

Neighborhood Impact Analysis for Solare Collegiate Charter School

COA Project #M09D031

Final Report

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Prepared for:
Solare Collegiate

Prepared By:



EXECUTIVE SUMMARY

The following contains a Neighborhood Impact Analysis (NIA) for the proposed Solare Collegiate Charter School located in Albuquerque, NM. This report has been completed by Lee Engineering for Solare Collegiate. All analyses and items contained herein conform to scoping requirements set forth in a scoping meeting held on February 15, 2019, that was attended by Lee Engineering, Mullen Heller Architecture, and the City of Albuquerque.

BACKGROUND

The proposed Solare Collegiate Charter School is to be located on the northwest corner of Gibson Blvd and Barbados Ave between Snowvista Blvd (98th St) and Unser Blvd. Surrounding major intersections include Gibson Blvd & Unser Blvd, Gibson Blvd & 98th St, 86th St and 98th St, and Blake Rd and 98th St.

Solare Collegiate Charter School will initially incorporate 8,500 SF of modular building to hold 156 students in the first year, 2019, and undergo four expansions over five years to ultimately incorporate 31,400 SF of classrooms and an assembly building to hold a maximum 416 students in 2023. Per the site plan provided (Figure 2), the site will incorporate two full movement access points on Barbados Ave for parent drop-off/pick-up operations. Buses will initially use the parent drop-off/pick-up loop for opening day. Ultimately, there will also be one right-in only and one full movement access point on Gibson Blvd to be used by buses. The full movement access point on Gibson Blvd includes a proposed new median opening.

The study intersections for this analysis include Gibson Blvd and Unser Blvd, Gibson Blvd and Barbados Ave/Stampede Dr, Gibson Blvd and Snow Vista Blvd (98th St), Blake Rd and 98th St, and 86th St and Snow Vista Blvd (98th St). Existing turning movement counts were collected between February 26th, 2019, and March 5th, 2019, excluding Friday to Monday.

The analysis included in this report was performed for Background Conditions 2019, Initial Phase Build Out Conditions 2019, Final Phase Background Conditions 2023, and Final Phase Build Out Conditions 2023. Los Diamantes residential housing was the only known development in the area and was incorporated into the Final Phase Background Conditions 2023 and Final Phase Build Out Conditions 2023. Additionally, the City of Albuquerque (COA) Municipal Development Projects identified new traffic signals at 98th St and Gibson Blvd and 98th St and Blake Rd in 2022. These two traffic signals were also incorporated in both 2023 analyses.

Site trips for Solare Collegiate Charter School were generated using data and procedures according to the *Institute of Transportation Engineer's (ITE) Trip Generation Manual* for land use code 534 – Private School (K-8). Site trips were added to Background 2019 traffic volumes to create Initial Phase Build Out 2019 and Final Phase Build Out Conditions 2020 traffic volumes.

CONCLUSIONS AND RECOMMENDATIONS

The following is a list of the conclusions of the NIA for the study intersections and site plan for the proposed Solare Collegiate Charter School:

- The traffic generated by the Solare Collegiate Charter School does not significantly impact operations or queueing at any of the study intersections including the site access driveways.
- The only intersection that drops below a LOS D for either AM or PM conditions is the intersection of 98th St and 86th St. This intersection operates at a LOS E in the AM peak hour for the 2023 Background Conditions and meets traffic signal Warrant 1, Warrant 2, and Warrant 3 when subjected to PTV Vistro's built-in signal warrant analysis tool. It should be noted that operations do not change significantly when the trips by Solare Collegiate Charter School are applied and therefore the school is not responsible for the unacceptable LOS and delay.

- None of the turning movement 95th percentile queues exceed their existing auxiliary lane length for any of the scenarios analyzed.
- Buses will initially use the parent drop-off/pick-up loop for opening day. Ultimately, there will also be one right-in only and one full movement access point on Gibson Blvd to be used by buses. The full movement access point on Gibson Blvd includes a proposed new median opening.
- The current site plan meets COA DPM standards for driveway spacing and proposed median curb cut location.
- The current site plan maximizes the parent drop-off zone which is to be implemented on the east side of the school.
- The number of parking spots identified on the site plan may not be sufficient to accommodate the potential demand as a result of the higher volume of parent drop-offs associated with charter schools.
- Sidewalks are present in the vicinity of the proposed development except for the gap between the site boundary and the intersection of Barbados Ave and Benavides Ave.
- Bicycle lanes are mostly present in the vicinity of the proposed development except on Barbados Ave and on Gibson Blvd between Barbados Ave and Unser Blvd.
- Students should not cross Gibson Blvd unless accompanied by a crossing guard and a pedestrian crossing.

RECOMMENDATIONS

The following is a list of the recommendations for the study intersections and site plan for the proposed Solare Collegiate Charter School:

- The intersection of 98th St and 86th St should be considered for signalization simultaneously with the two identified signals at 98th St and Gibson Blvd, and 98th St and Blake Rd, which are to be constructed in 2022.
 - This signal meets traffic signal Warrant 1, Warrant 2, and Warrant 3 when subjected to PTV Vistro's built-in signal warrant analysis tool for Background 2023 Conditions. It should be noted that operations do not change significantly when the trips by Solare Collegiate Charter School are applied and therefore the school is not responsible for the unacceptable LOS and delay.
- The parent loop located within the east parking lot should operate counterclockwise with a one-way entrance at the north driveway on Barbados Ave and a two-lane one-way exit at the south driveway on Barbados Ave. This would allow for two-lane stacking along the drop off zone on the east side of the school. The two-lane one-way exit should be striped for a left-turn only lane and a right-turn only lane.
- There should be sidewalks constructed along Gibson Blvd and along Barbados Ave. The sidewalk along Barbados Ave should extend all the way to the intersection of Benavides Rd and Barbados Ave.
- Within the property, ADA standard pedestrian ramps, sidewalks, and striped pedestrian crossings should allow students to walk from Barbados Ave or Gibson Blvd uninterrupted.
- A crosswalk should be implemented across Gibson Blvd at Barbados Ave which includes crosswalk striping, a school advance crossing sign assembly, and a school crossing assembly. A trained crossing guard should be stationed at this crossing to foster a safe crossing of Gibson Blvd.
- Striped crosswalks should be installed across all three access driveways and onsite where students have to cross circulation driveways or parking lots.
- A staff member should be present during drop-off/pick-up operations to help students safely cross the lines of queued vehicles if double stacking is implemented.

- Solare Collegiate Charter School should review the EPA Idle-Free Schools Toolkit and implement a campaign to minimize vehicle and bus idling in order to reduce student exposure to toxic vehicle exhaust and noise.
- The sight distance specified within this report should be free of any obstructions.
- The proposed median on Gibson Blvd meets COA DPM specifications. The eastbound left-turn lane should be long enough to accommodate future traffic and meet COA DPM standards.
- All construction including driveways, curb ramps, and sidewalks should adhere to current COA standards as outlined in the DPM.

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INTRODUCTION

This report details the procedures and findings of a Neighborhood Impact Analysis (NIA) performed by Lee Engineering for Solare Collegiate. This report and the analyses contained herein were performed for a proposed grade 5-8 charter school to be constructed near the intersection of Gibson Blvd and 98th St in Albuquerque, NM. The purpose of this study is to evaluate baseline community data, perform an analysis of neighborhood impacts, complete a Traffic Impact Study (TIS), and evaluate reasonable alternatives that may be required. This NIA can also serve to evaluate the overall effects that may result from the approval of curb-cut applications to allow access to public rights-of-way from this development and to identify methods to mitigate such impacts to a reasonable level.

The scope of this report and the analyses performed were completed in agreement with the scoping requirements set forth by the City of Albuquerque (COA). Scoping meeting notes from the scoping meeting held on February 15, 2019, are included in Appendix A. Analysis procedures, conclusions, and recommendations for this study were developed according to the *ITE Trip Generation Manual 10th Edition*, *Highway Capacity Manual 6th Edition*, *Manual on Uniform Traffic Control Devices 2009 Edition*, *A Policy on Geometric Design of Highways and Streets, 6th Edition (Green Book)*, and the *COA Development Process Manual (DPM)*. Using the ITE Trip Generation Manual 9th Edition, an initial investigation of the trips generated by this development shows it will exceed the 100-trip threshold for requiring a TIS as defined in the COA DPM.

Initial construction is expected to complete in 2019 with access for parent drop-off/pick-up operations on Barbados Blvd and bus drop-off/pick-up operations on Gibson Blvd. The full build-out of the development is expected to be completed in 2023 with the same access points. Based on the current year and anticipated project completion years, traffic capacity and queue analysis were performed for the following scenarios:

1. Initial Phase 2019 Existing (No Build)
2. Initial Phase 2019 Build Out
3. Final Phase 2023 Background (No Build)
4. Final Phase 2023 Built Out

PROJECT LOCATION & SITE PLAN

Solare Collegiate Charter School (Solare Collegiate) is to be located on the northwest corner of the intersection of Gibson Blvd and Barbados Ave in Albuquerque, NM. Figure 1 shows the site location, study intersections, and surrounding area. This development is on Gibson Blvd halfway between 98th St and Unser Blvd. The intersection of Gibson Blvd and Unser Blvd is approximately 0.30 miles to the east, and the intersection of Gibson Blvd and 98th St is approximately 0.3 miles to the west. Other major intersections impacted by this project include 98th St and 86th St to the northwest and Blake Rd and 98th St to the southwest.

The project is to develop approximately 4.9 acres of a Planned Development parcel into a charter school with an ultimate buildout of 2,200 SF of classrooms and 7,600 SF of assembly halls, for a total 31,400 SF of building space. The ultimate buildout is forecasted to hold a maximum of 416 students. There will be two access points off Barbados Ave for parent drop-off/pick-up operations and two access points on Gibson Blvd for bus drop-off/pick-up operations. The eastern access point on Gibson Blvd is a right-in only driveway for the bus loop that will operate counterclockwise. The western access point will be a full movement driveway and require a curb-cut on Gibson Blvd for a new median opening. As shown, this driveway will terminate as a cul-de-sac and allow access for future development on the land just west of the charter school.

The opening day for this development is scheduled for Fall 2019 and will include approximately 8,500 SF of modular building and around 150 students. The full buildout access driveways are expected to be installed with the initial 2019 build out.

SITE ACCESS

Site access is separated for vehicular traffic and bus traffic. Solare Collegiate estimates that most of the students will be dropped-off/picked-up from school by personal vehicles and the school will only have two to three buses in operation. Personal vehicles will drop-off/pick-up their students in the parking lot on the east side of the school via the two access driveways on Barbados Blvd. Buses will initially use the parent drop-off/pick-up loop for opening day. Ultimately, there will also be one right-in only and one full movement access point on Gibson Blvd to be used by buses. The full movement access point on Gibson Blvd includes a proposed new median opening. Buses will drop-off/pick-up students via a bus curb drop off on the west side of the campus. Buses will pull curbside, drop their students off, and then turn around in the cul-de-sac to leave the property. There is a parking lot on the northwestern corner of the school which is for extra circular activities and administrative staff. The limited amount of buses servicing Solare Collegiate will have a negligible effect on capacity and queuing associated with this development. Parents will queue for drop-off/pick-up operations on the east side of the school. Vehicle stacking can occur in a single lane or double lane configuration. The analysis for this report routed all traffic through the access driveways on Barbados Ave. Both driveways are currently designed to be two-way driveways with full movements allowed. These access points are shown in Figure 2.

