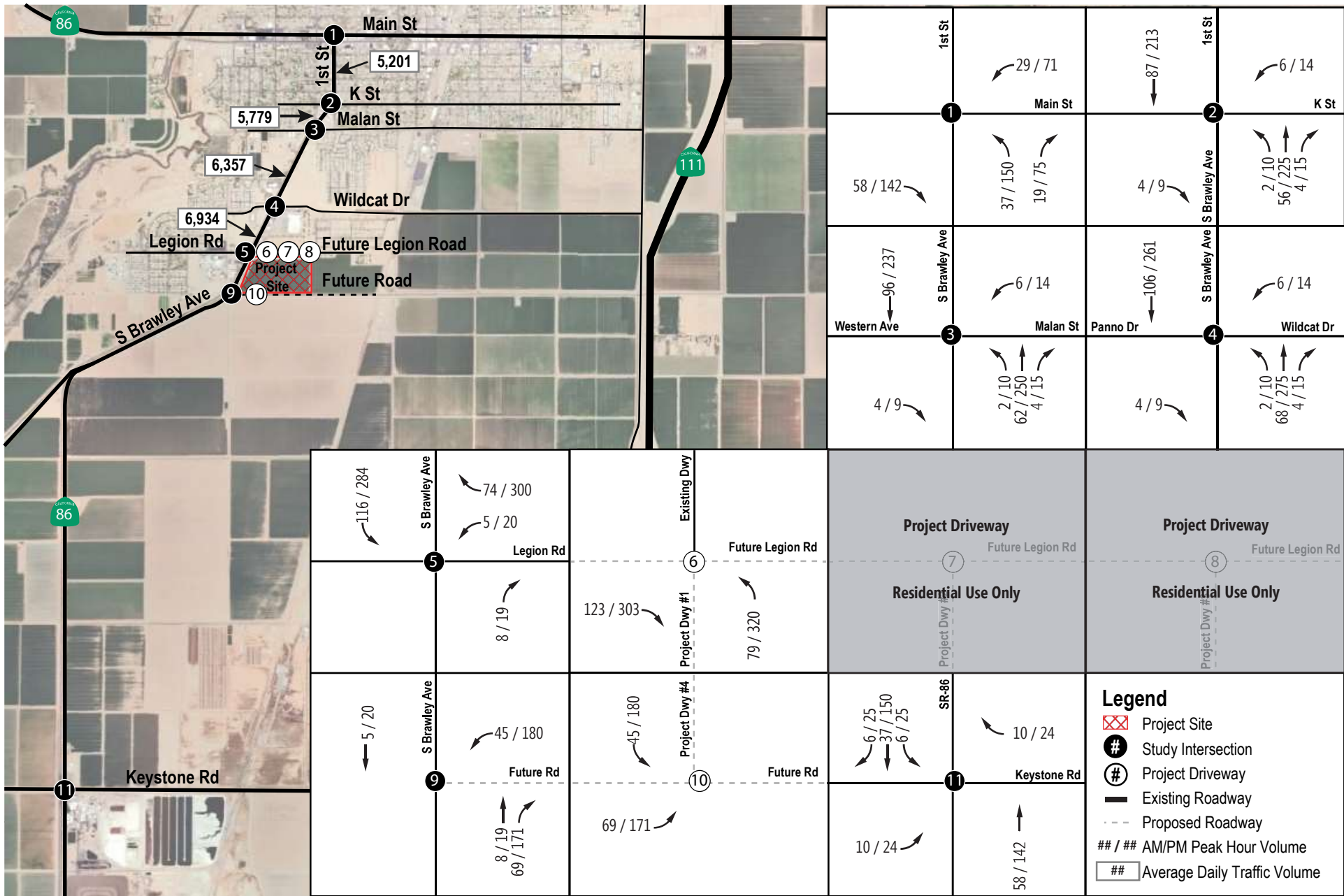
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Project Site Plan

Exhibit 1



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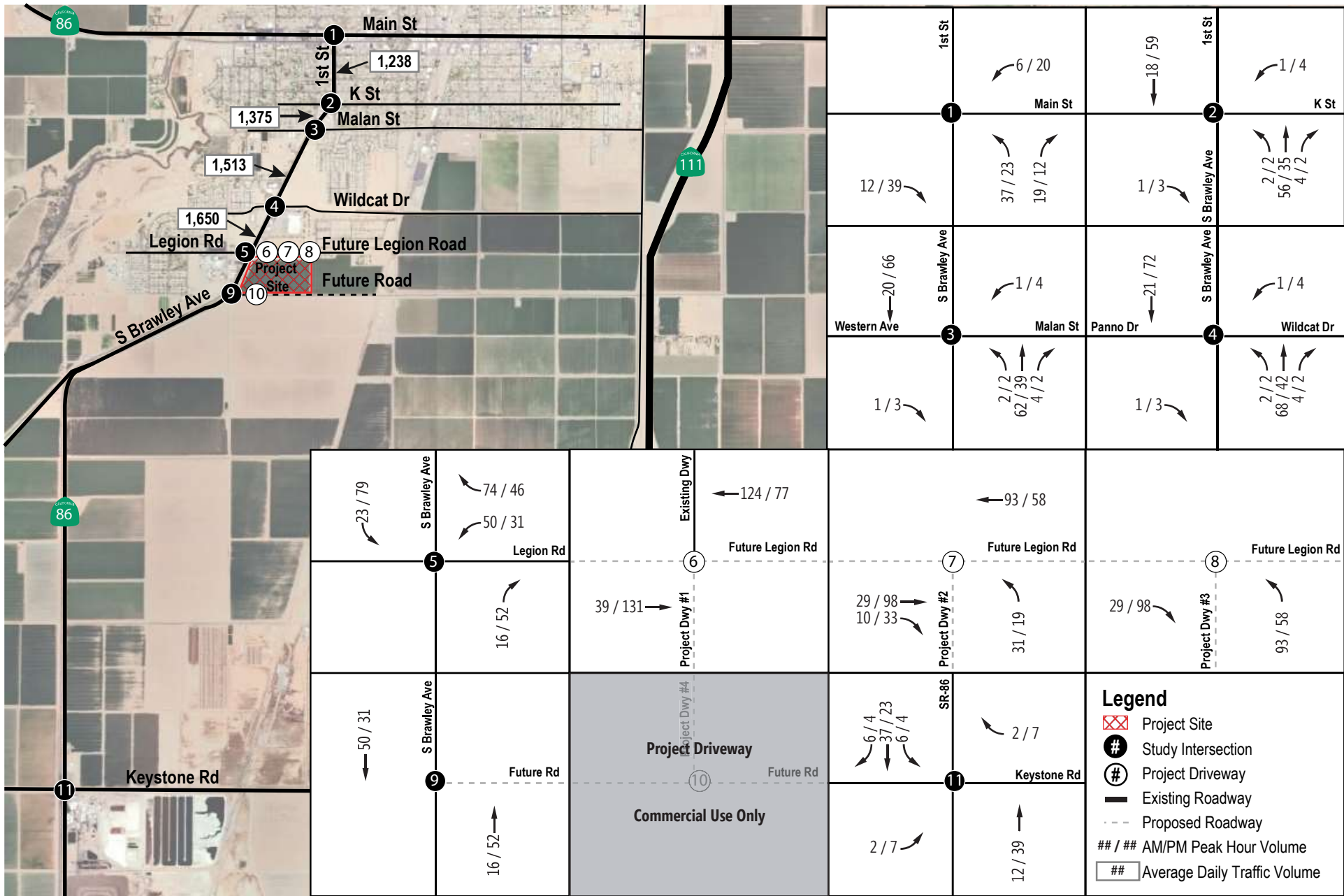
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Project Trip Assignment (Commercial)

