

TRAFFIC IMPACT STUDY
Mixed-Use Commercial Development
SEC of Power Road and Elliot Road
Mesa, Arizona

January 27, 2023

PREPARED FOR
Avalon Development
7333 East Doubletree Ranch Road, Suite 140
Scottsdale, Arizona 85258

PREPARED BY



TRAFFIC IMPACT STUDY
Mixed-Use Commercial Development
SEC of Power Road and Elliot Road
Mesa, Arizona

January 27, 2023

PREPARED FOR
Avalon Development
7333 East Doubletree Ranch Road, Suite 140
Scottsdale, Arizona 85258

PREPARED BY



United Civil Group
2803 N. 7th Avenue
Phoenix, Arizona 85007

UCG Project Number: TR23005



Conducted by: Sarah Simpson, PhD, PE
President

TABLE OF CONTENTS

I. EXECUTIVE SUMMARY	1
A. PROJECT SUMMARY	1
B. STUDY OBJECTIVES	2
C. CONCLUSIONS AND RECOMMENDATIONS	2
II. PROPOSED DEVELOPMENT	5
A. SITE LOCATION	5
B. LAND USE	5
C. PHASING AND TIMING	5
D. SITE ACCESSIBILITY	6
III. STUDY AREA CONDITIONS.....	10
A. STUDY AREA.....	10
B. STUDY AREA LAND USE	10
C. ANTICIPATED FUTURE DEVELOPMENT AND PLANNED IMPROVEMENTS	10
C.1. <i>Capital Improvement Projects</i>	10
C.2. <i>Adjacent Private Development Projects</i>	11
IV. LEVEL OF SERVICE METHODOLOGY	13
A. PHYSICAL CHARACTERISTICS.....	15
B. EXISTING TRAFFIC VOLUMES.....	16
C. EXISTING TRAFFIC OBSERVATIONS	18
D. CRASH DATA	18
E. EXISTING INTERSECTION LEVEL OF SERVICE ANALYSES	20
V. BACKGROUND CONDITIONS	21
A. PROJECTED BACKGROUND VOLUMES	21
B. INTERSECTION LEVEL OF SERVICE ANALYSES	25
VI. PROJECTED TRAFFIC.....	27
A. TRIP GENERATION	27
B. TRIP DISTRIBUTION	29

VI. TRAFFIC AND IMPROVEMENT ANALYSIS	32
A. ROADWAY GEOMETRY.....	32
B. SITE ACCESSIBILITY.....	32
B.1. Power Road – MCDOT Roadway Design Guidelines.....	32
B.2. Elliot Road – City of Mesa Engineering Design Standards 2019.....	34
C. TURN LANE ANALYSIS.....	34
C.1. Right Turn Deceleration Lanes.....	34
C.2. Left Turn Deceleration Lane Warrants	36
D. EXISTING INTERSECTION QUEUE ANALYSIS.....	36
D.1. Dual Left Turn Lanes.....	36
D.2. Left Turn Storage.....	36
E. TOTAL TRAFFIC LEVEL OF SERVICE ANALYSES.....	38
F. INTERSECTION SIGHT DISTANCE	45
VIII. LIMITATIONS	50
IX. SOURCES	51



LIST OF TABLES

Table 1: Intersection Levels Of Service And Delay.....	13
Table 2: Injury Severity 2019-2021	18
Table 3: Collision Manner 2019-2021.....	19
Table 4: Existing Conditions Intersection Levels Of Service	20
Table 5: 2025 Background Traffic Intersection Levels Of Service	25
Table 6: 2027 Background Traffic Intersection Levels Of Service	25
Table 7: 2032 Background Traffic Intersection Levels Of Service	26
Table 8: Trip Generation.....	28
Table 9: Trip Distribution Percentages	29
Table 10: Right Turn Lane Storage Calculations	35
Table 11: Left Turn Lane Storage Calculations.....	36
Table 12: Existing Intersection Queue Analysis.....	37
Table 13: 2025 Total Traffic Intersection Levels Of Service	42
Table 14: 2027 Total Traffic Intersection Levels Of Service	43
Table 15: 2032 Total Traffic Intersection Levels Of Service	44

LIST OF FIGURES

Figure 1: Vicinity Map.....	7
Figure 2: Aerial View.....	8
Figure 3: Site Plan Mixed-Use Commercial Development.....	9
Figure 4: Existing Conditions. Existing Traffic Observations.....	17
Figure 5: Background Traffic – Year 2025	22
Figure 6: Background Traffic – Year 2027	23
Figure 7: Background Traffic – Year 2032	24
Figure 8: Site Generated Traffic – Phase I	30
Figure 9: Site Generated Traffic – Phases I And Ii (Full Buildout).....	31
Figure 10: Total Traffic – Year 2025.....	39
Figure 11: Total Traffic – Year 2027.....	40
Figure 12: Totaltraffic – Year 2032.....	41
Figure 13: Driveway Spacing	46
Figure 14: Off-Site Recommendations	47

Appendix A . . . Traffic Data

Appendix B . . . Capacity Analyses

I. EXECUTIVE SUMMARY

A. Project Summary

Avalon Development retained United Civil Group (UCG) to perform this Traffic Impact Analysis (TIA) for the planned Mixed-Use Commercial Development located on the southeast corner of Power Road and Elliot Road in Mesa, Arizona. The site consists of approximately 14.5 acres of vacant agricultural land and is planned to be developed as a convenience store with gas of 5,000 square feet with 16 fueling positions (PAD A), a fast-food restaurant with a drive through of 3,000 square feet (PAD B), a fast-food restaurant with a drive through of 2,500 square feet (PAD C), a fast-food restaurant with a drive through of 2,100 square feet (PAD D), a coffee shop with a drive through of 1,000 square feet (PAD E), a grocery store of 19,500 square feet with 2,500 square feet for expansion and a fitness center of 42,000 square feet. For the purposes of this TIA, it is assumed that the convenience store, grocery store and the fitness center will be constructed by 2025, and the site will be fully built out by 2027.

Five site driveways are planned for this Mixed-Use Commercial Development, two on Power Road and three on Elliot Road. The Southern access on Power Road (Access A) is planned to provide full turning movements. Access A is located approximately 605 feet south of Elliot Road. Access B is located on Power Road approximately 275 feet south of Elliot Road and approximately 330 feet north of Access A. Raised medians on Power Road will limit access B to right in/right out only. Access C is planned to be constructed on Elliot Road approximately 350 feet east of Power Road and will be limited to right in/right out only with the completion of the raised median on Elliot Road. Access D will be located 520 feet east of Power Road and is proposed as a full movement driveway. Access E is proposed as a right in/right out access on Elliot Road approximately 205 feet east of Access D. As shown, the five site driveways will provide adequate site circulation and access to the development.

This TIA has been performed under both City of Mesa and Maricopa County Department of Transportation (MCDOT) traffic impact analysis guidelines. Because Power Road is under the jurisdiction of MCDOT, their Traffic Impact Study Manual, dated May 2017, was used as the guiding document for standards on all recommendations for Power Road. Because Elliot Road is under the jurisdiction of the City of Mesa, the City of Mesa Engineering and Design Standards dated 2021, were used for all standards and recommendations that apply to Elliot Road. In addition, this TIS has also been performed in general conformance based on preliminary discussions with MCDOT and City of Mesa Staff, scoping information provided by City of Mesa Planning Division, locally accepted standards, and industry practice.

Per the MCDOT Guidelines and the Mesa Engineering and Design Standards Section 204.4, this TIS for the Mixed-Use Commercial Development is required as part of the site development documents. As such, based on the design standards, this TIS is completed as a Category II TIS because the development is anticipated to generate

greater than 500 but fewer than 999 vehicle trips during any peak hour. The study horizon years for this development are the opening year of Phase I, 2025, the opening of full site buildout, 2027, and 5 years after opening, 2032.

Within these parameters, MCDOT requires the minimum study area of all site access driveways plus all signal-controlled intersections within ½ mile and or major street intersections without signal control and driveways within ½ mile of the site. However, based on discussions with MCDOT traffic engineering staff, the study area was expanded to include the following signalized intersections for analysis within this TIS.

- Power Road/Elliot Road
- Power Road/Guadalupe Road
- Power Road/Warner Road
- Sossaman Road/Elliot Road

B. Study Objectives

This study is intended to investigate the existing and future traffic conditions and identify any potential roadway improvements necessary to serve the proposed development. Major study objectives of this traffic report are as follows:

1. Analyze the existing study area intersections and site accessibility for the development.
2. Determine the site traffic volumes generated by the proposed development and their impacts on the surrounding study area and roadway network.
3. Where applicable, recommend safety, intersection and/or roadway improvements, sufficient to meet the needs of the development and adjacent roadway network due to the forecasted site generated traffic volumes.

C. Conclusions and Recommendations

The plan for the approximate 14.5-acre development consists of a mix of commercial uses. The first phase of development is planned as a convenience store with gas of 5,000 square feet with 16 fueling positions (PAD A), a grocery store of 19,500 square feet with 2,500 square feet for expansion and a fitness center of 42,000 square feet. The second phase will consist of the development of a fast-food restaurant with a drive through of 3,000 square feet (PAD B), a fast-food restaurant with a drive through of 2,500 square feet (PAD C), a fast-food restaurant with a drive through of 2,100 square feet (PAD D), and a coffee shop with a drive through of 1,000 square feet (PAD E).

The horizon years for the study were determined from the MCDOT TIS Manual and include Phase I (2025), Phase II (2027) and five years after full buildout (2032).

Five site driveways are planned for this Mixed-Use Commercial Development, two on Power Road (Accesses A and B) and three on Elliot Road (Accesses C, D and E). Accesses A through D will primarily serve customers of the proposed development. Access E will primarily serve customers along with the few heavy vehicles that provide goods to the grocery store. Raised medians are planned to be constructed on both Power Road and Elliot Road that will limit access to right in/right out at Accesses B, C, and E. Accesses A and D are all planned as full movement accesses.

The forecasted trip generation was calculated based on data provided within the 11th Edition of the ITE Trip Generation Manual. On a weekday, after full build-out of the Mixed-Use Commercial Development on the southeast corner of Power Road and Elliot Road is estimated to generate a total of 879 trips in the morning peak hour, 923 trips in the evening peak hour, and 10,418 daily trips.

Using the forecasted total traffic volumes for years 2025, 2027 and 2032, the signalized study area intersections of Power Road/Elliot Road, Power Road/Guadalupe Road, and Sossaman Road/Elliot Road are projected to operate at acceptable LOS D or better through the study horizon years. During the evening peak hour, the intersection of Power Road/Warner Road may experience some delay as indicated by LOS E. However, this study did not assume major improvements on Warner Road at the Power Road intersection. In addition, as the area south of this Mixed-Use Commercial Development continues to develop, roadway infrastructure projects are likely that will improve the intersection geometrics and create additional capacity. Other recommendations include future signal coordination along the Power Road corridor once development is realized that assists in mitigating delay along the corridor in the peak hours.

By 2032 total traffic conditions, delay will be anticipated for some left and right turning movements into and out of the Mixed-Use Commercial Development, while Power Road and Elliot Road will experience free flowing conditions. Exiting movements on stop-controlled minor roads and driveways that intersect with major streets typically experience greater delay for short periods of time in the peak hours due to the wait for acceptable gaps on the major street, while the free-flowing major streets experience minimal delay. The existing and planned signalized intersections along Power Road and Elliot Road will provide gaps for minor turning movements, which may not be apparent within the LOS analyses. Sufficient throat/exiting queue storage length should be provided to accommodate potential queues experienced while waiting to turn from the Development to help avoid any on-site blockages that may cause issues on the adjacent streets.

Based on this Traffic Impact Study, the following recommendations apply:

- Provide right of way dedication and the construction of the required Power Road improvements on the western boundary of the Mixed-Use Commercial Development per input and coordination with MCDOT, as required.
- Provide right of way dedication and the construction of required Elliot Road improvements on the northern boundary of the Mixed-Use Commercial Development per input and coordination with City of Mesa, as required.
- Remove the utility easement access on the southern boundary of the site.
- Provide auxiliary right and left turn lanes at the site accesses per recommendations in Tables 10 and 11 and on Figure 14.
- In the interim conditions prior to the raised medians being installed on the adjacent roadways, mitigation/restriction of the accesses as appropriate should be provided by raised "pork chop" islands within the driveways per MCDOT *Roadway Design Manual* Section 7.7.2 and/or City of Mesa requirements as applicable. Consideration should be given to limiting future reconstruction (i.e., the raised islands should not extend to the Power Road face of curb alignment).
- The development should be responsible for an appropriate contribution to the cost of the signal modification at the intersection of Power Road/Elliot Road.

The following recommendations are for consideration by the City of Mesa and MCDOT:

- Continually update and optimize signal timings at the study area signalized intersections along Power Road based on actual traffic volumes once additional development occurs and ambient growth in the area is realized. Consideration should be given to coordination of the Power Road corridor, including by methods such as an Adaptive Traffic Control System.
- If the projected volumes due to private development and ambient growth at the existing study area intersections are to be realized in future years, consideration should be given to dual lefts and extended turn lanes as part of planned roadway improvement projects, as appropriate.

II. PROPOSED DEVELOPMENT

A. Site Location

The proposed Mixed-Use Commercial Development is planned on an approximate 14.5-acre site located on the southeast corner of Power Road and Elliot Road in Mesa, Arizona. **Figures 1 and 2** present the location of the proposed development within the context of the immediate area and its location within the City of Mesa and the Town of Gilbert. Within this area, Power Road is the north-south dividing boundary between the two agencies.

B. Land Use

The plan for the 14.5-acre site consists of a convenience store with gas of 5,000 square feet with 16 fueling positions (PAD A), a fast-food restaurant with a drive through of 3,000 square feet (PAD B), a fast-food restaurant with a drive through of 2,500 square feet (PAD C), a fast-food restaurant with a drive through of 2,100 square feet (PAD D), a coffee shop with a drive through of 1,000 square feet (PAD E), a grocery store of 19,500 square feet with 2,500 square feet for expansion and a fitness center of 42,000 square feet. The Mixed-Use Commercial Development site plan is illustrated in **Figure 3**.

C. Phasing and Timing

This project will be developed in two phases. Phase I consists of the convenience store with gas, grocery store and fitness center to be constructed and occupied by 2025. The remaining portions of the development, fast food restaurants with drive throughs and the coffee with a drive through are included in Phase II that will be constructed by 2027, full build-out of the site.

Per the MCDOT Traffic Impact Study Manual, year 2032 traffic conditions were analyzed (5 years after site buildout) based on the criteria of a Category II TIA.

Therefore, the horizon years for this Traffic Impact Study are as follows:

Year 2025 - Phase I

- Convenience Store with 16 Fueling Stations
- Aldi Grocery Store with expansion
- EOS Fitness Center

Year 2027 – Phase II

- Donut Coffee Shop with a drive through window
- Three (3) Fast Food Restaurants each with a drive through window

Year 2032 - 5 years after full site buildout

D. Site Accessibility

Five site driveways are planned for this Mixed-Use Commercial Development, two on Power Road and three on Elliot Road. The Southern access on Power Road (Access A) is planned to provide full turning movements. Access A is located approximately 605 feet south of Elliot Road. Access B is located on Power Road approximately 275 feet south of Elliot Road and approximately 330 feet north of Access A. Raised medians on Power Road will limit access B to right in/right out only. Access C is planned to be constructed on Elliot Road approximately 350 feet east of Power Road and will be limited to right in/right out only with the completion of the raised median on Elliot Road. Access D will be located 520 feet east of Power Road and is proposed as a full movement driveway. Access E is proposed as a right in/right out access on Elliot Road approximately 205 feet east of Access D. As shown, the five site driveways will provide adequate site circulation and access to the development. In summary, the access movements are shown below:

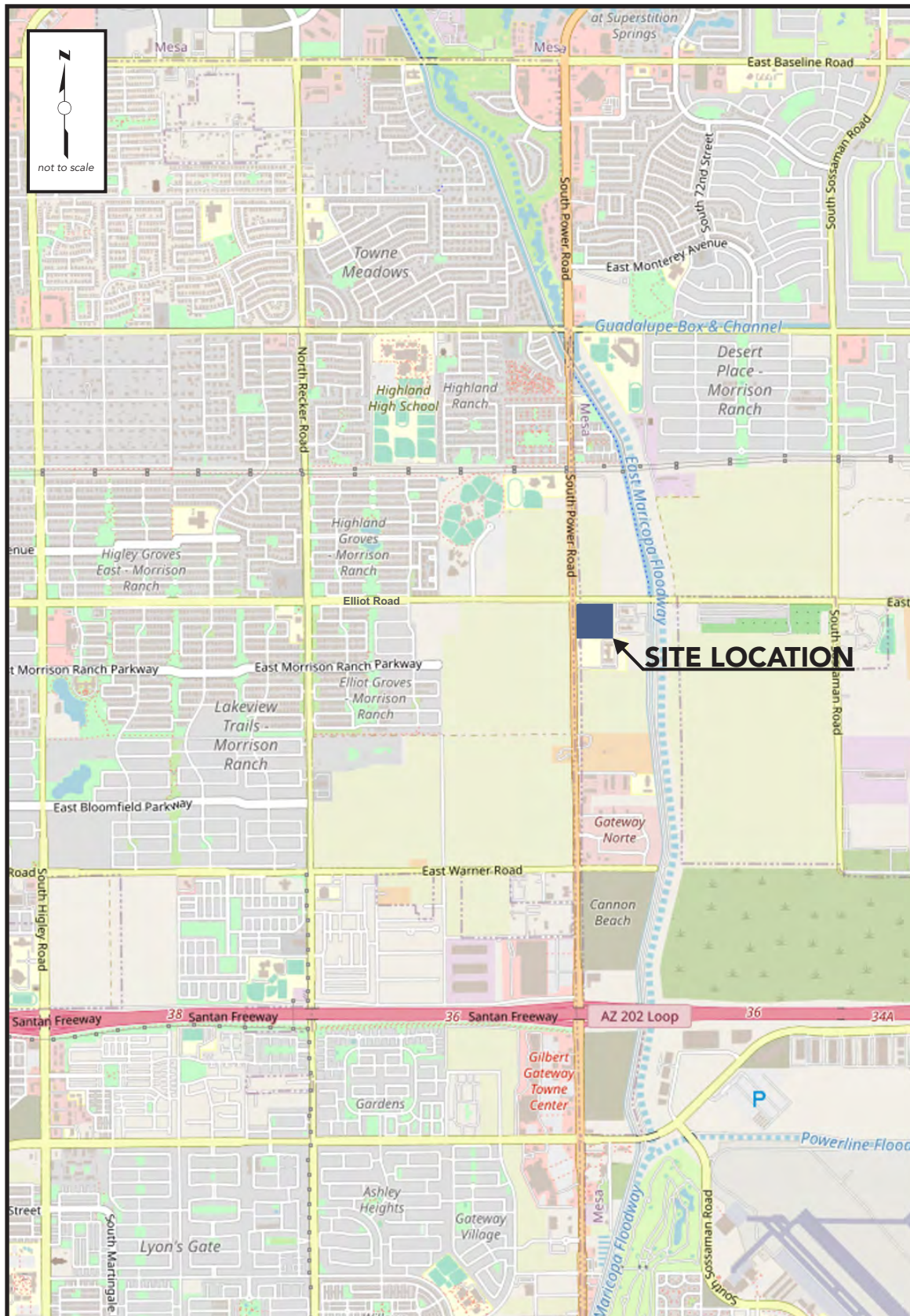
Power Road:

- Access A – Full Movement Driveway
- Access B – Right in/Right out Driveway

Elliot Road:

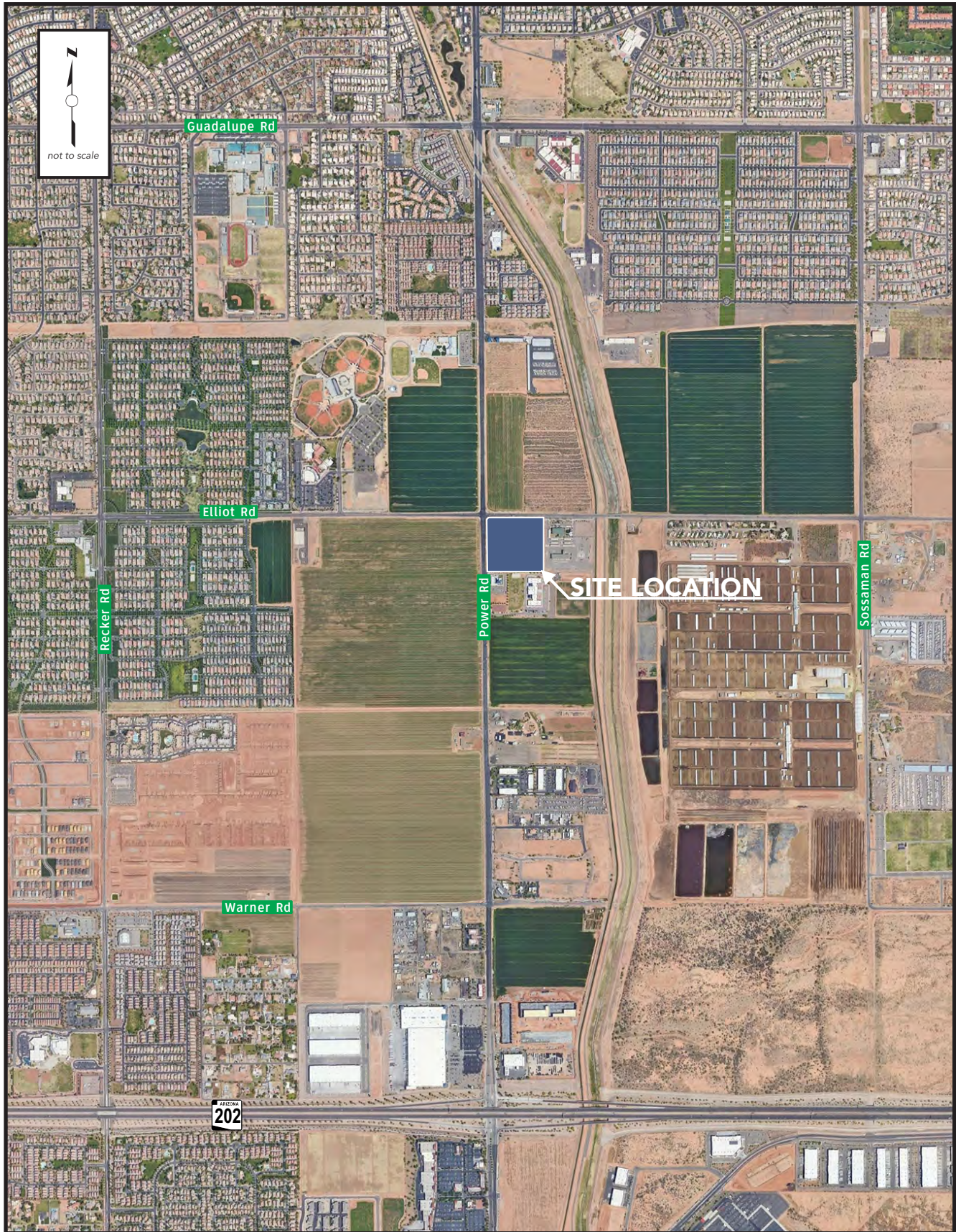
- Access C – Right in/Right out Driveway
- Access D – Full Movement Driveway
- Access E – Right in/Right Out Driveway

The site accesses, driveway spacing and proposed future development accesses are discussed in more detail in this TIA within the Traffic and Improvement Analysis section of the report.



ArcGIS - 2023

Figure 1: Vicinity Map



Permission for commercial use granted by Google Earth

Figure 2: Aerial View

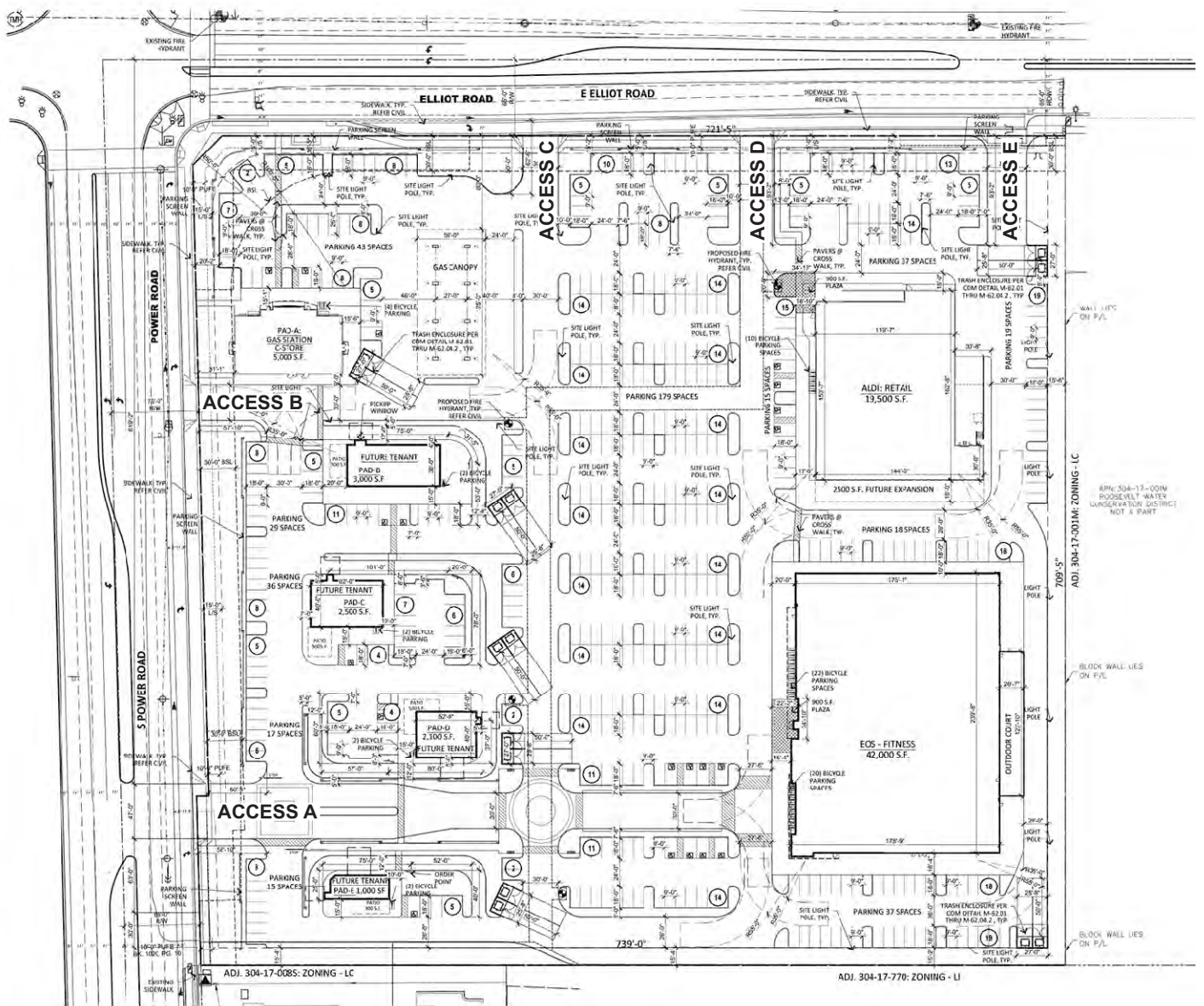


Figure 3: Site Plan

III. STUDY AREA CONDITIONS

A. Study Area

Based on the forecasted trip generation of the proposed Mixed-Use Commercial Development, the minimum study area as defined by City of Mesa and MCDOT criteria for a Category II TIA includes all site access driveways and all signal-controlled intersections ½ mile around the development and/or major street intersections without signal control and driveways. However, based on discussions with MCDOT, the study area was expanded to include the study area intersections of Power Road/Elliot Road, Power Road/Guadalupe Road, Power Road/Warner Road, Sossaman Road/Elliot Road and the development driveways.

B. Study Area Land Use

The following describes the existing land uses of the subject site and surrounding area:

SUBJECT SITE: Vacant, agricultural land

NORTH: Elliot Road followed by vacant land and a proposed industrial warehouse development

SOUTH: EVO Swim School and Leman Academy of Excellence

EAST: Roosevelt Water Conservation District

WEST: Power Road followed by a proposed commercial and industrial development

C. Anticipated Future Development and Planned Improvements

C.1. Capital Improvement Projects

One project is listed within the City of Mesa 5-Year FY 23/FY27 CIP within the study area on Power Road. CP0104 – Power Road Improvements: East Maricopa Floodway to Loop 202 will improve the mobility and access in the area of Power Road completing any sections that have not been completed by adjacent development. This is a joint project with the Town of Gilbert and Maricopa County. Funds for this project are allocated for FY 24/25.

Just east of the study area, the City of Mesa 5-Year FY 23/FY27 CIP lists a streets project, CP0982 on Elliot Road from Ellsworth Road to Sossaman Road. This project entails the construction of 2.5 miles for a new 6-lane roadway. Elliot Road from Sossaman to Power Road is not identified as a part of this project; however, per discussions with City of Mesa Transportation Department, private developments are planned along this segment and will provide lane improvements.

There is one Town of Gilbert CIP project within the study area identified within the FY 2022-2031 Capital Improvement Plan. ST1200 – Power Road, Guadalupe Rd to Santan Freeway will improve Power Road to a major arterial section in accordance with the MAG Regional Transportation Plan and will include six lanes, a raised and landscaped median, bicycle lanes, street lights, and ITS conduit/cabling improvements. This project will be a part of an IGA with MCDOT and the City of Mesa. Per the Town’s CIP, this project is to be completed in FY26 and is assumed to be completed by the full build out horizon year 2027 for the purposes of this study.

No MCDOT projects are officially programmed within the study area per the County’s *Transportation Improvement Program*. However, per discussions with the MCDOT Traffic Branch Manager, MCDOT is in the initial planning stages of the Power Road improvement project between Guadalupe Road and the Santan Freeway (see Town of Gilbert CIP No. ST1200 and City of Mesa CP0104 above). Although not yet officially programmed by MCDOT as of now, this project will ultimately be a part of an IGA between MCDOT, the Town of Gilbert, and the City of Mesa; and for the purposes of this study and discussed with the MCDOT Traffic Branch Manager, the improvement project is assumed to be completed by horizon year 2027.

C.2. Adjacent Private Development Projects

Several private development projects have been identified within or adjacent to the study area for which construction is imminent or occurring within the study area. The Town of Gilbert Traffic Engineering staff and the City of Mesa Transportation Department staff provided UCG with relevant excerpts from each respective project’s traffic impact studies and appropriate direction to account for the planned projects’ new site trips on the study area roadway network in the background and overall total traffic conditions analyses for this study. The adjacent development projects are as follows:

1. Hopewell Swan - located on the northeast and northwest corners of Swan Drive/Nunneley Road. Includes a total of 469,957 square feet of general light industrial uses; Phase 1 (266,118 square feet) has an opening year of 2022 with full build out expected by 2027.
2. Fry’s Commercial Center – located on the northwest corner of Power Road/Elliot Road. Includes a grocery anchor and ancillary pads totaling 158,100 square feet of commercial uses and a gas station with 20 fueling positions. Full build out is expected by the year 2024.
3. Power Commerce Park Phase II – located north and west of the northwest corner of Power Road/Elliot Road. Includes a total of 469,957 square feet of general light industrial uses. Full build out is assumed to be complete by the year 2025.
4. Power 42 – located on the east side of Power Road approximately 1/4 mile south of Elliot Road. Includes a total of 543,458 square feet of warehousing buildings. Full build out is assumed to be complete by the year 2023.

5. Cannon Beach/Power 202 Business Park – located on the southeast corner of Power Road/Warner Road. The Cannon Beach component is planned to incorporate warehouse, office, restaurant, retail, and fitness uses totaling 374,370 square feet plus a 150-room hotel. The Power 202 Business Park component is planned to contain 330,450 square feet of industrial use. Full build out of the entire site is assumed to be complete by year 2025.
6. The Ranch – located west of Power Road between Warner Road and Elliot Road. The Ranch development is planned to include an industrial and business park with commercial components on approximately 302 gross acres in Gilbert, Arizona. Full build out of the entire site is assumed to be complete by year 2027.
7. Warehouse/Manufacturing Facility – located on Elliot Road east of Power Road. The overall plan for this development on approximately 26.6 acres consists of four warehouse/manufacturing buildings totaling 456,900 square feet. The project will be constructed in one phase by 2023.

IV. LEVEL OF SERVICE METHODOLOGY

The roadway system's ability to accommodate traffic demand is typically limited by the capacity. The level of service (LOS) concept is used in traffic engineering to describe the degree of delay a driver can expect. The concept defines a near-capacity condition as LOS E while a free flow condition under which a driver would experience minimal delay is defined as LOS A.

Intersection capacity analysis is a principal tool used in traffic engineering. Operation is characterized according to the amount of delay at an intersection approach and quantified into a level of service ("LOS"). The intersection LOS was determined using the methodologies presented in the Transportation Research Board's Highway Capacity Manual ("HCM"). The LOS grades quantify and categorize a driver's discomfort, frustration, fuel consumption, and travel times experienced because of intersection control and the resulting traffic queuing. Per the HCM, the signalized and unsignalized (all-way stop controlled or two-way stop-controlled intersection) delay and associated LOS is presented in **Table 1**. City of Surprise guidelines strive to obtain a level of service D or better for both signalized and unsignalized intersection overall operations. Intersections having a LOS E or LOS F may warrant improvements or traffic reductions.

Table 1: Intersection Levels of Service and Delay

Level of Service	Description	Signalized Delay (Sec/Veh)	Unsignalized Delay (Sec/Veh)
A	Minimal control delay, traffic operates at primary free flow conditions, unimpeded movement within traffic stream	≤ 10	≤ 10
B	Minor control delay at signalized intersections, traffic operates at a fairly unimpeded level with slightly restricted movement within traffic stream	> 10 and ≤ 20	> 10 and ≤ 15
C	Moderate control delay, movement within traffic stream more restricted than LOS B, formation of queues contributes to lower average travel speeds	> 20 and ≤ 35	> 15 and ≤ 25
D	Considerable control delay that may be substantially increased by small increases in flow, average travel speeds continue to decrease.	> 35 and ≤ 55	> 25 and ≤ 35
E	High control delay, average travel speed no more than 22 percent of free flow speed	> 55 and ≤ 80	> 35 and ≤ 50
F	Extremely high control	> 80	> 50

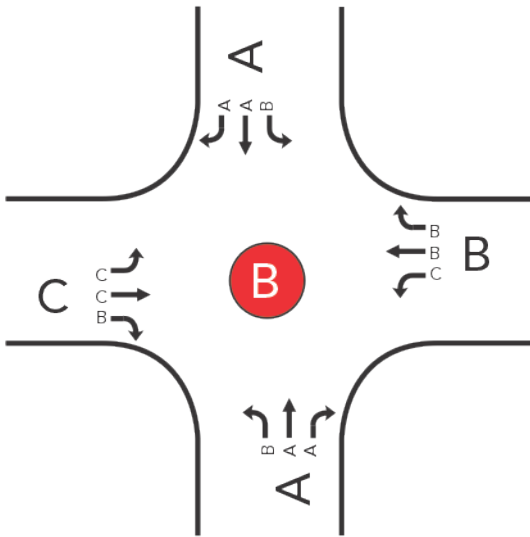
Source: *Highway Capacity Manual 2010*

For signalized and all-way stop controlled intersections, LOS is calculated for a movement (e.g., left, through, right), for the approach (e.g., northbound, southbound, eastbound, westbound) and for the overall intersection.

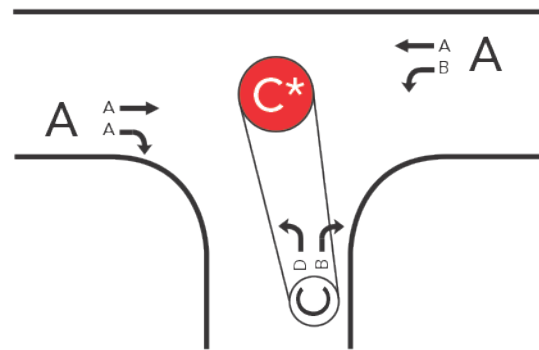
For two-way stop-controlled intersections, LOS is calculated for a movement and for the approach. However, for the overall intersection, LOS is reported as the lowest APPROACH within the intersection. This is because most drivers are on the major roadway and do not experience delay traversing through the intersection. The example below illustrates the various LOS calculations completed for intersections.

EXAMPLE:

Signalized & All-Way Stop Controlled



Two-Way Stop Controlled



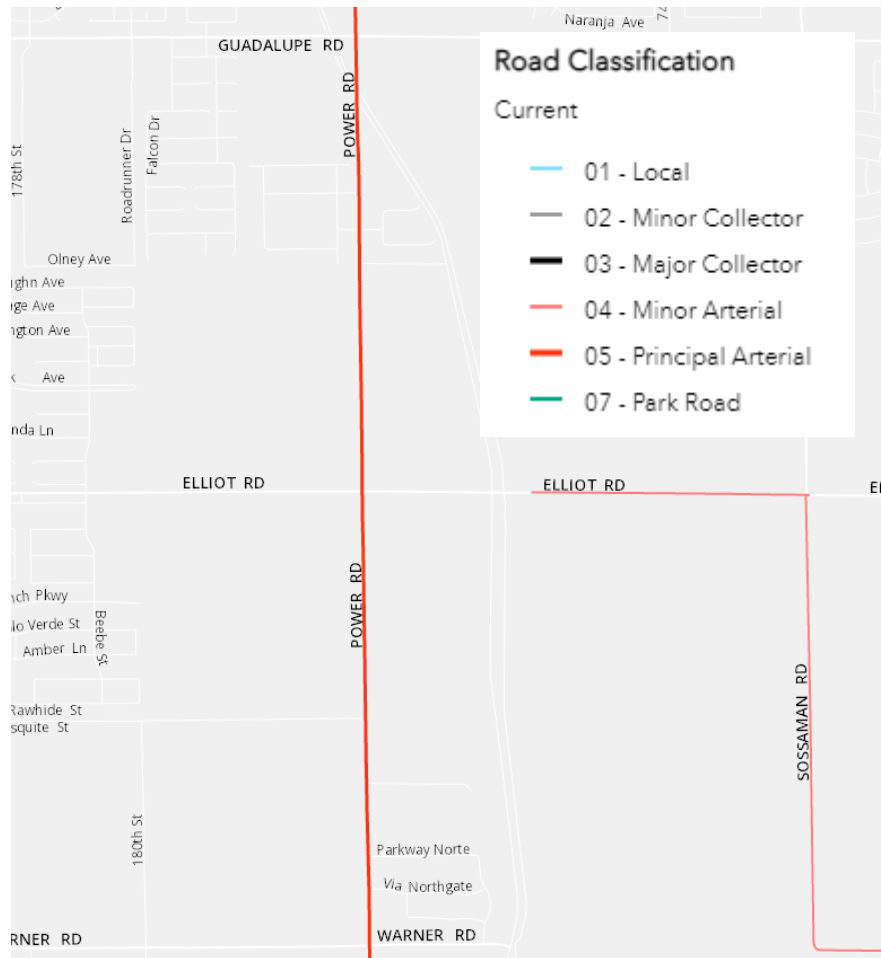
*Reported as approach LOS

Source: United Civil Group, 2021

V. EXISTING ROADWAY CONDITIONS

A. Physical Characteristics

Power Road is a north/south roadway classified as a Principal Arterial roadway per the Maricopa County Road Information GIS Mapping Website accessed January 27, 2023. Power Road is a regionally significant roadway in the East Valley providing connectivity from the Bush Highway to the north to Hunt Highway to the south. Currently, Power Road consists of two lanes in each direction separated by the exclusive northbound left-turn lane at Elliot Road. Within the vicinity of the site, there are no curb, gutter, or sidewalks. The posted speed limit on Power Road is 45 mph. According to the ADOT HPMS website, the average daily traffic on Power Road south of Elliot Road is 29,961 vehicles per day collected in 2021. MCDOT owns, operates, and maintains Power Road adjacent to the site. At full buildout, Power Road will be constructed as a 6 lane divided roadway adjacent to the site per MCDOT Urban Principal Arterial Cross Section as provided in the MCDOT Roadway Design Manual.



Elliot Road is an east/west roadway classified as an arterial roadway per the City of Mesa's 2040 Transportation Plan. Currently, Elliot Road consists of one travel lane in both the east- and westbound directions. Elliot Road widens with ½ street improvements in front of the industrial development on the south side of the roadway (east of this proposed development). Elliot Road is posted at 45mph within the vicinity of the site. The City of Mesa owns, operates, and maintains Elliot Road adjacent to the site. At full buildout, Elliot Road will be constructed as a 6-lane arterial adjacent to the site per Mesa detail M-46.03.2. According to the ADOT HPMS website, the average daily traffic on Elliot Road east of Power Road is 14,077 vehicles per day collected in 2021.

The intersection of **Power Road/Elliot Road** operates as a signalized intersection with protective/permmissive left turn phasing on all approaches. The north- and southbound approaches consist of an exclusive left turn lane, a through lane, and a shared through right turn lane. The east- and westbound approaches consist of an exclusive left turn lane and a shared through-right turn lane. MCDOT has jurisdictional responsibility for this signalized intersection.

The intersection of **Power Road/Guadalupe Road** operates as a signalized intersection with protective/permmissive left turn phasing on all approaches. The north- and southbound approaches consist of an exclusive left turn lane, three through lanes, a bike lane, and a dedicated right turn lane. The eastbound approach consists of an exclusive left turn lane, two through lanes, a shared through-right turn lane and a bike lane. The westbound approach consists of an exclusive left turn lane, two through lanes, a bike lane and a dedicated right turn lane. The City of Mesa has jurisdictional responsibility for this signalized intersection.

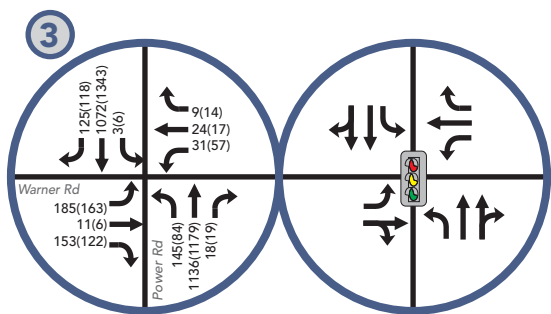
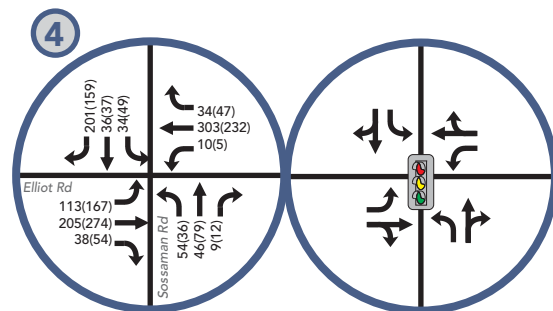
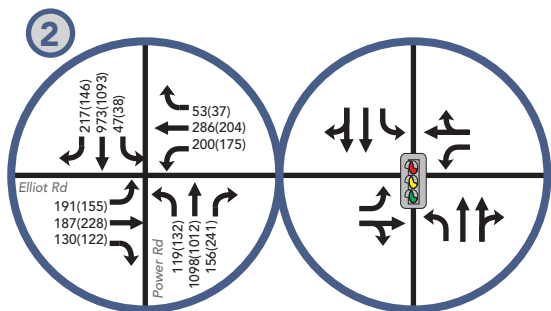
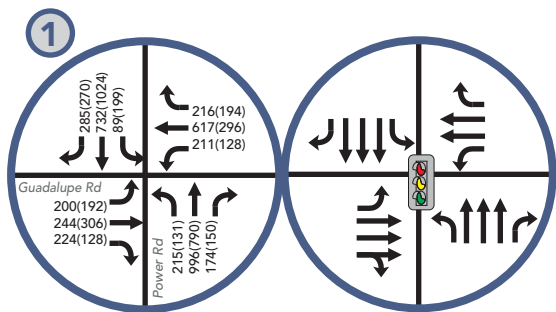
The intersection of **Power Road/Warner Road** operates as a signalized intersection with permissive left turn phasing on all approaches. The north- and southbound approaches consist of an exclusive left turn lane, a through lane, and a shared through right turn lane. The eastbound approach consists of an exclusive left turn lane and a shared through right turn lane. The westbound approach consists of an exclusive left turn lane, a through lane and a dedicated right turn lane. MCDOT has jurisdictional responsibility for this signalized intersection.