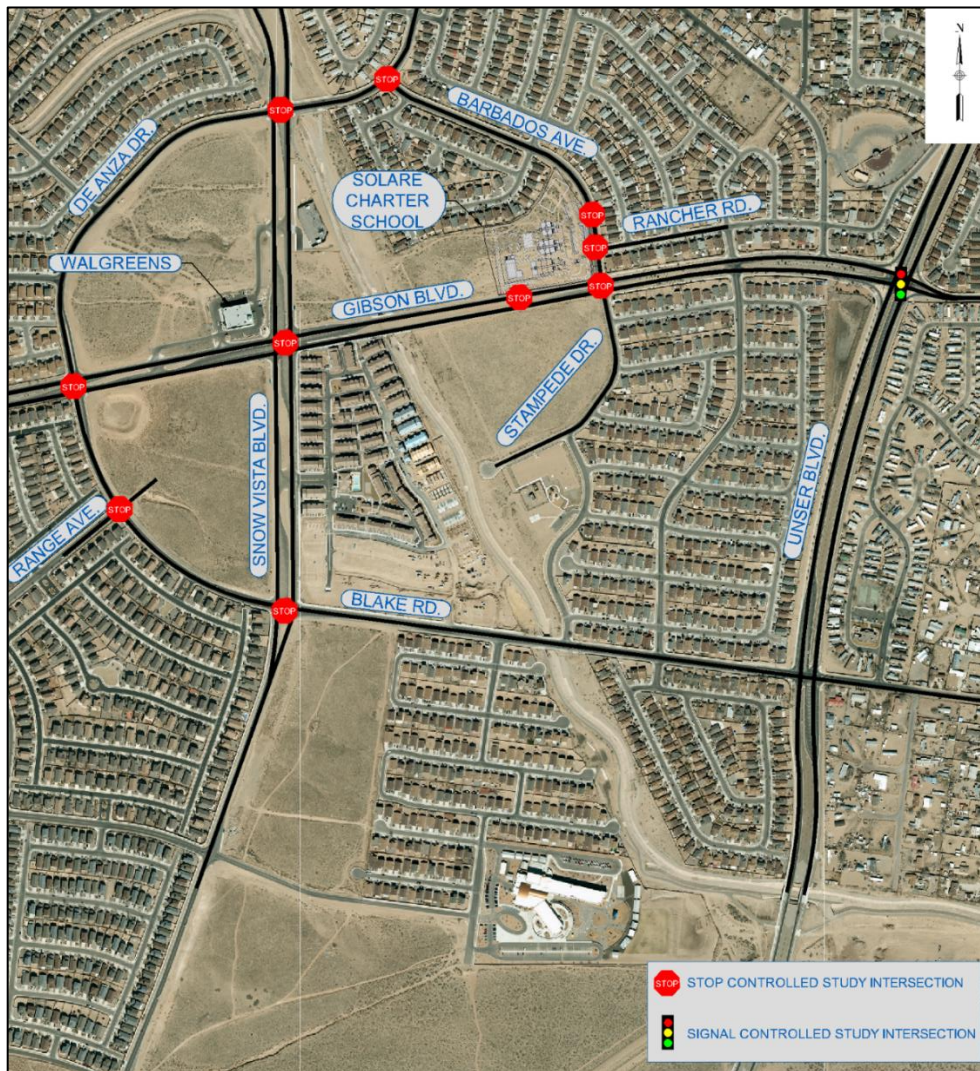


Figure 1: Vicinity Map

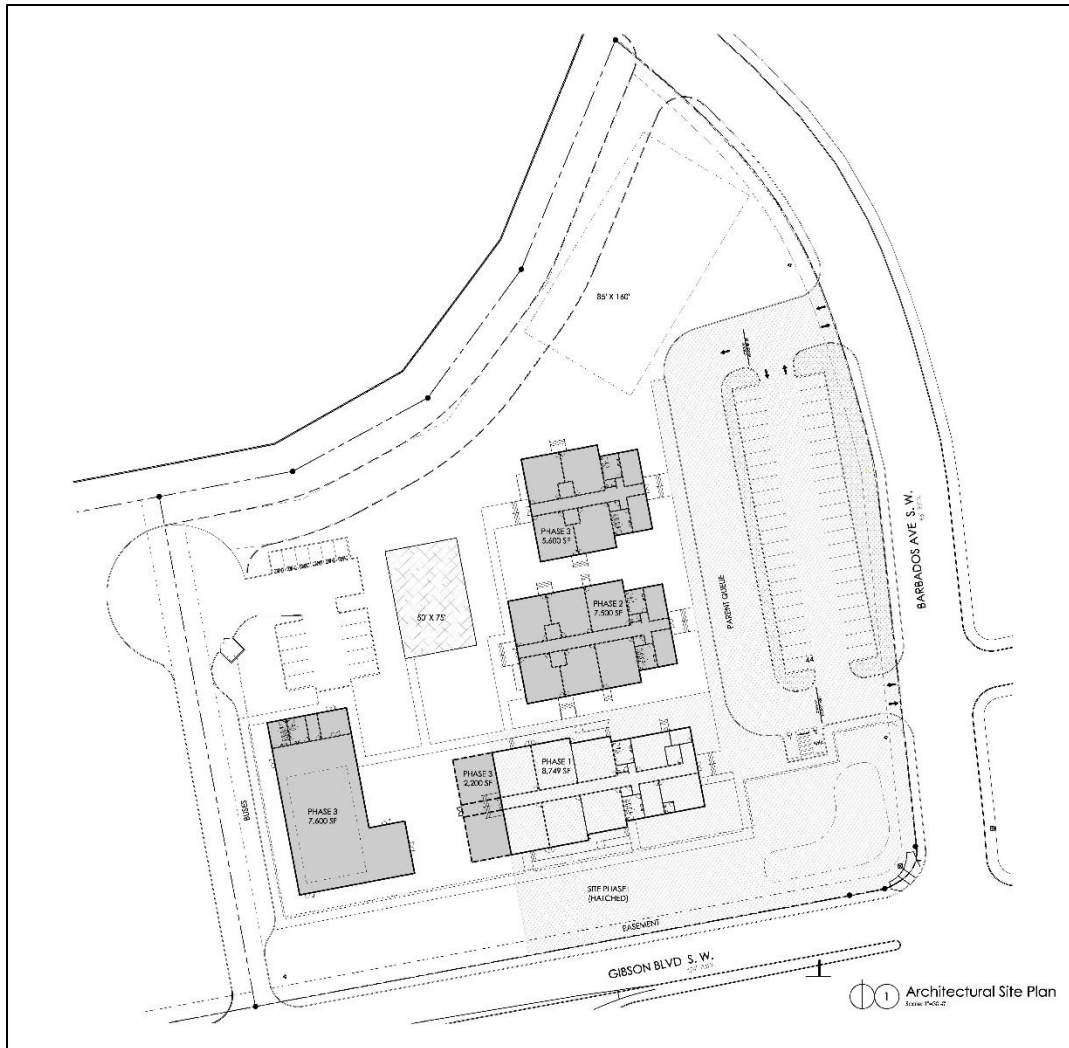


Figure 2: Site Plan

STUDY AREA, AREA LAND USE, AND STREETS

STUDY AREA

The study area is defined as the area between Gibson Blvd to the south, Barbados Blvd to the east, a residential neighborhood to the north, and undeveloped land to the west. The following intersections were identified and agreed up in the scoping meeting, and will serve as the study intersections for this report:

1. Gibson Blvd and Unser Blvd
2. Gibson Blvd and Barbados Ave/Stampede Dr
3. Gibson Blvd and 98th St (Snow Vista Blvd)
4. Blake Rd and 98th St
5. 86th S and 98th St (Snow Vista Blvd)
6. Site intersections on Barbados Ave (Vehicle Access)
7. Site Intersections on Gibson Blvd (Bus Access)

AREA LAND USE

As described, the development is to be located on the northwest corner of the intersection of Gibson Blvd and Barbados Ave. According to the City of Albuquerque Zoning Map, the land use for the development site was zoned as Planned Development (PD) for mixed-use residential. Consensus Planning for Solare Collegiate

has successfully executed a Zone Map Amendment to change the land use to Mixed-Use Moderate Intensity (MX-M). Adjacent to and surrounding the project site are land uses consisting of the following:

- Residential: Immediately to the north and east of the development site are existing housing developments that are a part of planned subdivisions.
- Undeveloped/Not-Improved Desert: Immediately to the south and west of the development are large tracts of undeveloped land. The parcel directly to the south is zoned as a planned development for mixed use. The remaining area to the west is also zoned as a planned development for mixed use.

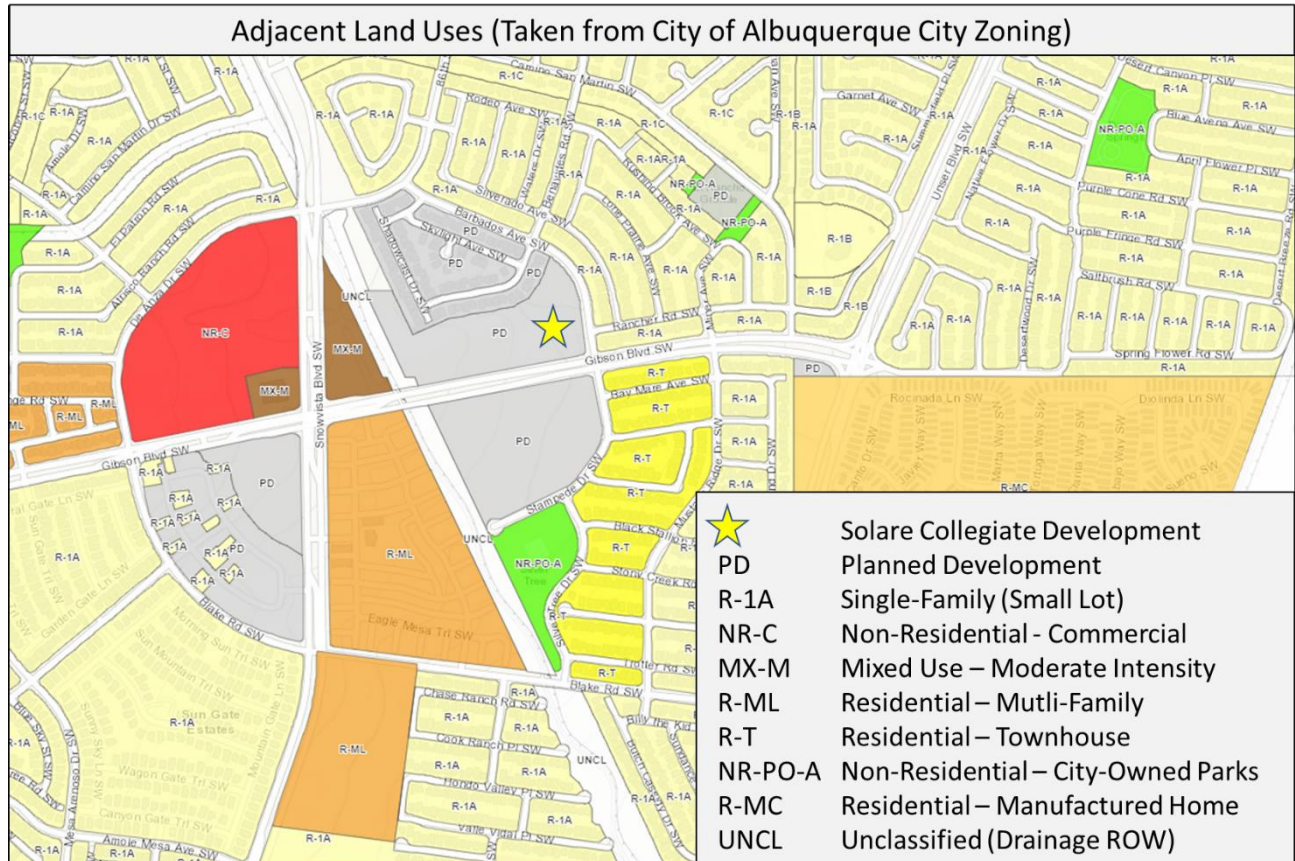


Figure 3: Land Uses Adjacent to Solare Collegiate Charter School Proposed Development

STREETS

The following details the characteristics and features of streets included in the study analysis:

Gibson Blvd is a City of Albuquerque maintained four-lane divided roadway currently classified by MRCOG as a Major Collector with 12-foot-wide travel lanes. Near the proposed development, Gibson Blvd has curb, gutter, sidewalks, a 40-foot median (except where turn lanes are present), and bicycle lanes in both directions. The most recently available MRCOG traffic count data (2016) reports the average weekday traffic of Gibson Blvd in the study area to be 6,333 vehicles per day.

98th St is a City of Albuquerque maintained four-lane divided roadway currently classified by MRCOG as a Principle Arterial with 12-foot-wide travel lanes. Near the proposed development, 98th St has curb, gutter, sidewalks, a 50-foot median (except where turn lanes are present), and bicycle lanes in both directions. The most recently available MRCOG traffic count data (2016) reports the average weekday traffic on 98th St in the study area to be 8,264 vehicles per day.

Unser Blvd is a City of Albuquerque maintained four-lane divided roadway currently classified by MRCOG as a Principle Arterial with 12-foot-wide travel lanes. Near the proposed development, Unser Blvd has curb, gutter, sidewalks, a 50-foot median (except where turn lanes are present), and bicycle lanes in both directions. The most recently available MRCOG traffic count data (2016) reports the average weekday traffic on Unser Blvd in the study area was 16,201 vehicles per day north of Gibson Blvd and 13,703 vehicles per day south of Gibson Blvd.

Blake Rd is a City of Albuquerque maintained two-lane undivided roadway. East of 98th St, Blake Rd is currently classified by MRCOG as a Major Collector and has a two-way-left-turn-lane (TWLTL), curb, gutter, sidewalks, and bicycle lanes in both directions. West of 98th St, Blake Rd is currently classified by MRCOG as a local road and has curb, gutter, sidewalks, and bicycle lanes that terminate approximately 500-feet west of 98th St. East of 98th St, Blake Rd had an average weekday traffic of 7,158 vehicles per day in 2016. There is no MRCOG traffic count data west of 98th St.

86th St is a City of Albuquerque maintained two-lane undivided roadway. East of 98th St, 86th St is currently classified by MRCOG as a Major Collector. West of 98th St, 86th St is currently classified by MRCOG as a local road. 86th St has curb, gutter, and sidewalks. No bicycle lanes exist on 86th St. East of 98th St, 86th St had an average weekday traffic of 1,570 vehicles per day in 2016. There is no MRCOG traffic count data west of 98th St.

Barbados Blvd is a City of Albuquerque maintained two-lane undivided roadway classified by MRCOG as a local road. Barbados Blvd is 44-feet wide and incorporates a single travel lane in each direction. The roadway does not incorporate any median or bicycle lane striping but has curb, gutter, and sidewalk in both directions. The roadway is currently signed for a speed limit of 25 MPH and access consists of full access intersections. There are no residential driveways with access to Barbados Blvd throughout the project area. There is no MRCOG traffic count data for Barbados Ave.

ANALYSIS OF NEIGHBORHOOD IMPACTS AND MULTIMODAL TRANSPORTATION OPTIONS

Multimodal transportation options in the vicinity of the proposed Solare Collegiate development include sidewalks, bicycle lanes, and Albuquerque Transit.

TRANSIT

Currently, there is one City of Albuquerque bus service (Route 198) which uses 98th near the project location. Route 198 runs north and south on 98th St. The nearest stops to the proposed development are at the intersection of Gibson Blvd and 98th St. The northbound stop is located just north of Gibson Blvd and the southbound stop is located just south of Gibson Blvd. Route 198 operates every half an hour.

AREA PEDESTRIAN MOVEMENTS

Lee Engineering observed area pedestrian movements during the site visit and collected pedestrian movement data as part of the turning movement counts. Table 1 shows the pedestrian volume data that was collected as part of the vehicle turning movement counts. The intersection of Gibson Blvd and Unser Blvd primarily saw pedestrians traveling on the south and west leg of the intersection. This signalized intersection has striped crosswalks and pedestrian countdown timers. The intersection of Gibson Blvd and Barbados Ave had the majority of pedestrian crossings on the north and south leg of the intersection. The proposed school development is located on the northwest corner of this two-way stop-controlled intersection and may see an increase in pedestrian traffic from school children. There are currently no striped crosswalks on any legs of the intersection. There are sidewalks on the northeast and southeast corner leading away from the intersection. However, there are no sidewalks on the northwest and southwest corners or along the roads.

Table 1: Study Intersection Pedestrian Counts

Gibson Blvd and Unser Blvd				
Street	Unser Blvd	Gibson Blvd	Unser Blvd	Gibson Blvd
Direction	South Leg	West Leg	North Leg	East Leg
6:00 AM - 9:00 AM	1	3	0	1
11:00 AM - 2:00 PM	0	3	0	1
3:00 PM - 6:00 PM	6	0	0	1
9 Hour Total	7	6	0	3

Gibson Blvd and Barbados Ave/ Stampede Dr				
Street	Barbados Ave	Gibson Blvd	Stampede Dr	Gibson Blvd
Direction	South Leg	West Leg	North Leg	East Leg
6:00 AM - 9:00 AM	0	1	2	0
11:00 AM - 2:00 PM	1	0	1	1
3:00 PM - 6:00 PM	4	0	1	0
9 Hour Total	5	1	4	1

Gibson Blvd and 98th St				
Street	98th St	Gibson Blvd	98th St	Gibson Blvd
Direction	South Leg	West Leg	North Leg	East Leg
6:00 AM - 9:00 AM	4	2	0	0
11:00 AM - 2:00 PM	4	5	0	5
3:00 PM - 6:00 PM	13	3	1	2
9 Hour Total	21	10	1	7

Blake Rd and 98th St				
Street	98th St	Blake Rd	98th St	Blake Rd
Direction	South Leg	West Leg	North Leg	East Leg
6:00 AM - 9:00 AM	1	3	0	1
11:00 AM - 2:00 PM	2	3	1	0
3:00 PM - 6:00 PM	0	5	0	5
9 Hour Total	3	11	1	6

86th St and 98th St				
Street	98th St	86th St	98th St	86th St
Direction	South Leg	West Leg	North Leg	East Leg
6:00 AM - 9:00 AM	0	1	0	0
11:00 AM - 2:00 PM	0	1	0	1
3:00 PM - 6:00 PM	1	3	1	1
9 Hour Total	1	5	0	2

The intersection of Gibson Blvd and 98th St had the most pedestrian activity with 21 pedestrians crossing the south leg, 10 pedestrians crossing the west leg, 1 pedestrian crossing the north leg, and 7 pedestrians crossing the east leg. This pedestrian activity is attributed to the bus stops for Route 198 which are located at the intersection for northbound and southbound traffic. The intersection of Blake Rd and 98th St had the majority of pedestrians crossing the west leg and east leg of the intersection. This intersection has striped crosswalks on all four legs and sidewalk connectivity in all directions. The intersection of 86th St and 98th St had a very

limited volume of pedestrians. The majority of the pedestrians were crossing the west leg of the intersection. This intersection has striped crosswalks on all four legs and sidewalk connectivity on all corners except for the southwest corner.