Exhibit 3



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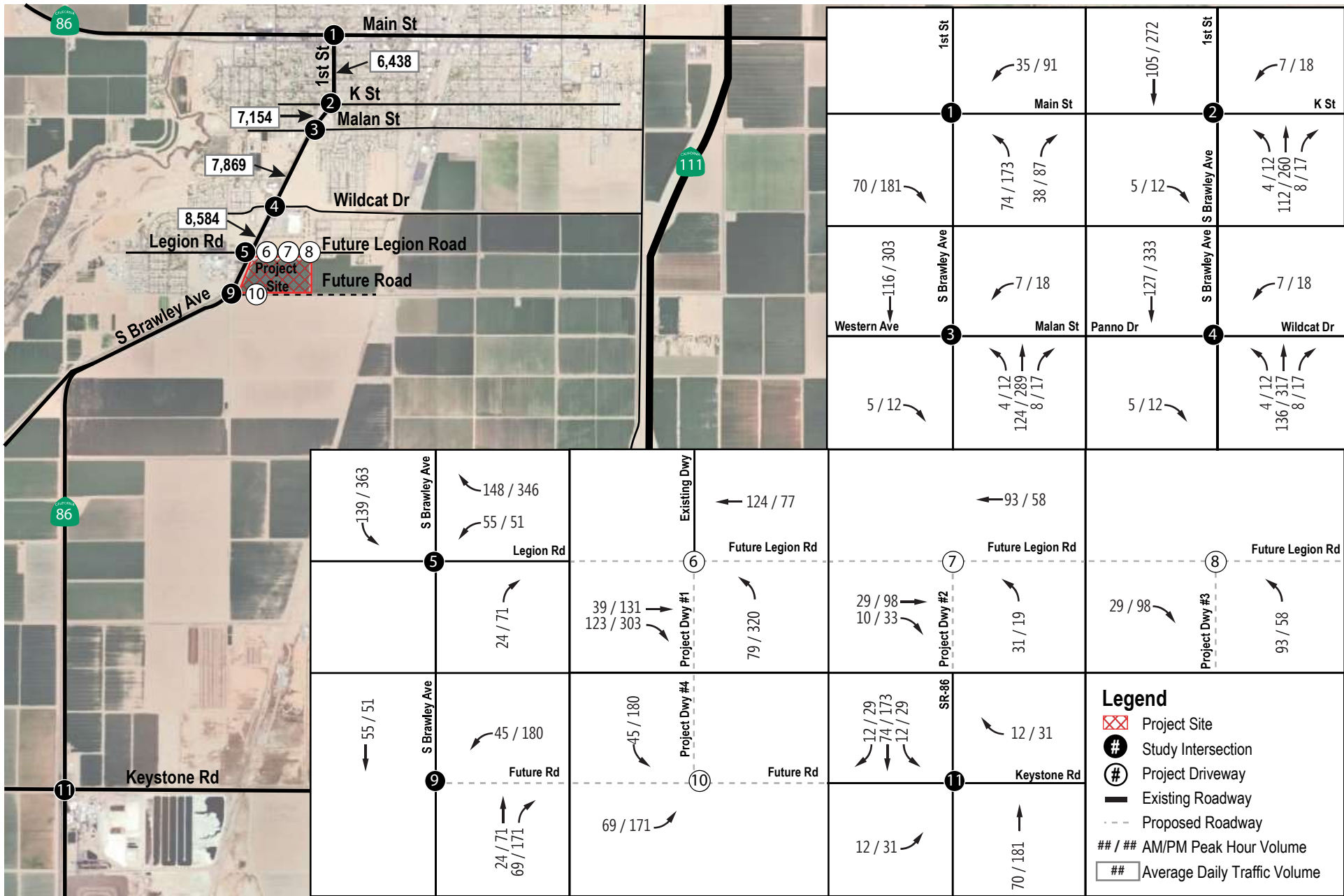
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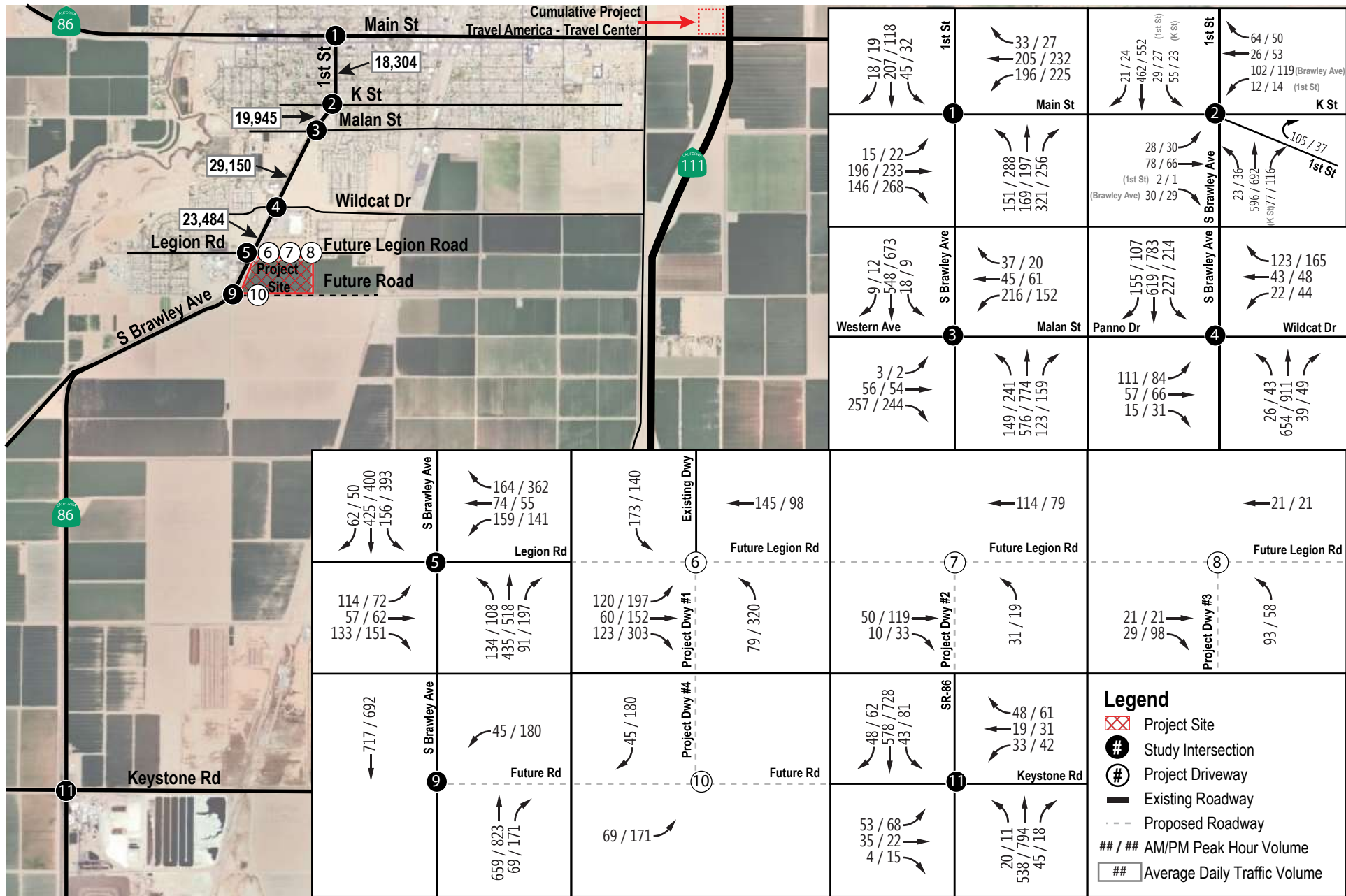
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Project Trip Assignment (Residential)

Exhibit 4





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Opening Year 2028 Plus Project Daily and AM/PM Peak Hour Traffic Volumes

