



## REVISED TRAFFIC IMPACT ANALYSIS

### VILLAS AT THE GIN ESTRELLA PARKWAY/EDISON ROAD

10 FEBRUARY 2023  
6 OCTOBER 2022



PREPARED FOR  
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Turn Lane Calculations  
Crash Analysis  
Comment Resolution

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**VILLAS AT THE GIN  
ESTRELLA PARKWAY/EDISON ROAD  
REVISED TRAFFIC IMPACT ANALYSIS**

**Executive Summary**

The purpose of this traffic study is to evaluate the current and future transportation system within the project study area surrounding the site without and with the proposed project.

**Existing Traffic Data**

All of the study intersections currently operate at adequate LOS (Level of Service) during the weekday AM and PM peak hours.

**Future Traffic Data Without Project**

All of the study intersections are expected to continue operating at an adequate LOS in 2024 and 2029 without traffic from the project during the weekday AM and PM peak hours.

**Future Traffic Data With Project**

All of the study intersections are expected to continue operating at an adequate LOS in 2024 and 2029 without and with traffic from the project during the weekday AM and PM peak hours.

**Turn Lane Analysis**

No left turn or right turn lanes are warranted at the intersections of Fire Station Driveway/Estrella Parkway and South Access/Garvey Road.

No queue overlap is anticipated to occur between the project driveways and adjacent intersections.

**Crash Analysis**

The intersection of Edison Road/SR 347 was reported to have sixty (60) crashes (sixteen (16) with injury) during the 2017 to 2021 study period. The most common crash type was left turns (40%). The observed crash patterns at the intersection could be the result of traffic signal timing that does not clear a sufficient amount of left turning vehicles traveling to/from SR 347.

One crash (with no injury) was reported at the intersection of Roosevelt Avenue/Edison Road within the 2017 to 2021 study period. This relatively small number of collisions at the intersection cannot be used to identify any meaningful crash trends.

The intersection of Roosevelt Avenue/Garvey Avenue had one reported crash (one with injury) within the 2017 to 2021 study period. This relatively small number of collisions at the intersection cannot be used to identify any meaningful crash trends.



## VILLAS AT THE GIN ESTRELLA PARKWAY/EDISON ROAD REVISED TRAFFIC IMPACT ANALYSIS

### Project Description

Construction Solutions Company (CSC) is proposing a new 195 unit multi-family development on the southeast corner of Estrella Parkway/Edison Road in Maricopa, Arizona. The vicinity of the project is shown in **Figure 1**. The site will be located as shown in **Figure 2**. The project will be served by six existing intersections and three proposed access points (one of which aligns with an existing intersection).

The purpose of this traffic impact analysis is to:

- Evaluate the current and future operational characteristics of the adjacent roadway network surrounding the project site.
- Estimate the traffic generation associated with the project and assign that traffic to the existing roadway system.
- Analyze future traffic operations at six existing intersections and three proposed access points serving the project area.
- Determine the need for auxiliary (left and right turn) lanes at the driveways that will serve the project site.
- Analyze historic crash data at the six existing intersections to determine any specific crash trends

The author of this report is a registered Professional Engineer (Civil) in the State of Arizona having specific expertise and experience in the preparation of traffic impact analyses.

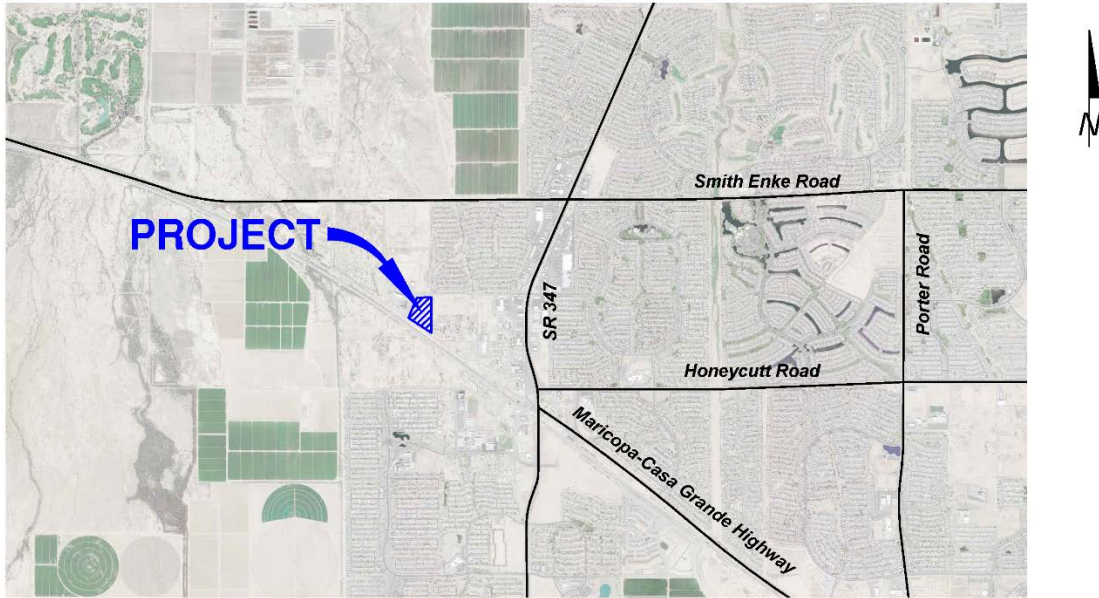
### Study Methodology

In order to analyze and evaluate the potential traffic impacts of the proposed development, the following tasks were undertaken:

- Field observation of the proposed site and surrounding area was conducted to evaluate the existing physical and operational characteristics of the adjacent roadway network.
- Site traffic volumes generated by the proposed site were calculated using the *Institute of Transportation Engineers (ITE) Trip Generation Manual, 11<sup>th</sup> Edition, 2021*.
- Calculated site traffic was distributed based on existing traffic patterns and assigned to the primary roadways within the project study limits.
- Capacity analyses were performed for the existing conditions and future conditions without and with the project based on an opening year of 2024 and future study year of 2029 using methodology presented in the *2016 Highway Capacity Manual (HCM 6)*.
- The need for auxiliary turn lanes at the study driveways were evaluated based on Pinal County guidelines.



Figure 1 – Vicinity Map

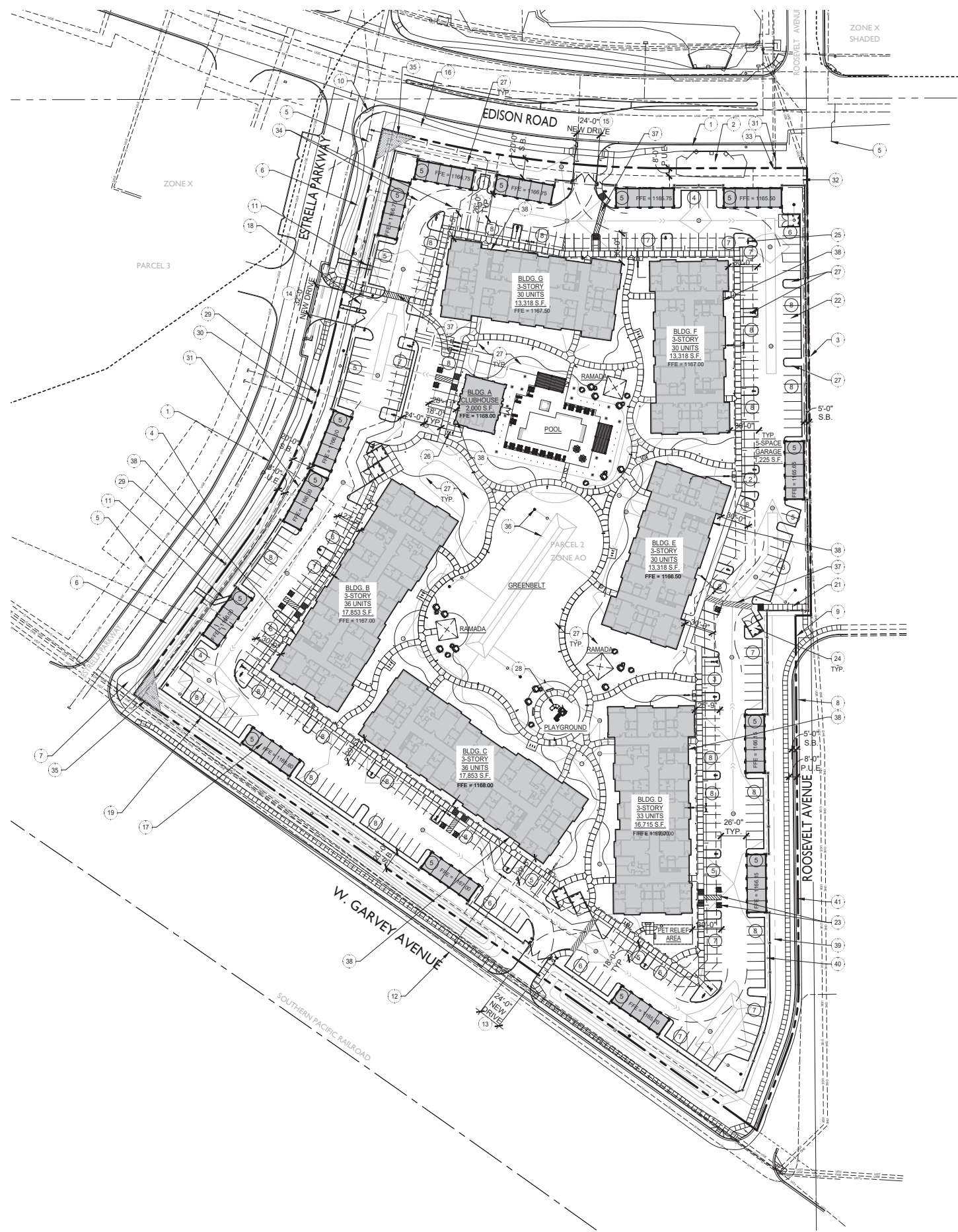


**LEGEND:**

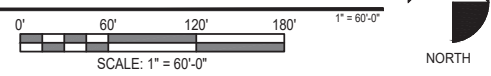
— EXISTING ROAD

 PROJECT SITE





1 SITE PLAN



KEYED NOTES:

- 1 EXISTING CURB & GUTTER TO REMAIN
- 2 EXISTING RETENTION AREA TO REMAIN - PROTECT IN PLACE
- 3 EXISTING OVERHEAD ELEC. TO REMAIN - PROTECT IN PLACE - TYP.
- 4 EXISTING STREET LIGHT POLE & FIXTURE TO REMAIN - TYP.
- 5 EXISTING HYDRANT TO REMAIN - PROTECT IN PLACE - TYP.
- 6 EXISTING PEDESTRIAN PATH/SIDEWALK TO REMAIN - TYP.
- 7 EXISTING IRRIGATION VALVE TO REMAIN - TYP.
- 8 EDGE OF EXISTING PAVEMENT
- 9 EXISTING DIRECTIONAL SIGNAGE
- 10 EXISTING PEDESTRIAN ACCESSIBLE RAMP TO REMAIN
- 11 EXISTING DRAINAGE SCUPPER TO BE REMOVED - SEE CIVIL PLANS
- 12 CONC. CURB TO BE COORDINATED W/ C.O.M. STREET DESIGN FOR GARVEY AVE. - SEE CIVIL PLANS
- 13 ACCESS DRIVE - SEE CIVIL PLANS
- 14 MAIN ENTRY DRIVE - SEE CIVIL PLANS
- 15 RIGHT-OUT, EXIT ONLY DRIVE - SEE CIVIL PLANS
- 16 PEDESTRIAN CONC. SIDEWALK
- 17 5-SPACE PARKING GARAGE - TYP. OF 14 - SEE ELEVATIONS
- 18 GATED ENTRY W/ KEYPAD
- 19 6'-0" HIGH DECORATIVE SECURITY SCREEN WALL - TYP. AROUND PERIMETER - SEE LANDSCAPE PLANS
- 20 CONC. SIDEWALK - TYP.
- 21 CONC. SIDEWALK CONNECTING TO ADJACENT RESIDENTIAL DEVELOPMENT W/ SECURED GATE & KEYPAD
- 22 9' WIDE X 18' DEEP PARKING STALLS - TYP. U.N.O.
- 23 11' WIDE X 18' DEEP ACCESSIBLE PARKING W/ 5' WIDE ACCESSIBLE AISLE, RAMP, AND SIGNAGE - TYP.
- 24 TRASH ENCLOSURE PER C.O.M. STD. DETAILS - TYP.
- 25 15'-0" HIGH LIGHT POLE AND FIXTURE - SEE PHOTOMETRIC PLAN
- 26 BICYCLE PARKING - TYP.
- 27 LANDSCAPE - TYP. - SEE LANDSCAPE PLANS
- 28 PLAY STRUCTURE - SEE LANDSCAPE PLANS
- 29 EXISTING SEWER LINE - SEE CIVIL PLANS
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- 39 ABANDONED PROPERTY LINE BY CITY OF MARICOPA
- 40 ABANDONED P.U.E. BY CITY OF MARICOPA
- 41 PROPOSED PROPERTY LINE - REPLAT & RECORDATION PROCESS BY CITY OF MARICOPA

SITE DATA:

BUILDING ADDRESS: 20405 N. ESTRELLA PARKWAY, MARICOPA, AZ 85139  
 LOT - PARCEL NUMBER: 510170220  
 SCOPE: MULTI-FAMILY RESIDENTIAL DEVELOPMENT  
 LOT AREA: 10.47 ACRES (456,110 S.F.) NET  
 13.47 ACRES (586,813 S.F.) GROSS

ZONING: EXISTING: LI (LIGHT INDUSTRIAL)  
 (REZONE CASE: ZON22-05) PROPOSED REZONE: RH (HIGH DENSITY RESIDENTIAL)

LAND USE: EXISTING: EMPLOYMENT (E)  
 (GPA CASE: GPA22-08) PROPOSED USE: HDR (HIGH DENSITY RESIDENTIAL)

MAXIMUM DENSITY: 20 UNITS / NET ACRE = 209.4 UNITS ALLOWED  
 PROPOSED DENSITY: 195 UNITS, OR 19.17 UNITS / ACRE

MAXIMUM LOT COVERAGE: 50%  
 PROPOSED LOT COVERAGE: 25%

F.A.R.: 36.8%

MAXIMUM BUILDING HEIGHT: 45 FEET  
 PROPOSED BUILDING HEIGHT: 43'-3" FEET (HIGHEST PARAPET SCREEN WALL)

SETBACKS:  
 FRONT: 20'  
 INTERIOR SIDE: 5'  
 REAR: 20'  
 STREET: 20'

PARKING REQUIREMENTS:  
 GUEST - 0.2 SPACE PER UNIT  
 STUDIO - 1 SPACE PER UNIT  
 1 BEDROOM - 1.5 SPACES PER UNIT  
 2 BEDROOMS - 2 SPACES PER UNIT  
 3 BEDROOMS - 2 SPACES PER UNIT + 1 SPACE PER 10 UNITS

NUMBER OF ROOMS PER UNIT PER BUILDING PROVIDED:

BUILDINGS E, F & G:  
 1 BEDROOM = 45 UNITS  
 2 BEDROOM = 45 UNITS  
 TOTAL NUMBER OF UNITS = 90

BUILDING D:  
 1 BEDROOM = 9 UNITS  
 2 BEDROOM = 18 UNITS  
 3 BEDROOM = 6 UNITS  
 TOTAL NUMBER OF UNITS = 33

BUILDINGS B & C:  
 1 BEDROOM = 24 UNITS  
 2 BEDROOM = 36 UNITS  
 3 BEDROOM = 12 UNITS  
 TOTAL NUMBER OF UNITS = 72

TOTAL NUMBER OF UNITS = 195

GARAGE = 14 BUILDINGS (5 SPACES PER BUILDING)

TOTAL PARKING REQUIRED = 399 SPACES  
 TOTAL PARKING PROVIDED = 399 SPACES (INCLUDES GARAGES & ACCESSIBLE SPACES)

OPEN SPACE:  
 OPEN SPACE REQUIRED (20% MIN.) = 88,601 S.F. (2.03 ACRES)  
 OPEN SPACE PROVIDED = 128,286 S.F. = 28.96% (DOES NOT INCLUDE L.S. BUFFER)

PRIVATE OUTDOOR LIVING AREA:  
 REQUIRED:  
 GROUND LEVEL = 120 S.F. / UNIT (MIN.)  
 2ND LEVEL = 80 S.F. / UNIT (MIN.)  
 3RD LEVEL = 40 S.F. / UNIT (MIN.)

PROVIDED:  
 ALL LEVELS = 84 S.F. / UNIT

PRIVATE STORAGE AREA:  
 REQUIRED:  
 200 CU. FT. (MIN.) / UNIT

PROVIDED:  
 TYPE 'A' UNITS:  
 1-BEDROOM = 579.6 CU. FT.  
 2-BEDROOM = 1,085.5 CU. FT.  
 3-BEDROOM = 1,060.4 CU. FT.  
 TYPE 'B' UNITS:  
 1-BEDROOM = 579.6 CU. FT.  
 2-BEDROOM = 1,199.4 CU. FT.  
 3-BEDROOM = 1,058 CU. FT.

SITE PLAN NOTES:

1. PARKING LOT LIGHT POLES SHALL MATCH THE EXISTING APPROVED LIGHT FIXTURES ON ESTRELLA GIN PAD A OR APPROVED SIMILAR.
2. ALL PEDESTRIAN GATES SHALL BE ILLUMINATED FROM DUSK TO DAWN, INCLUDING ALL GATES AT ALL ENTRANCES AS WELL AS THE GATE FOR ROOSEVELT AVE.
3. ALL ON-SITE OUTDOOR FIXTURES, OTHER THAN BOLLARD LIGHTING OR GARAGE COACH LIGHTS, SHALL BE SET BACK FROM ALL LOT LINES A MINIMUM OF 10 FEET OR A DISTANCE EQUAL TO THE HEIGHT OF THE FIXTURE, WHICHEVER IS GREATER.
4. \*PARKING LOT AND POLE-MOUNTED SECURITY LIGHTING SHALL NOT EXCEED MAXIMUM MOUNTING HEIGHT OF 14 FEET WITHIN 100 FEET OF A RESIDENTIAL ZONING DISTRICT, OR FROM LAND DESIGNATED FOR RESIDENTIAL USES IN THE GENERAL PLAN.
5. \*A FIRE FLOW TEST SHALL BE PROVIDED WITH A MINIMUM OF 1500 GPM SHALL BE PROVIDED TO THE CITY OF MARICOPA FOR REVIEW AND APPROVAL. THE PROJECT SHALL COMPLY WITH THE 2018 IFC APPENDIX B AND C.
6. \*TRASH ENCLOSURES SHALL HAVE A SIGN STATING "KEEP CLOSED WHEN NOT IN USE" OR EQUIVALENT AND SHALL MATCH THE REVISED DESIGN AND COLOR PALLET OF BUILDING WHICH COMPLIMENTS THE DESIGN AND COLOR OF THE MAIN BUILDING STRUCTURE.
7. \*LANDSCAPING SHALL BE PROVIDED OUTSIDE THE SCREEN WALL.
8. \*NO MESQUITE OR PALO VERDE TREES ALLOWED ON OR NEAR THE RIGHT-OF-WAY OR ANY OTHER DRIVING AREAS INCLUDING LANDSCAPE ISLANDS.
9. \*\*FIRE ALARM AND FIRE SPRINKLER SYSTEM UNDER SEPARATE PERMIT SUBMITTAL.
10. \*\* UNDERGROUND FIRE LINES SHALL BE UNDER A SEPARATE PERMIT SUBMITTAL.
11. POOL & POOL AMENITIES UNDER SEPARATE PERMIT SUBMITTAL.
12. ALL GATES UNDER SEPARATE PERMIT SUBMITTAL.
13. SIGNAGE UNDER SEPARATE PERMIT SUBMITTAL.

VICINITY MAP:



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CONSTRUCTION SOLUTIONS COMPANY

VILLAS AT THE GIN  
 20405 NORTH ESTRELLA PARKWAY  
 MARICOPA, ARIZONA 85139

Project: [blank] date: 02/01/23

issued for: DRP REVIEW

revision no.:	date:
DRP CITY COMMENTS	07/05/22
DRP CITY COMMENTS	11/14/22

job no.: 21-178

sheet title: SITE PLAN

sheet no.: AS1.0



## **Existing Conditions**

The proposed Villas at the Gin project will be located on vacant land on the southeast corner of Estrella Parkway/Edison Road in Maricopa, Arizona. The existing roadways near the project serve various residential and industrial land uses.

State Route 347 (SR 347) is a six-lane roadway divided by a raised median near the project site. The posted speed limit is 45 miles per hour (miles per hour). SR 347 runs north from State Route 84 (SR 84) to Interstate 10 (I-10).

Edison Road is an east/west aligned roadway bordering the northern side of the project site. East of SR 347, the roadway is provided one through lane in each direction of travel separated by a two-way center left turn lane. Between SR 347 and Wilson Avenue, Edison Road is offered a four-lane roadway divided by a raised median. Between Wilson Avenue and Roosevelt Avenue, Edison Road is a two-lane undivided roadway. The roadway transitions to two through lanes in the westbound direction of travel and one through lane in the eastbound direction of travel divided by a raised median between Roosevelt Avenue and Estrella Parkway. West of Estrella Parkway, the roadway makes use of two through lanes in each direction of travel divided by a raised median. Curb facilities and roadway lighting are present on both sides of the roadway; unpaved shoulders are present on the southside of Edison Road between Wilson Avenue and Roosevelt Avenue. The posted speed limit is 30 mph near the project site.

Roosevelt Avenue has a posted speed limit of 30 mph and is an north/south aligned roadway. Roosevelt Avenue extends approximately 550 feet north of Garvey Avenue before ending at Lexington Avenue. This section of roadway provides one through lane in each direction of travel. Roosevelt Avenue begins again at Edison Road and extends north to Smith Enke Road. Immediately north of Edison Road, Roosevelt Avenue provides one through lane in each direction.

Estrella Parkway is located along the west side of the project site and has a north/south alignment. The roadway extends north of Garvey Avenue to Edison Road and is a two-lane undivided roadway. North of Edison Road, Estrella Parkway transitions to one through lane in each direction of travel separated by a two-way center left turn lane. Curb facilities and roadway lighting are present on both sides of the roadway. Estrella Parkway has a posted speed limit of 25 mph.

Garvey Avenue is a southeast/northwest aligned roadway that offers a single through lane in both directions with unpaved shoulders adjacent to the project site. The speed limit on Garvey Avenue is 25 miles per hour.

Fire Station Driveway extends west of Estrella Parkway and provides access to the Maricopa Fire Department Campus.





The intersection of Edison Street/SR 347 is a four-leg, signalized intersection with protected/permitted left turn phasing for each approach. Eastbound vehicles approaching the intersection are provided an exclusive left turn lane, a shared through/right turn lane, and a dedicated right turn lane, while westbound traffic is offered an exclusive left turn lane and a shared through/right turn lane. Northbound vehicles approaching the intersection make use of an exclusive left turn lane, two through lanes, and a shared through/right turn lane, while southbound traffic utilizes an exclusive left turn lane, three through lanes, and a dedicated right turn lane.

Estrella Parkway/Edison Street is a four-leg, un-signalized intersection. Eastbound vehicles approaching the intersection are offered an exclusive left turn lane, one through lane, and a dedicated right turn lane, while westbound traffic makes use of an exclusive left turn lane, one through lane, and a shared through/right turn lane. Northbound vehicles approaching the intersection utilize a shared left turn/through/right turn lane, while southbound traffic makes use of an exclusive left turn lane and a shared through/right turn lane.

Fire Station Driveway/Estrella Parkway is a three-leg, un-signalized intersection. Eastbound vehicles approaching the intersection are STOP controlled and offered a shared left turn/right turn lane. Northbound traffic approaching the intersection are provided a shared left turn/through lane, while southbound vehicles makes use of a shared through/right turn lane.

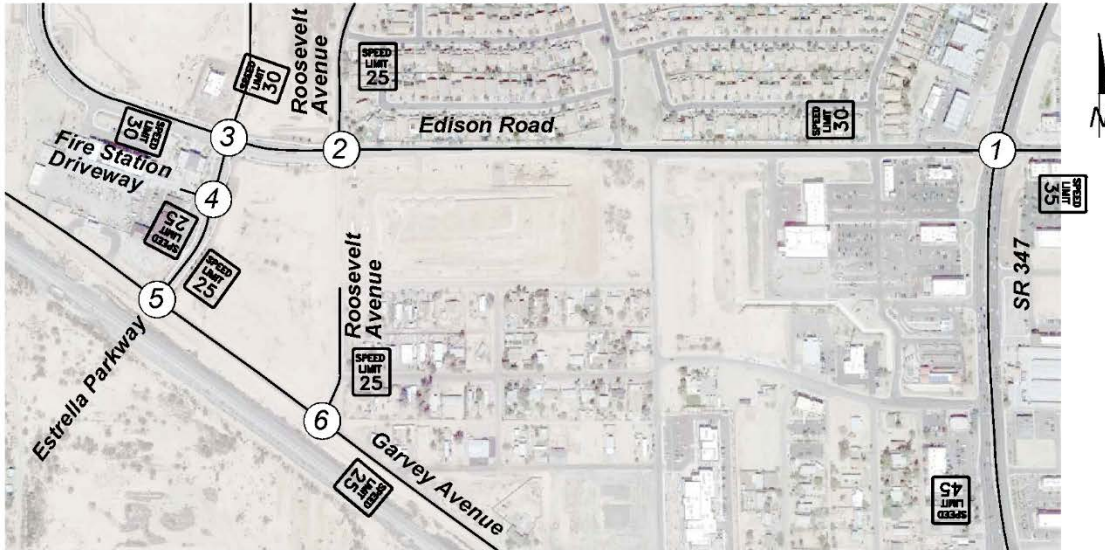
The intersection of Roosevelt Street/Edison Road is a three-leg, un-signalized intersection. Eastbound vehicles approaching the intersection are utilize a dedicated left turn lane and one through lane, while westbound traffic is offered one through lane and a shared through/right turn lane. Southbound vehicles approaching the intersection are STOP controlled and provided a shared left turn/right turn lane.

The intersections of Roosevelt Street/Garvey Avenue and Estrella Parkway/Garvey Avenue are three-legged, un-signalized intersections. Eastbound vehicles approaching the intersections are provided a shared left turn/through lane, while westbound traffic makes use of a shared through/right turn lane. Southbound vehicles approaching the intersections are STOP controlled and provided a shared left turn/right turn lane.

The existing study intersection locations, lane configurations, and intersection control are shown in **Figure 3**.

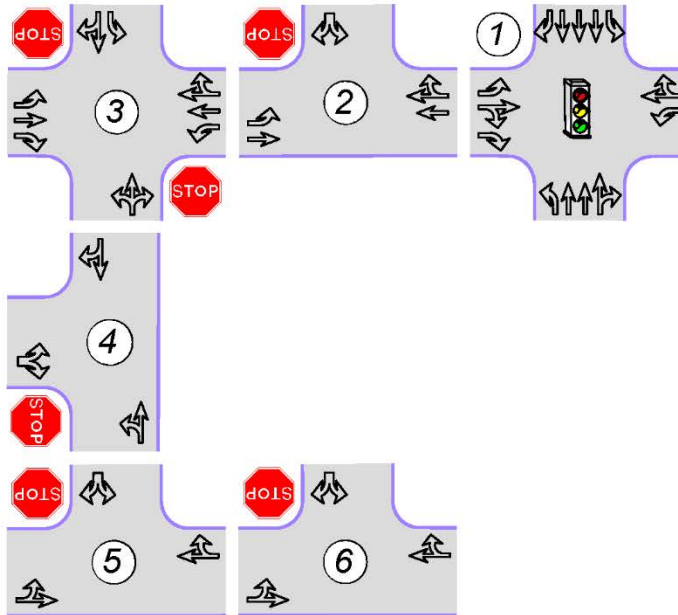


Figure 3 – Existing Lane Configurations and Traffic Control



**LEGEND:**

- = Stop Sign
- = Speed Limit
- = Traffic Signal
- = Existing Road
- = Existing Movement





## **Existing Traffic Data**

In order to form a basis for analysis of the project impacts, weekday AM and PM peak hour turning movement counts were conducted at the following intersections:

- Roosevelt Avenue/Edison Road
- Estrella Parkway/Edison Road
- Fire Driveway/Estrella Parkway
- Estrella Parkway/Garvey Avenue
- Roosevelt Avenue/Garvey Avenue

The weekday turning movement counts were conducted from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM. All traffic data was collected in July 2022, while school was not in session. The existing traffic volumes are shown in **Figure 4**. Complete traffic count data can be found in the Appendix.