To ensure safe pedestrian connectivity to Solare Collegiate Charter School, the development should have sidewalks along its frontage including connecting to the existing sidewalk north of development at the intersection of Barbados Ave and Benavides Rd, and west of the development. Additionally, striped crosswalks at Gibson Blvd and Barbados Ave would increase pedestrian visibility for any school children who are walking to school. Visibility is also recommended at Barbados Ave and Rancher Rd. It is assumed that future developments will install sidewalks on the south side of Gibson Blvd and on all undeveloped lots around the development site.

MULTIMODAL CONNECTIVITY

Currently, bicycle facilities are present on Unser Blvd, 98th St, Blake Rd, and Gibson Blvd west of Barbados Ave. There is missing bicycle connectivity between Barbados Ave and Unser Blvd. The Amole Arroyo Trail enters the project area from the north along 98th St. At 86th St and trail cuts across undeveloped land just west of the Solare Collegiate Charter School Development. This trail crosses Gibson Blvd with an at-grade intersection before continuing south toward Blake Rd. There are currently no crossing safety measures installed at the intersection of the Amole Arroyo Trail and Gibson Blvd. This trail may be a good route to school for children who arrive at Solare Collegiate by bicycle. The missing bicycle connectivity on Gibson Blvd between Barbados Ave and Unser Blvd is outside the scope of this study.

There are sidewalks along all neighborhood frontages in the vicinity of the proposed development. As mentioned, there are no existing sidewalks along the development frontage on Gibson Blvd and on Barbados Ave. The school should install sidewalks that connect to the north at Barbados Ave and Benavides Rd, and that connects to the west at the Amole Arroyo Trail. Additionally, safety measures, such as striped pedestrian crossings, should be installed around the proposed development to ensure children walking to school have safe conditions.

Figure 4 shows the MRCOG 2040 Long-Range-Bicycle-System-Map in the vicinity of the proposed development. There is a proposed paved trail along Gibson Blvd from Unser Blvd extending to the west throughout the project area. Other connections included in the 2040 Bikeway System Plan include bicycle lanes on Gibson Blvd between Barbados Ave and Unser Blvd, bicycle lanes on Blake Rd from their current termini just west of 98th St to Gibson Blvd, and bicycle routes within the neighborhood northeast of the development site.

In general, the proposed development site has the opportunity to connect with existing multimodal systems including transit on 98th St, sidewalks and bicycle lanes to nearby neighborhoods, and a multiuse trail running north and south. Solare Collegiate should ensure that their development includes connections to the existing multimodal systems and increasing pedestrian safety through measures such as striped crosswalks and beacons.

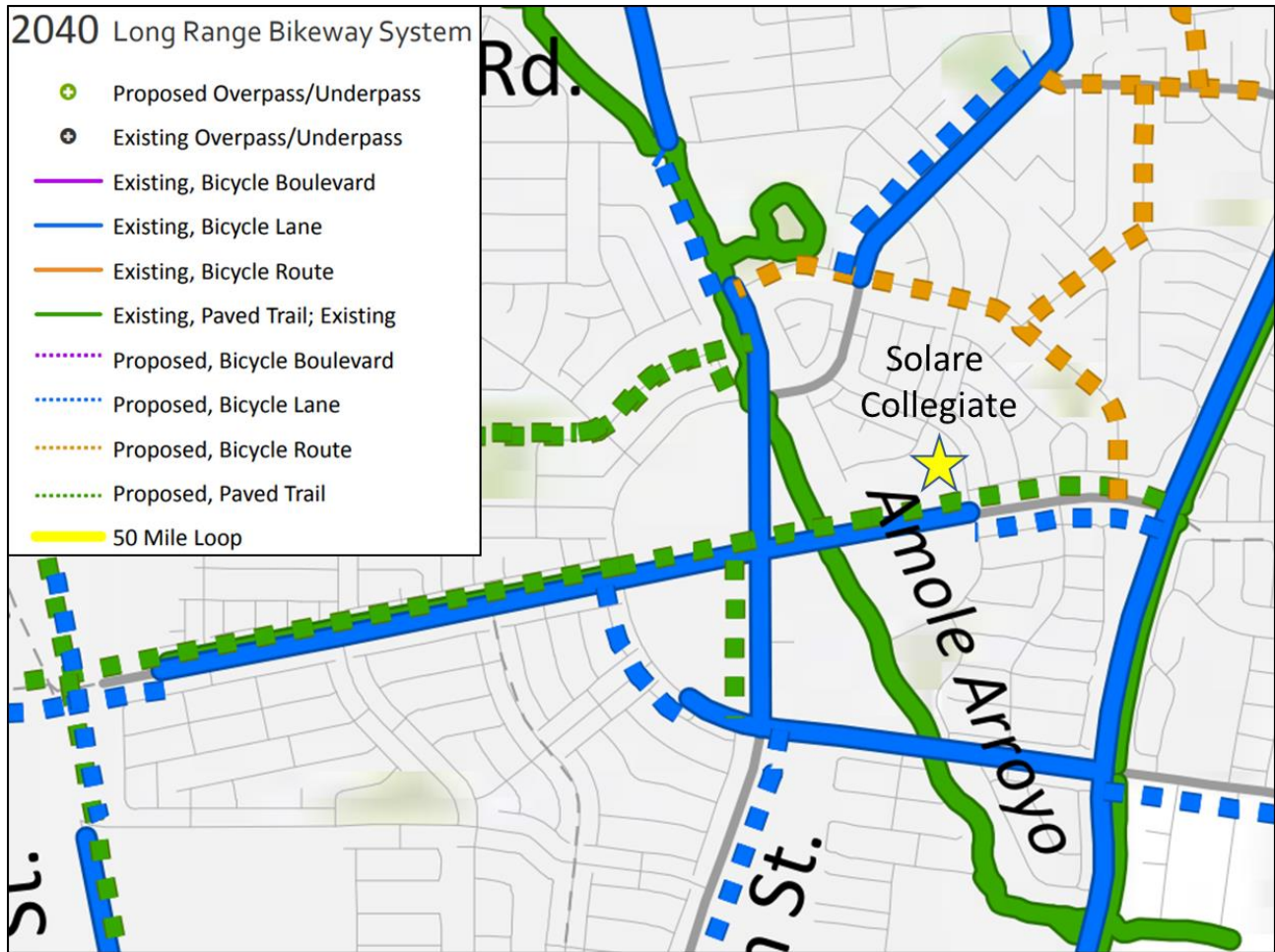


Figure 4: 2040 Long Range Bikeway System Near the Proposed Development

CURRENT ADJACENT PROJECTS

Currently, one project near the proposed Solare Collegiate Charter School is to be constructed near the development site:

1. A large residential housing development, Los Diamantes, consisting of 79 single-family housing units is to be constructed on the southwest corner of Gibson Blvd and 98th St. It is anticipated that this development will be completed by 2023 and was included in the 2023 Full Build analysis for this project. Satellite imagery from October 2018 shows that 49 of the 79 plots have houses constructed.

The Los Diamantes housing development is anticipated to have an effect on the roadway network and study intersections of this study for the 2023 Full Build analysis. Lee Engineering generated site trips for Los Diamantes using data and procedures according to the Institute of Transportation Engineer's (ITE) Trip Generation Manual for land use code 210 – Single Family Detached Housing. Site trips were added to background 2023 traffic volumes to create Final Phase 2023 Background (No Build) and Final Phase 2023 Build Out traffic volumes.

NEIGHBORHOOD IMPACTS

The proposed development has residential neighborhoods directly to the north and east. Beyond the parcels of undeveloped land to the west and south, the proposed development is surrounded by established residential neighborhoods. The neighborhoods surrounding the proposed location for Solare Collegiate all have existing sidewalks and curb ramps. Solare Collegiate should ensure that connections to these neighborhoods are made by extending sidewalks to existing connections and establishing safe crossings.

Vehicle traffic arriving to and from school for student drop-off/pick-up will primarily use Gibson Blvd via Unser Blvd and 98th St. An analysis of fastest travel time and convenient routes determined that there is potential for vehicles coming from the north on 98th St to cut-through the neighborhood directly the north. Vehicles could potentially use 86th St to get to and from Barbados Ave. However, there are no driveways along this route. For the analysis of build-out conditions, trips generated by the proposed development were distributed along this route and the impact on intersection and roadway conditions were analyzed. Although the impact was minimal, steps could be taken by Solare Collegiate Charter School to direct drivers to used different routes in the event of complaints from the neighborhood.

ANALYSIS OF EXISTING CONDITIONS

DATA COLLECTION

Turning movement counts for the study intersections were collected for 3 separate 3-hour periods from 6:00 AM to 9:00 AM, 11:00 AM to 2:00 PM and 3:00 PM to 6:00 PM between February 26th, 2019, and March 5th, 2019. Traffic volumes collected at the study intersection show a typical commuter type distribution with observable AM and PM peak hour periods. The peak hours observed are shown in Table 2:

Table 2: TMC Collection Days & Peak Hours

Intersection	Data Collection Date	AM Peak Hour	PM Peak Hour
Gibson Blvd and Unser Blvd	2/28/2019	7:00 AM	4:15 PM
Gibson Blvd and Barbados Ave	2/26/2019	7:00 AM	5:00 PM
Gibson Blvd and 98th St	3/5/2019	6:45 AM	5:00 PM
Blake Rd and 98th St	2/28/2019	7:00 AM	4:00 PM
86th St and 98th St	2/26/2019	6:30 AM	4:15 PM

Turning movement counts, lane geometry, and traffic control for the study intersections are presented in Figure 5. Individual intersection AM and PM peak hours were used in the analysis as a conservative approach. Full turning movement count output sheets can be found in Appendix B.

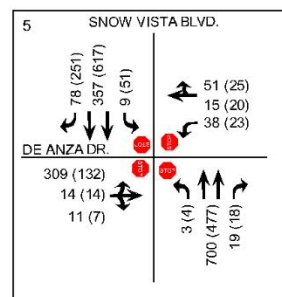
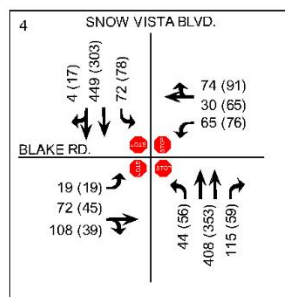
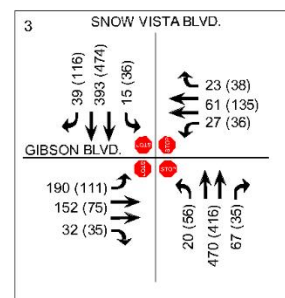
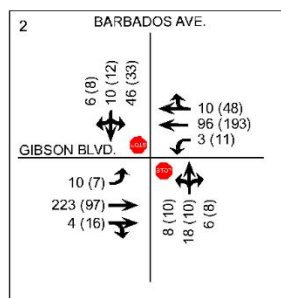
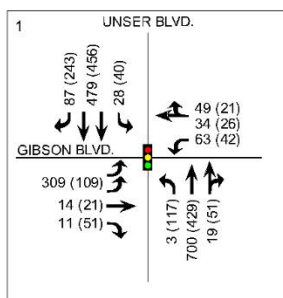
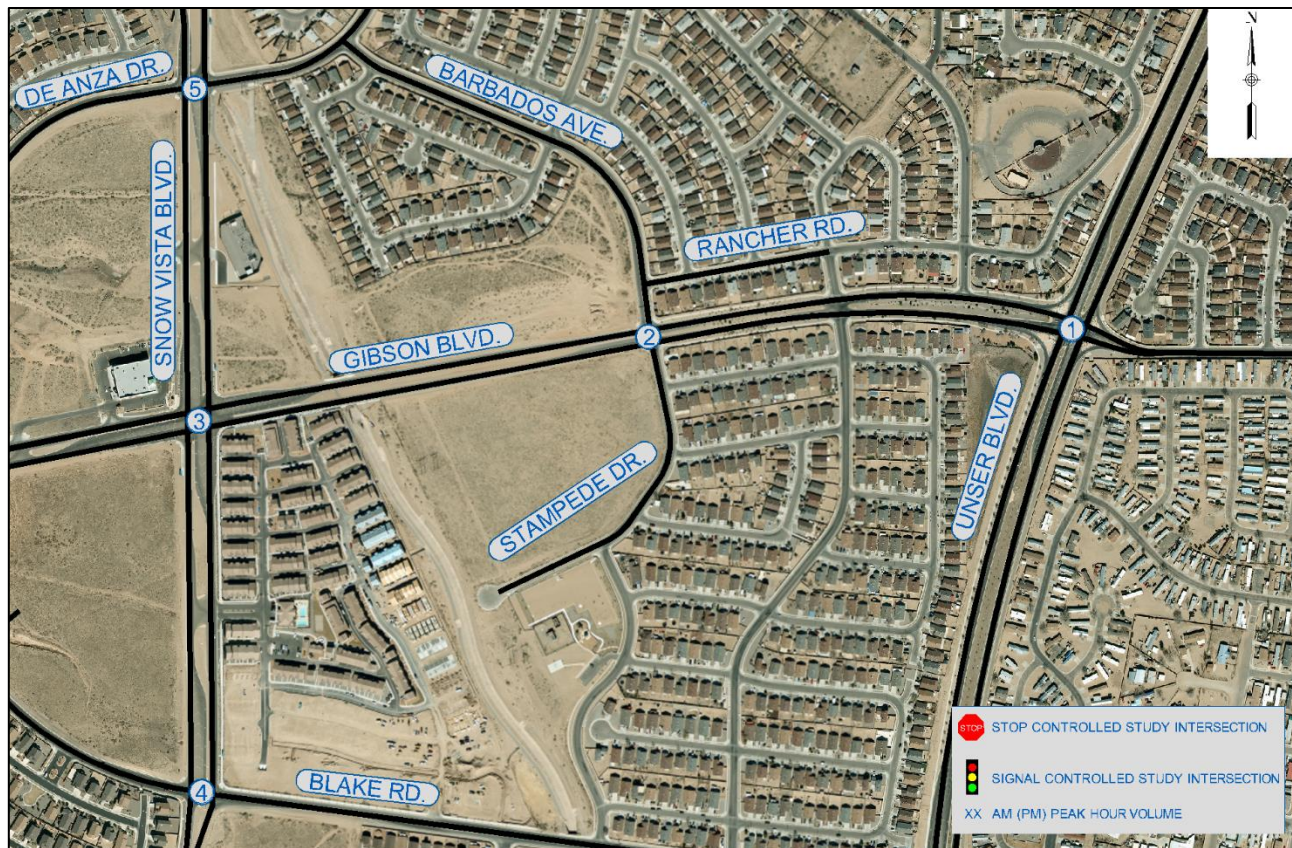


Figure 5: Existing Turning Movement Counts

LEVEL OF SERVICE AND CAPACITY ANALYSIS

Intersection capacity and Level of Service (LOS) analysis were performed according to the methods and procedures provided in the Highway Capacity Manual, 6th Edition (HCM). PTV Vistro 5.0 software was used to facilitate the analysis. According to the HCM, signalized intersection level of service (LOS) is defined in terms of average total vehicle delay of all movements through an intersection. LOS criteria are stated in terms of average delay per vehicle during a specified time period (such as AM and PM peak hour). The delay measurement is based on many variables, including signal phasing, cycle length, and traffic volumes. Table 3 shows the LOS criteria for signalized intersections according to the Highway Capacity Manual.