Exhibit 6

Appendix A Opening Year 2028 Plus Project Synchro Worksheets

HCM Signalized Intersection Capacity Analysis

OY 2028+P PM Peak Hour

1: 1st St & Main St

04/17/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	196	146	196	205	33	151	169	321	45	207	18
Future Volume (vph)	15	196	146	196	205	33	151	169	321	45	207	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	6.4		4.7	5.7		5.7	6.4	4.7	4.7	4.7	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.93		1.00	0.98		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3278		1770	3456		1770	1863	1583	1770	1836	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3278		1770	3456		1770	1863	1583	1770	1836	
Peak-hour factor, PHF	0.50	0.83	0.64	0.63	0.69	0.60	0.87	0.77	0.73	0.49	0.64	0.53
Adj. Flow (vph)	30	236	228	311	297	55	174	219	440	92	323	34
RTOR Reduction (vph)	0	176	0	0	14	0	0	0	222	0	4	0
Lane Group Flow (vph)	30	288	0	311	338	0	174	219	218	92	353	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			
Actuated Green, G (s)	2.8	18.5		11.5	27.9		8.5	22.7	34.2	6.2	21.1	
Effective Green, g (s)	2.8	18.5		11.5	27.9		8.5	22.7	34.2	6.2	21.1	
Actuated g/C Ratio	0.03	0.23		0.14	0.34		0.10	0.28	0.42	0.08	0.26	
Clearance Time (s)	4.7	6.4		4.7	5.7		5.7	6.4	4.7	4.7	4.7	
Vehicle Extension (s)	2.0	5.5		2.0	6.0		3.0	6.0	2.0	3.0	3.0	
Lane Grp Cap (vph)	61	747		250	1188		185	521	667	135	477	
v/s Ratio Prot	0.02	c0.09		c0.18	0.10		c0.10	c0.12	0.05	0.05	c0.19	
v/s Ratio Perm									0.09			
v/c Ratio	0.49	0.39		1.24	0.28		0.94	0.42	0.33	0.68	0.74	
Uniform Delay, d1	38.5	26.5		34.8	19.3		36.0	23.8	15.7	36.5	27.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.3	0.8		138.8	0.4		49.1	1.5	0.1	13.3	6.1	
Delay (s)	40.7	27.3		173.6	19.7		85.1	25.4	15.8	49.8	33.6	
Level of Service	D	C		F	B		F	C	B	D	C	
Approach Delay (s)		28.1			91.9			32.8			36.9	
Approach LOS		C			F			C			D	
Intersection Summary												
HCM 2000 Control Delay			48.7			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			81.1			Sum of lost time (s)			22.2			
Intersection Capacity Utilization			59.2%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

OY 2028+P PM Peak Hour

2: Brawley Ave & 1st St & K St

04/17/2025

												
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL2
Lane Configurations												
Traffic Volume (vph)	28	78	2	30	12	102	26	64	23	596	77	55
Future Volume (vph)	28	78	2	30	12	102	26	64	23	596	77	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7		5.7			5.7	5.7	4.7	5.4		
Lane Util. Factor		1.00		1.00			1.00	1.00	1.00	0.95		
Frt		1.00		0.85			1.00	0.85	1.00	0.98		
Flt Protected		0.99		1.00			0.96	1.00	0.95	1.00		
Satd. Flow (prot)		1832		1583			1792	1583	1770	3483		
Flt Permitted		0.99		1.00			0.96	1.00	0.95	1.00		
Satd. Flow (perm)		1832		1583			1792	1583	1770	3483		
Peak-hour factor, PHF	0.62	0.64	0.50	0.67	0.46	0.80	0.62	0.58	0.56	0.68	0.74	0.72
Adj. Flow (vph)	45	122	4	45	26	128	42	110	41	876	104	76
RTOR Reduction (vph)	0	0	0	38	0	0	0	80	0	0	0	0
Lane Group Flow (vph)	0	171	0	7	0	0	196	30	41	980	0	0
Turn Type	Split	NA		Perm	Split	Split	NA	Perm	Prot	NA		Prot
Protected Phases	3	3			4	4	4		1	6		5
Permitted Phases				3				4				
Actuated Green, G (s)		16.7		16.7			18.7	18.7	5.3	60.4		
Effective Green, g (s)		16.7		16.7			18.7	18.7	5.3	60.4		
Actuated g/C Ratio		0.15		0.15			0.17	0.17	0.05	0.54		
Clearance Time (s)		5.7		5.7			5.7	5.7	4.7	5.4		
Vehicle Extension (s)		4.0		4.0			4.0	4.0	2.0	6.0		
Lane Grp Cap (vph)		271		234			297	262	83	1868		
v/s Ratio Prot		c0.09					c0.11		0.02	c0.28		
v/s Ratio Perm				0.00				0.02				
v/c Ratio		0.63		0.03			0.66	0.11	0.49	0.52		
Uniform Delay, d1		45.1		41.0			44.0	39.9	52.3	16.8		
Progression Factor		1.00		1.00			1.00	1.00	1.00	1.00		
Incremental Delay, d2		5.3		0.1			5.8	0.3	1.7	0.7		
Delay (s)		50.4		41.1			49.8	40.2	54.0	17.5		
Level of Service		D		D			D	D	D	B		
Approach Delay (s)		48.4					46.3			19.0		
Approach LOS		D					D			B		
Intersection Summary												
HCM 2000 Control Delay		28.2					HCM 2000 Level of Service		C			
HCM 2000 Volume to Capacity ratio		0.60										
Actuated Cycle Length (s)		112.6					Sum of lost time (s)		21.5			
Intersection Capacity Utilization		55.8%					ICU Level of Service		B			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis 2: Brawley Ave & 1st St & K St

OY 2028+P PM Peak Hour
04/17/2025



Movement	SBL	SBT	SBR	NWR2
Lane Configurations				
Traffic Volume (vph)	29	462	21	105
Future Volume (vph)	29	462	21	105
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	5.4	5.4		4.0
Lane Util. Factor	1.00	0.95		1.00
Frt	1.00	0.99		0.86
Flt Protected	0.95	1.00		1.00
Satd. Flow (prot)	1770	3511		1611
Flt Permitted	0.26	1.00		1.00
Satd. Flow (perm)	484	3511		1611
Peak-hour factor, PHF	0.75	0.72	0.58	0.75
Adj. Flow (vph)	39	642	36	140
RTOR Reduction (vph)	0	2	0	140
Lane Group Flow (vph)	115	676	0	0
Turn Type	Perm	NA		custom
Protected Phases		2		
Permitted Phases	2			
Actuated Green, G (s)	50.4	50.4		0.0
Effective Green, g (s)	50.4	50.4		0.0
Actuated g/C Ratio	0.45	0.45		0.00
Clearance Time (s)	5.4	5.4		
Vehicle Extension (s)	6.0	6.0		
Lane Grp Cap (vph)	216	1571		0
v/s Ratio Prot		0.19		
v/s Ratio Perm	0.24			
v/c Ratio	0.53	0.43		0.00
Uniform Delay, d1	22.6	21.3		56.3
Progression Factor	1.00	1.00		1.00
Incremental Delay, d2	5.9	0.5		0.0
Delay (s)	28.4	21.8		56.3
Level of Service	C	C		E
Approach Delay (s)		22.8		
Approach LOS		C		
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

OY 2028+P PM Peak Hour

3: Malan St & Brawley Ave

04/17/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	56	257	216	45	37	149	576	123	18	548	9
Future Volume (vph)	3	56	257	216	45	37	149	576	123	18	548	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.7	4.7		4.7		4.7	6.4		4.7	6.4	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.98		1.00	0.97		1.00	1.00	
Flt Protected		1.00	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1857	1583		1762		1770	3449		1770	3530	
Flt Permitted		1.00	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1857	1583		1762		1770	3449		1770	3530	
Peak-hour factor, PHF	0.50	0.66	0.94	0.87	0.67	0.57	0.88	0.75	0.78	0.50	0.75	0.67
Adj. Flow (vph)	6	85	273	248	67	65	169	768	158	36	731	13
RTOR Reduction (vph)	0	0	234	0	6	0	0	13	0	0	1	0
Lane Group Flow (vph)	0	91	39	0	374	0	169	913	0	36	743	0
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases			3									
Actuated Green, G (s)		10.4	10.4		23.8		12.0	35.9		5.3	29.2	
Effective Green, g (s)		10.4	10.4		23.8		12.0	35.9		5.3	29.2	
Actuated g/C Ratio		0.11	0.11		0.25		0.13	0.37		0.06	0.30	
Clearance Time (s)		4.7	4.7		4.7		4.7	6.4		4.7	6.4	
Vehicle Extension (s)		3.0	3.0		3.0		2.0	6.0		2.0	6.0	
Lane Grp Cap (vph)		201	171		437		221	1291		97	1074	
v/s Ratio Prot		c0.05			c0.21		c0.10	c0.26		0.02	0.21	
v/s Ratio Perm			0.02									
v/c Ratio		0.45	0.23		0.86		0.76	0.71		0.37	0.69	
Uniform Delay, d1		40.1	39.1		34.4		40.6	25.5		43.7	29.4	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.6	0.7		15.1		13.2	2.6		0.9	3.7	
Delay (s)		41.7	39.7		49.5		53.8	28.2		44.6	33.1	
Level of Service		D	D		D		D	C		D	C	
Approach Delay (s)		40.2			49.5			32.1			33.6	
Approach LOS		D			D			C			C	
Intersection Summary												
HCM 2000 Control Delay			36.2				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			95.9				Sum of lost time (s)			20.5		
Intersection Capacity Utilization			63.8%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