The City of Maricopa has provided weekday AM (7:00 AM to 9:00 AM) and PM (4:00 PM to 6:00 PM) peak hour turning movement counts at the intersection of Edison Road/SR 347. Two sets of traffic data were provided, one taken in July 2022 and one completed in May 2022 while school was in session.

Per City of Maricopa direction and using the Maricopa traffic counts taken in May and July 2022, a 20% seasonal adjustment factor was determined between ‘in school’ and out of school’ conditions. This 20% factor was applied to grow the existing weekday AM and PM peak hour turning movement counts taken at the remaining study intersections as shown in **Figure 5**.

It should be noted that higher (in school) May 2022 traffic counts at Edison Road/SR 347 were used in this analysis

## **Access**

The project will be served by three proposed access points (one of which aligns with an existing intersection).

Villas at the Gin is expected to construct a new east leg at the intersection of Fire Station Driveway/Estrella Parkway that will provide full access to the site. All approaches to the intersection will make use of a shared left turn/through/right turn lane. The eastbound and westbound approaches to the intersection will be STOP controlled.



Figure 4 – Existing Weekday Peak Hour Traffic Volumes



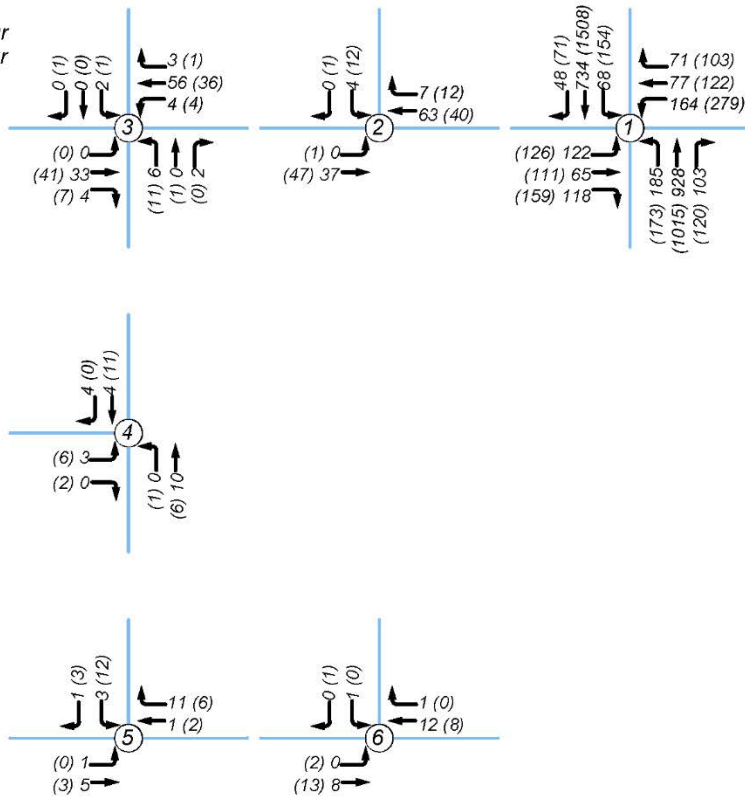
**LEGEND:**

XX = Weekday AM Peak Hour

(XX) = Weekday PM Peak Hour

Vehicles Per Hour

— = Existing Road







**Figure 5 – Existing Weekday Peak Hour Traffic Volumes  
With Seasonal Adjustment Factor**

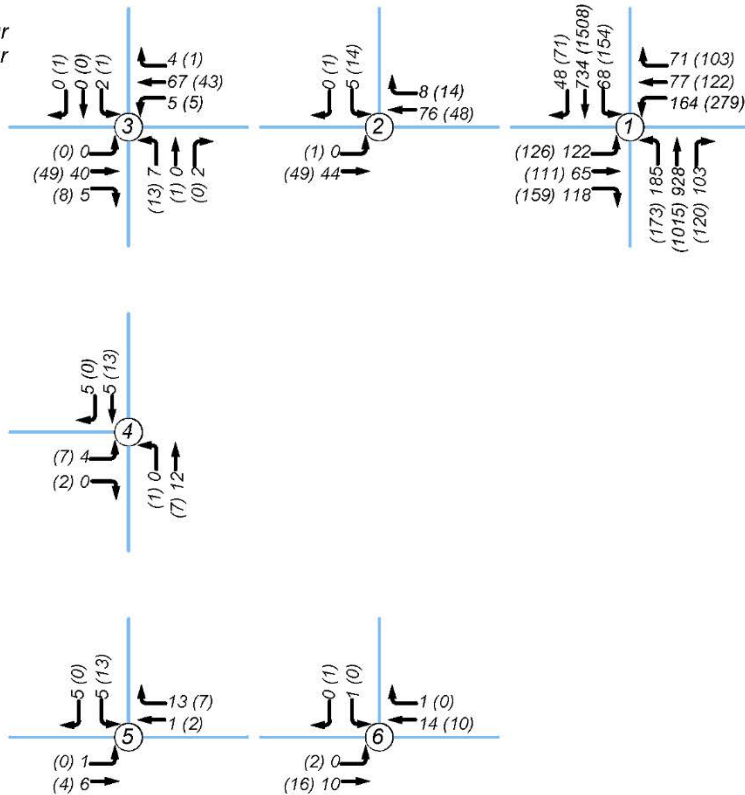


**LEGEND:**

XX = Weekday AM Peak Hour  
(XX) = Weekday PM Peak Hour

Vehicles Per Hour

— = Existing Road







North Access will be located 230 feet east of Estrella Parkway on the south side of Edison Road and will offer right out only access for passenger vehicles. Eastbound vehicles approaching the intersection will be provided enough pavement for two northbound through lanes, however, in the interim the intersection will be striped to offer one eastbound through lane until adjacent development completes the southside of Edison Road between Roosevelt Avenue and Wilson Avenue. Northbound vehicles leaving the project site will be STOP controlled and utilize a dedicated right turn lane.

South Access is proposed 510 feet east of Estrella Parkway on the northside of Garvey Avenue. Eastbound vehicles approaching the intersections will make use of a shared left turn/through lane, while westbound traffic utilizes a shared through/right turn lane. Southbound vehicles leaving the project site will be STOP controlled and offered a shared left turn/right turn lane.

**Figure 6** shows the locations, geometry and spacing for the study intersections that will also serve as a baseline of analysis in 2024 and 2029.

**Trip Generation**

Trip generation was developed utilizing nationally agreed upon data contained in the Institute of Transportation Engineers (ITE) publication *Trip Generation, 11th Edition*, 2021. The project trip generation was estimated for the construction of a 195 unit multi family development based on Land Use Code 220 (LUC 220) Multifamily Housing (Low-rise). The results are shown in **Table 1**. The complete trip generation calculations can be found in the Appendix.

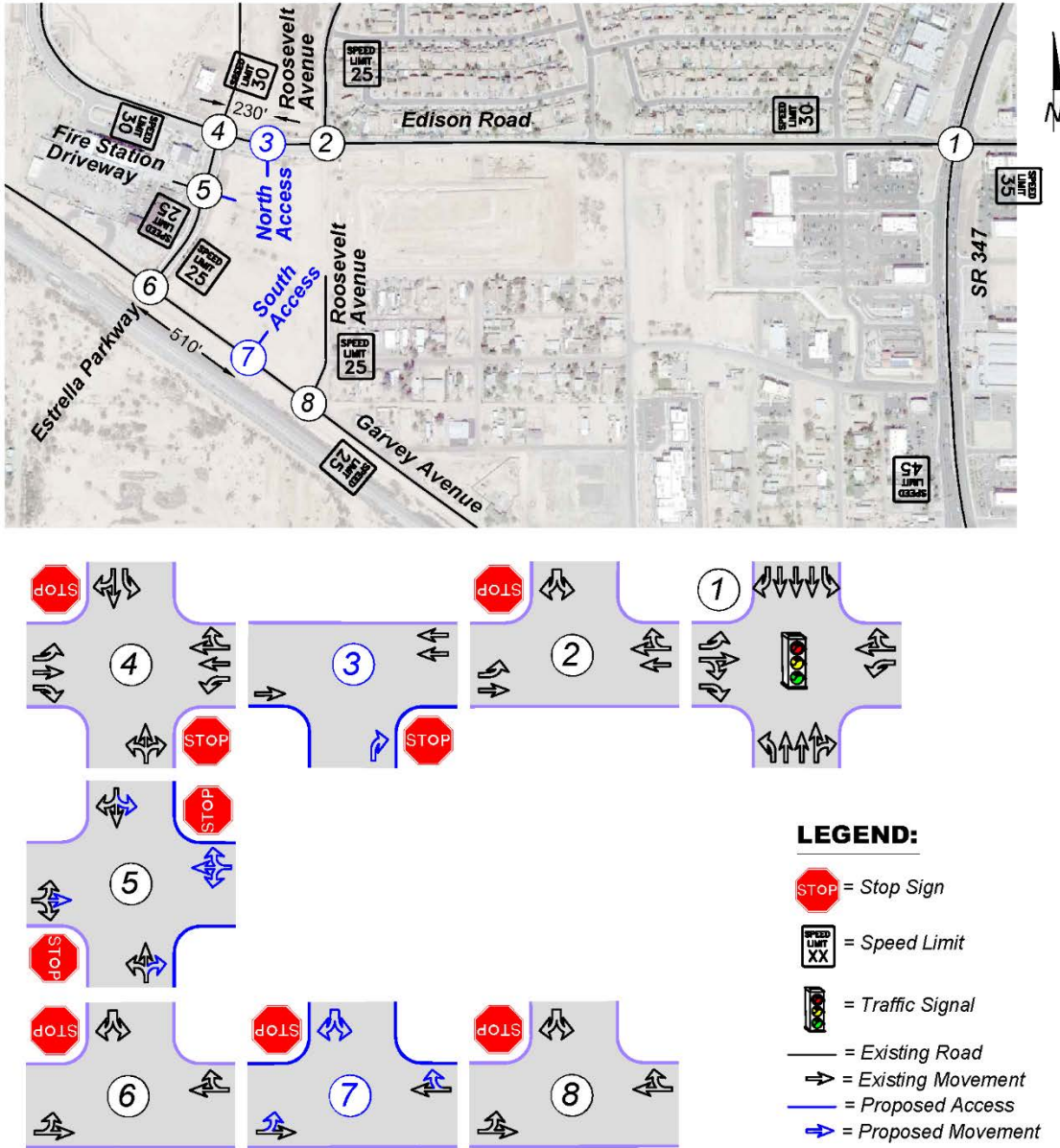
**Table 1 –Site Generated Trips**

<b>Time Period</b>	<b>Multifamily Housing Low- Rise (LUC 220)</b>
Average Daily, Inbound (vtpd)	658
Average Daily, Outbound (vtpd)	658
<b>Total Daily</b>	<b>1,316</b>
AM Peak Hour, Inbound (vtph)	19
AM Peak Hour, Outbound (vtph)	59
<b>Total AM Peak</b>	<b>78</b>
PM Peak Hour, Inbound (vtph)	63
PM Peak Hour, Outbound (vtph)	37
<b>Total PM Peak</b>	<b>100</b>

vtpd - vehicle trips per day, vtph - vehicle trips per hour



Figure 6 – Baseline Access Point and Intersection Configuration Assumptions





## **Trip Distribution & Assignment**

Trip distribution for the project was based on existing traffic volume patterns near the Villas at the Gin site and taking into account the site plan and its proposed access point locations. While the majority of traffic is expected to travel to/from SR 347 using Edison Road as it serves an important service route through the City of Maricopa, traffic counts also show a relatively large number of vehicles on Edison Road traveling to/from State Route 238 (SR 238, aka Smith Enke Road). SR 238 provides a connection to SR 347 and serves vehicles traveling west of Maricopa. A small number of vehicles are also anticipated to use Garvey Avenue to travel to/from the proposed access point on the south side of the project site. **Figure 7** shows the weekday trip distribution for the project as a percentage of net new primary trips.

**Figure 8** shows the assignment of the new site generated trips to the project intersections within the study area.

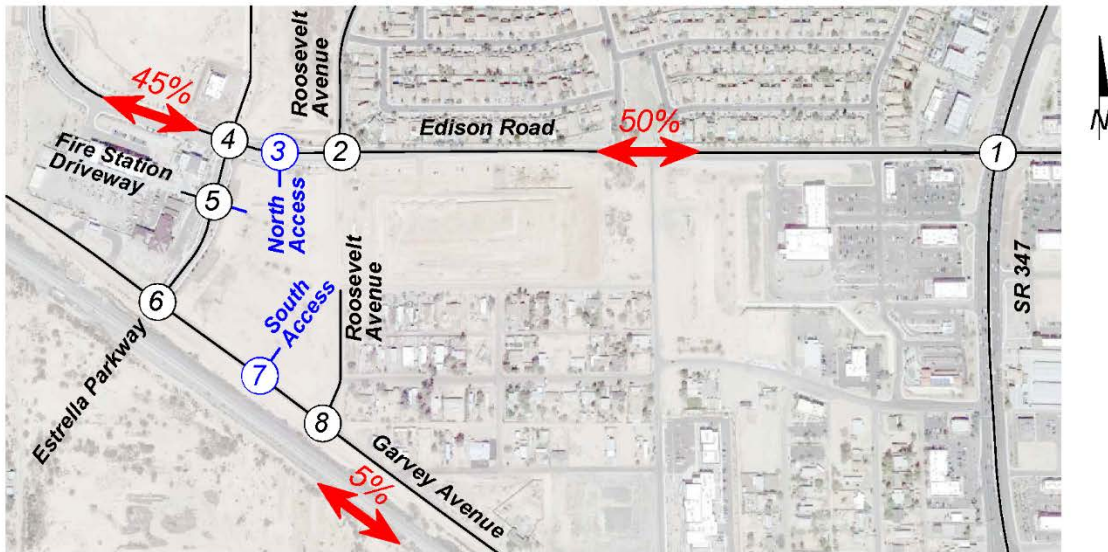
## **Existing Traffic Operations**

Analysis of current intersection operations was conducted for the weekday AM and PM peak hours using the nationally accepted methodology set forth in the *Highway Capacity Manual*, Transportation Research Board, 2016 (HCM 6). The computer software Synchro 11 was utilized to calculate the levels of service for individual movements and approaches.

LOS is a qualitative measure of the traffic operations at an intersection or on a roadway segment. Level of service is ranked from LOS A, which signifies little or no congestion and is the highest rank, to LOS F, which signifies congestion and jam conditions. LOS D is typically considered adequate operation at signalized and un-signalized intersections in developed areas.



Figure 7 – Weekday Peak Hour Trip Distribution



**LEGEND:**

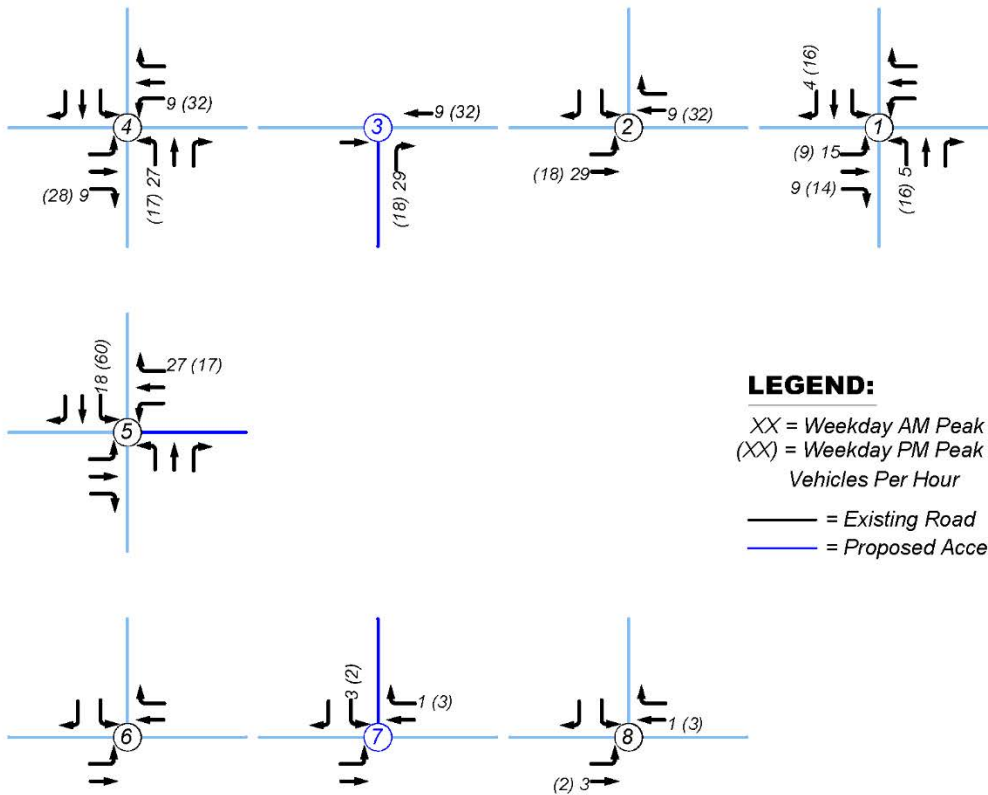
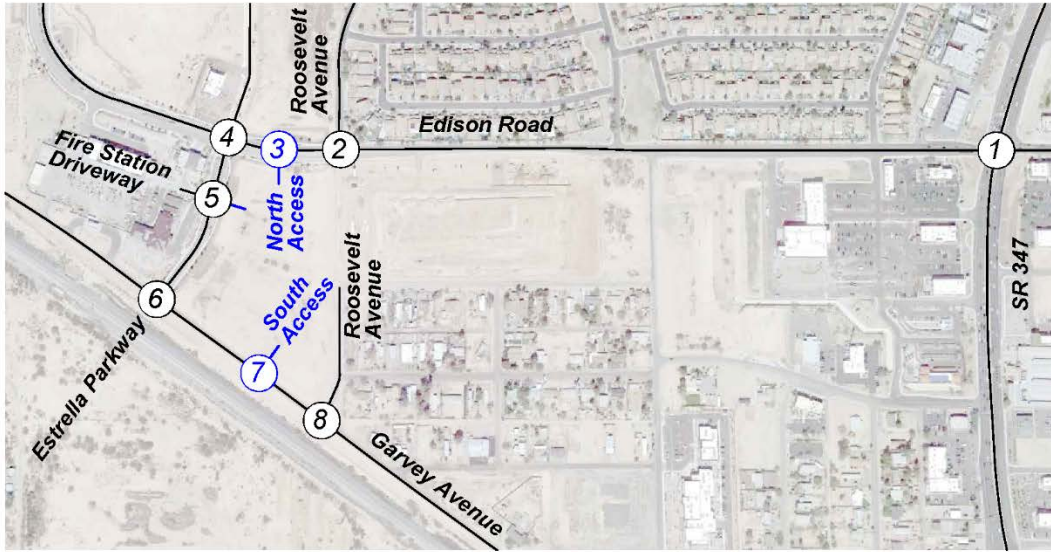
— = Existing Road

— = New Access

XX% = Distribution of Vehicle Trips



Figure 8 – Weekday Peak Hour Trip Assignment







At signalized intersections, level of service is calculated for each movement and then summed in a weighted fashion to yield the LOS for the approach and for the intersections as a whole. Criteria for level of service at signalized intersections are shown in **Table 2**.

**Table 2 - Level of Service Criteria – Signalized Intersections**

Level-of-Service	Average Total Delay
A	$\leq 10.0$ seconds/vehicle
B	$> 10.0$ and $\leq 20.0$ seconds/vehicle
C	$> 20.0$ and $\leq 35.0$ seconds/vehicle
D	$> 35.0$ and $\leq 55.0$ seconds/vehicle
E	$> 55.0$ and $\leq 80.0$ seconds/vehicle
F	$> 80.0$ seconds/vehicle

In calculating the levels of service, assumed signal phasing and timing data was used. Other assumptions included:

- Cycle length – 90 seconds
- Lane widths – 12 feet
- Approach grade – 0%
- Right turn on red allowed

At un-signalized intersections, level of service is predicted/calculated for those movements, which must either stop for or yield to oncoming traffic and is based on average control delay for the particular movement. Control delay is the portion of total delay attributed to traffic control measures such as stop signs and traffic signals. The criteria for level of service at un-signalized intersections are shown in **Table 3**.

**Table 3 – Level of Service Criteria – Un-signalized Intersections**

Level-of-Service	Delay
A	$\leq 10$ seconds/vehicle
B	$> 10$ and $\leq 15$ seconds/vehicle
C	$> 15$ and $\leq 25$ seconds/vehicle
D	$> 25$ and $\leq 35$ seconds/vehicle
E	$> 35$ and $\leq 50$ seconds/vehicle
F	$> 50$ seconds/vehicle

**Table 4** shows the existing levels of service that were calculated for the study intersections. Complete capacity calculations are included in the Appendix.

As shown below in **Table 4**, the existing study intersections currently operate at adequate LOS during the weekday AM and PM peak hours.



**Table 4 – Existing Weekday Peak Hour Levels of Service**

Intersections	AM Peak		PM Peak	
	LOS	Delay	LOS	Delay
<b>Signalized Intersections</b>				
Edison Road/SR 347				
Overall Intersection	B	19.8	C	28.8
Eastbound Left	C	25.9	C	26.5
Eastbound Through/Right	C	33.8	D	36.8
Eastbound Right	C	30.9	C	31.2
Westbound Left	C	24.8	D	36.5
Westbound Through/Right	C	34.4	D	38.0
Northbound Left	C	10.7	C	26.9
Northbound Through	B	16.5	C	24.7
Northbound Through/Right	B	16.5	C	24.7
Southbound Left	B	13.6	B	17.8
Southbound Through	B	19.1	C	30.1
Southbound Right	B	15.6	B	17.0
<b>Un-Signalized Intersections</b>				
Estrella Parkway/Edison Road				
Eastbound Left	A	0.0	A	0.0
Westbound Left	A	7.3	A	7.4
Northbound Left/Through/Right	A	9.1	A	9.3
Southbound Left	A	9.5	A	9.4
Southbound Through/Right	A	0.0	A	8.5
Fire Station Driveway/Estrella Parkway				
Eastbound Left/Right	A	8.6	A	8.6
Northbound Left/Through	A	0.0	A	7.2
Roosevelt Avenue/Edison Road				
Eastbound Left	A	0.0	A	7.4
Southbound Left/Right	A	9.4	A	9.3
Roosevelt Avenue/Garvey Avenue				
Eastbound Left/Through	A	0.0	A	7.2
Southbound Left/Right	A	8.7	A	8.4
Estrella Parkway/Garvey Avenue				
Eastbound Left/Through	A	7.3	A	0.0
Southbound Left/Right	A	8.6	A	8.6

Delay - seconds per vehicle



### **Future Traffic Operations Without Project**

In order to assess the impacts of the project on future traffic operations, traffic projections were made for the opening year of 2024 and the future study year of 2029. Limited historical traffic data was available in the vicinity of the project to determine a growth rate. Weekday peak hour traffic volumes without the project for the years 2024 and 2029 were estimated using a conservative 2% annual traffic growth rate, as shown in **Figures 9** and **10**.

As with the current traffic volumes, levels of service were calculated for each of the intersections in the study area for 2024 and 2029 without the project. Intersection levels of service for 2024 and 2029 without the project are shown in **Tables 5** and **6**. Complete capacity calculations are included in the Appendix.

As shown below in **Table 5** and **6**, all of the study intersections are expected to continue operating at an adequate LOS in 2024 and 2029 without traffic from the project during the weekday AM and PM peak hours.

### **Future Traffic Operations With Project**

In order to assess the impacts of the project on future traffic operations, levels of service were calculated for each project intersection in 2024 and 2029 with the project. Weekday peak hour traffic volumes for 2024 and 2029 without the project were combined with the estimated trips generated by the project to yield weekday peak hour traffic volumes with the project as shown in **Figures 11** and **12**. Weekday intersection levels of service for 2024 and 2029 with the project, were then calculated as shown in **Tables 7** and **8**. Complete capacity calculations are included in the Appendix.

As below shown in **Tables 7** and **8**, all of the study intersections are expected to continue operating at an adequate LOS in 2024 and 2029 without and with traffic from the project during the weekday AM and PM peak hours.