Table 3: Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (sec/veh)	General Description (Signalized Intersections)
A	≤10	Free flow
B	>10 – 20	Stable flow (slight delays)
C	>20 – 35	Stable flow (acceptable delays)
D	>35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 – 80	Unstable flow (intolerable delay)
F	>80	Forced flow (jammed)

Unsignalized intersection LOS is divided into two intersection types: all-way stop-controlled and two-way stop-controlled. All-way stop-controlled intersection LOS is expressed in terms of average vehicle delay of all the movements. Two-way stop-controlled intersection LOS is defined in terms of average vehicle delay of an individual movement. Table 4, reproduced from the HCM, shows delay thresholds and the associated Level of Service assigned to delay ranges for an unsignalized intersection. Generally, a LOS of D or better is considered an acceptable level of service.

Table 4: Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (sec/veh)
A	≤10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F	>50

Table 5 below shows the delay, v/c and LOS for each movement and overall intersection capacity and LOS analysis performed for existing conditions. Detailed capacity output sheets detailing all individual movements can be found in Appendix C. It should be noted that peak hour factors obtained from the traffic counts were used in the existing conditions analysis. In the table, delay is expressed in terms of average delay in seconds per vehicle, and the LOS is not reported for unrestricted movements.

Table 5: Existing Conditions Capacity Analysis Summary

Study Intersection	Movement	Background Conditions - 2019					
		AM			PM		
		Delay ¹	V/C	LOS ²	Delay ¹	V/C	LOS ²
Gibson Blvd and Unser Blvd	NBL	7.95	0.06	A	4.87	0.1	A
	NBT	12.7	0.28	B	7.78	0.21	A
	NBR	12.72	0.28	B	7.82	0.21	A
	SBL	8.39	0.05	A	4.84	0.06	A
	SBT	12.97	0.26	B	8.78	0.21	A
	SBR	11.69	0.11	B	9.48	0.26	A
	EBL	55.21	0.85	E	65.24	0.7	E
	EBT	40.77	0.06	D	52.67	0.12	D
	EBR	42.32	0.24	D	54.31	0.34	D
	WBL	34.32	0.15	C	46.01	0.14	D
	WBTR	50.9	0.28	D	55.35	0.18	E
LOS	C			B			
Delay	24.48			16.4			
Gibson Blvd and Barbados Ave	NBTRL	11.13	0.03	B	10.56	0.02	B
	SBTRL	10.98	0.07	B	11.32	0.05	B
	EBL	7.30	0.01	A	7.39	0.00	A
	WBL	8.06	0.00	A	7.62	0.01	A
	LOS	B		B			
Delay	11.93		12.04				
Gibson Blvd and 98th St (Snowvista Blvd)	NBL	9.82	0.04	B	9.99	0.1	B
	NBT	13.63	0.42		12.1	0.35	
	NBR	9.12	0.11		8.48	0.05	
	SBL	9.8	0.03	B	9.67	0.07	B
	SBT	12.62	0.35		12.76	0.4	
	SBR	8.89	0.06		9.27	0.17	
	EBL	14.37	0.38	B	11.11	0.21	B
	EBT	10.59	0.14		9.39	0.07	
	EBR	9.16	0.05		8.69	0.06	
	WBL	10.12	0.05	A	9.94	0.07	A
	WBT	9.69	0.06		9.87	0.12	
	WBR	8.94	0.04		8.79	0.06	
	LOS	B			B		
Delay	12.34			11.28			
Blake Rd and 98th St (Snowvista Blvd)	NBL	10.95	0.09	B	10.54	0.11	B
	NBT	14.29	0.40		12.22	0.32	
	NBR	10.60	0.20		9.11	0.1	
	SBL	11.43	0.15	B	11	0.15	B
	SBT	14.99	0.44		11.92	0.29	
	EBL	9.93	0.04	B	9.77	0.04	A
	EBT	11.65	0.31		9.8	0.14	
	WBL	11.56	0.17	B	10.69	0.14	B
	WBT	10.63	0.19		10.84	0.26	
	LOS	B			B		
	Delay	13.18			11.33		
86th St and 98th St (Snowvista Blvd)	NBL	11.37	0.01	E	10.51	0.01	C
	NBT	38.47	0.79		16.59	0.48	
	NBR	10.35	0.04		9.47	0.03	
	SBL	12.31	0.02	C	10.84	0.1	C
	SBT	18.41	0.44		18.85	0.58	
	SBR	12.51	0.18		13.25	0.42	
	EBT	34.85	0.75	D	14.04	0.32	B
	WBL	13.58	0.1	B	11.46	0.05	B
	WBT	13.09	0.16		10.96	0.09	
	LOS	D			C		
	Delay	29.83			16.19		

From the above table, the following conclusions and observations are made for the study intersections under current conditions:

- All of the study intersections operate at a LOS D or better in both the AM and PM peak hours.
- The intersection of Gibson Blvd and Unser Blvd operates at a LOS C in the AM peak hour and a LOS B in the PM peak hour. Eastbound and westbound Gibson Blvd are the worst-case approaches in both peak hours. No movements are over-capacity.
- The intersection of Gibson Blvd and Barbados Ave operates at a LOS B in the AM and PM peak hour and no movements are over capacity.
- The intersection of Gibson Blvd and 98th St operates at a LOS B in the AM and PM peak hour. None of the intersection movements are overcapacity and all approaches operate at a LOS B or better in both peak hours.
- The intersection of Blake Rd and 98th St operates at a LOS B and AM and PM peak hour. None of the intersection movements are overcapacity and all approaches operate at a LOS B or better in both peak hours.
- The intersection of 86th St and 98th St operates at a LOS D and in the AM peak hour and a LOS C in the PM peak hour.
 - In the AM peak hour, the northbound approach operates at a LOS E due to the high volume of vehicles. Specifically, the northbound through (NBT) has a delay of 38 seconds per vehicle and a v/c ratio of 0.79. Also, in the AM peak hour, the eastbound approach operates at a LOS D due to the single lane nature of this approach.
 - In the PM peak hour, the northbound and southbound approaches both operate at a LOS C. However, all movements are well under capacity.

The existing conditions analysis shows that all of the study intersections are currently operating at acceptable LOS levels and under capacity.

QUEUEING ANALYSIS

Queueing analysis was performed for the study intersections under all analysis scenarios for all auxiliary lanes. The “Existing Storage Length” column indicates the length, in feet, of available storage for each auxiliary lane. Queueing is reported in feet and indicates possible lengths of vehicles either waiting to find an acceptable gap to complete their movement or queue caused by a vehicle waiting to make their intended movement. Queues are reported for queue measurements falling within the 95th percentile. It should be noted that 95th percentile queues are statistically expected to occur during only 5% of the peak hour’s sign cycles. It is also noted that un-reported average queueing at an intersection would statistically be much shorter than 95th percentile queueing. The results of this analysis for existing conditions are summarized in Table 6. Output sheets for all movements can be found in Appendix C.

Table 6: Existing Conditions Queueing Analysis Summary

Study Intersection	Movement	Existing Storage Length	Background Conditions - 2019	
			AM	PM
Gibson Blvd and Unser Blvd	NBL	460	<25	37
	SBL	315	<25	<25
	SBR	600	47	123
	EBL	320	219	83
	EBR	150	72	70
	WBL	80	65	53
	WBR	100	52	29
Gibson Blvd and Barbados Ave	EBL	200	<25	<25
	WBL	125	<25	<25
Gibson Blvd and 98th St (Snowvista Blvd)	NBL	280	<25	<25
	NBR	170	<25	<25
	SBL	360	<25	<25
	SBR	140	<25	<25
	EBL	420	46	<25
	EBR	180	<25	<25
	WBL	320	<25	<25
	WBR	160	<25	<25
Blake Rd and 98th St (Snowvista Blvd)	NBL	110	<25	<25
	NBR	125	<25	<25
	SBL	415	<25	<25
	EBL	200	57	30
	WBL	210	<25	<25
86th St and 98th St (Snowvista Blvd)	NBL	220	<25	<25
	NBR	120	<25	<25
	SBL	125	<25	<25
	SBR	110	<25	55
	WBL	350	<25	<25

From the above table, the following observations and conclusions are made:

- The majority of 95th percentile queues are 25-feet or shorter in both the AM and PM peak hour.
- None of the movements exceed the existing storage length. The longest queue is the eastbound left-turn at Gibson Blvd and Unser Blvd. This movement is accommodated by dual left-turn lanes.
- The only movement which exceeds the existing storage length is the westbound right-turn at Gibson Blvd and Unser Blvd in the AM peak hour. This movement is a yield-controlled free-right movement.

Under existing conditions, no movements exceed the existing storage capacity. The majority of 95th percentile queue lengths are 25-feet or shorter.

TRAFFIC PATTERNS

Lee Engineering performed a site visit on February 26, 2019, to assess the existing conditions and observe traffic patterns. The intersection of Unser Blvd and Gibson Blvd is the only signalized study intersection. The

other three high volume intersections, 98th and Blake Rd, 98th and Gibson Blvd, and 86th and Gibson Blvd, are large four-way stop intersections which were constructed with the ultimate goal of converting to signalized intersections. Stop-controlled intersections do not allow of vehicle platooning on a corridor. Additionally, Gibson Blvd essentially ends at Unser Blvd and becomes a residential street (Spring Flower Rd) and therefore the traffic coming westbound on Gibson Blvd is a mix from the northbound, westbound, and southbound approaches. All of these described conditions result in no vehicle platooning on the Gibson Blvd corridor or the 98th St corridor and random flow of vehicles. This could result in pedestrians having trouble finding safe gaps to cross Gibson Blvd at Barbados Ave. The four-way stop-controlled and signalized intersections have striped pedestrian crosswalks which provide safe conditions for pedestrians.

ANALYSIS OF IMPLEMENTATION YEAR CONDITIONS

TRAFFIC PROJECTIONS

Solare Collegiate will initially incorporate 8,500 SF of modular building to hold 156 students in the first year, 2019, and undergo four expansions over five years to ultimately incorporate 31,400 SF of classrooms and an assembly building to hold a maximum 416 students in 2023. During the scoping meeting, the City of Albuquerque indicated that a uniform 1% annual growth rate applied to all turning movements would be sufficient to analyze 2019 and 2023 traffic conditions. These annual growth rates were then converted into a total growth factor for 2018 to 2020 which was then converted into a total growth rate for use in PTV Vistro.

TRIP OVERLAYS

As stated above, it is anticipated that one development will be constructed in the study area by 2023. This residential development, Los Diamantes, is currently under construction on the southwest corner of 98th St and Gibson Blvd. As noted, 49 of the 79 available lots have houses built and are contributing to the existing traffic conditions. The remaining lots were counted and distributed for the 2023 analysis scenarios. Forecasted 2023 traffic volumes with Los Diamantes Trips are shown in Figure 6.

FUTURE SIGNALIZATION

The COA Municipal Development Projects identified new traffic signals at 98th St and Gibson Blvd and 98th St and Blake Rd in 2022. These two traffic signals were incorporated in both 2023 analyses. All signals were optimized, including cycle length and phase splits, for the 2023 analysis scenarios including north-south coordination for Gibson Blvd at 98th St and Blake Rd.

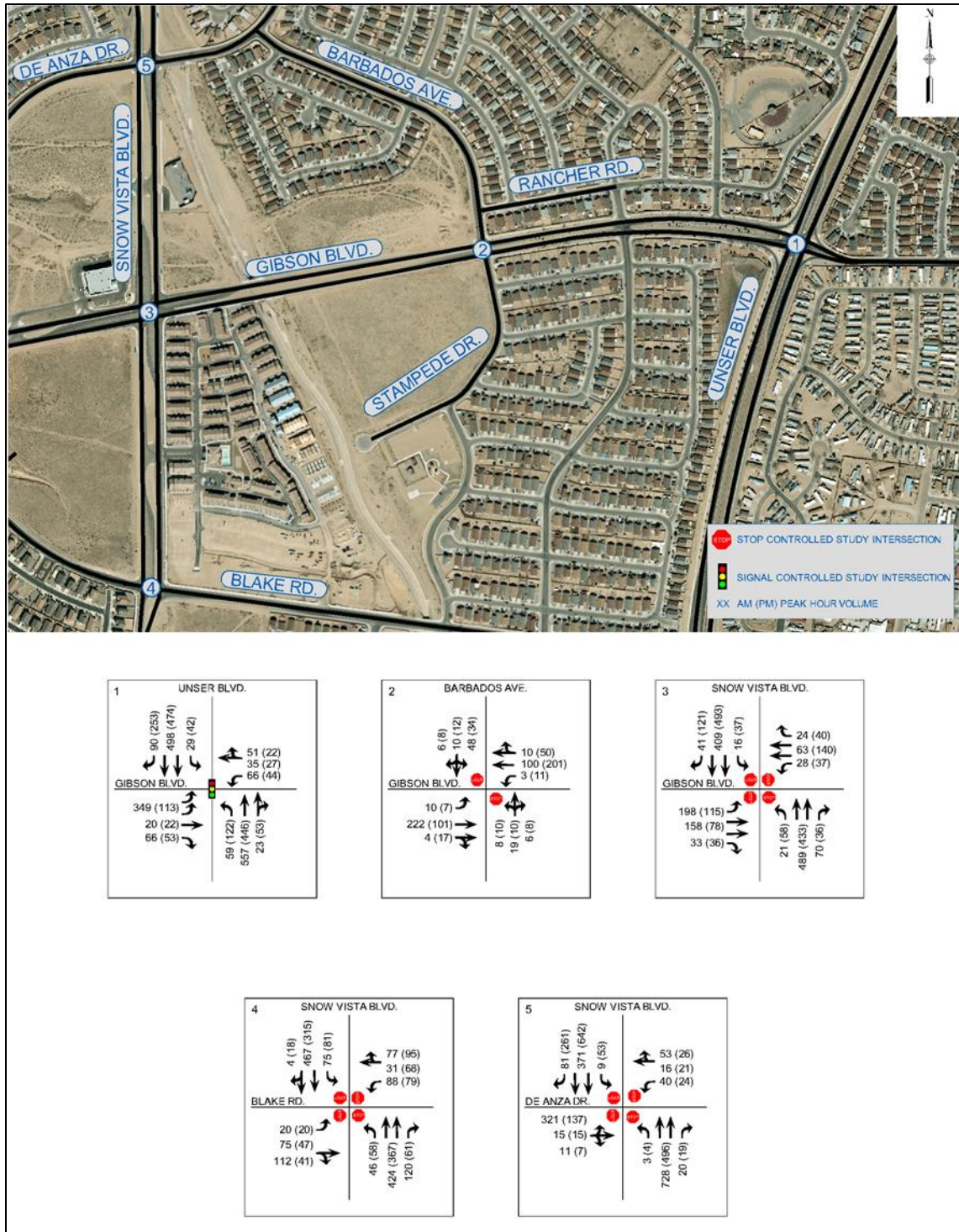


Figure 6: 2023 Background Traffic Volumes

SOLARE COLLEGIATE CHARTER SCHOOL TRIP GENERATION

Trip generation for the development was performed using the procedures and methodologies provided in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition*. An initial investigation of which trip generation land code for a Charter School grades 5-8 provided two options: Charter Elementary School (ITE 537) or Private School K-8 (ITE 534). As Solare Collegiate Charter School will serve grades 5-8, it was determined at the scoping meeting that ITE 534 would better capture the middle-aged nature of students attending the school. Trips were calculated using rates for daily, AM peak hour, and PM peak hour generators. Due to the non-commercial nature of this Development, no pass-by or internal capture trips were calculated. Trips generated by the site are shown in Table 7. The raw trip generation data sheet can be found in Appendix D.