The intersection of **Elliot Road/Sossaman Road** operates as a signalized intersection with permissive left turn phasing on all approaches. All approaches to the intersection consist of an exclusive left turn lane and a shared through-right turn lane. MCDOT has jurisdictional responsibility for this signalized intersection.

B. Existing Traffic Volumes

Existing turning movement counts (TMC) in 15-minute intervals were collected at the study area intersections of Power Road/Elliot Road, Power Road/Guadalupe Road, Power Road/Warner Road and Sossaman Road/Elliot Road on Wednesday, March 30, 2022, during the morning (7:00AM – 9:00AM) and evening (4:00PM – 6:00PM) peak periods. Complete traffic count data can be found in **Appendix A**.

Figure 4 graphically depicts the existing roadway and intersection geometry within the study area along with the existing adjusted turning movement counts at the study intersections.



LEGEND

XX(X) AM(PM) Peak Hour Traffic Volume

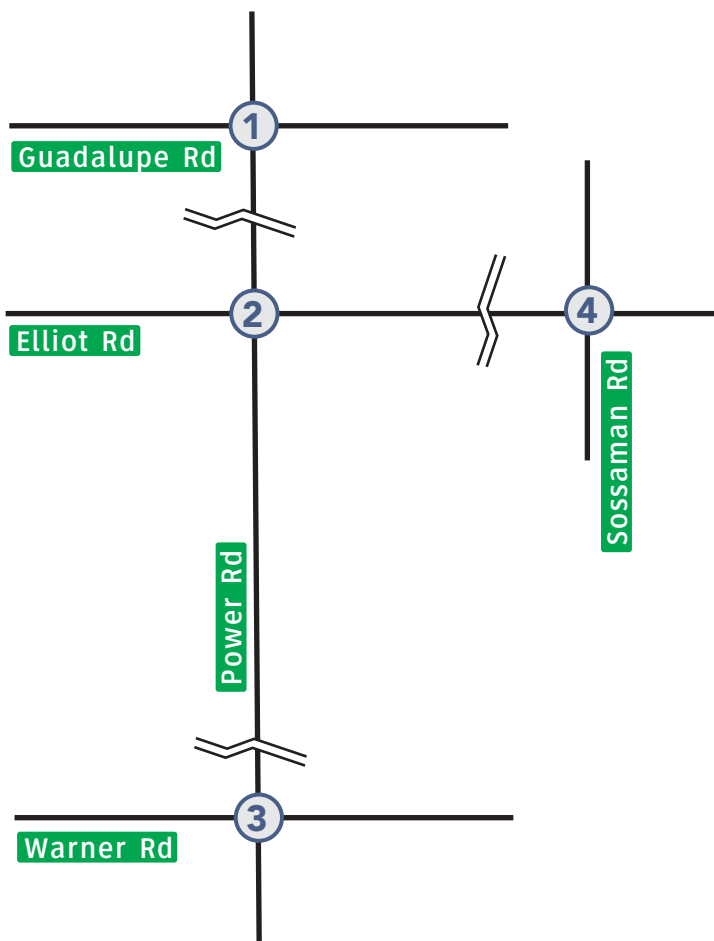


Figure 4: Existing Conditions

C. Existing Traffic Observations

Traffic conditions and operations were observed during the study's weekday morning and evening peak periods. No major traffic issues were noted.

D. Crash Data

Three years of the most recently provided crash data (2019 – 2021) were obtained from the Arizona Department of Transportation (ADOT) Arizona Crash Information System (ACIS). The data was queried for the intersections of Power Road/Elliott Road, Power Road/Guadalupe Road, Power Road/Warner Road, and Sossaman Road/Elliott Road with an offset of 250 feet on all legs of the intersection.

The crash data summarized in **Tables 2 and 3** for the study intersections are crashes that were reported to law enforcement. Table 2 summarizes the total number of crashes at the intersection by severity. Crash severity is determined by the reporting officer at the time of the crash or soon thereafter based on the most severe injury sustained by an involved party. Crashes are shown from most severe (Fatal) to least severe (No Injury). Table 3 summarizes the total number of crashes at the intersection by collision type. Crash type is designated by the reporting officer as the first injury or damage producing event that characterizes the crash type and identifies the nature of the crash. The categories within this report include Single Vehicle, Rear End, Left Turn, Angle (front to side, other than left turn), and Other/unknown.

Table 2: Injury Severity 2019-2021

Year	Fatal	Suspected Serious Injury	Suspected Minor Injury	Possible Injury	No Injury	Total
Power Road/Elliott Road						
2019	0	0	2	2	13	17
2020	0	0	2	2	10	14
2021	2	0	1	1	16	20
Total	2	0	5	5	39	51
Power Road/Guadalupe Road						
2019	0	1	4	5	7	17
2020	0	0	2	4	11	17
2021	0	0	6	3	14	23
Total	0	1	12	12	32	57
Power Road/Warner Road						
2019	0	0	1	3	5	9
2020	0	1	1	0	9	11
2021	0	0	0	0	7	7
Total	0	1	2	3	21	27
Sossaman Road/Elliott Road						
2019	0	0	1	0	0	1
2020	0	0	1	0	1	2
2021	0	0	0	0	1	1
Total	0	0	2	0	2	4

Table 3: Collision Manner 2019-2021

Year	Single Vehicle	Angle	Left Turn	Rear End	Head On	Sideswipe Same Direction	Sideswipe Opposite Direction	Rear to Side	Other/ Unknown	Total
Power Road/Elliott Road										
2019	0	2	4	9	0	1	0	0	1	17
2020	2	0	5	6	0	1	0	0	0	14
2021	1	0	4	11	1	1	0	0	2	20
Total	3	2	13	26	1	3	0	0	3	51
Power Road/Guadalupe Road										
2019	0	3	6	5	0	2	0	0	1	17
2020	1	4	7	1	2	2	0	0	0	17
2021	1	2	7	7	4	1	1	0	0	23
Total	2	9	20	13	6	5	1	0	1	57
Power Road/Warner Road										
2019	1	1	1	5	1	0	0	0	0	9
2020	1	1	2	5	0	2	0	0	0	11
2021	0	0	1	5	0	1	0	0	0	7
Total	2	2	4	15	1	3	0	0	0	27
Sossaman Road/Elliott Road										
2019	0	0	0	0	0	0	0	0	1	1
2020	0	0	0	2	0	0	0	0	0	2
2021	0	0	0	0	0	1	0	0	0	1
Total	0	0	0	2	0	1	0	0	1	4

Tables 2 and 3 show that within the study area, a total of 139 reportable crashes occurred over the three-year study period. Of the 139 crashes, 51 were reported at the intersection of Power Road and Elliot Road, 57 were reported at the intersection of Power Road/Guadalupe Road, 27 were reported at the intersection of Power Road/Warner Road and 4 were reported at the intersection of Sossaman Road/Elliott Road.

Most crashes, 68% were reported as no injury. However, there were two crashes reported as suspected serious injury and two crashes reported as fatal. Both of the fatal crashes occurred at the intersection of Power Road/Elliott Road and were reported in 2021. One of the fatal crashes was reported as a bicycle, while the other fatal crash was reported as a left turn crash.

Based on the data provided in ACIS, it is difficult to determine if crash patterns exist at the study area intersections due to the variability in the data. To determine if crash patterns exist, an extensive review of individual crash records would be required.

E. Existing Intersection Level of Service Analyses

The level of service (LOS) and average delay at the existing study area intersections were evaluated using the 2022 intersection volumes, existing lane geometry and existing traffic control as presented in Figure 4. PTV Vistro traffic modeling software, employing the methodologies as presented in the *Highway Capacity Manual* (HCM), was utilized for the capacity analyses to obtain the existing conditions levels of service. Summaries of the Vistro output calculations are included in **Appendix B**. The results of the existing levels of service analysis are presented in **Table 4**.

Table 4: Existing Conditions Intersection Levels of Service

Intersection Location	NB LOS				SB LOS				EB LOS				WB LOS				Overall Intersection
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	AvgDelay/ LOS*
Power Road/Guadalupe Road - Signalized																	
AM Peak Hour	B	C	C	C	B	C	C	C	D	D	D	D	C	D	D	D	31.09 C
PM Peak Hour	B	B	B	B	B	B	B	B	D	D	D	D	D	D	D	D	26.25 C
Power Road/Elliott Road - Signalized																	
AM Peak Hour	B	C	C	C	B	C	C	C	B	C	C	C	B	C	C	C	30.82 C
PM Peak Hour	C	C	C	C	B	D	D	D	B	C	C	C	C	C	C	C	30.59 C
Power Road/Warner Road – Signalized																	
AM Peak Hour	B	B	B	B	A	B	B	B	B	C	C	C	B	C	C	C	17.27 B
PM Peak Hour	B	B	B	B	A	B	B	B	C	C	C	C	C	C	C	C	16.85 B
Elliot Road/Sossaman Road - Signalized																	
AM Peak Hour	B	B	B	B	B	B	B	B	B	A	A	A	A	A	A	A	9.55 A
PM Peak Hour	B	B	B	B	B	B	B	B	B	A	A	A	A	A	A	A	9.43 A

The study area intersections currently operate at acceptable levels of service, LOS C or better, during the existing conditions morning and evening peak hours.

V. BACKGROUND CONDITIONS

A. Projected Background Volumes

Non-site, no build, or background traffic volumes representing the amount of traffic estimated to be on the area roadway network without the proposed development within the study area are projected for the horizon years of the development: year 2025, year 2027, and year 2032 (5 years after full site buildout). The yearly compounded annual growth rate coupled with the site generated traffic of other known proposed developments in the study area are used to forecast the background traffic.

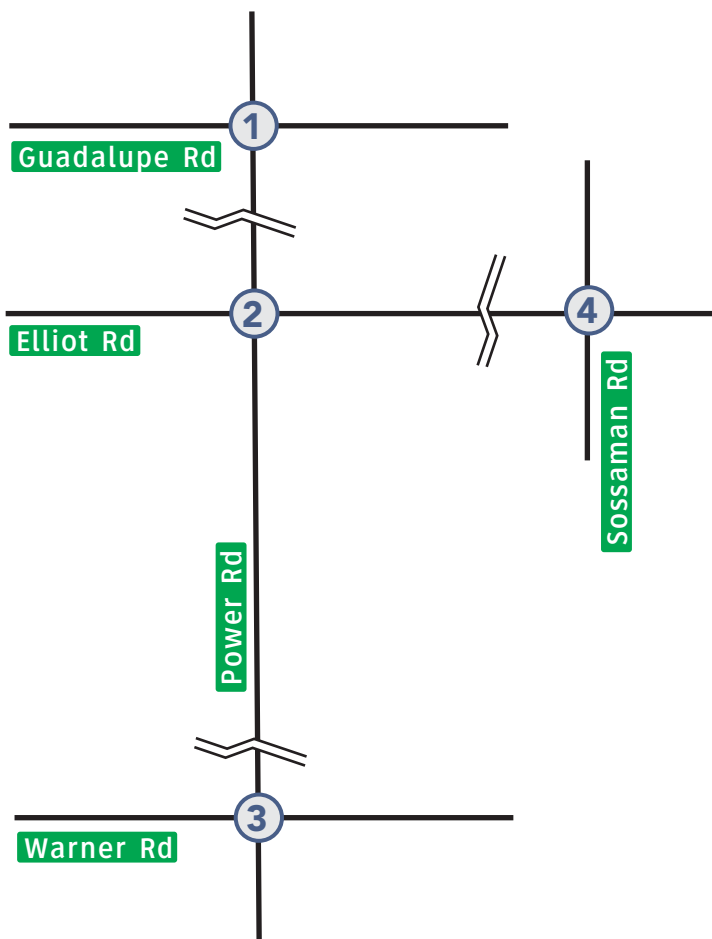
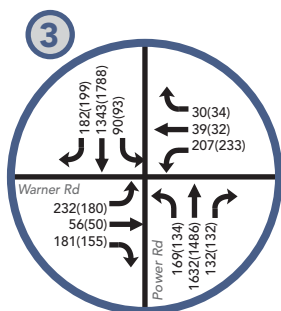
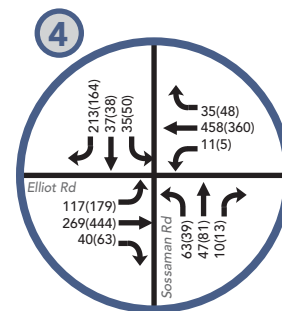
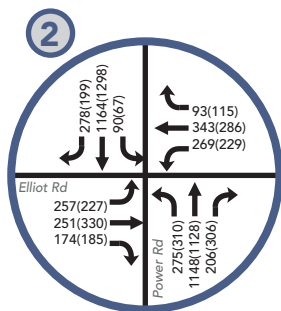
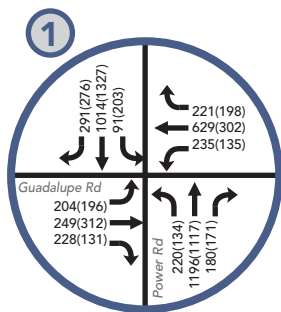
A growth rate of 2% was used to estimate background trips for each horizon year. The growth rate was confirmed through Maricopa Association of Government's most recent modeling efforts, the updated 2021 and 2022 Fall and Spring Conformity Runs. These runs were used to determine annual growth rate for Power Road between Elliot Road and Warner Road:

- o 2022 – 2030: 2.78% growth rate
- o 2030 – 2040: 0.63% growth rate

The MAG travel demand model considers existing and forecasted population and employment data (and associated travel demand volumes) among other factors for defined analysis zones. From these models the growth rates are determined. The MAG models account for potential planned developments at currently vacant lots, which would include the subject site and other adjacent development sites that are forecasted to contribute future traffic volumes to Power Road.

In addition to the 2% annual increase from the existing traffic data, the site generated traffic volumes from the planned adjacent private development projects (as described in Section III.C above) are added to determine the overall background traffic volumes as part of this study. Each of the adjacent projects is assumed to be fully built out by the horizon year 2025 for the purposes of this study. Considering the MAG-provided annual growth rates data accounts for the subject site and adjacent developments (rather than extracting them since these site volumes are being added to the background volumes as part of this study); for the purposes of this study, the 2% annual growth rate through year 2032 will be utilized and represents a conservative approach to developing background traffic.

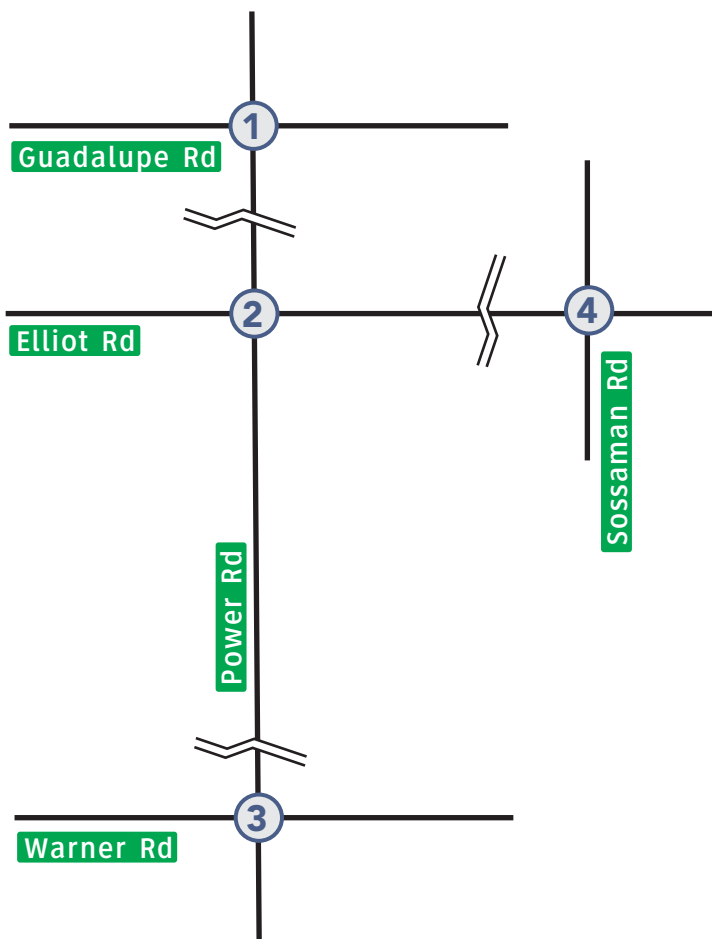
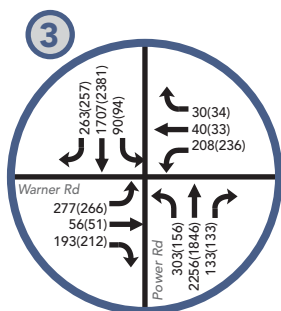
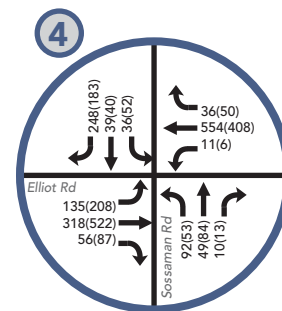
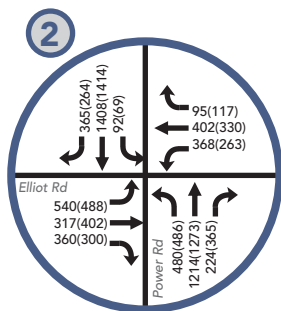
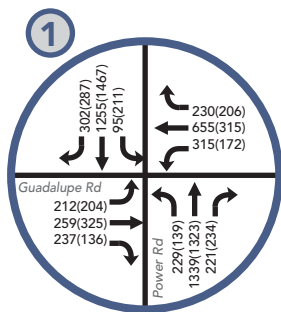
Known roadway improvements planned as part of the adjacent private developments and CIP projects is utilized for analysis purposes of the background and total conditions of this study beginning in horizon year 2025. Roadway improvements planned by the Town of Gilbert, City of Mesa, or MCDOT CIP projects (as described in Section III.C) are utilized for analysis purposes of the background and total traffic conditions; this includes the Power Road, Elliot Road and Warner Road improvements by 2025. **Figures 5 through 7** present the background traffic volumes for this study for the horizon years 2025, 2027 and 2032.



LEGEND

XX(X) AM(PM) Peak Hour Traffic Volume

Figure 5: Background Traffic - Year 2025

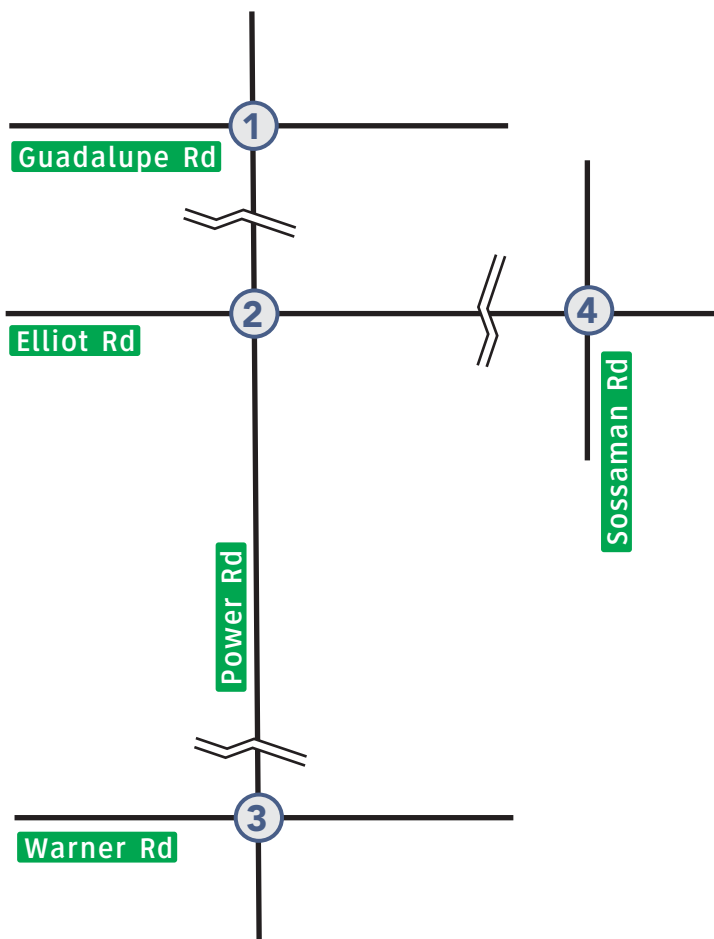
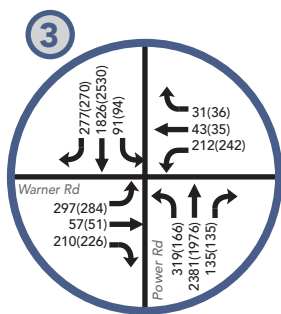
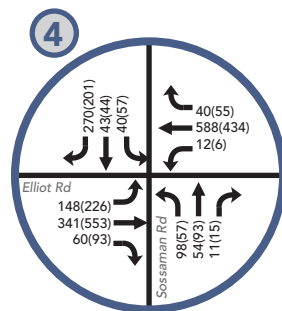
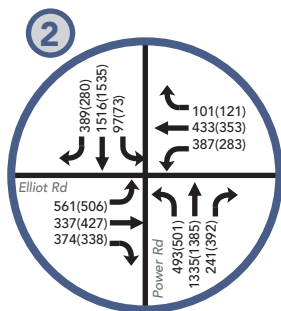
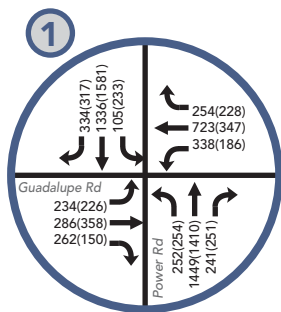


LEGEND

XX(X) AM(PM) Peak Hour Traffic Volume



Figure 6: Background Traffic - Year 2027



LEGEND

XX(XX) AM(PM) Peak Hour Traffic Volume

Figure 7: Background Traffic - Year 2032

B. Intersection Level of Service Analyses

Capacity analyses at the existing study area intersections were performed for the forecasted background traffic (without the Mixed-Use Commercial Development) utilizing the roadway geometries for the horizon year of the study as presented.

Tables 5 through 7 present the background levels of service at the study area intersections without the proposed development but with known roadway improvements within the study area, including the ambient growth.

Table 5: 2025 Background Traffic Intersection Levels of Service

Intersection Location	NB LOS				SB LOS				EB LOS				WB LOS				Overall Intersection
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	AvgDelay/ LOS*
Power Road/Guadalupe Road - Signalized																	
AM Peak Hour	C	C	C	C	B	C	C	C	D	D	D	D	C	D	D	D	32.14 C
PM Peak Hour	B	B	B	B	B	C	B	B	D	D	D	D	D	D	D	D	26.77 C
Power Road/Elliott Road - Signalized																	
AM Peak Hour	D	C	C	C	C	F	C	F	D	D	D	D	C	E	E	D	60.94 E
PM Peak Hour	D	D	D	D	C	F	F	F	C	D	D	D	C	E	E	D	100.08 F
Power Road/Warner Road – Signalized																	
AM Peak Hour	C	D	D	D	C	C	C	C	D	D	E	D	D	D	D	D	33.71 C
PM Peak Hour	D	C	C	C	C	E	E	E	D	D	E	D	D	D	D	D	50.39 D
Elliot Road/Sossaman Road - Signalized																	
AM Peak Hour	B	B	B	B	B	B	B	B	B	A	A	A	A	A	A	A	10.10 B
PM Peak Hour	B	B	B	B	B	B	B	B	B	A	A	A	B	A	A	A	9.89 A

Table 6: 2027 Background Traffic Intersection Levels of Service

Intersection Location	NB LOS				SB LOS				EB LOS				WB LOS				Overall Intersection
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	AvgDelay/ LOS*
Power Road/Guadalupe Road - Signalized																	
AM Peak Hour	C	C	C	C	C	C	C	C	D	D	D	D	D	D	D	D	34.20 D
PM Peak Hour	C	C	B	C	C	C	B	C	D	D	D	D	D	D	D	D	27.65 C
Power Road/Elliott Road - Signalized																	
AM Peak Hour	F	C	C	F	C	F	D	F	F	D	D	F	D	F	F	F	92.93 F
PM Peak Hour	F	C	C	E	C	F	D	F	F	D	D	F	D	F	F	F	83.43 F
Power Road/Warner Road – Signalized																	
AM Peak Hour	D	C	B	C	C	C	C	C	D	D	E	D	D	D	E	D	30.62 C
PM Peak Hour	D	C	B	C	C	F	B	D	D	D	E	D	D	D	D	D	34.43 C
Elliot Road/Sossaman Road - Signalized																	
AM Peak Hour	C	B	B	C	B	B	B	B	B	A	A	B	B	A	A	A	12.64 B
PM Peak Hour	C	B	B	B	B	B	B	B	B	A	A	B	B	A	A	A	10.75 B

Table 7: 2032 Background Traffic Intersection Levels of Service

Intersection Location	NB LOS				SB LOS				EB LOS				WB LOS				Overall Intersection
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	AvgDelay/ LOS*
Power Road/Guadalupe Road - Signalized																	
AM Peak Hour	D	C	C	C	C	D	C	D	D	D	D	D	C	D	D	D	38.44 D
PM Peak Hour	D	C	B	C	C	C	B	C	D	D	D	D	D	D	D	D	31.43 C
Power Road/Elliot Road - Signalized																	
AM Peak Hour	F	D	C	F	C	F	D	F	F	E	D	F	D	F	F	F	109.70 F
PM Peak Hour	F	D	C	F	C	F	D	F	F	E	D	F	D	F	F	F	100.14 F
Power Road/Warner Road – Signalized																	
AM Peak Hour	E	C	B	C	D	C	C	C	D	D	E	E	D	E	E	D	34.56 C
PM Peak Hour	D	C	B	C	C	F	B	E	D	D	E	D	D	D	D	D	49.60 D
Elliot Road/Sossaman Road - Signalized																	
AM Peak Hour	C	B	B	C	C	C	C	C	C	A	A	B	B	B	B	B	15.06 B
PM Peak Hour	C	B	B	B	C	B	B	B	B	A	A	B	B	A	A	A	11.81 B

As shown in the background levels of service tables, the study area intersections of Power Road/Guadalupe Road, Power Road/Warner Road and Elliot Road/Sossaman Road are anticipated to operate at acceptable LOS D or better during the morning and evening peak hours.

The intersection of Power Road/Elliot Road is anticipated to operate with delay, as shown by the LOS F during the background conditions. For this analysis, it was assumed that Elliot Road would not be widened at the intersection, but that Power Road would be widened to a 6-lane roadway cross section based on the CIP joint effort Power Road geometric improvements between the local municipalities and the County.

VI. PROJECTED TRAFFIC

A. Trip Generation

Estimates of the traffic volumes that will be generated by the Mixed-Use Commercial Development were determined from transportation planning data taken from the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition, 2021*. The ITE rates are based on studies that measure trip generation characteristics for various types of land uses. The rates are expressed in terms of trips per unit of land use type.

The ITE land use codes (LUC) with definitions utilized for the development are as follows.

Convenience Store/Gas Station (LUC 945) – A convenience store/gas station is a facility with a co-located convenience store and gas station. The convenience store sells groceries and other everyday items that a person may need or want as a matter of convenience. The gas station sells automotive fuels such as gasoline and diesel.

Supermarket (LUC 850) - A supermarket is a free-standing retail store that sells a complete assortment of food, beverage, food preparation materials, and household products. A supermarket may also provide additional products and services such as a bakery, dry cleaning, floral arrangements, greeting cards, a limited-service bank, and a pharmacy.

Health/Fitness Club (LUC 492) - A health/fitness club is a privately-owned facility that primarily focuses on individual fitness or training. It typically provides exercise classes, fitness equipment, a weight room, spa, lockers rooms, and a small restaurant or snack bar. This land use may also include ancillary facilities, such as a swimming pool, whirlpool, sauna, limited retail, and tennis, pickle ball, racquetball, or handball courts. These facilities are membership clubs that may allow access to the general public for a fee.

Fast-Food Restaurant with a Drive-Through Window (LUC 934) – This type of restaurant is characterized by a large drive-through clientele, long hours of service (some are open for breakfast, all are open for lunch and dinner, some are open late at night or 24 hours a day) and high turnover rates for eat-in customers. The restaurant does not provide table service. A patron orders from a menu board and pays before receiving the meal.

Coffee/Donut Shop with Drive Through Window (LUC 937) - This land use includes any coffee and donut restaurant that has a drive-through window as well as a walk-in entrance area at which a patron can purchase and consume items. The restaurant sells freshly brewed coffee (along with coffee-related accessories) and a variety of food/drink products such as donuts, bagels, breads, muffins, cakes, sandwiches, wraps, salads, and other hot and cold beverages. The restaurant marketing and sales

may emphasize coffee beverages over food (or vice versa). A coffee/donut shop typically holds long store hours (more than 15 hours) with an early morning opening. Limited indoor seating is generally provided for patrons, but table service is not provided.

The overall internal capture of the development was assumed to be 10%. Based on NCHRP Report 684, Enhancing Internal Capture Estimation for Mixed-Use Developments, this Mixed-Use Commercial Development would have an internal capture of almost 30%. However, that estimation was reduced because of the suburban nature of the area, the proximity to residential and commercial land uses and the higher volume of fast food restaurants proposed on the property.

Table 8 presents the forecasted daily and peak hour vehicle trips generated for the Mixed-Use Commercial Development for a typical weekday upon full build out.

Table 8: Trip Generation

Land Use	ITE Code	Units	Total Size	Daily	AM Peak			PM Peak		
					In	Out	Total	In	Out	Total
PHASE I										
Convenience Store/Gast Station	945	Fueling Positions	16	4,114	433	216	217	364	182	182
Supermarket	850	1,000 sqft	22.0	2,374	63	37	26	227	113	114
Health/Fitness Club	492	1,000 sqft	42	1,000	55	28	27	145	83	62
Phase I Sub Total				7,488	551	281	270	736	378	358
PHASE II										
Fast Food with Drive Thru	934	1,000 sqft	3	1,402	134	68	66	99	52	47
Fast Food with Drive Thru	934	1,000 sqft	2.1	982	94	48	46	69	36	33
Fast Food with Drive Thru	934	1,000 sqft	2.5	1,169	112	57	55	83	43	40
Coffee with Drive Thru	937	1,000 sqft	1.0	534	86	44	42	39	19	20
Phase II Subtotal				4,087	426	217	209	290	150	140
Internal Capture of 10%				-1,158	-98	-50	-48	-103	-53	-50
TOTAL				10,418	879	448	431	923	475	448

The formulas used to calculate the trip generation for this development are presented in Appendix C.

The forecasted trip generation was calculated based on values presented within the ITE Trip Generation Manual. On a weekday, after full build-out of the Mixed-Use Commercial Development, the site is estimated to generate a total of 879 trips in the morning peak hour, 923 trips in the evening peak hour, and 10,418 daily trips.

B. Trip Distribution

The trip distribution procedure determines the general pattern of travel for vehicles entering and leaving the study area. These percentages are based on the location of the site, the connectivity of the site to the region, the recently collected existing traffic volumes, and consider the character of the types of land uses of the development. For this commercial development, the surrounding residential areas as well as the connectivity to Grand Avenue are factors in the projected trip distribution. **Table 9** shows the trip distribution percentages of vehicles that will arrive and depart the site based on land use and roadway network connectivity.

Table 9: Trip Distribution Percentages

Direction	Trip Distribution Percentage
	Arriving to and Departing from
	the Site at Full Build-out
Power Road north of Guadalupe Road	10%
Power Road south of Warner Road	15%
Guadalupe Road west of Power Road	10%
Guadalupe Road east of Power Road	10%
Elliot Road west of Power Road	30%
Elliot Road east of Sossaman Road	10%
Sossaman Road north of Elliot Road	5%
Warner Road west of Power Road	10%

Figures 8 and 9 present the assigned site generated traffic to and from the development.

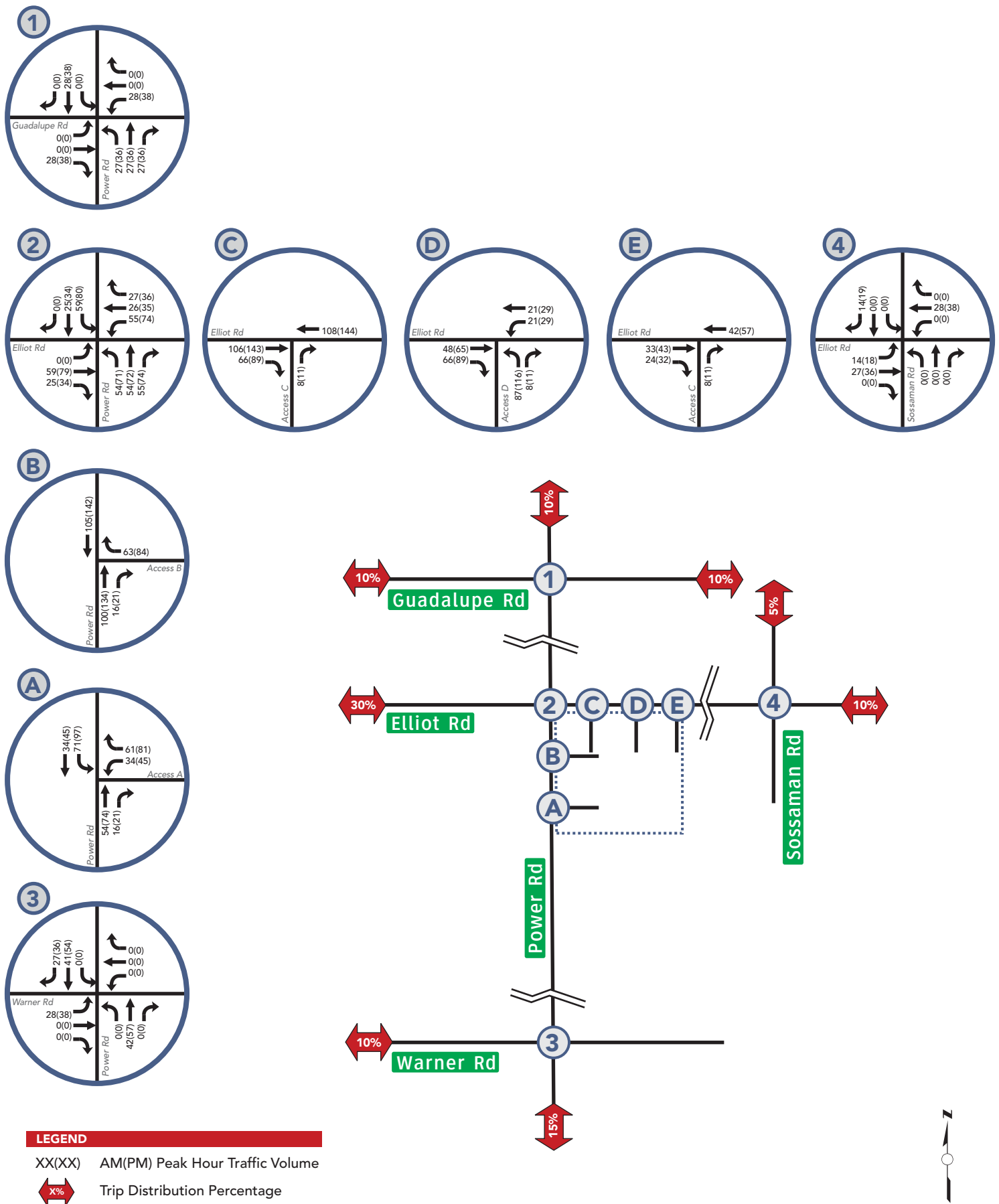


Figure 8: Site Generated Traffic and Trip Distribution - Phase 1

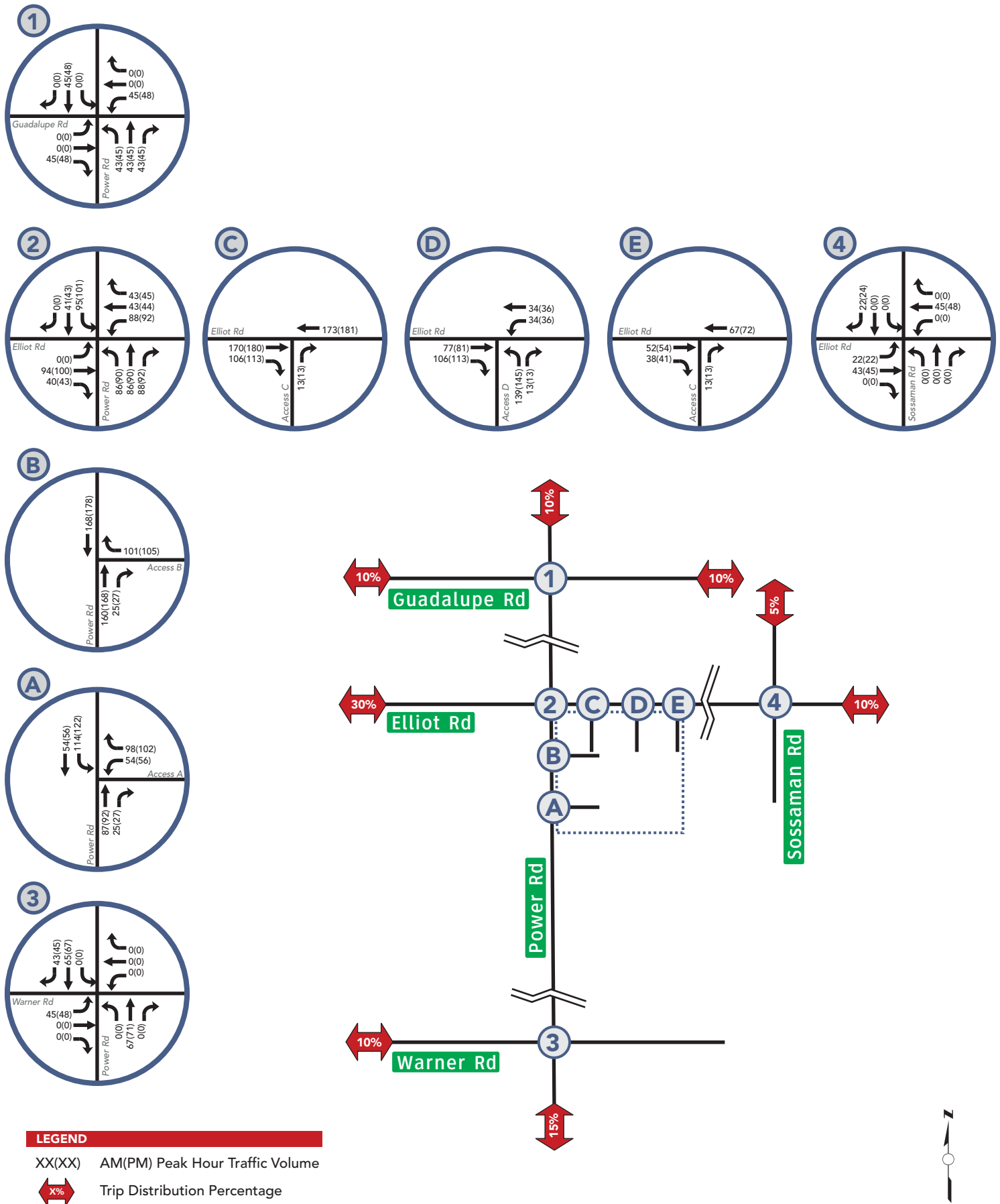


Figure 9: Site Generated Traffic and Trip Distribution - Full Buildout

VI. TRAFFIC AND IMPROVEMENT ANALYSIS

The purpose of this section is to show the relations between traffic operations and roadway geometrics; identify needs pertaining to progressive traffic flow and safety; and identify alternatives for further consideration, where applicable. Based on the analyses within this section of the TIA, **Figure 14** illustrates the off-site recommendations that should be implemented to mitigate traffic impacts within the study area.

A. Roadway Geometry

Power Road will be constructed to the MCDOT Urban Principal Arterial Roadway as defined in the MCDOT Roadway Design Manual, 2021 Update Figure 5.8. Power Road's ultimate cross section includes 3 travel lanes in each direction separated by a raised median. As such, 65 feet of right of way measured centerline to right of way line should be reserved along the site's western boundary.

Elliot Road is planned as a 6-lane section with a raised median. Along the site's northern boundary, 65 feet of right of way will be required. Measured centerline to right of way line, per the Mesa Transportation Plan. Elliot Road will be designed and constructed in accordance with the City of Mesa Standard Detail M46-03.2.

Per the 2040 Transportation Master Plan Map 2.2.13, raised medians are proposed for Elliot Road adjacent to the site, when the roadway is fully built out. Therefore, Section 212 Raised Medians of the Engineering and Design Standards 2021 apply. Careful consideration is given to requests for median cuts to ensure that the purpose of the median is not compromised. In general, full access median openings may be provided at 880-foot points along an arterial street. Additional median openings will be considered, but should be designed as partial movements, right in/right out/left in only.

With the widening required for the east side of Power Road and south side of Elliot Road, the signal poles on the southeast corner of the intersection will need to be relocated. In addition, signal head placement will need to be adjusted/realigned on the remaining signal poles and mast arms may need to be extended, in the interim condition.

B. Site Accessibility

The proposed Mixed-Use Commercial Development is planned to have five site access driveways, two located on Power Road and three located on Elliot Road. The site driveways located on Power Road fall under MCDOT jurisdiction. The driveways located on Elliot Road fall under City of Mesa Jurisdiction. A further description of the proposed driveways and their spacing is provided below.

B.1. Power Road – MCDOT Roadway Design Guidelines

Access A, the southernmost access on Power Road, is located approximately 605 feet south of Elliot Road, measured centerline to centerline. Access A is proposed as a full

turning movement access. Because a raised median is anticipated for Power Road, a median break is requested for this location.

Along the site's southern boundary, an existing utility easement exists. With the construction of Access A, it is proposed that the existing utility easement access will be removed and that accessibility to the utility corridor will be provided through the proposed Access A.

A proposed access for The Ranch commercial development has been proposed on the west side of Power Road approximately 764 feet south of Elliot Road, measured centerline to centerline. Because this access has been limited to left in/right in/right out and the south- and northbound left turns are not interlocking, Access A's location, as shown, with full turning movements should be granted.

Access B is located on Power Road approximately 275 feet south of Elliot Road and approximately 330 feet north of Access A, measured centerline to centerline. The proposed raised median on Power Road will limit Access B to right in/right out only.

Per the MCDOT Roadway Design Manual Sections 7.8 and 7.9, each parcel is limited to one two-way driveway or a pair of one-way driveways. Additional driveways may be needed and provided under the following conditions:

- a. If the daily volume using one driveway would exceed 1,500 vehicles in both directions
- b. If traffic using one driveway would exceed the capacity of a stop sign during one peak street traffic hour
- c. If a traffic analysis shows that the traffic conditions warrant two or more driveways, such driveways will not negatively impact traffic flow.

Based on the above criteria, the two driveways on Power Road should be provided to allow adequate site circulation and reduce delay at the site accesses.

Per the MCDOT Roadway Design Manual, the driveway spacing along arterial roadways shall be at least 360 feet along arterial roadways, measured centerline to centerline.

For driveway corner clearance, driveways should be spaced per the criteria designated in Figure 7.6 and on Table 7.4 of MCDOT's Roadway Design Manual. For this site, 360 feet is required on Power Road. The measurement for corner clearance is taken from the edge of driveway to the edge of the roadway.

Due to the layout of the site, proposed land use, and the site frontage on Power Road, Driveway B should be permitted to allow circulation of traffic of the convenience store with gas.

B.2. Elliot Road – City of Mesa Engineering Design Standards 2019

Access C is planned to be constructed on Elliot Road approximately 350 feet east of Power Road and will be limited to right in/right out only with the completion of the raised median on Elliot Road.