Figure 9 – 2024 Weekday Peak Hour Traffic Volumes Without Project



**LEGEND:**

XX = Weekday AM Peak Hour

(XX) = Weekday PM Peak Hour

Vehicles Per Hour

— = Existing Road

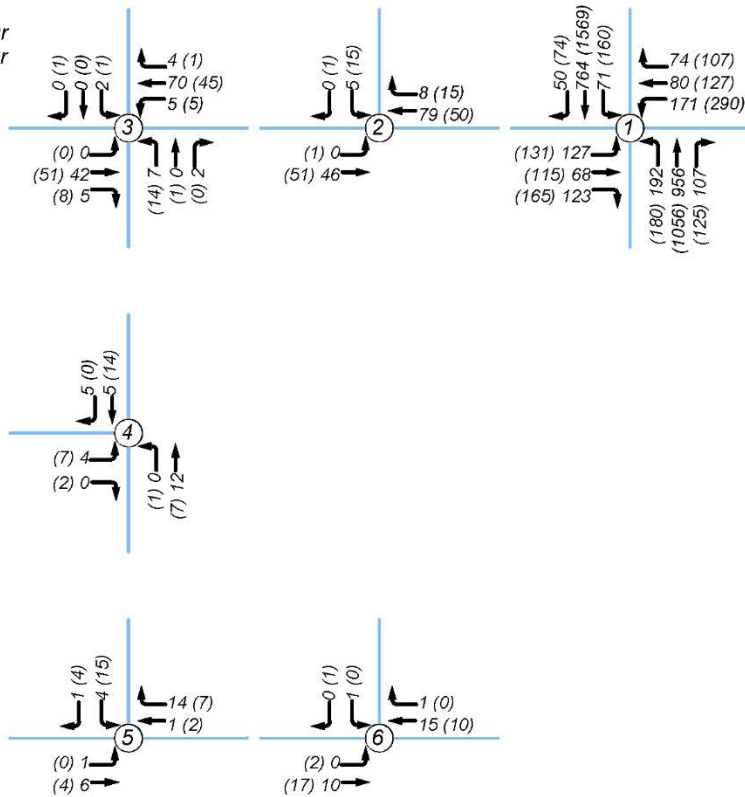


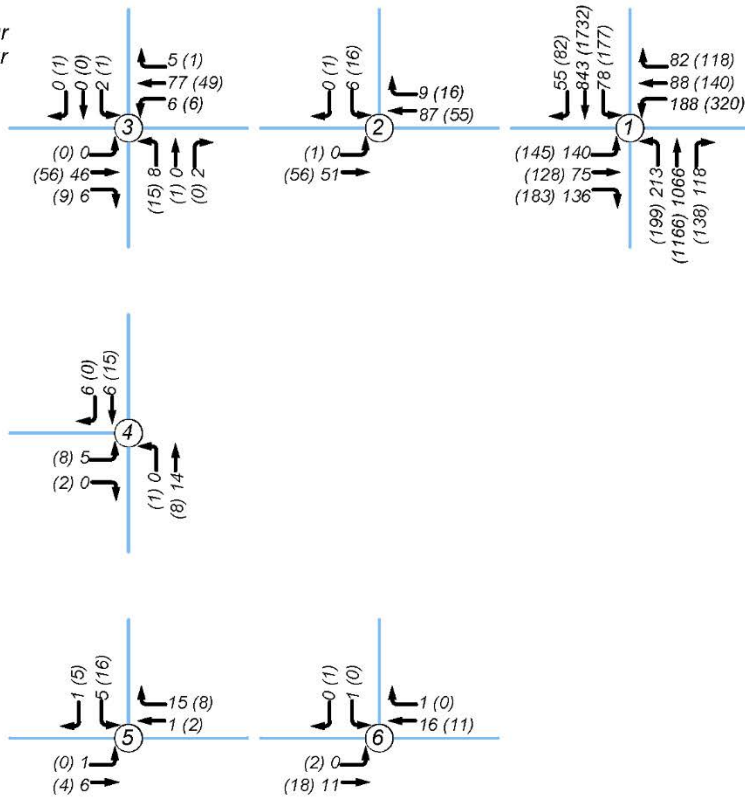


Figure 10 – 2029 Weekday Peak Hour Traffic Volume Without Project



**LEGEND:**

XX = Weekday AM Peak Hour  
 (XX) = Weekday PM Peak Hour  
 Vehicles Per Hour  
 — = Existing Road







**Table 5 – 2024 Weekday Peak Hour Levels of Service Without Project**

Intersections	AM Peak		PM Peak	
	LOS	Delay	LOS	Delay
<b>Signalized Intersections</b>				
Edison Road/SR 347				
Overall Intersection	C	20.3	C	30.8
Eastbound Left	C	26.1	C	26.6
Eastbound Through/Right	C	33.8	D	37.1
Eastbound Right	C	30.9	C	31.1
Westbound Left	C	25.0	D	41.6
Westbound Through/Right	C	34.6	D	39.5
Northbound Left	B	11.5	C	29.6
Northbound Through	B	16.9	C	25.7
Northbound Through/Right	B	16.9	C	25.7
Southbound Left	B	14.2	B	18.8
Southbound Through	B	19.8	C	32.9
Southbound Right	B	16.0	B	17.1
<b>Un-Signalized Intersections</b>				
Estrella Parkway/Edison Road				
Eastbound Left	A	0.0	A	0.0
Westbound Left	A	7.3	A	7.4
Northbound Left/Through/Right	A	9.1	A	9.3
Southbound Left	A	9.6	A	9.4
Southbound Through/Right	A	0.0	A	8.5
Fire Station Driveway/Estrella Parkway				
Eastbound Left/Right	A	8.6	A	8.6
Northbound Left/Through	A	0.0	A	7.3
Roosevelt Avenue/Edison Road				
Eastbound Left	A	0.0	A	7.4
Southbound Left/Right	A	9.4	A	9.3
Roosevelt Avenue/Garvey Avenue				
Eastbound Left/Through	A	0.0	A	7.2
Southbound Left/Right	A	8.7	A	8.4
Estrella Parkway/Garvey Avenue				
Eastbound Left/Through	A	7.3	A	0.0
Southbound Left/Right	A	8.6	A	8.6

Delay - seconds per vehicle



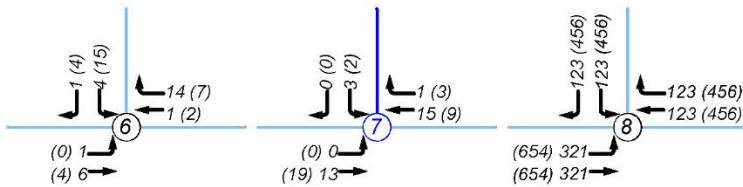
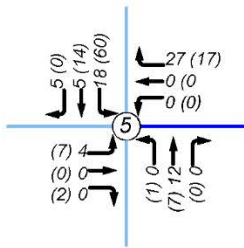
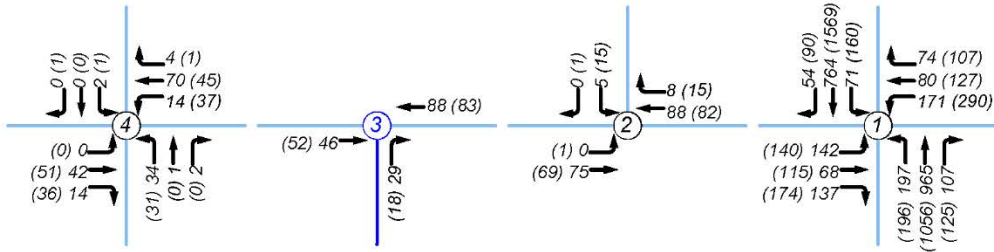
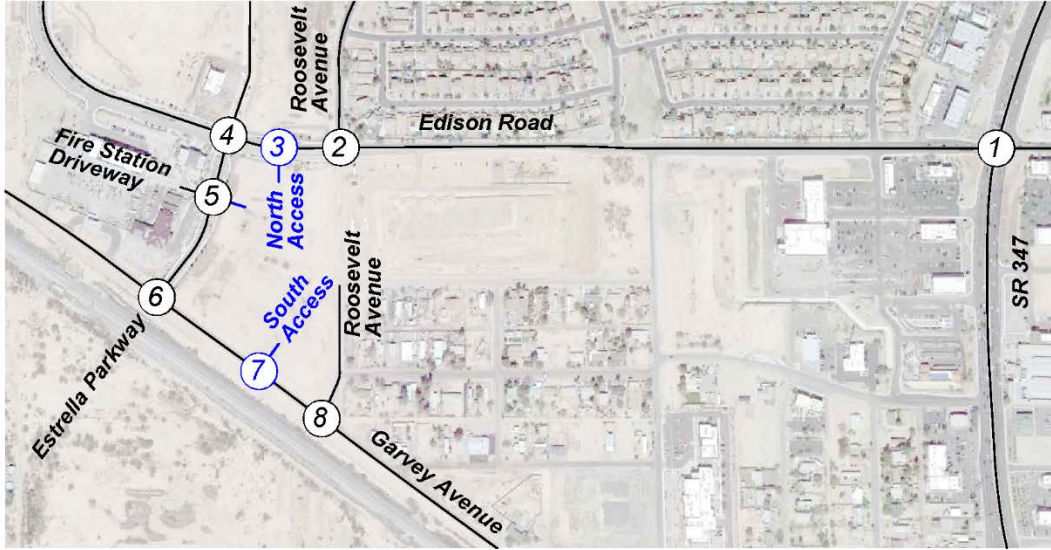
**Table 6 – 2029 Weekday Peak Hour Levels of Service Without Project**

Intersections	AM Peak		PM Peak	
	LOS	Delay	LOS	Delay
<b>Signalized Intersections</b>				
Edison Road/SR 347				
Overall Intersection	C	21.7	D	40.4
Eastbound Left	C	26.3	C	28.4
Eastbound Through/Right	C	34.0	D	38.3
Eastbound Right	C	30.8	C	31.0
Westbound Left	C	25.9	D	52.2
Westbound Through/Right	D	35.8	D	43.5
Northbound Left	B	14.7	D	39.2
Northbound Through	B	18.2	C	29.2
Northbound Through/Right	B	18.2	C	29.2
Southbound Left	B	15.6	C	22.0
Southbound Through	C	21.8	D	51.5
Southbound Right	B	17.0	B	17.7
<b>Un-Signalized Intersections</b>				
Estrella Parkway/Edison Road				
Eastbound Left	A	0.0	A	0.0
Westbound Left	A	7.4	A	7.4
Northbound Left/Through/Right	A	9.2	A	9.4
Southbound Left	A	9.7	A	9.5
Southbound Through/Right	A	0.0	A	8.5
Fire Station Driveway/Estrella Parkway				
Eastbound Left/Right	A	8.7	A	8.7
Northbound Left/Through	A	0.0	A	7.3
Roosevelt Avenue/Edison Road				
Eastbound Left	A	0.0	A	7.4
Southbound Left/Right	A	9.5	A	9.4
Roosevelt Avenue/Garvey Avenue				
Eastbound Left/Through	A	0.0	A	7.2
Southbound Left/Right	A	8.7	A	8.4
Estrella Parkway/Garvey Avenue				
Eastbound Left/Through	A	7.3	A	0.0
Southbound Left/Right	A	8.6	A	8.6

Delay - seconds per vehicle



Figure 11 - 2024 Weekday Peak Hour Traffic Volumes With Project



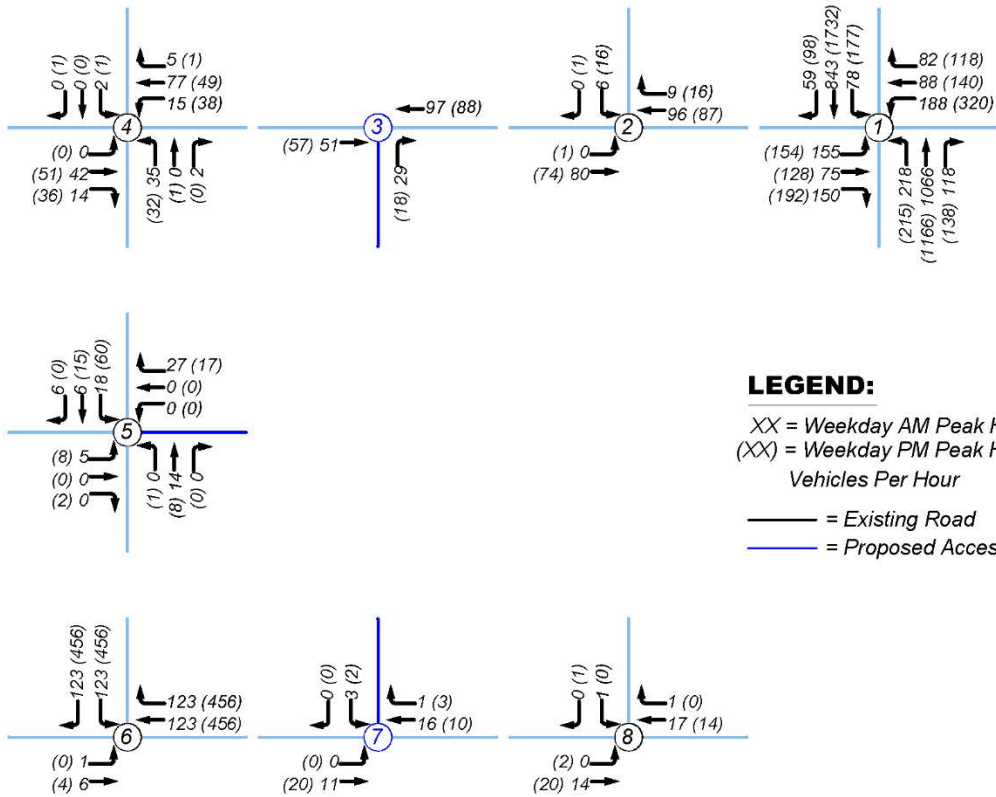
**LEGEND:**

XX = Weekday AM Peak Hour  
 (XX) = Weekday PM Peak Hour  
 Vehicles Per Hour

— = Existing Road  
 — = Proposed Access



Figure 12 - 2029 Weekday Peak Hour Traffic Volumes With Project





**Table 7 – 2024 Weekday Peak Hour Levels of Service With Project**

Intersection	2024 Without Project				2024 With Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
<b>Signalized Intersections</b>								
Edison Road/SR 347								
Overall Intersection	C	20.3	C	30.8	C	20.5	C	31.3
Eastbound Left	C	26.1	C	26.6	C	26.4	C	27.5
Eastbound Through/Right	C	33.8	D	37.1	C	34.0	D	37.9
Eastbound Right	C	30.9	C	31.1	C	31.0	C	31.3
Westbound Left	C	25.0	D	41.6	C	25.4	D	43.8
Westbound Through/Right	C	34.6	D	39.5	D	35.0	D	40.2
Northbound Left	B	11.5	C	29.6	B	11.7	D	35.3
Northbound Through	B	16.9	C	25.7	B	16.9	C	25.6
Northbound Through/Right	B	16.9	C	25.7	B	16.9	C	25.6
Southbound Left	B	14.2	B	18.8	B	14.2	B	18.9
Southbound Through	B	19.8	C	32.9	B	20.0	C	33.2
Southbound Right	B	16.0	B	17.1	B	16.1	B	17.4
<b>Un-Signalized Intersections</b>								
Estrella Parkway/Edison Road								
Eastbound Left	A	0.0	A	0.0	A	0.0	A	0.0
Westbound Left	A	7.3	A	7.4	A	7.4	A	7.5
Northbound Left/Through/Right	A	9.1	A	9.3	A	9.6	B	10.3
Southbound Left	A	9.6	A	9.4	A	9.8	B	10.3
Southbound Through/Right	A	0.0	A	8.5	A	0.0	A	8.5
Fire Station Driveway/Estrella Parkway								
Eastbound Left/Right	A	8.6	A	8.6	N/A		N/A	
Eastbound Left/Through/Right	N/A		N/A		A	9.2	A	9.7
Westbound Left/Through/Right	N/A		N/A		A	8.5	A	8.4
Northbound Left/Through	A	0.0	A	7.3	N/A		N/A	
Northbound Left/Through/Right	N/A		N/A		A	0.0	A	7.3
Southbound Left/Through/Right	N/A		N/A		A	7.3	A	7.3
Roosevelt Avenue/Edison Road								
Eastbound Left	A	0.0	A	7.4	A	0.0	A	7.5
Southbound Left/Right	A	9.4	A	9.3	A	9.7	A	9.7
Roosevelt Avenue/Carvey Avenue								
Eastbound Left/Through	A	0.0	A	7.2	A	0.0	A	7.3
Southbound Left/Right	A	8.7	A	8.4	A	8.7	A	8.4
Estrella Parkway/Carvey Avenue								
Eastbound Left/Through	A	7.3	A	0.0	A	7.3	A	0.0
Southbound Left/Right	A	8.6	A	8.6	A	8.6	A	8.6
South Access/Carvey Avenue								
Eastbound Left/Through	N/A		N/A		A	0.0	A	0.0
Southbound Left/Right	N/A		N/A		A	8.7	A	8.7
North Access/Edison Road								
Northbound Right	N/A		N/A		A	8.7	A	8.7

Delay - seconds per vehicle





**Table 8 – 2029 Weekday Peak Hour Levels of Service With Project**

Intersection	2029 Without Project				2029 With Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
<b>Signalized Intersections</b>								
Edison Road/SR 347								
Overall Intersection	C	21.7	D	40.4	C	22.0	D	41.3
Eastbound Left	C	26.3	C	28.4	C	27.0	C	29.3
Eastbound Through/Right	C	34.0	D	38.3	C	34.0	D	39.1
Eastbound Right	C	30.8	C	31.0	C	30.8	C	31.0
Westbound Left	C	25.9	D	52.2	C	26.2	D	54.9
Westbound Through/Right	D	35.8	D	43.5	D	36.1	D	43.5
Northbound Left	B	14.7	D	39.2	B	15.2	D	52.7
Northbound Through	B	18.2	C	29.2	B	18.3	C	29.4
Northbound Through/Right	B	18.2	C	29.2	B	18.3	C	29.4
Southbound Left	B	15.6	C	22.0	B	15.8	C	21.8
Southbound Through	C	21.8	D	51.5	C	22.0	D	51.8
Southbound Right	B	17.0	B	17.7	B	17.2	B	17.9
<b>Un-Signalized Intersections</b>								
Estrella Parkway/Edison Road								
Eastbound Left	A	0.0	A	0.0	A	0.0	A	0.0
Westbound Left	A	7.4	A	7.4	A	7.4	A	7.5
Northbound Left/Through/Right	A	9.2	A	9.4	A	9.7	B	10.4
Southbound Left	A	9.7	A	9.5	A	9.9	B	10.4
Southbound Through/Right	A	0.0	A	8.5	A	0.0	A	8.5
Fire Station Driveway/Estrella Parkway								
Eastbound Left/Right	A	8.7	A	8.7	N/A		N/A	
Eastbound Left/Through/Right	N/A		N/A		A	9.3	A	9.7
Westbound Left/Through/Right	N/A		N/A		A	8.5	A	8.4
Northbound Left/Through	A	0.0	A	7.3	N/A		N/A	
Northbound Left/Through/Right	N/A		N/A		A	0.0	A	7.3
Southbound Left/Through/Right	N/A		N/A		A	7.3	A	7.3
Roosevelt Avenue/Edison Road								
Eastbound Left	A	0.0	A	7.4	A	0.0	A	7.5
Southbound Left/Right	A	9.5	A	9.4	A	9.7	A	9.8
Roosevelt Avenue/Carvey Avenue								
Eastbound Left/Through	A	0.0	A	7.2	A	0.0	A	7.3
Southbound Left/Right	A	8.7	A	8.4	A	8.7	A	8.4
Estrella Parkway/Carvey Avenue								
Eastbound Left/Through	A	7.3	A	0.0	A	7.3	A	0.0
Southbound Left/Right	A	8.6	A	8.6	A	8.6	A	8.6
South Access/Carvey Avenue								
Eastbound Left/Through	N/A		N/A		A	0.0	A	0.0
Southbound Left/Right	N/A		N/A		A	8.7	A	8.7
North Access/Edison Road								
Northbound Right	N/A		N/A		A	8.7	A	8.7

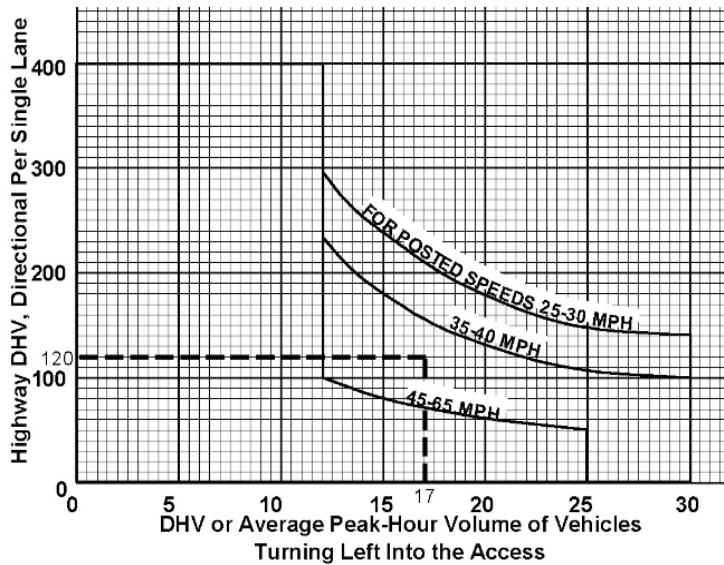
Delay - seconds per vehicle



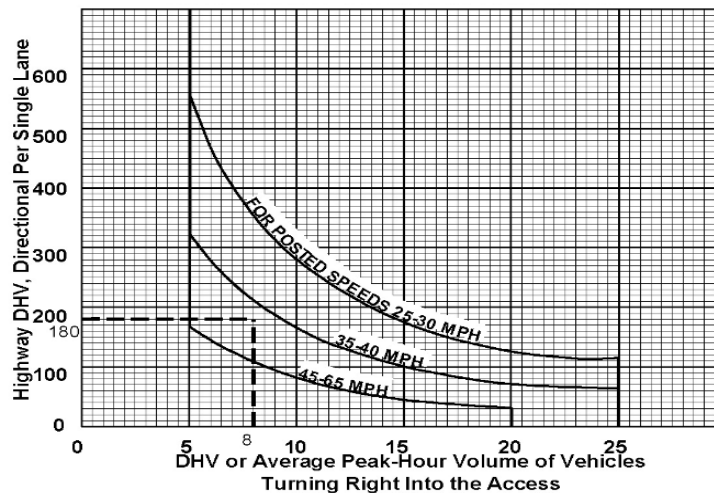
## Turn Lane Analysis

A key element of this traffic analysis is to determine if right or left turn lanes are required at the intersections providing access to the project. The Pinal County *Traffic Impact Assessment Guidelines and Procedures* provides warrants for the inclusion of left and right turn lanes along county-controlled roadways. The criteria for determining if turn lanes are needed is based on the design hourly volume (DHV) per lane, the peak-hour volume of vehicles turning left or right, and the posted speed of the roadway. **Figures 13 and 14** show the Pinal County turn lane warrants for left and right turn lanes.

**Figure 13 – Pinal County Left Turn Lane Warrants**



**Figure 14 – Pinal County Right Turn Lane Warrants**





**Table 9** shows the locations that were evaluated for left and right turn lanes based on traffic volumes in 2029 with the project.

**Table 9 – Pinal County Turn Lane Warrants**

Intersection	Direction	Turn Treatment Analyzed	Single-Lane DHV	Peak-Hour Turning Vehicle Volume	Posted Speed Limit	Turn Treatments Warranted?
Fire Station Driveway/Estrella Parkway	Northbound	Right Turn Lane	14	0	25 mph	No
	Southbound	Left Turn Lane	56	41		No
South Access/Garvey Avenue	Eastbound	Left Turn Lane	20	0	25 mph	No
	Westbound	Right Turn Lane	13	3		No

mph - miles per hour

As shown in **Table 9**, no left turn or right turn lanes are warranted at the intersections of Fire Station Driveway/Estrella Parkway and South Access/Garvey Road.

Queue lengths were calculated for the eastbound left turn lane at Roosevelt Street/Edison Road, shared northbound left turn/through/right turn lane at Estrella Parkway/Edison Road, and shared southbound left turn/through/right turn lane at Fire Station Driveway/Estrella Parkway to determine if any queue overlap is expected to occur between the adjacent intersections using the following methods as recommended in *A Policy of Geometric Design of Highways and Streets* (AASHTO, 2011). Typically, an average vehicle length of 25 feet is assumed.

For un-signalized intersections, storage for vehicles likely to arrive in an average two-minute period within the peak hour should be provided.

$$\text{Vehicles per 2 min. period} = (\text{vehicles/hour}) \div (30 \text{ periods/hour})$$

$$\text{Storage length} = \text{vehicles per 2 min. period} \times 25 \text{ feet}$$

**Table 10** shows the calculated queue lengths based on 2029 weekday peak hour traffic volumes with traffic from the project. The computed values are typically rounded to the nearest 25 feet. Complete queue length calculations are available in the Appendix.



**Table 10 – Calculated Queue Length**

Intersection	Left Turn Storage				Right Turn Storage			
	NB	SB	EB	WB	NB	SB	EB	WB
Roosevelt Street/Edison Road								
Turning Volume (vph)			1					
$S_{\text{calculated}} =$			1					
$S_{\text{rounded}} =$			25					
Estrella Parkway/Edison Road								
Turning Volume (vph)	37							
$S_{\text{calculated}} =$	31							
$S_{\text{rounded}} =$	50							
Fire Station Driveway/Estrella Parkway								
Turning Volume (vph)		60						
$S_{\text{calculated}} =$		50						
$S_{\text{rounded}} =$		50						

S - storage in feet, vph - vehicles per hour

As shown in **Table 10**, no queue overlap is anticipated to occur between the project driveways and adjacent intersections.

**Crash Analysis**

Crash history for the existing study intersections was obtained from ADOT from 1 January 2017 to 31 December 2021. The results of the crash analysis at the study intersections are shown in **Tables 11** through **13**. A summary of the crash data can be found in the Appendix.

**Table 11 – Crash Analysis at Edison Road/SR 347**

Year	Crash Type							Fatal	Injury	Crash Totals
	Angle	Left Turn	Rear-End	Sideswipe	Single Vehicle	Head On	Other			
2017		5	3	4		1		5	13	
2018		2	6		1	1		3	10	
2019	2	7	3		1			1	13	
2020	4	7	3					4	14	
2021	1	3	2	2		1	1	3	10	
5-Year Total	7	24	17	6	2	3	1	0	60	

As shown in **Table 11**, the intersection of Edison Road/SR 347 was reported to have sixty (60) crashes (sixteen (16) with injury) during the 2017 to 2021 study period. The most common crash type was left turns (40%). The observed crash patterns at the intersection could be the result of traffic signal timing that does not clear a sufficient amount of left turning vehicles traveling to/from SR 347.



**Table 12 – Crash Analysis at Roosevelt Avenue/Edison Road**

Year	Crash Type							Fatal	Injury	Crash Totals
	Angle	Left Turn	Rear-End	Sideswipe	Single Vehicle	Head On	Other			
2017										0
2018										0
2019										0
2020					1					1
2021										0
<b>5-Year Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>

As shown in **Table 12**, one crash (with no injury) was reported at the intersection of Roosevelt Avenue/Edison Road within the 2017 to 2021 study period. This relatively small number of collisions at the intersection cannot be used to identify any meaningful crash trends.

**Table 13 – Crash Analysis at Roosevelt Avenue/Garvey Avenue**

Year	Crash Type							Fatal	Injury	Crash Totals
	Angle	Left Turn	Rear-End	Sideswipe	Single Vehicle	Head On	Other			
2017										0
2018										0
2019										0
2020					1				1	1
2021										0
<b>5-Year Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>

As shown in **Table 13**, at the intersection of Roosevelt Avenue/Garvey Avenue had one reported crash (one with injury) within the 2017 to 2021 study period. This relatively small number of collisions at the intersection cannot be used to identify any meaningful crash trends.

No crashes were reported at the remaining study intersections.

It should be noted that this crash summary only includes crashes where a police officer was contacted and wrote a report, otherwise, there is no record of the incident. It is possible that other minor crashes occurred in the area where the Police Department was not contacted, and no official record of these crashes exists.





## **Conclusion**

When fully completed, the proposed Villas at the Gin development is predicted to generate an additional 1,316 vehicle trips per day (vtpd) on weekdays to the adjacent street system from the new project site. Fifty percent of these new trips (658 vehicle trips) will be into the project and fifty percent will be out of the project.

All of the study intersections currently operate at adequate LOS (Level of Service) during the weekday AM and PM peak hours.

All of the study intersections are expected to continue operating at an adequate LOS in 2024 and 2029 without traffic from the project during the weekday AM and PM peak hours.

All of the study intersections are expected to continue operating at an adequate LOS in 2024 and 2029 without and with traffic from the project during the weekday AM and PM peak hours.

No left turn or right turn lanes are warranted at the intersections of Fire Station Driveway/Estrella Parkway and South Access/Garvey Road.

No queue overlap is anticipated to occur between the project driveways and adjacent intersections.

The intersection of Edison Road/SR 347 was reported to have sixty (60) crashes (sixteen (16) with injury) during the 2017 to 2021 study period. The most common crash type was left turns (40%). The observed crash patterns at the intersection could be the result of traffic signal timing that does not clear a sufficient amount of left turning vehicles traveling to/from SR 347.

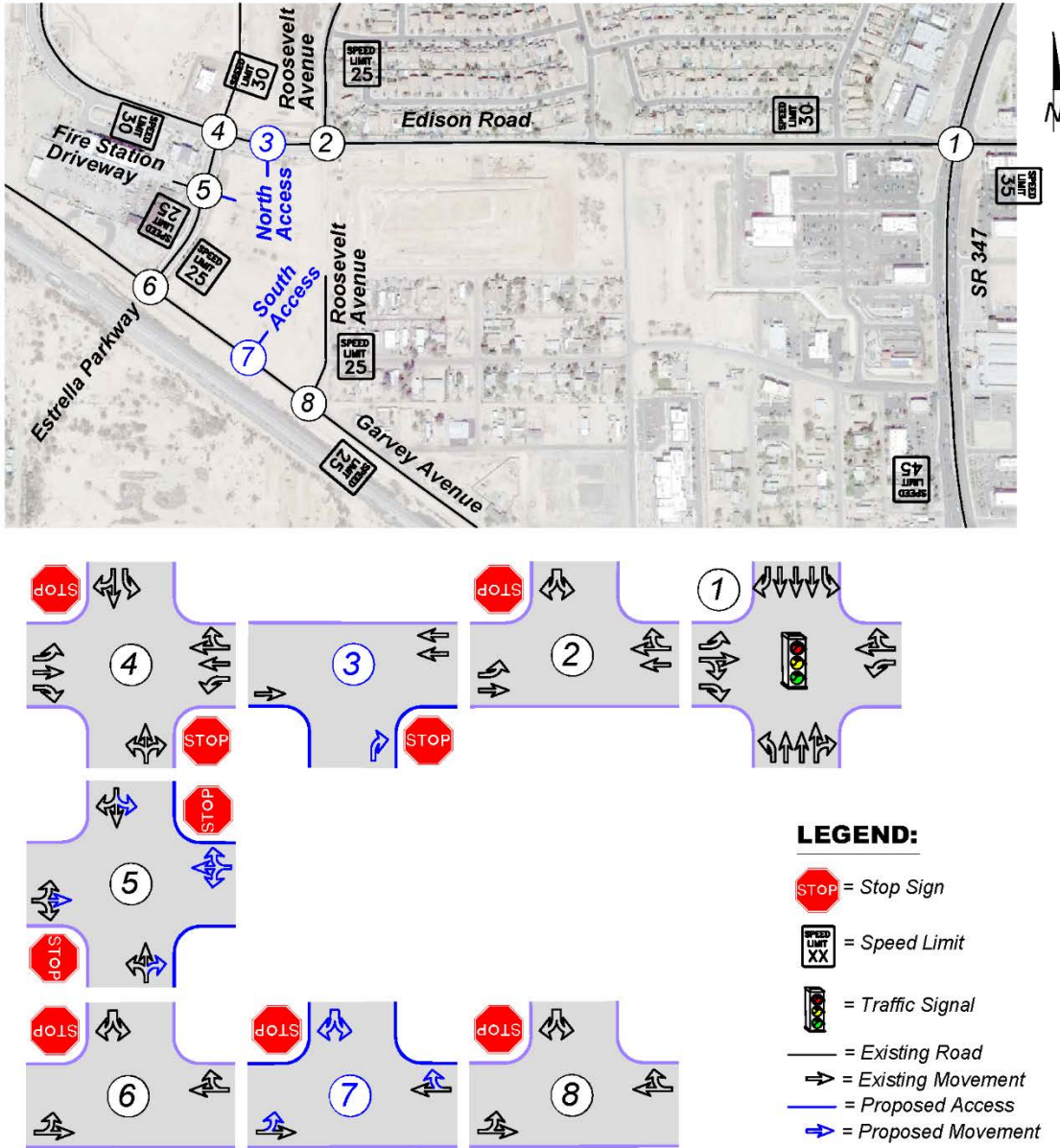
One crash (with no injury) was reported at the intersection of Roosevelt Avenue/Edison Road within the 2017 to 2021 study period. This relatively small number of collisions at the intersection cannot be used to identify any meaningful crash trends.