Table 7: Solare Collegiate Charter School Trip Generation

Use	Units		TRIP GENERATION									PEAK HOUR TRIPS			
			Weekday		AM Peak			PM Peak			AM Peak		PM Peak		
			Rate	Trips	Rate	Enter	Exit	Rate	Enter	Exit	In	Out	In	Out	
Private School K-8 (ITE 534)	416	Students	4.11	Students	0.93	56%	44%	0.62	47%	53%	217	171	122	137	

Notes:

Private School K-8
Daily Rate: Weekday
Average Rate: 4.11
AM Peak: AM Peak Hour of Generator
Average Rate: $T=1.88(X) + 14.85$
PM Peak: PM Peak Hour of Generator
Average Rate: $T=0.63(X) - 1.93$

TRIP DISTRIBUTION AND ASSIGNMENT

Trip Distribution was determined based on an analysis of current student enrollment and existing intersection demand characteristics within the study area. Solare Collegiate provided Lee Engineering with the addresses of 118 students who are currently enrolled. Lee Engineering routed these trips to and from the development based on travel time and distance. Trips based on current student enrollment were converted to percentages and then used to model full student enrollment. Figure 7 below shows the trip distribution and assignment for 2019 and Figure 8 shows the trips added to the background 2023 traffic volumes to create full build 2023 traffic volumes.

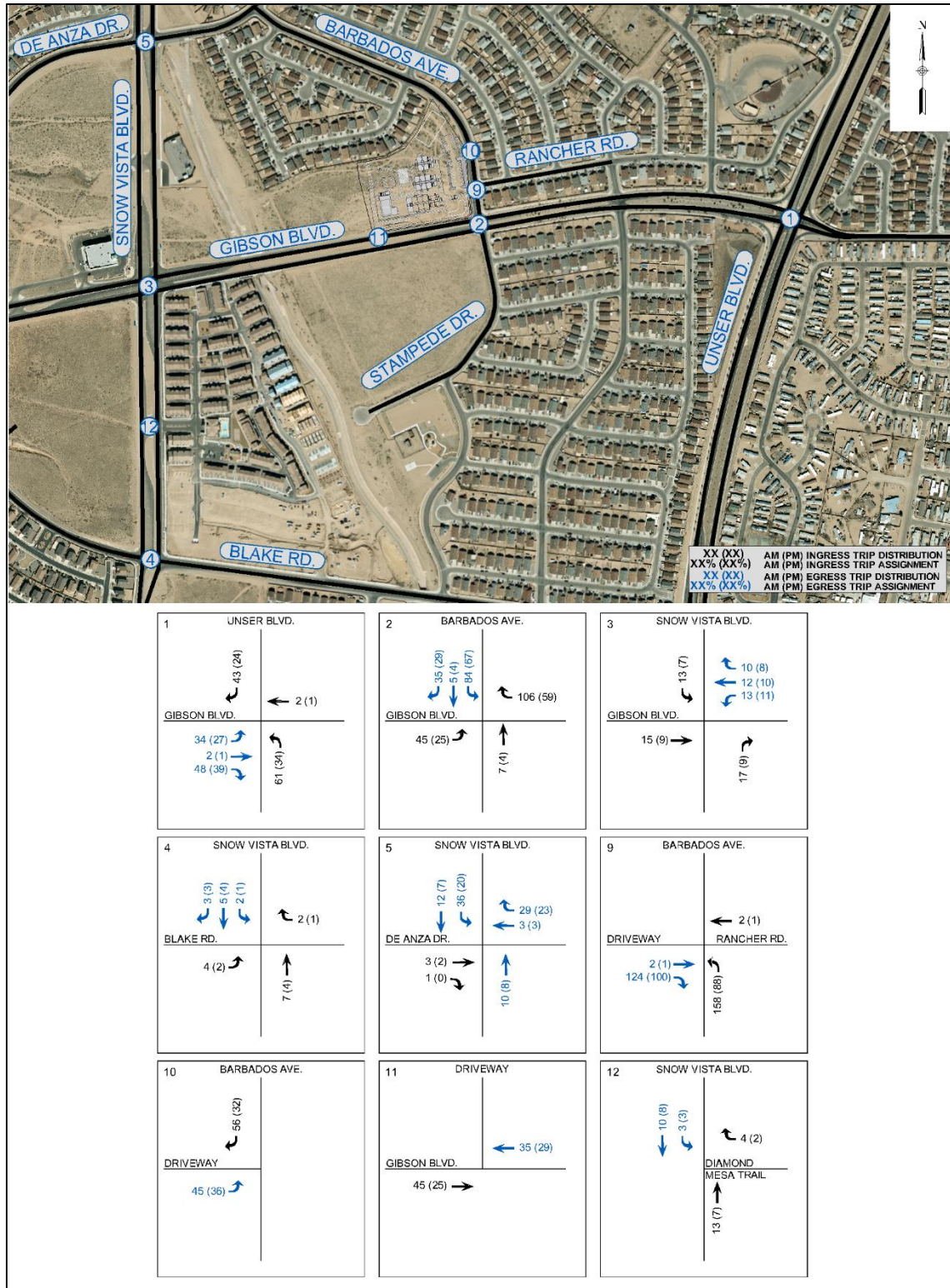


Figure 7: Trip Distribution and Assignment

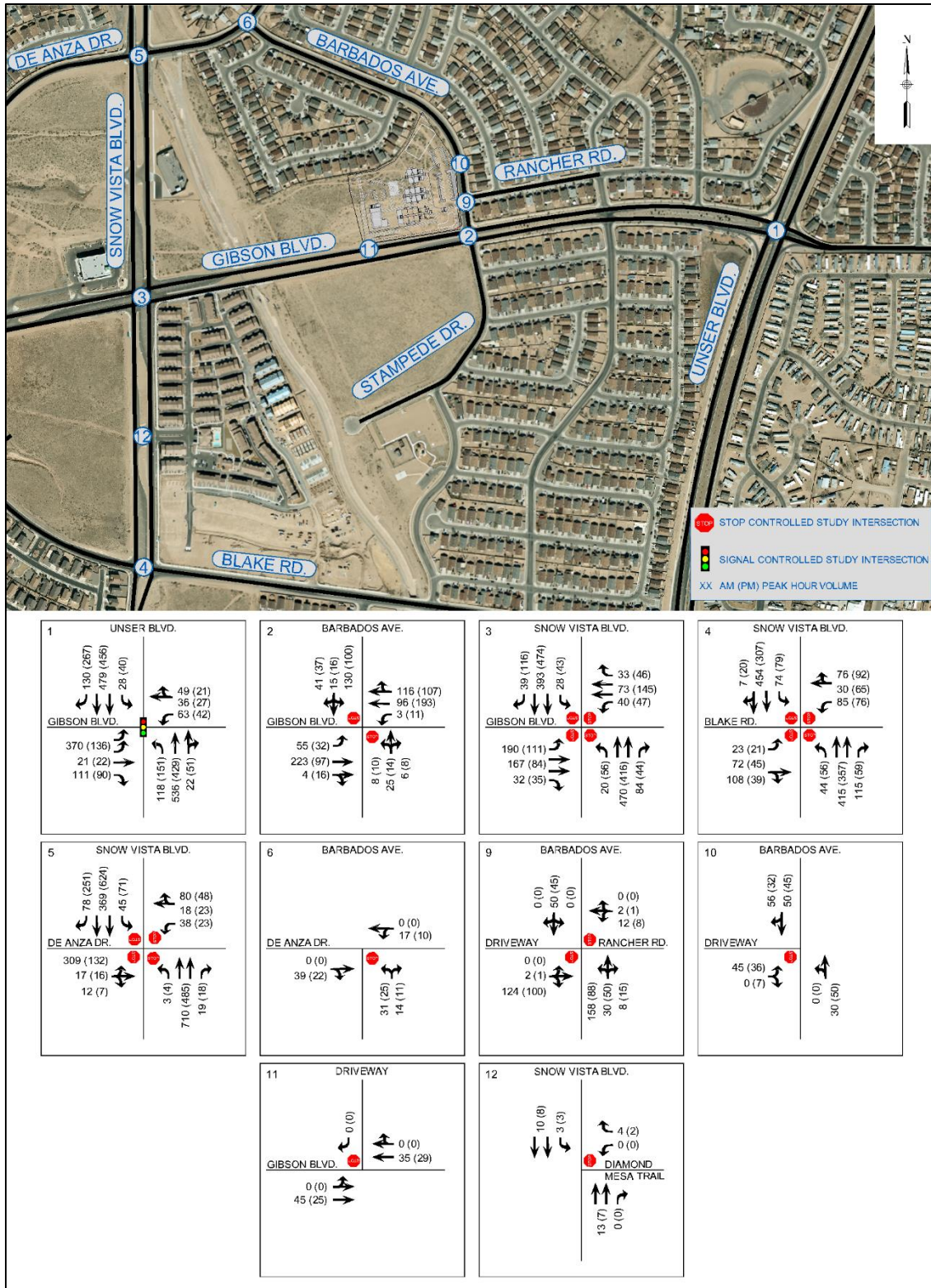


Figure 8: 2019 Full Build Traffic Volumes

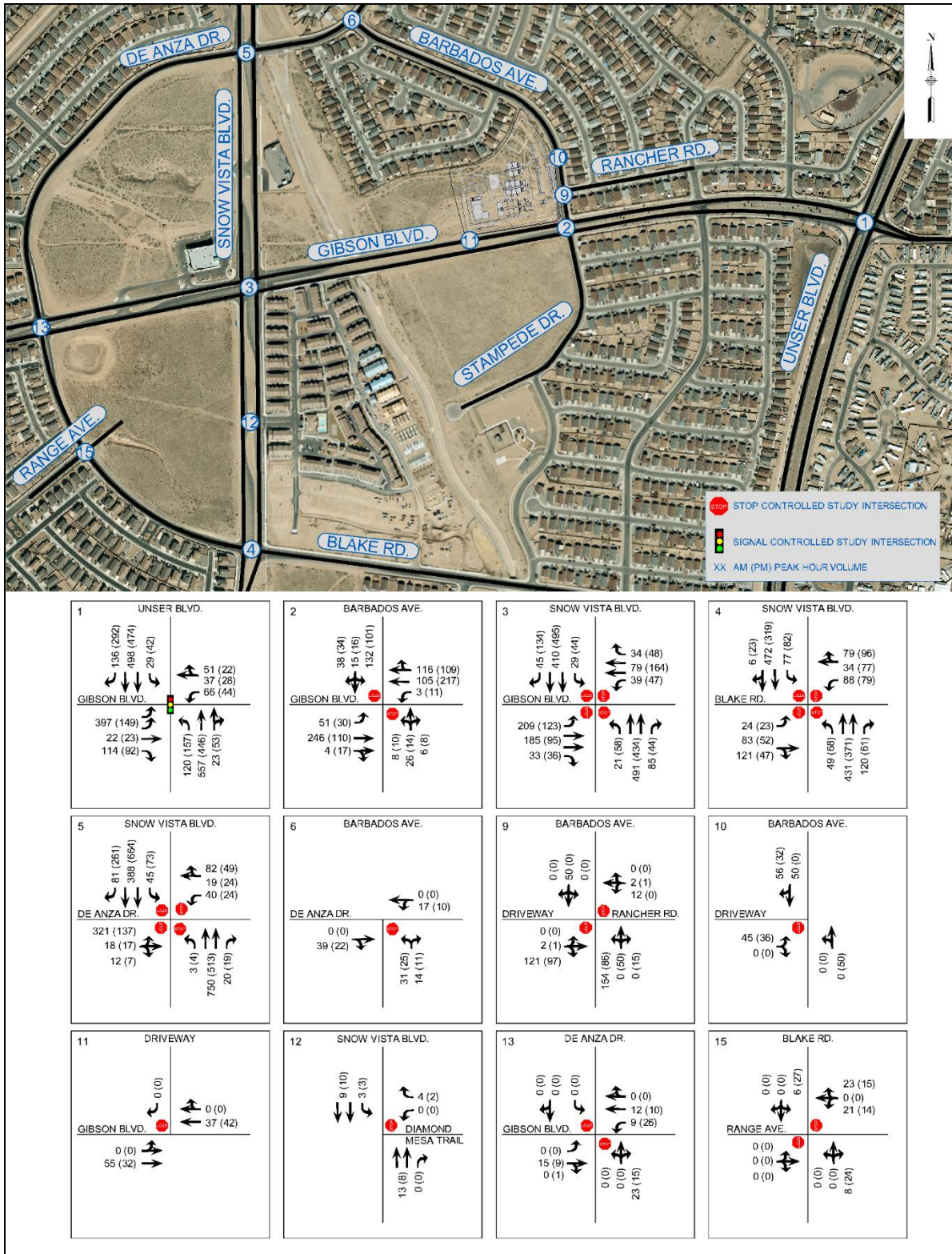


Figure 9: 2023 Full Build Traffic Volumes

LEVEL OF SERVICE AND CAPACITY ANALYSIS

As performed for existing conditions, a Level of Service (LOS) and capacity analysis was performed for Initial Phase Build Out 2019, Background 2023, and Final Phase Build Out 2023 conditions according to the procedures outlined in the *Highway Capacity Manual, 6th Edition* using PTV Vistro 5.0 software. As per the *Highway Capacity Manual, 6th Edition*, peak hour factors of 0.92 were used for all future scenarios at all intersections. Table 8 below summarizes the worst-case movement and intersection capacity and LOS analysis performed for all scenarios. Detailed capacity output sheets detailing all individual movements can be found in Appendix C. Based on procedures outlined in the Highway Capacity Manual, intersection delay and level of service for stop-controlled intersections are reported as the delay and LOS for the worst-case movement. However, for single lane approaches, the delay, v/c, and LOS is reported as a whole for the approach and not as the individual movements.