OY 2028+P PM Peak Hour

4: Brawley Ave & Panno Dr/Wildcat Dr

04/17/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	57	15	22	43	123	26	654	39	227	619	155
Future Volume (vph)	111	57	15	22	43	123	26	654	39	227	619	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7	5.7	5.7		5.7	7.5	5.7	5.7	7.5	5.7
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	1679		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	1679		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.66	0.79	0.75	0.70	0.57	0.85	0.58	0.75	0.60	0.76	0.92	0.80
Adj. Flow (vph)	168	72	20	31	75	145	45	872	65	299	673	194
RTOR Reduction (vph)	0	0	17	0	55	0	0	0	31	0	0	91
Lane Group Flow (vph)	168	72	3	31	165	0	45	872	34	299	673	103
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3		4	4		1	6		5	2	3
Permitted Phases			3						6			2
Actuated Green, G (s)	15.7	15.7	15.7	15.6	15.6		7.1	36.5	52.1	8.1	37.5	53.2
Effective Green, g (s)	15.7	15.7	15.7	15.6	15.6		7.1	36.5	52.1	8.1	37.5	53.2
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.16		0.07	0.36	0.52	0.08	0.37	0.53
Clearance Time (s)	5.7	5.7	5.7	5.7	5.7		5.7	7.5	5.7	5.7	7.5	5.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		2.0	7.0	3.0	2.0	7.0	3.0
Lane Grp Cap (vph)	276	552	247	532	260		242	1285	820	276	1320	837
v/s Ratio Prot	c0.09	0.02		0.01	c0.10		0.01	c0.25	0.01	c0.09	0.19	0.02
v/s Ratio Perm			0.00						0.01			0.05
v/c Ratio	0.61	0.13	0.01	0.06	0.63		0.19	0.68	0.04	1.08	0.51	0.12
Uniform Delay, d1	39.5	36.5	35.8	36.2	39.8		44.0	27.0	11.9	46.2	24.4	11.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.8	0.1	0.0	0.0	5.0		1.7	2.6	0.0	78.2	1.1	0.1
Delay (s)	43.3	36.6	35.9	36.2	44.8		45.7	29.6	11.9	124.4	25.5	12.0
Level of Service	D	D	D	D	D		D	C	B	F	C	B
Approach Delay (s)		40.9			43.7			29.2			48.6	
Approach LOS		D			D			C			D	
Intersection Summary												
HCM 2000 Control Delay			40.2			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			100.5			Sum of lost time (s)			24.6			
Intersection Capacity Utilization			64.2%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Brawley Ave & Legion Rd/Future Legion Rd

OY 2028+P PM Peak Hour

04/17/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	57	133	159	74	164	134	435	91	156	425	62
Future Volume (vph)	114	57	133	159	74	164	134	435	91	156	425	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7	4.7		5.7	5.7	4.7	7.5	7.5	4.7	7.5	
Lane Util. Factor		1.00	1.00		1.00	0.88	1.00	0.95	1.00	*1.00	*1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected		0.97	1.00		0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1806	1583		1804	2787	1770	3539	1583	3539	3632	
Flt Permitted		0.97	1.00		0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1806	1583		1804	2787	1770	3539	1583	3539	3632	
Peak-hour factor, PHF	0.71	0.61	0.90	0.79	0.70	0.62	0.79	0.88	0.98	0.67	0.84	0.61
Adj. Flow (vph)	161	93	148	201	106	265	170	494	93	233	506	102
RTOR Reduction (vph)	0	0	100	0	0	169	0	0	67	0	13	0
Lane Group Flow (vph)	0	254	48	0	307	96	170	494	26	233	595	0
Turn Type	Split	NA	pm+ov	Split	NA	pt+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	3	3	1	4	4	4 5	1	6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)		20.3	34.4		24.9	38.7	14.1	29.5	29.5	8.1	23.5	
Effective Green, g (s)		20.3	34.4		24.9	38.7	14.1	29.5	29.5	8.1	23.5	
Actuated g/C Ratio		0.19	0.32		0.23	0.36	0.13	0.28	0.28	0.08	0.22	
Clearance Time (s)		5.7	4.7		5.7		4.7	7.5	7.5	4.7	7.5	
Vehicle Extension (s)		3.0	2.0		3.0		2.0	3.0	3.0	2.0	3.0	
Lane Grp Cap (vph)		344	511		422	1013	234	981	438	269	802	
v/s Ratio Prot		c0.14	0.01		c0.17	0.03	c0.10	0.14		0.07	c0.16	
v/s Ratio Perm			0.02						0.02			
v/c Ratio		0.74	0.09		0.73	0.10	0.73	0.50	0.06	0.87	0.74	
Uniform Delay, d1		40.5	25.1		37.6	22.3	44.3	32.3	28.3	48.6	38.6	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		8.0	0.0		6.2	0.0	9.1	0.4	0.1	23.3	3.7	
Delay (s)		48.6	25.2		43.8	22.4	53.4	32.7	28.3	72.0	42.3	
Level of Service		D	C		D	C	D	C	C	E	D	
Approach Delay (s)		40.0			33.9			36.8			50.5	
Approach LOS		D			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			41.1									
HCM 2000 Level of Service											D	
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			106.4								23.6	
Intersection Capacity Utilization			55.4%								B	
ICU Level of Service												
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: Project Dwy #1/Existing Dwy & Future Legion Rd

OY 2028+P PM Peak Hour

04/17/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	60	123	0	145	0	79	0	0	0	0	173
Future Volume (vph)	120	60	123	0	145	0	79	0	0	0	0	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5		4.5				4.5	
Lane Util. Factor	1.00	1.00	1.00		0.95		1.00				1.00	
Frt	1.00	1.00	0.85		1.00		1.00				0.86	
Flt Protected	0.95	1.00	1.00		1.00		0.95				1.00	
Satd. Flow (prot)	1770	1863	1583		3539		1770				1611	
Flt Permitted	0.95	1.00	1.00		1.00		0.95				1.00	
Satd. Flow (perm)	1770	1863	1583		3539		1770				1611	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	65	134	0	158	0	86	0	0	0	0	188
RTOR Reduction (vph)	0	0	95	0	0	0	0	0	0	0	113	0
Lane Group Flow (vph)	130	65	39	0	158	0	86	0	0	0	75	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot		Perm		NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases			4						2	6		
Actuated Green, G (s)	5.8	16.9	16.9		6.6		4.0				23.0	
Effective Green, g (s)	5.8	16.9	16.9		6.6		4.0				23.0	
Actuated g/C Ratio	0.10	0.29	0.29		0.11		0.07				0.40	
Clearance Time (s)	4.5	4.5	4.5		4.5		4.5				4.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0				3.0	
Lane Grp Cap (vph)	178	548	466		406		123				645	
v/s Ratio Prot	c0.07	0.03			c0.04		c0.05				c0.05	
v/s Ratio Perm			0.02									
v/c Ratio	0.73	0.12	0.08		0.39		0.70				0.12	
Uniform Delay, d1	25.0	14.8	14.7		23.5		26.1				10.8	
Progression Factor	1.00	1.00	1.00		1.00		1.00				1.00	
Incremental Delay, d2	14.3	0.1	0.1		0.6		15.9				0.4	
Delay (s)	39.3	14.9	14.7		24.2		42.1				11.2	
Level of Service	D	B	B		C		D				B	
Approach Delay (s)		24.5			24.2		42.1				11.2	
Approach LOS		C			C		D				B	
Intersection Summary												
HCM 2000 Control Delay			23.1				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.31									
Actuated Cycle Length (s)			57.4				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			40.9%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