The intersection of Roosevelt Avenue/Garvey Avenue had one reported crash (one with injury) within the 2017 to 2021 study period. This relatively small number of collisions at the intersection cannot be used to identify any meaningful crash trends.

**Figure 15** shows the proposed lane configurations and traffic control in 2029.



Figure 15 – Proposed Lane Configurations and Traffic Control





**VILLAS AT THE GIN  
ESTRELLA PARKWAY/EDISON ROAD  
TRAFFIC IMPACT ANALYSIS**

**APPENDIX**

**Traffic Counts**

**Trip Generation Calculations**

**Capacity Calculations**

**Turn Lane Calculations**

**Crash Analysis**

**Comment Resolution**



**VILLAS AT THE GIN  
ESTRELLA PARKWAY/EDISON ROAD  
TRAFFIC IMPACT ANALYSIS**

**APPENDIX**

**Traffic Counts**

15 Minute Turning Movement Count

Reference # 5 - SR347 at Edison: 2022-05-03

5

DATE	TIME	INTID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
5/3/2022	0:00	5	10	25	2	2	59	0	4	0	3	2	1	0
5/3/2022	0:15	5	2	12	2	2	41	0	8	2	2	5	3	0
5/3/2022	0:30	5	2	14	6	4	34	1	2	3	2	3	0	0
5/3/2022	0:45	5	3	17	1	1	32	2	3	0	2	1	1	0
5/3/2022	1:00	5	6	18	2	3	25	1	5	0	3	1	0	0
5/3/2022	1:15	5	1	11	2	3	30	0	3	1	2	1	0	1
5/3/2022	1:30	5	2	21	1	0	12	2	3	0	2	1	0	0
5/3/2022	1:45	5	3	15	2	0	23	0	4	0	4	0	1	0
5/3/2022	2:00	5	2	25	1	1	19	1	2	1	4	2	0	0
5/3/2022	2:15	5	4	20	0	2	25	0	2	0	0	0	0	1
5/3/2022	2:30	5	3	24	1	3	16	0	2	1	0	0	0	1
5/3/2022	2:45	5	2	20	0	0	20	2	6	1	2	0	0	0
5/3/2022	3:00	5	6	23	3	0	18	1	2	0	3	0	0	1
5/3/2022	3:15	5	8	28	0	1	15	1	2	0	2	0	0	4
5/3/2022	3:30	5	6	42	1	2	16	0	9	0	1	1	0	4
5/3/2022	3:45	5	16	53	3	1	13	0	7	1	3	1	2	1
5/3/2022	4:00	5	13	65	3	2	14	0	5	4	7	1	3	2
5/3/2022	4:15	5	15	108	6	3	31	0	16	1	6	1	5	5
5/3/2022	4:30	5	28	120	2	3	37	4	18	0	7	1	5	11
5/3/2022	4:45	5	17	112	1	0	41	1	17	1	5	4	3	8
5/3/2022	5:00	5	18	125	6	1	54	8	13	2	8	2	10	11
5/3/2022	5:15	5	20	153	6	5	57	3	27	2	10	6	7	16
5/3/2022	5:30	5	26	216	3	3	71	6	29	2	30	6	3	20
5/3/2022	5:45	5	27	168	2	4	78	1	28	1	22	5	6	13
5/3/2022	6:00	5	23	184	13	5	95	4	28	4	26	14	14	9
5/3/2022	6:15	5	21	230	3	5	81	3	19	7	18	13	7	12
5/3/2022	6:30	5	31	242	4	10	110	8	30	8	29	16	16	13
5/3/2022	6:45	5	35	251	7	5	130	5	14	5	32	20	11	8
5/3/2022	7:00	5	40	225	6	9	158	11	35	7	34	34	21	15
5/3/2022	7:15	5	36	264	22	8	175	8	24	6	36	45	13	25
5/3/2022	7:30	5	36	210	17	11	187	13	26	12	39	56	19	15
5/3/2022	7:45	5	41	213	23	18	204	16	23	8	36	33	13	15
5/3/2022	8:00	5	43	245	25	16	181	15	33	13	32	31	18	14
5/3/2022	8:15	5	49	249	22	18	157	7	29	16	26	44	17	28
5/3/2022	8:30	5	47	247	33	16	203	12	23	13	28	34	20	17
5/3/2022	8:45	5	46	187	23	18	193	14	37	23	32	55	22	12
5/3/2022	9:00	5	39	217	22	23	180	17	31	10	37	51	11	21
5/3/2022	9:15	5	42	226	29	17	155	4	28	18	30	42	16	20
5/3/2022	9:30	5	26	233	28	18	190	8	30	10	16	47	19	15
5/3/2022	9:45	5	37	210	16	23	177	8	16	16	30	33	18	20
5/3/2022	10:00	5	27	216	22	18	193	12	31	17	17	47	16	24
5/3/2022	10:15	5	37	222	24	24	207	18	26	18	21	37	17	23
5/3/2022	10:30	5	29	212	20	26	196	20	22	10	17	53	17	6
5/3/2022	10:45	5	29	215	35	25	248	12	22	15	18	50	8	18
5/3/2022	11:00	5	26	210	30	26	221	13	31	15	35	46	22	21
5/3/2022	11:15	5	36	208	36	39	206	20	37	18	24	47	26	19
5/3/2022	11:30	5	44	244	31	28	237	11	28	20	26	38	16	18
5/3/2022	11:45	5	26	224	30	29	177	12	27	20	44	57	21	16
5/3/2022	12:00	5	32	269	29	28	244	18	34	11	24	48	20	19
5/3/2022	12:15	5	39	245	27	29	276	24	27	20	24	63	24	16
5/3/2022	12:30	5	41	233	26	25	247	16	24	18	29	62	22	24
5/3/2022	12:45	5	27	236	27	26	265	17	27	22	23	49	22	17
5/3/2022	13:00	5	34	217	39	27	248	21	24	21	21	54	19	23
5/3/2022	13:15	5	31	228	25	24	285	15	31	26	26	46	28	25
5/3/2022	13:30	5	32	234	25	32	227	16	28	21	39	45	26	17
5/3/2022	13:45	5	28	258	26	22	284	23	33	22	26	55	20	16
5/3/2022	14:00	5	34	240	34	32	282	10	50	14	18	53	19	22
5/3/2022	14:15	5	31	260	35	35	271	19	25	19	36	55	16	24
5/3/2022	14:30	5	28	212	23	30	295	16	22	16	29	70	20	17
5/3/2022	14:45	5	36	229	42	32	306	9	30	11	25	70	21	14
5/3/2022	15:00	5	47	295	39	30	326	13	28	23	32	56	23	15
5/3/2022	15:15	5	29	230	32	35	356	14	27	24	32	63	23	23
5/3/2022	15:30	5	43	301	36	35	365	10	22	21	37	57	22	11
5/3/2022	15:45	5	28	240	34	42	374	15	32	31	32	70	28	17
5/3/2022	16:00	5	48	336	39	31	407	22	25	21	43	50	33	23
5/3/2022	16:15	5	46	230	33	43	339	20	42	31	45	82	40	31
5/3/2022	16:30	5	41	275	30	33	419	22	29	29	42	59	23	27
5/3/2022	16:45	5	44	253	25	44	404	20	30	31	37	61	29	26



5/3/2022	17:00	5	42	257	32	34	346	9	25	20	35	77	30	19
5/3/2022	17:15	5	42	248	34	31	354	11	34	22	34	67	28	25
5/3/2022	17:30	5	30	210	26	28	378	15	42	33	38	73	34	22
5/3/2022	17:45	5	28	212	29	36	369	11	22	28	39	66	18	14
5/3/2022	18:00	5	39	228	20	34	330	7	27	22	32	65	28	22
5/3/2022	18:15	5	32	201	15	42	384	18	17	30	46	60	23	13
5/3/2022	18:30	5	36	215	32	35	346	15	29	22	33	67	22	13
5/3/2022	18:45	5	31	161	25	35	284	15	17	15	20	60	22	12
5/3/2022	19:00	5	33	167	20	44	343	17	19	20	33	56	14	8
5/3/2022	19:15	5	29	194	21	18	314	12	22	13	28	60	20	20
5/3/2022	19:30	5	31	201	24	40	341	12	16	26	29	45	13	7
5/3/2022	19:45	5	28	195	28	36	362	15	18	12	29	59	32	24
5/3/2022	20:00	5	26	162	30	25	207	9	16	14	24	51	21	15
5/3/2022	20:15	5	48	173	44	26	246	17	20	19	13	39	27	7
5/3/2022	20:30	5	20	131	21	19	224	9	25	18	17	46	24	12
5/3/2022	20:45	5	27	127	15	24	221	7	16	14	7	38	15	10
5/3/2022	21:00	5	20	110	18	25	188	5	20	14	20	39	15	11
5/3/2022	21:15	5	27	90	12	16	178	7	16	2	12	22	10	10
5/3/2022	21:30	5	23	87	11	17	152	7	14	6	11	25	9	7
5/3/2022	21:45	5	9	62	6	10	125	4	13	5	12	16	9	5
5/3/2022	22:00	5	16	65	6	13	131	4	5	4	12	13	9	2
5/3/2022	22:15	5	11	57	4	11	126	5	12	8	9	15	7	3
5/3/2022	22:30	5	10	44	5	6	95	3	5	4	6	11	5	1
5/3/2022	22:45	5	10	47	2	6	94	4	11	5	9	10	3	2
5/3/2022	23:00	5	4	40	2	8	74	3	5	1	12	8	2	3
5/3/2022	23:15	5	7	26	1	8	78	2	6	6	5	9	4	3
5/3/2022	23:30	5	5	29	2	3	56	0	1	0	5	3	2	0
5/3/2022	23:45	5	7	29	4	11	70	1	1	4	3	2	2	1

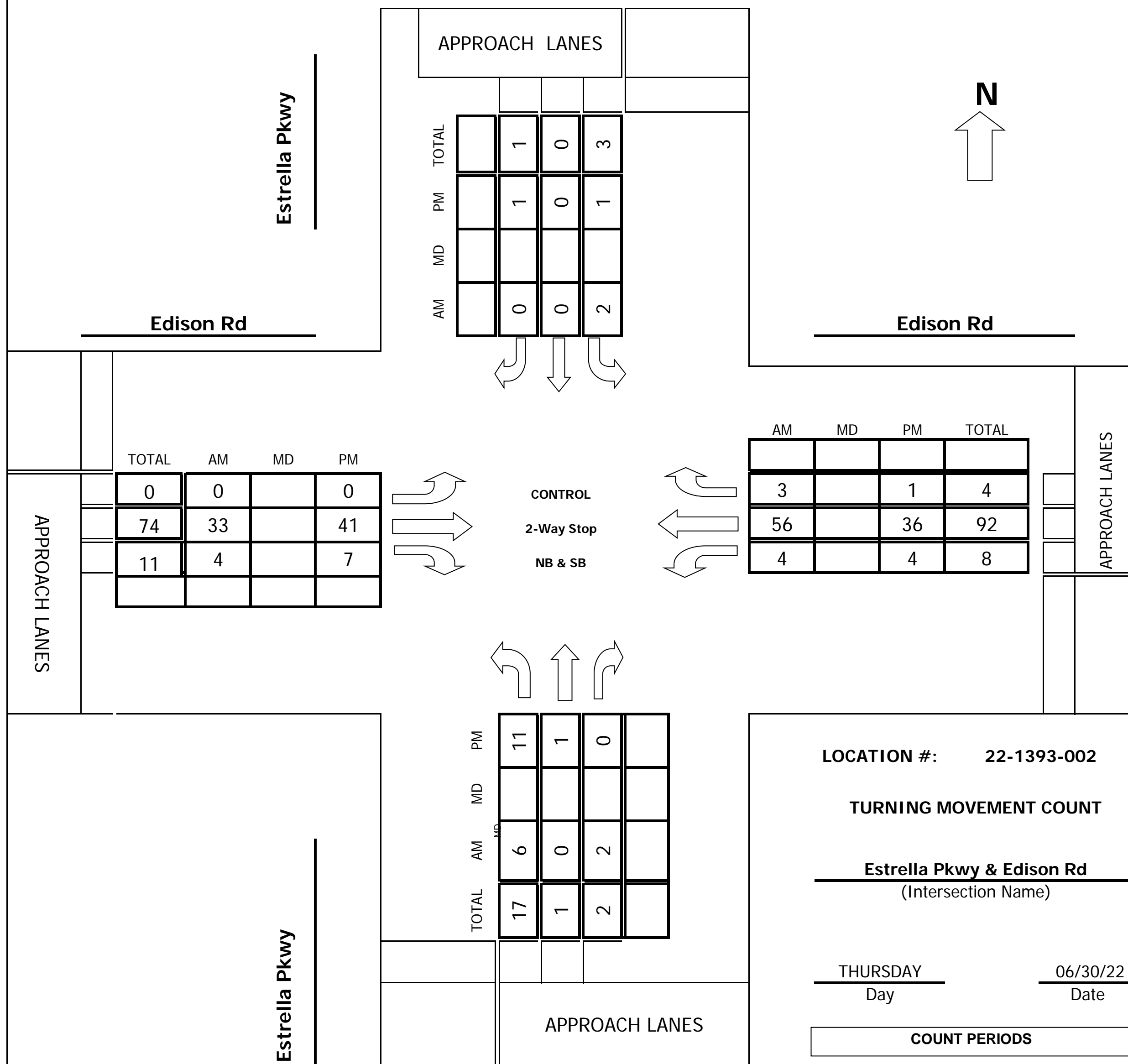
# Intersection Turning Movement

Prepared by:



Project #: 22-1393-002

## TMC SUMMARY OF Estrella Pkwy & Edison Rd



TOTAL	AM	MD	PM
0	0		0
74	33		41
11	4		7

AM	MD	PM	TOTAL
3		1	4
56		36	92
4		4	8

TOTAL	AM	MD	PM
17	6		11
1	0		1
2	2		0

LOCATION #: 22-1393-002

### TURNING MOVEMENT COUNT

Estrella Pkwy & Edison Rd  
(Intersection Name)

THURSDAY  
Day

06/30/22  
Date

### COUNT PERIODS

AM	700AM - 900AM
NOON	-
PM	400PM - 600PM

AM PEAK HOUR 700 AM

NOON PEAK HOUR                     

PM PEAK HOUR 400 PM

# Intersection Turning Movement

Prepared by:



**FIELD DATA SERVICES OF ARIZONA, INC.**  
520.316.6745



N-S STREET: Estrella Pkwy      DATE: 06/30/22      LOCATION: Maricopa  
 E-W STREET: Edison Rd      DAY: THURSDAY      PROJECT#: 22-1393-002

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1	0	0	1	0	1	1	1	1	2	0	

6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	0	0	0	0	0	0	0	8	0	2	21	0	31
7:15 AM	3	0	0	0	0	0	0	6	1	1	11	2	24
7:30 AM	1	0	2	2	0	0	0	13	0	1	12	0	31
7:45 AM	2	0	0	0	0	0	0	6	3	0	12	1	24
8:00 AM	4	0	1	0	0	0	0	7	0	1	10	0	23
8:15 AM	0	0	1	0	0	0	0	5	0	1	8	2	17
8:30 AM	2	0	0	0	0	0	0	9	1	0	8	0	20
8:45 AM	0	0	1	0	0	0	0	13	3	1	13	0	31
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	12	0	5	2	0	0	0	67	8	7	95	5	201
Approach %	70.59	0.00	29.41	100.00	0.00	0.00	0.00	89.33	10.67	6.54	88.79	4.67	
App/Depart	17	/	5	2	/	15	75	/	74	107	/	107	

AM Peak Hr Begins at: 700 AM

**PEAK**

Volumes	6	0	2	2	0	0	0	33	4	4	56	3	110
Approach %	75.00	0.00	25.00	100.00	0.00	0.00	0.00	89.19	10.81	6.35	88.89	4.76	

**PEAK HR.**

FACTOR:	0.667	0.250	0.712	0.685	0.887
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CONTROL: 2-Way Stop (NB & SB)  
 COMMENT 1:  
 GPS: 33.065269, -112.058270

# Intersection Turning Movement



**FIELD DATA SERVICES OF ARIZONA, INC.**  
520.316.6745



N-S STREET: Estrella Pkwy      DATE: 06/30/22      LOCATION: Maricopa  
0  
 E-W STREET: Edison Rd      DAY: THURSDAY      PROJECT# 22-1393-002

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1	0	0	1	0	1	1	1	1	2	0	

1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	4	0	0	0	0	1	0	9	3	1	9	1	28
4:15 PM	3	1	0	0	0	0	0	9	1	0	4	0	18
4:30 PM	4	0	0	0	0	0	0	8	3	2	15	0	32
4:45 PM	0	0	0	1	0	0	0	15	0	1	8	0	25
5:00 PM	1	0	0	1	0	0	0	6	5	0	7	0	20
5:15 PM	2	0	1	1	0	0	0	2	3	0	5	0	14
5:30 PM	1	0	1	0	0	0	0	4	1	0	7	0	14
5:45 PM	1	0	0	0	0	0	0	9	2	1	11	0	24
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	16	1	2	3	0	1	0	62	18	5	66	1	175
Approach %	84.21	5.26	10.53	75.00	0.00	25.00	0.00	77.50	22.50	6.94	91.67	1.39	
App/Depart	19	/	2	4	/	23	80	/	67	72	/	83	

PM Peak Hr Begins at: 400 PM

PEAK													
Volumes	11	1	0	1	0	1	0	41	7	4	36	1	103
Approach %	91.67	8.33	0.00	50.00	0.00	50.00	0.00	85.42	14.58	9.76	87.80	2.44	

PEAK HR. FACTOR:													
		0.750		0.500		0.800		0.603		0.805			

CONTROL: 2-Way Stop (NB & SB)  
 COMMENT 1: 0  
 GPS: 33.065269, -112.058270

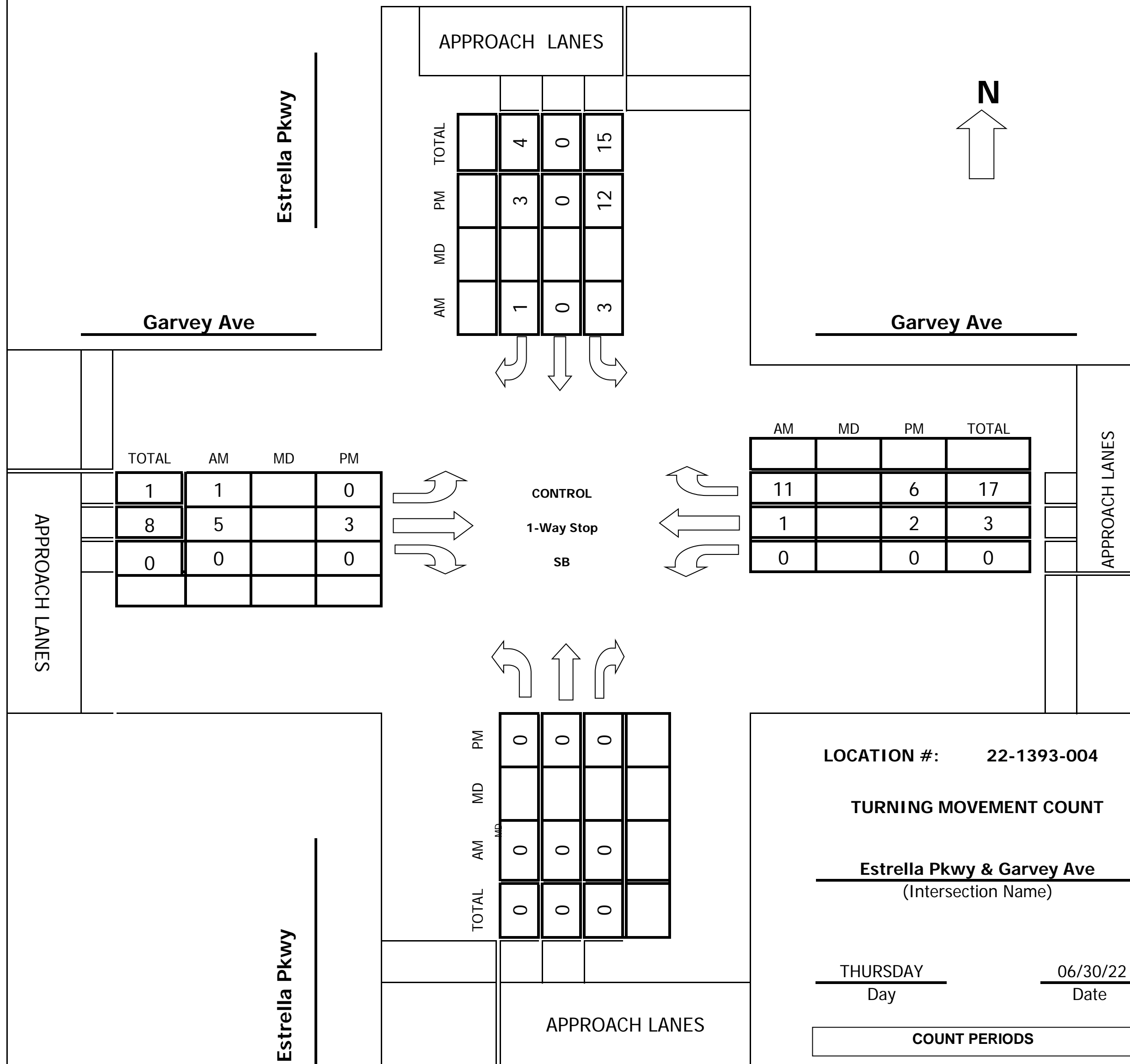
# Intersection Turning Movement

Prepared by:



Project #: 22-1393-004

## TMC SUMMARY OF Estrella Pkwy & Garvey Ave



TOTAL	AM	MD	PM
1	1		0
8	5		3
0	0		0

AM	MD	PM	TOTAL
11		6	17
1		2	3
0		0	0

TOTAL	AM	MD	PM
0	0	0	0
0	0	0	0
0	0	0	0

LOCATION #: 22-1393-004

### TURNING MOVEMENT COUNT

Estrella Pkwy & Garvey Ave  
(Intersection Name)

THURSDAY                      06/30/22  
Day                                      Date

### COUNT PERIODS

AM	700AM - 900AM
NOON	-
PM	400PM - 600PM

AM PEAK HOUR	<u>715 AM</u>
NOON PEAK HOUR	<u>                    </u>
PM PEAK HOUR	<u>430 PM</u>



# Intersection Turning Movement

Prepared by:



**FIELD DATA SERVICES OF ARIZONA, INC.**  
520.316.6745



N-S STREET: Estrella Pkwy      DATE: 06/30/22      LOCATION: Maricopa  
 E-W STREET: Garvey Ave      DAY: THURSDAY      PROJECT#: 22-1393-004

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	0	0	0	1	0	0	1	0	0	1	0	

6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	0	0	0	2	0	1	0	0	0	0	0	0	3
7:15 AM	0	0	0	0	0	1	0	1	0	0	0	3	5
7:30 AM	0	0	0	0	0	0	0	1	0	0	0	3	4
7:45 AM	0	0	0	2	0	0	0	2	0	0	0	1	5
8:00 AM	0	0	0	1	0	0	1	1	0	0	1	4	8
8:15 AM	0	0	0	1	0	0	0	0	0	0	0	1	2
8:30 AM	0	0	0	1	0	0	0	0	0	0	0	1	2
8:45 AM	0	0	0	6	0	0	0	0	0	0	0	0	6
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	0	0	13	0	2	1	5	0	0	1	13	35
Approach %	####	####	####	86.67	0.00	13.33	16.67	83.33	0.00	0.00	7.14	92.86	
App/Depart	0	/	14	15	/	0	6	/	18	14	/	3	

AM Peak Hr Begins at: 715 AM

**PEAK**

Volumes	0	0	0	3	0	1	1	5	0	0	1	11	22
Approach %	####	####	####	75.00	0.00	25.00	16.67	83.33	0.00	0.00	8.33	91.67	

**PEAK HR.**

FACTOR:	0.000	0.500	0.750	0.600	0.688
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CONTROL: 1-Way Stop (SB)  
 COMMENT 1:  
 GPS: 33.063477, -112.059202

# Intersection Turning Movement



**FIELD DATA SERVICES OF ARIZONA, INC.**  
520.316.6745



N-S STREET: Estrella Pkwy 0      DATE: 06/30/22      LOCATION: Maricopa  
 E-W STREET: Garvey Ave      DAY: THURSDAY      PROJECT#: 22-1393-004

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	0	0	0	1	0	0	1	0	0	1	0	

1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	0	0	0	4	0	0	0	1	0	0	0	3	8
4:15 PM	0	0	0	2	0	0	0	0	0	0	0	2	4
4:30 PM	0	0	0	6	0	0	0	0	0	0	2	2	10
4:45 PM	0	0	0	1	0	0	0	1	0	0	0	0	2
5:00 PM	0	0	0	3	0	1	0	0	0	0	0	1	5
5:15 PM	0	0	0	2	0	2	0	2	0	0	0	3	9
5:30 PM	0	0	0	1	0	0	0	0	0	0	0	2	3
5:45 PM	0	0	0	2	0	0	0	0	0	0	1	0	3
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	0	0	21	0	3	0	4	0	0	3	13	44
Approach %	####	####	####	87.50	0.00	12.50	0.00	100.00	0.00	0.00	18.75	81.25	
App/Depart	0	/	13	24	/	0	4	/	25	16	/	6	