Table 8: LOS and Capacity Analysis for All Scenarios

Study Intersection	Movement	Background Conditions - 2019						Initial Phase Build Out Conditions - 2019						Background Conditions - 2023						Final Phase Build Out Conditions - 2023					
		AM			PM			AM			PM			AM			PM			AM			PM		
		Delay ¹	V/C	LOS ²	Delay ¹	V/C	LOS ²	Delay ¹	V/C	LOS ²	Delay ¹	V/C	LOS ²	Delay ¹	V/C	LOS ²	Delay ¹	V/C	LOS ²	Delay ¹	V/C	LOS ²	Delay ¹	V/C	LOS ²
Gibson Blvd and Unser Blvd	NBL	7.95	0.06	A	4.87	0.1	A	8.93	0.12	A	5.01	0.13	A	8.38	0.06	A	4.72	0.1	A	9.39	0.12	A	5.25	0.13	A
	NBT	12.7	0.28	B	7.78	0.21	A	13.4	0.29	B	7.77	0.21	A	13.44	0.3	B	7.64	0.22	A	14.16	0.3	B	8.11	0.22	A
	NBR	12.72	0.28	B	7.82	0.21	A	13.42	0.29	B	7.79	0.21	A	13.46	0.3	B	7.67	0.22	A	14.17	0.3	B	8.14	0.22	A
	SBL	8.39	0.05	A	4.84	0.06	A	8.92	0.05	A	4.82	0.06	A	8.88	0.06	A	4.69	0.06	A	9.41	0.06	A	5.04	0.06	A
	SBT	12.97	0.26	B	8.78	0.21	A	14.98	0.27	B	9.16	0.22	A	13.71	0.27	B	8.66	0.22	A	15.8	0.29	B	9.63	0.23	A
	SBR	11.69	0.11	B	9.48	0.26	A	14.11	0.17	B	10.19	0.29	B	12.36	0.12	B	9.56	0.28	A	14.88	0.18	B	10.92	0.31	B
	EBL	55.21	0.85	E	65.24	0.7	E	54.65	0.86	D	64.68	0.74	E	54.76	0.86	D	64.95	0.72	E	54.23	0.87	D	64.46	0.76	E
	EBT	40.77	0.06	D	52.67	0.12	D	39.67	0.06	D	52.78	0.12	D	40.04	0.06	D	53.47	0.13	D	38.96	0.07	D	52.33	0.12	D
	EBR	42.32	0.24	D	54.31	0.34	D	42.8	0.4	D	56.87	0.6	E	41.62	0.24	D	55.26	0.37	E	42.08	0.4	D	56.34	0.59	E
	WBL	34.32	0.15	C	46.01	0.14	D	33.29	0.14	C	46.08	0.14	D	33.54	0.15	C	46.61	0.15	D	32.53	0.15	C	45.55	0.15	D
	WBTR	50.9	0.28	D	55.35	0.18	E	50.89	0.28	D	56.65	0.21	E	50.9	0.29	D	56.58	0.21	E	50.89	0.29	D	56.55	0.21	E
	LOS	C			B			C			B			C			B			C			B		
	Delay	24.48			16.40			25.49			18.08			25.01			16.58			26.00			18.48		
Gibson Blvd and Barbados Ave	NBTRL	11.13	0.03	B	10.56	0.02	B	13.26	0.06	B	11.62	0.03	B	11.42	0.04	B	10.80	0.02	B	13.56	0.06	B	11.88	0.03	B
	SBTRL	10.98	0.07	B	11.32	0.05	B	14.90	0.26	B	13.64	0.19	B	11.24	0.08	B	11.69	0.06	B	15.32	0.27	C	14.20	0.20	B
	EBL	7.30	0.01	A	7.39	0.00	A	7.45	0.04	A	7.48	0.02	A	7.31	0.01	A	7.41	0.00	A	7.45	0.03	A	7.49	0.02	A
	WBL	8.06	0.00	A	7.62	0.01	A	8.06	0.00	A	7.62	0.01	A	8.16	0.00	A	7.67	0.01	A	8.16	0.00	A	7.67	0.01	A
	LOS	B			B			C			B			B			B			C			C		
	Delay	11.93			12.04			16.26			14.65			12.27			12.45			16.72			15.22		
Gibson Blvd and 98th St (Snowvista Blvd)	NBL	9.82	0.04	B	9.99	0.1	B	9.69	0.04	B	9.89	0.1	B	8.95	0.04	A	7.05	0.1	A	9.1	0.04	A	7.06	0.1	A
	NBT	13.63	0.42	B	12.1	0.35	B	13.31	0.41	B	11.94	0.35	B	13.61	0.3	B	10.57	0.24	B	14.18	0.3	B	10.68	0.24	B
	NBR	9.12	0.11	B	8.48	0.05	B	9.19	0.13	B	8.49	0.07	B	11.96	0.1	B	9.18	0.05	A	12.64	0.12	B	9.35	0.05	A
	SBL	9.8	0.03	B	9.67	0.07	B	9.87	0.05	B	9.7	0.08	B	8.93	0.03	A	6.58	0.06	A	9.21	0.05	A	6.62	0.07	A
	SBT	12.62	0.35	B	12.76	0.4	B	12.39	0.35	B	12.62	0.4	B	13.25	0.24	B	11.15	0.27	B	13.43	0.24	B	11.16	0.27	B
	SBR	8.89	0.06	B	9.27	0.17	B	8.79	0.06	B	9.21	0.17	B	11.78	0.06	B	10.5	0.16	B	11.93	0.06	B	10.51	0.16	B
	EBL	14.37	0.38	B	11.11	0.21	B	13.89	0.37	B	10.84	0.2	B	29.82	0.42	C	33.02	0.35	C	29.49	0.42	C	33.05	0.35	C
	EBT	10.59	0.14	B	9.39	0.07	B	10.48	0.15	B	9.26	0.07	B	32.31	0.24	C	37.12	0.18	D	32.69	0.26	C	37.76	0.2	D
	EBR	9.16	0.05	B	8.69	0.06	B	8.99	0.05	B	8.52	0.05	B	31.28	0.1	C	37.32	0.16	D	31.46	0.11	C	37.84	0.17	D
	WBL	10.12	0.05	B	9.94	0.07	B	10.08	0.08	B	9.97	0.09	B	25.81	0.08	C	30.48	0.11	C	25.71	0.1	C	30.64	0.13	C
	WBTR	9.69	0.06	A	9.87	0.12	A	9.55	0.06	A	9.8	0.13	A	40.79	0.2	D	41.82	0.42	D	40.57	0.22	D	42.06	0.44	D
	WBR	8.94	0.04	A	8.79	0.06	B	8.84	0.05	B	8.76	0.07	B	40.9	0.16	D	40.94	0.24	D	41.03	0.21	D	41.46	0.29	D
	LOS	B			B			B			B			B			B			C			B		
Delay	12.34			11.28			11.97			11.09			19.57			18.15			20.12			18.60			
Blake Rd and 98th St (Snowvista Blvd)	NBL	10.95	0.09	B	10.54	0.11	B	10.98	0.09	B	10.57	0.11	B	7.03	0.08	A	5.95	0.09	A	7.04	0.08	A	5.98	0.09	A
	NBT	14.29	0.40	B	12.22	0.32	B	14.48	0.4	B	12.32	0.32	B	11.14	0.23	B	9.51	0.19	A	11.17	0.24	B	9.56	0.19	A
	NBR	10.60	0.20	B	9.11	0.1	B	10.64	0.2	B	9.14	0.1	B	10.65	0.15	B	8.75	0.07	A	10.65	0.15	B	8.78	0.07	A
	SBL	11.43	0.15	B	11	0.15	B	11.49	0.15	B	11.04	0.15	B	6.89	0.12	A	5.81	0.11	A	6.91	0.12	A	5.84	0.12	A
	SBTR	14.99	0.44	B	11.92	0.29	B	15.2	0.45	B	12.03	0.3	B	11.22	0.25	B	9.49	0.17	A	11.25	0.25	B	9.54	0.17	A
	EBL	9.93	0.04	B	9.77	0.04	A	10	0.04	B	9.81	0.04	A	11.23	0.25	B	9.51	0.17	A	11.25	0.25	B	9.56	0.17	A
	EBTR	11.65	0.31	B	9.8	0.14	A	11.69	0.31	B	9.82	0.14	A	30.1	0.07	C	32.73	0.1	C	30.11	0.07	C	32.68	0.1	C
	WBL	11.56	0.17	B	10.69	0.14	B	11.54	0.17	B	10.71	0.14	B	32.24	0.35	C	33.61	0.26	C	32.24	0.35	C	33.55	0.26	C
	WBTR	10.63	0.19	B	10.84	0.26	B	10.65	0.19	B	10.87	0.26	B	38.68	0.45	D	49.41	0.81	D	38.78	0.46	D	49.38	0.81	D
	LOS	B			B			B			B			B			B			B			B		
	Delay	13.18			11.33			13.31			11.40			19.16			18.81			19.14			18.78		
86th St and 98th St (Snowvista Blvd)	NBL	11.37	0.01	E	10.51	0.01	C	11.53	0.01	C	10.71	0.01	C	11.68	0.01	F	10.7	0.01	C	11.89	0.01	F	10.92	0.01	C
	NBT	38.47	0.79	E	16.59	0.48	C	43.58	0.81	E	17.55	0.5	C	55.88	0.86	F	18.16	0.52	C	67.76	0.9	F	19.38	0.54	C
	NBR	10.35	0.04	B	9.47	0.03	B	10.53	0.04	B	9.68	0.03	B	10.69	0.04	B	9.69	0.04	B	10.92	0.04	B	9.91	0.04	B
	SBL	12.31	0.02	B	10.84	0.1	B	13.63	0.12	B	11.5	0.15	B	12.71	0.02	B	11.09	0.11	B	14.23	0.13	B	11.79	0.16	B
	SBT	18.41	0.44	C	18.85	0.58	C	19.62	0.47	C	20.26	0.61	C	20.43	0.48	C	21.59	0.64	C	22.17	0.51	C	23.54	0.66	C
	SBR	12.51	0.18	B	13.25	0.42	B	12.85	0.18	B	13.83	0.44	B	13.16	0.19	B	14.11	0.45	B	13.61	0.2	B	14.8	0.47	B
	EBTRL	34.85	0.75	D	14.04	0.32	B	36.07	0.76	E	14.39	0.33	B	46.23	0.82	E	14.79	0.34	B	50.46	0.84	F	15.19	0.35	C
	WBL	13.58	0.1	B	11.46	0.05	B	13.44	0.1	B	11.62	0.05	B	14.22	0.11	B	11.8	0.06	B	14.2	0.11	B	11.98	0.06	B
	WBTR	13.09	0.16	B	10.96	0.09	B	13.95	0.23	B	11.58	0.15	B	13.83	0.18	B	11.34	0.1	B	15.01	0.26	B	12.04	0.16	B
	LOS	D			C			D			C			E			C			E			C		
Delay	29.83			16.19			31.86			17.03			40.38			17.94			45.65			19.05			
Barbados Ave and North Solare Driveway	NB							0.00	0.00	A	0.00	0.00	A							3.71	0.00	A	0.00	0.00	A
	EB							9.26	0.05	A	9.24	0.04	A							9.09	0.05	A	8.99	0.04	A
	SB							0.00	0.00	A	0.00	0.00	A							0.00	0.00	A	0.00	-	A
	LOS							A			A									A			A		
	Delay							9.26			9.24									9.09			8.99		
	Barbados Ave and South Solare Driveway	NB							6.11	0.10	A	4.28	0.05	A							7.57	0.09	A	4.18	0.05
SB		0.00							0.00	A	0.00	0.00	A	0.00							0.00	A	2.45	0.00	A
EB		9.12							0.11	A	8.93	0.09	A	9.09							0.11	A	8.68	0.09	A
WB								13.88	0.00	B	11.74	0.00	B							13.24	0.00	B	10.69	0.00	B
LOS								B			B									B			B		
Delay								14.07			11.81									13.24			11.14		

From the above table, the following conclusions and observations are made for the study intersections under Initial Phase Build Out 2019 conditions:

- The intersection of Gibson Blvd and Unser Blvd operates at a LOS C in the AM peak and LOS B in the PM peak. The intersection operation does not change significantly due to the new traffic generated by the proposed Solare Collegiate Charter School development.
- The intersection of Gibson Blvd and Barbados Ave operates at a LOS C in the AM peak hour and LOS B in the PM peak hour. The worst-case movement in the AM peak hour is the southbound through movement. Although the LOS drops from a LOS B to a LOS C as a result of the development, this is still considered an acceptable operation level.
- The intersection of Gibson Blvd and 98th St operates at a LOS B in the AM and PM peak hours. The intersection operation does not change significantly due to the new traffic generated by the proposed Solare Collegiate Charter School development.
- The intersection of Blake Rd and 98th St operates at a LOS B in the AM and PM peak hours. The intersection operation does not change significantly due to the new traffic generated by the proposed Solare Collegiate Charter School development.
- The intersection of 86th St and 98th St operates at a LOS D in the AM peak hour and a LOS C in the PM peak hour. Compared to the existing conditions analysis, the delay increases by 2 seconds in the AM peak and by 1 second in the PM peak. The intersection operation does not change significantly due to the new traffic generated by the proposed Solare Collegiate Charter School Development.
- The intersection of the north Solare Collegiate Charter School driveway and Barbados Ave operates at a LOS A in the AM and PM peak hour. Discussion of driveway operation can be found in the On-Site Circulation and Access Analysis in the next section of this report.
- The intersection of the north Solare Collegiate Charter School driveway and Barbados Ave operates at a LOS B in the AM and PM peak hour. Discussion of driveway operation can be found in the On-Site Circulation and Access Analysis in the next section of this report.

From the above table, the following conclusions and observations are made for the study intersections under Background 2023 conditions:

- The intersection of Gibson Blvd and Unser Blvd operates at a LOS C in the AM peak and LOS B in the PM peak. The intersection operation does not change significantly due to the 1% annual growth rate applied to all turning movements. For the 2023 Background Conditions analysis, PTV Vistro's signalized intersection optimization tools were applied and the delay remains unchanged from 2019 Initial Phase Build Out Conditions.
- The intersection of Gibson Blvd and Barbados Ave operates at a LOS B in the AM peak hour and LOS B in the PM peak hour. The intersection operation does not change significantly due to the 1% annual growth rate applied to all turning movements.
- The intersection of Gibson Blvd and 98th St operates at a LOS B in the AM and PM peak hours. For the Background 2023 conditions, the intersection was analyzed as a signalized intersection as indicated in the COA Municipal Development future project list. The worst-case movements in the AM peak hour are the westbound through and westbound right-turn movements. In the PM peak hour, the worst-case movements are the eastbound through, eastbound right, westbound through, and westbound right.
- The intersection of Blake Rd and 98th St operates at a LOS B in the AM and PM peak hours. For the Background 2023 conditions, the intersection was analyzed as a signalized intersection as indicated in the COA Municipal Development future project list. The worst-case movement in the AM and PM peak hours is the westbound through-right lane.
- The intersection of 86th St and 98th St operates at a LOS E in the AM peak hour and a LOS C in the PM peak hour. The worst-case movement in the AM peak hour is the northbound through movement

which operates at a LOS F. The worst-case movements in the PM peak hour are the northbound and southbound through movements which both operate at a LOS C. No intersections improvements, including the installation of a traffic signal, are shown for this intersection in the COA Municipal Development future project list.