7: Project Dwy #2 & Future Legion Rd

OY 2028+P PM Peak Hour
04/17/2025

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	50	10	0	114	31	0
Future Volume (Veh/h)	50	10	0	114	31	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	11	0	124	34	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)	726					
pX, platoon unblocked						
vC, conflicting volume			65		178	54
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			65		178	54
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		96	100
cM capacity (veh/h)			1537		812	1013
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	54	11	0	124	34	
Volume Left	0	0	0	0	34	
Volume Right	0	11	0	0	0	
cSH	1700	1700	1700	1700	812	
Volume to Capacity	0.03	0.01	0.00	0.07	0.04	
Queue Length 95th (ft)	0	0	0	0	3	
Control Delay (s)	0.0	0.0	0.0	0.0	9.6	
Lane LOS						
Approach Delay (s)	0.0		0.0		9.6	
Approach LOS						
Intersection Summary						
Average Delay						
			1.5			
Intersection Capacity Utilization			16.0%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 8: Project Dwy #3 & Future Legion Rd

OY 2028+P PM Peak Hour
04/17/2025

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	21	29	0	21	93	0
Future Volume (Veh/h)	21	29	0	21	93	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	32	0	23	101	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)						
pX, platoon unblocked						
vC, conflicting volume			55		46	23
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			55		46	23
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		90	100
cM capacity (veh/h)			1550		964	1054
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	23	32	0	23	101	0
Volume Left	0	0	0	0	101	0
Volume Right	0	32	0	0	0	0
cSH	1700	1700	1700	1700	964	1700
Volume to Capacity	0.01	0.02	0.00	0.01	0.10	0.00
Queue Length 95th (ft)	0	0	0	0	9	0
Control Delay (s)	0.0	0.0	0.0	0.0	9.2	0.0
Lane LOS						
Approach Delay (s)	0.0		0.0		9.2	
Approach LOS						
A						
Intersection Summary						
Average Delay						
			5.2			
Intersection Capacity Utilization			15.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

9: Brawley Ave & Future Mead Rd

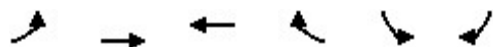
OY 2028+P PM Peak Hour

04/17/2025

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	45	0	659	69	0	717
Future Volume (vph)	45	0	659	69	0	717
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5		4.5
Lane Util. Factor	1.00		0.95	1.00		0.95
Frt	1.00		1.00	0.85		1.00
Flt Protected	0.95		1.00	1.00		1.00
Satd. Flow (prot)	1770		3539	1583		3539
Flt Permitted	0.95		1.00	1.00		1.00
Satd. Flow (perm)	1770		3539	1583		3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	0	716	75	0	779
RTOR Reduction (vph)	0	0	0	17	0	0
Lane Group Flow (vph)	49	0	716	58	0	779
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	3.1		42.1	42.1		42.1
Effective Green, g (s)	3.1		42.1	42.1		42.1
Actuated g/C Ratio	0.06		0.78	0.78		0.78
Clearance Time (s)	4.5		4.5	4.5		4.5
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	101		2748	1229		2748
v/s Ratio Prot	c0.03		0.20			c0.22
v/s Ratio Perm				0.04		
v/c Ratio	0.49		0.26	0.05		0.28
Uniform Delay, d1	24.8		1.7	1.4		1.7
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	3.6		0.2	0.1		0.3
Delay (s)	28.4		1.9	1.5		2.0
Level of Service	C		A	A		A
Approach Delay (s)	28.4		1.9			2.0
Approach LOS	C		A			A
Intersection Summary						
HCM 2000 Control Delay			2.7		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.33			
Actuated Cycle Length (s)			54.2		Sum of lost time (s)	13.5
Intersection Capacity Utilization			31.5%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis 10: Future Mead Rd & Project Dwy #4

OY 2028+P PM Peak Hour
04/17/2025



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	69	0	0	0	0	45
Future Volume (Veh/h)	69	0	0	0	0	45
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	75	0	0	0	0	49
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1140				
pX, platoon unblocked						
vC, conflicting volume	0				150	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				150	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				100	95
cM capacity (veh/h)	1623				803	1085
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	75	0	0	49		
Volume Left	75	0	0	0		
Volume Right	0	0	0	49		
cSH	1623	1700	1700	1085		
Volume to Capacity	0.05	0.00	0.00	0.05		
Queue Length 95th (ft)	4	0	0	4		
Control Delay (s)	7.3	0.0	0.0	8.5		
Lane LOS	A			A		
Approach Delay (s)	7.3		0.0	8.5		
Approach LOS				A		
Intersection Summary						
Average Delay			7.8			
Intersection Capacity Utilization			13.8%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

11: Keystone Rd & SR-86

OY 2028+P PM Peak Hour

04/17/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↗	↗	↗	↗	↗
Traffic Volume (vph)	53	35	4	33	19	48	20	538	45	43	578	48
Future Volume (vph)	53	35	4	33	19	48	20	538	45	43	578	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.5			8.5		5.7	8.4	8.4	5.7	8.4	8.4
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.99			0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1794			1715		1770	3539	1583	1770	3539	1583
Flt Permitted		0.53			0.81		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		975			1421		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.65	0.75	0.50	0.52	0.75	0.65	0.59	0.88	0.67	0.56	0.95	0.57
Adj. Flow (vph)	82	47	8	63	25	74	34	611	67	77	608	84
RTOR Reduction (vph)	0	2	0	0	30	0	0	0	47	0	0	58
Lane Group Flow (vph)	0	135	0	0	132	0	34	611	20	77	608	26
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4					6			2
Actuated Green, G (s)		14.3			14.4		4.4	27.7	27.7	6.1	29.4	29.4
Effective Green, g (s)		14.3			14.4		4.4	27.7	27.7	6.1	29.4	29.4
Actuated g/C Ratio		0.15			0.15		0.05	0.30	0.30	0.07	0.31	0.31
Clearance Time (s)		8.5			8.5		5.7	8.4	8.4	5.7	8.4	8.4
Vehicle Extension (s)		3.0			3.0		2.0	6.0	6.0	2.0	6.0	6.0
Lane Grp Cap (vph)		148			218		83	1047	468	115	1111	497
v/s Ratio Prot							0.02	c0.17		c0.04	0.17	
v/s Ratio Perm		c0.14			c0.09				0.01			0.02
v/c Ratio		0.91			0.60		0.41	0.58	0.04	0.67	0.55	0.05
Uniform Delay, d1		39.0			36.9		43.3	28.0	23.5	42.8	26.6	22.4
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		48.9			4.7		1.2	1.6	0.1	10.9	1.3	0.1
Delay (s)		88.0			41.6		44.5	29.6	23.6	53.6	27.8	22.5
Level of Service		F			D		D	C	C	D	C	C
Approach Delay (s)		88.0			41.6			29.8			29.8	
Approach LOS		F			D			C			C	
Intersection Summary												
HCM 2000 Control Delay			35.4			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			93.6			Sum of lost time (s)			31.1			
Intersection Capacity Utilization			50.1%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