PM Peak Hr Begins at: 430 PM

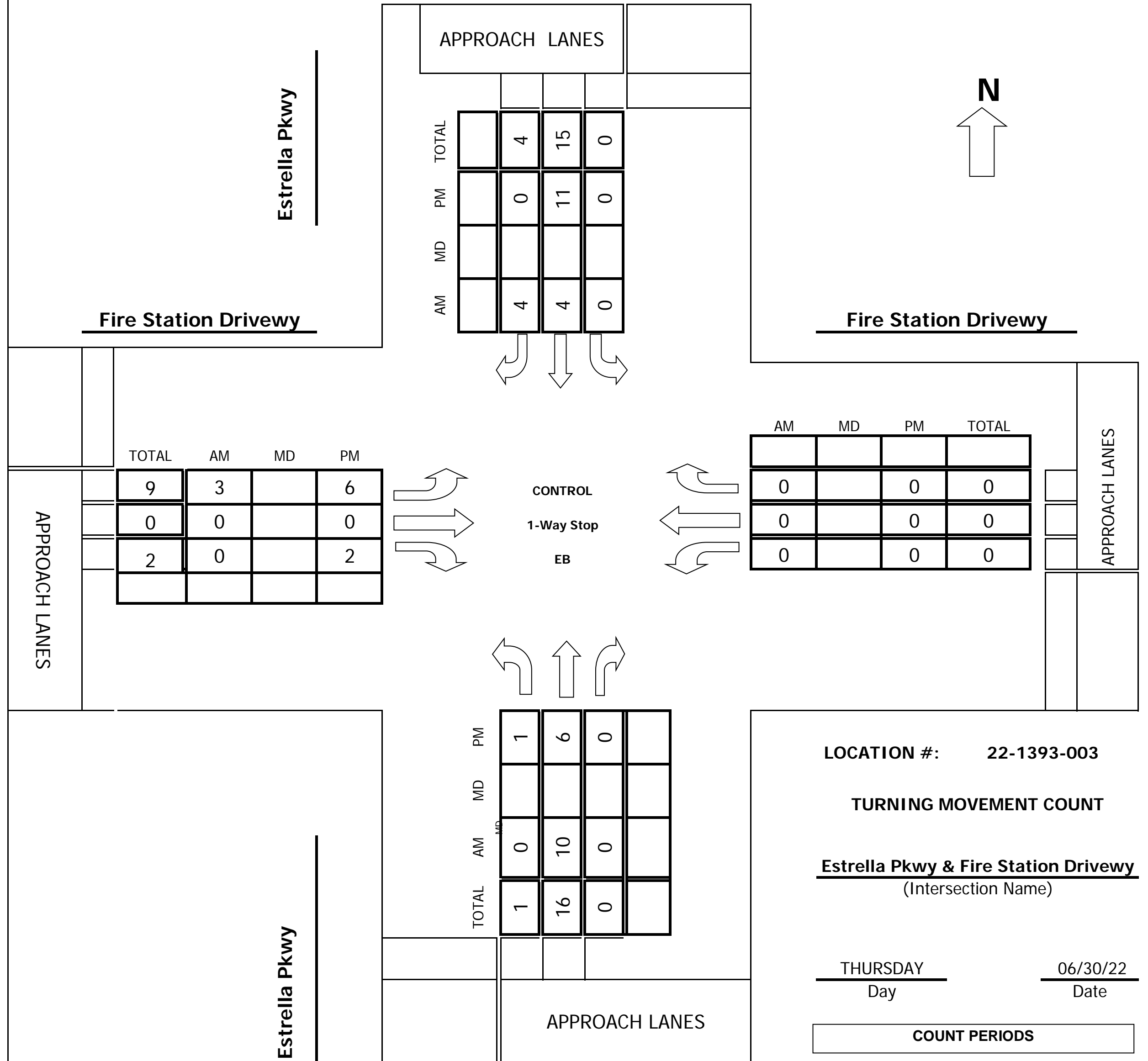
PEAK Volumes	0	0	0	12	0	3	0	3	0	0	2	6	26
PEAK Approach %	####	####	####	80.00	0.00	20.00	0.00	100.00	0.00	0.00	25.00	75.00	

PEAK HR. FACTOR:	0.000	0.625	0.375	0.500	0.650
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CONTROL: 1-Way Stop (SB)  
 COMMENT 1: 0  
 GPS: 33.063477, -112.059202

Project #: 22-1393-003

**TMC SUMMARY OF Estrella Pkwy & Fire Station Driveway**



	TOTAL	AM	MD	PM
APPROACH LANES	9	3		6
	0	0		0
	2	0		2

	AM	MD	PM	TOTAL
APPROACH LANES	0		0	0
	0		0	0
	0		0	0

	APPROACH LANES		
TOTAL	4	15	0
PM	0	11	0
MD			
AM	4	4	0

	TOTAL	AM	MD	PM
APPROACH LANES	1	0		1
	0			0
	16	10		6
	0			0

LOCATION #: 22-1393-003

**TURNING MOVEMENT COUNT**  
**Estrella Pkwy & Fire Station Driveway**  
 (Intersection Name)

THURSDAY                      06/30/22  
 Day                                      Date

COUNT PERIODS	
AM	700AM - 900AM
NOON	-
PM	400PM - 600PM

AM PEAK HOUR                      715 AM  
 NOON PEAK HOUR                      \_\_\_\_\_  
 PM PEAK HOUR                      400 PM

# Intersection Turning Movement

Prepared by:



**FIELD DATA SERVICES OF ARIZONA, INC.**  
520.316.6745



N-S STREET: Estrella Pkwy      DATE: 06/30/22      LOCATION: Maricopa  
 E-W STREET: Fire Station Driveway      DAY: THURSDAY      PROJECT#: 22-1393-003

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1	0	0	1	0	0	1	0	0	0	0	

6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	0	0	0	0	2	0	0	0	1	0	0	0	3
7:15 AM	0	3	0	0	1	1	0	0	0	0	0	0	5
7:30 AM	0	3	0	0	0	1	0	0	0	0	0	0	4
7:45 AM	0	1	0	0	3	1	1	0	0	0	0	0	6
8:00 AM	0	3	0	0	0	1	2	0	0	0	0	0	6
8:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	2
8:30 AM	0	2	0	0	1	0	0	0	0	0	0	0	3
8:45 AM	0	0	0	0	4	0	1	0	2	0	0	0	7
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	13	0	0	11	5	4	0	3	0	0	0	36
Approach %	0.00	100.00	0.00	0.00	68.75	31.25	57.14	0.00	42.86	####	####	####	
App/Depart	13	/	17	16	/	14	7	/	0	0	/	5	

AM Peak Hr Begins at: 715 AM

PEAK	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	10	0	0	4	4	3	0	0	0	0	0	21
Approach %	0.00	100.00	0.00	0.00	50.00	50.00	100.00	0.00	0.00	####	####	####	

PEAK HR. FACTOR:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0.833			0.500			0.375			0.000			0.875

CONTROL: 1-Way Stop (EB)  
 COMMENT 1:  
 GPS: 33.064617, -112.058457

# Intersection Turning Movement



**FIELD DATA SERVICES OF ARIZONA, INC.**  
520.316.6745



N-S STREET: Estrella Pkwy      DATE: 06/30/22      LOCATION: Maricopa  
 E-W STREET: Fire Station Driveway      DAY: THURSDAY      PROJECT#: 22-1393-003

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1	0	0	1	0	0	1	0	0	0	0	

1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	1	1	0	0	4	0	3	0	0	0	0	0	9
4:15 PM	0	3	0	0	1	0	1	0	1	0	0	0	6
4:30 PM	0	2	0	0	5	0	2	0	1	0	0	0	10
4:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:00 PM	0	1	0	0	5	0	0	0	0	0	0	0	6
5:15 PM	0	3	0	0	3	0	0	0	0	0	0	0	6
5:30 PM	0	2	0	0	1	0	0	0	0	0	0	0	3
5:45 PM	0	1	0	0	3	0	1	0	0	0	0	0	5
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	1	13	0	0	23	0	7	0	2	0	0	0	46
Approach %	7.14	92.86	0.00	0.00	100.00	0.00	77.78	0.00	22.22	####	####	####	
App/Depart	14	/	20	23	/	25	9	/	0	0	/	1	

PM Peak Hr Begins at: 400 PM

PEAK Volumes	1	6	0	0	11	0	6	0	2	0	0	0	26
PEAK Approach %	14.29	85.71	0.00	0.00	100.00	0.00	75.00	0.00	25.00	####	####	####	

PEAK HR. FACTOR:	0.583	0.550	0.667	0.000	0.650								
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CONTROL: 1-Way Stop (EB)  
 COMMENT 1: 0  
 GPS: 33.064617, -112.058457

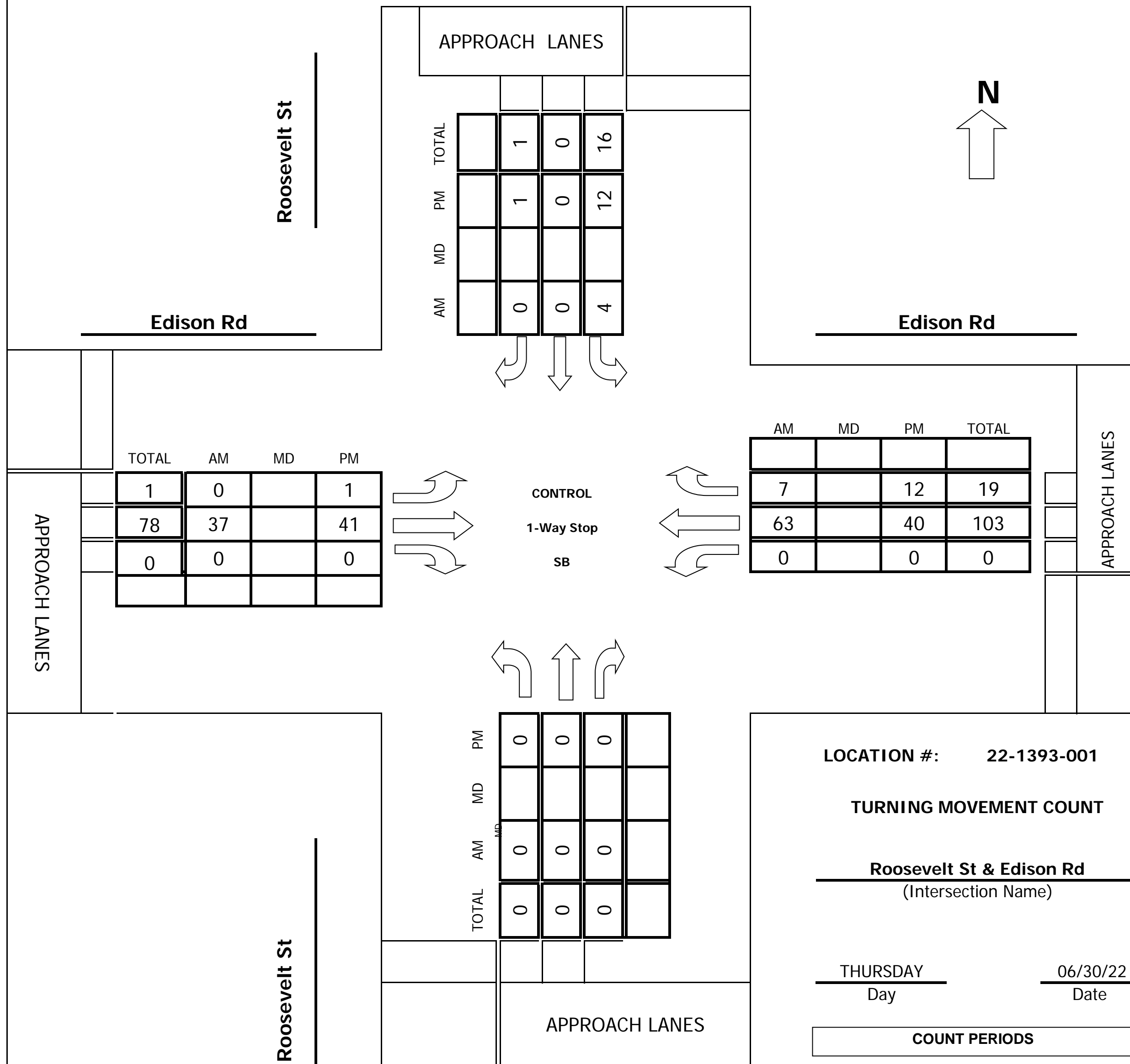
# Intersection Turning Movement

Prepared by:



Project #: 22-1393-001

## TMC SUMMARY OF Roosevelt St & Edison Rd



		APPROACH LANES		
	TOTAL	1	0	16
	PM	1	0	12
	MD			
	AM	0	0	4

	AM	MD	PM	TOTAL
APPROACH LANES	7		12	19
	63		40	103
	0		0	0

	TOTAL	AM	MD	PM
APPROACH LANES	1	0		1
	78	37		41
	0	0		0

CONTROL  
1-Way Stop  
SB

		APPROACH LANES		
	TOTAL	0	0	0
	AM	0	0	0
	MD			
	PM	0	0	0

LOCATION #: 22-1393-001

TURNING MOVEMENT COUNT  
Roosevelt St & Edison Rd  
(Intersection Name)

THURSDAY                      06/30/22  
Day                                      Date

COUNT PERIODS	
AM	700AM - 900AM
NOON	-
PM	400PM - 600PM

AM PEAK HOUR                      700 AM  
NOON PEAK HOUR                      \_\_\_\_\_  
PM PEAK HOUR                         400 PM



# Intersection Turning Movement

Prepared by:



**FIELD DATA SERVICES OF ARIZONA, INC.**  
520.316.6745



N-S STREET: Roosevelt St      DATE: 06/30/22      LOCATION: Maricopa  
 E-W STREET: Edison Rd      DAY: THURSDAY      PROJECT#: 22-1393-001

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	0	0	0	1	0	1	1	0	0	2	0	

6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	0	0	0	4	0	0	0	8	0	0	23	4	39
7:15 AM	0	0	0	0	0	0	0	6	0	0	14	2	22
7:30 AM	0	0	0	0	0	0	0	17	0	0	13	1	31
7:45 AM	0	0	0	0	0	0	0	6	0	0	13	0	19
8:00 AM	0	0	0	2	0	0	0	8	0	0	11	2	23
8:15 AM	0	0	0	1	0	1	1	5	0	0	10	1	19
8:30 AM	0	0	0	4	0	0	0	9	0	0	8	0	21
8:45 AM	0	0	0	2	0	0	0	14	0	0	14	2	32
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	0	0	13	0	1	1	73	0	0	106	12	206
Approach %	####	####	####	92.86	0.00	7.14	1.35	98.65	0.00	0.00	89.83	10.17	
App/Depart	0	/	13	14	/	0	74	/	86	118	/	107	

AM Peak Hr Begins at: 700 AM

PEAK	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	0	0	4	0	0	0	37	0	0	63	7	111
Approach %	####	####	####	100.00	0.00	0.00	0.00	100.00	0.00	0.00	90.00	10.00	

PEAK HR. FACTOR:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0.000			0.250			0.544			0.648			0.712

CONTROL: 1-Way Stop (SB)  
 COMMENT 1:  
 GPS: 33.065166, -112.056763

# Intersection Turning Movement



**FIELD DATA SERVICES OF ARIZONA, INC.**  
520.316.6745



N-S STREET: Roosevelt St      DATE: 06/30/22      LOCATION: Maricopa  
0  
 E-W STREET: Edison Rd      DAY: THURSDAY      PROJECT# 22-1393-001

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	0	0	0	1	0	1	1	0	0	2	0	

1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	0	0	0	2	0	0	0	9	0	0	11	6	28
4:15 PM	0	0	0	4	0	0	0	9	0	0	4	2	19
4:30 PM	0	0	0	2	0	1	0	8	0	0	16	3	30
4:45 PM	0	0	0	4	0	0	1	15	0	0	9	1	30
5:00 PM	0	0	0	2	0	0	0	7	0	0	7	3	19
5:15 PM	0	0	0	2	0	0	0	4	0	0	5	1	12
5:30 PM	0	0	0	2	0	0	0	5	0	0	7	4	18
5:45 PM	0	0	0	0	0	1	0	9	0	0	11	1	22
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	0	0	18	0	2	1	66	0	0	70	21	178
Approach %	####	####	####	90.00	0.00	10.00	1.49	98.51	0.00	0.00	76.92	23.08	
App/Depart	0	/	22	20	/	0	67	/	84	91	/	72	

PM Peak Hr Begins at: 400 PM

PEAK													
Volumes	0	0	0	12	0	1	1	41	0	0	40	12	107
Approach %	####	####	####	92.31	0.00	7.69	2.38	97.62	0.00	0.00	76.92	23.08	

PEAK HR.													
FACTOR:		0.000		0.813			0.656			0.684			0.892

CONTROL: 1-Way Stop (SB)  
 COMMENT 1: 0  
 GPS: 33.065166, -112.056763

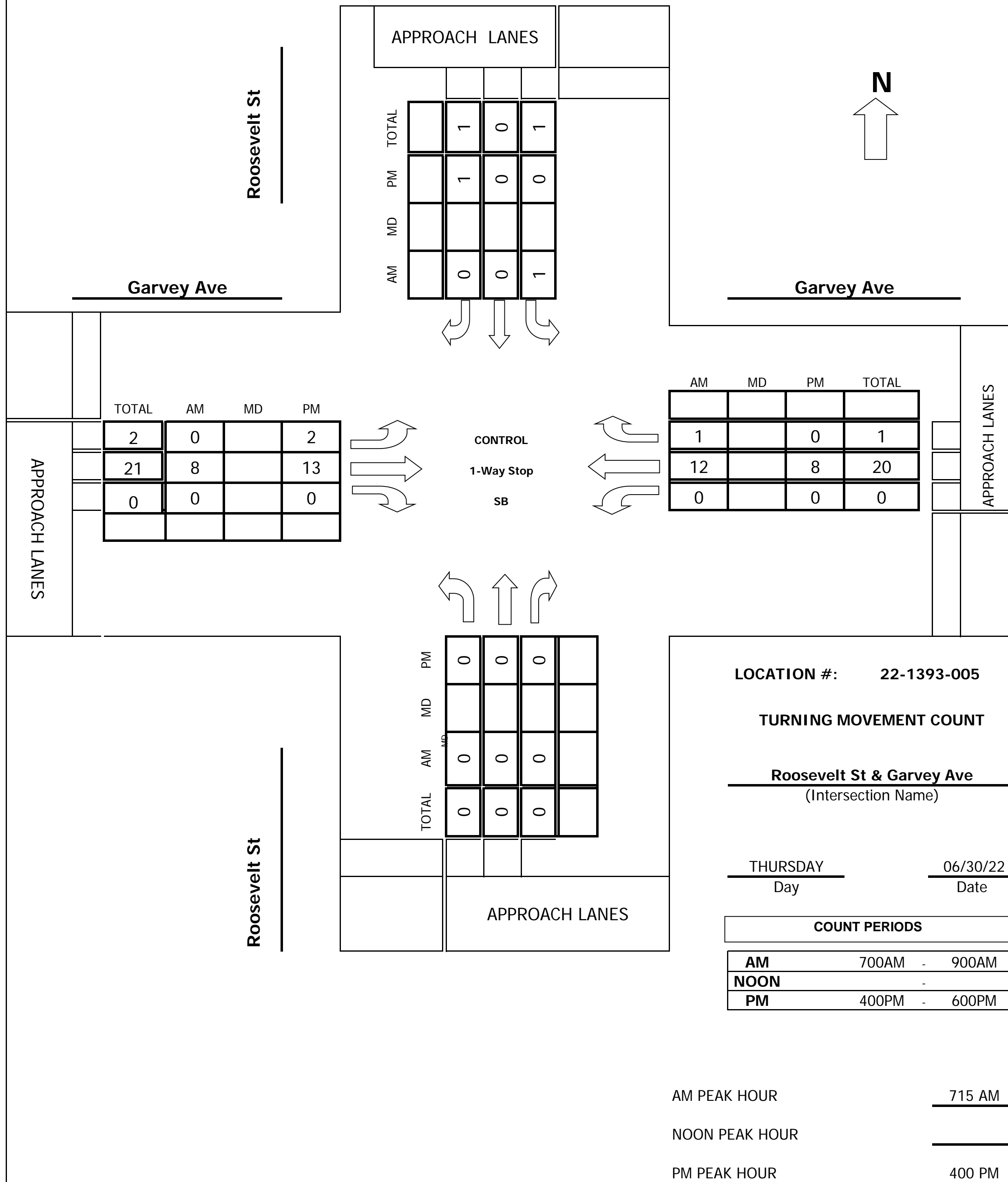
# Intersection Turning Movement

Prepared by:



Project #: 22-1393-005

## TMC SUMMARY OF Roosevelt St & Garvey Ave



# Intersection Turning Movement

Prepared by:



**FIELD DATA SERVICES OF ARIZONA, INC.**  
520.316.6745



N-S STREET: Roosevelt St      DATE: 06/30/22      LOCATION: Maricopa  
 E-W STREET: Garvey Ave      DAY: THURSDAY      PROJECT#: 22-1393-005

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	0	0	0	1	0	0	1	0	0	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	0	0	0	0	0	0	0	2	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	1	0	0	3	0	4
7:30 AM	0	0	0	0	0	0	0	1	0	0	3	0	4
7:45 AM	0	0	0	1	0	0	0	4	0	0	1	1	7
8:00 AM	0	0	0	0	0	0	0	2	0	0	5	0	7
8:15 AM	0	0	0	0	0	0	0	1	0	0	1	0	2
8:30 AM	0	0	0	0	0	0	0	1	0	0	1	0	2
8:45 AM	0	0	0	0	0	0	0	6	0	0	0	0	6
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	0	0	1	0	0	0	18	0	0	14	1	34
Approach %	####	####	####	100.00	0.00	0.00	0.00	100.00	0.00	0.00	93.33	6.67	
App/Depart	0	/	1	1	/	0	18	/	19	15	/	14	

AM Peak Hr Begins at: 715 AM

PEAK	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	0	0	1	0	0	0	8	0	0	12	1	22
Approach %	####	####	####	100.00	0.00	0.00	0.00	100.00	0.00	0.00	92.31	7.69	

PEAK HR. FACTOR:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0.000			0.250			0.500			0.650			0.786

CONTROL: 1-Way Stop (SB)  
 COMMENT 1:  
 GPS: 33.062113, -112.056954

# Intersection Turning Movement



**FIELD DATA SERVICES OF ARIZONA, INC.**  
520.316.6745



N-S STREET: **Roosevelt St**      DATE: **06/30/22**      LOCATION: **Maricopa**  
 E-W STREET: **Garvey Ave**      DAY: **THURSDAY**      PROJECT# **22-1393-005**

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	0	0	0	1	0	0	1	0	0	1	0	

1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	0	0	0	0	0	1	0	5	0	0	2	0	8
4:15 PM	0	0	0	0	0	0	0	2	0	0	2	0	4
4:30 PM	0	0	0	0	0	0	2	4	0	0	4	0	10
4:45 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	1	2	0	0	1	0	4
5:15 PM	0	0	0	0	0	0	1	3	0	0	3	0	7
5:30 PM	0	0	0	0	0	0	0	1	0	0	2	0	3
5:45 PM	0	0	0	1	0	0	0	2	0	0	1	0	4
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	0	0	1	0	1	4	21	0	0	15	0	42
Approach %	####	####	####	50.00	0.00	50.00	16.00	84.00	0.00	0.00	100.00	0.00	
App/Depart	0	/	4	2	/	0	25	/	22	15	/	16	

PM Peak Hr Begins at: 400 PM

PEAK Volumes	0	0	0	0	0	1	2	13	0	0	8	0	24
PEAK Approach %	####	####	####	0.00	0.00	100.00	13.33	86.67	0.00	0.00	100.00	0.00	

PEAK HR. FACTOR:	0.000	0.250	0.625	0.500	0.600
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CONTROL: **1-Way Stop (SB)**  
 COMMENT 1: **0**  
 GPS: **33.062113, -112.056954**



**VILLAS AT THE GIN  
ESTRELLA PARKWAY/EDISON ROAD  
TRAFFIC IMPACT ANALYSIS**

**APPENDIX**

**Trip Generation Calculations**



## Multifamily Housing (Low-Rise) Not Close to Rail Transit

LAND USE: 195 Number of Dwelling Units Multifamily Housing (Low-Rise) Not Close to Rail Transit  
Original Plan

TRIP GENERATION CALCULATIONS ARE BASED ON THE INSTITUTE OF TRANSPORTATION  
ENGINEERS' TRIP GENERATION, 11TH EDITION. THE ITE LAND USE CODE IS  
Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

### WEEKDAY

Average Rate = 6.74 Trips per Dwelling Unit (DU)

$$T = 6.74 \text{ Trips} \times 195 \text{ DU}$$

$$T = \mathbf{1,316 \text{ VTPD}}$$

$$\text{ENTER: } (0.5) \times (1316) = \mathbf{658 \text{ VTPD}}$$

$$\text{EXIT: } (0.5) \times (1316) = \mathbf{658 \text{ VTPD}}$$

### AM PEAK HOUR (ONE HOUR BETWEEN 7 AND 9 AM)

Average Rate = 0.4 Trips per Dwelling Unit (DU)

$$T = 0.4 \text{ Trips} \times 195 \text{ DU}$$

$$T = \mathbf{78 \text{ VPH}}$$

$$\text{ENTER: } (0.24) \times (78) = \mathbf{19 \text{ VPH}}$$

$$\text{EXIT: } (0.76) \times (78) = \mathbf{59 \text{ VPH}}$$

### PM PEAK HOUR (ONE HOUR BETWEEN 4 AND 6 PM)

Average Rate = 0.51 Trips per Dwelling Unit (DU)

$$T = 0.51 \text{ Trips} \times 195 \text{ DU}$$

$$T = \mathbf{100 \text{ VPH}}$$

$$\text{ENTER: } (0.63) \times (100) = \mathbf{63 \text{ VPH}}$$

$$\text{EXIT: } (0.37) \times (100) = \mathbf{37 \text{ VPH}}$$

\*where, T = trip ends

### TRIP GENERATION SUMMARY

#### WEEKDAY

**1,316 VTPD**

#### AM PEAK HOUR (ONE HOUR BETWEEN 7 AND 9 AM)

**78 VPH**

#### PM PEAK HOUR (ONE HOUR BETWEEN 4 AND 6 PM)

**100 VPH**



**VILLAS AT THE GIN  
ESTRELLA PARKWAY/EDISON ROAD  
TRAFFIC IMPACT ANALYSIS**

**APPENDIX**

**Capacity Calculations**

# HCM Signalized Intersection Capacity Analysis

## 3: SR 347 & Edison Road

10/05/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	65	118	164	77	71	185	928	103	68	734	48
Future Volume (vph)	122	65	118	164	77	71	185	928	103	68	734	48
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	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00		1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.95	0.85	1.00	0.93		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1690	1504	1770	1729		1770	5009		1770	5085	1583
Flt Permitted	0.54	1.00	1.00	0.57	1.00		0.22	1.00		0.21	1.00	1.00
Satd. Flow (perm)	1005	1690	1504	1068	1729		413	5009		389	5085	1583
Peak-hour factor, PHF	0.85	0.80	0.85	0.85	0.85	0.85	0.85	0.90	0.90	0.80	0.85	0.80
Adj. Flow (vph)	144	81	139	193	91	84	218	1031	114	85	864	60
RTOR Reduction (vph)	0	19	91	0	40	0	0	14	0	0	0	37
Lane Group Flow (vph)	144	97	13	193	135	0	218	1131	0	85	864	23
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	19.7	10.4	10.4	22.1	11.6		46.1	36.3		36.2	30.9	30.9
Effective Green, g (s)	19.7	10.4	10.4	22.1	11.6		46.1	36.3		36.2	30.9	30.9
Actuated g/C Ratio	0.24	0.13	0.13	0.27	0.14		0.57	0.45		0.45	0.38	0.38
Clearance Time (s)	4.5	4.5	4.5	4.5	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	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	334	218	194	384	249		416	2258		265	1951	607
v/s Ratio Prot	0.05	0.06		c0.07	c0.08		c0.07	0.23		0.02	0.17	
v/s Ratio Perm	0.06		0.01	0.07			c0.23			0.12		0.01
v/c Ratio	0.43	0.44	0.07	0.50	0.54		0.52	0.50		0.32	0.44	0.04
Uniform Delay, d1	25.0	32.4	30.8	23.8	32.0		9.5	15.7		12.9	18.4	15.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.9	1.4	0.2	1.0	2.4		1.2	0.8		0.7	0.7	0.1
Delay (s)	25.9	33.8	30.9	24.8	34.4		10.7	16.5		13.6	19.1	15.6
Level of Service	C	C	C	C	C		B	B		B	B	B
Approach Delay (s)		29.9			29.4			15.5			18.5	
Approach LOS		C			C			B			B	

### Intersection Summary

HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	80.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th TWSC  
 8: Garvey Avenue & Roosevelt Avenue