- PTV Vistro has a built-in signal warrant analysis feature which considers Warrant 1: Eight Hour Vehicular Volume, Warrant 2: Four Hour Vehicular Volume, and Warrant 3: Peak Hour. Using the software analysis tool, this intersection meets all three warrants in the AM peak hour.

From the above table, the following conclusions and observations are made for the study intersections under Final Phase 2023 conditions:

- The intersection of Gibson Blvd and Unser Blvd operates at a LOS C in the AM peak and LOS B in the PM peak. The intersection operation does not change significantly due to the new traffic generated by the proposed Solare Collegiate Charter School development. Similar to the 2023 Background Conditions analysis, PTV Vistro's signalized intersection optimization tools were applied and the delay does not change significantly from 2019 Initial Phase Build Out Conditions.
- The intersection of Gibson Blvd and Barbados Ave operates at a LOS C in the AM peak hour and PM peak hour. The increase in vehicular delay and decrease in LOS is attributed to a growth in vehicles on the southbound approach as a result of the proposed Solare Collegiate Charter School development. However, the trips added to this intersection do not cause it to reach an unacceptable level of operation.
- The intersection of Gibson Blvd and 98th St operates at a LOS C in the AM peak hour and a LOS B in the PM peak hour. For the Background 2023 conditions, the intersection was analyzed as a signalized intersection as indicated in the COA Municipal Development future project list. Although the LOS drops from a LOS B to a LOS C in the AM peak hour, the change in delay was less than 1 second per vehicle. Therefore, the LOS and delay do not change significantly as a result of the proposed development.
- The intersection of Blake Rd and 98th St operates at a LOS B in the AM and PM peak hours. For the Background 2023 conditions, the intersection was analyzed as a signalized intersection as indicated in the COA Municipal Development future project list. The worst-case movement in the AM and PM peak hours is the westbound through-right lane. The operations at this intersection do not change significantly as a result of the proposed development.
- The intersection of 86th St and 98th St operates at a LOS E in the AM peak hour and a LOS C in the PM peak hour. The worst-case movement in the AM peak hour is the northbound through movement which operates at a LOS F. The worst-case movements in the PM peak hour are the northbound and southbound through movements which both operate at a LOS C.
 - As mentioned in the 2023 Background Conditions analysis, this intersection meets traffic signal Warrant 1, Warrant 2, and Warrant 3 when subjected to PTV Vistro's built-in signal warrant analysis tool.
 - Analysis of this intersection as a signalized intersection under 2023 traffic conditions show that the installation of a traffic signal could improve operations in the AM peak hour (worst case peak hour) to a LOS C with 38 seconds per vehicle of delay and an intersection v/c of 0.484.
- The intersection of the north Solare Collegiate Charter School driveway and Barbados Ave operates at a LOS A in the AM and PM peak hour. Discussion of driveway operation can be found in the On-Site Circulation and Access Analysis in the next section of this report.
- The intersection of the north Solare Collegiate Charter School driveway and Barbados Ave operates at a LOS B in the AM and PM peak hour. Discussion of driveway operation can be found in the On-Site Circulation and Access Analysis in the next section of this report.

In summary, all of the intersections except 86th St and 98th St maintain acceptable LOS and delay for all analysis scenarios. The intersection of 86th St and 98th St drops to a LOS E in the AM peak hour for the 2023 Background Conditions as the northbound and southbound approaches have a higher level of delay and are beginning to reach capacity. This intersection meets Warrants 1, 2, and 3 when subjected to Vistro's signal warrant analysis tool. Traffic generated by the proposed Solare Collegiate Charter School development only increases intersection delay by 5 seconds and therefore does not significantly impact the LOS at this intersection.

QUEUE STORAGE ANALYSIS

Queueing analysis was performed as detailed above for all auxiliary lane movements for which the development site contributes trips for all scenarios. The results of this analysis are summarized below in Table 9. Output sheets for all movements can be found in Appendix C.

From the table on the next page, the following observations are made:

- There are no 95th percentile queue lengths which exceed the existing auxiliary lane storage.
- In general, the queues do not significantly change as a result of the proposed Solare Collegiate Charter School development.
- As a result of future traffic signal installations some 95th percentile queuing is increased at the intersections of Gibson Blvd and 98th St, and Blake Rd and 98th St. However, none of these queues exceed the existing storage lanes.

The proposed development does not cause any queues to exceed their existing storage capacity including at the intersection of Gibson Blvd and Barbados Ave.

Table 9: Queueing Summary for All Scenarios

Study Intersection	Movement	Existing Storage Length	Background Conditions - 2019		Initial Phase Build Out Conditions - 2019		Background Conditions - 2023		Final Phase Build Out Conditions - 2023	
			AM	PM	AM	PM	AM	PM	AM	PM
Gibson Blvd and Unser Blvd	NBL	460	<25	37	54	48	26	38	57	52
	SBL	315	<25	<25	<25	<25	<25	<25	<25	<25
	SBR	600	47	123	80	143	54	137	88	164
	EBL	320	219	83	236	103	233	93	250	113
	EBR	150	72	70	129	128	74	73	131	130
	WBL	80	65	53	64	53	68	56	67	56
	WBR	100	52	29	53	30	54	31	55	31
Gibson Blvd and Barbados Ave	EBL	200	<25	<25	<25	<25	<25	<25	<25	<25
	WBL	125	<25	<25	<25	<25	<25	<25	<25	<25
Gibson Blvd and 98th St (Snowvista Blvd)	NBL	280	<25	<25	<25	<25	<25	<25	<25	<25
	NBR	170	<25	<25	<25	<25	36	<25	45	<25
	SBL	360	<25	<25	<25	<25	<25	<25	<25	<25
	SBR	140	<25	<25	<25	<25	<25	63	<25	63
	EBL	420	46	<25	44	<25	182	112	181	112
	EBR	180	<25	<25	<25	<25	29	35	29	35
	WBL	320	<25	<25	<25	<25	<25	33	30	40
	WBR	160	<25	<25	<25	<25	25	41	35	50
Blake Rd and 98th St (Snowvista Blvd)	NBL	110	<25	<25	<25	<25	<25	<25	<25	<25
	NBR	125	<25	<25	<25	<25	58	26	58	26
	SBL	415	<25	<25	<25	<25	<25	<25	25	<25
	EBL	200	57	30	59	31	115	73	117	74
	WBL	210	<25	<25	<25	<25	77	72	77	72
86th St and 98th St (Snowvista Blvd)	NBL	220	<25	<25	<25	<25	<25	<25	<25	<25
	NBR	120	<25	<25	<25	<25	<25	<25	<25	<25
	SBL	125	<25	<25	<25	<25	<25	<25	<25	<25
	SBR	110	<25	55	<25	58	<25	61	<25	65
	WBL	350	<25	<25	<25	<25	<25	<25	<25	<25
Barbados Ave and North Solare Parent Driveway	NB	-			<25	<25			<25	<25
	EB	-			<25	<25			<25	<25
	SB	-			<25	<25			<25	<25
Barbados Ave and South Solare Parent Driveway	NB	-			<25	<25			<25	<25
	SB	-			<25	<25			<25	<25
	EB	-			<25	<25			<25	<25
	WB	-			<25	<25			<25	<25

¹Queue not reported for unrestricted movements

CAPACITY MITIGATIONS AND STREET IMPROVEMENTS

Future trips as a result of the development were routed to and from the sight using the shortest travel time and logical route for 118 student addresses provided by Solare Collegiate. The intersection of 98th St and 86th St degrades to an unacceptable LOS and delay in the 2023 Background Conditions due to the northbound and southbound approaches reaching capacity and experiencing high levels of delay. Although no intersections improvements, including the installation of a traffic signal, are shown for this intersection in the COA Municipal Development future project list, analysis of this intersection as a signalized intersection under 2023 traffic conditions show that the installation of a traffic signal could improve operations in the AM peak hour (worst case peak hour) to a LOS C. None of the queue lengths Overall, the proposed Solare Collegiate development does not have a significant impact on traffic conditions at any of the study intersections or proposed school driveway access points.

SITE EVALUATION

The following section is an examination of the operations and safety on and around the proposed Solare Collegiate Charter School development.

ON-SITE CIRCULATION AND ACCESS ANALYSIS

One of the big issues for Charter Schools is managing drop-off and pick-up operations, with afternoon pick-up being the most challenging. However, Solare Collegiate is relatively small in size compared to other charter schools which will ease managing operations. Although the development is located along a 40 MPH arterial street (Gibson Blvd), it will “front” onto a local street (Barbados Ave) which helps with safety.

Figure 10 shows the recommended ultimate circulation and drop-off zones for both parents and buses (buses will initially use the parent drop-off/pick-up loop for opening day). For parent drop-off/pick-up, it is recommended that all vehicles enter the north driveway, circulate counterclockwise, and exit the southern driveway. The drop off zone is to be located on the eastern side of the school. Having one-way circulation for the eastern parking lot, at least along the loading zone area, will allow the school to develop double drop-off/loading lanes (if needed) with the goal of having the pick-up area as far south as possible in the student loading zone to maximize on-site vehicle storage. The southern driveway is recommended to be used for out-only traffic with one lane for left turns and one lane for right turns onto Barbados Ave. During pick-up and drop-off operations, cones could be placed at the entrances to the parking area to ensure parents do not cut through and drop off their students in the parking area. It is also recommended that teacher/staff members be located within the parent drop-off zone to help facilitate safe passage through the double drop-off lanes. Official Manual on Uniform Traffic Control Devices (MUTCD) signage should be installed at each driveway and within the school site to facilitate safe operation.

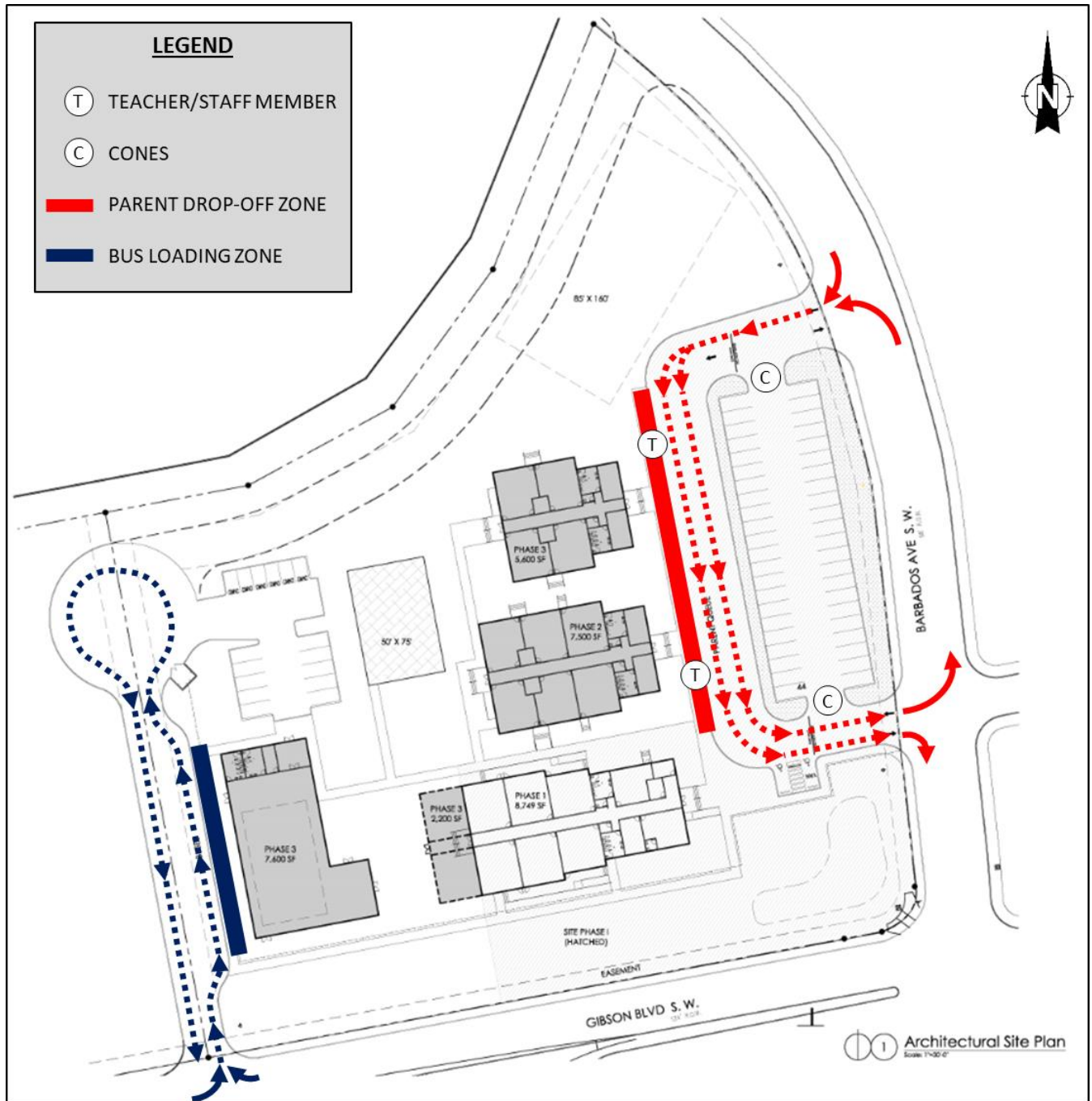


Figure 10: Solare Collegiate Charter School On-Site Circulation

PEDESTRIAN AND BICYCLE CIRCULATION ROUTES

Although the majority of students will arrive and depart from school by parent vehicles, it is expected that some students will arrive at school by walking or riding their bikes. The proposed Solare Collegiate development should ensure that sidewalks with American Disabilities Act (ADA) standard pedestrian ramps be constructed along the frontage and through-out the property. Additionally, sidewalks within the site should be constructed to allow students to arrive at the building entrance from the street sidewalks. This includes a sidewalk from the parent drop-off zone around the north side of the east parking lot and connecting to Barbados Ave. Additionally, Solare Collegiate should ensure that the sidewalk along Barbados

Ave extends all the way to the north to the intersection of Benavides Rd and Barbados Ave. Bicycle racks should be installed at each entrance to encourage students to ride their bikes to school and give them a secure place for storage. All sidewalks and curb ramps around and within the proposed development should adhere to the guidelines set forth in Chapter 23, Section 3.5, of the COA DPM which describes standards for pedestrian facilities.