OY 2028+P PM Peak Hour

1: 1st St & Main St

04/17/2025

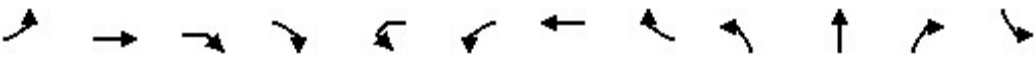
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	233	268	225	232	27	281	197	256	32	118	19
Future Volume (vph)	22	233	268	225	232	27	281	197	256	32	118	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	6.4		4.7	5.7		5.7	6.4	4.7	4.7	4.7	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.91		1.00	0.99		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3214		1770	3487		1770	1863	1583	1770	1821	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3214		1770	3487		1770	1863	1583	1770	1821	
Peak-hour factor, PHF	0.75	0.91	0.66	0.62	0.88	0.93	0.88	0.79	0.90	0.63	0.82	0.75
Adj. Flow (vph)	29	256	406	363	264	29	319	249	284	51	144	25
RTOR Reduction (vph)	0	228	0	0	6	0	0	0	149	0	5	0
Lane Group Flow (vph)	29	434	0	363	287	0	319	249	135	51	164	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			
Actuated Green, G (s)	4.5	25.4		22.3	43.9		18.6	26.9	49.2	6.7	15.7	
Effective Green, g (s)	4.5	25.4		22.3	43.9		18.6	26.9	49.2	6.7	15.7	
Actuated g/C Ratio	0.04	0.25		0.22	0.42		0.18	0.26	0.48	0.06	0.15	
Clearance Time (s)	4.7	6.4		4.7	5.7		5.7	6.4	4.7	4.7	4.7	
Vehicle Extension (s)	2.0	5.5		2.0	6.0		3.0	6.0	2.0	3.0	3.0	
Lane Grp Cap (vph)	76	788		381	1479		318	484	752	114	276	
v/s Ratio Prot	0.02	c0.14		c0.21	0.08		c0.18	0.13	0.04	0.03	c0.09	
v/s Ratio Perm									0.05			
v/c Ratio	0.38	0.55		0.95	0.19		1.00	0.51	0.18	0.45	0.59	
Uniform Delay, d1	48.1	34.1		40.1	18.7		42.5	32.7	15.6	46.6	40.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	1.6		33.6	0.2		51.3	2.4	0.0	2.8	3.4	
Delay (s)	49.3	35.7		73.7	18.9		93.7	35.2	15.6	49.4	44.3	
Level of Service	D	D		E	B		F	D	B	D	D	
Approach Delay (s)		36.3			49.2			50.6			45.5	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			45.7			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			103.5			Sum of lost time (s)			22.2			
Intersection Capacity Utilization			68.4%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

OY 2028+P PM Peak Hour

2: Brawley Ave & 1st St & K St

04/17/2025

												
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL2
Lane Configurations		↩		↩			↩	↩	↩	↩↩		
Traffic Volume (vph)	30	66	1	29	14	119	53	50	36	692	116	23
Future Volume (vph)	30	66	1	29	14	119	53	50	36	692	116	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7		5.7			5.7	5.7	4.7	5.4		
Lane Util. Factor		1.00		1.00			1.00	1.00	1.00	0.95		
Frt		1.00		0.85			1.00	0.85	1.00	0.98		
Flt Protected		0.99		1.00			0.97	1.00	0.95	1.00		
Satd. Flow (prot)		1828		1583			1800	1583	1770	3459		
Flt Permitted		0.99		1.00			0.97	1.00	0.95	1.00		
Satd. Flow (perm)		1828		1583			1800	1583	1770	3459		
Peak-hour factor, PHF	0.79	0.74	0.25	0.67	0.54	0.73	0.66	0.73	0.72	0.83	0.78	0.43
Adj. Flow (vph)	38	89	4	43	26	163	80	68	50	834	149	53
RTOR Reduction (vph)	0	0	0	37	0	0	0	54	0	0	0	0
Lane Group Flow (vph)	0	131	0	6	0	0	269	14	50	983	0	0
Turn Type	Split	NA		Perm	Split	Split	NA	Perm	Prot	NA		Prot
Protected Phases	3	3			4	4	4		1	6		5
Permitted Phases				3				4				
Actuated Green, G (s)		13.7		13.7			21.3	21.3	5.3	48.5		
Effective Green, g (s)		13.7		13.7			21.3	21.3	5.3	48.5		
Actuated g/C Ratio		0.14		0.14			0.21	0.21	0.05	0.48		
Clearance Time (s)		5.7		5.7			5.7	5.7	4.7	5.4		
Vehicle Extension (s)		4.0		4.0			4.0	4.0	2.0	6.0		
Lane Grp Cap (vph)		249		216			382	336	93	1672		
v/s Ratio Prot		c0.07					c0.15		0.03	c0.28		
v/s Ratio Perm				0.00				0.01				
v/c Ratio		0.53		0.03			0.70	0.04	0.54	0.59		
Uniform Delay, d1		40.3		37.5			36.6	31.4	46.3	18.7		
Progression Factor		1.00		1.00			1.00	1.00	1.00	1.00		
Incremental Delay, d2		2.6		0.1			6.2	0.1	3.0	1.0		
Delay (s)		42.9		37.6			42.8	31.5	49.3	19.7		
Level of Service		D		D			D	C	D	B		
Approach Delay (s)		41.6					40.5			21.1		
Approach LOS		D					D			C		
Intersection Summary												
HCM 2000 Control Delay			27.6									
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			100.3							21.5		
Intersection Capacity Utilization			60.1%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis 2: Brawley Ave & 1st St & K St

OY 2028+P PM Peak Hour
04/17/2025



Movement	SBL	SBT	SBR	NWR2
Lane Configurations				
Traffic Volume (vph)	27	552	24	37
Future Volume (vph)	27	552	24	37
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	5.4	5.4		4.0
Lane Util. Factor	1.00	0.95		1.00
Frt	1.00	0.99		0.86
Flt Protected	0.95	1.00		1.00
Satd. Flow (prot)	1770	3511		1611
Flt Permitted	0.25	1.00		1.00
Satd. Flow (perm)	465	3511		1611
Peak-hour factor, PHF	0.65	0.75	0.57	0.73
Adj. Flow (vph)	42	736	42	51
RTOR Reduction (vph)	0	2	0	51
Lane Group Flow (vph)	95	776	0	0
Turn Type	Perm	NA		custom
Protected Phases		2		
Permitted Phases	2			
Actuated Green, G (s)	38.5	38.5		0.0
Effective Green, g (s)	38.5	38.5		0.0
Actuated g/C Ratio	0.38	0.38		0.00
Clearance Time (s)	5.4	5.4		
Vehicle Extension (s)	6.0	6.0		
Lane Grp Cap (vph)	178	1347		0
v/s Ratio Prot		0.22		
v/s Ratio Perm	0.20			
v/c Ratio	0.53	0.58		0.00
Uniform Delay, d1	23.9	24.4		50.1
Progression Factor	1.00	1.00		1.00
Incremental Delay, d2	7.1	1.2		0.0
Delay (s)	31.1	25.6		50.1
Level of Service	C	C		D
Approach Delay (s)		26.2		
Approach LOS		C		
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