10/05/2022

Intersection						
Int Delay, s/veh	0.3					
Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations	T			T		T
Traffic Vol, veh/h	1	0	0	10	14	1
Future Vol, veh/h	1	0	0	10	14	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	0	0	13	18	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	32	19	19	0	0
Stage 1	19	-	-	-	-
Stage 2	13	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	982	1059	1597	-	-
Stage 1	1004	-	-	-	-
Stage 2	1010	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	982	1059	1597	-	-
Mov Cap-2 Maneuver	982	-	-	-	-
Stage 1	1004	-	-	-	-
Stage 2	1010	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	8.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1
Capacity (veh/h)	-	-	1597	-	982
HCM Lane V/C Ratio	-	-	-	-	0.001
HCM Control Delay (s)	-	-	0	-	8.7
HCM Lane LOS	-	-	A	-	A
HCM 95th %tile Q(veh)	-	-	0	-	0

HCM 6th TWSC  
10: Estrella Parkway & Edison Road

10/05/2022

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙	↑↑			↕		↙	↗	
Traffic Vol, veh/h	0	40	5	5	67	4	7	0	2	2	0	0
Future Vol, veh/h	0	40	5	5	67	4	7	0	2	2	0	0
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	0	-	0	0	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	50	6	6	84	5	9	0	3	3	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	89	0	0	56	0	0	104	151	50	154	155	45
Stage 1	-	-	-	-	-	-	50	50	-	99	99	-
Stage 2	-	-	-	-	-	-	54	101	-	55	56	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	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	1505	-	-	1548	-	-	871	740	1018	805	736	1015
Stage 1	-	-	-	-	-	-	963	853	-	897	813	-
Stage 2	-	-	-	-	-	-	952	811	-	957	848	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1505	-	-	1548	-	-	868	737	1018	801	733	1015
Mov Cap-2 Maneuver	-	-	-	-	-	-	868	737	-	801	733	-
Stage 1	-	-	-	-	-	-	963	853	-	897	810	-
Stage 2	-	-	-	-	-	-	948	808	-	955	848	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.5			9.1			9.5		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	897	1505	-	-	1548	-	-	801	-
HCM Lane V/C Ratio	0.013	-	-	-	0.004	-	-	0.003	-
HCM Control Delay (s)	9.1	0	-	-	7.3	-	-	9.5	0
HCM Lane LOS	A	A	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0	-

HCM 6th TWSC  
 11: Garvey Avenue & Estrella Parkway

10/05/2022

Intersection						
Int Delay, s/veh	1.9					
Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	4	1	1	6	1	13
Future Vol, veh/h	4	1	1	6	1	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	1	1	8	1	16

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	19	9	17	0	0
Stage 1	9	-	-	-	-
Stage 2	10	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	998	1073	1600	-	-
Stage 1	1014	-	-	-	-
Stage 2	1013	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	997	1073	1600	-	-
Mov Cap-2 Maneuver	997	-	-	-	-
Stage 1	1013	-	-	-	-
Stage 2	1013	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	8.6	1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1
Capacity (veh/h)	-	-	1600	-	1011
HCM Lane V/C Ratio	-	-	0.001	-	0.006
HCM Control Delay (s)	-	-	7.3	0	8.6
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0



HCM 6th TWSC  
13: Edison Road & Roosevelt Avenue

10/05/2022

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	44	76	8	5	0
Future Vol, veh/h	0	44	76	8	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	55	95	10	6	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	105	0	-	0	155
Stage 1	-	-	-	-	100
Stage 2	-	-	-	-	55
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	1485	-	-	-	829
Stage 1	-	-	-	-	913
Stage 2	-	-	-	-	967
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1485	-	-	-	829
Mov Cap-2 Maneuver	-	-	-	-	829
Stage 1	-	-	-	-	913
Stage 2	-	-	-	-	967

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1485	-	-	-	829
HCM Lane V/C Ratio	-	-	-	-	0.008
HCM Control Delay (s)	0	-	-	-	9.4
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

HCM 6th TWSC  
 15: Estrella Parkway & Fire Driveway

10/05/2022

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	4	0	0	12	5	5
Future Vol, veh/h	4	0	0	12	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	0	0	15	6	6

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	24	9	12	0	0
Stage 1	9	-	-	-	-
Stage 2	15	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	992	1073	1607	-	-
Stage 1	1014	-	-	-	-
Stage 2	1008	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	992	1073	1607	-	-
Mov Cap-2 Maneuver	992	-	-	-	-
Stage 1	1014	-	-	-	-
Stage 2	1008	-	-	-	-
























Approach	EB	NB	SB
HCM Control Delay, s	8.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1607	-	992	-	-
HCM Lane V/C Ratio	-	-	0.005	-	-
HCM Control Delay (s)	0	-	8.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

# HCM Signalized Intersection Capacity Analysis

## 3: SR 347 & Edison Road

10/05/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	111	159	279	122	103	173	1015	120	154	1508	71
Future Volume (vph)	126	111	159	279	122	103	173	1015	120	154	1508	71
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	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00		1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.97	0.85	1.00	0.93		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1711	1504	1770	1735		1770	5005		1770	5085	1583
Flt Permitted	0.40	1.00	1.00	0.39	1.00		0.13	1.00		0.12	1.00	1.00
Satd. Flow (perm)	750	1711	1504	731	1735		236	5005		229	5085	1583
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.90	0.90	0.85	0.90	0.80
Adj. Flow (vph)	148	131	187	328	144	121	204	1128	133	181	1676	89
RTOR Reduction (vph)	0	12	127	0	35	0	0	15	0	0	0	55
Lane Group Flow (vph)	148	156	23	328	230	0	204	1246	0	181	1676	34
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	22.8	13.4	13.4	29.0	16.5		40.8	31.6		42.8	32.6	32.6
Effective Green, g (s)	22.8	13.4	13.4	29.0	16.5		40.8	31.6		42.8	32.6	32.6
Actuated g/C Ratio	0.27	0.16	0.16	0.34	0.19		0.48	0.37		0.50	0.38	0.38
Clearance Time (s)	4.5	4.5	4.5	4.5	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	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	311	267	235	398	334		277	1845		297	1934	602
v/s Ratio Prot	0.05	0.09		c0.12	0.13		c0.08	0.25		0.07	c0.33	
v/s Ratio Perm	0.07		0.02	c0.16			0.27			0.23		0.02
v/c Ratio	0.48	0.58	0.10	0.82	0.69		0.74	0.68		0.61	0.87	0.06
Uniform Delay, d1	25.3	33.6	31.0	23.5	32.2		17.1	22.7		14.3	24.5	16.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.2	3.3	0.2	13.0	5.8		9.8	2.0		3.5	5.5	0.2
Delay (s)	26.5	36.8	31.2	36.5	38.0		26.9	24.7		17.8	30.1	17.0
Level of Service	C	D	C	D	D		C	C		B	C	B
Approach Delay (s)		31.7			37.2			25.0			28.3	
Approach LOS		C			D			C			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			28.8			HCM 2000 Level of Service		C				
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			85.7			Sum of lost time (s)		18.0				
Intersection Capacity Utilization			78.2%			ICU Level of Service		D				
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th TWSC  
 8: Garvey Avenue & Roosevelt Avenue

10/05/2022

Intersection						
Int Delay, s/veh	0.8					
Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations	T			T		T
Traffic Vol, veh/h	0	1	2	16	10	0
Future Vol, veh/h	0	1	2	16	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	3	20	13	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	39	13	13	0	0
Stage 1	13	-	-	-	-
Stage 2	26	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	973	1067	1606	-	-
Stage 1	1010	-	-	-	-
Stage 2	997	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	971	1067	1606	-	-
Mov Cap-2 Maneuver	971	-	-	-	-
Stage 1	1008	-	-	-	-
Stage 2	997	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	8.4	0.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1
Capacity (veh/h)	-	-	1606	-	1067
HCM Lane V/C Ratio	-	-	0.002	-	0.001
HCM Control Delay (s)	-	-	7.2	0	8.4
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0

HCM 6th TWSC  
10: Estrella Parkway & Edison Road

10/05/2022

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙	↑↑			↕		↙	↗	
Traffic Vol, veh/h	0	49	8	5	43	1	13	1	0	1	0	1
Future Vol, veh/h	0	49	8	5	43	1	13	1	0	1	0	1
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	0	-	0	0	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	61	10	6	54	1	16	1	0	1	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	55	0	0	71	0	0	100	128	61	134	138	28
Stage 1	-	-	-	-	-	-	61	61	-	67	67	-
Stage 2	-	-	-	-	-	-	39	67	-	67	71	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	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	1549	-	-	1528	-	-	876	762	1004	831	752	1041
Stage 1	-	-	-	-	-	-	950	844	-	936	839	-
Stage 2	-	-	-	-	-	-	971	839	-	943	835	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1549	-	-	1528	-	-	872	759	1004	828	749	1041
Mov Cap-2 Maneuver	-	-	-	-	-	-	872	759	-	828	749	-
Stage 1	-	-	-	-	-	-	950	844	-	936	836	-
Stage 2	-	-	-	-	-	-	966	836	-	942	835	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.8			9.3			9		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	863	1549	-	-	1528	-	-	828	1041
HCM Lane V/C Ratio	0.02	-	-	-	0.004	-	-	0.002	0.001
HCM Control Delay (s)	9.3	0	-	-	7.4	-	-	9.4	8.5
HCM Lane LOS	A	A	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0	0

HCM 6th TWSC  
 11: Garvey Avenue & Estrella Parkway

10/05/2022

Intersection						
Int Delay, s/veh	5					
Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations	T			T		T
Traffic Vol, veh/h	14	4	0	4	2	7
Future Vol, veh/h	14	4	0	4	2	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	5	0	5	3	9

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	13	8	12	0	0
Stage 1	8	-	-	-	-
Stage 2	5	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	1006	1074	1607	-	-
Stage 1	1015	-	-	-	-
Stage 2	1018	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	1006	1074	1607	-	-
Mov Cap-2 Maneuver	1006	-	-	-	-
Stage 1	1015	-	-	-	-
Stage 2	1018	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	8.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1
Capacity (veh/h)	-	-	1607	-	1020
HCM Lane V/C Ratio	-	-	-	-	0.022
HCM Control Delay (s)	-	-	0	-	8.6
HCM Lane LOS	-	-	A	-	A
HCM 95th %tile Q(veh)	-	-	0	-	0.1

HCM 6th TWSC  
13: Edison Road & Roosevelt Avenue

10/05/2022

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	49	48	14	14	1
Future Vol, veh/h	1	49	48	14	14	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	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	61	60	18	18	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	78	0	-	0	132 39
Stage 1	-	-	-	-	69 -
Stage 2	-	-	-	-	63 -
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	1519	-	-	-	855 1024
Stage 1	-	-	-	-	946 -
Stage 2	-	-	-	-	959 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1519	-	-	-	854 1024
Mov Cap-2 Maneuver	-	-	-	-	854 -
Stage 1	-	-	-	-	945 -
Stage 2	-	-	-	-	959 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1519	-	-	-	864
HCM Lane V/C Ratio	0.001	-	-	-	0.022
HCM Control Delay (s)	7.4	-	-	-	9.3
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1



HCM 6th TWSC  
 15: Estrella Parkway & Fire Driveway

10/05/2022

Intersection						
Int Delay, s/veh	2.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	7	2	1	7	13	0
Future Vol, veh/h	7	2	1	7	13	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	3	1	9	16	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	27	16	16	0	0
Stage 1	16	-	-	-	-
Stage 2	11	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	988	1063	1602	-	-
Stage 1	1007	-	-	-	-
Stage 2	1012	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	987	1063	1602	-	-
Mov Cap-2 Maneuver	987	-	-	-	-
Stage 1	1006	-	-	-	-
Stage 2	1012	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	0.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1602	-	1003	-	-
HCM Lane V/C Ratio	0.001	-	0.011	-	-
HCM Control Delay (s)	7.2	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

# HCM Signalized Intersection Capacity Analysis

## 3: SR 347 & Edison Road

10/05/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	68	123	171	80	74	192	965	107	71	764	50
Future Volume (vph)	127	68	123	171	80	74	192	965	107	71	764	50
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	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00		1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.95	0.85	1.00	0.93		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1683	1504	1770	1728		1770	5009		1770	5085	1583
Flt Permitted	0.53	1.00	1.00	0.56	1.00		0.21	1.00		0.20	1.00	1.00
Satd. Flow (perm)	983	1683	1504	1043	1728		385	5009		365	5085	1583
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.90	0.90	0.80	0.85	0.80
Adj. Flow (vph)	149	80	145	201	94	87	226	1072	119	89	899	62
RTOR Reduction (vph)	0	21	92	0	40	0	0	14	0	0	0	39
Lane Group Flow (vph)	149	98	14	201	141	0	226	1177	0	89	899	24
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	19.9	10.6	10.6	22.5	11.9		46.1	36.3		35.8	30.5	30.5
Effective Green, g (s)	19.9	10.6	10.6	22.5	11.9		46.1	36.3		35.8	30.5	30.5
Actuated g/C Ratio	0.25	0.13	0.13	0.28	0.15		0.57	0.45		0.44	0.38	0.38
Clearance Time (s)	4.5	4.5	4.5	4.5	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	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	332	220	197	385	254		409	2250		253	1919	597
v/s Ratio Prot	0.05	0.06		c0.07	c0.08		c0.08	0.24		0.02	0.18	
v/s Ratio Perm	0.06		0.01	0.08			c0.24			0.13		0.02
v/c Ratio	0.45	0.45	0.07	0.52	0.55		0.55	0.52		0.35	0.47	0.04
Uniform Delay, d1	25.1	32.4	30.8	23.8	32.0		9.8	16.0		13.3	19.0	15.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.0	1.4	0.2	1.3	2.6		1.6	0.9		0.8	0.8	0.1
Delay (s)	26.1	33.8	30.9	25.0	34.6		11.5	16.9		14.2	19.8	16.0
Level of Service	C	C	C	C	C		B	B		B	B	B
Approach Delay (s)		29.9			29.6			16.0			19.1	
Approach LOS		C			C			B			B	

### Intersection Summary

HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	80.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th TWSC  
 8: Garvey Avenue & Roosevelt Avenue

10/05/2022

Intersection						
Int Delay, s/veh	0.3					
Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations	T			T		T
Traffic Vol, veh/h	1	0	0	10	15	1
Future Vol, veh/h	1	0	0	10	15	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	0	0	13	19	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	33	20	20	0	0
Stage 1	20	-	-	-	-
Stage 2	13	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	980	1058	1596	-	-
Stage 1	1003	-	-	-	-
Stage 2	1010	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	980	1058	1596	-	-
Mov Cap-2 Maneuver	980	-	-	-	-
Stage 1	1003	-	-	-	-
Stage 2	1010	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	8.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1
Capacity (veh/h)	-	-	1596	-	980
HCM Lane V/C Ratio	-	-	-	-	0.001
HCM Control Delay (s)	-	-	0	-	8.7
HCM Lane LOS	-	-	A	-	A
HCM 95th %tile Q(veh)	-	-	0	-	0

HCM 6th TWSC  
10: Estrella Parkway & Edison Road

10/05/2022

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙	↑↑			↕		↙	↗	
Traffic Vol, veh/h	0	42	5	5	70	4	7	0	2	2	0	0
Future Vol, veh/h	0	42	5	5	70	4	7	0	2	2	0	0
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	0	-	0	0	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	53	6	6	88	5	9	0	3	3	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	93	0	0	59	0	0	109	158	53	161	162	47
Stage 1	-	-	-	-	-	-	53	53	-	103	103	-
Stage 2	-	-	-	-	-	-	56	105	-	58	59	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	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	1500	-	-	1544	-	-	864	734	1014	797	730	1012
Stage 1	-	-	-	-	-	-	959	850	-	892	809	-
Stage 2	-	-	-	-	-	-	950	808	-	953	845	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1500	-	-	1544	-	-	861	731	1014	793	727	1012
Mov Cap-2 Maneuver	-	-	-	-	-	-	861	731	-	793	727	-
Stage 1	-	-	-	-	-	-	959	850	-	892	806	-
Stage 2	-	-	-	-	-	-	946	805	-	951	845	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.5			9.1			9.6		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	891	1500	-	-	1544	-	-	793	-
HCM Lane V/C Ratio	0.013	-	-	-	0.004	-	-	0.003	-
HCM Control Delay (s)	9.1	0	-	-	7.3	-	-	9.6	0
HCM Lane LOS	A	A	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0	-

HCM 6th TWSC  
 11: Garvey Avenue & Estrella Parkway

10/05/2022

Intersection						
Int Delay, s/veh	1.9					
Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations	T			T		T
Traffic Vol, veh/h	4	1	1	6	1	14
Future Vol, veh/h	4	1	1	6	1	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	1	1	8	1	18

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	20	10	19	0	0
Stage 1	10	-	-	-	-
Stage 2	10	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	997	1071	1597	-	-
Stage 1	1013	-	-	-	-
Stage 2	1013	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	996	1071	1597	-	-
Mov Cap-2 Maneuver	996	-	-	-	-
Stage 1	1012	-	-	-	-
Stage 2	1013	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	8.6	1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1
Capacity (veh/h)	-	-	1597	-	1010
HCM Lane V/C Ratio	-	-	0.001	-	0.006
HCM Control Delay (s)	-	-	7.3	0	8.6
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0

HCM 6th TWSC  
13: Edison Road & Roosevelt Avenue

10/05/2022

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	46	79	8	5	0
Future Vol, veh/h	0	46	79	8	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	58	99	10	6	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	109	0	-	0	162 55
Stage 1	-	-	-	-	104 -
Stage 2	-	-	-	-	58 -
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	1480	-	-	-	821 1001
Stage 1	-	-	-	-	909 -
Stage 2	-	-	-	-	964 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1480	-	-	-	821 1001
Mov Cap-2 Maneuver	-	-	-	-	821 -
Stage 1	-	-	-	-	909 -
Stage 2	-	-	-	-	964 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1480	-	-	-	821
HCM Lane V/C Ratio	-	-	-	-	0.008
HCM Control Delay (s)	0	-	-	-	9.4
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

HCM 6th TWSC  
 15: Estrella Parkway & Fire Driveway

10/05/2022

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	4	0	0	12	5	5
Future Vol, veh/h	4	0	0	12	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	0	0	15	6	6

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	24	9	12	0	0
Stage 1	9	-	-	-	-
Stage 2	15	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	992	1073	1607	-	-
Stage 1	1014	-	-	-	-
Stage 2	1008	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	992	1073	1607	-	-
Mov Cap-2 Maneuver	992	-	-	-	-
Stage 1	1014	-	-	-	-
Stage 2	1008	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	0	0
HCM LOS	A		
























Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1607	-	992	-	-
HCM Lane V/C Ratio	-	-	0.005	-	-
HCM Control Delay (s)	0	-	8.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



# HCM Signalized Intersection Capacity Analysis

## 3: SR 347 & Edison Road

10/05/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	115	165	290	127	107	180	1056	125	160	1569	74
Future Volume (vph)	131	115	165	290	127	107	180	1056	125	160	1569	74
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	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00		1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.97	0.85	1.00	0.93		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1710	1504	1770	1735		1770	5004		1770	5085	1583
Flt Permitted	0.37	1.00	1.00	0.38	1.00		0.13	1.00		0.12	1.00	1.00
Satd. Flow (perm)	697	1710	1504	716	1735		237	5004		229	5085	1583
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.90	0.90	0.85	0.90	0.85
Adj. Flow (vph)	154	135	194	341	149	126	212	1173	139	188	1743	87
RTOR Reduction (vph)	0	12	130	0	35	0	0	15	0	0	0	54
Lane Group Flow (vph)	154	162	25	341	240	0	212	1297	0	188	1743	33
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	23.2	13.7	13.7	29.2	16.7		40.8	31.5		43.0	32.6	32.6
Effective Green, g (s)	23.2	13.7	13.7	29.2	16.7		40.8	31.5		43.0	32.6	32.6
Actuated g/C Ratio	0.27	0.16	0.16	0.34	0.19		0.47	0.37		0.50	0.38	0.38
Clearance Time (s)	4.5	4.5	4.5	4.5	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	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	306	272	239	395	336		277	1830		300	1925	599
v/s Ratio Prot	0.06	0.09		c0.13	0.14		c0.08	0.26		0.08	c0.34	
v/s Ratio Perm	0.08		0.02	c0.17			0.28			0.24		0.02
v/c Ratio	0.50	0.60	0.10	0.86	0.72		0.77	0.71		0.63	0.91	0.05
Uniform Delay, d1	25.3	33.6	30.9	24.2	32.5		17.8	23.4		14.7	25.3	17.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.3	3.5	0.2	17.4	7.1		11.9	2.3		4.1	7.6	0.2
Delay (s)	26.6	37.1	31.1	41.6	39.5		29.6	25.7		18.8	32.9	17.1
Level of Service	C	D	C	D	D		C	C		B	C	B
Approach Delay (s)		31.9			40.7			26.3			30.9	
Approach LOS		C			D			C			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			30.8	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			86.1	Sum of lost time (s)				18.0				
Intersection Capacity Utilization			80.8%	ICU Level of Service				D				
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th TWSC  
 8: Garvey Avenue & Roosevelt Avenue

10/05/2022

Intersection						
Int Delay, s/veh	0.8					
Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	0	1	2	17	10	0
Future Vol, veh/h	0	1	2	17	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	3	21	13	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	40	13	13	0	0
Stage 1	13	-	-	-	-
Stage 2	27	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	972	1067	1606	-	-
Stage 1	1010	-	-	-	-
Stage 2	996	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	970	1067	1606	-	-
Mov Cap-2 Maneuver	970	-	-	-	-
Stage 1	1008	-	-	-	-
Stage 2	996	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	8.4	0.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1
Capacity (veh/h)	-	-	1606	-	1067
HCM Lane V/C Ratio	-	-	0.002	-	0.001
HCM Control Delay (s)	-	-	7.2	0	8.4
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0

HCM 6th TWSC  
10: Estrella Parkway & Edison Road

10/05/2022

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙	↑↑			↕		↙	↗	
Traffic Vol, veh/h	0	51	8	5	45	1	14	1	0	1	0	1
Future Vol, veh/h	0	51	8	5	45	1	14	1	0	1	0	1
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	0	-	0	0	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	64	10	6	56	1	18	1	0	1	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	57	0	0	74	0	0	104	133	64	139	143	29
Stage 1	-	-	-	-	-	-	64	64	-	69	69	-
Stage 2	-	-	-	-	-	-	40	69	-	70	74	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	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	1547	-	-	1525	-	-	871	757	1000	824	748	1040
Stage 1	-	-	-	-	-	-	946	841	-	933	837	-
Stage 2	-	-	-	-	-	-	970	837	-	939	833	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1547	-	-	1525	-	-	868	754	1000	821	745	1040
Mov Cap-2 Maneuver	-	-	-	-	-	-	868	754	-	821	745	-
Stage 1	-	-	-	-	-	-	946	841	-	933	834	-
Stage 2	-	-	-	-	-	-	965	834	-	938	833	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.7			9.3			9		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	859	1547	-	-	1525	-	-	821	1040
HCM Lane V/C Ratio	0.022	-	-	-	0.004	-	-	0.002	0.001
HCM Control Delay (s)	9.3	0	-	-	7.4	-	-	9.4	8.5
HCM Lane LOS	A	A	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0	0

HCM 6th TWSC  
 11: Garvey Avenue & Estrella Parkway

10/05/2022

Intersection						
Int Delay, s/veh	5.1					
Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations	T			T		T
Traffic Vol, veh/h	15	4	0	4	2	7
Future Vol, veh/h	15	4	0	4	2	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	5	0	5	3	9

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	13	8	12	0	0
Stage 1	8	-	-	-	-
Stage 2	5	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	1006	1074	1607	-	-
Stage 1	1015	-	-	-	-
Stage 2	1018	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	1006	1074	1607	-	-
Mov Cap-2 Maneuver	1006	-	-	-	-
Stage 1	1015	-	-	-	-
Stage 2	1018	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	8.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1
Capacity (veh/h)	-	-	1607	-	1020
HCM Lane V/C Ratio	-	-	-	-	0.023
HCM Control Delay (s)	-	-	0	-	8.6
HCM Lane LOS	-	-	A	-	A
HCM 95th %tile Q(veh)	-	-	0	-	0.1

HCM 6th TWSC  
13: Edison Road & Roosevelt Avenue

10/05/2022

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑	↗		↖	
Traffic Vol, veh/h	1	51	50	15	15	1
Future Vol, veh/h	1	51	50	15	15	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	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	64	63	19	19	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	82	0	-	0	139
Stage 1	-	-	-	-	73
Stage 2	-	-	-	-	66
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	1514	-	-	-	847
Stage 1	-	-	-	-	942
Stage 2	-	-	-	-	956
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1514	-	-	-	846
Mov Cap-2 Maneuver	-	-	-	-	846
Stage 1	-	-	-	-	941
Stage 2	-	-	-	-	956

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1514	-	-	-	855
HCM Lane V/C Ratio	0.001	-	-	-	0.023
HCM Control Delay (s)	7.4	-	-	-	9.3
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM 6th TWSC  
 15: Estrella Parkway & Fire Driveway

10/05/2022

Intersection						
Int Delay, s/veh	2.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	7	2	1	7	14	0
Future Vol, veh/h	7	2	1	7	14	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	3	1	9	18	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	29	18	18	0	0
Stage 1	18	-	-	-	-
Stage 2	11	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	986	1061	1599	-	-
Stage 1	1005	-	-	-	-
Stage 2	1012	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	985	1061	1599	-	-
Mov Cap-2 Maneuver	985	-	-	-	-
Stage 1	1004	-	-	-	-
Stage 2	1012	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	0.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1599	-	1001	-	-
HCM Lane V/C Ratio	0.001	-	0.011	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

# HCM Signalized Intersection Capacity Analysis

## 3: SR 347 & Edison Road

10/05/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	75	136	188	88	82	213	1066	118	78	843	55
Future Volume (vph)	140	75	136	188	88	82	213	1066	118	78	843	55
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	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00		1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.95	0.85	1.00	0.93		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1682	1504	1770	1729		1770	5009		1770	5085	1583
Flt Permitted	0.47	1.00	1.00	0.53	1.00		0.17	1.00		0.16	1.00	1.00
Satd. Flow (perm)	883	1682	1504	986	1729		316	5009		300	5085	1583
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.90	0.90	0.85	0.85	0.80
Adj. Flow (vph)	165	88	160	221	104	96	251	1184	131	92	992	69
RTOR Reduction (vph)	0	21	101	0	40	0	0	14	0	0	0	44
Lane Group Flow (vph)	165	110	16	221	160	0	251	1301	0	92	992	25
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	20.9	11.4	11.4	23.5	12.7		46.2	36.4		35.0	29.7	29.7
Effective Green, g (s)	20.9	11.4	11.4	23.5	12.7		46.2	36.4		35.0	29.7	29.7
Actuated g/C Ratio	0.26	0.14	0.14	0.29	0.16		0.56	0.44		0.43	0.36	0.36
Clearance Time (s)	4.5	4.5	4.5	4.5	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	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	328	234	209	386	268		391	2226		223	1844	574
v/s Ratio Prot	0.06	0.07		c0.08	c0.09		c0.09	0.26		0.03	0.20	
v/s Ratio Perm	0.07		0.01	0.09			c0.27			0.15		0.02
v/c Ratio	0.50	0.47	0.08	0.57	0.60		0.64	0.58		0.41	0.54	0.04
Uniform Delay, d1	25.1	32.5	30.7	23.8	32.2		11.1	17.1		14.4	20.7	16.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.2	1.5	0.2	2.1	3.6		3.6	1.1		1.2	1.1	0.1
Delay (s)	26.3	34.0	30.8	25.9	35.8		14.7	18.2		15.6	21.8	17.0
Level of Service	C	C	C	C	D		B	B		B	C	B
Approach Delay (s)		30.0			30.6			17.6			21.0	
Approach LOS		C			C			B			C	

### Intersection Summary

HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	81.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



HCM 6th TWSC  
 8: Garvey Avenue & Roosevelt Avenue

10/05/2022

Intersection						
Int Delay, s/veh	0.3					
Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations	T			T		T
Traffic Vol, veh/h	1	0	0	11	16	1
Future Vol, veh/h	1	0	0	11	16	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	0	0	14	20	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	35	21	21	0	0
Stage 1	21	-	-	-	-
Stage 2	14	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	978	1056	1595	-	-
Stage 1	1002	-	-	-	-
Stage 2	1009	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	978	1056	1595	-	-
Mov Cap-2 Maneuver	978	-	-	-	-
Stage 1	1002	-	-	-	-
Stage 2	1009	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	8.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1
Capacity (veh/h)	-	-	1595	-	978
HCM Lane V/C Ratio	-	-	-	-	0.001
HCM Control Delay (s)	-	-	0	-	8.7
HCM Lane LOS	-	-	A	-	A
HCM 95th %tile Q(veh)	-	-	0	-	0