Access D will be located 520 feet east of Power Road and 205 feet west of Access E and is proposed as a full movement driveway.

Access E is proposed as a right in/right out access on Elliot Road approximately 205 feet east of Access D and 145 feet west of the Roosevelt Water Conservation District's western access.

This access has been approved by the City of Mesa as a full median break in the future. However, it is anticipated that turning movements at this location will be low based on the proposed industrial land use north of Elliot Road and the existing office use south of Elliot Road.

As shown, the five site driveways, with turning movements as requested, should be granted. These site accesses will provide adequate site circulation and access to the proposed Mixed-Use Commercial Development.

Figure 13 illustrates the driveway spacing for the proposed site driveways as well as the future driveways of the neighboring properties, and proposed median configurations.

The mitigation/restriction of the movements of the accesses to the above allowed movements (e.g., right-in/right-out or 3/4 movement) will ultimately be provided by the raised medians planned within the adjacent roadways. In the interim conditions prior to the raised medians being installed, mitigation/restriction of the accesses as appropriate should be provided by raised "pork chop" islands within the driveways per the MCDOT *Roadway Design Manual* Section 7.7.2 and/or City of Mesa requirements, as applicable. Consideration should be given to limiting future reconstruction (i.e., the raised islands should not extend past the Power Road face of curb alignment).

C. Turn Lane Analysis

C.1. Right Turn Deceleration Lanes

Right turn lanes are often recommended on roadways where right turning vehicles create delays or safety concerns for other traffic movements. The need for a right turn lane depends on the speed of traffic on the road, the volume of traffic making a right turn and the through traffic volume in the same direction as the right turning traffic.

For the site access driveways on Power Road; per MCDOT's *Roadway Design Manual*, Section 7.15.1, right-turn deceleration lanes are warranted at driveways when at least

three of four separate factors are met, including: (a) total daily vehicles using the adjacent street (min. 5,000 vpd), (b) the posted roadway speed (min. 35 mph), (c) the number of vehicles expected to be using the driveway (min. 1,000 vpd), and (d) the number of right-turning vehicles at the driveway within a one-hour period (min. 30 vph).

Greater than 30 right turns are forecasted or have the potential at each of the Power Road site accesses, additionally, Power Road has well over 5,000 vpd in the existing condition and has a posted speed limit of 45 mph. Therefore, northbound right-turn deceleration lanes are required at both site accesses on Power Road. Per the MCDOT Roadway Design Manual, a minimum of 160 feet of storage with a 125 foot taper.

Dedicated right turn lanes are warranted at site accesses per Section 208.4.1 of the Mesa Engineering and Design Standards. Per the Standards, dedicated right turn lanes should be provided at retail sites with 40,000 gross square feet or more of building area. Because the site is greater than 40,000 square feet of retail use and also includes additional fast food out parcels, dedicated right turn lanes should be provided at all site accesses on Elliot Road, per Mesa's Design Standards. Per the City of Mesa Engineering Design Standards, a typical deceleration lane should provide at least 150 feet of storage with a 100-foot taper and a 12-foot wide lane. Longer storage and tapers may be necessary depending upon the site.

For unsignalized intersections the storage length is calculated as the average number of peak hour vehicles arriving per 2-minute period times 25 feet. Because right turns into the unsignalized site access driveways will be free-flow in nature; the minimum right turn deceleration lane lengths and tapers should be used. **Table 10** provides the calculated storage lengths for the deceleration lanes based on 2032 projected total traffic.

Table 10: Right Turn Lane Storage Calculations

Location		Average Peak Turn Volume 2032	Calculated Storage (feet)	Recommended Storage (feet)	Recommended Taper (feet)
On	At				
Power Road	Access A	Northbound Right (26)	22	160	125
Power Road	Access B	Northbound Right (26)	22	Continuous	
Elliot Road	Access C	Eastbound Right (110)	92	150	100
Elliot Road	Access D	Eastbound Right (110)	92	Continuous	
Elliot Road	Access E	Eastbound Right (40)	33	Continuous	

C.2. Left Turn Deceleration Lane Warrants

At Access A on Power Road and Access D on Elliot Road, left turn storage lanes should be provided.

Table 11 provides storage calculations for the left turn lanes discussed above utilizing 2032 total traffic volumes. To determine if the MCDOT and City of Mesa minimum storage lengths are sufficient for the required auxiliary left-turn lanes at the respective unsignalized site accesses, methodologies for determining queue lengths at unsignalized left-turns from the MCDOT *Traffic Impact Study Manual* (Section 2.11.2) are utilized on Power Road and Elliot Road (number of vehicles per 2 minute period with a factor of 1.5 increase in turning movements)

Table 11: Left Turn Lane Storage Calculations

Location		Average Turn Volumes 2032	Calculated Storage (feet)	Recommended Storage (feet)	S-Curve Opening (feet)
On	At				
Power Road	Access A	Southbound Left (118)	147	160	90
Elliot Road	Access D	Eastbound Left (35)	44	100	90

D. Existing Intersection Queue Analysis

D.1. Dual Left Turn Lanes

Per the MCDOT *Roadway Design Manual*, Section 6.1.6, dual left-turn lanes are to be provided when the peak hour left-turn volume exceeds 300 vehicles per hour. The forecasted year 2032 left turns exceed this threshold at the following approaches to the intersection of Power Road and Elliot Road:

NB Lefts: 591 vph

SB Lefts: 192 vph

EB Lefts: 561 vph

WB Lefts: 475 vph

Dual left-turn lanes should be provided on all legs of the intersection at Power Road/Elliot Road as part of the improvements being planned on Power Road and/or the required half-street improvements of the Mixed-Use Commercial Development.

D.2. Left Turn Storage

A queue analysis was conducted for the projected year 2032 total traffic right-and left-turn volumes at the existing signalized study area intersection of Power Road/Elliot Road per MCDOT *Roadway Design Manual* guidelines **Table 12** presents the queue analysis results as compared to the existing turn lane storage lengths.

Table 12: Existing Intersection Queue Analysis

Direction	Approximate Existing Storage Length	Peak Hour Turning Volume (max of AM or PM)	Calculated Queue Length (MCDOT RDM)	Recommended Storage
Power Road/Elliot Road				
NB Left	150 ft	591	323 ft*	300-foot dual left turn lanes
SB Left	160 ft	192	41 ft*	200-foot dual left turn lanes
EB Left	160 ft	561	366 ft*	300-foot dual left turn lanes
WB Left	105 ft	475	252 ft*	300-foot dual left turn lanes
NB Right	-	484	619 ft	600-foot continuous right turn lane
SB Right	-	389	519 ft	600-foot continuous right turn lane
EB Right	-	414	596 ft	600-foot continuous right turn lane
WB Right	-	166	121 ft	200-foot right turn lane

* Proposed dual turn lanes

As shown in Table 12, the intersection of Power Road/Elliot Road should be designed as appropriate, with maximized storage lengths dependent on conflicting adjacent accesses or other geometric constraints.

E. Total Traffic Level of Service Analyses

Capacity analyses at the existing study area intersections and at the site accesses assumed as part of this TIA per initial conceptual planning were performed for the forecasted total traffic and recommended roadway geometries for the horizon years of the study, 2025, 2027 and 2032.

Total traffic projections for the horizon years of the development were determined by adding the proposed development's site generated traffic to the forecasted horizon background traffic volumes for the full build-out horizon year. The total traffic volumes are illustrated in **Figures 10 through 12** for the same horizon years, 2025, 2027 and 2032.

Tables 13 through 15 present the total traffic levels of service at the study area intersections with the proposed development and with all recommended roadway improvements.

For this analysis, it was assumed that by 2025, Power Road will be widened to its ultimate geometric configuration within the study area and that the intersection of Power Road/Elliot Road will be constructed with dual left turn lanes on all approaches.

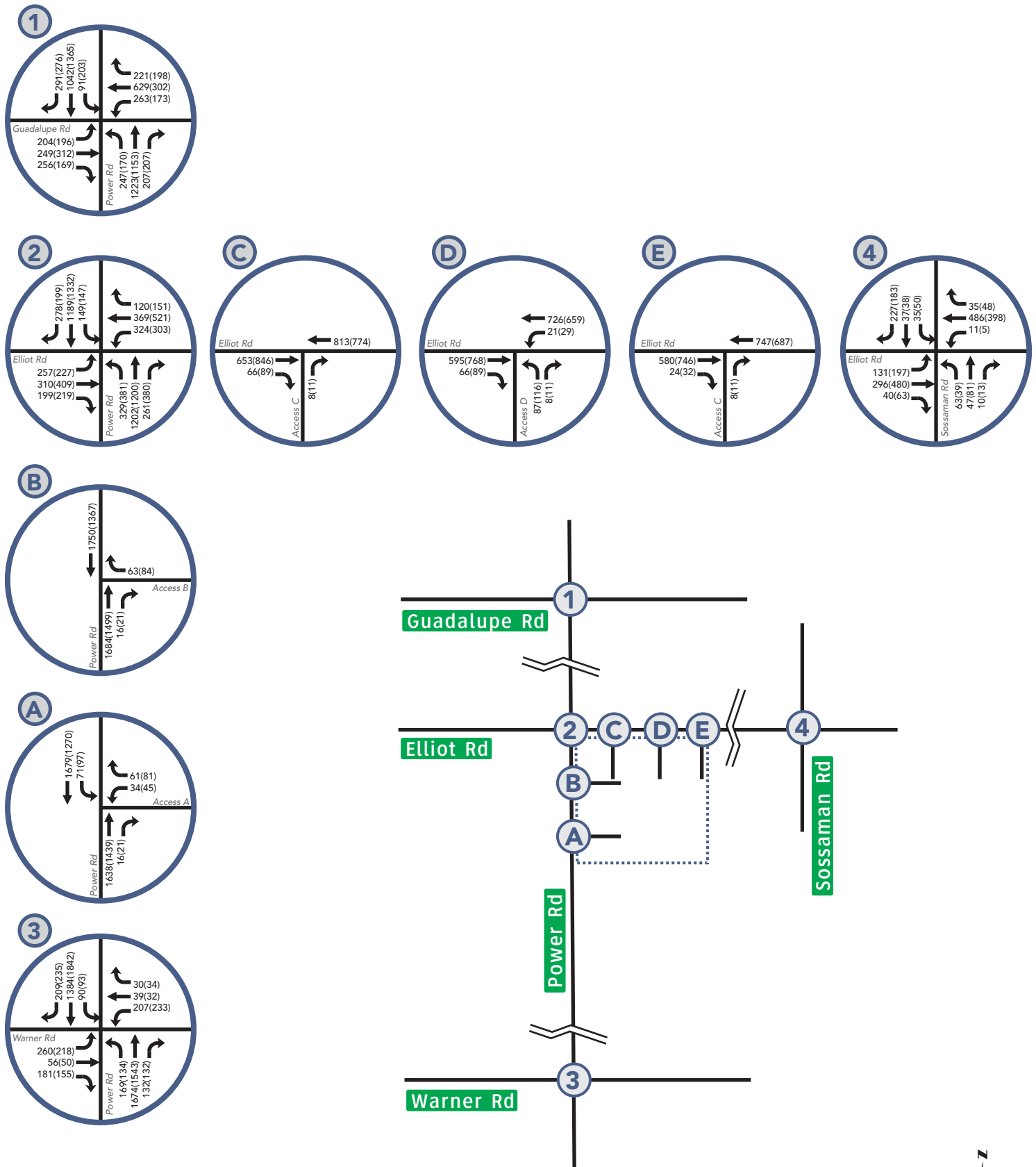


Figure 10: Total Traffic - Year 2025

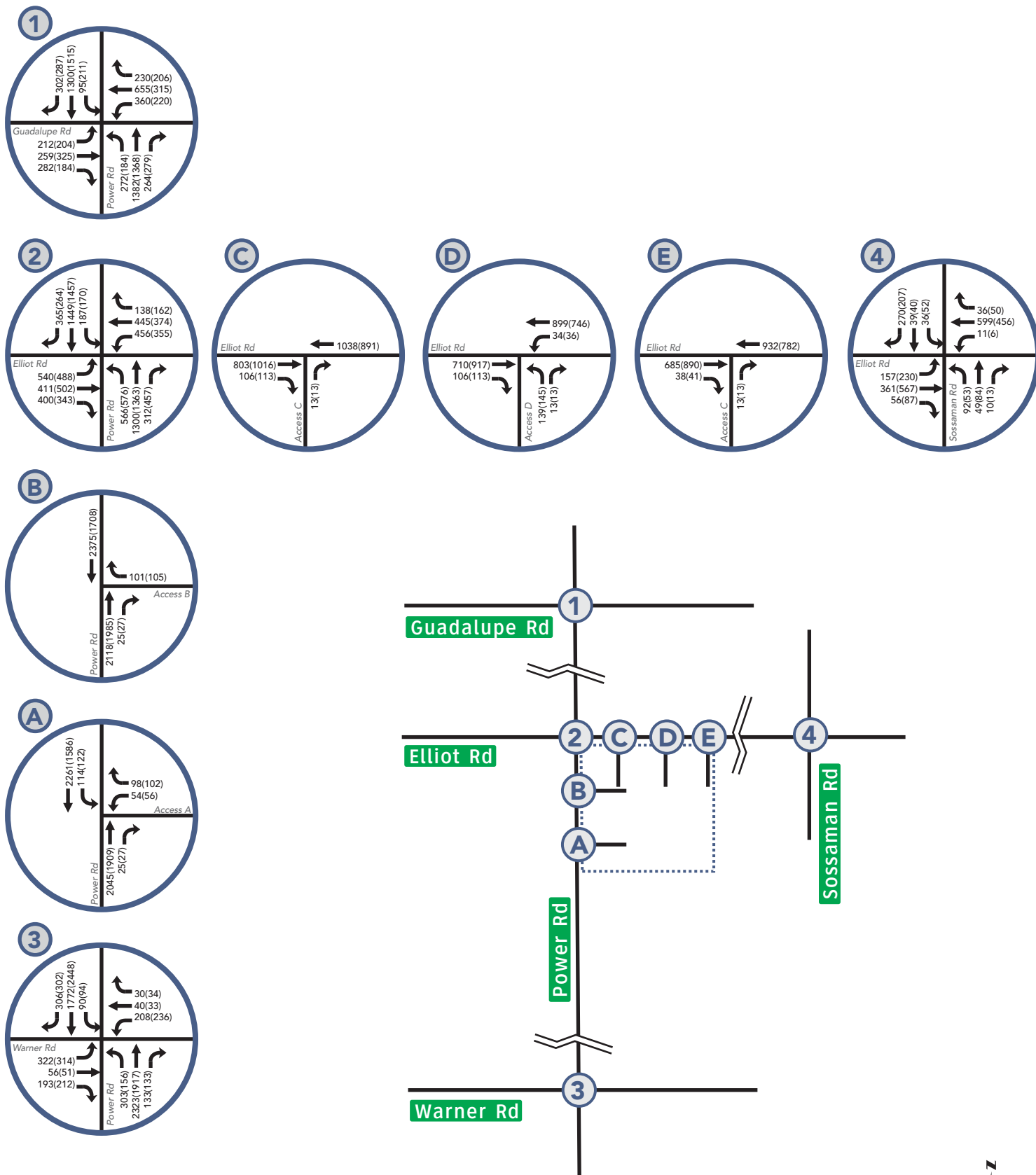


Figure 11: Total Traffic - Year 2027

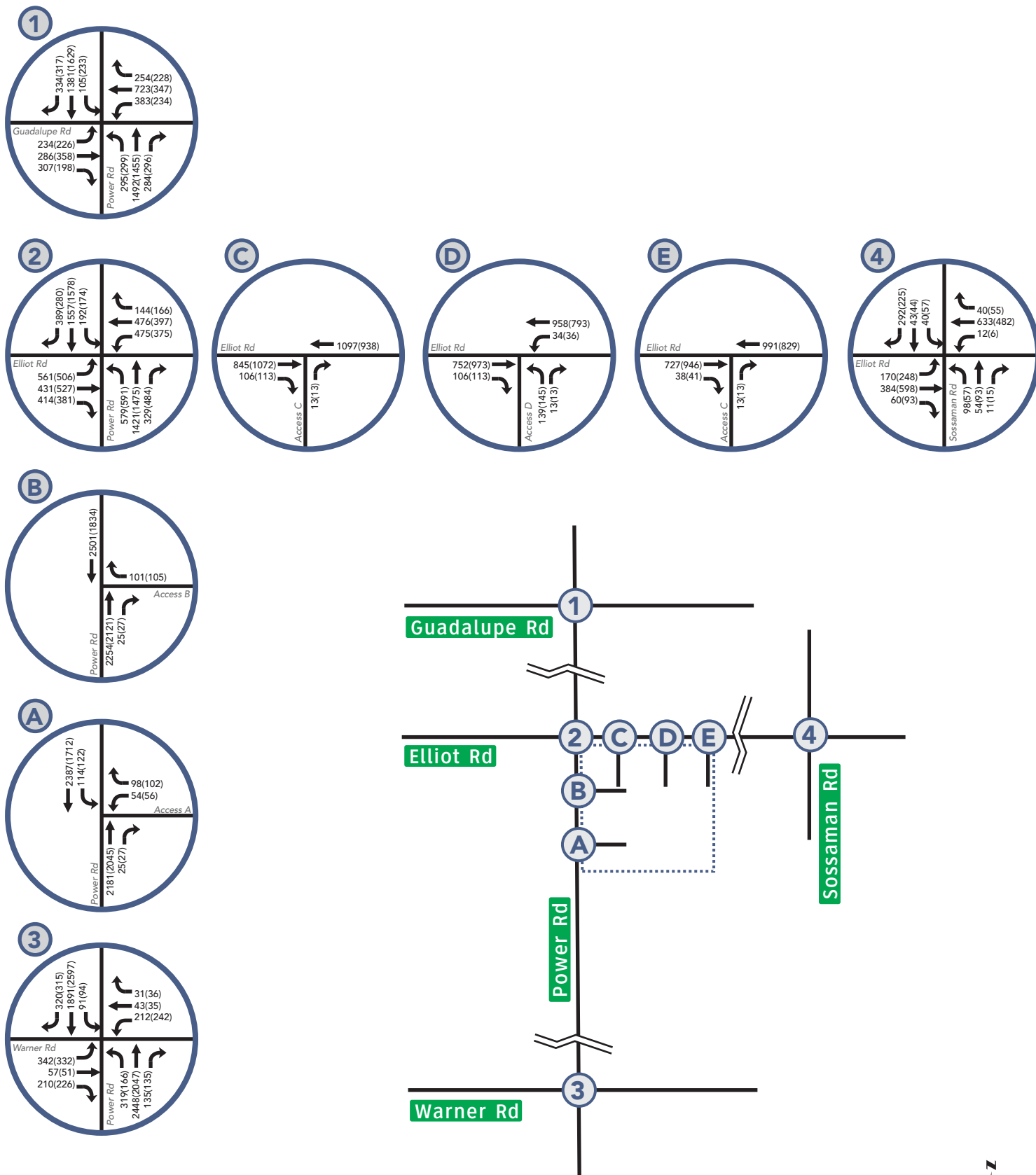


Figure 12: Total Traffic - Year 2032

Table 13: 2025 Total Traffic Intersection Levels of Service

Intersection Location	NB LOS				SB LOS				EB LOS				WB LOS				Overall Intersection
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	AvgDelay/ LOS*
Power Road/Guadalupe Road - Signalized																	
AM Peak Hour	C	C	C	C	B	C	C	C	D	D	D	D	C	D	D	D	32.92 C
PM Peak Hour	C	B	B	B	B	C	B	C	D	D	D	D	D	D	D	D	27.13 C
Power Road/Elliot Road - Signalized																	
AM Peak Hour	C	B	B	B	C	C	B	C	C	C	C	C	C	C	C	C	23.21 C
PM Peak Hour	C	B	B	C	C	C	B	C	C	C	C	C	C	C	C	C	22.24 C
Power Road/Warner Road – Signalized																	
AM Peak Hour	C	B	B	B	B	B	B	B	C	D	D	D	C	D	D	C	21.46 C
PM Peak Hour	C	B	B	B	B	C	B	C	D	D	E	D	D	D	D	D	32.93 C
Elliot Road/Sossaman Road - Signalized																	
AM Peak Hour	B	B	B	B	B	B	B	B	B	A	A	A	A	A	A	A	10.30 B
PM Peak Hour	C	B	B	B	B	B	B	B	B	A	A	A	B	A	A	A	10.18 B
Power Road/Access A																	
AM Peak Hour	-	A	A	A	E	A	-	A	-	-	-	-	F	-	C	F	*** F
PM Peak Hour	-	A	A	A	E	A	-	A	-	-	-	-	F	-	C	F	*** F
Power Road/Access B																	
AM Peak Hour	-	A	A	A	-	A	-	A	-	-	-	-	-	-	D	D	26.2 D
PM Peak Hour	-	A	A	A	-	A	-	A	-	-	-	-	-	-	C	C	24.4 C
Elliot Road/Access C																	
AM Peak Hour	-	-	B	B	-	-	-	-	-	A	A	A	-	A	-	A	11.7 B
PM Peak Hour	-	-	B	B	-	-	-	-	-	A	A	A	-	A	-	A	12.9 B
Elliot Road/Access D																	
AM Peak Hour	C	-	B	C	-	-	-	-	-	A	A	A	B	A	-	A	23.0 C
PM Peak Hour	E	-	B	E	-	-	-	-	-	A	A	A	B	A	-	A	37.8 E
Elliot Road/Access E																	
AM Peak Hour	-	-	B	B	-	-	-	-	-	A	A	A	-	A	-	A	11.3 B
PM Peak Hour	-	-	B	B	-	-	-	-	-	A	A	A	-	A	-	A	12.3 B

*The overall LOS letter grade for two-way stop-controlled intersections is shown as the worst approach.

For total traffic conditions in the year 2025 with the opening of the first phase of development, the study area intersections are forecasted to operate at acceptable levels of service, LOS D or better, during the morning and evening peak hours. The exceptions are the site accesses of Power Road/Access A and Elliott Road/Access D. During the peak hours, the left turn movements into and out of the site may experience delay.

For the unsignalized intersections, stop-control on the minor roads and driveways that intersect with major streets typically experience greater delay for short periods of time

in the peak hours due to the wait time experienced for acceptable gaps on the major street, while the free-flowing major streets experience minimal to no delay.

It is important to note that the overall intersection delay shown in the tables for unsignalized intersection and accesses is the delay for the worst movement and does not reflect overall traffic operations.

Table 14: 2027 Total Traffic Intersection Levels of Service

Intersection Location	NB LOS				SB LOS				EB LOS				WB LOS				Overall Intersection
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	AvgDelay/ LOS*
Power Road/Guadalupe Road - Signalized																	
AM Peak Hour	D	C	C	C	C	C	C	C	D	D	D	D	D	D	D	D	35.21 D
PM Peak Hour	C	C	B	C	C	C	B	C	D	D	D	D	D	D	D	D	28.40 C
Power Road/Elliot Road - Signalized																	
AM Peak Hour	F	C	C	D	D	F	D	E	D	D	E	D	D	D	D	D	48.92 D
PM Peak Hour	C	C	B	C	B	C	C	C	C	C	D	C	C	D	D	C	27.33 C
Power Road/Warner Road – Signalized																	
AM Peak Hour	E	C	B	C	D	C	C	C	D	D	E	E	D	E	E	D	32.50 C
PM Peak Hour	D	C	B	C	C	F	B	D	D	D	E	D	D	D	D	D	38.89 C
Elliot Road/Sossaman Road - Signalized																	
AM Peak Hour	C	B	B	C	C	C	C	C	C	A	A	B	B	B	A	B	14.36 B
PM Peak Hour	C	B	B	B	C	B	B	B	B	A	A	B	B	A	A	A	11.74 B
Power Road/Access A																	
AM Peak Hour	-	A	A	A	F	A	-	B	-	-	-	-	F	-	F	F	*** F
PM Peak Hour	-	A	A	A	F	A	-	C	-	-	-	-	F	-	F	F	*** F
Power Road/Access B																	
AM Peak Hour	-	A	A	A	-	A	-	A	-	-	-	-	-	-	F	F	62.7 F
PM Peak Hour	-	A	A	A	-	A	-	A	-	-	-	-	-	-	F	F	52.2 F
Elliot Road/Access C																	
AM Peak Hour	-	-	B	B	-	-	-	-	-	A	A	A	-	A	-	A	12.6 B
PM Peak Hour	-	-	B	B	-	-	-	-	-	A	A	A	-	A	-	A	14.1 B
Elliot Road/Access D																	
AM Peak Hour	F	-	B	E	-	-	-	-	-	A	A	A	B	A	-	A	53.2 F
PM Peak Hour	F	-	B	F	-	-	-	-	-	A	A	A	C	A	-	A	102.2 F
Elliot Road/Access E																	
AM Peak Hour	-	-	B	B	-	-	-	-	-	A	A	A	-	A	-	A	11.9 B
PM Peak Hour	-	-	B	B	-	-	-	-	-	A	A	A	-	A	-	A	13.2 B

*The overall LOS letter grade for two-way stop-controlled intersections is shown as the worst approach.

By the year 2027 with full buildout of the site, Access B begins to produce delay for the westbound right turn movement. This is due to convenience store use and the volume of vehicles anticipated to travel on Power Road within the area.

As traffic volumes increase and new roadways are constructed to their ultimate cross section within the area, it is assumed that traffic will balance over the roadway network.

Table 15: 2032 Total Traffic Intersection Levels of Service

Intersection Location	NB LOS				SB LOS				EB LOS				WB LOS				Overall Intersection
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	AvgDelay/ LOS*
Power Road/Guadalupe Road - Signalized																	
AM Peak Hour	D	D	C	D	C	D	D	D	D	D	D	D	D	D	D	D	42.80 D
PM Peak Hour	D	C	B	C	C	C	C	C	D	D	D	D	D	D	D	D	33.95 C
Power Road/Elliott Road - Signalized																	
AM Peak Hour	F	C	C	D	E	F	D	F	D	D	E	D	D	D	D	D	61.34 D
PM Peak Hour	D	C	C	C	B	F	C	D	C	D	D	C	C	D	D	C	32.85 C
Power Road/Warner Road – Signalized																	
AM Peak Hour	E	C	B	C	D	C	C	C	E	E	E	E	D	E	E	D	36.05 D
PM Peak Hour	D	C	B	C	C	F	B	E	D	D	E	D	D	D	D	D	55.52 E
Elliott Road/Sossaman Road - Signalized																	
AM Peak Hour	C	C	C	C	C	C	C	C	C	B	B	B	B	B	A	B	17.00 B
PM Peak Hour	C	B	B	C	C	C	C	C	B	A	A	B	B	A	A	A	13.13 B
Power Road/Access A																	
AM Peak Hour	-	A	A	A	F	A	-	C	-	-	-	-	F	-	F	F	*** F
PM Peak Hour	-	A	A	A	F	A	-	C	-	-	-	-	F	-	F	F	*** F
Power Road/Access B																	
AM Peak Hour	-	A	A	A	-	A	-	A	-	-	-	-	-	-	F	F	80.5 F
PM Peak Hour	-	A	A	A	-	A	-	A	-	-	-	-	-	-	F	F	66.0 F
Elliott Road/Access C																	
AM Peak Hour	-	-	B	B	-	-	-	-	-	A	A	A	-	A	-	A	12.9 B
PM Peak Hour	-	-	B	B	-	-	-	-	-	A	A	A	-	A	-	A	14.6 B
Elliott Road/Access D																	
AM Peak Hour	F	-	B	F	-	-	-	-	-	A	A	A	B	A	-	A	65.4 F
PM Peak Hour	F	-	B	F	-	-	-	-	-	A	A	A	C	A	-	A	136.4 F
Elliott Road/Access E																	
AM Peak Hour	-	-	B	B	-	-	-	-	-	A	A	A	-	A	-	A	12.2 B
PM Peak Hour	-	-	B	B	-	-	-	-	-	A	A	A	-	A	-	A	13.6 B

*The overall LOS letter grade for two-way stop-controlled intersections is shown as the worst approach.

As traffic continues to increase through the horizon years, the study area intersections continue to operate at acceptable levels of service except Power Road/Warner Road in the evening peak hour. This study did not assume major improvements on Warner Road at the Power Road intersection. However, as the area south of this Mixed-Use Commercial Development continues to develop, roadway infrastructure projects are likely that will improve the intersection geometrics and create additional capacity.

In addition, signal timing should be reviewed and continually updated to optimize signal timings at the study area's signalized intersections along Power Road based on actual traffic volumes once additional development occurs and ambient growth in the area is realized. Consideration should be given to coordination of the Power Road corridor, including by methods such as an Adaptive Traffic Control System.

Additionally, once ultimate improvements and connectivity along other major corridors adjacent to the study area are made (e.g. Recker Road, Sossaman Road, and Hawes Road), they may generally serve to relieve future forecasted traffic demand on Power Road and improve levels of service.

The site Accesses A, B and D produce delay for left turning vehicles into and out of the site during the peak periods of the day. For the unsignalized intersections, stop-control on the minor roads and driveways that intersect with major streets typically experience greater delay for short periods of time in the peak hours due to the wait time experienced for acceptable gaps on the major street, while the free-flowing major streets experience minimal to no delay.

Exiting right turn movements from the site accesses onto free-flowing Power Road may experience delay as shown by the LOS E and F in the tables above. The existing and planned signalized intersections along Power Road will provide gaps for the minor turning movements, which may not be apparent within the LOS analyses. Sufficient throat/exiting queue storage length should be provided to accommodate potential queues experienced while waiting to turn from the Development to help avoid any on-site blockages that may cause issues on the adjacent streets.

F. Intersection Sight Distance

Proper intersection sight distance and sight triangles shall be provided and maintained at the site accesses and intersections of the proposed development to give drivers exiting the accesses a clear view of oncoming traffic. The landscape and hardscape within the sight triangles must not obstruct the driver's view of the adjacent travel lanes. To ensure adequate sight distances and sight distance triangles, AASHTO's *A Policy on Geometric Design of Highways and Streets* Section 9.5 and City of Surprise Standard Details 4-01 and 4-02 should be followed as appropriate when designing the accesses and landscaping.

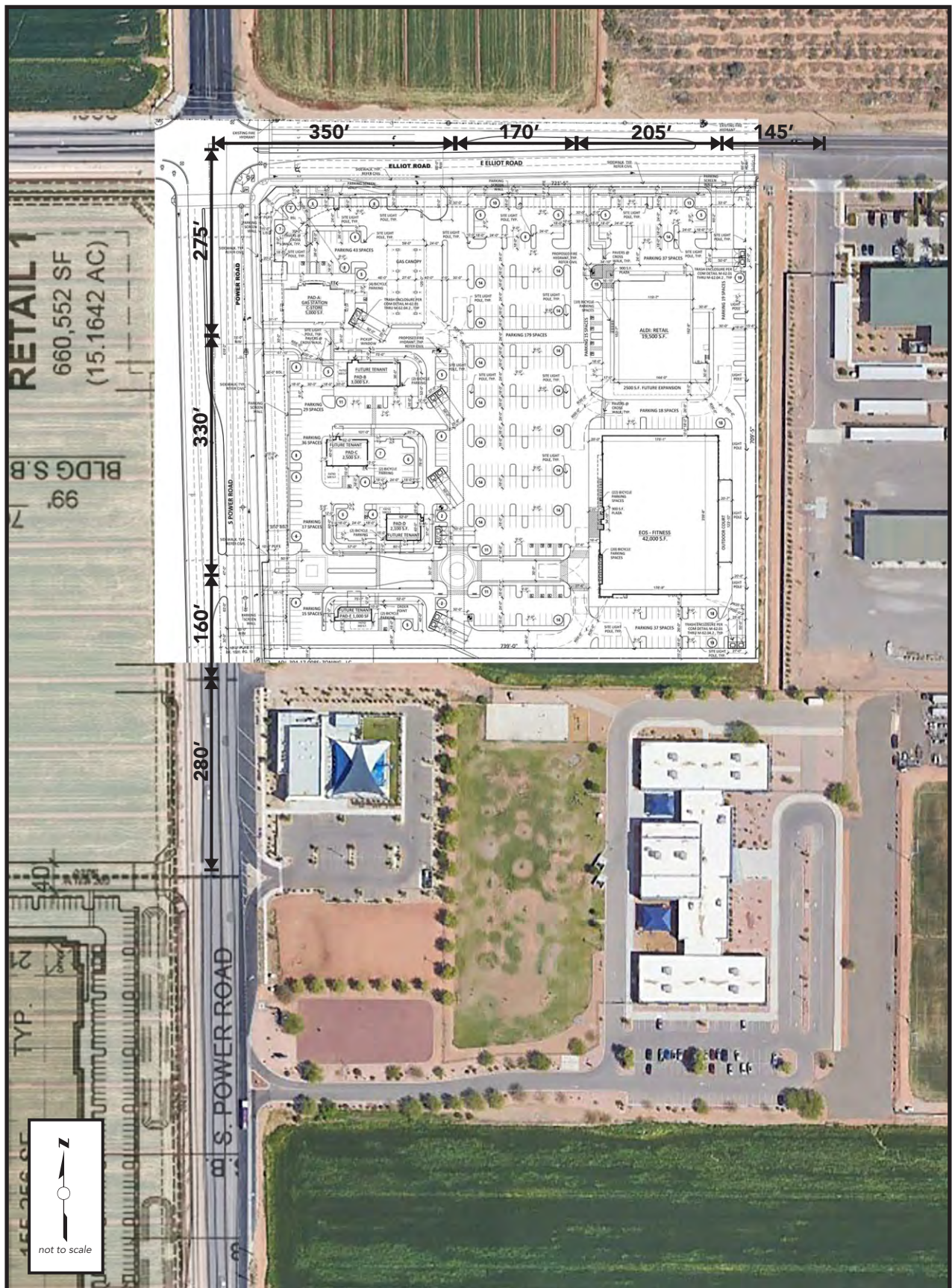
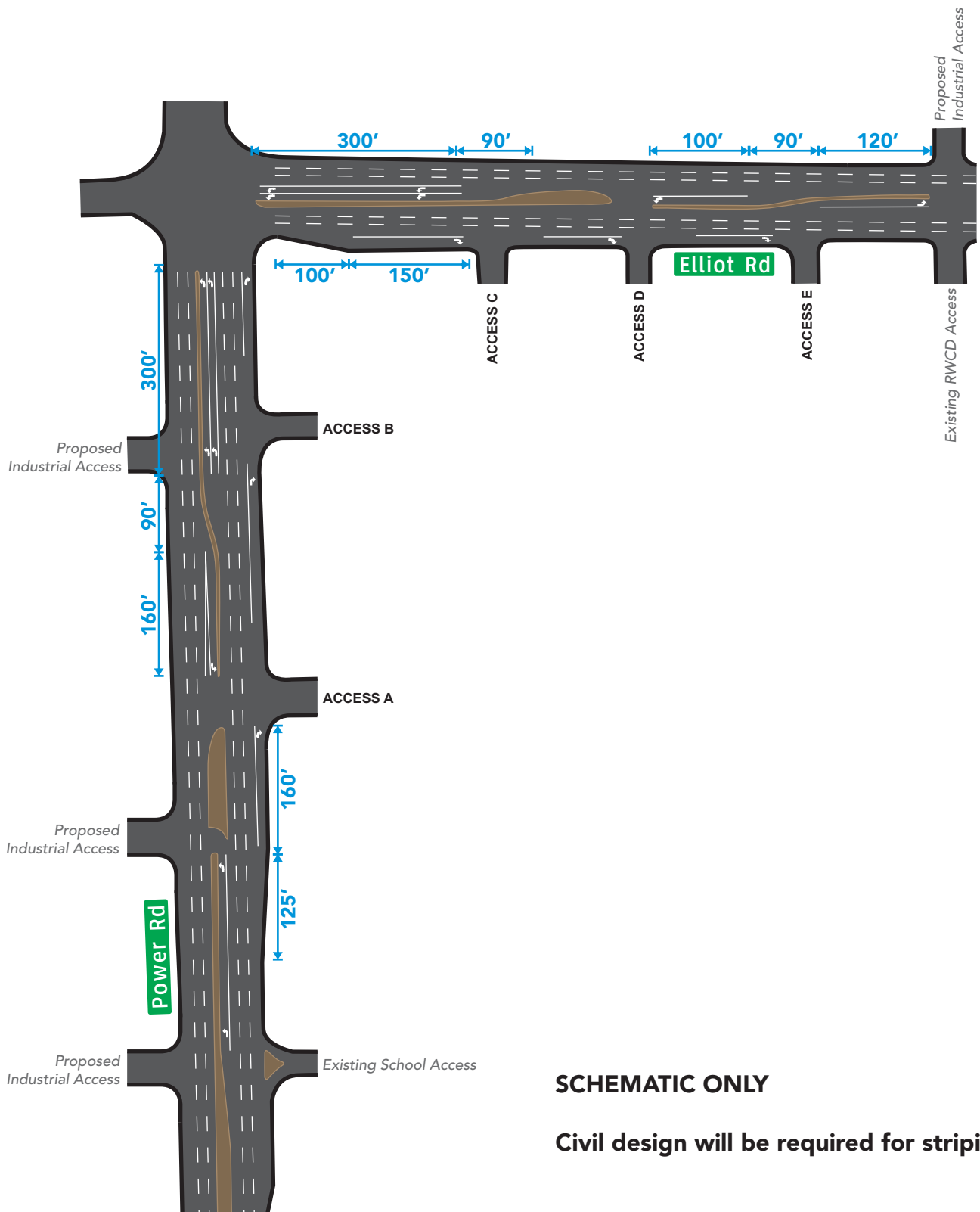


Figure 13: Driveway Spacing



SCHEMATIC ONLY

Civil design will be required for striping plan



not to scale

Figure 14: Recommendations

VII. CONCLUSIONS AND RECOMMENDATIONS

The plan for the approximate 14.5-acre development consists of a mix of commercial uses. The first phase of development is planned as a convenience store with gas of 5,000 square feet with 16 fueling positions (PAD A), a grocery store of 19,500 square feet with 2,500 square feet for expansion and a fitness center of 42,000 square feet. The second phase will consist of the development of a fast-food restaurant with a drive through of 3,000 square feet (PAD B), a fast-food restaurant with a drive through of 2,500 square feet (PAD C), a fast-food restaurant with a drive through of 2,100 square feet (PAD D), and a coffee shop with a drive through of 1,000 square feet (PAD E).

The horizon years for the study were determined from the MCDOT TIS Manual and include Phase I (2025), Phase II (2027) and five years after full buildout (2032).

Five site driveways are planned for this mixed-use development, two on Power Road (Accesses A and B) and three on Elliot Road (Accesses C, D and E). Accesses A through D will primarily serve customers of the proposed development. Access E will primarily serve customers along with the few heavy vehicles that provide goods to the grocery store. Raised medians are planned to be constructed on both Power Road and Elliot Road that will limit access to right in/right out at Accesses B, C, and E. Accesses A and D are all planned as full movement accesses.

The forecasted trip generation was calculated based on data provided within the 11th Edition of the ITE Trip Generation Manual. On a weekday, after full build-out of the mixed-use development on the southeast corner of Power Road and Elliot Road is estimated to generate a total of 879 trips in the morning peak hour, 923 trips in the evening peak hour, and 10,418 daily trips.

Using the forecasted total traffic volumes for years 2025, 2027 and 2032, the signalized study area intersections of Power Road/Elliot Road, Power Road/Guadalupe Road, and Sossaman Road/Elliot Road are projected to operate at acceptable LOS D or better through the study horizon years. During the evening peak hour, the intersection of Power Road/Warner Road may experience some delay as indicated by LOS E. However, this study did not assume major improvements on Warner Road at the Power Road intersection. In addition, as the area south of this Mixed-Use Commercial Development continues to develop, roadway infrastructure projects are likely that will improve the intersection geometrics and create additional capacity. Other recommendations include future signal coordination along the Power Road corridor once development is realized that assists in mitigating delay along the corridor in the peak hours.

By 2032 total traffic conditions, delay will be anticipated for some left and right turning movements into and out of the Mixed-Use Commercial Development, while Power Road and Elliot Road will experience free flowing conditions. Exiting movements on stop-controlled minor roads and driveways that intersect with major

streets typically experience greater delay for short periods of time in the peak hours due to the wait for acceptable gaps on the major street, while the free-flowing major streets experience minimal delay. The existing and planned signalized intersections along Power Road and Elliot Road will provide gaps for minor turning movements, which may not be apparent within the LOS analyses. Sufficient throat/exiting queue storage length should be provided to accommodate potential queues experienced while waiting to turn from the Development to help avoid any on-site blockages that may cause issues on the adjacent streets.

Based on this Traffic Impact Study, the following recommendations apply:

- Provide right of way dedication and the construction of the required Power Road improvements on the western boundary of the Mixed-Use Commercial Development per input and coordination with MCDOT, as required.
- Provide right of way dedication and the construction of required Elliot Road improvements on the northern boundary of the Mixed-Use Commercial Development per input and coordination with City of Mesa, as required.
- Remove the utility easement access on the southern boundary of the site.
- Provide auxiliary right and left turn lanes at the site accesses per recommendations in Tables 10 and 11 and on Figure 14.
- In the interim conditions prior to the raised medians being installed on the adjacent roadways, mitigation/restriction of the accesses as appropriate should be provided by raised "pork chop" islands within the driveways per MCDOT *Roadway Design Manual* Section 7.7.2 and/or City of Mesa requirements as applicable. Consideration should be given to limiting future reconstruction (i.e., the raised islands should not extend to the Power Road face of curb alignment).
- The development should be responsible for an appropriate contribution to the cost of the signal modification at the intersection of Power Road/Elliot Road.

The following recommendations are for consideration by the City of Mesa and MCDOT:

- Continually update and optimize signal timings at the study area signalized intersections along Power Road based on actual traffic volumes once additional development occurs and ambient growth in the area is realized. Consideration should be given to the coordination of the Power Road corridor, including by methods such as an Adaptive Traffic Control System.
- If the projected volumes due to private development and ambient growth at the existing study area intersections are to be realized in future years, consideration should be given to dual lefts and extended turn lanes as part of planned roadway improvement projects, as appropriate.

VIII. LIMITATIONS

Our professional services have been performed using the degree of skill ordinarily exercised, under similar circumstances, by reputable transportation engineering firms practicing in this locality. No other warranty, expressed or implied, is made.

The contents of this report are intended for the sole use of the addressee and his/her designees. In completing this report, data was obtained from a variety of sources (i.e., City, County, State and Federal sources); United Civil Group has assumed these sources to be reliable and accurate. Should deviations from this report be noted, this firm shall be contacted for review of the area of concern.

A reasonable attempt was made to acquire recent traffic impact studies, traffic projections and/or data that may be helpful in more accurately projecting traffic volumes. United Civil Group is not responsible for incorporating data made available after this document has been finalized.

This report is issued with the understanding that it is the responsibility of the owner to see that its provisions are carried out or brought to the attention of those concerned. If any changes to the proposed project are planned, the conclusions and recommendations contained in this report shall be reviewed and the report shall be modified or supplemented, as necessary.

IX. SOURCES

A Policy on Geometric Design of Highways and Streets, American Association of State Highway and Transportation Officials, 7th Edition, 2019.

City of Mesa Engineering Procedure Manual, 2019.

City of Mesa 2040 Transportation Plan, adopted 2014.

Highway Capacity Manual, HCM, Transportation Research Board.

Manual on Uniform Traffic Control Devices, Federal Highway Administration, MUTCD 2009.

Roadway Design Manual, Maricopa County Department of Transportation, Updated August 2021.

Traffic Impact Study Manual, Maricopa County Department of Transportation, 2017.

Trip Generation, 11th Edition, Institute of Transportation Engineers, 2021.