OY 2028+P PM Peak Hour

3: Malan St & Brawley Ave

04/17/2025

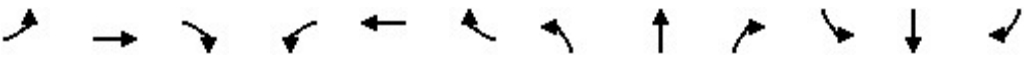
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	54	244	152	61	20	241	774	159	9	673	12
Future Volume (vph)	2	54	244	152	61	20	241	774	159	9	673	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.7	4.7		4.7		4.7	6.4		4.7	6.4	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.99		1.00	0.97		1.00	1.00	
Flt Protected		1.00	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1854	1583		1776		1770	3441		1770	3528	
Flt Permitted		1.00	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1854	1583		1776		1770	3441		1770	3528	
Peak-hour factor, PHF	0.25	0.71	0.86	0.71	0.85	0.57	0.84	0.97	0.88	0.50	0.76	0.63
Adj. Flow (vph)	8	76	284	214	72	35	287	798	181	18	886	19
RTOR Reduction (vph)	0	0	254	0	4	0	0	13	0	0	1	0
Lane Group Flow (vph)	0	84	30	0	317	0	287	966	0	18	904	0
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases			3									
Actuated Green, G (s)		10.1	10.1		19.3		18.3	43.6		3.5	28.8	
Effective Green, g (s)		10.1	10.1		19.3		18.3	43.6		3.5	28.8	
Actuated g/C Ratio		0.10	0.10		0.20		0.19	0.45		0.04	0.30	
Clearance Time (s)		4.7	4.7		4.7		4.7	6.4		4.7	6.4	
Vehicle Extension (s)		3.0	3.0		3.0		2.0	6.0		2.0	6.0	
Lane Grp Cap (vph)		193	164		353		333	1546		63	1047	
v/s Ratio Prot		c0.05			c0.18		c0.16	0.28		0.01	c0.26	
v/s Ratio Perm			0.02									
v/c Ratio		0.44	0.18		0.90		0.86	0.62		0.29	0.86	
Uniform Delay, d1		40.8	39.7		37.9		38.1	20.4		45.5	32.2	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.6	0.5		24.2		19.3	1.4		0.9	9.4	
Delay (s)		42.3	40.2		62.1		57.4	21.8		46.4	41.6	
Level of Service		D	D		E		E	C		D	D	
Approach Delay (s)		40.7			62.1			29.9			41.7	
Approach LOS		D			E			C			D	
Intersection Summary												
HCM 2000 Control Delay			38.6				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			97.0				Sum of lost time (s)			20.5		
Intersection Capacity Utilization			66.6%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

OY 2028+P PM Peak Hour

4: Brawley Ave & Panno Dr/Wildcat Dr

04/17/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	66	31	44	48	165	43	911	49	214	783	107
Future Volume (vph)	84	66	31	44	48	165	43	911	49	214	783	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7	5.7	5.7		5.7	7.5	5.7	5.7	7.5	5.7
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	1654		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	1654		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.66	0.65	0.64	0.78	0.80	0.93	0.73	0.84	0.58	0.97	0.89	0.84
Adj. Flow (vph)	127	102	48	56	60	177	59	1085	84	221	880	127
RTOR Reduction (vph)	0	0	41	0	84	0	0	0	40	0	0	61
Lane Group Flow (vph)	127	102	7	56	153	0	59	1085	44	221	880	66
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3		4	4		1	6		5	2	3
Permitted Phases			3						6			2
Actuated Green, G (s)	13.3	13.3	13.3	14.9	14.9		7.0	36.6	51.5	8.0	37.6	50.9
Effective Green, g (s)	13.3	13.3	13.3	14.9	14.9		7.0	36.6	51.5	8.0	37.6	50.9
Actuated g/C Ratio	0.14	0.14	0.14	0.15	0.15		0.07	0.38	0.53	0.08	0.39	0.52
Clearance Time (s)	5.7	5.7	5.7	5.7	5.7		5.7	7.5	5.7	5.7	7.5	5.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		2.0	7.0	3.0	2.0	7.0	3.0
Lane Grp Cap (vph)	241	483	216	525	253		246	1329	837	281	1366	827
v/s Ratio Prot	c0.07	0.03		0.02	c0.09		0.02	c0.31	0.01	c0.06	0.25	0.01
v/s Ratio Perm			0.00						0.02			0.03
v/c Ratio	0.53	0.21	0.03	0.11	0.61		0.24	0.82	0.05	0.79	0.64	0.08
Uniform Delay, d1	39.1	37.4	36.5	35.5	38.5		42.7	27.4	11.1	43.9	24.4	11.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.2	0.1	0.1	4.1		2.3	5.0	0.0	19.6	2.0	0.0
Delay (s)	41.2	37.6	36.5	35.6	42.6		45.0	32.3	11.2	63.5	26.4	11.6
Level of Service	D	D	D	D	D		D	C	B	E	C	B
Approach Delay (s)		39.1			41.2			31.5			31.6	
Approach LOS		D			D			C			C	
Intersection Summary												
HCM 2000 Control Delay			33.2			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			97.4			Sum of lost time (s)			24.6			
Intersection Capacity Utilization			74.2%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Brawley Ave & Legion Rd/Future Legion Rd

OY 2028+P PM Peak Hour

04/17/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	62	151	141	55	362	108	518	197	393	400	50
Future Volume (vph)	72	62	151	141	55	362	108	518	197	393	400	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7	4.7		5.7	5.7	4.7	7.5	7.5	4.7	7.5	
Lane Util. Factor		1.00	1.00		1.00	0.88	1.00	0.95	1.00	*1.00	*1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.98	1.00		0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1819	1583		1795	2787	1770	3539	1583	3539	3656	
Flt Permitted		0.98	1.00		0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1819	1583		1795	2787	1770	3539	1583	3539	3656	
Peak-hour factor, PHF	0.77	0.62	0.81	0.76	0.93	0.94	0.94	0.82	0.85	0.95	0.95	0.84
Adj. Flow (vph)	94	100	186	186	59	385	115	632	232	414	421	60
RTOR Reduction (vph)	0	0	132	0	0	229	0	0	172	0	8	0
Lane Group Flow (vph)	0	194	54	0	245	156	115	632	60	414	473	0
Turn Type	Split	NA	pm+ov	Split	NA	pt+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	3	3	1	4	4	4 5	1	6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)		15.9	26.7		20.5	34.5	10.8	23.7	23.7	8.3	21.2	
Effective Green, g (s)		15.9	26.7		20.5	34.5	10.8	23.7	23.7	8.3	21.2	
Actuated g/C Ratio		0.17	0.29		0.22	0.38	0.12	0.26	0.26	0.09	0.23	
Clearance Time (s)		5.7	4.7		5.7		4.7	7.5	7.5	4.7	7.5	
Vehicle Extension (s)		3.0	2.0		3.0		2.0	3.0	3.0	2.0	3.0	
Lane Grp Cap (vph)		314	459		399	1045	207	911	407	319	842	
v/s Ratio Prot		c0.11	0.01		c0.14	0.06	0.06	c0.18		c0.12	0.13	
v/s Ratio Perm			0.02						0.04			
v/c Ratio		0.62	0.12		0.61	0.15	0.56	0.69	0.15	1.30	0.56	
Uniform Delay, d1		35.2	24.0		32.2	19.0	38.3	30.9	26.3	41.9	31.3	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		3.6	0.0		2.8	0.1	1.8	2.3	0.2	155.2	0.9	
Delay (s)		38.8	24.0		35.0	19.1	40.2	33.2	26.5	197.1	32.1	
Level of Service		D	C		C	B	D	C	C	F	C	
Approach Delay (s)		31.6			25.3			32.4			108.4	
Approach LOS		C			C			C			F	
Intersection Summary												
HCM 2000 Control Delay			54.3									
HCM 2000 Level of Service										D		
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			92.0							23.6		
Intersection Capacity Utilization			57.8%							B		
ICU Level of Service												
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: Project Dwy #1/Existing Dwy & Future Legion Rd

OY 2028+P PM Peak Hour

04/17/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	152	303	0	98	0	320	0	0	0	0	140
Future Volume (vph)	197	152	303	0	98	0	320	0	0	0	0	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5		4.5				4.5	
Lane Util. Factor	1.00	1.00	1.00		0.95		1.00				1.00	
Frt	1.00	1.00	0.85		1.00		1.00				0.86	
Flt Protected	0.95	1.00	1.00		1.00		0.95				1.00	
Satd. Flow (prot)	1770	1863	1583		3539		1770				1611	
Flt Permitted	0.95	1.00	1.00		1.00		0.95				1.00	
Satd. Flow (perm)	1770	1863	1583		3539		1770				1611	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	214	165	329	0	107	0	348	0	0	0	0	152
RTOR Reduction (vph)	0	0	221	0	0	0	0	0	0	0	109	0
Lane Group Flow (vph)	214	165	108	0	107	0	348	0	0	0	43	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot		Perm		NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases			4						2	6		
Actuated Green, G (s)	11.7	22.2	22.2		6.0		12.6				19.3	
Effective Green, g (s)	11.7	22.2	22.2		6.0		12.6				19.3	
Actuated g/C Ratio	0.17	0.33	0.33		0.09		0.19				0.29	
Clearance Time (s)	4.5	4.5	4.5		4.5		4.5				4.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0				3.0	
Lane Grp Cap (vph)	306	611	519		314		329				459	
v/s Ratio Prot	c0.12	c0.09			0.03		c0.20				c0.03	
v/s Ratio Perm			0.07									
v/c Ratio	0.70	0.27	0.21		0.34		1.06				0.09	
Uniform Delay, d1	26.3	16.7	16.4		28.9		27.5				17.7	
Progression Factor	1.00	1.00	1.00		1.00		1.00				1.00	
Incremental Delay, d2	6.8	0.2	0.2		0.7		65.7				0.4	
Delay (s)	33.1	17.0	16.6		29.6		93.2				18.1	
Level of Service	C	B	B		C		F				B	
Approach Delay (s)		21.7			29.6			93.2			18.1	
Approach LOS		C			C			F			B	
Intersection Summary												
HCM 2000 Control Delay			40.8				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			67.6				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			55.2%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