HCM 6th TWSC  
10: Estrella Parkway & Edison Road

10/05/2022

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙	↑↑			↔		↙	↗	
Traffic Vol, veh/h	0	46	6	6	77	5	8	0	2	2	0	0
Future Vol, veh/h	0	46	6	6	77	5	8	0	2	2	0	0
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	0	-	0	0	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	58	8	8	96	6	10	0	3	3	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	102	0	0	66	0	0	122	176	58	179	181	51
Stage 1	-	-	-	-	-	-	58	58	-	115	115	-
Stage 2	-	-	-	-	-	-	64	118	-	64	66	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	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	1489	-	-	1535	-	-	847	717	1008	775	712	1007
Stage 1	-	-	-	-	-	-	953	846	-	878	800	-
Stage 2	-	-	-	-	-	-	940	798	-	946	840	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1489	-	-	1535	-	-	844	713	1008	770	708	1007
Mov Cap-2 Maneuver	-	-	-	-	-	-	844	713	-	770	708	-
Stage 1	-	-	-	-	-	-	953	846	-	878	796	-
Stage 2	-	-	-	-	-	-	935	794	-	944	840	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.5			9.2			9.7		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	872	1489	-	-	1535	-	-	770	-
HCM Lane V/C Ratio	0.014	-	-	-	0.005	-	-	0.003	-
HCM Control Delay (s)	9.2	0	-	-	7.4	-	-	9.7	0
HCM Lane LOS	A	A	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0	-

HCM 6th TWSC  
 11: Garvey Avenue & Estrella Parkway

10/05/2022

Intersection						
Int Delay, s/veh	2					
Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations	T			T		T
Traffic Vol, veh/h	5	1	1	6	1	15
Future Vol, veh/h	5	1	1	6	1	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	1	1	8	1	19

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	21	11	20	0	0
Stage 1	11	-	-	-	-
Stage 2	10	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	996	1070	1596	-	-
Stage 1	1012	-	-	-	-
Stage 2	1013	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	995	1070	1596	-	-
Mov Cap-2 Maneuver	995	-	-	-	-
Stage 1	1011	-	-	-	-
Stage 2	1013	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	8.6	1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1
Capacity (veh/h)	-	-	1596	-	1007
HCM Lane V/C Ratio	-	-	0.001	-	0.007
HCM Control Delay (s)	-	-	7.3	0	8.6
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0

HCM 6th TWSC  
13: Edison Road & Roosevelt Avenue

10/05/2022

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	51	87	9	6	0
Future Vol, veh/h	0	51	87	9	6	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	64	109	11	8	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	120	0	-	0	179
Stage 1	-	-	-	-	115
Stage 2	-	-	-	-	64
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	1467	-	-	-	802
Stage 1	-	-	-	-	898
Stage 2	-	-	-	-	958
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1467	-	-	-	802
Mov Cap-2 Maneuver	-	-	-	-	802
Stage 1	-	-	-	-	898
Stage 2	-	-	-	-	958

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1467	-	-	-	802
HCM Lane V/C Ratio	-	-	-	-	0.009
HCM Control Delay (s)	0	-	-	-	9.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

HCM 6th TWSC  
 15: Estrella Parkway & Fire Driveway

10/05/2022

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	0	0	14	6	6
Future Vol, veh/h	5	0	0	14	6	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	0	0	18	8	8

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	30	12	16	0	0
Stage 1	12	-	-	-	-
Stage 2	18	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	984	1069	1602	-	-
Stage 1	1011	-	-	-	-
Stage 2	1005	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	984	1069	1602	-	-
Mov Cap-2 Maneuver	984	-	-	-	-
Stage 1	1011	-	-	-	-
Stage 2	1005	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1602	-	984	-	-
HCM Lane V/C Ratio	-	-	0.006	-	-
HCM Control Delay (s)	0	-	8.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

# HCM Signalized Intersection Capacity Analysis

## 3: SR 347 & Edison Road

10/05/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	128	183	320	140	118	199	1166	138	177	1732	82
Future Volume (vph)	145	128	183	320	140	118	199	1166	138	177	1732	82
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	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00		1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.97	0.85	1.00	0.93		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1711	1504	1770	1735		1770	5005		1770	5085	1583
Flt Permitted	0.31	1.00	1.00	0.36	1.00		0.13	1.00		0.12	1.00	1.00
Satd. Flow (perm)	569	1711	1504	664	1735		239	5005		229	5085	1583
Peak-hour factor, PHF	0.85	0.85	0.85	0.90	0.85	0.85	0.85	0.90	0.90	0.85	0.90	0.85
Adj. Flow (vph)	171	151	215	356	165	139	234	1296	153	208	1924	96
RTOR Reduction (vph)	0	12	143	0	34	0	0	15	0	0	0	60
Lane Group Flow (vph)	171	182	29	356	270	0	234	1434	0	208	1924	36
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	24.4	14.7	14.7	30.0	17.5		40.7	31.2		43.5	32.6	32.6
Effective Green, g (s)	24.4	14.7	14.7	30.0	17.5		40.7	31.2		43.5	32.6	32.6
Actuated g/C Ratio	0.28	0.17	0.17	0.34	0.20		0.47	0.36		0.50	0.37	0.37
Clearance Time (s)	4.5	4.5	4.5	4.5	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	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	292	288	253	386	347		278	1788		306	1898	591
v/s Ratio Prot	0.06	0.11		c0.13	0.16		c0.09	0.29		0.08	c0.38	
v/s Ratio Perm	0.10		0.02	c0.18			0.30			0.25		0.02
v/c Ratio	0.59	0.63	0.11	0.92	0.78		0.84	0.80		0.68	1.01	0.06
Uniform Delay, d1	25.4	33.8	30.8	25.0	33.1		19.2	25.3		16.1	27.3	17.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.0	4.5	0.2	27.2	10.4		20.0	3.9		5.9	24.1	0.2
Delay (s)	28.4	38.3	31.0	52.2	43.5		39.2	29.2		22.0	51.5	17.7
Level of Service	C	D	C	D	D		D	C		C	D	B
Approach Delay (s)		32.8			48.2			30.6			47.3	
Approach LOS		C			D			C			D	

### Intersection Summary

HCM 2000 Control Delay	40.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	87.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	87.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th TWSC  
 8: Garvey Avenue & Roosevelt Avenue

10/05/2022

Intersection						
Int Delay, s/veh	0.7					
Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations	T			T		T
Traffic Vol, veh/h	0	1	2	18	11	0
Future Vol, veh/h	0	1	2	18	11	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	3	23	14	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	43	14	14	0	0
Stage 1	14	-	-	-	-
Stage 2	29	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	968	1066	1604	-	-
Stage 1	1009	-	-	-	-
Stage 2	994	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	966	1066	1604	-	-
Mov Cap-2 Maneuver	966	-	-	-	-
Stage 1	1007	-	-	-	-
Stage 2	994	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	8.4	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1
Capacity (veh/h)	-	-	1604	-	1066
HCM Lane V/C Ratio	-	-	0.002	-	0.001
HCM Control Delay (s)	-	-	7.2	0	8.4
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0



HCM 6th TWSC  
10: Estrella Parkway & Edison Road

10/05/2022

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙	↑↑			↔		↙	↗	
Traffic Vol, veh/h	0	56	9	6	49	1	15	1	0	1	0	1
Future Vol, veh/h	0	56	9	6	49	1	15	1	0	1	0	1
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	0	-	0	0	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	70	11	8	61	1	19	1	0	1	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	62	0	0	81	0	0	117	148	70	154	159	31
Stage 1	-	-	-	-	-	-	70	70	-	78	78	-
Stage 2	-	-	-	-	-	-	47	78	-	76	81	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	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	1540	-	-	1516	-	-	853	743	992	805	733	1037
Stage 1	-	-	-	-	-	-	939	836	-	922	830	-
Stage 2	-	-	-	-	-	-	961	830	-	933	827	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1540	-	-	1516	-	-	849	739	992	801	729	1037
Mov Cap-2 Maneuver	-	-	-	-	-	-	849	739	-	801	729	-
Stage 1	-	-	-	-	-	-	939	836	-	922	826	-
Stage 2	-	-	-	-	-	-	955	826	-	932	827	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.8			9.4			9		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	841	1540	-	-	1516	-	-	801	1037
HCM Lane V/C Ratio	0.024	-	-	-	0.005	-	-	0.002	0.001
HCM Control Delay (s)	9.4	0	-	-	7.4	-	-	9.5	8.5
HCM Lane LOS	A	A	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0	0

HCM 6th TWSC  
 11: Garvey Avenue & Estrella Parkway

10/05/2022

Intersection						
Int Delay, s/veh	5.2					
Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations	T			T		T
Traffic Vol, veh/h	16	5	0	4	2	8
Future Vol, veh/h	16	5	0	4	2	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	6	0	5	3	10

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	13	8	13	0	-	0
Stage 1	8	-	-	-	-	-
Stage 2	5	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	1006	1074	1606	-	-	-
Stage 1	1015	-	-	-	-	-
Stage 2	1018	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	1006	1074	1606	-	-	-
Mov Cap-2 Maneuver	1006	-	-	-	-	-
Stage 1	1015	-	-	-	-	-
Stage 2	1018	-	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	8.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1
Capacity (veh/h)	-	-	1606	-	1021
HCM Lane V/C Ratio	-	-	-	-	0.026
HCM Control Delay (s)	-	-	0	-	8.6
HCM Lane LOS	-	-	A	-	A
HCM 95th %tile Q(veh)	-	-	0	-	0.1

HCM 6th TWSC  
13: Edison Road & Roosevelt Avenue

10/05/2022

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	56	55	16	16	1
Future Vol, veh/h	1	56	55	16	16	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	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	70	69	20	20	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	89	0	-	0	151
Stage 1	-	-	-	-	79
Stage 2	-	-	-	-	72
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	1505	-	-	-	833
Stage 1	-	-	-	-	935
Stage 2	-	-	-	-	950
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1505	-	-	-	832
Mov Cap-2 Maneuver	-	-	-	-	832
Stage 1	-	-	-	-	934
Stage 2	-	-	-	-	950

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1505	-	-	-	841
HCM Lane V/C Ratio	0.001	-	-	-	0.025
HCM Control Delay (s)	7.4	-	-	-	9.4
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM 6th TWSC  
 15: Estrella Parkway & Fire Driveway

10/05/2022

Intersection						
Int Delay, s/veh	2.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	8	2	1	8	15	0
Future Vol, veh/h	8	2	1	8	15	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	3	1	10	19	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	31	19	19	0	0
Stage 1	19	-	-	-	-
Stage 2	12	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	983	1059	1597	-	-
Stage 1	1004	-	-	-	-
Stage 2	1011	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	982	1059	1597	-	-
Mov Cap-2 Maneuver	982	-	-	-	-
Stage 1	1003	-	-	-	-
Stage 2	1011	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	0.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1597	-	996	-	-
HCM Lane V/C Ratio	0.001	-	0.013	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

# HCM Signalized Intersection Capacity Analysis

## 3: SR 347 & Edison Road

02/10/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	142	68	137	171	80	74	197	965	107	71	764	54
Future Volume (vph)	142	68	137	171	80	74	197	965	107	71	764	54
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	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00		1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.94	0.85	1.00	0.93		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1671	1504	1770	1728		1770	5009		1770	5085	1583
Flt Permitted	0.51	1.00	1.00	0.54	1.00		0.21	1.00		0.20	1.00	1.00
Satd. Flow (perm)	959	1671	1504	1013	1728		384	5009		365	5085	1583
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.90	0.90	0.80	0.85	0.80
Adj. Flow (vph)	167	80	161	201	94	87	232	1072	119	89	899	68
RTOR Reduction (vph)	0	25	99	0	40	0	0	14	0	0	0	42
Lane Group Flow (vph)	167	102	15	201	141	0	232	1177	0	89	899	26
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	20.2	10.7	10.7	22.4	11.8		46.2	36.4		35.8	30.5	30.5
Effective Green, g (s)	20.2	10.7	10.7	22.4	11.8		46.2	36.4		35.8	30.5	30.5
Actuated g/C Ratio	0.25	0.13	0.13	0.28	0.15		0.57	0.45		0.44	0.38	0.38
Clearance Time (s)	4.5	4.5	4.5	4.5	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	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	334	220	198	379	251		410	2250		253	1914	596
v/s Ratio Prot	0.06	0.06		c0.07	c0.08		c0.08	0.24		0.02	0.18	
v/s Ratio Perm	0.07		0.01	0.08			c0.24			0.13		0.02
v/c Ratio	0.50	0.46	0.08	0.53	0.56		0.57	0.52		0.35	0.47	0.04
Uniform Delay, d1	25.2	32.5	30.8	24.0	32.2		9.9	16.1		13.4	19.1	16.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.2	1.5	0.2	1.4	2.9		1.8	0.9		0.8	0.8	0.1
Delay (s)	26.4	34.0	31.0	25.4	35.0		11.7	16.9		14.2	20.0	16.1
Level of Service	C	C	C	C	D		B	B		B	B	B
Approach Delay (s)		30.1			30.0			16.1			19.2	
Approach LOS		C			C			B			B	

### Intersection Summary

HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	81.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th TWSC  
 8: Garvey Avenue & Roosevelt Avenue

02/10/2023

Intersection						
Int Delay, s/veh	0.3					
Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations	T			T		T
Traffic Vol, veh/h	1	0	0	13	16	1
Future Vol, veh/h	1	0	0	13	16	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	0	0	16	20	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	37	21	21	0	0
Stage 1	21	-	-	-	-
Stage 2	16	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	975	1056	1595	-	-
Stage 1	1002	-	-	-	-
Stage 2	1007	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	975	1056	1595	-	-
Mov Cap-2 Maneuver	975	-	-	-	-
Stage 1	1002	-	-	-	-
Stage 2	1007	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	8.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1
Capacity (veh/h)	-	-	1595	-	975
HCM Lane V/C Ratio	-	-	-	-	0.001
HCM Control Delay (s)	-	-	0	-	8.7
HCM Lane LOS	-	-	A	-	A
HCM 95th %tile Q(veh)	-	-	0	-	0

HCM 6th TWSC  
 10: Estrella Parkway & Edison Road

02/10/2023

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙	↑↑			↕		↙	↗	
Traffic Vol, veh/h	0	42	14	14	70	4	34	0	2	2	0	0
Future Vol, veh/h	0	42	14	14	70	4	34	0	2	2	0	0
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	0	-	0	0	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	53	18	18	88	5	43	0	3	3	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	93	0	0	71	0	0	133	182	53	191	198	47
Stage 1	-	-	-	-	-	-	53	53	-	127	127	-
Stage 2	-	-	-	-	-	-	80	129	-	64	71	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	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	1500	-	-	1528	-	-	832	712	1014	760	697	1012
Stage 1	-	-	-	-	-	-	959	850	-	864	790	-
Stage 2	-	-	-	-	-	-	920	789	-	946	835	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1500	-	-	1528	-	-	825	703	1014	752	689	1012
Mov Cap-2 Maneuver	-	-	-	-	-	-	825	703	-	752	689	-
Stage 1	-	-	-	-	-	-	959	850	-	864	781	-
Stage 2	-	-	-	-	-	-	909	780	-	944	835	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.2	9.6	9.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	834	1500	-	-	1528	-	-	752	-
HCM Lane V/C Ratio	0.054	-	-	-	0.011	-	-	0.003	-
HCM Control Delay (s)	9.6	0	-	-	7.4	-	-	9.8	0
HCM Lane LOS	A	A	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0	-



HCM 6th TWSC  
 11: Garvey Avenue & Estrella Parkway

02/10/2023

Intersection						
Int Delay, s/veh	1.9					
Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations	T			T		T
Traffic Vol, veh/h	4	1	1	6	1	14
Future Vol, veh/h	4	1	1	6	1	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	1	1	8	1	18

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	20	10	19	0	0
Stage 1	10	-	-	-	-
Stage 2	10	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	997	1071	1597	-	-
Stage 1	1013	-	-	-	-
Stage 2	1013	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	996	1071	1597	-	-
Mov Cap-2 Maneuver	996	-	-	-	-
Stage 1	1012	-	-	-	-
Stage 2	1013	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	8.6	1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1
Capacity (veh/h)	-	-	1597	-	1010
HCM Lane V/C Ratio	-	-	0.001	-	0.006
HCM Control Delay (s)	-	-	7.3	0	8.6
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0

HCM 6th TWSC  
13: Edison Road & Roosevelt Avenue

02/10/2023

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	75	88	8	5	0
Future Vol, veh/h	0	75	88	8	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	85	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	88	110	10	6	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	120	0	-	0	203
Stage 1	-	-	-	-	115
Stage 2	-	-	-	-	88
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	1467	-	-	-	776
Stage 1	-	-	-	-	898
Stage 2	-	-	-	-	935
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1467	-	-	-	776
Mov Cap-2 Maneuver	-	-	-	-	776
Stage 1	-	-	-	-	898
Stage 2	-	-	-	-	935

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1467	-	-	-	776
HCM Lane V/C Ratio	-	-	-	-	0.008
HCM Control Delay (s)	0	-	-	-	9.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

HCM 6th TWSC  
 15: Estrella Parkway & Fire Driveway

02/10/2023

Intersection												
Int Delay, s/veh	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	4	0	0	0	0	27	0	12	0	18	5	5
Future Vol, veh/h	4	0	0	0	0	27	0	12	0	18	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	0	0	0	0	34	0	15	0	23	6	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	87	70	9	70	73	15	12	0	0	15	0	0
Stage 1	55	55	-	15	15	-	-	-	-	-	-	-
Stage 2	32	15	-	55	58	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	899	821	1073	922	817	1065	1607	-	-	1603	-	-
Stage 1	957	849	-	1005	883	-	-	-	-	-	-	-
Stage 2	984	883	-	957	847	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	861	810	1073	912	806	1065	1607	-	-	1603	-	-
Mov Cap-2 Maneuver	861	810	-	912	806	-	-	-	-	-	-	-
Stage 1	957	837	-	1005	883	-	-	-	-	-	-	-
Stage 2	953	883	-	944	835	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.2		8.5		0		4.7	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1607	-	-	861	1065	1603	-
HCM Lane V/C Ratio	-	-	-	0.006	0.032	0.014	-
HCM Control Delay (s)	0	-	-	9.2	8.5	7.3	0
HCM Lane LOS	A	-	-	A	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-

HCM 6th TWSC  
 18: Garvey Avenue & South Access

02/10/2023

Intersection						
Int Delay, s/veh	0.9					
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	0	10	15	1	3	0
Future Vol, veh/h	0	10	15	1	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	13	19	1	4	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	20	0	-	0	33	20
Stage 1	-	-	-	-	20	-
Stage 2	-	-	-	-	13	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1596	-	-	-	980	1058
Stage 1	-	-	-	-	1003	-
Stage 2	-	-	-	-	1010	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1596	-	-	-	980	1058
Mov Cap-2 Maneuver	-	-	-	-	980	-
Stage 1	-	-	-	-	1003	-
Stage 2	-	-	-	-	1010	-
Approach	SE	NW	SW			
HCM Control Delay, s	0	0	8.7			
HCM LOS			A			
Minor Lane/Major Mvmt	NWT	NWR	SEL	SETSWLn1		
Capacity (veh/h)	-	-	1596	-	980	
HCM Lane V/C Ratio	-	-	-	-	0.004	
HCM Control Delay (s)	-	-	0	-	8.7	
HCM Lane LOS	-	-	A	-	A	
HCM 95th %tile Q(veh)	-	-	0	-	0	

HCM 6th TWSC  
 20: North Access & Edison Road

02/10/2023

Intersection						
Int Delay, s/veh	1.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑↑		↑
Traffic Vol, veh/h	46	0	0	88	0	29
Future Vol, veh/h	46	0	0	88	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	92	80	92	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	0	0	110	0	36

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

Approach	EB	WB	NB
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	1008	-	-
HCM Lane V/C Ratio	0.036	-	-
HCM Control Delay (s)	8.7	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-

# HCM Signalized Intersection Capacity Analysis

## 3: SR 347 & Edison Road

02/10/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	115	174	290	127	107	196	1056	125	160	1569	90
Future Volume (vph)	140	115	174	290	127	107	196	1056	125	160	1569	90
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	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00		1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.96	0.85	1.00	0.93		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1703	1504	1770	1735		1770	5004		1770	5085	1583
Flt Permitted	0.37	1.00	1.00	0.37	1.00		0.13	1.00		0.12	1.00	1.00
Satd. Flow (perm)	685	1703	1504	692	1735		235	5004		229	5085	1583
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.90	0.90	0.85	0.90	0.85
Adj. Flow (vph)	165	135	205	341	149	126	231	1173	139	188	1743	106
RTOR Reduction (vph)	0	14	135	0	35	0	0	15	0	0	0	66
Lane Group Flow (vph)	165	166	25	341	240	0	231	1297	0	188	1743	40
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	23.3	13.7	13.7	29.1	16.6		41.2	31.7		43.0	32.6	32.6
Effective Green, g (s)	23.3	13.7	13.7	29.1	16.6		41.2	31.7		43.0	32.6	32.6
Actuated g/C Ratio	0.27	0.16	0.16	0.34	0.19		0.48	0.37		0.50	0.38	0.38
Clearance Time (s)	4.5	4.5	4.5	4.5	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	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	305	270	238	389	333		281	1838		299	1920	597
v/s Ratio Prot	0.06	0.10		c0.13	0.14		c0.09	0.26		0.08	c0.34	
v/s Ratio Perm	0.09		0.02	c0.17			0.30			0.24		0.03
v/c Ratio	0.54	0.61	0.11	0.88	0.72		0.82	0.71		0.63	0.91	0.07
Uniform Delay, d1	25.5	33.8	31.1	24.4	32.7		18.0	23.3		14.8	25.4	17.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.0	4.1	0.2	19.3	7.5		17.3	2.3		4.1	7.8	0.2
Delay (s)	27.5	37.9	31.3	43.8	40.2		35.3	25.6		18.9	33.2	17.4
Level of Service	C	D	C	D	D		D	C		B	C	B
Approach Delay (s)		32.4			42.2			27.1			31.1	
Approach LOS		C			D			C			C	

### Intersection Summary

HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	86.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th TWSC  
 8: Garvey Avenue & Roosevelt Avenue

02/10/2023

Intersection						
Int Delay, s/veh	0.7					
Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations	T			T		T
Traffic Vol, veh/h	0	1	2	19	13	0
Future Vol, veh/h	0	1	2	19	13	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	3	24	16	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	46	16	16	0	0
Stage 1	16	-	-	-	-
Stage 2	30	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	964	1063	1602	-	-
Stage 1	1007	-	-	-	-
Stage 2	993	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	962	1063	1602	-	-
Mov Cap-2 Maneuver	962	-	-	-	-
Stage 1	1005	-	-	-	-
Stage 2	993	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	8.4	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1
Capacity (veh/h)	-	-	1602	-	1063
HCM Lane V/C Ratio	-	-	0.002	-	0.001
HCM Control Delay (s)	-	-	7.3	0	8.4
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0

HCM 6th TWSC  
10: Estrella Parkway & Edison Road

02/10/2023

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙	↑↑			↕		↙	↗	
Traffic Vol, veh/h	0	51	36	37	45	1	31	1	0	1	0	1
Future Vol, veh/h	0	51	36	37	45	1	31	1	0	1	0	1
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	0	-	0	0	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	64	45	46	56	1	39	1	0	1	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	57	0	0	109	0	0	184	213	64	236	258	29
Stage 1	-	-	-	-	-	-	64	64	-	149	149	-
Stage 2	-	-	-	-	-	-	120	149	-	87	109	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	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	1547	-	-	1480	-	-	769	684	1000	708	646	1040
Stage 1	-	-	-	-	-	-	946	841	-	839	773	-
Stage 2	-	-	-	-	-	-	872	773	-	920	805	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1547	-	-	1480	-	-	750	663	1000	690	626	1040
Mov Cap-2 Maneuver	-	-	-	-	-	-	750	663	-	690	626	-
Stage 1	-	-	-	-	-	-	946	841	-	839	749	-
Stage 2	-	-	-	-	-	-	844	749	-	919	805	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			3.3			10.1			9.4		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	747	1547	-	-	1480	-	-	690	1040
HCM Lane V/C Ratio	0.054	-	-	-	0.031	-	-	0.002	0.001
HCM Control Delay (s)	10.1	0	-	-	7.5	-	-	10.2	8.5
HCM Lane LOS	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0	0



HCM 6th TWSC  
 11: Garvey Avenue & Estrella Parkway

02/10/2023

Intersection						
Int Delay, s/veh	5.1					
Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	15	4	0	4	2	7
Future Vol, veh/h	15	4	0	4	2	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	5	0	5	3	9

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	13	8	12	0	0
Stage 1	8	-	-	-	-
Stage 2	5	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	1006	1074	1607	-	-
Stage 1	1015	-	-	-	-
Stage 2	1018	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	1006	1074	1607	-	-
Mov Cap-2 Maneuver	1006	-	-	-	-
Stage 1	1015	-	-	-	-
Stage 2	1018	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	8.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1
Capacity (veh/h)	-	-	1607	-	1020
HCM Lane V/C Ratio	-	-	-	-	0.023
HCM Control Delay (s)	-	-	0	-	8.6
HCM Lane LOS	-	-	A	-	A
HCM 95th %tile Q(veh)	-	-	0	-	0.1

HCM 6th TWSC  
13: Edison Road & Roosevelt Avenue

02/10/2023

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑	↗		↖	
Traffic Vol, veh/h	1	69	82	15	15	1
Future Vol, veh/h	1	69	82	15	15	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	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	86	103	19	19	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	122	0	-	0	201
Stage 1	-	-	-	-	113
Stage 2	-	-	-	-	88
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	1464	-	-	-	778
Stage 1	-	-	-	-	900
Stage 2	-	-	-	-	935
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1464	-	-	-	777
Mov Cap-2 Maneuver	-	-	-	-	777
Stage 1	-	-	-	-	899
Stage 2	-	-	-	-	935

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1464	-	-	-	788
HCM Lane V/C Ratio	0.001	-	-	-	0.025
HCM Control Delay (s)	7.5	-	-	-	9.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM 6th TWSC  
 15: Estrella Parkway & Fire Driveway

02/10/2023

Intersection												
Int Delay, s/veh	6.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	0	2	0	0	17	1	7	0	60	14	0
Future Vol, veh/h	7	0	2	0	0	17	1	7	0	60	14	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	0	3	0	0	21	1	9	0	75	18	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	190	179	18	181	179	9	18	0	0	9	0	0
Stage 1	168	168	-	11	11	-	-	-	-	-	-	-
Stage 2	22	11	-	170	168	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	770	715	1061	781	715	1073	1599	-	-	1611	-	-
Stage 1	834	759	-	1010	886	-	-	-	-	-	-	-
Stage 2	996	886	-	832	759	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	727	681	1061	751	681	1073	1599	-	-	1611	-	-
Mov Cap-2 Maneuver	727	681	-	751	681	-	-	-	-	-	-	-
Stage 1	833	723	-	1009	885	-	-	-	-	-	-	-
Stage 2	975	885	-	791	723	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.7		8.4		0.9		6	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1599	-	-	782	1073	1611	-
HCM Lane V/C Ratio	0.001	-	-	0.014	0.02	0.047	-
HCM Control Delay (s)	7.3	0	-	9.7	8.4	7.3	0
HCM Lane LOS	A	A	-	A	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	-