Appendix A

Turning Movement Count

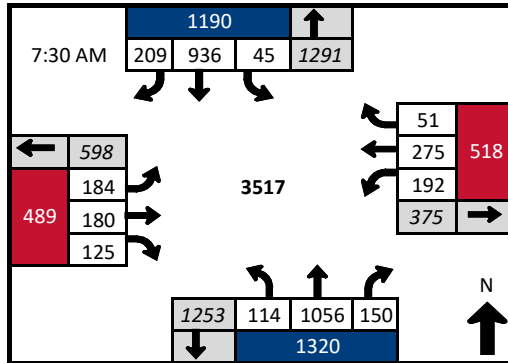
	Speed Limit							
		Lt	Lt/T	T	T/Rt	Rt	Lt/T/Rt	Lt/Rt
Northbound	45	1		1	1			
Southbound	45	1		1	1			
Eastbound	45	1			1			
Westbound	45	1			1			

Mar-30-2022 (Wednesday)

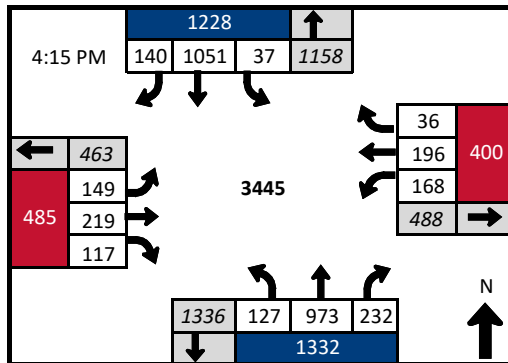
Project No: TR22024

Location: Power Road
and Elliot Road

Intersection Configuration: Signalized



	Power Road				Power Road				Elliot Road				Elliot Road				Total	Peak Hour
	Northbound				Southbound				Eastbound				Westbound					
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds		
7:00 AM	23	213	19	0	5	179	39	0	73	43	16	0	42	52	7	0	711	
7:15 AM	23	220	30	0	6	252	55	0	55	43	22	0	48	63	5	0	822	
7:30 AM	34	274	34	0	4	276	41	0	30	32	38	0	74	76	13	0	926	
7:45 AM	32	286	47	0	12	234	45	0	43	39	32	0	41	80	11	0	902	3361
8:00 AM	26	237	30	0	21	210	66	0	59	55	29	0	45	69	19	0	866	3516
8:15 AM	22	259	39	0	8	216	57	0	52	54	26	0	32	50	8	0	823	3517
8:30 AM	19	209	26	1	4	198	31	0	31	33	18	0	40	40	8	0	657	3248
8:45 AM	15	180	28	0	4	194	28	0	18	33	23	0	36	49	8	0	616	2962
Peak Hour Total	114	1056	150	0	45	936	209	0	184	180	125	0	192	275	51	0	3517	



	Power Road				Power Road				Elliot Road				Elliot Road				Total	Peak Hour
	Northbound				Southbound				Eastbound				Westbound					
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds		
4:00 PM	27	196	42	0	10	227	21	0	25	70	29	0	46	54	10	0	757	
4:15 PM	32	258	62	0	7	274	31	0	25	59	24	0	34	46	7	0	859	
4:30 PM	18	241	59	0	11	249	33	0	47	55	22	0	42	48	6	0	831	
4:45 PM	38	235	56	0	9	244	35	0	48	59	37	0	41	48	12	0	862	3309
5:00 PM	39	239	55	0	10	284	41	0	29	46	34	0	51	54	11	0	893	3445
5:15 PM	46	207	56	0	9	252	12	0	29	58	39	0	45	59	10	1	822	3408
5:30 PM	26	249	67	0	9	258	37	0	19	46	30	0	40	40	8	0	829	3406
5:45 PM	30	185	41	0	7	254	40	0	28	48	29	0	46	37	3	1	748	3292
Peak Hour Total	127	973	232	0	37	1051	140	0	149	219	117	0	168	196	36	1	3445	

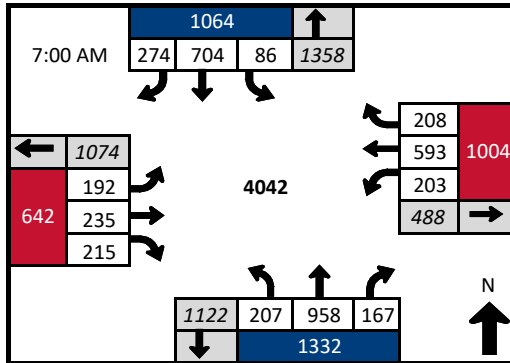
Turning Movement Count

Project No: TR22024

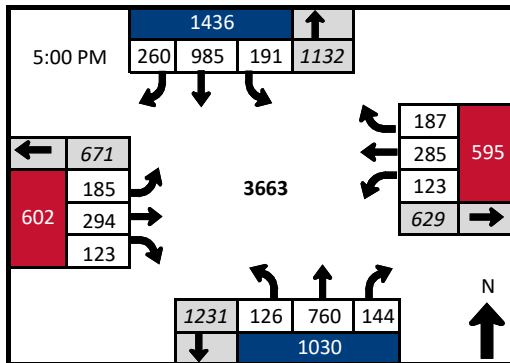
Location: Power Road
and Guadalupe Road

Intersection Configuration: Signalized

Mar-30-2022 (Wednesday)



	Power Road				Power Road				Guadalupe Road				Guadalupe Road				Total	Peak Hour
	Northbound				Southbound				Eastbound				Westbound					
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds		
7:00 AM	90	192	39	0	30	159	103	0	40	59	55	3	39	180	24	2	1010	
7:15 AM	56	215	61	0	22	174	87	1	44	75	69	0	59	179	61	0	1102	
7:30 AM	30	259	32	1	18	191	44	1	51	50	45	0	55	107	56	5	938	
7:45 AM	31	292	35	4	16	180	40	5	57	51	46	1	50	127	67	4	992	4042
8:00 AM	24	263	37	3	37	187	48	5	48	87	52	0	64	89	57	12	993	4025
8:15 AM	34	295	66	14	42	162	26	3	32	89	21	0	49	126	71	14	1013	3936
8:30 AM	24	249	34	1	49	173	25	3	37	66	27	0	51	94	57	6	886	3884
8:45 AM	23	208	16	0	20	147	39	0	36	40	21	0	21	62	45	0	678	3570
Peak Hour Total	207	958	167	5	86	704	274	7	192	235	215	4	203	593	208	11	4042	



	Power Road				Power Road				Guadalupe Road				Guadalupe Road				Total	Peak Hour
	Northbound				Southbound				Eastbound				Westbound					
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds		
4:00 PM	10	208	22	3	42	235	36	0	45	61	28	1	39	74	48	0	848	
4:15 PM	43	235	30	0	30	231	42	0	47	93	51	0	30	51	41	0	924	
4:30 PM	29	217	30	0	31	262	54	0	47	68	30	1	23	63	38	1	892	
4:45 PM	30	183	26	1	25	247	53	1	39	61	24	1	29	66	37	1	820	3484
5:00 PM	30	187	33	4	49	262	49	0	52	78	28	0	33	65	48	5	914	3550
5:15 PM	35	210	42	1	47	286	74	1	38	76	27	1	21	64	35	0	955	3581
5:30 PM	27	185	34	2	44	189	68	3	56	81	42	1	45	95	62	0	928	3617
5:45 PM	34	178	35	0	51	248	69	0	39	59	26	1	24	61	42	0	866	3663
Peak Hour Total	126	760	144	7	191	985	260	4	185	294	123	3	123	285	187	5	3663	

Turning Movement Count

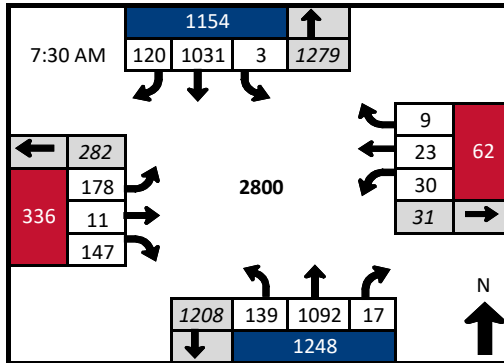
	Speed Limit	Lt	Lt\T	T	T\Rt	Rt	Lt/T/Rt	Lt/Rt
Northbound	45	1		1	1			
Southbound	45	1		1	1			
Eastbound	45	1			1			
Westbound	35	1		1		1		

Mar-30-2022 (Wednesday)

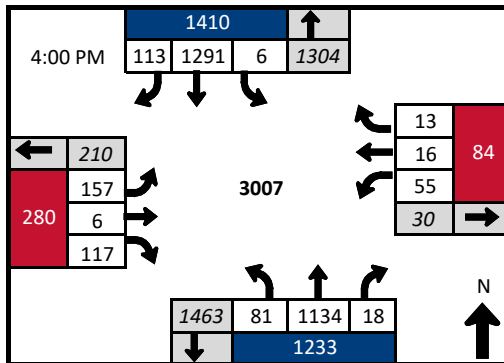
Project No: TR22024

Location: Power Road
and Warner Road

Intersection Configuration: Signalized



	Power Road Northbound				Power Road Southbound				Warner Road Eastbound				Warner Road Westbound				Total	Peak Hour
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds		
7:00 AM	20	230	5	0	0	206	16	1	40	3	26	0	4	4	1	0	555	
7:15 AM	28	254	5	0	0	238	30	0	43	0	32	0	5	2	1	0	638	
7:30 AM	22	284	4	1	2	299	41	0	40	0	33	0	7	4	1	1	737	
7:45 AM	45	291	2	0	0	258	26	0	54	3	44	0	4	6	3	0	736	2666
8:00 AM	44	241	7	0	1	243	34	1	44	3	30	1	8	7	1	0	663	2774
8:15 AM	28	276	4	0	0	231	19	0	40	5	40	0	11	6	4	0	664	2800
8:30 AM	18	277	5	0	0	246	24	0	24	5	30	0	7	4	2	0	642	2705
8:45 AM	13	200	3	0	1	204	13	0	25	0	27	0	3	1	1	0	491	2460
Peak Hour Total	139	1092	17	1	3	1031	120	1	178	11	147	1	30	23	9	1	2800	



	Power Road Northbound				Power Road Southbound				Warner Road Eastbound				Warner Road Westbound				Total	Peak Hour
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds		
4:00 PM	18	291	3	0	2	327	24	0	35	4	28	0	8	2	4	0	746	
4:15 PM	24	269	5	0	0	334	25	0	41	0	36	0	13	4	3	0	754	
4:30 PM	18	271	4	0	2	298	35	0	34	2	34	0	21	7	4	0	730	
4:45 PM	21	303	6	0	2	332	29	0	47	0	19	0	13	3	2	0	777	3007
5:00 PM	26	243	6	0	3	308	24	0	35	1	29	0	13	6	3	0	697	2958
5:15 PM	25	271	2	0	0	333	28	0	35	1	31	0	10	6	2	0	744	2948
5:30 PM	21	283	1	0	3	327	20	0	29	1	31	0	8	5	2	0	731	2949
5:45 PM	33	254	1	0	0	281	30	0	31	2	28	0	14	3	2	0	679	2851
Peak Hour Total	81	1134	18	0	6	1291	113	0	157	6	117	0	55	16	13	0	3007	

Project No: TR22024

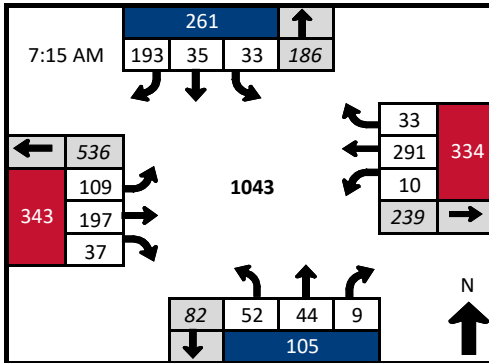
Location: Sossaman Road
and Elliot Road

Intersection Configuration: Signalized

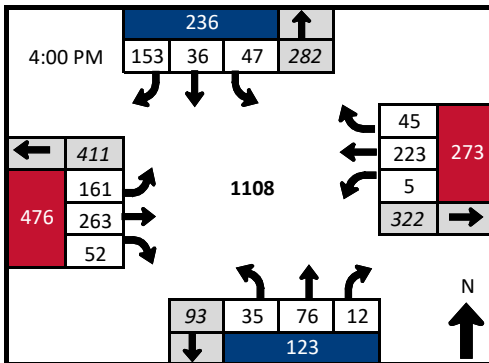
Turning Movement Count

								
Speed Limit		Lt	Lt/T	T	T/Rt	Rt	Lt/T/Rt	Lt/Rt
Northbound	45	1			1			
Southbound	45	1			1			
Eastbound	45	1			1			
Westbound	45	1			1			

Mar-30-2022 (Wednesday)



	Sossaman Road				Sossaman Road				Elliot Road				Elliot Road				Total	Peak Hour
	Northbound				Southbound				Eastbound				Westbound					
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds		
7:00 AM	12	11	1	0	7	9	56	0	16	39	9	0	0	41	17	0	218	
7:15 AM	10	12	2	0	5	12	46	0	21	44	12	0	2	58	11	0	235	
7:30 AM	19	14	1	0	15	5	68	0	19	47	5	0	4	76	6	0	279	
7:45 AM	12	9	3	0	8	12	41	0	37	46	9	0	2	84	6	0	269	1001
8:00 AM	11	9	3	0	5	6	38	0	32	60	11	0	2	73	10	0	260	1043
8:15 AM	6	11	1	0	3	8	32	0	26	64	10	0	3	48	13	0	225	1033
8:30 AM	7	3	3	0	11	7	37	0	23	37	9	0	4	35	7	0	183	937
8:45 AM	11	5	2	0	7	10	26	0	28	26	11	0	5	53	10	0	194	862
Peak Hour Total	52	44	9	0	33	35	193	0	109	197	37	0	10	291	33	0	1043	



	Sossaman Road				Sossaman Road				Elliot Road				Elliot Road				Total	Peak Hour
	Northbound				Southbound				Eastbound				Westbound					
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds		
4:00 PM	9	18	2	0	12	10	46	0	30	65	12	0	1	58	13	0	276	
4:15 PM	11	22	3	0	11	12	36	0	44	68	12	0	2	59	6	0	286	
4:30 PM	4	22	5	0	10	8	39	0	41	66	21	0	0	54	12	0	282	
4:45 PM	11	14	2	0	14	6	32	0	46	64	7	0	2	52	14	0	264	1108
5:00 PM	5	4	0	0	8	13	39	0	31	75	8	0	0	49	10	0	242	1074
5:15 PM	14	11	4	0	19	13	30	0	30	72	19	0	6	63	11	0	292	1080
5:30 PM	12	16	3	0	12	15	31	0	33	67	9	0	4	40	10	0	252	1050
5:45 PM	6	6	0	0	7	15	51	0	38	56	12	0	4	46	4	0	245	1031
Peak Hour Total	35	76	12	0	47	36	153	0	161	263	52	0	5	223	45	0	1108	

Appendix B

Intersection Level Of Service Report

Intersection 1: Power Road & Guadalupe Road

Control Type:	Signalized	Delay (sec / veh):	31.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.525

Intersection Setup

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Base Volume Input [veh/h]	207	958	167	86	704	274	192	235	215	203	593	208
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	57	0	0	94	0	0	74	0	0	71
Total Hourly Volume [veh/h]	215	996	117	89	732	191	200	244	150	211	617	145
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	58	271	32	24	199	52	54	66	41	57	168	39
Total Analysis Volume [veh/h]	234	1083	127	97	796	208	217	265	163	229	671	158
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Beginning of First Yellow
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	1	6	0	5	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	8	15	0	8	15	0	8	15	0	8	15	0
Maximum Green [s]	25	45	0	25	45	0	25	45	0	25	45	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	18	44	0	13	39	0	25	38	0	25	38	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0
Minimum Recall	No	Yes		No	Yes		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	65	53	53	65	50	50	42	24	24	42	25	25
g / C, Green / Cycle	0.54	0.44	0.44	0.54	0.42	0.42	0.35	0.20	0.20	0.35	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.29	0.21	0.08	0.15	0.16	0.13	0.20	0.07	0.10	0.18	0.19	0.10
s, saturation flow rate [veh/h]	799	5094	1589	659	5094	1589	1060	3560	1589	1265	3560	1589
c, Capacity [veh/h]	459	2259	705	375	2134	666	341	724	323	449	745	333
d1, Uniform Delay [s]	15.85	23.63	20.22	15.19	24.04	23.34	31.55	41.18	42.48	29.69	46.30	41.72
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.42	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.00	0.73	0.56	1.67	0.50	1.22	7.37	0.11	0.45	0.34	1.70	0.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.48	0.18	0.26	0.37	0.31	0.64	0.37	0.50	0.51	0.90	0.48
d, Delay for Lane Group [s/veh]	19.85	24.36	20.78	16.86	24.54	24.56	38.92	41.30	42.93	30.02	47.99	42.11
Lane Group LOS	B	C	C	B	C	C	D	D	D	C	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.67	7.02	2.18	1.38	5.06	4.00	5.17	3.31	4.22	4.80	9.61	4.04
50th-Percentile Queue Length [ft/ln]	91.71	175.48	54.42	34.41	126.55	100.08	129.37	82.67	105.54	120.04	240.32	101.03
95th-Percentile Queue Length [veh/ln]	6.60	11.36	3.92	2.48	8.75	7.21	8.91	5.95	7.59	8.40	14.70	7.27
95th-Percentile Queue Length [ft/ln]	165.08	284.10	97.96	61.94	218.80	180.14	222.63	148.81	189.78	209.88	367.44	181.85

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	19.85	24.36	20.78	16.86	24.54	24.56	38.92	41.30	42.93	30.02	47.99	42.11
Movement LOS	B	C	C	B	C	C	D	D	D	C	D	D
d_A, Approach Delay [s/veh]	23.31			23.87			40.91			43.23		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	31.09											
Intersection LOS	C											
Intersection V/C	0.525											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	625			541			525			525		
d_b, Bicycle Delay [s]	28.40			31.94			32.67			32.67		
I_b,int, Bicycle LOS Score for Intersection	2.385			2.217			1.955			2.491		
Bicycle LOS	B			B			A			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Power Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.657

Intersection Setup

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Base Volume Input [veh/h]	114	1056	150	45	936	209	184	180	125	192	275	51
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	51	0	0	72	0	0	43	0	0	17
Total Hourly Volume [veh/h]	119	1098	105	47	973	145	191	187	87	200	286	36
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	298	29	13	264	39	52	51	24	54	78	10
Total Analysis Volume [veh/h]	129	1193	114	51	1058	158	208	203	95	217	311	39
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	35	0	20	35	0	25	30	0	25	30	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	31	30	0	30	29	0	31	30	0	30	29	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	3.4	0.0	2.0	3.4	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	79	79	79	79	79	79	79	79	79	79
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	5.40	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	3.40	0.00	3.40
g_i, Effective Green Time [s]	38	31	31	38	29	29	30	17	30	17
g / C, Green / Cycle	0.47	0.39	0.39	0.47	0.36	0.36	0.38	0.21	0.38	0.22
(v / s)_i Volume / Saturation Flow Rate	0.18	0.35	0.36	0.09	0.33	0.33	0.16	0.17	0.16	0.19
s, saturation flow rate [veh/h]	707	1870	1813	591	1870	1786	1298	1770	1339	1834
c, Capacity [veh/h]	324	729	707	274	674	644	434	377	468	398
d1, Uniform Delay [s]	17.11	22.85	22.94	16.42	24.31	24.36	19.16	29.58	18.82	30.07
k, delay calibration	0.19	0.24	0.24	0.04	0.20	0.20	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.36	9.25	10.17	0.12	9.57	10.39	0.31	1.43	0.27	2.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.91	0.91	0.19	0.92	0.92	0.48	0.79	0.46	0.88
d, Delay for Lane Group [s/veh]	18.47	32.10	33.10	16.54	33.88	34.75	19.46	31.01	19.09	32.58
Lane Group LOS	B	C	C	B	C	C	B	C	B	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.24	11.97	11.89	0.43	11.56	11.25	2.43	5.08	2.54	6.19
50th-Percentile Queue Length [ft/ln]	30.88	299.17	297.24	10.73	289.01	281.19	60.70	127.03	63.60	154.75
95th-Percentile Queue Length [veh/ln]	2.22	17.64	17.54	0.77	17.14	16.75	4.37	8.78	4.58	10.27
95th-Percentile Queue Length [ft/ln]	55.58	441.00	438.61	19.32	428.42	418.69	109.27	219.45	114.47	256.76

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.47	32.55	33.10	16.54	34.24	34.75	19.46	31.01	31.01	19.09	32.58	32.58
Movement LOS	B	C	C	B	C	C	B	C	C	B	C	C
d_A, Approach Delay [s/veh]	31.33			33.59			26.26			27.42		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	30.82											
Intersection LOS	C											
Intersection V/C	0.657											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	596			571			621			596		
d_b, Bicycle Delay [s]	19.53			20.24			18.83			19.53		
I_b,int, Bicycle LOS Score for Intersection	2.786			2.664			2.465			2.523		
Bicycle LOS	C			B			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Power Road & Warner Road

Control Type:	Signalized	Delay (sec / veh):	17.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.509

Intersection Setup

Name	Power Road			Power Road			Warner Road			Warner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Warner Road			Warner Road		
Base Volume Input [veh/h]	139	1092	17	3	1031	120	178	11	147	30	23	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	6	0	0	41	0	0	50	0	0	3
Total Hourly Volume [veh/h]	145	1136	12	3	1072	84	185	11	103	31	24	6
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	39	309	3	1	291	23	50	3	28	8	7	2
Total Analysis Volume [veh/h]	158	1235	13	3	1165	91	201	12	112	34	26	7
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	65	0	20	65	0	20	20	0	20	20	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	29	29	0	29	29	0	35	27	0	35	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	R
C, Cycle Length [s]	62	62	62	62	62	62	62	62	62	62	62
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	0.00	4.40	4.40
g_i, Effective Green Time [s]	33	29	29	33	25	25	15	10	15	3	3
g / C, Green / Cycle	0.54	0.47	0.47	0.54	0.40	0.40	0.25	0.16	0.25	0.06	0.06
(v / s)_i Volume / Saturation Flow Rate	0.22	0.33	0.33	0.01	0.34	0.34	0.12	0.08	0.02	0.01	0.00
s, saturation flow rate [veh/h]	711	1870	1863	533	1870	1823	1638	1613	1392	1870	1589
c, Capacity [veh/h]	423	885	882	346	748	729	568	254	436	106	90
d1, Uniform Delay [s]	11.59	12.86	12.87	8.65	16.83	16.84	19.52	23.74	17.80	27.87	27.61
k, delay calibration	0.20	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.04	1.05	1.05	0.01	2.81	2.92	0.37	1.45	0.08	1.20	0.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.71	0.71	0.01	0.85	0.85	0.35	0.49	0.08	0.25	0.08
d, Delay for Lane Group [s/veh]	12.62	13.91	13.92	8.66	19.63	19.76	19.89	25.18	17.87	29.07	27.97
Lane Group LOS	B	B	B	A	B	B	B	C	B	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.87	5.38	5.36	0.01	7.04	6.90	2.26	1.62	0.35	0.38	0.10
50th-Percentile Queue Length [ft/ln]	21.63	134.41	134.09	0.35	175.89	172.53	56.44	40.53	8.64	9.47	2.52
95th-Percentile Queue Length [veh/ln]	1.56	9.18	9.16	0.02	11.39	11.21	4.06	2.92	0.62	0.68	0.18
95th-Percentile Queue Length [ft/ln]	38.93	229.47	229.04	0.62	284.64	280.23	101.60	72.96	15.55	17.05	4.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	12.62	13.91	13.92	8.66	19.69	19.76	19.89	25.18	25.18	17.87	29.07	27.97
Movement LOS	B	B	B	A	B	B	B	C	C	B	C	C
d_A, Approach Delay [s/veh]	13.77			19.67			21.91			23.27		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	17.27											
Intersection LOS	B											
Intersection V/C	0.509											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	734			734			669			669		
d_b, Bicycle Delay [s]	12.35			12.35			13.64			13.64		
I_b,int, Bicycle LOS Score for Intersection	2.725			2.632			2.178			1.675		
Bicycle LOS	B			B			B			A		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Sossaman Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	9.6
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.305

Intersection Setup

Name							Elliot Road					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name							Elliot Road					
Base Volume Input [veh/h]	52	44	9	33	35	193	109	197	37	10	291	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	3	0	0	66	0	0	13	0	0	11
Total Hourly Volume [veh/h]	54	46	6	34	36	135	113	205	25	10	303	23
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	13	2	9	10	37	31	56	7	3	82	6
Total Analysis Volume [veh/h]	59	50	7	37	39	147	123	223	27	11	329	25
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	15	0	0	15	0
Maximum Green [s]	0	30	0	0	30	0	0	50	0	0	50	0
Amber [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	42	0	0	42	0	0	78	0	0	78	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Cycle Length [s]	35	35	35	35	35	35	35	35
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
g_i, Effective Green Time [s]	7	7	7	7	15	15	15	15
g / C, Green / Cycle	0.21	0.21	0.21	0.21	0.42	0.42	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.05	0.03	0.03	0.11	0.12	0.14	0.01	0.19
s, saturation flow rate [veh/h]	1197	1830	1346	1641	1027	1835	1129	1847
c, Capacity [veh/h]	274	380	387	340	451	778	528	783
d1, Uniform Delay [s]	16.27	11.25	13.41	12.30	11.48	6.67	8.99	7.13
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.14	0.07	0.04	0.51	0.12	0.09	0.01	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.22	0.15	0.10	0.55	0.27	0.32	0.02	0.45
d, Delay for Lane Group [s/veh]	16.42	11.32	13.45	12.81	11.60	6.76	9.00	7.28
Lane Group LOS	B	B	B	B	B	A	A	A
Critical Lane Group	No	No	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.35	0.25	0.19	0.90	0.54	0.59	0.04	0.90
50th-Percentile Queue Length [ft/ln]	8.84	6.15	4.65	22.50	13.56	14.75	0.94	22.42
95th-Percentile Queue Length [veh/ln]	0.64	0.44	0.33	1.62	0.98	1.06	0.07	1.61
95th-Percentile Queue Length [ft/ln]	15.91	11.07	8.37	40.50	24.40	26.55	1.70	40.36

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.42	11.32	11.32	13.45	12.81	12.81	11.60	6.76	6.76	9.00	7.28	7.28
Movement LOS	B	B	B	B	B	B	B	A	A	A	A	A
d_A, Approach Delay [s/veh]	13.91			12.91			8.35			7.33		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	9.55											
Intersection LOS	A											
Intersection V/C	0.305											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	2059			2059			4140			4140		
d_b, Bicycle Delay [s]	0.01			0.01			19.80			19.80		
I_b,int, Bicycle LOS Score for Intersection	1.756			2.036			2.197			2.180		
Bicycle LOS	A			B			B			B		

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 1: Power Road & Guadalupe Road

Control Type:	Signalized	Delay (sec / veh):	26.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.447

Intersection Setup

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Base Volume Input [veh/h]	126	760	144	191	985	260	185	294	123	123	285	187
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	50	0	0	89	0	0	42	0	0	64
Total Hourly Volume [veh/h]	131	790	100	199	1024	181	192	306	86	128	296	130
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	215	27	54	278	49	52	83	23	35	80	35
Total Analysis Volume [veh/h]	142	859	109	216	1113	197	209	333	93	139	322	141
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Beginning of First Yellow
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	1	6	0	5	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	8	15	0	8	15	0	8	15	0	8	15	0
Maximum Green [s]	25	45	0	25	45	0	25	45	0	25	45	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	30	37	0	30	37	0	31	23	0	30	22	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0
Minimum Recall	No	Yes		No	Yes		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	74	62	62	74	62	62	33	19	19	33	15	15
g / C, Green / Cycle	0.62	0.51	0.51	0.62	0.52	0.52	0.27	0.16	0.16	0.27	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.24	0.17	0.07	0.29	0.22	0.12	0.16	0.08	0.08	0.11	0.09	0.09
s, saturation flow rate [veh/h]	602	5094	1589	753	5094	1589	1338	3560	1673	1247	3560	1589
c, Capacity [veh/h]	403	2610	814	494	2640	824	378	576	271	360	448	200
d1, Uniform Delay [s]	11.30	17.18	15.34	11.03	17.83	15.91	36.44	45.90	46.04	34.75	50.48	50.38
k, delay calibration	0.21	0.50	0.50	0.50	0.50	0.50	0.18	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.01	0.34	0.34	2.80	0.50	0.69	2.05	0.25	0.56	0.25	0.82	1.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.35	0.33	0.13	0.44	0.42	0.24	0.55	0.50	0.51	0.39	0.72	0.71
d, Delay for Lane Group [s/veh]	12.31	17.52	15.68	13.82	18.33	16.59	38.49	46.15	46.61	35.00	51.30	52.09
Lane Group LOS	B	B	B	B	B	B	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.53	4.44	1.56	2.64	6.05	2.96	5.11	3.82	3.75	3.14	4.58	4.06
50th-Percentile Queue Length [ft/ln]	38.18	111.10	38.98	65.91	151.19	74.10	127.76	95.58	93.81	78.55	114.59	101.42
95th-Percentile Queue Length [veh/ln]	2.75	7.90	2.81	4.75	10.08	5.34	8.82	6.88	6.75	5.66	8.09	7.30
95th-Percentile Queue Length [ft/ln]	68.73	197.53	70.17	118.65	252.01	133.38	220.44	172.05	168.86	141.39	202.37	182.56

Movement, Approach, & Intersection Results

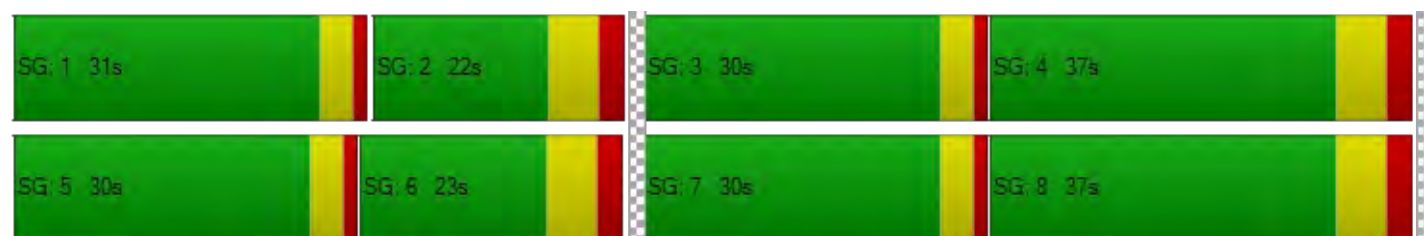
d_M, Delay for Movement [s/veh]	12.31	17.52	15.68	13.82	18.33	16.59	38.49	46.21	46.61	35.00	51.30	52.09
Movement LOS	B	B	B	B	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	16.67			17.47			43.73			47.72		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	26.25											
Intersection LOS	C											
Intersection V/C	0.447											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	508			508			275			258		
d_b, Bicycle Delay [s]	33.41			33.41			44.67			45.54		
I_b,int, Bicycle LOS Score for Intersection	2.198			2.448			1.932			2.109		
Bicycle LOS	B			B			A			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 2: Power Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	30.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.670

Intersection Setup

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Base Volume Input [veh/h]	127	973	232	37	1051	140	149	219	117	168	196	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	80	0	0	48	0	0	40	0	0	12
Total Hourly Volume [veh/h]	132	1012	161	38	1093	98	155	228	82	175	204	25
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	275	44	10	297	27	42	62	22	48	55	7
Total Analysis Volume [veh/h]	143	1100	175	41	1188	107	168	248	89	190	222	27
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	35	0	20	35	0	25	30	0	25	30	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	31	30	0	30	29	0	31	30	0	30	29	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	3.4	0.0	2.0	3.4	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	82	82	82	82	82	82	82	82	82	82
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	5.40	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	3.40	0.00	3.40
g_i, Effective Green Time [s]	40	34	34	40	31	31	30	18	30	18
g / C, Green / Cycle	0.49	0.41	0.41	0.49	0.38	0.38	0.36	0.21	0.36	0.22
(v / s)_i Volume / Saturation Flow Rate	0.21	0.35	0.35	0.07	0.35	0.35	0.13	0.19	0.15	0.14
s, saturation flow rate [veh/h]	678	1870	1782	582	1870	1816	1336	1787	1298	1835
c, Capacity [veh/h]	321	775	739	280	705	684	480	382	412	412
d1, Uniform Delay [s]	17.65	21.61	21.72	15.38	24.61	24.66	19.11	31.35	20.33	28.64
k, delay calibration	0.31	0.25	0.25	0.04	0.25	0.26	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.73	5.53	6.26	0.09	12.43	13.25	0.16	2.71	0.30	0.54
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.45	0.84	0.85	0.15	0.93	0.93	0.35	0.88	0.46	0.60
d, Delay for Lane Group [s/veh]	20.38	27.14	27.99	15.47	37.04	37.91	19.27	34.06	20.63	29.18
Lane Group LOS	C	C	C	B	D	D	B	C	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.49	10.94	10.72	0.34	13.19	13.03	2.05	6.26	2.36	4.13
50th-Percentile Queue Length [ft/ln]	37.19	273.53	267.96	8.57	329.73	325.77	51.32	156.42	59.08	103.30
95th-Percentile Queue Length [veh/ln]	2.68	16.37	16.09	0.62	19.15	18.95	3.70	10.36	4.25	7.44
95th-Percentile Queue Length [ft/ln]	66.94	409.15	402.19	15.42	478.63	473.78	92.38	258.98	106.35	185.94

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	20.38	27.49	27.99	15.47	37.43	37.91	19.27	34.06	34.06	20.63	29.18	29.18
Movement LOS	C	C	C	B	D	D	B	C	C	C	C	C
d_A, Approach Delay [s/veh]	26.83			36.80			29.14			25.48		
Approach LOS	C			D			C			C		
d_I, Intersection Delay [s/veh]	30.59											
Intersection LOS	C											
Intersection V/C	0.670											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	575			551			599			575		
d_b, Bicycle Delay [s]	20.84			21.56			20.14			20.84		
I_b,int, Bicycle LOS Score for Intersection	2.795			2.701			2.459			2.304		
Bicycle LOS	C			B			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Power Road & Warner Road

Control Type:	Signalized	Delay (sec / veh):	16.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.565

Intersection Setup

Name	Power Road			Power Road			Warner Road			Warner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Warner Road			Warner Road		
Base Volume Input [veh/h]	81	1134	18	6	1291	113	157	6	117	55	16	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	6	0	0	39	0	0	40	0	0	5
Total Hourly Volume [veh/h]	84	1179	13	6	1343	79	163	6	82	57	17	9
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	320	4	2	365	21	44	2	22	15	5	2
Total Analysis Volume [veh/h]	91	1282	14	7	1460	86	177	7	89	62	18	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	65	0	20	65	0	20	20	0	20	20	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	29	29	0	29	29	0	35	27	0	35	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	R
C, Cycle Length [s]	67	67	67	67	67	67	67	67	67	67	67
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	0.00	4.40	4.40
g_i, Effective Green Time [s]	39	35	35	39	32	32	15	8	15	3	3
g / C, Green / Cycle	0.59	0.52	0.52	0.59	0.48	0.48	0.22	0.12	0.22	0.05	0.05
(v / s)_i Volume / Saturation Flow Rate	0.17	0.35	0.35	0.01	0.42	0.42	0.11	0.06	0.04	0.01	0.01
s, saturation flow rate [veh/h]	528	1870	1863	511	1870	1834	1641	1607	1451	1870	1589
c, Capacity [veh/h]	343	972	968	351	894	877	515	199	413	91	78
d1, Uniform Delay [s]	12.62	11.93	11.93	8.02	15.73	15.81	22.57	27.56	21.16	30.84	30.74
k, delay calibration	0.13	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.49	0.80	0.81	0.02	2.77	2.97	0.39	1.81	0.17	1.04	0.74
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	0.67	0.67	0.02	0.87	0.88	0.34	0.48	0.15	0.20	0.13
d, Delay for Lane Group [s/veh]	13.11	12.73	12.74	8.04	18.50	18.77	22.96	29.36	21.33	31.88	31.48
Lane Group LOS	B	B	B	A	B	B	C	C	C	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.45	5.61	5.60	0.03	8.95	8.92	2.30	1.46	0.75	0.29	0.16
50th-Percentile Queue Length [ft/ln]	11.20	140.33	139.97	0.79	223.78	223.06	57.48	36.42	18.80	7.34	4.10
95th-Percentile Queue Length [veh/ln]	0.81	9.50	9.48	0.06	13.86	13.82	4.14	2.62	1.35	0.53	0.29
95th-Percentile Queue Length [ft/ln]	20.16	237.47	236.99	1.42	346.45	345.53	103.47	65.55	33.85	13.21	7.37

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	13.11	12.73	12.74	8.04	18.63	18.77	22.96	29.36	29.36	21.33	31.88	31.48
Movement LOS	B	B	B	A	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	12.76			18.59			25.21			24.57		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	16.85											
Intersection LOS	B											
Intersection V/C	0.565											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	671			671			612			612		
d_b, Bicycle Delay [s]	14.88			14.88			16.23			16.23		
I_b,int, Bicycle LOS Score for Intersection	2.709			2.873			2.076			1.716		
Bicycle LOS	B			C			B			A		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Sossaman Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	9.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.278

Intersection Setup

Name							Elliot Road					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name							Elliot Road					
Base Volume Input [veh/h]	35	76	12	47	36	153	161	263	52	5	223	45
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	52	0	0	18	0	0	16
Total Hourly Volume [veh/h]	36	79	8	49	37	107	167	274	36	5	232	31
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	21	2	13	10	29	45	74	10	1	63	8
Total Analysis Volume [veh/h]	39	86	9	53	40	116	182	298	39	5	252	34
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	15	0	0	15	0
Maximum Green [s]	0	30	0	0	30	0	0	50	0	0	50	0
Amber [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	42	0	0	42	0	0	78	0	0	78	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Cycle Length [s]	35	35	35	35	35	35	35	35
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
g_i, Effective Green Time [s]	7	7	7	7	15	15	15	15
g / C, Green / Cycle	0.20	0.20	0.20	0.20	0.43	0.43	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.03	0.05	0.04	0.09	0.17	0.18	0.00	0.16
s, saturation flow rate [veh/h]	1230	1839	1301	1653	1093	1833	1043	1832
c, Capacity [veh/h]	291	372	349	335	507	789	469	788
d1, Uniform Delay [s]	15.60	11.69	14.41	12.24	10.98	6.93	9.80	6.70
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.08	0.13	0.07	0.38	0.16	0.14	0.00	0.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.13	0.26	0.15	0.47	0.36	0.43	0.01	0.36
d, Delay for Lane Group [s/veh]	15.68	11.82	14.49	12.62	11.14	7.07	9.80	6.81
Lane Group LOS	B	B	B	B	B	A	A	A
Critical Lane Group	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.23	0.43	0.29	0.75	0.77	0.83	0.02	0.68
50th-Percentile Queue Length [ft/ln]	5.63	10.72	7.15	18.72	19.32	20.73	0.47	16.97
95th-Percentile Queue Length [veh/ln]	0.41	0.77	0.51	1.35	1.39	1.49	0.03	1.22
95th-Percentile Queue Length [ft/ln]	10.13	19.30	12.87	33.69	34.78	37.31	0.85	30.54

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.68	11.82	11.82	14.49	12.62	12.62	11.14	7.07	7.07	9.80	6.81	6.81
Movement LOS	B	B	B	B	B	B	B	A	A	A	A	A
d_A, Approach Delay [s/veh]	12.94			13.09			8.50			6.86		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	9.43											
Intersection LOS	A											
Intersection V/C	0.278											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	2049			2049			4121			4121		
d_b, Bicycle Delay [s]	0.01			0.01			19.53			19.53		
I_b,int, Bicycle LOS Score for Intersection	1.787			1.990			2.446			2.066		
Bicycle LOS	A			A			B			B		

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: Power Road & Guadalupe Road

Control Type:	Signalized	Delay (sec / veh):	32.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.581

Intersection Setup

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Base Volume Input [veh/h]	220	1185	180	91	976	291	204	249	228	235	629	221
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	11	0	0	38	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	59	0	0	96	0	0	75	0	0	73
Total Hourly Volume [veh/h]	220	1196	121	91	1014	195	204	249	153	235	629	148
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	60	325	33	25	276	53	55	68	42	64	171	40
Total Analysis Volume [veh/h]	239	1300	132	99	1102	212	222	271	166	255	684	161
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Beginning of First Yellow
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	1	6	0	5	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	8	15	0	8	15	0	8	15	0	8	15	0
Maximum Green [s]	25	45	0	25	45	0	25	45	0	25	45	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	15	43	0	12	40	0	22	39	0	26	43	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0
Minimum Recall	No	Yes		No	Yes		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	64	53	53	64	49	49	43	24	24	43	26	26
g / C, Green / Cycle	0.54	0.44	0.44	0.54	0.41	0.41	0.36	0.20	0.20	0.36	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.34	0.26	0.08	0.17	0.22	0.13	0.21	0.08	0.10	0.20	0.19	0.10
s, saturation flow rate [veh/h]	693	5094	1589	587	5094	1589	1052	3560	1589	1284	3560	1589
c, Capacity [veh/h]	391	2232	696	330	2094	654	344	701	313	460	759	339
d1, Uniform Delay [s]	18.88	25.47	20.69	16.89	26.58	24.04	31.29	41.96	43.28	29.77	46.05	41.40
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.44	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.97	1.12	0.60	2.32	0.95	1.32	8.08	0.13	0.52	0.39	1.68	0.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.61	0.58	0.19	0.30	0.53	0.32	0.65	0.39	0.53	0.55	0.90	0.48
d, Delay for Lane Group [s/veh]	25.85	26.59	21.29	19.21	27.53	25.35	39.37	42.09	43.80	30.16	47.73	41.78
Lane Group LOS	C	C	C	B	C	C	D	D	D	C	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.04	9.05	2.30	1.46	7.70	4.16	5.32	3.42	4.35	5.39	9.79	4.10
50th-Percentile Queue Length [ft/ln]	101.03	226.25	57.47	36.50	192.59	104.08	133.01	85.54	108.84	134.70	244.64	102.56
95th-Percentile Queue Length [veh/ln]	7.27	13.98	4.14	2.63	12.26	7.49	9.10	6.16	7.78	9.20	14.92	7.38
95th-Percentile Queue Length [ft/ln]	181.86	349.59	103.44	65.70	306.39	187.35	227.58	153.97	194.39	229.88	372.89	184.61

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	25.85	26.59	21.29	19.21	27.53	25.35	39.37	42.09	43.80	30.16	47.73	41.78
Movement LOS	C	C	C	B	C	C	D	D	D	C	D	D
d_A, Approach Delay [s/veh]	26.06			26.62			41.60			42.78		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	32.14											
Intersection LOS	C											
Intersection V/C	0.581											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	608			558			541			608		
d_b, Bicycle Delay [s]	29.09			31.21			31.94			29.09		
I_b,int, Bicycle LOS Score for Intersection	2.511			2.390			1.963			2.527		
Bicycle LOS	B			B			A			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Power Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	60.9
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.825

Intersection Setup

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Base Volume Input [veh/h]	275	1148	168	52	1164	278	257	228	174	258	336	82
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	38	38	0	0	0	23	0	11	7	11
Right Turn on Red Volume [veh/h]	0	0	68	0	0	92	0	0	57	0	0	31
Total Hourly Volume [veh/h]	275	1148	138	90	1164	186	257	251	117	269	343	62
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	75	312	38	24	316	51	70	68	32	73	93	17
Total Analysis Volume [veh/h]	299	1248	150	98	1265	202	279	273	127	292	373	67
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	35	0	20	35	0	25	30	0	25	30	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	56	0	9	43	0	26	33	0	22	29	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	3.4	0.0	2.0	3.4	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C
C, Cycle Length [s]	116	116	116	116	116	116	116	116	116	116	116
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	5.40	5.40	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	3.40	3.40	0.00	3.40
g_i, Effective Green Time [s]	56	46	46	56	35	35	48	29	29	48	30
g / C, Green / Cycle	0.48	0.40	0.40	0.48	0.30	0.30	0.42	0.25	0.25	0.42	0.26
(v / s)_i Volume / Saturation Flow Rate	0.36	0.35	0.09	0.17	0.36	0.13	0.23	0.15	0.08	0.23	0.24
s, saturation flow rate [veh/h]	836	3560	1589	574	3560	1589	1238	1870	1589	1273	1821
c, Capacity [veh/h]	385	1415	632	240	1074	480	385	468	398	498	466
d1, Uniform Delay [s]	31.46	32.41	23.24	25.01	40.50	32.40	27.32	38.19	35.45	24.81	42.31
k, delay calibration	0.50	0.05	0.04	0.04	0.06	0.04	0.47	0.05	0.04	0.31	0.35
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.31	1.02	0.07	0.44	81.22	0.22	10.72	0.50	0.17	3.15	23.51
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.88	0.24	0.41	1.18	0.42	0.73	0.58	0.32	0.59	0.94
d, Delay for Lane Group [s/veh]	45.77	33.43	23.31	25.45	121.72	32.61	38.04	38.69	35.62	27.95	65.82
Lane Group LOS	D	C	C	C	F	C	D	D	D	C	E
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	6.26	15.37	2.63	1.40	26.63	4.40	6.15	6.64	2.86	5.72	14.86
50th-Percentile Queue Length [ft/ln]	156.52	384.14	65.67	34.88	665.85	109.89	153.80	165.89	71.40	143.04	371.44
95th-Percentile Queue Length [veh/ln]	10.36	21.79	4.73	2.51	38.72	7.83	10.22	10.86	5.14	9.64	21.18
95th-Percentile Queue Length [ft/ln]	259.10	544.86	118.21	62.78	968.03	195.85	255.50	271.50	128.51	241.12	529.48