7: Project Dwy #2 & Future Legion Rd

OY 2028+P PM Peak Hour
04/17/2025

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	119	33	0	79	19	0
Future Volume (Veh/h)	119	33	0	79	19	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	129	36	0	86	21	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)	726					
pX, platoon unblocked						
vC, conflicting volume			165		215	129
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			165		215	129
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	100
cM capacity (veh/h)			1413		773	921
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	129	36	0	86	21	
Volume Left	0	0	0	0	21	
Volume Right	0	36	0	0	0	
cSH	1700	1700	1700	1700	773	
Volume to Capacity	0.08	0.02	0.00	0.05	0.03	
Queue Length 95th (ft)	0	0	0	0	2	
Control Delay (s)	0.0	0.0	0.0	0.0	9.8	
Lane LOS					A	
Approach Delay (s)	0.0		0.0		9.8	
Approach LOS					A	
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			16.3%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

8: Project Dwy #3 & Future Legion Rd

OY 2028+P PM Peak Hour
04/17/2025

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↙	↑	↙	↗
Traffic Volume (veh/h)	21	98	0	21	58	0
Future Volume (Veh/h)	21	98	0	21	58	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	107	0	23	63	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)						
pX, platoon unblocked						
vC, conflicting volume			130	46		23
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			130	46		23
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			100	93		100
cM capacity (veh/h)			1455	964		1054
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	23	107	0	23	63	0
Volume Left	0	0	0	0	63	0
Volume Right	0	107	0	0	0	0
cSH	1700	1700	1700	1700	964	1700
Volume to Capacity	0.01	0.06	0.00	0.01	0.07	0.00
Queue Length 95th (ft)	0	0	0	0	5	0
Control Delay (s)	0.0	0.0	0.0	0.0	9.0	0.0
Lane LOS						
Approach Delay (s)	0.0		0.0		9.0	
Approach LOS						
A						
Intersection Summary						
Average Delay						
			2.6			
Intersection Capacity Utilization			13.3%		ICU Level of Service	
					A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

OY 2028+P PM Peak Hour

9: Brawley Ave & Future Mead Rd

04/17/2025



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	180	0	823	171	0	692
Future Volume (vph)	180	0	823	171	0	692
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5		4.5
Lane Util. Factor	1.00		0.95	1.00		0.95
Frt	1.00		1.00	0.85		1.00
Flt Protected	0.95		1.00	1.00		1.00
Satd. Flow (prot)	1770		3539	1583		3539
Flt Permitted	0.95		1.00	1.00		1.00
Satd. Flow (perm)	1770		3539	1583		3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	196	0	895	186	0	752
RTOR Reduction (vph)	0	0	0	67	0	0
Lane Group Flow (vph)	196	0	895	119	0	752
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	9.2		32.5	32.5		32.5
Effective Green, g (s)	9.2		32.5	32.5		32.5
Actuated g/C Ratio	0.18		0.64	0.64		0.64
Clearance Time (s)	4.5		4.5	4.5		4.5
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	321		2268	1014		2268
v/s Ratio Prot	c0.11		c0.25			0.21
v/s Ratio Perm				0.08		
v/c Ratio	0.61		0.39	0.12		0.33
Uniform Delay, d1	19.1		4.4	3.5		4.1
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	3.4		0.5	0.2		0.4
Delay (s)	22.5		4.9	3.8		4.5
Level of Service	C		A	A		A
Approach Delay (s)	22.5		4.7			4.5
Approach LOS	C		A			A

Intersection Summary

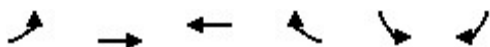
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	50.7	Sum of lost time (s)	13.5
Intersection Capacity Utilization	40.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

10: Future Mead Rd & Project Dwy #4

OY 2028+P PM Peak Hour
04/17/2025



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	171	0	0	0	0	180
Future Volume (Veh/h)	171	0	0	0	0	180
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	186	0	0	0	0	196
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)		1140				
pX, platoon unblocked						
vC, conflicting volume	0				372	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				372	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				100	82
cM capacity (veh/h)	1623				557	1085
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	186	0	0	196		
Volume Left	186	0	0	0		
Volume Right	0	0	0	196		
cSH	1623	1700	1700	1085		
Volume to Capacity	0.11	0.00	0.00	0.18		
Queue Length 95th (ft)	10	0	0	16		
Control Delay (s)	7.5	0.0	0.0	9.0		
Lane LOS	A			A		
Approach Delay (s)	7.5		0.0	9.0		
Approach LOS				A		
Intersection Summary						
Average Delay			8.3			
Intersection Capacity Utilization			27.3%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

11: Keystone Rd & SR-86

OY 2028+P PM Peak Hour

04/17/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↕	↗	↗	↕	↗
Traffic Volume (vph)	68	22	15	42	31	61	11	794	18	81	728	62
Future Volume (vph)	68	22	15	42	31	61	11	794	18	81	728	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.5			8.5		5.7	8.4	8.4	5.7	8.4	8.4
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.98			0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1771			1723		1770	3539	1583	1770	3539	1583
Flt Permitted		0.48			0.82		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		879			1444		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.73	0.66	0.70	0.67	0.81	0.78	0.50	0.80	0.71	0.94	0.92	0.65
Adj. Flow (vph)	93	33	21	63	38	78	22	992	25	86	791	95
RTOR Reduction (vph)	0	4	0	0	28	0	0	0	17	0	0	59
Lane Group Flow (vph)	0	143	0	0	151	0	22	993	8	86	791	36
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4					6			2
Actuated Green, G (s)		14.0			15.6		3.1	34.6	34.6	8.0	39.5	39.5
Effective Green, g (s)		14.0			15.6		3.1	34.6	34.6	8.0	39.5	39.5
Actuated g/C Ratio		0.14			0.15		0.03	0.33	0.33	0.08	0.38	0.38
Clearance Time (s)		8.5			8.5		5.7	8.4	8.4	5.7	8.4	8.4
Vehicle Extension (s)		3.0			3.0		2.0	6.0	6.0	2.0	6.0	6.0
Lane Grp Cap (vph)		119			218		53	1185	530	137	1353	605
v/s Ratio Prot							0.01	c0.28		c0.05	c0.22	
v/s Ratio Perm		c0.16			c0.10				0.01			0.02
v/c Ratio		1.20			0.69		0.42	0.84	0.02	0.63	0.58	0.06
Uniform Delay, d1		44.6			41.6		49.2	31.8	23.0	46.2	25.4	20.2
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		145.6			9.1		1.9	6.2	0.0	6.3	1.2	0.1
Delay (s)		190.2			50.7		51.1	38.0	23.0	52.5	26.6	20.3
Level of Service		F			D		D	D	C	D	C	C
Approach Delay (s)		190.2			50.7			37.9			28.3	
Approach LOS		F			D			D			C	
Intersection Summary												
HCM 2000 Control Delay		44.5			HCM 2000 Level of Service			D				
HCM 2000 Volume to Capacity ratio		0.86										
Actuated Cycle Length (s)		103.3			Sum of lost time (s)			31.1				
Intersection Capacity Utilization		58.7%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												