HCM 6th TWSC  
 18: Garvey Avenue & South Access

02/10/2023

Intersection						
Int Delay, s/veh	0.5					
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	0	19	9	3	2	0
Future Vol, veh/h	0	19	9	3	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	24	11	4	3	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	15	0	-	0	37	13
Stage 1	-	-	-	-	13	-
Stage 2	-	-	-	-	24	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1603	-	-	-	975	1067
Stage 1	-	-	-	-	1010	-
Stage 2	-	-	-	-	999	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1603	-	-	-	975	1067
Mov Cap-2 Maneuver	-	-	-	-	975	-
Stage 1	-	-	-	-	1010	-
Stage 2	-	-	-	-	999	-
Approach	SE	NW	SW			
HCM Control Delay, s	0	0	8.7			
HCM LOS			A			
Minor Lane/Major Mvmt	NWT	NWR	SEL	SETSWLn1		
Capacity (veh/h)	-	-	1603	-	975	
HCM Lane V/C Ratio	-	-	-	-	0.003	
HCM Control Delay (s)	-	-	0	-	8.7	
HCM Lane LOS	-	-	A	-	A	
HCM 95th %tile Q(veh)	-	-	0	-	0	

HCM 6th TWSC  
 20: North Access & Edison Road

02/10/2023

Intersection						
Int Delay, s/veh	1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑↑		↑
Traffic Vol, veh/h	52	0	0	83	0	18
Future Vol, veh/h	52	0	0	83	0	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	92	80	92	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	0	0	104	0	23

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

Approach	EB	WB	NB
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	999	-	-
HCM Lane V/C Ratio	0.023	-	-
HCM Control Delay (s)	8.7	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-

# HCM Signalized Intersection Capacity Analysis

## 3: SR 347 & Edison Road

02/10/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	75	150	188	88	82	218	1066	118	78	843	59
Future Volume (vph)	155	75	150	188	88	82	218	1066	118	78	843	59
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	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00		1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.94	0.85	1.00	0.93		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1672	1504	1770	1729		1770	5009		1770	5085	1583
Flt Permitted	0.46	1.00	1.00	0.52	1.00		0.17	1.00		0.16	1.00	1.00
Satd. Flow (perm)	865	1672	1504	960	1729		315	5009		300	5085	1583
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.90	0.90	0.85	0.85	0.80
Adj. Flow (vph)	182	88	176	221	104	96	256	1184	131	92	992	74
RTOR Reduction (vph)	0	25	107	0	40	0	0	14	0	0	0	47
Lane Group Flow (vph)	182	114	18	221	160	0	256	1301	0	92	992	27
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	21.3	11.6	11.6	23.5	12.7		46.2	36.4		34.9	29.6	29.6
Effective Green, g (s)	21.3	11.6	11.6	23.5	12.7		46.2	36.4		34.9	29.6	29.6
Actuated g/C Ratio	0.26	0.14	0.14	0.29	0.15		0.56	0.44		0.43	0.36	0.36
Clearance Time (s)	4.5	4.5	4.5	4.5	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	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	331	236	212	381	267		391	2220		222	1833	570
v/s Ratio Prot	0.06	0.07		c0.08	c0.09		c0.10	0.26		0.03	0.20	
v/s Ratio Perm	0.08		0.01	0.09			c0.27			0.15		0.02
v/c Ratio	0.55	0.48	0.08	0.58	0.60		0.65	0.59		0.41	0.54	0.05
Uniform Delay, d1	25.2	32.5	30.6	24.0	32.3		11.3	17.2		14.5	20.9	17.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.9	1.6	0.2	2.2	3.8		3.9	1.1		1.3	1.2	0.2
Delay (s)	27.0	34.0	30.8	26.2	36.1		15.2	18.3		15.8	22.0	17.2
Level of Service	C	C	C	C	D		B	B		B	C	B
Approach Delay (s)		30.3			30.9			17.8			21.2	
Approach LOS		C			C			B			C	

### Intersection Summary

HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	82.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th TWSC  
 8: Garvey Avenue & Roosevelt Avenue

02/10/2023

Intersection						
Int Delay, s/veh	0.3					
Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations	T			T		T
Traffic Vol, veh/h	1	0	0	14	17	1
Future Vol, veh/h	1	0	0	14	17	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	0	0	18	21	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	40	22	22	0	0
Stage 1	22	-	-	-	-
Stage 2	18	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	972	1055	1593	-	-
Stage 1	1001	-	-	-	-
Stage 2	1005	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	972	1055	1593	-	-
Mov Cap-2 Maneuver	972	-	-	-	-
Stage 1	1001	-	-	-	-
Stage 2	1005	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	8.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1
Capacity (veh/h)	-	-	1593	-	972
HCM Lane V/C Ratio	-	-	-	-	0.001
HCM Control Delay (s)	-	-	0	-	8.7
HCM Lane LOS	-	-	A	-	A
HCM 95th %tile Q(veh)	-	-	0	-	0

HCM 6th TWSC  
 10: Estrella Parkway & Edison Road

02/10/2023

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙	↑↑			↕		↙	↗	
Traffic Vol, veh/h	0	46	15	15	77	5	35	0	2	2	0	0
Future Vol, veh/h	0	46	15	15	77	5	35	0	2	2	0	0
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	0	-	0	0	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	58	19	19	96	6	44	0	3	3	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	102	0	0	77	0	0	144	198	58	206	214	51
Stage 1	-	-	-	-	-	-	58	58	-	137	137	-
Stage 2	-	-	-	-	-	-	86	140	-	69	77	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	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	1489	-	-	1521	-	-	818	697	1008	743	683	1007
Stage 1	-	-	-	-	-	-	953	846	-	853	783	-
Stage 2	-	-	-	-	-	-	913	780	-	941	831	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1489	-	-	1521	-	-	810	689	1008	734	675	1007
Mov Cap-2 Maneuver	-	-	-	-	-	-	810	689	-	734	675	-
Stage 1	-	-	-	-	-	-	953	846	-	853	774	-
Stage 2	-	-	-	-	-	-	902	771	-	939	831	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			1.1			9.7			9.9		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	819	1489	-	-	1521	-	-	734	-
HCM Lane V/C Ratio	0.056	-	-	-	0.012	-	-	0.003	-
HCM Control Delay (s)	9.7	0	-	-	7.4	-	-	9.9	0
HCM Lane LOS	A	A	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0	-



HCM 6th TWSC  
 11: Garvey Avenue & Estrella Parkway

02/10/2023

Intersection						
Int Delay, s/veh	2					
Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations	T			T		T
Traffic Vol, veh/h	5	1	1	6	1	15
Future Vol, veh/h	5	1	1	6	1	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	1	1	8	1	19

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	21	11	20	0	0
Stage 1	11	-	-	-	-
Stage 2	10	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	996	1070	1596	-	-
Stage 1	1012	-	-	-	-
Stage 2	1013	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	995	1070	1596	-	-
Mov Cap-2 Maneuver	995	-	-	-	-
Stage 1	1011	-	-	-	-
Stage 2	1013	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	8.6	1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1
Capacity (veh/h)	-	-	1596	-	1007
HCM Lane V/C Ratio	-	-	0.001	-	0.007
HCM Control Delay (s)	-	-	7.3	0	8.6
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0

HCM 6th TWSC  
 13: Edison Road & Roosevelt Avenue

02/10/2023

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	80	96	9	6	0
Future Vol, veh/h	0	80	96	9	6	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	85	85	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	94	113	11	8	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	124	0	-	0	213
Stage 1	-	-	-	-	119
Stage 2	-	-	-	-	94
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	1462	-	-	-	766
Stage 1	-	-	-	-	894
Stage 2	-	-	-	-	929
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1462	-	-	-	766
Mov Cap-2 Maneuver	-	-	-	-	766
Stage 1	-	-	-	-	894
Stage 2	-	-	-	-	929

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1462	-	-	-	766
HCM Lane V/C Ratio	-	-	-	-	0.01
HCM Control Delay (s)	0	-	-	-	9.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

HCM 6th TWSC  
 15: Estrella Parkway & Fire Driveway

02/10/2023

Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	0	0	0	27	0	14	0	18	6	6
Future Vol, veh/h	5	0	0	0	0	27	0	14	0	18	6	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	0	0	0	0	34	0	18	0	23	8	8

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	93	76	12	76	80	18	16	0	0	18	0	0
Stage 1	58	58	-	18	18	-	-	-	-	-	-	-
Stage 2	35	18	-	58	62	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	891	814	1069	914	810	1061	1602	-	-	1599	-	-
Stage 1	954	847	-	1001	880	-	-	-	-	-	-	-
Stage 2	981	880	-	954	843	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	853	802	1069	904	798	1061	1602	-	-	1599	-	-
Mov Cap-2 Maneuver	853	802	-	904	798	-	-	-	-	-	-	-
Stage 1	954	834	-	1001	880	-	-	-	-	-	-	-
Stage 2	950	880	-	940	830	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.3		8.5		0		4.4	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1602	-	-	853	1061	1599	-	-
HCM Lane V/C Ratio	-	-	-	0.007	0.032	0.014	-	-
HCM Control Delay (s)	0	-	-	9.3	8.5	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

HCM 6th TWSC  
 18: Garvey Avenue & South Access

02/10/2023

Intersection						
Int Delay, s/veh	0.8					
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	0	11	16	1	3	0
Future Vol, veh/h	0	11	16	1	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	14	20	1	4	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	21	0	-	0	35	21
Stage 1	-	-	-	-	21	-
Stage 2	-	-	-	-	14	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1595	-	-	-	978	1056
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	1009	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1595	-	-	-	978	1056
Mov Cap-2 Maneuver	-	-	-	-	978	-
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	1009	-
Approach	SE	NW	SW			
HCM Control Delay, s	0	0	8.7			
HCM LOS			A			
Minor Lane/Major Mvmt	NWT	NWR	SEL	SETSWLn1		
Capacity (veh/h)	-	-	1595	-	978	
HCM Lane V/C Ratio	-	-	-	-	0.004	
HCM Control Delay (s)	-	-	0	-	8.7	
HCM Lane LOS	-	-	A	-	A	
HCM 95th %tile Q(veh)	-	-	0	-	0	

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑↑		↑
Traffic Vol, veh/h	51	0	0	97	0	29
Future Vol, veh/h	51	0	0	97	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	92	80	92	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	0	0	121	0	36

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

Approach	EB	WB	NB
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	1000	-	-
HCM Lane V/C Ratio	0.036	-	-
HCM Control Delay (s)	8.7	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-

# HCM Signalized Intersection Capacity Analysis

## 3: SR 347 & Edison Road

02/10/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	154	128	192	320	140	118	215	1166	138	177	1732	98
Future Volume (vph)	154	128	192	320	140	118	215	1166	138	177	1732	98
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	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00		1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.96	0.85	1.00	0.93		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1704	1504	1770	1735		1770	5005		1770	5085	1583
Flt Permitted	0.30	1.00	1.00	0.34	1.00		0.13	1.00		0.12	1.00	1.00
Satd. Flow (perm)	564	1704	1504	641	1735		240	5005		229	5085	1583
Peak-hour factor, PHF	0.85	0.85	0.85	0.90	0.85	0.85	0.85	0.90	0.90	0.85	0.90	0.85
Adj. Flow (vph)	181	151	226	356	165	139	253	1296	153	208	1924	115
RTOR Reduction (vph)	0	13	146	0	34	0	0	15	0	0	0	72
Lane Group Flow (vph)	181	188	30	356	270	0	253	1434	0	208	1924	43
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	24.6	14.8	14.8	30.0	17.5		40.6	31.1		43.6	32.6	32.6
Effective Green, g (s)	24.6	14.8	14.8	30.0	17.5		40.6	31.1		43.6	32.6	32.6
Actuated g/C Ratio	0.28	0.17	0.17	0.34	0.20		0.46	0.36		0.50	0.37	0.37
Clearance Time (s)	4.5	4.5	4.5	4.5	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	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	293	288	254	381	347		277	1780		308	1896	590
v/s Ratio Prot	0.07	0.11		c0.13	0.16		c0.10	0.29		0.08	c0.38	
v/s Ratio Perm	0.10		0.02	c0.19			0.32			0.25		0.03
v/c Ratio	0.62	0.65	0.12	0.93	0.78		0.91	0.81		0.68	1.01	0.07
Uniform Delay, d1	25.5	33.9	30.8	25.2	33.1		20.5	25.4		16.1	27.4	17.7
Progression Factor	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	5.2	0.2	29.8	10.4		32.1	4.0		5.8	24.4	0.2
Delay (s)	29.3	39.1	31.0	54.9	43.5		52.7	29.4		21.8	51.8	17.9
Level of Service	C	D	C	D	D		D	C		C	D	B
Approach Delay (s)		33.4			49.7			32.9			47.3	
Approach LOS		C			D			C			D	

### Intersection Summary

HCM 2000 Control Delay	41.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	87.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th TWSC  
 8: Garvey Avenue & Roosevelt Avenue

02/10/2023

Intersection						
Int Delay, s/veh	0.6					
Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations	T			T		T
Traffic Vol, veh/h	0	1	2	20	14	0
Future Vol, veh/h	0	1	2	20	14	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	3	25	18	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	49	18	18	0	0
Stage 1	18	-	-	-	-
Stage 2	31	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	960	1061	1599	-	-
Stage 1	1005	-	-	-	-
Stage 2	992	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	958	1061	1599	-	-
Mov Cap-2 Maneuver	958	-	-	-	-
Stage 1	1003	-	-	-	-
Stage 2	992	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	8.4	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1
Capacity (veh/h)	-	-	1599	-	1061
HCM Lane V/C Ratio	-	-	0.002	-	0.001
HCM Control Delay (s)	-	-	7.3	0	8.4
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0

HCM 6th TWSC  
 10: Estrella Parkway & Edison Road

02/10/2023

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙	↑↑			↕		↙	↗	
Traffic Vol, veh/h	0	56	37	38	49	1	32	1	0	1	0	1
Future Vol, veh/h	0	56	37	38	49	1	32	1	0	1	0	1
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	0	-	0	0	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	70	46	48	61	1	40	1	0	1	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	62	0	0	116	0	0	197	228	70	252	274	31
Stage 1	-	-	-	-	-	-	70	70	-	158	158	-
Stage 2	-	-	-	-	-	-	127	158	-	94	116	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	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	1540	-	-	1472	-	-	753	671	992	691	633	1037
Stage 1	-	-	-	-	-	-	939	836	-	829	767	-
Stage 2	-	-	-	-	-	-	864	767	-	912	799	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1540	-	-	1472	-	-	733	649	992	673	612	1037
Mov Cap-2 Maneuver	-	-	-	-	-	-	733	649	-	673	612	-
Stage 1	-	-	-	-	-	-	939	836	-	829	742	-
Stage 2	-	-	-	-	-	-	835	742	-	911	799	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			3.3			10.2			9.5		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	730	1540	-	-	1472	-	-	673	1037
HCM Lane V/C Ratio	0.057	-	-	-	0.032	-	-	0.002	0.001
HCM Control Delay (s)	10.2	0	-	-	7.5	-	-	10.4	8.5
HCM Lane LOS	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0	0



HCM 6th TWSC  
 11: Garvey Avenue & Estrella Parkway

02/10/2023

Intersection						
Int Delay, s/veh	5.2					
Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	16	5	0	4	2	8
Future Vol, veh/h	16	5	0	4	2	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	6	0	5	3	10

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	13	8	13	0	-	0
Stage 1	8	-	-	-	-	-
Stage 2	5	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	1006	1074	1606	-	-	-
Stage 1	1015	-	-	-	-	-
Stage 2	1018	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	1006	1074	1606	-	-	-
Mov Cap-2 Maneuver	1006	-	-	-	-	-
Stage 1	1015	-	-	-	-	-
Stage 2	1018	-	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	8.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1
Capacity (veh/h)	-	-	1606	-	1021
HCM Lane V/C Ratio	-	-	-	-	0.026
HCM Control Delay (s)	-	-	0	-	8.6
HCM Lane LOS	-	-	A	-	A
HCM 95th %tile Q(veh)	-	-	0	-	0.1

HCM 6th TWSC  
13: Edison Road & Roosevelt Avenue

02/10/2023

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	74	87	16	16	1
Future Vol, veh/h	1	74	87	16	16	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	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	93	109	20	20	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	129	0	-	0	214
Stage 1	-	-	-	-	119
Stage 2	-	-	-	-	95
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	1456	-	-	-	764
Stage 1	-	-	-	-	894
Stage 2	-	-	-	-	928
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1456	-	-	-	763
Mov Cap-2 Maneuver	-	-	-	-	763
Stage 1	-	-	-	-	893
Stage 2	-	-	-	-	928

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1456	-	-	-	773
HCM Lane V/C Ratio	0.001	-	-	-	0.027
HCM Control Delay (s)	7.5	-	-	-	9.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM 6th TWSC  
 15: Estrella Parkway & Fire Driveway

02/10/2023

Intersection												
Int Delay, s/veh	6.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	0	2	0	0	17	1	8	0	60	15	0
Future Vol, veh/h	8	0	2	0	0	17	1	8	0	60	15	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	0	3	0	0	21	1	10	0	71	18	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	183	172	18	174	172	10	18	0	0	10	0	0
Stage 1	160	160	-	12	12	-	-	-	-	-	-	-
Stage 2	23	12	-	162	160	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	778	721	1061	789	721	1071	1599	-	-	1610	-	-
Stage 1	842	766	-	1009	886	-	-	-	-	-	-	-
Stage 2	995	886	-	840	766	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	736	688	1061	760	688	1071	1599	-	-	1610	-	-
Mov Cap-2 Maneuver	736	688	-	760	688	-	-	-	-	-	-	-
Stage 1	841	732	-	1008	885	-	-	-	-	-	-	-
Stage 2	974	885	-	800	732	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.7		8.4		0.8		5.9	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1599	-	-	784	1071	1610	-
HCM Lane V/C Ratio	0.001	-	-	0.016	0.02	0.044	-
HCM Control Delay (s)	7.3	0	-	9.7	8.4	7.3	0
HCM Lane LOS	A	A	-	A	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	-

HCM 6th TWSC  
 18: Garvey Avenue & South Access

02/10/2023

Intersection						
Int Delay, s/veh	0.5					
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	0	20	10	3	2	0
Future Vol, veh/h	0	20	10	3	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	25	13	4	3	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	17	0	-	0	40	15
Stage 1	-	-	-	-	15	-
Stage 2	-	-	-	-	25	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1600	-	-	-	972	1065
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	998	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1600	-	-	-	972	1065
Mov Cap-2 Maneuver	-	-	-	-	972	-
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	998	-
Approach	SE	NW	SW			
HCM Control Delay, s	0	0	8.7			
HCM LOS			A			
Minor Lane/Major Mvmt	NWT	NWR	SEL	SETSWLn1		
Capacity (veh/h)	-	-	1600	-	972	
HCM Lane V/C Ratio	-	-	-	-	0.003	
HCM Control Delay (s)	-	-	0	-	8.7	
HCM Lane LOS	-	-	A	-	A	
HCM 95th %tile Q(veh)	-	-	0	-	0	

Intersection						
Int Delay, s/veh	1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑↑		↑
Traffic Vol, veh/h	57	0	0	88	0	18
Future Vol, veh/h	57	0	0	88	0	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	92	80	92	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	71	0	0	110	0	23

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	-	-	71
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.319
Pot Cap-1 Maneuver	-	0	0	991
Stage 1	-	0	0	-
Stage 2	-	0	0	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	991
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	991	-	-
HCM Lane V/C Ratio	0.023	-	-
HCM Control Delay (s)	8.7	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-



**VILLAS AT THE GIN  
ESTRELLA PARKWAY/EDISON ROAD  
TRAFFIC IMPACT ANALYSIS**

**APPENDIX**

**Turn Lane Calculations**

**Un-Signalized Intersection** (Left Turn Lane)

**Location:** Roosevelt Street/Edison Road

**Approach/Leg:** Eastbound

**2023 With Project**

V = vehicles per hour

**PM Peak Hour**

V = 1 vph

S = Storage = (V \* 2 min \* 25 ft/veh) / 60 min/hr

$$S \text{ (ft)} = \frac{1 \text{ vph} * (2 \text{ min}) * (25 \text{ ft/veh})}{(60 \text{ min/hr})} = 1 \text{ feet}$$

Minimum Recommended Storage: 25 feet

---

**Un-Signalized Intersection** (Left Turn Lane)

**Location:** Estrella Parkway/Edison Road

**Approach/Leg:** Northbound

**2023 With Project**

V = vehicles per hour

**AM Peak Hour**

V = 37 vph

S = Storage = (V \* 2 min \* 25 ft/veh) / 60 min/hr

$$S \text{ (ft)} = \frac{37 \text{ vph} * (2 \text{ min}) * (25 \text{ ft/veh})}{(60 \text{ min/hr})} = 31 \text{ feet}$$

Minimum Recommended Storage: 50 feet

---

**Un-Signalized Intersection** (Left Turn Lane)

**Location:** Fire Station Driveway/Estrella Parkway

**Approach/Leg:** Southbound

**2023 With Project**

V = vehicles per hour

**PM Peak Hour**

V = 60 vph

S = Storage = (V \* 2 min \* 25 ft/veh) / 60 min/hr

$$S \text{ (ft)} = \frac{60 \text{ vph} * (2 \text{ min}) * (25 \text{ ft/veh})}{(60 \text{ min/hr})} = 50 \text{ feet}$$

Minimum Recommended Storage: 50 feet

---



**VILLAS AT THE GIN  
ESTRELLA PARKWAY/EDISON ROAD  
TRAFFIC IMPACT ANALYSIS**

**APPENDIX**

**Crash Analysis**



### Edison Apartments Crash Summary

**2017-2021**

IncidentID	IncidentDate	CollisionManner	TotalInjuries	Total Fatalities	InjurySeverity	Onroad	CrossingFeature
3747690	3/16/2021	2	0	0	1	Edison Road	SR 347
3804087	8/23/2021	3	0	0	1	Edison Road	SR 347
3738568	2/23/2021	6	0	0	1	SR 347	Edison Road
3749315	3/16/2021	4	0	0	1	SR 347	Edison Road
3787705	6/30/2021	3	0	0	1	SR 347	Edison Road
3815508	9/23/2021	5	1	0	2	SR 347	Edison Road
3827885	10/22/2021	3	0	0	1	SR 347	Edison Road
3835583	7/25/2021	6	0	0	1	SR 347	Edison Road
3846151	12/10/2021	97	1	0	3	SR 347	Edison Road
3725141	1/12/2021	4	2	0	2	SR 347	Edison Road
3674304	2/25/2020	4	0	0	1	Edison Road	SR 347
3614692	1/11/2020	3	0	0	1	Edison Road	SR 347
3614699	1/7/2020	3	0	0	1	Edison Road	SR 347
3640049	3/16/2020	2	1	0	2	Edison Road	SR 347
3650438	1/3/2020	2	0	0	1	Edison Road	SR 347
3659330	6/19/2020	3	1	0	2	Edison Road	SR 347
3673982	8/19/2020	2	0	0	1	Edison Road	SR 347
3618312	1/17/2020	3	0	0	1	SR 347	Edison Road
3658582	3/12/2020	3	0	0	1	SR 347	Edison Road
3658747	3/17/2020	2	0	0	1	SR 347	Edison Road
3699530	10/12/2020	3	2	0	3	SR 347	Edison Road
3709170	11/9/2020	3	0	0	1	SR 347	Edison Road
3713536	12/3/2020	4	0	0	1	SR 347	Edison Road
3713219	12/1/2020	4	1	0	2	SR 347	Edison Road
3479141	1/14/2019	3	2	0	2	Edison Road	SR 347
3484912	2/1/2019	3	0	0	1	Edison Road	SR 347
3484190	1/29/2019	2	0	0	1	SR 347	Edison Road
3496263	1/17/2019	2	0	0	1	SR 347	Edison Road
3499280	2/22/2019	4	0	0	1	SR 347	Edison Road
3518274	3/28/2019	3	0	0	1	SR 347	Edison Road
3528799	6/30/2019	4	0	0	1	SR 347	Edison Road
3533232	6/3/2019	4	0	0	1	SR 347	Edison Road

### Edison Apartments Crash Summary

3533234	6/4/2019	3	0	0	1	SR 347	Edison Road
3558389	8/24/2019	6	0	0	1	SR 347	Edison Road
3599589	11/9/2019	3	0	0	1	SR 347	Edison Road
3604997	12/5/2019	3	0	0	1	SR 347	Edison Road
3613555	10/3/2019	3	0	0	1	SR 347	Edison Road
3421493	9/23/2018	3	0	0	1	Edison Road	SR 347
3359448	3/21/2018	4	1	0	3	SR 347	Edison Road
3402166	8/7/2018	4	0	0	1	SR 347	Edison Road
3415936	9/17/2018	4	0	0	1	SR 347	Edison Road
3452297	11/15/2018	3	2	0	3	SR 347	Edison Road
3452302	11/6/2018	1	0	0	1	SR 347	Edison Road
3465329	11/29/2018	4	0	0	1	SR 347	Edison Road
3473698	11/19/2018	4	0	0	1	SR 347	Edison Road
3376074	4/27/2018	4	0	0	1	SR 347	Edison Road
3395861	7/17/2018	5	1	0	3	SR 347	Edison Road
3201992	2/18/2017	3	1	0	3	Edison Road	SR 347
3182564	1/10/2017	6	0	0	1	SR 347	Edison Road
3190051	1/30/2017	6	0	0	1	SR 347	Edison Road
3201513	2/11/2017	3	0	0	1	SR 347	Edison Road
3202035	2/24/2017	4	0	0	1	SR 347	Edison Road
3206504	2/22/2017	6	0	0	1	SR 347	Edison Road
3206515	3/1/2017	3	1	0	3	SR 347	Edison Road
3216194	3/25/2017	4	0	0	1	SR 347	Edison Road
3222966	4/1/2017	3	1	0	3	SR 347	Edison Road
3240000	6/3/2017	5	2	0	3	SR 347	Edison Road
3262098	8/4/2017	4	1	0	2	SR 347	Edison Road
3293508	10/20/2017	3	0	0	1	SR 347	Edison Road
3312786	11/23/2017	6	0	0	1	SR 347	Edison Road
3712857	12/9/2020	1	0	0	1	Roosevelt Avenue	Edison Road
3680297	8/25/2020	1	0	1	5	Garvey Avenue	Roosevelt Avenue

## Edison Apartments Crash Summary

### LEGEND

#### CollisionManner

- 1 SINGLE\_VEHICLE
- 2 ANGLE (front to side)(other than left turn)
- 3 LEFT\_TURN
- 4 REAR\_END
- 5 HEAD\_ON
- 6 SIDESWIPE\_SAME\_DIRECTION
- 7 SIDESWIPE\_OPPOSITE\_DIRECTION
- 8 REAR\_TO\_SIDE
- 9 REAR\_TO\_REAR
- 10 U\_TURN
- 97 OTHER
- 99 UNKNOWN

#### InjurySeverity

- 1 NO\_INJURY
- 2 POSSIBLE\_INJURY
- 3 SUSPECTED\_MINOR\_INJURY
- 4 SUSPECTED\_SERIOUS\_INJURY
- 5 FATAL
- 99 UNKNOWN



**VILLAS AT THE GIN  
ESTRELLA PARKWAY/EDISON ROAD  
TRAFFIC IMPACT ANALYSIS**

**APPENDIX**

**Comment Resolution**



**Edison Apartments TIA  
TIA Dated 6 October 2022**

12/21/2022

**Comment Resolution**

Item No.	Page No.	Reviewer	Code	Comment	Response
<b>City of Maricopa Comments</b>					
1	General	Eduardo Raudales	D	How was this distribution determined?	Trip distribution for the project was based on existing traffic volume patterns near the proposed site and taking into account the site plan and its proposed access point locations. See revised report.
2	General	Eduardo Raudales	D	Since a traffic signal will not be present on (intersection) '4', drivers coming out of access '5' may prefer to make a right turn onto Edison Rd instead of waiting at the intersection to make a left turn. What happens with a distribution of 25/70 instead of 45/50?	Edison Road is a low volume collector roadway that provides adequate gaps for left turning vehicles from the minor approaches. As noted in the report, the northbound left turn movement at the intersection of Estrella Parkway/Edison Road (intersection 4) is expected to operate at an acceptable level of service in 2024 with traffic from the project.  A distribution of 25/70 would add more vehicles traveling to and from the east on Edison Road and would go against existing traffic patterns in the area as noted in the response to Comment 1. Such a shift while not expected to occur could require the lengthening of the westbound left turn lane at Estrella Parkway/Edison Road that in turn would impact the eastbound left turn lane at Roosevelt Avenue.

A - Will Revise  
 B - Consultant to Evaluate  
 C - City of Maricopa to Evaluate  
 D - See Response