Movement, Approach, & Intersection Results

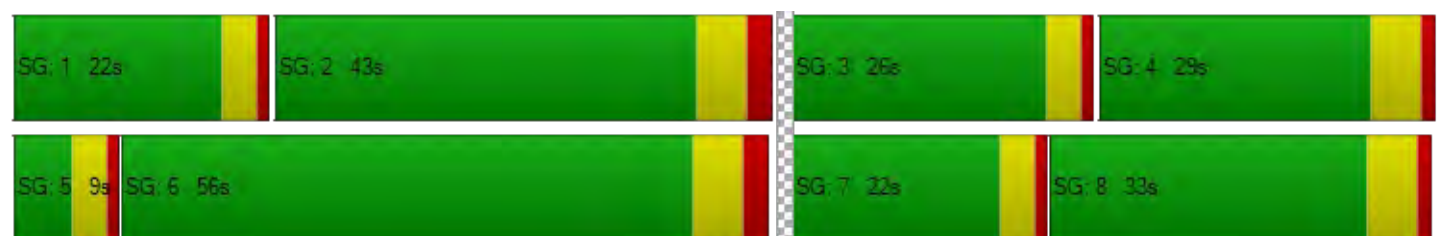
d_M, Delay for Movement [s/veh]	45.77	33.43	23.31	25.45	121.72	32.61	38.04	38.69	35.62	27.95	65.82	65.82
Movement LOS	D	C	C	C	F	C	D	D	D	C	E	E
d_A, Approach Delay [s/veh]	34.71			104.19			37.85			50.72		
Approach LOS	C			F			D			D		
d_I, Intersection Delay [s/veh]	60.94											
Intersection LOS	E											
Intersection V/C	0.825											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	857			632			477			408		
d_b, Bicycle Delay [s]	18.91			27.07			33.57			36.69		
I_b,int, Bicycle LOS Score for Intersection	3.016			2.927			2.774			2.819		
Bicycle LOS	C			C			C			C		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Power Road & Warner Road

Control Type:	Signalized	Delay (sec / veh):	33.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.770

Intersection Setup

Name	Power Road			Power Road			Warner Road			Warner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Warner Road			Warner Road		
Base Volume Input [veh/h]	169	1594	132	90	1332	182	232	56	181	207	39	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	38	0	0	11	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	44	0	0	60	0	0	60	0	0	10
Total Hourly Volume [veh/h]	169	1632	88	90	1343	122	232	56	121	207	39	20
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	46	443	24	24	365	33	63	15	33	56	11	5
Total Analysis Volume [veh/h]	184	1774	96	98	1460	133	252	61	132	225	42	22
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	65	0	20	65	0	20	20	0	20	20	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	8	27	0	36	55	0	30	46	0	11	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	111	111	111	111	111	111	111	111	111	111	111	111
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40
g_i, Effective Green Time [s]	68	60	60	68	57	57	30	12	12	30	10	10
g / C, Green / Cycle	0.62	0.54	0.54	0.62	0.51	0.51	0.27	0.11	0.11	0.27	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.36	0.50	0.51	0.25	0.43	0.44	0.16	0.02	0.08	0.15	0.01	0.01
s, saturation flow rate [veh/h]	517	1870	1837	389	1870	1816	1600	3560	1589	1508	3560	1589
c, Capacity [veh/h]	295	1010	992	220	963	935	513	378	169	484	325	145
d1, Uniform Delay [s]	22.48	23.47	23.90	25.05	22.86	23.14	34.58	45.11	48.36	33.99	46.36	46.46
k, delay calibration	0.50	0.34	0.35	0.11	0.25	0.26	0.34	0.11	0.11	0.25	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.53	11.36	13.75	1.42	4.46	5.16	2.27	0.20	7.69	1.59	0.18	0.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.62	0.93	0.94	0.45	0.83	0.85	0.49	0.16	0.78	0.46	0.13	0.15
d, Delay for Lane Group [s/veh]	32.00	34.83	37.65	26.47	27.31	28.30	36.85	45.31	56.04	35.58	46.54	46.94
Lane Group LOS	C	C	D	C	C	C	D	D	E	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.48	23.00	23.97	0.94	17.16	17.28	6.02	0.77	3.87	5.21	0.54	0.57
50th-Percentile Queue Length [ft/ln]	61.92	575.07	599.24	23.58	428.92	432.09	150.54	19.20	96.87	130.33	13.41	14.35
95th-Percentile Queue Length [veh/ln]	4.46	30.87	32.00	1.70	23.95	24.10	10.05	1.38	6.97	8.96	0.97	1.03
95th-Percentile Queue Length [ft/ln]	111.46	771.71	799.98	42.45	598.75	602.54	251.15	34.56	174.37	223.94	24.14	25.83

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	32.00	36.16	37.65	26.47	27.76	28.30	36.85	45.31	56.04	35.58	46.54	46.94
Movement LOS	C	D	D	C	C	C	D	D	E	D	D	D
d_A, Approach Delay [s/veh]	35.86			27.72			43.71			38.04		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	33.71											
Intersection LOS	C											
Intersection V/C	0.770											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	372			877			714			372		
d_b, Bicycle Delay [s]	36.74			17.48			22.90			36.74		
I_b,int, Bicycle LOS Score for Intersection	3.290			3.004			1.976			1.806		
Bicycle LOS	C			C			A			A		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Sossaman Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	10.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.401

Intersection Setup

Name							Elliot Road					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name							Elliot Road					
Base Volume Input [veh/h]	63	47	10	35	37	213	117	253	40	11	405	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	16	0	0	53	0
Right Turn on Red Volume [veh/h]	0	0	3	0	0	70	0	0	13	0	0	12
Total Hourly Volume [veh/h]	63	47	7	35	37	143	117	269	27	11	458	23
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	13	2	10	10	39	32	73	7	3	124	6
Total Analysis Volume [veh/h]	68	51	8	38	40	155	127	292	29	12	498	25
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	15	0	0	15	0
Maximum Green [s]	0	30	0	0	30	0	0	50	0	0	50	0
Amber [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	42	0	0	42	0	0	78	0	0	78	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Cycle Length [s]	38	38	38	38	38	38	38	38
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
g_i, Effective Green Time [s]	7	7	7	7	18	18	18	18
g / C, Green / Cycle	0.19	0.19	0.19	0.19	0.47	0.47	0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.06	0.03	0.03	0.12	0.14	0.17	0.01	0.28
s, saturation flow rate [veh/h]	1188	1826	1344	1640	879	1841	1059	1854
c, Capacity [veh/h]	238	355	353	319	363	858	503	865
d1, Uniform Delay [s]	18.35	12.65	15.02	13.90	14.27	6.51	9.50	7.49
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.24	0.08	0.05	0.71	0.21	0.10	0.01	0.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.29	0.17	0.11	0.61	0.35	0.37	0.02	0.60
d, Delay for Lane Group [s/veh]	18.59	12.73	15.07	14.60	14.48	6.61	9.51	7.74
Lane Group LOS	B	B	B	B	B	A	A	A
Critical Lane Group	No	No	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.49	0.31	0.23	1.15	0.74	0.81	0.05	1.54
50th-Percentile Queue Length [ft/ln]	12.17	7.68	5.68	28.71	18.58	20.29	1.19	38.42
95th-Percentile Queue Length [veh/ln]	0.88	0.55	0.41	2.07	1.34	1.46	0.09	2.77
95th-Percentile Queue Length [ft/ln]	21.91	13.82	10.22	51.68	33.45	36.52	2.13	69.15

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.59	12.73	12.73	15.07	14.60	14.60	14.48	6.61	6.61	9.51	7.74	7.74
Movement LOS	B	B	B	B	B	B	B	A	A	A	A	A
d_A, Approach Delay [s/veh]	15.87			14.68			8.84			7.78		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	10.10											
Intersection LOS	B											
Intersection V/C	0.401											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1883			1883			3786			3786		
d_b, Bicycle Delay [s]	0.07			0.07			15.09			15.09		
I_b,int, Bicycle LOS Score for Intersection	1.774			2.060			2.320			2.462		
Bicycle LOS	A			B			B			B		

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: Power Road & Guadalupe Road

Control Type:	Signalized	Delay (sec / veh):	26.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.516

Intersection Setup

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Base Volume Input [veh/h]	134	1080	171	203	1311	276	196	312	131	135	302	198
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	37	0	0	16	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	56	0	0	91	0	0	43	0	0	65
Total Hourly Volume [veh/h]	134	1117	115	203	1327	185	196	312	88	135	302	133
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	304	31	55	361	50	53	85	24	37	82	36
Total Analysis Volume [veh/h]	146	1214	125	221	1442	201	213	339	96	147	328	145
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Beginning of First Yellow
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	1	6	0	5	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	8	15	0	8	15	0	8	15	0	8	15	0
Maximum Green [s]	25	45	0	25	45	0	25	45	0	25	45	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	17	45	0	24	52	0	23	32	0	19	28	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0
Minimum Recall	No	Yes		No	Yes		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	74	61	61	74	62	62	33	19	19	33	15	15
g / C, Green / Cycle	0.62	0.51	0.51	0.62	0.52	0.52	0.27	0.16	0.16	0.27	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.29	0.24	0.08	0.36	0.28	0.13	0.16	0.08	0.09	0.12	0.09	0.09
s, saturation flow rate [veh/h]	503	5094	1589	610	5094	1589	1336	3560	1671	1251	3560	1589
c, Capacity [veh/h]	340	2595	810	400	2634	822	378	569	267	362	448	200
d1, Uniform Delay [s]	14.02	18.99	15.69	13.45	19.54	16.04	36.42	46.22	46.36	34.80	50.57	50.52
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.23	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.92	0.61	0.41	5.41	0.82	0.71	2.82	0.27	0.61	0.27	0.88	1.88
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.43	0.47	0.15	0.55	0.55	0.24	0.56	0.51	0.53	0.41	0.73	0.73
d, Delay for Lane Group [s/veh]	17.94	19.59	16.10	18.85	20.37	16.75	39.24	46.49	46.97	35.08	51.45	52.40
Lane Group LOS	B	B	B	B	C	B	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.84	6.93	1.82	2.93	8.60	3.04	5.29	3.93	3.85	3.33	4.68	4.19
50th-Percentile Queue Length [ft/ln]	45.88	173.21	45.58	73.13	215.04	76.11	132.15	98.15	96.17	83.30	117.01	104.75
95th-Percentile Queue Length [veh/ln]	3.30	11.25	3.28	5.27	13.41	5.48	9.06	7.07	6.92	6.00	8.23	7.54
95th-Percentile Queue Length [ft/ln]	82.58	281.13	82.04	131.63	335.29	137.01	226.41	176.68	173.11	149.94	205.71	188.55

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.94	19.59	16.10	18.85	20.37	16.75	39.24	46.55	46.97	35.08	51.45	52.40
Movement LOS	B	B	B	B	C	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	19.14			19.80			44.21			47.79		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	26.77											
Intersection LOS	C											
Intersection V/C	0.516											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	641			758			425			358		
d_b, Bicycle Delay [s]	27.71			23.16			37.25			40.46		
I_b,int, Bicycle LOS Score for Intersection	2.407			2.635			1.940			2.125		
Bicycle LOS	B			B			A			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Power Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	100.1
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.876

Intersection Setup

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Base Volume Input [veh/h]	310	1128	290	51	1298	199	227	321	185	192	264	78
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	16	16	0	0	0	9	0	37	22	37
Right Turn on Red Volume [veh/h]	0	0	101	0	0	66	0	0	61	0	0	38
Total Hourly Volume [veh/h]	310	1128	205	67	1298	133	227	330	124	229	286	77
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	84	307	56	18	353	36	62	90	34	62	78	21
Total Analysis Volume [veh/h]	337	1226	223	73	1411	145	247	359	135	249	311	84
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	35	0	20	35	0	25	30	0	25	30	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	8	63	0	9	64	0	25	32	0	16	23	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	3.4	0.0	2.0	3.4	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C
C, Cycle Length [s]	113	113	113	113	113	113	113	113	113	113	113
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	5.40	5.40	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	3.40	3.40	0.00	3.40
g_i, Effective Green Time [s]	57	49	49	57	35	35	44	26	26	44	27
g / C, Green / Cycle	0.51	0.44	0.44	0.51	0.31	0.31	0.39	0.23	0.23	0.39	0.24
(v / s)_i Volume / Saturation Flow Rate	0.40	0.39	0.41	0.14	0.42	0.43	0.20	0.19	0.08	0.21	0.22
s, saturation flow rate [veh/h]	844	1870	1773	517	1870	1810	1265	1870	1589	1211	1802
c, Capacity [veh/h]	420	814	772	214	579	561	375	439	373	402	424
d1, Uniform Delay [s]	31.47	29.54	30.27	24.77	38.98	38.98	27.77	40.95	36.16	27.10	42.28
k, delay calibration	0.50	0.50	0.50	0.04	0.50	0.50	0.33	0.18	0.04	0.22	0.26
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.84	14.64	19.35	0.35	170.77	179.76	5.89	6.11	0.22	3.14	18.65
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.90	0.93	0.34	1.35	1.37	0.66	0.82	0.36	0.62	0.93
d, Delay for Lane Group [s/veh]	46.31	44.19	49.63	25.12	209.76	218.75	33.66	47.06	36.38	30.24	60.92
Lane Group LOS	D	D	D	C	F	F	C	D	D	C	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	6.68	20.25	21.23	0.93	42.67	42.70	5.09	9.83	3.04	4.87	12.53
50th-Percentile Queue Length [ft/ln]	167.07	506.35	530.71	23.18	1066.76	1067.51	127.32	245.79	76.01	121.78	313.27
95th-Percentile Queue Length [veh/ln]	10.92	27.63	28.78	1.67	63.34	63.76	8.79	14.97	5.47	8.49	18.34
95th-Percentile Queue Length [ft/ln]	273.06	690.87	719.61	41.72	1583.41	1593.92	219.84	374.35	136.82	212.27	458.41

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.31	46.39	49.63	25.12	213.74	218.75	33.66	47.06	36.38	30.24	60.92	60.92
Movement LOS	D	D	D	C	F	F	C	D	D	C	E	E
d_A, Approach Delay [s/veh]	46.78			205.74			40.65			49.06		
Approach LOS	D			F			D			D		
d_I, Intersection Delay [s/veh]	100.08											
Intersection LOS	F											
Intersection V/C	0.876											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1002			1020			471			312		
d_b, Bicycle Delay [s]	14.06			13.56			33.01			40.25		
I_b,int, Bicycle LOS Score for Intersection	3.116			2.958			2.883			2.685		
Bicycle LOS	C			C			C			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Power Road & Warner Road

Control Type:	Signalized	Delay (sec / veh):	50.4
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.830

Intersection Setup

Name	Power Road			Power Road			Warner Road			Warner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Warner Road			Warner Road		
Base Volume Input [veh/h]	134	1470	132	93	1751	199	180	50	155	233	32	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	16	0	0	37	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	44	0	0	66	0	0	51	0	0	11
Total Hourly Volume [veh/h]	134	1486	88	93	1788	133	180	50	104	233	32	23
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	404	24	25	486	36	49	14	28	63	9	6
Total Analysis Volume [veh/h]	146	1615	96	101	1943	145	196	54	113	253	35	25
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	65	0	20	65	0	20	20	0	20	20	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	21	63	0	9	51	0	21	36	0	12	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	121	121	121	121	121	121	121	121	121	121	121	121
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40
g_i, Effective Green Time [s]	76	68	68	76	65	65	32	11	11	32	15	15
g / C, Green / Cycle	0.63	0.56	0.56	0.63	0.54	0.54	0.26	0.09	0.09	0.26	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.37	0.46	0.47	0.24	0.56	0.57	0.13	0.02	0.07	0.16	0.01	0.02
s, saturation flow rate [veh/h]	394	1870	1834	419	1870	1825	1552	3560	1589	1551	3560	1589
c, Capacity [veh/h]	232	1042	1022	240	1001	978	488	325	145	484	433	193
d1, Uniform Delay [s]	33.43	21.93	22.23	23.38	28.16	28.16	36.89	50.83	53.89	38.27	47.25	47.54
k, delay calibration	0.50	0.34	0.35	0.11	0.48	0.50	0.26	0.11	0.11	0.35	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.34	5.16	5.87	1.18	39.59	48.74	1.29	0.24	8.62	2.83	0.08	0.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.63	0.82	0.84	0.42	1.04	1.07	0.40	0.17	0.78	0.52	0.08	0.13
d, Delay for Lane Group [s/veh]	45.78	27.09	28.11	24.56	67.75	76.91	38.18	51.07	62.51	41.10	47.33	47.84
Lane Group LOS	D	C	C	C	F	F	D	D	E	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.21	19.39	19.76	1.03	37.04	38.64	4.95	0.76	3.69	6.77	0.47	0.69
50th-Percentile Queue Length [ft/ln]	55.17	484.86	493.91	25.74	926.05	966.05	123.75	19.12	92.34	169.35	11.82	17.22
95th-Percentile Queue Length [veh/ln]	3.97	26.62	27.05	1.85	48.68	51.54	8.60	1.38	6.65	11.04	0.85	1.24
95th-Percentile Queue Length [ft/ln]	99.31	665.43	676.15	46.33	1217.04	1288.48	214.98	34.41	166.21	276.06	21.27	30.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	45.78	27.57	28.11	24.56	71.99	76.91	38.18	51.07	62.51	41.10	47.33	47.84
Movement LOS	D	C	C	C	E	E	D	D	E	D	D	D
d_A, Approach Delay [s/veh]	29.03			70.13			47.67			42.34		
Approach LOS	C			E			D			D		
d_I, Intersection Delay [s/veh]	50.39											
Intersection LOS	D											
Intersection V/C	0.830											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	933			736			488			340		
d_b, Bicycle Delay [s]	17.24			24.23			34.65			41.78		
I_b,int, Bicycle LOS Score for Intersection	3.128			3.420			1.901			1.827		
Bicycle LOS	C			C			A			A		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Sossaman Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	9.9
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.385

Intersection Setup

Name							Elliot Road					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name							Elliot Road					
Base Volume Input [veh/h]	39	81	13	50	38	164	179	394	63	5	338	48
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	50	0	0	22	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	54	0	0	21	0	0	16
Total Hourly Volume [veh/h]	39	81	9	50	38	110	179	444	42	5	360	32
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	22	2	14	10	30	49	121	11	1	98	9
Total Analysis Volume [veh/h]	42	88	10	54	41	120	195	483	46	5	391	35
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	15	0	0	15	0
Maximum Green [s]	0	30	0	0	30	0	0	50	0	0	50	0
Amber [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	33	0	0	33	0	0	87	0	0	87	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Cycle Length [s]	38	38	38	38	38	38	38	38
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
g_i, Effective Green Time [s]	7	7	7	7	18	18	18	18
g / C, Green / Cycle	0.19	0.19	0.19	0.19	0.48	0.48	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.03	0.05	0.04	0.10	0.20	0.29	0.01	0.23
s, saturation flow rate [veh/h]	1225	1837	1297	1653	961	1842	874	1843
c, Capacity [veh/h]	251	344	308	310	440	883	370	884
d1, Uniform Delay [s]	17.88	13.40	16.49	14.05	13.09	7.30	12.08	6.77
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.12	0.17	0.10	0.50	0.26	0.24	0.01	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.28	0.18	0.52	0.44	0.60	0.01	0.48
d, Delay for Lane Group [s/veh]	18.00	13.57	16.59	14.56	13.35	7.55	12.09	6.92
Lane Group LOS	B	B	B	B	B	A	B	A
Critical Lane Group	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.29	0.54	0.35	0.95	1.08	1.54	0.03	1.14
50th-Percentile Queue Length [ft/ln]	7.33	13.62	8.83	23.87	27.09	38.40	0.63	28.48
95th-Percentile Queue Length [veh/ln]	0.53	0.98	0.64	1.72	1.95	2.77	0.05	2.05
95th-Percentile Queue Length [ft/ln]	13.20	24.52	15.89	42.97	48.76	69.13	1.13	51.27

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.00	13.57	13.57	16.59	14.56	14.56	13.35	7.55	7.55	12.09	6.92	6.92
Movement LOS	B	B	B	B	B	B	B	A	A	B	A	A
d_A, Approach Delay [s/veh]	14.90			15.07			9.11			6.98		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	9.89											
Intersection LOS	A											
Intersection V/C	0.385											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1385			1385			4195			4195		
d_b, Bicycle Delay [s]	1.82			1.82			23.15			23.15		
I_b,int, Bicycle LOS Score for Intersection	1.797			2.003			2.789			2.297		
Bicycle LOS	A			B			C			B		

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: Power Road & Guadalupe Road

Control Type:	Signalized	Delay (sec / veh):	34.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.648

Intersection Setup

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Base Volume Input [veh/h]	229	1328	221	95	1217	302	212	259	237	315	655	230
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	11	0	0	38	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	73	0	0	100	0	0	78	0	0	76
Total Hourly Volume [veh/h]	229	1339	148	95	1255	202	212	259	159	315	655	154
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	62	364	40	26	341	55	58	70	43	86	178	42
Total Analysis Volume [veh/h]	249	1455	161	103	1364	220	230	282	173	342	712	167
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Beginning of First Yellow
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	1	6	0	5	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	8	15	0	8	15	0	8	15	0	8	15	0
Maximum Green [s]	25	45	0	25	45	0	25	45	0	25	45	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	17	45	0	24	52	0	23	32	0	19	28	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0
Minimum Recall	No	Yes		No	Yes		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	64	52	52	64	48	48	43	24	24	43	26	26
g / C, Green / Cycle	0.53	0.43	0.43	0.53	0.40	0.40	0.36	0.20	0.20	0.36	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.40	0.29	0.10	0.19	0.27	0.14	0.22	0.08	0.11	0.27	0.20	0.11
s, saturation flow rate [veh/h]	625	5094	1589	538	5094	1589	1044	3560	1589	1267	3560	1589
c, Capacity [veh/h]	352	2200	686	304	2055	641	342	724	323	456	766	342
d1, Uniform Delay [s]	22.73	27.15	21.58	18.73	29.21	24.82	31.15	41.40	42.78	32.00	46.26	41.35
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.48	0.04	0.04	0.18	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.41	1.58	0.80	3.01	1.71	1.46	9.82	0.13	0.51	4.16	2.31	0.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.71	0.66	0.23	0.34	0.66	0.34	0.67	0.39	0.54	0.75	0.93	0.49
d, Delay for Lane Group [s/veh]	34.14	28.73	22.38	21.74	30.92	26.28	40.97	41.53	43.29	36.16	48.57	41.76
Lane Group LOS	C	C	C	C	C	C	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.62	10.76	2.91	1.58	10.47	4.43	5.61	3.54	4.51	8.03	10.30	4.26
50th-Percentile Queue Length [ft/ln]	115.51	269.08	72.70	39.45	261.81	110.81	140.32	88.40	112.82	200.77	257.60	106.40
95th-Percentile Queue Length [veh/ln]	8.15	16.14	5.23	2.84	15.78	7.89	9.50	6.37	8.00	12.68	15.57	7.64
95th-Percentile Queue Length [ft/ln]	203.64	403.59	130.85	71.01	394.49	197.13	237.46	159.13	199.92	316.96	389.21	190.98

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.14	28.73	22.38	21.74	30.92	26.28	40.97	41.53	43.29	36.16	48.57	41.76
Movement LOS	C	C	C	C	C	C	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	28.90			29.75			41.79			44.16		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	34.20											
Intersection LOS	C											
Intersection V/C	0.648											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	641			758			425			358		
d_b, Bicycle Delay [s]	27.71			23.16			37.25			40.46		
I_b,int, Bicycle LOS Score for Intersection	2.626			2.542			1.979			2.630		
Bicycle LOS	B			B			A			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Power Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	92.9
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.987

Intersection Setup

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Base Volume Input [veh/h]	480	1214	186	54	1408	365	540	294	360	357	395	84
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	38	38	0	0	0	23	0	11	7	11
Right Turn on Red Volume [veh/h]	0	0	74	0	0	120	0	0	119	0	0	31
Total Hourly Volume [veh/h]	480	1214	150	92	1408	245	540	317	241	368	402	64
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	130	330	41	25	383	67	147	86	65	100	109	17
Total Analysis Volume [veh/h]	522	1320	163	100	1530	266	587	345	262	400	437	70
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	35	0	20	35	0	25	30	0	25	30	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	31	57	0	8	34	0	25	31	0	24	30	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	3.4	0.0	2.0	3.4	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	5.40	5.40	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	3.40	3.40	0.00	3.40
g_i, Effective Green Time [s]	59	49	49	59	35	35	59	32	32	59	30
g / C, Green / Cycle	0.45	0.38	0.38	0.45	0.27	0.27	0.45	0.25	0.25	0.45	0.23
(v / s)_i Volume / Saturation Flow Rate	0.63	0.26	0.10	0.18	0.30	0.17	0.45	0.18	0.16	0.33	0.28
s, saturation flow rate [veh/h]	829	5094	1589	554	5094	1589	1299	1870	1589	1217	1826
c, Capacity [veh/h]	389	1915	598	256	1373	428	468	466	396	498	422
d1, Uniform Delay [s]	44.69	34.10	28.15	24.87	47.39	41.57	41.44	44.83	43.77	28.27	49.89
k, delay calibration	0.50	0.04	0.04	0.13	0.04	0.09	0.50	0.24	0.17	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	170.01	0.17	0.09	1.14	52.45	1.19	131.15	5.04	2.94	12.93	111.63
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.34	0.69	0.27	0.39	1.11	0.62	1.25	0.74	0.66	0.80	1.20
d, Delay for Lane Group [s/veh]	214.70	34.27	28.24	26.01	99.84	42.76	172.59	49.87	46.71	41.20	161.52
Lane Group LOS	F	C	C	C	F	D	F	D	D	D	F
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	26.40	11.26	3.45	1.79	20.93	7.41	27.26	10.59	7.69	10.09	26.33
50th-Percentile Queue Length [ft/ln]	659.89	281.62	86.27	44.67	523.30	185.36	681.50	264.83	192.37	252.29	658.15
95th-Percentile Queue Length [veh/ln]	41.62	16.77	6.21	3.22	30.31	11.88	41.49	15.93	12.24	15.30	38.39
95th-Percentile Queue Length [ft/ln]	1040.56	419.23	155.29	80.41	757.77	297.00	1037.23	398.28	306.10	382.54	959.69

Movement, Approach, & Intersection Results

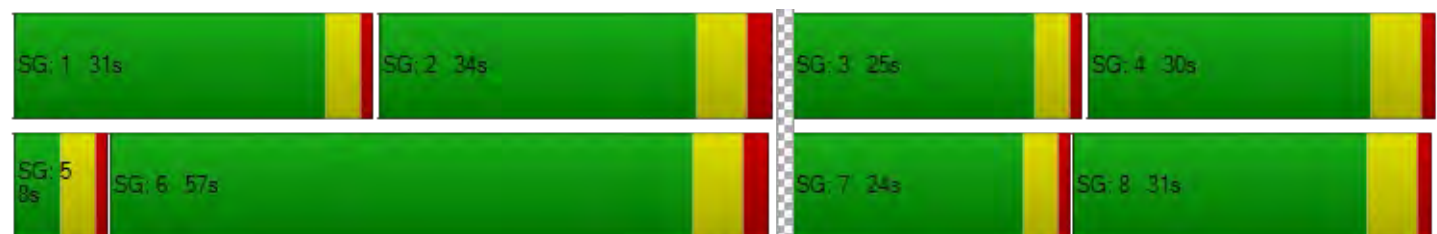
d_M, Delay for Movement [s/veh]	214.70	34.27	28.24	26.01	99.84	42.76	172.59	49.87	46.71	41.20	161.52	161.52
Movement LOS	F	C	C	C	F	D	F	D	D	D	F	F
d_A, Approach Delay [s/veh]	80.76			87.94			109.51			108.46		
Approach LOS	F			F			F			F		
d_I, Intersection Delay [s/veh]	92.93											
Intersection LOS	F											
Intersection V/C	0.987											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	780			425			395			379		
d_b, Bicycle Delay [s]	24.15			40.22			41.81			42.62		
I_b,int, Bicycle LOS Score for Intersection	2.703			2.668			3.726			3.107		
Bicycle LOS	B			B			D			C		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Power Road & Warner Road

Control Type:	Signalized	Delay (sec / veh):	30.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.769

Intersection Setup

Name	Power Road			Power Road			Warner Road			Warner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Warner Road			Warner Road		
Base Volume Input [veh/h]	303	2218	133	90	1696	263	277	56	193	208	40	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	38	0	0	11	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	44	0	0	87	0	0	64	0	0	10
Total Hourly Volume [veh/h]	303	2256	89	90	1707	176	277	56	129	208	40	20
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	82	613	24	24	464	48	75	15	35	57	11	5
Total Analysis Volume [veh/h]	329	2452	97	98	1855	191	301	61	140	226	43	22
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	65	0	20	65	0	20	20	0	20	20	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	23	62	0	10	49	0	21	27	0	21	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	126	126	126	126	126	126	126	126	126	126	126	126
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40
g_i, Effective Green Time [s]	79	71	71	79	57	57	33	14	14	33	9	9
g / C, Green / Cycle	0.63	0.56	0.56	0.63	0.46	0.46	0.27	0.11	0.11	0.27	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.54	0.48	0.06	0.37	0.36	0.12	0.18	0.02	0.09	0.15	0.01	0.01
s, saturation flow rate [veh/h]	609	5094	1589	264	5094	1589	1630	3560	1589	1499	3560	1589
c, Capacity [veh/h]	406	2872	896	202	2319	724	503	387	173	465	264	118
d1, Uniform Delay [s]	35.11	23.05	12.73	27.65	29.34	21.20	40.85	50.81	54.76	38.89	54.52	54.62
k, delay calibration	0.50	0.11	0.11	0.24	0.11	0.11	0.50	0.11	0.11	0.32	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.87	0.78	0.05	4.00	0.67	0.19	5.17	0.19	8.75	2.35	0.29	0.75
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.85	0.11	0.48	0.80	0.26	0.60	0.16	0.81	0.49	0.16	0.19
d, Delay for Lane Group [s/veh]	50.98	23.83	12.78	31.65	30.00	21.39	46.02	51.00	63.51	41.24	54.81	55.37
Lane Group LOS	D	C	B	C	C	C	D	D	E	D	D	E
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.52	18.57	1.22	1.18	15.15	3.39	8.88	0.88	4.72	6.13	0.65	0.68
50th-Percentile Queue Length [ft/ln]	138.00	464.14	30.41	29.57	378.82	84.73	222.03	21.96	117.89	153.36	16.14	16.90
95th-Percentile Queue Length [veh/ln]	9.37	25.63	2.19	2.13	21.54	6.10	13.77	1.58	8.28	10.20	1.16	1.22
95th-Percentile Queue Length [ft/ln]	234.33	640.80	54.74	53.23	538.42	152.52	344.22	39.53	206.93	254.90	29.06	30.42

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	50.98	23.83	12.78	31.65	30.00	21.39	46.02	51.00	63.51	41.24	54.81	55.37
Movement LOS	D	C	B	C	C	C	D	D	E	D	D	E
d_A, Approach Delay [s/veh]	26.56			29.31			51.50			44.32		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	30.62											
Intersection LOS	C											
Intersection V/C	0.769											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	886			678			328			328		
d_b, Bicycle Delay [s]	19.50			27.41			43.88			43.88		
I_b,int, Bicycle LOS Score for Intersection	3.167			2.787			2.027			1.808		
Bicycle LOS	C			C			B			A		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Sossaman Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	12.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.458

Intersection Setup

Name							Elliot Road					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name							Elliot Road					
Base Volume Input [veh/h]	92	49	10	36	39	248	135	302	56	11	501	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	16	0	0	53	0
Right Turn on Red Volume [veh/h]	0	0	3	0	0	82	0	0	18	0	0	12
Total Hourly Volume [veh/h]	92	49	7	36	39	166	135	318	38	11	554	24
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	13	2	10	11	45	37	86	10	3	151	7
Total Analysis Volume [veh/h]	100	53	8	39	42	180	147	346	41	12	602	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	15	0	0	15	0
Maximum Green [s]	0	30	0	0	30	0	0	50	0	0	50	0
Amber [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	36	0	0	36	0	0	84	0	0	84	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C	R
C, Cycle Length [s]	53	53	53	53	53	53	53	53	53
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
g_i, Effective Green Time [s]	13	13	13	13	26	26	26	26	26
g / C, Green / Cycle	0.25	0.25	0.25	0.25	0.50	0.50	0.50	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.09	0.03	0.03	0.14	0.18	0.21	0.01	0.32	0.02
s, saturation flow rate [veh/h]	1159	1828	1341	1636	798	1836	996	1870	1589
c, Capacity [veh/h]	251	462	391	414	318	924	466	941	800
d1, Uniform Delay [s]	23.36	15.16	17.78	16.95	19.24	8.20	11.93	9.55	6.58
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.38	0.05	0.04	0.40	0.39	0.11	0.01	0.27	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.13	0.10	0.54	0.46	0.42	0.03	0.64	0.03
d, Delay for Lane Group [s/veh]	23.74	15.21	17.82	17.36	19.62	8.32	11.94	9.82	6.59
Lane Group LOS	C	B	B	B	B	A	B	A	A
Critical Lane Group	No	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.08	0.47	0.34	1.93	1.43	1.84	0.08	3.34	0.10
50th-Percentile Queue Length [ft/ln]	26.91	11.73	8.41	48.28	35.63	45.91	1.91	83.59	2.47
95th-Percentile Queue Length [veh/ln]	1.94	0.84	0.61	3.48	2.57	3.31	0.14	6.02	0.18
95th-Percentile Queue Length [ft/ln]	48.44	21.11	15.14	86.90	64.14	82.64	3.44	150.47	4.45

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.74	15.21	15.21	17.82	17.36	17.36	19.62	8.32	8.32	11.94	9.82	6.59
Movement LOS	C	B	B	B	B	B	B	A	A	B	A	A
d_A, Approach Delay [s/veh]	20.51			17.43			11.43			9.73		
Approach LOS	C			B			B			A		
d_I, Intersection Delay [s/veh]	12.64											
Intersection LOS	B											
Intersection V/C	0.458											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1126			1126			2953			2953		
d_b, Bicycle Delay [s]	5.01			5.01			5.97			5.97		
I_b,int, Bicycle LOS Score for Intersection	1.830			2.126			2.470			2.635		
Bicycle LOS	A			B			B			B		

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: Power Road & Guadalupe Road

Control Type:	Signalized	Delay (sec / veh):	27.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.551

Intersection Setup

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Base Volume Input [veh/h]	139	1286	234	211	1451	287	204	325	136	172	315	206
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	37	0	0	16	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	77	0	0	95	0	0	45	0	0	68
Total Hourly Volume [veh/h]	139	1323	157	211	1467	192	204	325	91	172	315	138
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	360	43	57	399	52	55	88	25	47	86	38
Total Analysis Volume [veh/h]	151	1438	171	229	1595	209	222	353	99	187	342	150
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Beginning of First Yellow
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	1	6	0	5	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	8	15	0	8	15	0	8	15	0	8	15	0
Maximum Green [s]	25	45	0	25	45	0	25	45	0	25	45	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	18	60	0	20	62	0	14	24	0	16	26	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0
Minimum Recall	No	Yes		No	Yes		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	74	61	61	74	62	62	33	17	17	33	19	19
g / C, Green / Cycle	0.61	0.51	0.51	0.61	0.51	0.51	0.28	0.14	0.14	0.28	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.32	0.28	0.11	0.43	0.31	0.13	0.18	0.09	0.09	0.14	0.10	0.09
s, saturation flow rate [veh/h]	466	5094	1589	532	5094	1589	1220	3560	1672	1292	3560	1589
c, Capacity [veh/h]	319	2578	804	356	2619	817	346	515	242	369	574	256
d1, Uniform Delay [s]	16.55	20.41	16.41	17.56	20.62	16.31	36.69	48.02	48.16	35.50	46.71	46.62
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.32	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.98	0.88	0.60	8.62	1.06	0.75	5.82	0.40	0.93	0.40	0.37	0.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.47	0.56	0.21	0.64	0.61	0.26	0.64	0.59	0.61	0.51	0.60	0.59
d, Delay for Lane Group [s/veh]	21.52	21.28	17.02	26.18	21.69	17.06	42.51	48.43	49.09	35.90	47.08	47.41
Lane Group LOS	C	C	B	C	C	B	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.98	8.83	2.61	3.30	10.03	3.21	5.76	4.18	4.10	4.33	4.65	4.10
50th-Percentile Queue Length [ft/ln]	49.41	220.72	65.19	82.49	250.79	80.25	144.04	104.60	102.50	108.17	116.14	102.45
95th-Percentile Queue Length [veh/ln]	3.56	13.70	4.69	5.94	15.23	5.78	9.70	7.53	7.38	7.74	8.18	7.38
95th-Percentile Queue Length [ft/ln]	88.94	342.55	117.35	148.47	380.65	144.45	242.45	188.27	184.50	193.45	204.51	184.41

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.52	21.28	17.02	26.18	21.69	17.06	42.51	48.52	49.09	35.90	47.08	47.41
Movement LOS	C	C	B	C	C	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	20.89			21.72			46.62			44.07		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	27.65											
Intersection LOS	C											
Intersection V/C	0.551											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	892			925			292			325		
d_b, Bicycle Delay [s]	18.43			17.34			43.79			42.09		
I_b,int, Bicycle LOS Score for Intersection	2.570			2.730			1.955			2.176		
Bicycle LOS	B			B			A			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 2: Power Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	83.4
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.955

Intersection Setup

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Base Volume Input [veh/h]	486	1273	349	53	1414	264	488	393	300	226	308	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	16	16	0	0	0	9	0	37	22	37
Right Turn on Red Volume [veh/h]	0	0	120	0	0	87	0	0	99	0	0	39
Total Hourly Volume [veh/h]	486	1273	245	69	1414	177	488	402	201	263	330	78
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	132	346	67	19	384	48	133	109	55	71	90	21
Total Analysis Volume [veh/h]	528	1384	266	75	1537	192	530	437	218	286	359	85
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	35	0	20	35	0	25	30	0	25	30	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	51	0	9	48	0	21	36	0	24	39	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	3.4	0.0	2.0	3.4	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	5.40	5.40	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	3.40	3.40	0.00	3.40
g_i, Effective Green Time [s]	59	50	50	59	35	35	59	39	39	59	30
g / C, Green / Cycle	0.45	0.39	0.39	0.45	0.27	0.27	0.45	0.30	0.30	0.45	0.23
(v / s)_i Volume / Saturation Flow Rate	0.63	0.27	0.17	0.16	0.30	0.12	0.40	0.23	0.14	0.26	0.25
s, saturation flow rate [veh/h]	839	5094	1589	476	5094	1589	1328	1870	1589	1080	1809
c, Capacity [veh/h]	389	1964	613	229	1374	429	468	565	481	407	418
d1, Uniform Delay [s]	44.64	33.61	29.40	24.87	47.36	39.33	41.29	41.19	36.58	27.65	49.86
k, delay calibration	0.50	0.04	0.09	0.06	0.04	0.04	0.50	0.41	0.07	0.50	0.46
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	177.21	0.18	0.39	0.44	54.19	0.27	82.72	8.31	0.44	9.74	59.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.36	0.70	0.43	0.33	1.12	0.45	1.13	0.77	0.45	0.70	1.06
d, Delay for Lane Group [s/veh]	221.85	33.78	29.79	25.31	101.55	39.60	124.01	49.50	37.02	37.39	109.12
Lane Group LOS	F	C	C	C	F	D	F	D	D	D	F
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	27.14	11.79	6.00	1.29	21.18	5.00	21.00	13.61	5.51	6.58	20.03
50th-Percentile Queue Length [ft/ln]	678.48	294.70	149.89	32.21	529.38	125.05	524.91	340.27	137.74	164.61	500.70
95th-Percentile Queue Length [veh/ln]	42.91	17.42	10.01	2.32	30.68	8.67	31.04	19.66	9.36	10.79	28.33
95th-Percentile Queue Length [ft/ln]	1072.84	435.47	250.28	57.97	766.93	216.74	775.92	491.52	233.98	269.82	708.26

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	221.85	33.78	29.79	25.31	101.55	39.60	124.01	49.50	37.02	37.39	109.12	109.12
Movement LOS	F	C	C	C	F	D	F	D	D	D	F	F
d_A, Approach Delay [s/veh]	78.89			91.78			80.53			81.02		
Approach LOS	E			F			F			F		
d_I, Intersection Delay [s/veh]	83.43											
Intersection LOS	F											
Intersection V/C	0.955											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	687			641			472			518		
d_b, Bicycle Delay [s]	27.94			29.95			37.89			35.63		
I_b,int, Bicycle LOS Score for Intersection	2.824			2.600			3.678			2.828		
Bicycle LOS	C			B			D			C		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Power Road & Warner Road

Control Type:	Signalized	Delay (sec / veh):	34.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.823

Intersection Setup

Name	Power Road			Power Road			Warner Road			Warner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Warner Road			Warner Road		
Base Volume Input [veh/h]	156	1830	133	94	2344	257	266	51	212	236	33	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	16	0	0	37	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	44	0	0	85	0	0	70	0	0	11
Total Hourly Volume [veh/h]	156	1846	89	94	2381	172	266	51	142	236	33	23
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	502	24	26	647	47	72	14	39	64	9	6
Total Analysis Volume [veh/h]	170	2007	97	102	2588	187	289	55	154	257	36	25
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	65	0	20	65	0	20	20	0	20	20	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	8	60	0	11	63	0	21	27	0	22	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	128	128	128	128	128	128	128	128	128	128	128	128
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40
g_i, Effective Green Time [s]	79	70	70	79	65	65	37	15	15	37	13	13
g / C, Green / Cycle	0.62	0.54	0.54	0.62	0.51	0.51	0.28	0.12	0.12	0.28	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.48	0.39	0.06	0.30	0.51	0.12	0.18	0.02	0.10	0.17	0.01	0.02
s, saturation flow rate [veh/h]	354	5094	1589	338	5094	1589	1603	3560	1589	1499	3560	1589
c, Capacity [veh/h]	251	2770	864	233	2580	805	531	414	185	496	355	158
d1, Uniform Delay [s]	38.14	22.03	14.22	22.19	31.66	17.71	39.15	50.88	55.47	38.33	52.54	52.84
k, delay calibration	0.50	0.11	0.11	0.15	0.11	0.11	0.50	0.11	0.12	0.42	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.66	0.37	0.06	1.84	9.02	0.15	3.98	0.14	9.91	3.24	0.12	0.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.68	0.72	0.11	0.44	1.00	0.23	0.54	0.13	0.83	0.52	0.10	0.16
d, Delay for Lane Group [s/veh]	51.81	22.39	14.27	24.03	40.68	17.86	43.13	51.03	65.39	41.58	52.66	53.30
Lane Group LOS	D	C	B	C	F	B	D	D	E	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.86	14.07	1.32	1.22	26.55	3.00	8.30	0.80	5.35	7.16	0.53	0.76
50th-Percentile Queue Length [ft/ln]	71.50	351.81	33.04	30.40	663.86	75.03	207.56	20.02	133.69	179.11	13.32	18.90
95th-Percentile Queue Length [veh/ln]	5.15	20.22	2.38	2.19	35.10	5.40	13.03	1.44	9.14	11.55	0.96	1.36
95th-Percentile Queue Length [ft/ln]	128.69	505.61	59.47	54.71	877.47	135.05	325.69	36.04	228.51	288.85	23.98	34.03

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.81	22.39	14.27	24.03	40.68	17.86	43.13	51.03	65.39	41.58	52.66	53.30
Movement LOS	D	C	B	C	F	B	D	D	E	D	D	D
d_A, Approach Delay [s/veh]	24.25			38.61			50.88			43.75		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	34.43											
Intersection LOS	C											
Intersection V/C	0.823											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	836			883			321			337		
d_b, Bicycle Delay [s]	21.72			20.01			45.18			44.34		
I_b,int, Bicycle LOS Score for Intersection	2.835			3.189			2.028			1.831		
Bicycle LOS	C			C			B			A		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Sossaman Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	10.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.450

Intersection Setup

Name							Elliot Road					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name							Elliot Road					
Base Volume Input [veh/h]	53	84	13	52	40	183	208	472	87	6	386	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	50	0	0	22	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	60	0	0	29	0	0	17
Total Hourly Volume [veh/h]	53	84	9	52	40	123	208	522	58	6	408	33
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	23	2	14	11	33	57	142	16	2	111	9
Total Analysis Volume [veh/h]	58	91	10	57	43	134	226	567	63	7	443	36
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	15	0	0	15	0
Maximum Green [s]	0	30	0	0	30	0	0	50	0	0	50	0
Amber [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	32	0	0	32	0	0	88	0	0	88	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C	R
C, Cycle Length [s]	43	43	43	43	43	43	43	43	43
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
g_i, Effective Green Time [s]	9	9	9	9	22	22	22	22	22
g / C, Green / Cycle	0.20	0.20	0.20	0.20	0.50	0.50	0.50	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.05	0.05	0.04	0.11	0.25	0.34	0.01	0.24	0.02
s, saturation flow rate [veh/h]	1207	1838	1293	1650	915	1838	796	1870	1589
c, Capacity [veh/h]	239	375	308	336	440	920	321	937	796
d1, Uniform Delay [s]	20.10	14.54	17.97	15.39	14.15	8.22	14.20	7.07	5.52
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.19	0.14	0.11	0.48	0.35	0.34	0.01	0.14	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.27	0.19	0.53	0.51	0.68	0.02	0.47	0.05
d, Delay for Lane Group [s/veh]	20.29	14.68	18.08	15.87	14.50	8.56	14.21	7.21	5.53
Lane Group LOS	C	B	B	B	B	A	B	A	A
Critical Lane Group	No	No	No	Yes	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.49	0.66	0.44	1.24	1.51	2.44	0.04	1.46	0.09
50th-Percentile Queue Length [ft/ln]	12.16	16.53	10.93	31.09	37.69	60.88	1.11	36.45	2.30
95th-Percentile Queue Length [veh/ln]	0.88	1.19	0.79	2.24	2.71	4.38	0.08	2.62	0.17
95th-Percentile Queue Length [ft/ln]	21.89	29.75	19.68	55.96	67.85	109.59	1.99	65.62	4.15

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	20.29	14.68	14.68	18.08	15.87	15.87	14.50	8.56	8.56	14.21	7.21	5.53
Movement LOS	C	B	B	B	B	B	B	A	A	B	A	A
d_A, Approach Delay [s/veh]	16.73			16.41			10.12			7.19		
Approach LOS	B			B			B			A		
d_I, Intersection Delay [s/veh]	10.75											
Intersection LOS	B											
Intersection V/C	0.450											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1178			1178			3755			3755		
d_b, Bicycle Delay [s]	3.67			3.67			16.74			16.74		
I_b,int, Bicycle LOS Score for Intersection	1.829			2.045			3.020			2.390		
Bicycle LOS	A			B			C			B		

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 1: Power Road & Guadalupe Road

Control Type:	Signalized	Delay (sec / veh):	38.4
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.709

Intersection Setup

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Base Volume Input [veh/h]	252	1438	241	105	1298	334	234	286	262	338	723	254
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	11	0	0	38	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	80	0	0	110	0	0	86	0	0	84
Total Hourly Volume [veh/h]	252	1449	161	105	1336	224	234	286	176	338	723	170
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	68	394	44	29	363	61	64	78	48	92	196	46
Total Analysis Volume [veh/h]	274	1575	175	114	1452	243	254	311	191	367	786	185
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Beginning of First Yellow
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	1	6	0	5	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	8	15	0	8	15	0	8	15	0	8	15	0
Maximum Green [s]	25	45	0	25	45	0	25	45	0	25	45	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	16	43	0	12	39	0	21	37	0	28	44	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0
Minimum Recall	No	Yes		No	Yes		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	60	48	48	60	42	42	47	22	22	47	29	29
g / C, Green / Cycle	0.50	0.40	0.40	0.50	0.35	0.35	0.39	0.18	0.18	0.39	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.40	0.31	0.11	0.22	0.29	0.15	0.26	0.09	0.12	0.28	0.22	0.12
s, saturation flow rate [veh/h]	692	5094	1589	523	5094	1589	991	3560	1589	1328	3560	1589
c, Capacity [veh/h]	358	2034	635	275	1767	551	356	659	294	514	862	385
d1, Uniform Delay [s]	27.96	31.36	24.34	23.56	35.82	30.23	29.47	43.68	45.31	29.01	44.25	39.03
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.04	0.04	0.20	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.42	2.95	1.08	4.55	4.45	2.55	11.51	0.20	0.90	3.35	1.66	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.77	0.28	0.41	0.82	0.44	0.71	0.47	0.65	0.71	0.91	0.48
d, Delay for Lane Group [s/veh]	42.38	34.31	25.42	28.12	40.27	32.78	40.99	43.88	46.21	32.36	45.92	39.37
Lane Group LOS	D	C	C	C	D	C	D	D	D	C	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.70	13.06	3.43	1.95	13.04	5.61	6.07	4.04	5.20	8.18	11.15	4.58
50th-Percentile Queue Length [ft/ln]	142.45	326.51	85.63	48.79	325.99	140.17	151.87	101.04	130.01	204.47	278.74	114.58
95th-Percentile Queue Length [veh/ln]	9.61	18.99	6.17	3.51	18.96	9.49	10.12	7.27	8.94	12.87	16.63	8.09
95th-Percentile Queue Length [ft/ln]	240.32	474.68	154.14	87.82	474.04	237.26	252.92	181.87	223.51	321.72	415.65	202.35

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	42.38	34.31	25.42	28.12	40.27	32.78	40.99	43.88	46.21	32.36	45.92	39.37
Movement LOS	D	C	C	C	D	C	D	D	D	C	D	D
d_A, Approach Delay [s/veh]	34.63			38.50			43.50			41.29		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	38.44											
Intersection LOS	D											
Intersection V/C	0.709											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	608			541			508			625		
d_b, Bicycle Delay [s]	29.07			31.92			33.39			28.38		
I_b,int, Bicycle LOS Score for Intersection	2.717			2.615			2.023			2.733		
Bicycle LOS	B			B			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Power Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	109.7
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.030

Intersection Setup

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Base Volume Input [veh/h]	493	1335	203	59	1516	389	561	314	374	376	426	90
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	38	38	0	0	0	23	0	11	7	11
Right Turn on Red Volume [veh/h]	0	0	80	0	0	128	0	0	123	0	0	33
Total Hourly Volume [veh/h]	493	1335	161	97	1516	261	561	337	251	387	433	68
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	134	363	44	26	412	71	152	92	68	105	118	18
Total Analysis Volume [veh/h]	536	1451	175	105	1648	284	610	366	273	421	471	74
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	35	0	20	35	0	25	30	0	25	30	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	31	57	0	8	34	0	26	31	0	24	29	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	3.4	0.0	2.0	3.4	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	5.40	5.40	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	3.40	3.40	0.00	3.40
g_i, Effective Green Time [s]	59	49	49	59	35	35	59	31	31	59	30
g / C, Green / Cycle	0.45	0.37	0.37	0.45	0.27	0.27	0.45	0.24	0.24	0.45	0.23
(v / s)_i Volume / Saturation Flow Rate	0.66	0.28	0.11	0.20	0.32	0.18	0.48	0.20	0.17	0.34	0.30
s, saturation flow rate [veh/h]	809	5094	1589	521	5094	1589	1282	1870	1589	1226	1826
c, Capacity [veh/h]	389	1905	594	241	1373	428	467	447	380	494	422
d1, Uniform Delay [s]	44.80	35.57	28.58	26.78	47.40	42.16	41.58	46.72	45.37	28.90	49.89
k, delay calibration	0.50	0.04	0.04	0.19	0.04	0.12	0.50	0.28	0.19	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	186.19	0.24	0.10	2.18	90.80	1.98	152.64	9.15	4.53	16.80	147.74
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.38	0.76	0.29	0.44	1.20	0.66	1.31	0.82	0.72	0.85	1.29
d, Delay for Lane Group [s/veh]	230.99	35.81	28.68	28.96	138.20	44.14	194.21	55.87	49.90	45.69	197.63
Lane Group LOS	F	D	C	C	F	D	F	E	D	D	F
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	28.10	12.89	3.75	1.94	25.81	8.11	29.99	12.00	8.35	11.18	30.59
50th-Percentile Queue Length [ft/ln]	702.47	322.17	93.78	48.56	645.16	202.72	749.76	299.99	208.66	279.50	764.65
95th-Percentile Queue Length [veh/ln]	44.57	18.77	6.75	3.50	37.87	12.78	46.13	17.68	13.08	16.66	45.28
95th-Percentile Queue Length [ft/ln]	1114.37	469.35	168.81	87.41	946.82	319.47	1153.13	442.01	327.11	416.59	1131.99

Movement, Approach, & Intersection Results

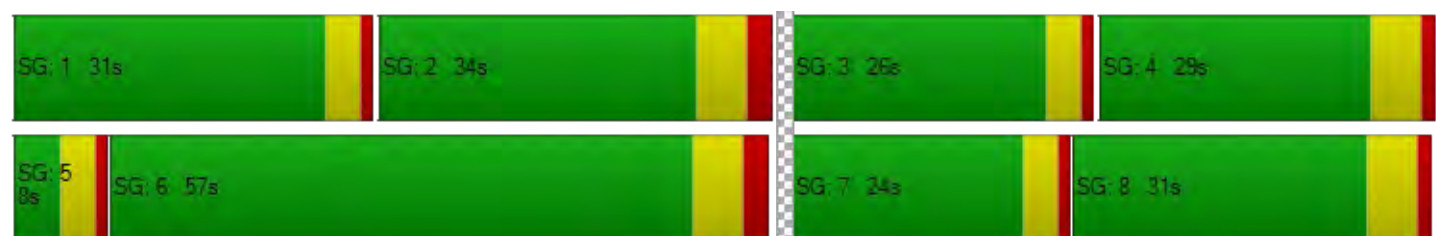
d_M, Delay for Movement [s/veh]	230.99	35.81	28.68	28.96	138.20	44.14	194.21	55.87	49.90	45.69	197.63	197.63
Movement LOS	F	D	C	C	F	D	F	E	D	D	F	F
d_A, Approach Delay [s/veh]	83.62			119.46			122.13			131.41		
Approach LOS	F			F			F			F		
d_I, Intersection Delay [s/veh]	109.70											
Intersection LOS	F											
Intersection V/C	1.030											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	780			425			394			364		
d_b, Bicycle Delay [s]	24.16			40.23			41.82			43.44		
I_b,int, Bicycle LOS Score for Intersection	2.793			2.750			3.823			3.208		
Bicycle LOS	C			C			D			C		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Power Road & Warner Road

Control Type:	Signalized	Delay (sec / veh):	34.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.806

Intersection Setup

Name	Power Road			Power Road			Warner Road			Warner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Warner Road			Warner Road		
Base Volume Input [veh/h]	319	2343	135	91	1815	277	297	57	210	212	43	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	38	0	0	11	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	45	0	0	91	0	0	69	0	0	10
Total Hourly Volume [veh/h]	319	2381	90	91	1826	186	297	57	141	212	43	21
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	87	647	24	25	496	51	81	15	38	58	12	6
Total Analysis Volume [veh/h]	347	2588	98	99	1985	202	323	62	153	230	47	23
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	65	0	20	65	0	20	20	0	20	20	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	24	55	0	14	45	0	24	33	0	18	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	136	136	136	136	136	136	136	136	136	136	136	136
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40
g_i, Effective Green Time [s]	87	78	78	87	63	63	37	16	16	37	13	13
g / C, Green / Cycle	0.64	0.57	0.57	0.64	0.46	0.46	0.27	0.11	0.11	0.27	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.59	0.51	0.06	0.40	0.39	0.13	0.20	0.02	0.10	0.15	0.01	0.01
s, saturation flow rate [veh/h]	585	5094	1589	245	5094	1589	1602	3560	1589	1485	3560	1589
c, Capacity [veh/h]	390	2911	908	186	2352	734	493	407	182	460	327	146
d1, Uniform Delay [s]	42.69	25.43	13.33	31.46	32.34	22.61	44.57	54.35	59.10	41.90	56.89	56.97
k, delay calibration	0.50	0.11	0.11	0.34	0.11	0.11	0.50	0.11	0.14	0.39	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	24.71	1.05	0.05	7.21	0.88	0.20	6.64	0.17	12.31	3.05	0.20	0.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.89	0.11	0.53	0.84	0.28	0.65	0.15	0.84	0.50	0.14	0.16
d, Delay for Lane Group [s/veh]	67.40	26.48	13.38	38.67	33.22	22.81	51.21	54.52	71.40	44.95	57.09	57.46
Lane Group LOS	E	C	B	D	C	C	D	D	E	D	E	E
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.05	22.43	1.33	1.43	18.41	3.93	10.61	0.97	5.77	6.88	0.75	0.75
50th-Percentile Queue Length [ft/ln]	176.15	560.76	33.30	35.87	460.14	98.21	265.15	24.21	144.17	171.99	18.82	18.73
95th-Percentile Queue Length [veh/ln]	11.40	30.20	2.40	2.58	25.44	7.07	15.95	1.74	9.70	11.18	1.36	1.35
95th-Percentile Queue Length [ft/ln]	284.98	754.94	59.94	64.56	636.03	176.78	398.68	43.58	242.62	279.53	33.88	33.71

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	67.40	26.48	13.38	38.67	33.22	22.81	51.21	54.52	71.40	44.95	57.09	57.46
Movement LOS	E	C	B	D	C	C	D	D	E	D	E	E
d_A, Approach Delay [s/veh]	30.73			32.54			57.34			47.81		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	34.56											
Intersection LOS	C											
Intersection V/C	0.806											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	714			567			391			303		
d_b, Bicycle Delay [s]	28.16			34.96			44.09			49.05		
I_b,int, Bicycle LOS Score for Intersection	3.253			2.867			2.060			1.815		
Bicycle LOS	C			C			B			A		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Sossaman Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	15.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.509

Intersection Setup

Name							Elliot Road					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name							Elliot Road					
Base Volume Input [veh/h]	98	54	11	40	43	270	148	325	60	12	535	40
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	16	0	0	53	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	89	0	0	20	0	0	13
Total Hourly Volume [veh/h]	98	54	7	40	43	181	148	341	40	12	588	27
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	15	2	11	12	49	40	93	11	3	160	7
Total Analysis Volume [veh/h]	107	59	8	43	47	197	161	371	43	13	639	29
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	15	0	0	15	0
Maximum Green [s]	0	30	0	0	30	0	0	50	0	0	50	0
Amber [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	42	0	0	42	0	0	78	0	0	78	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Cycle Length [s]	66	66	66	66	66	66	66	66
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
g_i, Effective Green Time [s]	18	18	18	18	35	35	35	35
g / C, Green / Cycle	0.27	0.27	0.27	0.27	0.53	0.53	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.09	0.04	0.03	0.15	0.21	0.23	0.01	0.36
s, saturation flow rate [veh/h]	1136	1831	1334	1637	769	1836	972	1856
c, Capacity [veh/h]	236	496	394	443	299	980	472	990
d1, Uniform Delay [s]	28.55	18.07	20.97	20.46	23.57	9.20	13.07	11.13
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.50	0.05	0.04	0.40	0.56	0.11	0.01	0.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.45	0.14	0.11	0.55	0.54	0.42	0.03	0.67
d, Delay for Lane Group [s/veh]	29.06	18.12	21.01	20.86	24.14	9.30	13.08	11.43
Lane Group LOS	C	B	C	C	C	A	B	B
Critical Lane Group	No	No	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.52	0.68	0.48	2.83	2.12	2.67	0.10	5.24
50th-Percentile Queue Length [ft/ln]	38.00	16.99	12.05	70.65	52.99	66.73	2.62	130.94
95th-Percentile Queue Length [veh/ln]	2.74	1.22	0.87	5.09	3.82	4.80	0.19	8.99
95th-Percentile Queue Length [ft/ln]	68.40	30.59	21.69	127.16	95.39	120.12	4.72	224.77

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	29.06	18.12	18.12	21.01	20.86	20.86	24.14	9.30	9.30	13.08	11.43	11.43
Movement LOS	C	B	B	C	C	C	C	A	A	B	B	B
d_A, Approach Delay [s/veh]	24.84			20.88			13.46			11.46		
Approach LOS	C			C			B			B		
d_I, Intersection Delay [s/veh]	15.06											
Intersection LOS	B											
Intersection V/C	0.509											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1087			1087			2186			2186		
d_b, Bicycle Delay [s]	6.83			6.83			0.28			0.28		
I_b,int, Bicycle LOS Score for Intersection	1.853			2.180			2.541			2.705		
Bicycle LOS	A			B			B			B		

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: Power Road & Guadalupe Road

Control Type:	Signalized	Delay (sec / veh):	31.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.638

Intersection Setup

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Base Volume Input [veh/h]	254	1373	251	233	1565	317	226	358	150	186	347	228
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	37	0	0	16	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	83	0	0	105	0	0	50	0	0	75
Total Hourly Volume [veh/h]	254	1410	168	233	1581	212	226	358	100	186	347	153
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	69	383	46	63	430	58	61	97	27	51	94	42
Total Analysis Volume [veh/h]	276	1533	183	253	1718	230	246	389	109	202	377	166
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Beginning of First Yellow
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	1	6	0	5	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	8	15	0	8	15	0	8	15	0	8	15	0
Maximum Green [s]	25	45	0	25	45	0	25	45	0	25	45	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	15	47	0	21	53	0	16	35	0	17	36	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0
Minimum Recall	No	Yes		No	Yes		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	73	59	59	73	56	56	34	17	17	34	18	18
g / C, Green / Cycle	0.61	0.49	0.49	0.61	0.47	0.47	0.29	0.14	0.14	0.29	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.52	0.30	0.12	0.48	0.34	0.14	0.20	0.09	0.10	0.15	0.11	0.10
s, saturation flow rate [veh/h]	533	5094	1589	523	5094	1589	1258	3560	1671	1305	3560	1589
c, Capacity [veh/h]	359	2570	802	352	2451	765	346	462	217	364	491	219
d1, Uniform Delay [s]	27.74	21.07	16.65	20.26	24.37	18.89	37.78	50.17	50.31	36.55	49.86	49.78
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.38	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.57	1.03	0.66	11.96	1.70	1.01	9.03	0.83	1.92	0.50	0.96	2.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.60	0.23	0.72	0.70	0.30	0.71	0.73	0.75	0.56	0.77	0.76
d, Delay for Lane Group [s/veh]	42.31	22.10	17.31	32.22	26.07	19.90	46.81	51.00	52.23	37.04	50.82	51.79
Lane Group LOS	D	C	B	C	C	B	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.58	10.05	2.92	3.99	12.66	4.03	6.65	4.68	4.59	4.66	5.27	4.70
50th-Percentile Queue Length [ft/ln]	114.53	251.31	73.06	99.81	316.51	100.86	166.16	117.12	114.77	116.54	131.74	117.45
95th-Percentile Queue Length [veh/ln]	8.09	15.25	5.26	7.19	18.50	7.26	10.87	8.23	8.10	8.20	9.03	8.25
95th-Percentile Queue Length [ft/ln]	202.29	381.30	131.50	179.66	462.40	181.54	271.87	205.86	202.61	205.06	225.85	206.31

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	42.31	22.10	17.31	32.22	26.07	19.90	46.81	51.16	52.23	37.04	50.82	51.79
Movement LOS	D	C	B	C	C	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	24.46			26.13			49.88			47.30		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	31.43											
Intersection LOS	C											
Intersection V/C	0.638											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	675			775			475			492		
d_b, Bicycle Delay [s]	26.33			22.51			34.88			34.13		
I_b,int, Bicycle LOS Score for Intersection	2.701			2.828			1.996			2.236		
Bicycle LOS	B			C			A			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Power Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	100.1
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.997

Intersection Setup

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Base Volume Input [veh/h]	501	1385	376	57	1535	280	506	418	338	246	331	84
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	16	16	0	0	0	9	0	37	22	37
Right Turn on Red Volume [veh/h]	0	0	129	0	0	92	0	0	112	0	0	40
Total Hourly Volume [veh/h]	501	1385	263	73	1535	188	506	427	226	283	353	81
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	136	376	71	20	417	51	138	116	61	77	96	22
Total Analysis Volume [veh/h]	545	1505	286	79	1668	204	550	464	246	308	384	88
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	35	0	20	35	0	25	30	0	25	30	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	26	57	0	9	40	0	28	35	0	19	26	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	3.4	0.0	2.0	3.4	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	5.40	5.40	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	3.40	3.40	0.00	3.40
g_i, Effective Green Time [s]	59	50	50	59	35	35	59	38	38	59	30
g / C, Green / Cycle	0.45	0.38	0.38	0.45	0.27	0.27	0.45	0.29	0.29	0.45	0.23
(v / s)_i Volume / Saturation Flow Rate	0.67	0.30	0.18	0.18	0.33	0.13	0.42	0.25	0.15	0.29	0.26
s, saturation flow rate [veh/h]	817	5094	1589	446	5094	1589	1315	1870	1589	1076	1810
c, Capacity [veh/h]	389	1960	612	217	1374	429	469	546	464	397	418
d1, Uniform Delay [s]	44.80	34.85	29.94	26.41	47.38	39.70	41.30	43.27	38.49	28.71	49.90
k, delay calibration	0.50	0.04	0.13	0.12	0.04	0.04	0.50	0.47	0.13	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	195.97	0.24	0.65	1.11	96.90	0.31	98.63	14.40	1.16	13.80	84.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.40	0.77	0.47	0.36	1.21	0.48	1.17	0.85	0.53	0.78	1.13
d, Delay for Lane Group [s/veh]	240.76	35.09	30.59	27.51	144.28	40.00	139.92	57.67	39.65	42.51	134.03
Lane Group LOS	F	D	C	C	F	D	F	E	D	D	F
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	29.16	13.29	6.60	1.40	26.60	5.36	23.08	15.73	6.54	7.52	22.90
50th-Percentile Queue Length [ft/ln]	728.93	332.35	164.99	34.93	665.08	134.09	577.06	393.21	163.45	187.96	572.45
95th-Percentile Queue Length [veh/ln]	46.41	19.27	10.81	2.52	39.12	9.16	34.49	22.23	10.73	12.02	32.92
95th-Percentile Queue Length [ft/ln]	1160.19	481.84	270.31	62.88	978.08	229.05	862.16	555.81	268.28	300.38	822.94

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	240.76	35.09	30.59	27.51	144.28	40.00	139.92	57.67	39.65	42.51	134.03	134.03
Movement LOS	F	D	C	C	F	D	F	E	D	D	F	F
d_A, Approach Delay [s/veh]	82.53			128.65			90.06			97.89		
Approach LOS	F			F			F			F		
d_I, Intersection Delay [s/veh]	100.14											
Intersection LOS	F											
Intersection V/C	0.997											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	780			518			456			317		
d_b, Bicycle Delay [s]	24.15			35.64			38.67			45.93		
I_b,int, Bicycle LOS Score for Intersection	2.915			2.683			3.823			2.913		
Bicycle LOS	C			B			D			C		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Power Road & Warner Road

Control Type:	Signalized	Delay (sec / veh):	49.6
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.869

Intersection Setup

Name	Power Road			Power Road			Warner Road			Warner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Warner Road			Warner Road		
Base Volume Input [veh/h]	166	1960	135	94	2493	270	284	51	226	242	35	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	16	0	0	37	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	45	0	0	89	0	0	75	0	0	12
Total Hourly Volume [veh/h]	166	1976	90	94	2530	181	284	51	151	242	35	24
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	45	537	24	26	688	49	77	14	41	66	10	7
Total Analysis Volume [veh/h]	180	2148	98	102	2750	197	309	55	164	263	38	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	65	0	20	65	0	20	20	0	20	20	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	13	62	0	8	57	0	16	38	0	12	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	131	131	131	131	131	131	131	131	131	131	131	131
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40
g_i, Effective Green Time [s]	80	71	71	80	65	65	38	16	16	38	14	14
g / C, Green / Cycle	0.61	0.54	0.54	0.61	0.50	0.50	0.29	0.12	0.12	0.29	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.50	0.42	0.06	0.32	0.54	0.12	0.19	0.02	0.10	0.18	0.01	0.02
s, saturation flow rate [veh/h]	357	5094	1589	315	5094	1589	1594	3560	1589	1490	3560	1589
c, Capacity [veh/h]	259	2753	859	217	2533	790	534	433	193	500	383	171
d1, Uniform Delay [s]	39.65	23.85	14.70	25.68	32.84	18.85	39.73	51.20	56.21	38.54	52.59	52.89
k, delay calibration	0.50	0.11	0.11	0.19	0.11	0.11	0.50	0.11	0.15	0.46	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.31	0.50	0.06	2.82	40.43	0.16	4.53	0.13	13.12	3.58	0.11	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.78	0.11	0.47	1.09	0.25	0.58	0.13	0.85	0.53	0.10	0.15
d, Delay for Lane Group [s/veh]	53.96	24.35	14.76	28.50	73.27	19.01	44.26	51.33	69.33	42.12	52.70	53.30
Lane Group LOS	D	C	B	C	F	B	D	D	E	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.14	16.35	1.38	1.31	34.14	3.34	9.13	0.81	5.97	7.48	0.57	0.79
50th-Percentile Queue Length [ft/ln]	78.59	408.65	34.55	32.81	853.48	83.44	228.22	20.29	149.16	186.95	14.21	19.84
95th-Percentile Queue Length [veh/ln]	5.66	22.98	2.49	2.36	46.61	6.01	14.08	1.46	9.97	11.96	1.02	1.43
95th-Percentile Queue Length [ft/ln]	141.46	574.42	62.19	59.05	1165.19	150.19	352.09	36.52	249.31	299.07	25.58	35.70

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	53.96	24.35	14.76	28.50	73.27	19.01	44.26	51.33	69.33	42.12	52.70	53.30
Movement LOS	D	C	B	C	F	B	D	D	E	D	D	D
d_A, Approach Delay [s/veh]	26.16			68.27			52.78			44.23		
Approach LOS	C			E			D			D		
d_I, Intersection Delay [s/veh]	49.60											
Intersection LOS	D											
Intersection V/C	0.869											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	851			774			484			422		
d_b, Bicycle Delay [s]	21.56			24.53			37.56			40.65		
I_b,int, Bicycle LOS Score for Intersection	2.919			3.286			2.057			1.839		
Bicycle LOS	C			C			B			A		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Sossaman Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	11.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.482

Intersection Setup

Name							Elliot Road					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name							Elliot Road					
Base Volume Input [veh/h]	57	93	15	57	44	201	226	503	93	6	412	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	50	0	0	22	0
Right Turn on Red Volume [veh/h]	0	0	5	0	0	66	0	0	31	0	0	18
Total Hourly Volume [veh/h]	57	93	10	57	44	135	226	553	62	6	434	37
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	25	3	15	12	37	61	150	17	2	118	10
Total Analysis Volume [veh/h]	62	101	11	62	48	147	246	601	67	7	472	40
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	15	0	0	15	0
Maximum Green [s]	0	30	0	0	30	0	0	50	0	0	50	0
Amber [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	33	0	0	33	0	0	87	0	0	87	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C	R
C, Cycle Length [s]	50	50	50	50	50	50	50	50	50
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
g_i, Effective Green Time [s]	11	11	11	11	26	26	26	26	26
g / C, Green / Cycle	0.22	0.22	0.22	0.22	0.53	0.53	0.53	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.05	0.06	0.05	0.12	0.28	0.36	0.01	0.25	0.03
s, saturation flow rate [veh/h]	1188	1838	1281	1650	888	1837	769	1870	1589
c, Capacity [veh/h]	230	400	306	359	431	966	308	983	835
d1, Uniform Delay [s]	22.61	16.24	20.00	17.30	15.81	8.81	15.60	7.50	5.75
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.23	0.14	0.12	0.48	0.44	0.33	0.01	0.14	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	0.28	0.20	0.54	0.57	0.69	0.02	0.48	0.05
d, Delay for Lane Group [s/veh]	22.84	16.38	20.12	17.78	16.25	9.14	15.61	7.63	5.76
Lane Group LOS	C	B	C	B	B	A	B	A	A
Critical Lane Group	No	No	No	Yes	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.62	0.88	0.57	1.66	2.03	3.24	0.05	1.93	0.13
50th-Percentile Queue Length [ft/ln]	15.57	22.12	14.19	41.49	50.77	81.03	1.32	48.32	3.13
95th-Percentile Queue Length [veh/ln]	1.12	1.59	1.02	2.99	3.66	5.83	0.10	3.48	0.23
95th-Percentile Queue Length [ft/ln]	28.03	39.82	25.54	74.68	91.38	145.86	2.38	86.98	5.64

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.84	16.38	16.38	20.12	17.78	17.78	16.25	9.14	9.14	15.61	7.63	5.76
Movement LOS	C	B	B	C	B	B	B	A	A	B	A	A
d_A, Approach Delay [s/veh]	18.69			18.34			11.06			7.60		
Approach LOS	B			B			B			A		
d_I, Intersection Delay [s/veh]	11.81											
Intersection LOS	B											
Intersection V/C	0.482											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1066			1066			3229			3229		
d_b, Bicycle Delay [s]	5.45			5.45			9.43			9.43		
I_b,int, Bicycle LOS Score for Intersection	1.855			2.093			3.119			2.446		
Bicycle LOS	A			B			C			B		

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: Power Road & Guadalupe Road

Control Type:	Signalized	Delay (sec / veh):	32.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.598

Intersection Setup

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Base Volume Input [veh/h]	220	1185	180	91	976	291	204	249	228	235	629	221
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	27	27	27	0	28	0	0	0	28	28	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	11	0	0	38	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	68	0	0	96	0	0	84	0	0	73
Total Hourly Volume [veh/h]	247	1223	139	91	1042	195	204	249	172	263	629	148
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	332	38	25	283	53	55	68	47	71	171	40
Total Analysis Volume [veh/h]	268	1329	151	99	1133	212	222	271	187	286	684	161
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Beginning of First Yellow
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	1	6	0	5	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	8	15	0	8	15	0	8	15	0	8	15	0
Maximum Green [s]	25	45	0	25	45	0	25	45	0	25	45	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	20	45	0	13	38	0	24	38	0	24	38	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0
Minimum Recall	No	Yes		No	Yes		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	64	53	53	64	48	48	43	22	22	43	26	26
g / C, Green / Cycle	0.54	0.44	0.44	0.54	0.40	0.40	0.36	0.18	0.18	0.36	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.38	0.26	0.09	0.17	0.22	0.13	0.21	0.08	0.12	0.22	0.19	0.10
s, saturation flow rate [veh/h]	711	5094	1589	572	5094	1589	1052	3560	1589	1308	3560	1589
c, Capacity [veh/h]	399	2230	696	324	2039	636	344	648	289	457	759	339
d1, Uniform Delay [s]	20.44	25.69	20.98	17.16	27.80	24.94	31.27	43.52	45.56	30.64	46.04	41.38
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.44	0.04	0.04	0.07	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.75	1.18	0.72	2.43	1.10	1.41	8.06	0.16	0.91	0.90	1.67	0.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.67	0.60	0.22	0.31	0.56	0.33	0.65	0.42	0.65	0.63	0.90	0.48
d, Delay for Lane Group [s/veh]	29.19	26.87	21.70	19.59	28.90	26.35	39.32	43.68	46.47	31.54	47.70	41.77
Lane Group LOS	C	C	C	B	C	C	D	D	D	C	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.73	9.33	2.67	1.47	8.18	4.26	5.32	3.50	5.10	6.22	9.78	4.10
50th-Percentile Queue Length [ft/ln]	118.13	233.37	66.72	36.68	204.40	106.56	132.91	87.40	127.60	155.55	244.57	102.54
95th-Percentile Queue Length [veh/ln]	8.29	14.35	4.80	2.64	12.87	7.65	9.10	6.29	8.81	10.31	14.91	7.38
95th-Percentile Queue Length [ft/ln]	207.26	358.64	120.10	66.02	321.64	191.20	227.44	157.32	220.23	257.82	372.81	184.58

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	29.19	26.87	21.70	19.59	28.90	26.35	39.32	43.68	46.47	31.54	47.70	41.77
Movement LOS	C	C	C	B	C	C	D	D	D	C	D	D
d_A, Approach Delay [s/veh]	26.78			27.88			43.02			42.77		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	32.92											
Intersection LOS	C											
Intersection V/C	0.598											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	641			525			525			525		
d_b, Bicycle Delay [s]	27.71			32.67			32.67			32.67		
I_b,int, Bicycle LOS Score for Intersection	2.558			2.407			1.980			2.553		
Bicycle LOS	B			B			A			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Power Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	23.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.550

Intersection Setup

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Base Volume Input [veh/h]	275	1148	168	52	1164	278	257	228	174	258	336	82
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	54	54	55	59	25	0	0	59	25	55	26	27
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	38	38	0	0	0	23	0	11	7	11
Right Turn on Red Volume [veh/h]	0	0	86	0	0	92	0	0	66	0	0	40
Total Hourly Volume [veh/h]	329	1202	175	149	1189	186	257	310	133	324	369	80
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	89	327	48	40	323	51	70	84	36	88	100	22
Total Analysis Volume [veh/h]	358	1307	190	162	1292	202	279	337	145	352	401	87
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	35	0	20	35	0	25	30	0	25	30	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	27	64	0	10	47	0	32	29	0	17	14	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	3.4	0.0	2.0	3.4	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	66	66	66	66	66	66	66	66	66	66	66	66
L, Total Lost Time per Cycle [s]	4.00	6.40	6.40	4.00	6.40	6.40	4.00	5.40	5.40	4.00	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	4.40	4.40	2.00	4.40	4.40	2.00	3.40	3.40	2.00	3.40	3.40
g_i, Effective Green Time [s]	9	24	24	5	20	20	7	8	8	9	10	10
g / C, Green / Cycle	0.14	0.36	0.36	0.07	0.30	0.30	0.11	0.13	0.13	0.14	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.10	0.26	0.12	0.05	0.25	0.13	0.08	0.07	0.09	0.10	0.08	0.05
s, saturation flow rate [veh/h]	3459	5094	1589	3459	5094	1589	3459	5094	1589	3459	5094	1589
c, Capacity [veh/h]	472	1857	579	258	1542	481	391	646	202	468	759	237
d1, Uniform Delay [s]	27.57	18.01	15.21	29.78	21.60	18.47	28.37	27.07	27.82	27.60	26.06	25.40
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.95	0.18	0.12	0.93	0.48	0.22	0.91	0.24	1.81	0.93	0.21	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.76	0.70	0.33	0.63	0.84	0.42	0.71	0.52	0.72	0.75	0.53	0.37
d, Delay for Lane Group [s/veh]	28.52	18.19	15.33	30.72	22.08	18.69	29.28	27.32	29.63	28.53	26.28	25.76
Lane Group LOS	C	B	B	C	C	B	C	C	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.52	4.79	1.77	1.18	5.41	2.17	1.98	1.52	2.09	2.48	1.77	1.13
50th-Percentile Queue Length [ft/ln]	62.99	119.75	44.29	29.40	135.24	54.27	49.56	37.91	52.34	61.90	44.18	28.37
95th-Percentile Queue Length [veh/ln]	4.54	8.38	3.19	2.12	9.22	3.91	3.57	2.73	3.77	4.46	3.18	2.04
95th-Percentile Queue Length [ft/ln]	113.38	209.49	79.73	52.92	230.60	97.69	89.20	68.24	94.21	111.43	79.53	51.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.52	18.19	15.33	30.72	22.08	18.69	29.28	27.32	29.63	28.53	26.28	25.76
Movement LOS	C	B	B	C	C	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	19.89			22.51			28.48			27.17		
Approach LOS	B			C			C			C		
d_I, Intersection Delay [s/veh]	23.21											
Intersection LOS	C											
Intersection V/C	0.550											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1741			1227			713			260		
d_b, Bicycle Delay [s]	0.55			4.94			13.69			25.04		
I_b,int, Bicycle LOS Score for Intersection	2.627			2.521			2.014			2.044		
Bicycle LOS	B			B			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Power Road & Warner Road

Control Type:	Signalized	Delay (sec / veh):	21.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.636

Intersection Setup

Name	Power Road			Power Road			Warner Road			Warner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Warner Road			Warner Road		
Base Volume Input [veh/h]	169	1594	132	90	1332	182	232	56	181	207	39	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	42	0	0	41	27	28	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	38	0	0	11	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	44	0	0	69	0	0	60	0	0	10
Total Hourly Volume [veh/h]	169	1674	88	90	1384	140	260	56	121	207	39	20
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	46	455	24	24	376	38	71	15	33	56	11	5
Total Analysis Volume [veh/h]	184	1820	96	98	1504	152	283	61	132	225	42	22
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	65	0	20	65	0	20	20	0	20	20	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	17	61	0	11	55	0	20	27	0	21	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	96	96	96	96	96	96	96	96	96	96	96	96
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40
g_i, Effective Green Time [s]	56	48	48	56	45	45	27	11	11	27	8	8
g / C, Green / Cycle	0.59	0.50	0.50	0.59	0.47	0.47	0.28	0.11	0.11	0.28	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.34	0.36	0.06	0.24	0.30	0.10	0.17	0.02	0.08	0.15	0.01	0.01
s, saturation flow rate [veh/h]	536	5094	1589	404	5094	1589	1624	3560	1589	1504	3560	1589
c, Capacity [veh/h]	359	2546	794	284	2401	749	555	395	176	518	280	125
d1, Uniform Delay [s]	15.05	18.63	12.75	15.11	18.98	14.79	29.41	38.50	41.27	28.32	41.13	41.21
k, delay calibration	0.50	0.11	0.11	0.11	0.11	0.11	0.31	0.11	0.11	0.18	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.15	0.38	0.07	0.72	0.27	0.13	2.07	0.18	6.24	0.94	0.25	0.66
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.71	0.12	0.35	0.63	0.20	0.51	0.15	0.75	0.43	0.15	0.18
d, Delay for Lane Group [s/veh]	20.19	19.02	12.81	15.83	19.25	14.92	31.48	38.68	47.51	29.26	41.37	41.88
Lane Group LOS	C	B	B	B	B	B	C	D	D	C	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.04	9.26	1.01	0.83	7.51	1.79	5.69	0.65	3.26	4.25	0.46	0.50
50th-Percentile Queue Length [ft/ln]	51.05	231.45	25.18	20.74	187.64	44.66	142.37	16.15	81.39	106.23	11.58	12.48
95th-Percentile Queue Length [veh/ln]	3.68	14.25	1.81	1.49	12.00	3.22	9.61	1.16	5.86	7.63	0.83	0.90
95th-Percentile Queue Length [ft/ln]	91.90	356.20	45.32	37.33	299.97	80.40	240.22	29.06	146.51	190.74	20.85	22.47

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	20.19	19.02	12.81	15.83	19.25	14.92	31.48	38.68	47.51	29.26	41.37	41.88
Movement LOS	C	B	B	B	B	B	C	D	D	C	D	D
d_A, Approach Delay [s/veh]	18.84			18.68			36.85			31.98		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	21.46											
Intersection LOS	C											
Intersection V/C	0.636											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1143			1017			431			452		
d_b, Bicycle Delay [s]	8.78			11.54			29.40			28.62		
I_b,int, Bicycle LOS Score for Intersection	2.739			2.562			2.002			1.806		
Bicycle LOS	B			B			B			A		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Sossaman Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	10.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.423

Intersection Setup

Name							Elliot Road					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name							Elliot Road					
Base Volume Input [veh/h]	63	47	10	35	37	213	117	253	40	11	405	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	14	14	27	0	0	28	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	16	0	0	53	0
Right Turn on Red Volume [veh/h]	0	0	3	0	0	75	0	0	13	0	0	12
Total Hourly Volume [veh/h]	63	47	7	35	37	152	131	296	27	11	486	23
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	13	2	10	10	41	36	80	7	3	132	6
Total Analysis Volume [veh/h]	68	51	8	38	40	165	142	322	29	12	528	25
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	15	0	0	15	0
Maximum Green [s]	0	30	0	0	30	0	0	50	0	0	50	0
Amber [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	34	0	0	34	0	0	86	0	0	86	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Cycle Length [s]	40	40	40	40	40	40	40	40
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
g_i, Effective Green Time [s]	7	7	7	7	19	19	19	19
g / C, Green / Cycle	0.19	0.19	0.19	0.19	0.49	0.49	0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	0.06	0.03	0.03	0.13	0.17	0.19	0.01	0.30
s, saturation flow rate [veh/h]	1177	1826	1344	1637	855	1843	1030	1855
c, Capacity [veh/h]	208	345	333	309	373	899	512	905
d1, Uniform Delay [s]	19.63	13.46	16.05	14.89	14.32	6.41	9.24	7.40
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.34	0.09	0.06	0.91	0.24	0.10	0.01	0.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.33	0.17	0.11	0.66	0.38	0.39	0.02	0.61
d, Delay for Lane Group [s/veh]	19.97	13.55	16.11	15.81	14.56	6.52	9.24	7.65
Lane Group LOS	B	B	B	B	B	A	A	A
Critical Lane Group	No	No	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.54	0.33	0.25	1.33	0.87	0.92	0.05	1.69
50th-Percentile Queue Length [ft/ln]	13.43	8.35	6.17	33.26	21.79	23.01	1.21	42.22
95th-Percentile Queue Length [veh/ln]	0.97	0.60	0.44	2.40	1.57	1.66	0.09	3.04
95th-Percentile Queue Length [ft/ln]	24.17	15.03	11.11	59.88	39.22	41.42	2.17	76.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	19.97	13.55	13.55	16.11	15.81	15.81	14.56	6.52	6.52	9.24	7.65	7.65
Movement LOS	B	B	B	B	B	B	B	A	A	A	A	A
d_A, Approach Delay [s/veh]	16.99			15.85			8.83			7.68		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	10.30											
Intersection LOS	B											
Intersection V/C	0.423											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1396			1396			4027			4027		
d_b, Bicycle Delay [s]	1.80			1.80			20.30			20.30		
I_b,int, Bicycle LOS Score for Intersection	1.774			2.084			2.395			2.512		
Bicycle LOS	A			B			B			B		

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: Power Road & Access A

Control Type:	Two-way stop	Delay (sec / veh):	764.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.779

Intersection Setup

Name	Power Road		Power Road		Access A	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	1	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	100.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Power Road		Power Road		Access A	
Base Volume Input [veh/h]	1546	0	0	1634	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	54	16	71	34	34	61
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	38	0	0	11	0	0
Total Hourly Volume [veh/h]	1638	16	71	1679	34	61
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	445	4	19	456	9	17
Total Analysis Volume [veh/h]	1780	17	77	1825	37	66
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.49	0.02	1.78	0.27
d_M, Delay for Movement [s/veh]	0.00	0.00	47.55	0.00	764.60	24.97
Movement LOS	A	A	E	A	F	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	2.31	0.00	4.87	1.05
95th-Percentile Queue Length [ft/ln]	0.00	0.00	57.82	0.00	121.81	26.34
d_A, Approach Delay [s/veh]	0.00		1.92		290.67	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	8.84					
Intersection LOS	F					

Intersection Level Of Service Report

Intersection 6: Power Road & Access B

Control Type:	Two-way stop	Delay (sec / veh):	26.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.288

Intersection Setup

Name	Power Road		Power Road		Access B	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	2	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	49.21	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Power Road		Power Road		Access B	
Base Volume Input [veh/h]	1546	0	0	1634	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	100	16	0	105	0	63
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	38	0	0	11	0	0
Total Hourly Volume [veh/h]	1684	16	0	1750	0	63
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	458	4	0	476	0	17
Total Analysis Volume [veh/h]	1830	17	0	1902	0	68
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.02	0.00	0.29
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	26.28
Movement LOS	A	A		A		D
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	1.15
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	28.74
d_A, Approach Delay [s/veh]	0.00		0.00		26.28	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.47					
Intersection LOS	D					

Intersection Level Of Service Report Intersection 7: Access C & Elliot Road

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 11.7
Level Of Service: B
Volume to Capacity (v/c): 0.016

Intersection Setup

Name	Access C		Elliot Road		Elliot Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Access C		Elliot Road		Elliot Road	
Base Volume Input [veh/h]	0	0	448	0	0	676
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	8	106	66	0	108
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	99	0	0	29
Total Hourly Volume [veh/h]	0	8	653	66	0	813
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	177	18	0	221
Total Analysis Volume [veh/h]	0	9	710	72	0	884
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	11.68	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.05	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	1.25	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.68		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.06					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 8: Access D & Elliot Road

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 23.0
 Level Of Service: C
 Volume to Capacity (v/c): 0.323

Intersection Setup

Name	Access D		Elliot Road		Elliot Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Access D		Elliot Road		Elliot Road	
Base Volume Input [veh/h]	0	0	448	0	0	676
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	87	8	48	66	21	21
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	99	0	0	29
Total Hourly Volume [veh/h]	87	8	595	66	21	726
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	2	162	18	6	197
Total Analysis Volume [veh/h]	95	9	647	72	23	789
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.32	0.02	0.01	0.00	0.04	0.01
d_M, Delay for Movement [s/veh]	22.97	11.38	0.00	0.00	12.05	0.00
Movement LOS	C	B	A	A	B	A
95th-Percentile Queue Length [veh/ln]	1.36	0.05	0.00	0.00	0.13	0.00
95th-Percentile Queue Length [ft/ln]	33.93	1.19	0.00	0.00	3.37	0.00
d_A, Approach Delay [s/veh]	21.97		0.00		0.34	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	1.57					
Intersection LOS	C					

Intersection Level Of Service Report

Intersection 9: Access E & Elliot Road

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 11.3
 Level Of Service: B
 Volume to Capacity (v/c): 0.015

Intersection Setup

Name	Access E		Elliot Road		Elliot Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	2
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Access E		Elliot Road		Elliot Road	
Base Volume Input [veh/h]	0	0	448	0	0	676
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	8	33	24	0	42
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	99	0	0	29
Total Hourly Volume [veh/h]	0	8	580	24	0	747
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	158	7	0	203
Total Analysis Volume [veh/h]	0	9	630	26	0	812
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	11.30	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.05	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	1.18	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.30		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.07					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 1: Power Road & Guadalupe Road

Control Type:	Signalized	Delay (sec / veh):	27.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.535

Intersection Setup

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Base Volume Input [veh/h]	134	1080	171	203	1311	276	196	312	131	135	302	198
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	36	36	36	0	38	0	0	0	38	38	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	37	0	0	16	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	68	0	0	91	0	0	56	0	0	65
Total Hourly Volume [veh/h]	170	1153	139	203	1365	185	196	312	113	173	302	133
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	46	313	38	55	371	50	53	85	31	47	82	36
Total Analysis Volume [veh/h]	185	1253	151	221	1484	201	213	339	123	188	328	145
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Beginning of First Yellow
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	1	6	0	5	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	8	15	0	8	15	0	8	15	0	8	15	0
Maximum Green [s]	25	45	0	25	45	0	25	45	0	25	45	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	13	48	0	18	53	0	25	41	0	13	29	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0
Minimum Recall	No	Yes		No	Yes		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	74	61	61	74	62	62	33	20	20	33	15	15
g / C, Green / Cycle	0.62	0.51	0.51	0.62	0.52	0.52	0.27	0.17	0.17	0.27	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.37	0.25	0.09	0.38	0.29	0.13	0.16	0.09	0.09	0.15	0.09	0.09
s, saturation flow rate [veh/h]	494	5094	1589	588	5094	1589	1336	3560	1632	1214	3560	1589
c, Capacity [veh/h]	334	2595	810	389	2631	821	379	594	272	349	448	200
d1, Uniform Delay [s]	16.61	19.18	15.98	14.00	19.82	16.08	36.40	45.74	45.91	35.76	50.57	50.52
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.23	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.47	0.65	0.51	5.93	0.88	0.71	2.81	0.27	0.64	0.48	0.88	1.88
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.48	0.19	0.57	0.56	0.24	0.56	0.53	0.55	0.54	0.73	0.73
d, Delay for Lane Group [s/veh]	23.08	19.82	16.49	19.93	20.70	16.78	39.21	46.01	46.55	36.25	51.45	52.40
Lane Group LOS	C	B	B	B	C	B	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.50	7.23	2.24	2.97	8.97	3.05	5.28	4.18	4.02	4.38	4.68	4.19
50th-Percentile Queue Length [ft/ln]	62.58	180.69	56.12	74.14	224.33	76.22	132.10	104.55	100.55	109.52	117.01	104.75
95th-Percentile Queue Length [veh/ln]	4.51	11.64	4.04	5.34	13.89	5.49	9.05	7.53	7.24	7.81	8.23	7.54
95th-Percentile Queue Length [ft/ln]	112.65	290.92	101.02	133.45	347.15	137.20	226.34	188.18	180.99	195.34	205.71	188.55

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.08	19.82	16.49	19.93	20.70	16.78	39.21	46.05	46.55	36.25	51.45	52.40
Movement LOS	C	B	B	B	C	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	19.88			20.20			43.98			47.33		
Approach LOS	B			C			D			D		
d_I, Intersection Delay [s/veh]	27.13											
Intersection LOS	C											
Intersection V/C	0.535											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	691			774			575			375		
d_b, Bicycle Delay [s]	25.71			22.54			30.50			39.65		
I_b,int, Bicycle LOS Score for Intersection	2.471			2.658			1.962			2.159		
Bicycle LOS	B			B			A			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Power Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	25.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.600

Intersection Setup

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	2
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Base Volume Input [veh/h]	310	1128	290	51	1298	199	227	321	185	192	264	78
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	71	72	74	80	34	0	0	79	34	74	35	36
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	16	16	0	0	0	9	0	37	22	37
Right Turn on Red Volume [veh/h]	0	0	125	0	0	66	0	0	72	0	0	50
Total Hourly Volume [veh/h]	381	1200	255	147	1332	133	227	409	147	303	321	101
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	104	326	69	40	362	36	62	111	40	82	87	27
Total Analysis Volume [veh/h]	414	1304	277	160	1448	145	247	445	160	329	349	110
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	35	0	20	35	0	25	30	0	25	30	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	27	67	0	11	51	0	23	24	0	18	19	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	3.4	0.0	2.0	3.4	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	6.40	6.40	4.00	6.40	6.40	4.00	5.40	5.40	4.00	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	4.40	4.40	2.00	4.40	4.40	2.00	3.40	3.40	2.00	3.40	3.40
g_i, Effective Green Time [s]	11	30	30	5	25	25	7	10	10	9	12	12
g / C, Green / Cycle	0.15	0.41	0.41	0.07	0.33	0.33	0.10	0.13	0.13	0.12	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.12	0.26	0.17	0.05	0.28	0.09	0.07	0.09	0.10	0.10	0.07	0.07
s, saturation flow rate [veh/h]	3459	5094	1589	3459	5094	1589	3459	5094	1589	3459	5094	1589
c, Capacity [veh/h]	516	2070	646	248	1675	523	345	681	212	431	807	252
d1, Uniform Delay [s]	30.87	17.79	16.03	33.92	23.63	18.61	32.76	30.87	31.33	31.79	28.54	28.56
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.12	0.12	0.17	1.05	0.55	0.11	1.04	0.40	2.03	1.07	0.14	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.63	0.43	0.65	0.86	0.28	0.72	0.65	0.75	0.76	0.43	0.44
d, Delay for Lane Group [s/veh]	31.99	17.90	16.19	34.97	24.18	18.72	33.80	31.27	33.36	32.86	28.67	29.00
Lane Group LOS	C	B	B	C	C	B	C	C	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.41	5.16	2.98	1.36	7.10	1.68	2.07	2.38	2.69	2.73	1.75	1.68
50th-Percentile Queue Length [ft/ln]	85.14	129.02	74.51	33.94	177.55	41.89	51.68	59.39	67.33	68.18	43.80	41.98
95th-Percentile Queue Length [veh/ln]	6.13	8.89	5.36	2.44	11.47	3.02	3.72	4.28	4.85	4.91	3.15	3.02
95th-Percentile Queue Length [ft/ln]	153.25	222.17	134.12	61.09	286.81	75.41	93.02	106.91	121.19	122.73	78.84	75.57

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	31.99	17.90	16.19	34.97	24.18	18.72	33.80	31.27	33.36	32.86	28.67	29.00
Movement LOS	C	B	B	C	C	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	20.59			24.71			32.40			30.47		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	25.24											
Intersection LOS	C											
Intersection V/C	0.600											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1618			1191			497			363		
d_b, Bicycle Delay [s]	1.37			6.13			21.16			25.09		
I_b,int, Bicycle LOS Score for Intersection	2.726			2.560			2.068			2.021		
Bicycle LOS	B			B			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Power Road & Warner Road

Control Type:	Signalized	Delay (sec / veh):	22.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.674

Intersection Setup

Name	Power Road			Power Road			Warner Road			Warner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Warner Road			Warner Road		
Base Volume Input [veh/h]	134	1470	132	93	1751	199	180	50	155	233	32	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	57	0	0	54	36	38	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	16	0	0	37	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	44	0	0	78	0	0	51	0	0	11
Total Hourly Volume [veh/h]	134	1543	88	93	1842	157	218	50	104	233	32	23
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	419	24	25	501	43	59	14	28	63	9	6
Total Analysis Volume [veh/h]	146	1677	96	101	2002	171	237	54	113	253	35	25
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	65	0	20	65	0	20	20	0	20	20	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	11	67	0	9	65	0	16	27	0	17	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	114	114	114	114	114	114	114	114	114	114	114	114
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40
g_i, Effective Green Time [s]	70	62	62	70	60	60	31	11	11	31	12	12
g / C, Green / Cycle	0.62	0.54	0.54	0.62	0.53	0.53	0.27	0.09	0.09	0.27	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.40	0.33	0.06	0.25	0.39	0.11	0.15	0.02	0.07	0.16	0.01	0.02
s, saturation flow rate [veh/h]	367	5094	1589	411	5094	1589	1586	3560	1589	1549	3560	1589
c, Capacity [veh/h]	265	2758	861	288	2691	840	513	333	149	497	365	163
d1, Uniform Delay [s]	22.04	17.84	12.74	13.53	20.86	14.19	34.97	47.47	50.33	35.34	46.31	46.59
k, delay calibration	0.50	0.11	0.11	0.11	0.11	0.11	0.32	0.11	0.11	0.31	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.02	0.22	0.06	0.73	0.42	0.12	1.93	0.23	7.68	2.32	0.11	0.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.61	0.11	0.35	0.74	0.20	0.46	0.16	0.76	0.51	0.10	0.15
d, Delay for Lane Group [s/veh]	30.06	18.06	12.79	14.26	21.28	14.31	36.90	47.70	58.02	37.67	46.42	47.02
Lane Group LOS	C	B	B	B	C	B	D	D	E	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.94	9.14	1.13	0.97	12.54	2.20	5.72	0.71	3.42	6.20	0.45	0.66
50th-Percentile Queue Length [ft/ln]	48.58	228.42	28.17	24.23	313.54	54.88	143.10	17.74	85.49	154.97	11.29	16.51
95th-Percentile Queue Length [veh/ln]	3.50	14.09	2.03	1.74	18.35	3.95	9.65	1.28	6.16	10.28	0.81	1.19
95th-Percentile Queue Length [ft/ln]	87.44	352.36	50.71	43.61	458.73	98.79	241.19	31.93	153.89	257.05	20.32	29.71

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	30.06	18.06	12.79	14.26	21.28	14.31	36.90	47.70	58.02	37.67	46.42	47.02
Movement LOS	C	B	B	B	C	B	D	D	E	D	D	D
d_A, Approach Delay [s/veh]	18.71			20.45			44.25			39.39		
Approach LOS	B			C			D			D		
d_I, Intersection Delay [s/veh]	22.93											
Intersection LOS	C											
Intersection V/C	0.674											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1067			1032			363			380		
d_b, Bicycle Delay [s]	12.37			13.32			38.07			37.26		
I_b,int, Bicycle LOS Score for Intersection	2.639			2.853			1.935			1.827		
Bicycle LOS	B			C			A			A		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Sossaman Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	10.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.414

Intersection Setup

Name							Elliot Road					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name							Elliot Road					
Base Volume Input [veh/h]	39	81	13	50	38	164	179	394	63	5	338	48
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	19	18	36	0	0	38	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	50	0	0	22	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	60	0	0	21	0	0	16
Total Hourly Volume [veh/h]	39	81	9	50	38	123	197	480	42	5	398	32
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	22	2	14	10	33	54	130	11	1	108	9
Total Analysis Volume [veh/h]	42	88	10	54	41	134	214	522	46	5	433	35
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	15	0	0	15	0
Maximum Green [s]	0	30	0	0	30	0	0	50	0	0	50	0
Amber [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	37	0	0	37	0	0	83	0	0	83	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Cycle Length [s]	42	42	42	42	42	42	42	42
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
g_i, Effective Green Time [s]	8	8	8	8	21	21	21	21
g / C, Green / Cycle	0.18	0.18	0.18	0.18	0.51	0.51	0.51	0.51
(v / s)_i Volume / Saturation Flow Rate	0.03	0.05	0.04	0.11	0.23	0.31	0.01	0.25
s, saturation flow rate [veh/h]	1209	1837	1297	1647	925	1844	843	1846
c, Capacity [veh/h]	218	328	287	294	442	947	374	948
d1, Uniform Delay [s]	19.97	14.82	18.07	15.69	13.62	7.11	12.12	6.59
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.16	0.19	0.12	0.72	0.31	0.23	0.01	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.19	0.30	0.19	0.59	0.48	0.60	0.01	0.49
d, Delay for Lane Group [s/veh]	20.13	15.00	18.19	16.41	13.92	7.34	12.13	6.74
Lane Group LOS	C	B	B	B	B	A	B	A
Critical Lane Group	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.34	0.63	0.40	1.21	1.33	1.76	0.03	1.34
50th-Percentile Queue Length [ft/ln]	8.44	15.70	10.03	30.36	33.31	44.07	0.67	33.49
95th-Percentile Queue Length [veh/ln]	0.61	1.13	0.72	2.19	2.40	3.17	0.05	2.41
95th-Percentile Queue Length [ft/ln]	15.19	28.27	18.06	54.64	59.95	79.32	1.21	60.28

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	20.13	15.00	15.00	18.19	16.41	16.41	13.92	7.34	7.34	12.13	6.74	6.74
Movement LOS	C	B	B	B	B	B	B	A	A	B	A	A
d_A, Approach Delay [s/veh]	16.54			16.83			9.14			6.80		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	10.18											
Intersection LOS	B											
Intersection V/C	0.414											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1472			1472			3684			3684		
d_b, Bicycle Delay [s]	1.45			1.45			14.74			14.74		
I_b,int, Bicycle LOS Score for Intersection	1.797			2.036			2.885			2.366		
Bicycle LOS	A			B			C			B		

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: Power Road & Access A

Control Type:	Two-way stop	Delay (sec / veh):	601.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.641

Intersection Setup

Name	Power Road		Power Road		Access A	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	1	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	100.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Power Road		Power Road		Access A	
Base Volume Input [veh/h]	1349	0	0	1188	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	74	21	97	45	45	81
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	16	0	0	37	0	0
Total Hourly Volume [veh/h]	1439	21	97	1270	45	81
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	391	6	26	345	12	22
Total Analysis Volume [veh/h]	1564	23	105	1380	49	88
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.52	0.01	1.64	0.30
d_M, Delay for Movement [s/veh]	0.00	0.00	40.74	0.00	601.00	22.80
Movement LOS	A	A	E	A	F	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	2.67	0.00	5.65	1.25
95th-Percentile Queue Length [ft/ln]	0.00	0.00	66.70	0.00	141.15	31.24
d_A, Approach Delay [s/veh]	0.00		2.88		229.60	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	11.14					
Intersection LOS	F					

Intersection Level Of Service Report

Intersection 6: Power Road & Access B

Control Type:	Two-way stop	Delay (sec / veh):	24.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.330

Intersection Setup

Name	Power Road		Power Road		Access B	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	100.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Power Road		Power Road		Access B	
Base Volume Input [veh/h]	1349	0	0	1188	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	134	21	0	142	0	84
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	16	0	0	37	0	0
Total Hourly Volume [veh/h]	1499	21	0	1367	0	84
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	407	6	0	371	0	23
Total Analysis Volume [veh/h]	1629	23	0	1486	0	91
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.01	0.00	0.33
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	24.39
Movement LOS	A	A		A		C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	1.40
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	34.91
d_A, Approach Delay [s/veh]	0.00		0.00		24.39	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.69					
Intersection LOS	C					

Intersection Level Of Service Report

Intersection 7: Access C & Elliot Road

Control Type:	Two-way stop	Delay (sec / veh):	12.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.026

Intersection Setup

Name	Access C		Elliot Road		Elliot Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	2
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Access C		Elliot Road		Elliot Road	
Base Volume Input [veh/h]	0	0	662	0	0	534
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	11	143	89	0	144
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	41	0	0	96
Total Hourly Volume [veh/h]	0	11	846	89	0	774
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	3	230	24	0	210
Total Analysis Volume [veh/h]	0	12	920	97	0	841
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	12.88	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.08	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	1.97	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.88		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.08					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 8: Access D & Elliot Road

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 37.8
 Level Of Service: E
 Volume to Capacity (v/c): 0.545

Intersection Setup

Name	Access D		Elliot Road		Elliot Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	2
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Access D		Elliot Road		Elliot Road	
Base Volume Input [veh/h]	0	0	662	0	0	534
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	116	11	65	89	29	29
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	41	0	0	96
Total Hourly Volume [veh/h]	116	11	768	89	29	659
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	3	209	24	8	179
Total Analysis Volume [veh/h]	126	12	835	97	32	716
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.54	0.02	0.01	0.00	0.08	0.01
d_M, Delay for Movement [s/veh]	37.77	12.39	0.00	0.00	14.23	0.00
Movement LOS	E	B	A	A	B	A
95th-Percentile Queue Length [veh/ln]	2.94	0.07	0.00	0.00	0.24	0.00
95th-Percentile Queue Length [ft/ln]	73.42	1.84	0.00	0.00	6.12	0.00
d_A, Approach Delay [s/veh]	35.56		0.00		0.61	
Approach LOS	E		A		A	
d_I, Intersection Delay [s/veh]	2.95					
Intersection LOS	E					

Intersection Level Of Service Report

Intersection 9: Access E & Elliot Road

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 12.3
 Level Of Service: B
 Volume to Capacity (v/c): 0.024

Intersection Setup

Name	Access E		Elliot Road		Elliot Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	2
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Access E		Elliot Road		Elliot Road	
Base Volume Input [veh/h]	0	0	662	0	0	534
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	11	43	32	0	57
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	41	0	0	96
Total Hourly Volume [veh/h]	0	11	746	32	0	687
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	3	203	9	0	187
Total Analysis Volume [veh/h]	0	12	811	35	0	747
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	12.25	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.07	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	1.81	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.25		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.09					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 1: Power Road & Guadalupe Road

Control Type:	Signalized	Delay (sec / veh):	35.2
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.686

Intersection Setup

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Base Volume Input [veh/h]	229	1328	221	95	1217	302	212	259	237	315	655	230
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	43	43	43	0	45	0	0	0	45	45	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	11	0	0	38	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	87	0	0	100	0	0	93	0	0	76
Total Hourly Volume [veh/h]	272	1382	177	95	1300	202	212	259	189	360	655	154
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	74	376	48	26	353	55	58	70	51	98	178	42
Total Analysis Volume [veh/h]	296	1502	192	103	1413	220	230	282	205	391	712	167
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Beginning of First Yellow
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	1	6	0	5	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	8	15	0	8	15	0	8	15	0	8	15	0
Maximum Green [s]	25	45	0	25	45	0	25	45	0	25	45	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	14	34	0	12	32	0	14	51	0	23	60	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0
Minimum Recall	No	Yes		No	Yes		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	66	54	54	66	49	49	41	18	18	41	27	27
g / C, Green / Cycle	0.55	0.45	0.45	0.55	0.41	0.41	0.34	0.15	0.15	0.34	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.45	0.29	0.12	0.20	0.28	0.14	0.24	0.08	0.13	0.29	0.20	0.11
s, saturation flow rate [veh/h]	656	5094	1589	510	5094	1589	969	3560	1589	1358	3560	1589
c, Capacity [veh/h]	380	2312	721	304	2061	643	297	528	236	437	795	355
d1, Uniform Delay [s]	24.25	25.39	20.36	17.70	29.45	24.70	33.12	47.27	49.97	35.64	45.25	40.45
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.04	0.04	0.13	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.49	1.43	0.90	3.00	1.88	1.45	17.71	0.31	3.83	7.69	1.51	0.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.65	0.27	0.34	0.69	0.34	0.77	0.53	0.87	0.89	0.90	0.47
d, Delay for Lane Group [s/veh]	38.74	26.82	21.26	20.70	31.33	26.14	50.83	47.58	53.80	43.32	46.76	40.82
Lane Group LOS	D	C	C	C	C	C	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.57	10.70	3.38	1.50	10.96	4.41	6.33	3.82	6.09	10.17	10.10	4.20
50th-Percentile Queue Length [ft/ln]	139.25	267.54	84.45	37.43	273.97	110.28	158.27	95.62	152.36	254.29	252.57	105.06
95th-Percentile Queue Length [veh/ln]	9.44	16.07	6.08	2.70	16.39	7.86	10.46	6.88	10.14	15.40	15.32	7.56
95th-Percentile Queue Length [ft/ln]	236.02	401.66	152.01	67.38	409.69	196.39	261.44	172.12	253.58	385.06	382.89	189.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.74	26.82	21.26	20.70	31.33	26.14	50.83	47.58	53.80	43.32	46.76	40.82
Movement LOS	D	C	C	C	C	C	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	28.06			30.04			50.40			44.92		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.21											
Intersection LOS	D											
Intersection V/C	0.686											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	458			425			742			892		
d_b, Bicycle Delay [s]	35.66			37.21			23.76			18.43		
I_b,int, Bicycle LOS Score for Intersection	2.702			2.569			2.005			2.670		
Bicycle LOS	B			B			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Power Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	48.9
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.814

Intersection Setup

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	2
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Base Volume Input [veh/h]	480	1214	186	54	1408	365	540	294	360	357	395	84
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	86	86	88	95	41	0	0	94	40	88	43	43
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	38	38	0	0	0	23	0	11	7	11
Right Turn on Red Volume [veh/h]	0	0	103	0	0	120	0	0	132	0	0	46
Total Hourly Volume [veh/h]	566	1300	209	187	1449	245	540	411	268	456	445	92
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	154	353	57	51	394	67	147	112	73	124	121	25
Total Analysis Volume [veh/h]	615	1413	227	203	1575	266	587	447	291	496	484	100
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	35	0	20	35	0	25	30	0	25	30	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	27	64	0	10	47	0	32	29	0	17	14	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	3.4	0.0	2.0	3.4	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	118	118	118	118	118	118	118	118	118	118	118	118
L, Total Lost Time per Cycle [s]	4.00	6.40	6.40	4.00	6.40	6.40	4.00	5.40	5.40	4.00	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	4.40	4.40	2.00	4.40	4.40	2.00	3.40	3.40	2.00	3.40	3.40
g_i, Effective Green Time [s]	20	46	46	9	35	35	22	24	24	19	21	21
g / C, Green / Cycle	0.17	0.39	0.39	0.08	0.30	0.30	0.19	0.20	0.20	0.16	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.18	0.28	0.14	0.06	0.31	0.17	0.17	0.09	0.18	0.14	0.10	0.06
s, saturation flow rate [veh/h]	3459	5094	1589	3459	5094	1589	3459	5094	1589	3459	5094	1589
c, Capacity [veh/h]	587	1984	619	268	1513	472	648	1033	322	561	904	282
d1, Uniform Delay [s]	48.90	30.39	25.62	53.25	41.40	34.95	46.83	41.03	45.82	48.26	44.02	42.52
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.17	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	25.80	0.18	0.14	1.66	20.48	0.40	2.03	0.11	13.73	1.90	0.18	0.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.05	0.71	0.37	0.76	1.04	0.56	0.91	0.43	0.90	0.88	0.54	0.35
d, Delay for Lane Group [s/veh]	74.70	30.57	25.75	54.91	61.88	35.34	48.87	41.14	59.55	50.16	44.21	42.80
Lane Group LOS	F	C	C	D	F	D	D	D	E	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	10.44	10.69	4.35	2.93	16.79	6.25	8.31	3.69	9.25	7.05	4.17	2.51
50th-Percentile Queue Length [ft/ln]	260.92	267.29	108.84	73.27	419.78	156.21	207.85	92.15	231.15	176.15	104.36	62.79
95th-Percentile Queue Length [veh/ln]	16.09	16.05	7.78	5.28	24.11	10.35	13.04	6.63	14.23	11.40	7.51	4.52
95th-Percentile Queue Length [ft/ln]	402.25	401.35	194.39	131.88	602.63	258.69	326.06	165.86	355.83	284.98	187.85	113.02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	74.70	30.57	25.75	54.91	61.88	35.34	48.87	41.14	59.55	50.16	44.21	42.80
Movement LOS	F	C	C	D	F	D	D	D	E	D	D	D
d_A, Approach Delay [s/veh]	42.12			57.73			48.61			46.81		
Approach LOS	D			E			D			D		
d_I, Intersection Delay [s/veh]	48.92											
Intersection LOS	D											
Intersection V/C	0.814											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	979			690			401			146		
d_b, Bicycle Delay [s]	15.33			25.23			37.60			50.54		
I_b,int, Bicycle LOS Score for Intersection	2.857			2.750			2.361			2.179		
Bicycle LOS	C			B			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Power Road & Warner Road

Control Type:	Signalized	Delay (sec / veh):	32.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.807

Intersection Setup

Name	Power Road			Power Road			Warner Road			Warner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Warner Road			Warner Road		
Base Volume Input [veh/h]	303	2218	133	90	1696	263	277	56	193	208	40	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	67	0	0	65	43	45	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	38	0	0	11	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	44	0	0	101	0	0	64	0	0	10
Total Hourly Volume [veh/h]	303	2323	89	90	1772	205	322	56	129	208	40	20
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	82	631	24	24	482	56	88	15	35	57	11	5
Total Analysis Volume [veh/h]	329	2525	97	98	1926	223	350	61	140	226	43	22
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	65	0	20	65	0	20	20	0	20	20	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	23	62	0	10	49	0	21	27	0	21	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	132	132	132	132	132	132	132	132	132	132	132	132
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40
g_i, Effective Green Time [s]	85	76	76	85	61	61	35	14	14	35	11	11
g / C, Green / Cycle	0.64	0.57	0.57	0.64	0.46	0.46	0.26	0.11	0.11	0.26	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.55	0.50	0.06	0.39	0.38	0.14	0.22	0.02	0.09	0.15	0.01	0.01
s, saturation flow rate [veh/h]	596	5094	1589	252	5094	1589	1618	3560	1589	1499	3560	1589
c, Capacity [veh/h]	402	2919	911	193	2347	732	493	386	172	458	289	129
d1, Uniform Delay [s]	38.72	23.89	12.83	29.93	30.92	22.36	44.88	53.49	57.65	41.19	56.51	56.61
k, delay calibration	0.50	0.11	0.11	0.30	0.11	0.11	0.50	0.11	0.11	0.36	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.79	0.84	0.05	5.57	0.75	0.23	8.38	0.19	8.89	2.70	0.23	0.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.86	0.11	0.51	0.82	0.30	0.71	0.16	0.81	0.49	0.15	0.17
d, Delay for Lane Group [s/veh]	55.52	24.73	12.88	35.50	31.67	22.60	53.25	53.68	66.54	43.89	56.74	57.23
Lane Group LOS	E	C	B	D	C	C	D	D	E	D	E	E
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.76	20.39	1.26	1.30	16.89	4.25	11.58	0.93	4.97	6.54	0.68	0.70
50th-Percentile Queue Length [ft/ln]	143.92	509.64	31.52	32.41	422.34	106.28	289.41	23.22	124.24	163.50	16.89	17.62
95th-Percentile Queue Length [veh/ln]	9.69	27.79	2.27	2.33	23.63	7.63	17.16	1.67	8.63	10.73	1.22	1.27
95th-Percentile Queue Length [ft/ln]	242.29	694.76	56.73	58.33	590.86	190.81	428.91	41.79	215.64	268.36	30.40	31.72

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	55.52	24.73	12.88	35.50	31.67	22.60	53.25	53.68	66.54	43.89	56.74	57.23
Movement LOS	E	C	B	D	C	C	D	D	E	D	E	E
d_A, Approach Delay [s/veh]	27.78			30.93			56.68			46.80		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	32.50											
Intersection LOS	C											
Intersection V/C	0.807											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	842			645			312			312		
d_b, Bicycle Delay [s]	22.13			30.30			47.03			47.03		
I_b,int, Bicycle LOS Score for Intersection	3.207			2.851			2.067			1.808		
Bicycle LOS	C			C			B			A		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Sossaman Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	14.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.495

Intersection Setup

Name							Elliot Road					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name							Elliot Road					
Base Volume Input [veh/h]	92	49	10	36	39	248	135	302	56	11	501	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	22	22	43	0	0	45	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	16	0	0	53	0
Right Turn on Red Volume [veh/h]	0	0	3	0	0	89	0	0	18	0	0	12
Total Hourly Volume [veh/h]	92	49	7	36	39	181	157	361	38	11	599	24
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	13	2	10	11	49	43	98	10	3	163	7
Total Analysis Volume [veh/h]	100	53	8	39	42	197	171	392	41	12	651	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	15	0	0	15	0
Maximum Green [s]	0	30	0	0	30	0	0	50	0	0	50	0
Amber [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	36	0	0	36	0	0	84	0	0	84	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C	R
C, Cycle Length [s]	63	63	63	63	63	63	63	63	63
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
g_i, Effective Green Time [s]	17	17	17	17	34	34	34	34	34
g / C, Green / Cycle	0.27	0.27	0.27	0.27	0.53	0.53	0.53	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.09	0.03	0.03	0.15	0.22	0.24	0.01	0.35	0.02
s, saturation flow rate [veh/h]	1141	1828	1341	1633	762	1839	955	1870	1589
c, Capacity [veh/h]	230	485	389	433	314	979	465	995	846
d1, Uniform Delay [s]	27.95	17.64	20.58	19.98	22.14	9.05	12.81	10.61	7.03
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.48	0.04	0.04	0.41	0.55	0.12	0.01	0.27	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.43	0.13	0.10	0.55	0.54	0.44	0.03	0.65	0.03
d, Delay for Lane Group [s/veh]	28.43	17.69	20.62	20.39	22.69	9.17	12.82	10.89	7.04
Lane Group LOS	C	B	C	C	C	A	B	B	A
Critical Lane Group	No	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.37	0.59	0.42	2.66	2.12	2.67	0.09	4.73	0.12
50th-Percentile Queue Length [ft/ln]	34.15	14.83	10.53	66.38	52.96	66.85	2.32	118.37	3.11
95th-Percentile Queue Length [veh/ln]	2.46	1.07	0.76	4.78	3.81	4.81	0.17	8.30	0.22
95th-Percentile Queue Length [ft/ln]	61.47	26.69	18.95	119.48	95.33	120.32	4.18	207.59	5.61

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.43	17.69	17.69	20.62	20.39	20.39	22.69	9.17	9.17	12.82	10.89	7.04
Movement LOS	C	B	B	C	C	C	C	A	A	B	B	A
d_A, Approach Delay [s/veh]	24.36			20.42			12.99			10.78		
Approach LOS	C			C			B			B		
d_I, Intersection Delay [s/veh]	14.36											
Intersection LOS	B											
Intersection V/C	0.495											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	937			937			2457			2457		
d_b, Bicycle Delay [s]	8.92			8.92			1.65			1.65		
I_b,int, Bicycle LOS Score for Intersection	1.830			2.165			2.586			2.716		
Bicycle LOS	A			B			B			B		

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: Power Road & Access A

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Power Road		Power Road		Access A	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	0	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Power Road		Power Road		Access A	
Base Volume Input [veh/h]	1920	0	0	2196	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	87	25	114	54	54	98
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	38	0	0	11	0	0
Total Hourly Volume [veh/h]	2045	25	114	2261	54	98
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	556	7	31	614	15	27
Total Analysis Volume [veh/h]	2223	27	124	2458	59	107
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	1.33	0.02	0.00	0.61
d_M, Delay for Movement [s/veh]	0.00	0.00	287.32	0.00	10000.00	53.67
Movement LOS	A	A	F	A	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	9.01	0.00	9.66	3.39
95th-Percentile Queue Length [ft/ln]	0.00	0.00	225.28	0.00	241.61	84.67
d_A, Approach Delay [s/veh]	0.00		13.80		3588.81	
Approach LOS	A		B		F	
d_I, Intersection Delay [s/veh]	126.32					
Intersection LOS	F					

Intersection Level Of Service Report

Intersection 6: Power Road & Access B

Control Type:	Two-way stop	Delay (sec / veh):	62.7
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.669

Intersection Setup

Name	Power Road		Power Road		Access B	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	0	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Power Road		Power Road		Access B	
Base Volume Input [veh/h]	1920	0	0	2196	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	160	25	0	168	0	101
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	38	0	0	11	0	0
Total Hourly Volume [veh/h]	2118	25	0	2375	0	101
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	576	7	0	645	0	27
Total Analysis Volume [veh/h]	2302	27	0	2582	0	110
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.03	0.00	0.67
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	62.67
Movement LOS	A	A		A		F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	3.87
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	96.74
d_A, Approach Delay [s/veh]	0.00		0.00		62.67	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	1.37					
Intersection LOS	F					

Intersection Level Of Service Report

Intersection 7: Access C & Elliot Road

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 12.6
 Level Of Service: B
 Volume to Capacity (v/c): 0.029

Intersection Setup

Name	Access C		Elliot Road		Elliot Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	2
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Access C		Elliot Road		Elliot Road	
Base Volume Input [veh/h]	0	0	534	0	0	836
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	13	170	106	0	173
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	99	0	0	29
Total Hourly Volume [veh/h]	0	13	803	106	0	1038
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	218	29	0	282
Total Analysis Volume [veh/h]	0	14	873	115	0	1128
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	12.64	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.09	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	2.22	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.64		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.08					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 8: Access D & Elliot Road

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 53.2
 Level Of Service: F
 Volume to Capacity (v/c): 0.699

Intersection Setup

Name	Access D		Elliot Road		Elliot Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	2
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Access D		Elliot Road		Elliot Road	
Base Volume Input [veh/h]	0	0	534	0	0	836
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	139	13	77	106	34	34
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	99	0	0	29
Total Hourly Volume [veh/h]	139	13	710	106	34	899
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	4	193	29	9	244
Total Analysis Volume [veh/h]	151	14	772	115	37	977
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.70	0.03	0.01	0.00	0.08	0.01
d_M, Delay for Movement [s/veh]	53.15	12.07	0.00	0.00	13.85	0.00
Movement LOS	F	B	A	A	B	A
95th-Percentile Queue Length [veh/ln]	4.49	0.08	0.00	0.00	0.27	0.00
95th-Percentile Queue Length [ft/ln]	112.32	2.06	0.00	0.00	6.79	0.00
d_A, Approach Delay [s/veh]	49.67		0.00		0.51	
Approach LOS	E		A		A	
d_I, Intersection Delay [s/veh]	4.21					
Intersection LOS	F					

Intersection Level Of Service Report

Intersection 9: Access E & Elliot Road

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 11.9
 Level Of Service: B
 Volume to Capacity (v/c): 0.026

Intersection Setup

Name	Access E		Elliot Road		Elliot Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	2
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Access E		Elliot Road		Elliot Road	
Base Volume Input [veh/h]	0	0	534	0	0	836
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	13	52	38	0	67
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	99	0	0	29
Total Hourly Volume [veh/h]	0	13	685	38	0	932
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	186	10	0	253
Total Analysis Volume [veh/h]	0	14	745	41	0	1013
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	11.93	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.08	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	2.02	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.93		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.09					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 1: Power Road & Guadalupe Road

Control Type:	Signalized	Delay (sec / veh):	28.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.591

Intersection Setup

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Base Volume Input [veh/h]	139	1286	234	211	1451	287	204	325	136	172	315	206
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	45	45	45	0	48	0	0	0	48	48	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	37	0	0	16	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	92	0	0	95	0	0	61	0	0	68
Total Hourly Volume [veh/h]	184	1368	187	211	1515	192	204	325	123	220	315	138
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	372	51	57	412	52	55	88	33	60	86	38
Total Analysis Volume [veh/h]	200	1487	203	229	1647	209	222	353	134	239	342	150
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Beginning of First Yellow
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	1	6	0	5	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	8	15	0	8	15	0	8	15	0	8	15	0
Maximum Green [s]	25	45	0	25	45	0	25	45	0	25	45	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	18	60	0	20	62	0	14	24	0	16	26	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0
Minimum Recall	No	Yes		No	Yes		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	74	61	61	74	62	62	33	17	17	33	19	19
g / C, Green / Cycle	0.61	0.51	0.51	0.61	0.51	0.51	0.28	0.14	0.14	0.28	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.44	0.29	0.13	0.45	0.32	0.13	0.18	0.09	0.10	0.19	0.10	0.09
s, saturation flow rate [veh/h]	456	5094	1589	512	5094	1589	1220	3560	1624	1275	3560	1589
c, Capacity [veh/h]	313	2578	804	346	2617	817	346	515	235	359	574	256
d1, Uniform Delay [s]	20.20	20.68	16.79	18.71	20.96	16.33	36.69	48.41	48.59	36.84	46.71	46.62
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.32	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.65	0.95	0.75	9.60	1.16	0.76	5.82	0.50	1.21	0.79	0.37	0.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.58	0.25	0.66	0.63	0.26	0.64	0.64	0.67	0.67	0.60	0.59
d, Delay for Lane Group [s/veh]	29.85	21.63	17.54	28.31	22.12	17.09	42.51	48.91	49.80	37.64	47.08	47.41
Lane Group LOS	C	C	B	C	C	B	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.94	9.26	3.17	3.37	10.54	3.21	5.76	4.59	4.40	5.74	4.65	4.10
50th-Percentile Queue Length [ft/ln]	73.38	231.51	79.30	84.21	263.38	80.33	144.04	114.63	109.88	143.53	116.14	102.45
95th-Percentile Queue Length [veh/ln]	5.28	14.25	5.71	6.06	15.86	5.78	9.70	8.10	7.83	9.67	8.18	7.38
95th-Percentile Queue Length [ft/ln]	132.09	356.28	142.74	151.58	396.46	144.59	242.45	202.42	195.83	241.77	204.51	184.41

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	29.85	21.63	17.54	28.31	22.12	17.09	42.51	48.97	49.80	37.64	47.08	47.41
Movement LOS	C	C	B	C	C	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	22.06			22.30			47.10			44.06		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	28.40											
Intersection LOS	C											
Intersection V/C	0.591											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	892			925			292			325		
d_b, Bicycle Delay [s]	18.43			17.34			43.79			42.09		
I_b,int, Bicycle LOS Score for Intersection	2.650			2.759			1.983			2.219		
Bicycle LOS	B			C			A			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 2: Power Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	27.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.671

Intersection Setup

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	2
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Base Volume Input [veh/h]	486	1273	349	53	1414	264	488	393	300	226	308	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	90	90	92	101	43	0	0	100	43	92	44	45
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	16	16	0	0	0	9	0	37	22	37
Right Turn on Red Volume [veh/h]	0	0	151	0	0	87	0	0	113	0	0	53
Total Hourly Volume [veh/h]	576	1363	306	170	1457	177	488	502	230	355	374	109
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	157	370	83	46	396	48	133	136	63	96	102	30
Total Analysis Volume [veh/h]	626	1482	333	185	1584	192	530	546	250	386	407	118
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	35	0	20	35	0	25	30	0	25	30	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	27	67	0	11	51	0	23	24	0	18	19	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	3.4	0.0	2.0	3.4	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	94	94	94	94	94	94	94	94	94	94	94	94
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	5.40	5.40	5.40	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	3.40	3.40	0.00	3.40	3.40
g_i, Effective Green Time [s]	50	41	41	50	32	32	32	18	18	32	14	14
g / C, Green / Cycle	0.53	0.44	0.44	0.53	0.34	0.34	0.34	0.19	0.19	0.34	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.43	0.29	0.21	0.21	0.31	0.12	0.21	0.11	0.16	0.18	0.08	0.07
s, saturation flow rate [veh/h]	1448	5094	1589	895	5094	1589	2569	5094	1589	2138	5094	1589
c, Capacity [veh/h]	766	2239	699	512	1745	544	905	971	303	754	776	242
d1, Uniform Delay [s]	22.06	20.80	18.66	14.79	29.45	23.08	24.33	34.44	36.48	23.46	36.66	36.44
k, delay calibration	0.43	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.22	0.13	0.19	0.16	0.80	0.14	0.22	0.19	2.18	0.20	0.21	0.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.66	0.48	0.36	0.91	0.35	0.59	0.56	0.82	0.51	0.52	0.49
d, Delay for Lane Group [s/veh]	30.28	20.92	18.84	14.95	30.25	23.22	24.55	34.63	38.67	23.66	36.87	37.00
Lane Group LOS	C	C	B	B	C	C	C	C	D	C	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.17	7.71	4.69	0.86	10.52	2.98	4.27	3.59	5.38	2.97	2.74	2.40
50th-Percentile Queue Length [ft/ln]	104.33	192.87	117.13	21.38	262.91	74.55	106.75	89.67	134.46	74.14	68.60	59.93
95th-Percentile Queue Length [veh/ln]	7.51	12.27	8.24	1.54	15.83	5.37	7.66	6.46	9.18	5.34	4.94	4.32
95th-Percentile Queue Length [ft/ln]	187.79	306.75	205.88	38.48	395.87	134.19	191.47	161.40	229.55	133.45	123.47	107.88

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	30.28	20.92	18.84	14.95	30.25	23.22	24.55	34.63	38.67	23.66	36.87	37.00
Movement LOS	C	C	B	B	C	C	C	C	D	C	D	D
d_A, Approach Delay [s/veh]	23.04			28.12			31.36			31.29		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	27.33											
Intersection LOS	C											
Intersection V/C	0.671											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1293			952			397			290		
d_b, Bicycle Delay [s]	5.86			12.88			30.11			34.26		
I_b,int, Bicycle LOS Score for Intersection	2.985			2.686			2.351			2.090		
Bicycle LOS	C			B			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Power Road & Warner Road

Control Type:	Signalized	Delay (sec / veh):	38.9
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.863

Intersection Setup

Name	Power Road			Power Road			Warner Road			Warner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Warner Road			Warner Road		
Base Volume Input [veh/h]	156	1830	133	94	2344	257	266	51	212	236	33	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	71	0	0	67	45	48	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	16	0	0	37	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	44	0	0	100	0	0	70	0	0	11
Total Hourly Volume [veh/h]	156	1917	89	94	2448	202	314	51	142	236	33	23
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	521	24	26	665	55	85	14	39	64	9	6
Total Analysis Volume [veh/h]	170	2084	97	102	2661	220	341	55	154	257	36	25
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	65	0	20	65	0	20	20	0	20	20	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	8	60	0	11	63	0	21	27	0	22	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	128	128	128	128	128	128	128	128	128	128	128	128
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40
g_i, Effective Green Time [s]	79	70	70	79	65	65	37	15	15	37	13	13
g / C, Green / Cycle	0.61	0.54	0.54	0.61	0.51	0.51	0.29	0.12	0.12	0.29	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.49	0.41	0.06	0.31	0.52	0.14	0.21	0.02	0.10	0.17	0.01	0.02
s, saturation flow rate [veh/h]	346	5094	1589	325	5094	1589	1605	3560	1589	1499	3560	1589
c, Capacity [veh/h]	251	2768	864	225	2577	804	531	416	186	497	352	157
d1, Uniform Delay [s]	38.23	22.65	14.25	23.91	31.73	18.20	40.54	50.86	55.45	38.32	52.70	53.00
k, delay calibration	0.50	0.11	0.11	0.17	0.11	0.11	0.50	0.11	0.12	0.42	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.67	0.43	0.06	2.24	18.48	0.18	5.85	0.14	9.64	3.24	0.13	0.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.68	0.75	0.11	0.45	1.03	0.27	0.64	0.13	0.83	0.52	0.10	0.16
d, Delay for Lane Group [s/veh]	51.90	23.08	14.31	26.15	50.21	18.38	46.40	51.01	65.09	41.56	52.82	53.47
Lane Group LOS	D	C	B	C	F	B	D	D	E	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.87	15.03	1.32	1.24	28.82	3.63	10.30	0.80	5.34	7.17	0.53	0.76
50th-Percentile Queue Length [ft/ln]	71.64	375.77	33.12	31.01	720.57	90.66	257.50	20.03	133.45	179.18	13.36	18.95
95th-Percentile Queue Length [veh/ln]	5.16	21.39	2.38	2.23	38.61	6.53	15.56	1.44	9.13	11.56	0.96	1.36
95th-Percentile Queue Length [ft/ln]	128.95	534.72	59.62	55.82	965.27	163.19	389.08	36.05	228.18	288.94	24.04	34.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.90	23.08	14.31	26.15	50.21	18.38	46.40	51.01	65.09	41.56	52.82	53.47
Movement LOS	D	C	B	C	F	B	D	D	E	D	D	D
d_A, Approach Delay [s/veh]	24.80			47.04			52.09			43.77		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	38.89											
Intersection LOS	D											
Intersection V/C	0.863											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	835			882			321			337		
d_b, Bicycle Delay [s]	21.78			20.07			45.24			44.41		
I_b,int, Bicycle LOS Score for Intersection	2.877			3.255			2.071			1.831		
Bicycle LOS	C			C			B			A		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Sossaman Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	11.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.487

Intersection Setup

Name							Elliot Road					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name							Elliot Road					
Base Volume Input [veh/h]	53	84	13	52	40	183	208	472	87	6	386	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	24	22	45	0	0	48	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	50	0	0	22	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	68	0	0	29	0	0	17
Total Hourly Volume [veh/h]	53	84	9	52	40	139	230	567	58	6	456	33
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	23	2	14	11	38	63	154	16	2	124	9
Total Analysis Volume [veh/h]	58	91	10	57	43	151	250	616	63	7	496	36
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	15	0	0	15	0
Maximum Green [s]	0	30	0	0	30	0	0	50	0	0	50	0
Amber [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	32	0	0	32	0	0	88	0	0	88	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C	R
C, Cycle Length [s]	51	51	51	51	51	51	51	51	51
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
g_i, Effective Green Time [s]	11	11	11	11	28	28	28	28	28
g / C, Green / Cycle	0.21	0.21	0.21	0.21	0.54	0.54	0.54	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.05	0.05	0.04	0.12	0.29	0.37	0.01	0.27	0.02
s, saturation flow rate [veh/h]	1189	1838	1293	1644	872	1840	761	1870	1589
c, Capacity [veh/h]	218	385	301	344	431	994	316	1010	859
d1, Uniform Delay [s]	23.51	16.91	20.52	18.12	15.95	8.56	15.29	7.35	5.53
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.24	0.13	0.11	0.54	0.46	0.31	0.01	0.14	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	0.26	0.19	0.56	0.58	0.68	0.02	0.49	0.04
d, Delay for Lane Group [s/veh]	23.75	17.04	20.63	18.66	16.41	8.87	15.30	7.49	5.53
Lane Group LOS	C	B	C	B	B	A	B	A	A
Critical Lane Group	No	No	No	Yes	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.61	0.83	0.54	1.74	2.13	3.28	0.05	2.04	0.11
50th-Percentile Queue Length [ft/ln]	15.19	20.86	13.48	43.48	53.20	81.98	1.32	51.04	2.78
95th-Percentile Queue Length [veh/ln]	1.09	1.50	0.97	3.13	3.83	5.90	0.10	3.67	0.20
95th-Percentile Queue Length [ft/ln]	27.34	37.54	24.26	78.26	95.75	147.56	2.38	91.87	5.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.75	17.04	17.04	20.63	18.66	18.66	16.41	8.87	8.87	15.30	7.49	5.53
Movement LOS	C	B	B	C	B	B	B	A	A	B	A	A
d_A, Approach Delay [s/veh]	19.49			19.11			10.90			7.46		
Approach LOS	B			B			B			A		
d_I, Intersection Delay [s/veh]	11.74											
Intersection LOS	B											
Intersection V/C	0.487											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1001			1001			3189			3189		
d_b, Bicycle Delay [s]	6.39			6.39			9.05			9.05		
I_b,int, Bicycle LOS Score for Intersection	1.829			2.086			3.140			2.477		
Bicycle LOS	A			B			C			B		

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: Power Road & Access A

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Power Road		Power Road		Access A	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	0	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Power Road		Power Road		Access A	
Base Volume Input [veh/h]	1801	0	0	1493	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	92	27	122	56	56	102
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	16	0	0	37	0	0
Total Hourly Volume [veh/h]	1909	27	122	1586	56	102
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	519	7	33	431	15	28
Total Analysis Volume [veh/h]	2075	29	133	1724	61	111
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	1.20	0.02	0.00	0.57
d_M, Delay for Movement [s/veh]	0.00	0.00	223.01	0.00	10000.00	45.04
Movement LOS	A	A	F	A	F	E
95th-Percentile Queue Length [veh/ln]	0.00	0.00	8.59	0.00	9.93	3.05
95th-Percentile Queue Length [ft/ln]	0.00	0.00	214.82	0.00	248.22	76.24
d_A, Approach Delay [s/veh]	0.00		15.97		3575.58	
Approach LOS	A		C		F	
d_I, Intersection Delay [s/veh]	155.98					
Intersection LOS	F					

Intersection Level Of Service Report

Intersection 6: Power Road & Access B

Control Type:	Two-way stop	Delay (sec / veh):	52.2
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.621

Intersection Setup

Name	Power Road		Power Road		Access B	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	0	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Power Road		Power Road		Access B	
Base Volume Input [veh/h]	1801	0	0	1493	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	168	27	0	178	0	105
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	16	0	0	37	0	0
Total Hourly Volume [veh/h]	1985	27	0	1708	0	105
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	539	7	0	464	0	29
Total Analysis Volume [veh/h]	2158	29	0	1857	0	114
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.02	0.00	0.62
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	52.20
Movement LOS	A	A		A		F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	3.50
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	87.53
d_A, Approach Delay [s/veh]	0.00		0.00		52.20	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	1.43					
Intersection LOS	F					

Intersection Level Of Service Report

Intersection 7: Access C & Elliot Road

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 14.1
 Level Of Service: B
 Volume to Capacity (v/c): 0.034

Intersection Setup

Name	Access C		Elliot Road		Elliot Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	2
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Access C		Elliot Road		Elliot Road	
Base Volume Input [veh/h]	0	0	795	0	0	614
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	13	180	113	0	181
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	41	0	0	96
Total Hourly Volume [veh/h]	0	13	1016	113	0	891
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	276	31	0	242
Total Analysis Volume [veh/h]	0	14	1104	123	0	968
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	14.12	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.11	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	2.65	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	14.12		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.09					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 8: Access D & Elliot Road

Control Type:	Two-way stop	Delay (sec / veh):	102.2
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.918

Intersection Setup

Name	Access D		Elliot Road		Elliot Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	2
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Access D		Elliot Road		Elliot Road	
Base Volume Input [veh/h]	0	0	795	0	0	614
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	145	13	81	113	36	36
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	41	0	0	96
Total Hourly Volume [veh/h]	145	13	917	113	36	746
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	39	4	249	31	10	203
Total Analysis Volume [veh/h]	158	14	997	123	39	811
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.92	0.03	0.01	0.00	0.11	0.01
d_M, Delay for Movement [s/veh]	102.15	13.40	0.00	0.00	16.86	0.00
Movement LOS	F	B	A	A	C	A
95th-Percentile Queue Length [veh/ln]	6.86	0.10	0.00	0.00	0.38	0.00
95th-Percentile Queue Length [ft/ln]	171.57	2.44	0.00	0.00	9.55	0.00
d_A, Approach Delay [s/veh]	94.93		0.00		0.77	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	7.93					
Intersection LOS	F					

Intersection Level Of Service Report

Intersection 9: Access E & Elliot Road

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 13.2
 Level Of Service: B
 Volume to Capacity (v/c): 0.031

Intersection Setup

Name	Access E		Elliot Road		Elliot Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	2
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Access E		Elliot Road		Elliot Road	
Base Volume Input [veh/h]	0	0	795	0	0	614
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	13	54	41	0	72
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	41	0	0	96
Total Hourly Volume [veh/h]	0	13	890	41	0	782
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	242	11	0	213
Total Analysis Volume [veh/h]	0	14	967	45	0	850
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	13.20	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.10	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	2.39	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.20		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.10					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 1: Power Road & Guadalupe Road

Control Type:	Signalized	Delay (sec / veh):	42.8
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.748

Intersection Setup

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Base Volume Input [veh/h]	252	1438	241	105	1298	334	234	286	262	338	723	254
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	43	43	43	0	45	0	0	0	45	45	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	11	0	0	38	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	94	0	0	110	0	0	101	0	0	84
Total Hourly Volume [veh/h]	295	1492	190	105	1381	224	234	286	206	383	723	170
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	405	52	29	375	61	64	78	56	104	196	46
Total Analysis Volume [veh/h]	321	1622	207	114	1501	243	254	311	224	416	786	185
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Beginning of First Yellow
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	1	6	0	5	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	8	15	0	8	15	0	8	15	0	8	15	0
Maximum Green [s]	25	45	0	25	45	0	25	45	0	25	45	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	16	43	0	12	39	0	21	37	0	28	44	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0
Minimum Recall	No	Yes		No	Yes		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	60	48	48	60	38	38	47	19	19	47	29	29
g / C, Green / Cycle	0.50	0.40	0.40	0.50	0.31	0.31	0.39	0.16	0.16	0.39	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.41	0.32	0.13	0.23	0.29	0.15	0.26	0.09	0.14	0.30	0.22	0.12
s, saturation flow rate [veh/h]	782	5094	1589	506	5094	1589	990	3560	1589	1369	3560	1589
c, Capacity [veh/h]	400	2030	633	268	1596	498	357	576	257	514	865	386
d1, Uniform Delay [s]	32.79	31.89	24.99	24.37	40.16	33.44	29.43	46.27	49.15	30.38	44.19	38.97
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.04	0.04	0.26	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.58	3.40	1.37	4.86	12.22	3.39	11.38	0.29	3.60	7.09	1.60	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.80	0.33	0.42	0.94	0.49	0.71	0.54	0.87	0.81	0.91	0.48
d, Delay for Lane Group [s/veh]	48.37	35.29	26.37	29.23	52.38	36.83	40.81	46.56	52.75	37.48	45.79	39.32
Lane Group LOS	D	D	C	C	D	D	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.90	13.71	4.16	1.97	15.53	6.02	6.06	4.18	6.63	10.05	11.14	4.58
50th-Percentile Queue Length [ft/ln]	172.39	342.80	104.10	49.22	388.20	150.46	151.53	104.62	165.63	251.21	278.44	114.52
95th-Percentile Queue Length [veh/ln]	11.20	19.78	7.49	3.54	21.99	10.04	10.10	7.53	10.85	15.25	16.61	8.09
95th-Percentile Queue Length [ft/ln]	280.05	494.62	187.37	88.60	549.76	251.04	252.47	188.31	271.16	381.17	415.27	202.27

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.37	35.29	26.37	29.23	52.38	36.83	40.81	46.56	52.75	37.48	45.79	39.32
Movement LOS	D	D	C	C	D	D	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	36.39			48.93			46.47			42.44		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.80											
Intersection LOS	D											
Intersection V/C	0.748											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	608			541			508			625		
d_b, Bicycle Delay [s]	29.09			31.94			33.41			28.40		
I_b,int, Bicycle LOS Score for Intersection	2.794			2.642			2.049			2.773		
Bicycle LOS	C			B			B			C		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Power Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	61.5
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.853

Intersection Setup

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	2
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Base Volume Input [veh/h]	493	1335	203	59	1516	389	561	314	374	376	426	90
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	86	86	88	95	41	0	0	94	40	88	43	43
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	38	38	0	0	0	23	0	11	7	11
Right Turn on Red Volume [veh/h]	0	0	109	0	0	128	0	0	137	0	0	48
Total Hourly Volume [veh/h]	579	1421	220	192	1557	261	561	431	277	475	476	96
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	157	386	60	52	423	71	152	117	75	129	129	26
Total Analysis Volume [veh/h]	629	1545	239	209	1692	284	610	468	301	516	517	104
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	35	0	20	35	0	25	30	0	25	30	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	27	64	0	10	47	0	32	29	0	17	14	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	3.4	0.0	2.0	3.4	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	6.40	6.40	4.00	6.40	6.40	4.00	5.40	5.40	4.00	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	4.40	4.40	2.00	4.40	4.40	2.00	3.40	3.40	2.00	3.40	3.40
g_i, Effective Green Time [s]	20	46	46	9	35	35	23	25	25	20	22	22
g / C, Green / Cycle	0.17	0.38	0.38	0.08	0.29	0.29	0.19	0.21	0.21	0.17	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.18	0.30	0.15	0.06	0.33	0.18	0.18	0.09	0.19	0.15	0.10	0.07
s, saturation flow rate [veh/h]	3459	5094	1589	3459	5094	1589	3459	5094	1589	3459	5094	1589
c, Capacity [veh/h]	578	1939	605	272	1489	465	667	1060	331	578	930	290
d1, Uniform Delay [s]	49.87	32.97	27.03	54.08	42.37	36.51	47.36	41.33	46.31	48.81	44.53	42.81
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.08	0.04	0.04	0.20	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	42.82	0.29	0.16	1.72	62.16	0.97	2.20	0.11	16.07	2.00	0.19	0.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.09	0.80	0.40	0.77	1.14	0.61	0.91	0.44	0.91	0.89	0.56	0.36
d, Delay for Lane Group [s/veh]	92.69	33.26	27.19	55.80	104.53	37.47	49.56	41.44	62.37	50.81	44.72	43.09
Lane Group LOS	F	C	C	E	F	D	D	D	E	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	11.80	12.61	4.81	3.08	22.56	7.02	8.82	3.92	9.93	7.47	4.55	2.65
50th-Percentile Queue Length [ft/ln]	294.95	315.30	120.14	76.90	563.98	175.55	220.50	98.01	248.21	186.87	113.65	66.25
95th-Percentile Queue Length [veh/ln]	18.15	18.44	8.40	5.54	32.77	11.37	13.69	7.06	15.10	11.96	8.04	4.77
95th-Percentile Queue Length [ft/ln]	453.74	460.91	210.02	138.41	819.33	284.19	342.27	176.42	377.40	298.96	201.06	119.26

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	92.69	33.26	27.19	55.80	104.53	37.47	49.56	41.44	62.37	50.81	44.72	43.09
Movement LOS	F	C	C	E	F	D	D	D	E	D	D	D
d_A, Approach Delay [s/veh]	48.15			91.15			49.60			47.34		
Approach LOS	D			F			D			D		
d_I, Intersection Delay [s/veh]	61.51											
Intersection LOS	E											
Intersection V/C	0.853											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	963			679			395			144		
d_b, Bicycle Delay [s]	16.09			26.11			38.55			51.53		
I_b,int, Bicycle LOS Score for Intersection	2.947			2.832			2.393			2.211		
Bicycle LOS	C			C			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Power Road & Warner Road

Control Type:	Signalized	Delay (sec / veh):	36.0
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.832

Intersection Setup

Name	Power Road			Power Road			Warner Road			Warner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Warner Road			Warner Road		
Base Volume Input [veh/h]	319	2343	135	91	1815	277	297	57	210	212	43	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	67	0	0	65	43	45	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	38	0	0	11	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	45	0	0	106	0	0	69	0	0	10
Total Hourly Volume [veh/h]	319	2448	90	91	1891	214	342	57	141	212	43	21
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	87	665	24	25	514	58	93	15	38	58	12	6
Total Analysis Volume [veh/h]	347	2661	98	99	2055	233	372	62	153	230	47	23
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	65	0	20	65	0	20	20	0	20	20	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	24	55	0	14	45	0	24	33	0	18	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	138	138	138	138	138	138	138	138	138	138	138	138
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40
g_i, Effective Green Time [s]	88	79	79	88	64	64	37	16	16	37	13	13
g / C, Green / Cycle	0.64	0.57	0.57	0.64	0.47	0.47	0.27	0.11	0.11	0.27	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.61	0.52	0.06	0.42	0.40	0.15	0.23	0.02	0.10	0.15	0.01	0.01
s, saturation flow rate [veh/h]	566	5094	1589	236	5094	1589	1599	3560	1589	1485	3560	1589
c, Capacity [veh/h]	381	2922	912	181	2371	740	490	408	182	458	334	149
d1, Uniform Delay [s]	44.77	26.25	13.36	32.42	33.03	23.09	47.18	55.02	59.82	42.48	57.40	57.47
k, delay calibration	0.50	0.11	0.11	0.37	0.11	0.11	0.50	0.11	0.14	0.40	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	28.19	1.31	0.05	8.51	1.05	0.24	10.51	0.17	12.60	3.15	0.19	0.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.91	0.11	0.55	0.87	0.31	0.76	0.15	0.84	0.50	0.14	0.15
d, Delay for Lane Group [s/veh]	72.97	27.56	13.41	40.93	34.08	23.33	57.69	55.19	72.42	45.63	57.59	57.95
Lane Group LOS	E	C	B	D	C	C	E	E	E	D	E	E
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.40	24.04	1.34	1.50	19.65	4.67	13.16	0.98	5.85	6.99	0.76	0.76
50th-Percentile Queue Length [ft/ln]	185.04	600.93	33.62	37.56	491.27	116.68	329.02	24.54	146.34	174.71	19.04	18.94
95th-Percentile Queue Length [veh/ln]	11.86	32.08	2.42	2.70	26.92	8.21	19.11	1.77	9.82	11.32	1.37	1.36
95th-Percentile Queue Length [ft/ln]	296.58	801.95	60.51	67.60	673.02	205.26	477.76	44.18	245.54	283.10	34.27	34.08

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	72.97	27.56	13.41	40.93	34.08	23.33	57.69	55.19	72.42	45.63	57.59	57.95
Movement LOS	E	C	B	D	C	C	E	E	E	D	E	E
d_A, Approach Delay [s/veh]	32.19			33.31			61.27			48.45		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	36.05											
Intersection LOS	D											
Intersection V/C	0.832											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	705			560			386			299		
d_b, Bicycle Delay [s]	28.92			35.76			44.92			49.90		
I_b,int, Bicycle LOS Score for Intersection	3.293			2.931			2.101			1.815		
Bicycle LOS	C			C			B			A		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Sossaman Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	17.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.527

Intersection Setup

Name							Elliot Road					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name							Elliot Road					
Base Volume Input [veh/h]	98	54	11	40	43	270	148	325	60	12	535	40
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	22	22	43	0	0	45	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	16	0	0	53	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	96	0	0	20	0	0	13
Total Hourly Volume [veh/h]	98	54	7	40	43	196	170	384	40	12	633	27
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	15	2	11	12	53	46	104	11	3	172	7
Total Analysis Volume [veh/h]	107	59	8	43	47	213	185	417	43	13	688	29
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	15	0	0	15	0
Maximum Green [s]	0	30	0	0	30	0	0	50	0	0	50	0
Amber [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	38	0	0	38	0	0	82	0	0	82	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C	R
C, Cycle Length [s]	78	78	78	78	78	78	78	78	78
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
g_i, Effective Green Time [s]	22	22	22	22	43	43	43	43	43
g / C, Green / Cycle	0.28	0.28	0.28	0.28	0.56	0.56	0.56	0.56	0.56
(v / s)_i Volume / Saturation Flow Rate	0.10	0.04	0.03	0.16	0.25	0.25	0.01	0.37	0.02
s, saturation flow rate [veh/h]	1119	1831	1334	1634	734	1840	932	1870	1589
c, Capacity [veh/h]	220	513	392	458	297	1021	454	1038	883
d1, Uniform Delay [s]	33.74	20.91	24.17	23.96	27.11	10.26	14.80	12.17	7.84
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.06	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.62	0.04	0.05	0.41	0.80	0.12	0.01	0.44	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	0.13	0.11	0.57	0.62	0.45	0.03	0.66	0.03
d, Delay for Lane Group [s/veh]	34.36	20.96	24.21	24.38	27.91	10.38	14.81	12.61	7.84
Lane Group LOS	C	C	C	C	C	B	B	B	A
Critical Lane Group	No	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.88	0.84	0.59	3.77	3.04	3.74	0.13	6.71	0.18
50th-Percentile Queue Length [ft/ln]	47.06	21.02	14.80	94.13	76.08	93.54	3.22	167.68	4.50
95th-Percentile Queue Length [veh/ln]	3.39	1.51	1.07	6.78	5.48	6.74	0.23	10.95	0.32
95th-Percentile Queue Length [ft/ln]	84.71	37.84	26.63	169.43	136.94	168.38	5.79	273.86	8.10

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.36	20.96	20.96	24.21	24.38	24.38	27.91	10.38	10.38	14.81	12.61	7.84
Movement LOS	C	C	C	C	C	C	C	B	B	B	B	A
d_A, Approach Delay [s/veh]	29.20			24.35			15.40			12.46		
Approach LOS	C			C			B			B		
d_I, Intersection Delay [s/veh]	17.00											
Intersection LOS	B											
Intersection V/C	0.527											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	812			812			1942			1942		
d_b, Bicycle Delay [s]	13.74			13.74			0.03			0.03		
I_b,int, Bicycle LOS Score for Intersection	1.853			2.218			2.657			2.786		
Bicycle LOS	A			B			B			C		

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: Power Road & Access A

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Power Road		Power Road		Access A	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	0	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Power Road		Power Road		Access A	
Base Volume Input [veh/h]	2056	0	0	2322	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	87	25	114	54	54	98
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	38	0	0	11	0	0
Total Hourly Volume [veh/h]	2181	25	114	2387	54	98
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	593	7	31	649	15	27
Total Analysis Volume [veh/h]	2371	27	124	2595	59	107
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	1.59	0.03	0.00	0.69
d_M, Delay for Movement [s/veh]	0.00	0.00	407.06	0.00	10000.00	67.71
Movement LOS	A	A	F	A	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	10.26	0.00	9.66	3.98
95th-Percentile Queue Length [ft/ln]	0.00	0.00	256.49	0.00	241.61	99.55
d_A, Approach Delay [s/veh]	0.00		18.56		3597.86	
Approach LOS	A		C		F	
d_I, Intersection Delay [s/veh]	122.60					
Intersection LOS	F					

Intersection Level Of Service Report

Intersection 6: Power Road & Access B

Control Type:	Two-way stop	Delay (sec / veh):	80.5
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.751

Intersection Setup

Name	Power Road		Power Road		Access B	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	0	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Power Road		Power Road		Access B	
Base Volume Input [veh/h]	2056	0	0	2322	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	160	25	0	168	0	101
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	38	0	0	11	0	0
Total Hourly Volume [veh/h]	2254	25	0	2501	0	101
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	613	7	0	680	0	27
Total Analysis Volume [veh/h]	2450	27	0	2718	0	110
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.03	0.00	0.75
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	80.52
Movement LOS	A	A		A		F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	4.54
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	113.38
d_A, Approach Delay [s/veh]	0.00		0.00		80.52	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	1.67					
Intersection LOS	F					

Intersection Level Of Service Report

Intersection 7: Access C & Elliot Road

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 12.9
 Level Of Service: B
 Volume to Capacity (v/c): 0.030

Intersection Setup

Name	Access C		Elliot Road		Elliot Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	2
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Access C		Elliot Road		Elliot Road	
Base Volume Input [veh/h]	0	0	576	0	0	895
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	13	170	106	0	173
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	99	0	0	29
Total Hourly Volume [veh/h]	0	13	845	106	0	1097
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	230	29	0	298
Total Analysis Volume [veh/h]	0	14	918	115	0	1192
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	12.90	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.09	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	2.30	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.90		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.08					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 8: Access D & Elliot Road

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 65.4
 Level Of Service: F
 Volume to Capacity (v/c): 0.764

Intersection Setup

Name	Access D		Elliot Road		Elliot Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	2
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Access D		Elliot Road		Elliot Road	
Base Volume Input [veh/h]	0	0	576	0	0	895
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	139	13	77	106	34	34
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	99	0	0	29
Total Hourly Volume [veh/h]	139	13	752	106	34	958
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	4	204	29	9	260
Total Analysis Volume [veh/h]	151	14	817	115	37	1041
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.76	0.03	0.01	0.00	0.09	0.01
d_M, Delay for Movement [s/veh]	65.36	12.32	0.00	0.00	14.35	0.00
Movement LOS	F	B	A	A	B	A
95th-Percentile Queue Length [veh/ln]	5.15	0.09	0.00	0.00	0.29	0.00
95th-Percentile Queue Length [ft/ln]	128.80	2.13	0.00	0.00	7.16	0.00
d_A, Approach Delay [s/veh]	60.86		0.00		0.49	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	4.86					
Intersection LOS	F					

Intersection Level Of Service Report

Intersection 9: Access E & Elliot Road

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 12.2
 Level Of Service: B
 Volume to Capacity (v/c): 0.027

Intersection Setup

Name	Access E		Elliot Road		Elliot Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	2
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Access E		Elliot Road		Elliot Road	
Base Volume Input [veh/h]	0	0	576	0	0	895
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	13	52	38	0	67
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	99	0	0	29
Total Hourly Volume [veh/h]	0	13	727	38	0	991
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	198	10	0	269
Total Analysis Volume [veh/h]	0	14	790	41	0	1077
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	12.17	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.08	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	2.09	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.17		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.09					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 1: Power Road & Guadalupe Road

Control Type:	Signalized	Delay (sec / veh):	33.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.684

Intersection Setup

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Guadalupe Road			Guadalupe Road		
Base Volume Input [veh/h]	254	1373	251	233	1565	317	226	358	150	186	347	228
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	45	45	45	0	48	0	0	0	48	48	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	37	0	0	16	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	98	0	0	105	0	0	65	0	0	75
Total Hourly Volume [veh/h]	299	1455	198	233	1629	212	226	358	133	234	347	153
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	81	395	54	63	443	58	61	97	36	64	94	42
Total Analysis Volume [veh/h]	325	1582	215	253	1771	230	246	389	145	254	377	166
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Beginning of First Yellow
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	1	6	0	5	2	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	8	15	0	8	15	0	8	15	0	8	15	0
Maximum Green [s]	25	45	0	25	45	0	25	45	0	25	45	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	15	47	0	21	53	0	16	35	0	17	36	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	4	0	0	4	0	0	4	0	0	4	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0	2.0	4.5	0.0
Minimum Recall	No	Yes		No	Yes		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	74	61	61	74	53	53	33	16	16	33	17	17
g / C, Green / Cycle	0.62	0.50	0.50	0.62	0.44	0.44	0.27	0.13	0.13	0.27	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.53	0.31	0.14	0.50	0.35	0.14	0.20	0.10	0.10	0.20	0.11	0.10
s, saturation flow rate [veh/h]	619	5094	1589	508	5094	1589	1251	3560	1626	1282	3560	1589
c, Capacity [veh/h]	405	2543	793	342	2242	700	350	479	219	358	509	227
d1, Uniform Delay [s]	32.44	21.83	17.41	21.19	28.83	21.99	37.28	50.03	50.20	37.48	49.28	49.20
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.38	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.36	1.16	0.84	13.39	2.93	1.26	8.79	0.93	2.28	0.98	0.80	1.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.62	0.27	0.74	0.79	0.33	0.70	0.76	0.78	0.71	0.74	0.73
d, Delay for Lane Group [s/veh]	47.80	22.99	18.25	34.58	31.76	23.25	46.07	50.97	52.48	38.46	50.09	50.90
Lane Group LOS	D	C	B	C	C	C	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.34	10.18	3.41	3.96	14.13	4.26	6.77	5.21	4.99	6.24	5.36	4.77
50th-Percentile Queue Length [ft/ln]	133.62	254.60	85.18	98.88	353.26	106.55	169.19	130.20	124.80	155.88	134.04	119.28
95th-Percentile Queue Length [veh/ln]	9.14	15.42	6.13	7.12	20.30	7.65	11.03	8.95	8.66	10.33	9.16	8.35
95th-Percentile Queue Length [ft/ln]	228.41	385.44	153.32	177.98	507.38	191.20	275.85	223.76	216.41	258.26	228.98	208.84

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.80	22.99	18.25	34.58	31.76	23.25	46.07	51.07	52.48	38.46	50.09	50.90
Movement LOS	D	C	B	C	C	C	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	26.31			31.21			49.75			46.55		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	33.95											
Intersection LOS	C											
Intersection V/C	0.684											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	675			775			475			492		
d_b, Bicycle Delay [s]	26.33			22.51			34.88			34.13		
I_b,int, Bicycle LOS Score for Intersection	2.781			2.857			2.024			2.279		
Bicycle LOS	C			C			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Power Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	32.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.722

Intersection Setup

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	2
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Elliot Road			Elliot Road		
Base Volume Input [veh/h]	501	1385	376	57	1535	280	506	418	338	246	331	84
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	90	90	92	101	43	0	0	100	43	92	44	45
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	16	16	0	0	0	9	0	37	22	37
Right Turn on Red Volume [veh/h]	0	0	160	0	0	92	0	0	126	0	0	55
Total Hourly Volume [veh/h]	591	1475	324	174	1578	188	506	527	255	375	397	111
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	161	401	88	47	429	51	138	143	69	102	108	30
Total Analysis Volume [veh/h]	642	1603	352	189	1715	204	550	573	277	408	432	121
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	35	0	20	35	0	25	30	0	25	30	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	27	67	0	11	51	0	23	24	0	18	19	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	3.4	0.0	2.0	3.4	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	104	104	104	104	104	104	104	104	104	104	104	104
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	5.40	5.40	5.40	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	3.40	3.40	0.00	3.40	3.40
g_i, Effective Green Time [s]	56	47	47	56	35	35	37	21	21	37	17	17
g / C, Green / Cycle	0.53	0.45	0.45	0.53	0.34	0.34	0.35	0.20	0.20	0.35	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.44	0.31	0.22	0.23	0.34	0.13	0.22	0.11	0.17	0.20	0.08	0.08
s, saturation flow rate [veh/h]	1462	5094	1589	820	5094	1589	2512	5094	1589	2069	5094	1589
c, Capacity [veh/h]	763	2275	710	460	1707	533	897	1041	325	741	851	265
d1, Uniform Delay [s]	28.22	23.33	20.54	18.14	34.72	26.48	26.40	37.25	40.04	25.51	39.59	39.22
k, delay calibration	0.50	0.04	0.12	0.04	0.04	0.04	0.04	0.04	0.08	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.83	0.15	0.60	0.22	7.30	0.17	0.25	0.17	4.88	0.24	0.18	0.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.70	0.50	0.41	1.00	0.38	0.61	0.55	0.85	0.55	0.51	0.46
d, Delay for Lane Group [s/veh]	39.05	23.48	21.13	18.36	42.02	26.65	26.65	37.42	44.92	25.75	39.77	39.67
Lane Group LOS	D	C	C	B	F	C	C	D	D	C	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.07	9.74	5.75	1.01	14.57	3.69	4.99	4.21	6.98	3.53	3.25	2.73
50th-Percentile Queue Length [ft/ln]	126.67	243.50	143.68	25.20	364.32	92.35	124.81	105.28	174.46	88.33	81.27	68.20
95th-Percentile Queue Length [veh/ln]	8.76	14.86	9.68	1.81	20.90	6.65	8.66	7.58	11.31	6.36	5.85	4.91
95th-Percentile Queue Length [ft/ln]	218.96	371.45	241.97	45.35	522.41	166.23	216.42	189.41	282.77	158.99	146.28	122.75

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.05	23.48	21.13	18.36	42.02	26.65	26.65	37.42	44.92	25.75	39.77	39.67
Movement LOS	D	C	C	B	F	C	C	D	D	C	D	D
d_A, Approach Delay [s/veh]	27.01			38.41			34.67			33.80		
Approach LOS	C			D			C			C		
d_I, Intersection Delay [s/veh]	32.85											
Intersection LOS	C											
Intersection V/C	0.722											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1162			855			357			261		
d_b, Bicycle Delay [s]	9.15			17.07			35.20			39.42		
I_b,int, Bicycle LOS Score for Intersection	3.076			2.770			2.399			2.118		
Bicycle LOS	C			C			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: Power Road & Warner Road

Control Type:	Signalized	Delay (sec / veh):	55.5
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.909

Intersection Setup

Name	Power Road			Power Road			Warner Road			Warner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Power Road			Power Road			Warner Road			Warner Road		
Base Volume Input [veh/h]	166	1960	135	94	2493	270	284	51	226	242	35	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	71	0	0	67	45	48	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	16	0	0	37	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	45	0	0	104	0	0	75	0	0	12
Total Hourly Volume [veh/h]	166	2047	90	94	2597	211	332	51	151	242	35	24
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	45	556	24	26	706	57	90	14	41	66	10	7
Total Analysis Volume [veh/h]	180	2225	98	102	2823	229	361	55	164	263	38	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	15	0	4	15	0	4	8	0	4	8	0
Maximum Green [s]	20	65	0	20	65	0	20	20	0	20	20	0
Amber [s]	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	13	62	0	8	57	0	16	38	0	12	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	131	131	131	131	131	131	131	131	131	131	131	131
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40	0.00	4.40	4.40
g_i, Effective Green Time [s]	80	71	71	80	65	65	38	16	16	38	14	14
g / C, Green / Cycle	0.61	0.54	0.54	0.61	0.50	0.50	0.29	0.12	0.12	0.29	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.51	0.44	0.06	0.34	0.55	0.14	0.23	0.02	0.10	0.18	0.01	0.02
s, saturation flow rate [veh/h]	351	5094	1589	304	5094	1589	1593	3560	1589	1489	3560	1589
c, Capacity [veh/h]	259	2751	858	211	2530	790	534	435	194	501	385	172
d1, Uniform Delay [s]	39.73	24.56	14.74	26.96	32.90	19.34	41.27	51.19	56.19	38.52	52.56	52.87
k, delay calibration	0.50	0.11	0.11	0.21	0.11	0.11	0.50	0.11	0.15	0.46	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.31	0.59	0.06	3.35	53.47	0.20	6.71	0.13	12.81	3.58	0.11	0.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.81	0.11	0.48	1.12	0.29	0.68	0.13	0.85	0.53	0.10	0.15
d, Delay for Lane Group [s/veh]	54.05	25.15	14.80	30.31	86.38	19.55	47.98	51.32	69.00	42.10	52.67	53.27
Lane Group LOS	D	C	B	C	F	B	D	D	E	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.15	17.44	1.39	1.34	37.20	3.98	11.24	0.81	5.95	7.48	0.57	0.79
50th-Percentile Queue Length [ft/ln]	78.73	436.01	34.63	33.53	929.90	99.54	281.05	20.30	148.86	187.02	14.21	19.84
95th-Percentile Queue Length [veh/ln]	5.67	24.29	2.49	2.41	51.32	7.17	16.74	1.46	9.96	11.97	1.02	1.43
95th-Percentile Queue Length [ft/ln]	141.71	607.24	62.33	60.35	1282.93	179.17	418.52	36.54	248.91	299.16	25.58	35.71

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.05	25.15	14.80	30.31	86.38	19.55	47.98	51.32	69.00	42.10	52.67	53.27
Movement LOS	D	C	B	C	F	B	D	D	E	D	D	D
d_A, Approach Delay [s/veh]	26.82			79.71			54.24			44.22		
Approach LOS	C			E			D			D		
d_I, Intersection Delay [s/veh]	55.52											
Intersection LOS	E											
Intersection V/C	0.909											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	850			774			483			422		
d_b, Bicycle Delay [s]	21.62			24.59			37.62			40.71		
I_b,int, Bicycle LOS Score for Intersection	2.961			3.352			2.100			1.839		
Bicycle LOS	C			C			B			A		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Sossaman Road & Elliot Road

Control Type:	Signalized	Delay (sec / veh):	13.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.519

Intersection Setup

Name							Elliot Road					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name							Elliot Road					
Base Volume Input [veh/h]	57	93	15	57	44	201	226	503	93	6	412	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	24	22	45	0	0	48	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	50	0	0	22	0
Right Turn on Red Volume [veh/h]	0	0	5	0	0	74	0	0	31	0	0	18
Total Hourly Volume [veh/h]	57	93	10	57	44	151	248	598	62	6	482	37
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	25	3	15	12	41	67	163	17	2	131	10
Total Analysis Volume [veh/h]	62	101	11	62	48	164	270	650	67	7	524	40
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	15	0	0	15	0
Maximum Green [s]	0	30	0	0	30	0	0	50	0	0	50	0
Amber [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	33	0	0	33	0	0	87	0	0	87	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0	0.0	4.4	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
g_i, Effective Green Time [s]	13	13	13	13	34	34	34	34	34
g / C, Green / Cycle	0.22	0.22	0.22	0.22	0.56	0.56	0.56	0.56	0.56
(v / s)_i Volume / Saturation Flow Rate	0.05	0.06	0.05	0.13	0.32	0.39	0.01	0.28	0.03
s, saturation flow rate [veh/h]	1169	1838	1281	1645	846	1840	734	1870	1589
c, Capacity [veh/h]	207	408	297	365	424	1038	304	1055	897
d1, Uniform Delay [s]	27.09	19.29	23.35	20.79	18.07	9.31	16.98	7.89	5.83
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.30	0.13	0.13	0.55	0.60	0.31	0.01	0.13	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.27	0.21	0.58	0.64	0.69	0.02	0.50	0.04
d, Delay for Lane Group [s/veh]	27.39	19.42	23.48	21.34	18.67	9.62	16.99	8.02	5.83
Lane Group LOS	C	B	C	C	B	A	B	A	A
Critical Lane Group	No	No	No	Yes	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.79	1.13	0.71	2.34	2.89	4.42	0.06	2.72	0.15
50th-Percentile Queue Length [ft/ln]	19.79	28.32	17.79	58.39	72.13	110.40	1.60	68.01	3.82
95th-Percentile Queue Length [veh/ln]	1.42	2.04	1.28	4.20	5.19	7.86	0.11	4.90	0.28
95th-Percentile Queue Length [ft/ln]	35.62	50.97	32.03	105.10	129.83	196.56	2.87	122.42	6.88

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	27.39	19.42	19.42	23.48	21.34	21.34	18.67	9.62	9.62	16.99	8.02	5.83
Movement LOS	C	B	B	C	C	C	B	A	A	B	A	A
d_A, Approach Delay [s/veh]	22.26			21.82			12.09			7.98		
Approach LOS	C			C			B			A		
d_I, Intersection Delay [s/veh]	13.13											
Intersection LOS	B											
Intersection V/C	0.519											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	889			889			2693			2693		
d_b, Bicycle Delay [s]	9.24			9.24			3.59			3.59		
I_b,int, Bicycle LOS Score for Intersection	1.855			2.134			3.239			2.531		
Bicycle LOS	A			B			C			B		

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: Power Road & Access A

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Power Road		Power Road		Access A	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	0	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Power Road		Power Road		Access A	
Base Volume Input [veh/h]	1937	0	0	1619	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	92	27	122	56	56	102
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	16	0	0	37	0	0
Total Hourly Volume [veh/h]	2045	27	122	1712	56	102
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	556	7	33	465	15	28
Total Analysis Volume [veh/h]	2223	29	133	1861	61	111
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	1.43	0.02	0.00	0.64
d_M, Delay for Movement [s/veh]	0.00	0.00	325.83	0.00	10000.00	55.93
Movement LOS	A	A	F	A	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	9.99	0.00	9.93	3.60
95th-Percentile Queue Length [ft/ln]	0.00	0.00	249.85	0.00	248.22	90.01
d_A, Approach Delay [s/veh]	0.00		21.73		3582.60	
Approach LOS	A		C		F	
d_I, Intersection Delay [s/veh]	149.29					
Intersection LOS	F					

Intersection Level Of Service Report

Intersection 6: Power Road & Access B

Control Type:	Two-way stop	Delay (sec / veh):	66.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.695

Intersection Setup

Name	Power Road		Power Road		Access B	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	0	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Power Road		Power Road		Access B	
Base Volume Input [veh/h]	1937	0	0	1619	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	168	27	0	178	0	105
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	16	0	0	37	0	0
Total Hourly Volume [veh/h]	2121	27	0	1834	0	105
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	576	7	0	498	0	29
Total Analysis Volume [veh/h]	2305	29	0	1993	0	114
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.02	0.00	0.70
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	65.98
Movement LOS	A	A		A		F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	4.12
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	103.10
d_A, Approach Delay [s/veh]	0.00		0.00		65.98	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	1.69					
Intersection LOS	F					

Intersection Level Of Service Report Intersection 7: Access C & Elliot Road

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 14.6
Level Of Service: B
Volume to Capacity (v/c): 0.036

Intersection Setup

Name	Access C		Elliot Road		Elliot Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	2
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Access C		Elliot Road		Elliot Road	
Base Volume Input [veh/h]	0	0	851	0	0	661
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	13	180	113	0	181
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	41	0	0	96
Total Hourly Volume [veh/h]	0	13	1072	113	0	938
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	291	31	0	255
Total Analysis Volume [veh/h]	0	14	1165	123	0	1020
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.04	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	14.56	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.11	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	2.78	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	14.56		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.09					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 8: Access D & Elliot Road

Control Type:	Two-way stop	Delay (sec / veh):	136.4
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.021

Intersection Setup

Name	Access D		Elliot Road		Elliot Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	2
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Access D		Elliot Road		Elliot Road	
Base Volume Input [veh/h]	0	0	851	0	0	661
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	145	13	81	113	36	36
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	41	0	0	96
Total Hourly Volume [veh/h]	145	13	973	113	36	793
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	39	4	264	31	10	215
Total Analysis Volume [veh/h]	158	14	1058	123	39	862
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.02	0.03	0.01	0.00	0.12	0.01
d_M, Delay for Movement [s/veh]	136.37	13.80	0.00	0.00	17.82	0.00
Movement LOS	F	B	A	A	C	A
95th-Percentile Queue Length [veh/ln]	7.90	0.10	0.00	0.00	0.41	0.00
95th-Percentile Queue Length [ft/ln]	197.50	2.56	0.00	0.00	10.30	0.00
d_A, Approach Delay [s/veh]	126.39		0.00		0.77	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	9.95					
Intersection LOS	F					

Intersection Level Of Service Report

Intersection 9: Access E & Elliot Road

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 13.6
 Level Of Service: B
 Volume to Capacity (v/c): 0.032

Intersection Setup

Name	Access E		Elliot Road		Elliot Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	2
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Access E		Elliot Road		Elliot Road	
Base Volume Input [veh/h]	0	0	851	0	0	661
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	13	54	41	0	72
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	41	0	0	96
Total Hourly Volume [veh/h]	0	13	946	41	0	829
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	257	11	0	225
Total Analysis Volume [veh/h]	0	14	1028	45	0	901
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	13.60	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.10	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	2.50	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.60		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.10					
Intersection LOS	B					