AUTOMOBILE AND PEDESTRIAN CONFLICT POINTS

According to Section 7A.03 of the MUTCD:

The frequency of gaps in the traffic stream that are sufficient for student crossing is different at each crossing location. When the delay between the occurrences of adequate gaps becomes excessive, students might become impatient and endanger themselves by attempting to cross the street during an inadequate gap. In these instances, the creation of sufficient gaps needs to be considered to accommodate the crossing demand.

A school zone should be established on Gibson Blvd for Solare Collegiate which includes the S1-1 SCHOOL sign with the supplemental W16-9P AHEAD sign in advance of the school. If the school zone is not desired, the school advance crossing assembly should be installed ahead of the recommended crosswalk on Gibson Blvd.

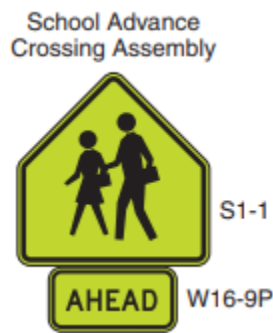


Figure 11: Signage on Gibson Blvd

Additionally, a striped crosswalk with median refuge should be installed across Gibson Blvd at Barbados Ave. The high speed and volume nature of Gibson Blvd presents a potential unsafe crossing for students arriving at the school by walking or riding their bike. Solare Collegiate should not have any students crossing Gibson Blvd without crossing assistance by a trained crossing guard. The crossing guard should be equipped with an appropriate vest and STOP paddle. Section 7D.05 of the MUTCD describes Operating Procedures for Adult Crossing Guards including training and description of the appropriate STOP paddle. An MUTCD School Crossing Assembly should be installed at the crosswalk for eastbound and westbound Gibson Blvd to alert drivers of the crossing (Figure 12).

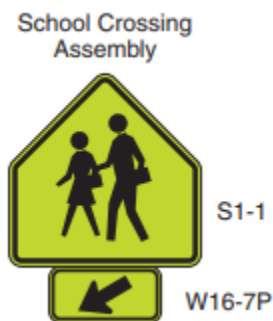


Figure 12: Crossing Signage on Gibson Blvd

Onsite automobile and pedestrian conflict points exist at all three school driveways (bus/cul-de-sac entrance, north parent loop entrance, and south parent loop entrances). Solare Collegiate should install striped sidewalks across all three school driveways. Additional conflict points existing in the east parking lot. If students are dropped off curb-side on Barbados Ave, they will have to navigate through the parking lot and across the parent loop drop off zone. If the school chooses to implement a two-lane drop off area, students on the inside of the loop will have to cross the outside lane of traffic. The school may position a staff member within the parent drop-off zone to ensure students are crossing the loop safely. If the parent loop backs up it will affect traffic conditions on Barbados Ave. Therefore, the staff member should also ensure that parents do not idle, and the loop operates efficiently.

NOISE AND AIR QUALITY

School drop-off and pick-up operations are accompanied by vehicle and bus idling which generates noise and excessive carbon dioxide (CO₂) emissions thereby degrading the air quality. The Environmental Protection Agency (EPA) published the Idle-Free Schools Toolkit. Inspired by idling reduction programs such as the American Lung Association in Colorado's Clean Air at Schools (CASEO) Program, the EPA Clean School Bus Program Idle Reduction Campaign, and The Idle Free Utah Program, the Idle-Free Schools Toolkit, "includes all of the information needed to run an effective idling reduction campaign at a school in order to reduce student exposure to toxic vehicle exhaust."¹ Not only does this program aim to reduce noise and CO₂ emissions, but it also promotes safety as idling noises can affect a student's ability to hear buses and vehicles and promotes health by cleaning the air. Solare Collegiate should review the EPA Idle-Free Schools Toolkit and implement an idling reduction campaign for parents on opening day. The EPA has several recommendations for implementing this campaign including conducting observations, publishing idling policies for the school, talking to drivers when they are in the parent loop, and making it a student project (after opening day).

SITE ACCESS SIGHT DISTANCE EVALUATION

The following presents a narrative detailing recommended intersection sight distance requirements for the development. Intersection sight distance requirements were calculated based on the 2011 AASHTO "Green Book" chapter 9.5. Two sight distance cases were used for this analysis:

- Case B1 – A stopped vehicle turning left from a minor street approach onto a major road.
- Case B2 – A stopped vehicle turning right from a minor street approach onto a major road.

Intersection sight distances were calculated based on the following assumptions:

- Required intersection sight distance for Case B1 at Gibson Blvd was calculated based on the design vehicle crossing two lanes of traffic on a two-lane divided roadway with a left turn lane and a raised median. For this analysis, the design vehicle was chosen as a single-unit truck to represent a school bus. Buses must cross the two westbound Gibson Blvd lane, the eastbound Gibson Blvd left-turn lane, and the 10-foot median.
- Required intersection sight distance for Case B1 at either Barbados Ave driveways was calculated based on the design vehicle crossing a single lane of traffic on the roadway with no median. The design vehicle was chosen as a passenger car.
- Required intersection sight distance for Case B2 at Gibson Blvd was calculated based on the design vehicle crossing into the first lane of the roadway.

¹ (Environmental Protection Agency, 2017)

- Required intersection sight distance for Case B2 at either Barbados Ave driveways was calculated based on the design vehicle crossing into the first lane of the roadway.

Values shown below in Table 10 were rounded up to the nearest 5-foot increment. Formulas, values, and calculations used in the sight distance analysis can be found in Appendix E.

Table 10: Sight Distance Requirements

Case		Speed	Sight Distance
Case B1 – Turning Left	Gibson Blvd	40 MPH	685 Feet
	Barbados Ave	25 MPH	280 Feet
Case B2 – Turning Right	Gibson Blvd	40 MPH	385 Feet
	Barbados Ave	25 MPH	240 Feet

Although currently in the preliminary stages, it is recommended that all development driveways adhere to the sight distance provisions detailed in the AASHTO “Green Book”. An area bounded by the above sight distances with the decision point placed 14.5 feet back from the edge of the shoulder midway between the outbound driving lane should be maintained clear of any obstructions.

ACCESS MANAGEMENT EVALUATION

The COA DPM regulates driveway spacing for all new development projects on COA maintained roadways. In the COA DPM, criteria are given to ensure proper and safe access management for both public and private roadways. The COA DPM requires a 150-foot minimum driveway spacing with desired distance from the cross street of 150-feet for collector streets. Based on the current site plan included in Figure 2, the southern Solare access driveway on Barbados Ave is to be constructed 180-feet (center to center) from Gibson Blvd. The northern Solare access driveway on Barbados Ave is to be constructed 200-feet north (center to center) from the southern driveway, or 380-feet (center to center) from Gibson Blvd.

The COA DPM also describes the minimum distance between the ends of adjacent median openings has 400-feet on minor arterials and principal arterials. The proposed median opening for Solare Collegiate Charter School is approximately 570-feet from the existing median opening at Barbados Ave and therefore satisfies COA DPM requirements. The eastbound left-turn lane at the proposed development should have a minimum lane transition of 300-feet to 150-feet and sufficient to store the turning vehicles and clear the equivalent lane volume of all other traffic on the approach.

SUMMARY OF ANALYSIS AND RECOMMENDATIONS

The following section summarizes the conclusions and recommendations for the proposed Solare Collegiate Charter School development. The school will initially incorporate 8,500 SF of modular building to hold 156 students in the first year, 2019, and undergo four expansions over five years to ultimately incorporate 31,400 SF of classrooms and an assembly building to hold a maximum 416 students in 2023. For this NIA, the existing conditions, 2019 Initial Phase Build Out Conditions, 2023 Background Conditions, and 2023 Final Phase Build Conditions were analyzed using PTV Vistro 5.0 Software. Turning movements were collected for the student intersections which include Gibson Blvd and Unser Blvd, Gibson Blvd and Barbados Ave/Stampede Dr, Gibson Blvd and 98th St (Snow Vista Blvd), Blake Rd and 98th St, 86th S and 98th St (Snow Vista Blvd), Site intersections on Barbados Ave (Vehicle Access), and Site Intersections on Gibson Blvd (Bus Access).

EXISTING CONDITIONS

All of the study intersections except for the intersection of 86th St and 98th St operate at a LOS C or better in both the AM and PM peak hours. The intersection of 86th St and 98th St operates at a LOS D and in the AM peak hours and a LOS C in the PM peak hours. In the AM peak, the lower LOS is due to the northbound approach operating at a LOS E due to a higher volume of vehicles and a v/c of 0.79. Additionally, under existing conditions, no movements exceed the existing storage capacity and the majority of 95th percentile queue lengths are 25-feet or shorter. There are no level of service, capacity, or queueing issues for the 2019 Existing Conditions.

INITIAL PHASE BUILD OUT CONDITIONS 2019

The impact of the traffic generated by the proposed development does not have a significant impact on any of the student intersections of proposed driveway locations. Trips generated by Solare Collegiate Charter School were distributed through the network as determined by 118 student addresses. All of the study intersections except for the intersection of 86th St and 98th St operate at a LOS C or better in both the AM and PM peak hours. The intersection of 86th St and 98th St operates at a LOS D and in the AM peak hour and a LOS C in the PM peak hour. Additionally, under existing conditions, no movements exceed the existing storage capacity and the majority of 95th percentile queue lengths are 25-feet or shorter. There are no level of service, capacity, or queueing issues for the 2019 Initial Phase Build Out Conditions.

BACKGROUND CONDITIONS 2023

For the Background 2023 Conditions, a 1% average annual growth rate was applied to all turning movements at all study intersections. Additionally, the COA Municipal Development Projects identified new traffic signals at 98th St and Gibson Blvd and 98th St and Blake Rd in 2022. These two traffic signals were incorporated in both 2023 analyses. Also trips from the Los Diamantes development on the southwest corner of Gibson Blvd and 98th St were generated and distributed within the study area. All signals were optimized, including cycle length and phase splits, for the 2023 analysis scenarios including north-south coordination for Gibson Blvd at 98th St and Blake Rd. All of the study intersections except for the intersection of 86th St and 98th St operate at a LOS C or better in both the AM and PM peak hours. The intersection of 86th St and 98th St drops to a LOS E and in the AM peak hour and maintains a LOS C in the PM peak hour. PTV Vistro has a built-in signal warrant analysis feature which considers Warrant 1: Eight Hour Vehicular Volume, Warrant 2: Four Hour Vehicular Volume, and Warrant 3: Peak Hour. Using the software analysis tool, the intersection of 98th St and 86th St meets all three warrants in the AM peak hour and should be considered for signalization in the future. Under existing conditions, no movements exceed the existing storage capacity and the majority of 95th percentile queue lengths are 25-feet or shorter. For the Background 2023 Conditions, the only level of service and capacity issues exist at the intersection of 86th St and 98th St.

FINAL PHASE BUILD OUT CONDITIONS 2023

For the Final Phase Build Out 2023 Conditions, the trips generated by Solare Collegiate Charter School were applied to the Background 2023 Conditions. These trips did not have a significant impact on traffic operations at any of the study intersections. All of the study intersections except for the intersection of 86th St and 98th St operate at a LOS C or better in both the AM and PM peak hours. The intersection of 86th St and 98th St drops to a LOS E and in the AM peak hour and maintains a LOS C in the PM peak hour. Again, using the software analysis tool, the intersection of 98th St and 86th St meets all three warrants in the AM peak hour and should be considered for signalization in the future. Under existing conditions, no movements exceed the existing storage capacity and the majority of 95th percentile queue lengths. For the Final Phase Build Out 2023 Conditions, the only level of service and capacity issues exist at the intersection of 86th St and 98th St. However, these diminished operations are not attributed to Solare Collegiate Charter School.

SITE EVALUATION

The site evaluation included an on-site circulation and access analysis, a pedestrian and bicycle circulation route analysis, automobile and pedestrian conflict points, a noise and air quality analysis, and a site access sight distance evaluation. For the on-site circulation and access analysis, it is recommended that all vehicles enter the north driveway, circulate counterclockwise, and exit the southern driveway. The drop off zone is to be located on the eastern side of the school. Having one-way circulation for the eastern parking lot, at least along the loading zone area, will allow the school to develop double drop-off/loading lanes (if needed) with the goal of having the pick-up area as far south as possible in the student loading zone to maximize on-site vehicle storage. The southern driveway is recommended to be used for out-only traffic with one lane for left turns and one lane for right turns onto Barbados Ave. Figure 10 in this report shows a schematic of recommended operations including potential cone and staff member placement.

There should be sidewalks constructed along Gibson Blvd and along Barbados Ave. The sidewalk along Barbados Ave should extend all the way to the intersection of Benavides Rd and Barbados Ave. Within the property, ADA standard pedestrian ramps, sidewalks, and striped pedestrian crossings should allow students to walk from Barbados Ave or Gibson Blvd uninterrupted. Automobile and pedestrian conflict points exist around and within the proposed development. Around the development, a crosswalk should be implemented across Gibson Blvd at Barbados Ave which includes crosswalk striping, a school advance crossing sign assembly, and a school crossing assembly. Additionally, a trained crossing guard equipped with a safety vest and STOP paddle should help students cross Gibson Blvd. Onsite automobile and pedestrian conflict points exist at all three school driveways (bus/cul-de-sac entrance, north parent loop entrance, and south parent loop entrances). Solare Collegiate Charter School should install striped sidewalks walks across all three school driveways. Additional conflict points existing in the east parking lot. A staff member should be present during drop-off/pick-up operations to help students safely cross the lines of queued vehicles if double stacking is implemented.

The EPA has published an Idle-Free Schools Toolkit which includes all of the information needed to run an effective idling reduction campaign at a school in order to reduce student exposure to toxic vehicle exhaust and noise. Solare Collegiate Charter School should review this Toolkit and implement a campaign based on any of the recommendations provided by the EPA. The sight distance at the three access points is dictated by the AASHTO Green Book. The sight distances calculated and stated in this report should be maintained clear of any obstructions.

RECOMMENDATIONS

The following is a list of the recommendations for the study intersections and onsite for the proposed Solare Collegiate Charter School:

- The intersection of 98th St and 86th St should be considered for signalization simultaneously with the two identified signals at 98th St and Gibson Blvd, and 98th St and Blake Rd, which are to be constructed in 2022.
- The parent loop located within the east parking lot should operate counterclockwise with a one-way entrance at the north driveway on Barbados Ave and a two-lane one-way exit at the south driveway on Barbados Ave. This would allow for two-lane stacking along the drop off zone on the east side of the school. The two-lane one-way exit should be striped for a left-turn only lane and a right-turn only lane.
- There should be sidewalks constructed along Gibson Blvd and along Barbados Ave. The sidewalk along Barbados Ave should extend all the way to the intersection of Benavides Rd and Barbados Ave.
- Within the property, ADA standard pedestrian ramps, sidewalks, and striped pedestrian crossings should allow students to walk from Barbados Ave or Gibson Blvd uninterrupted.

- A crosswalk should be implemented across Gibson Blvd at Barbados Ave which includes crosswalk striping, a school advance crossing sign assembly, and a school crossing assembly. A trained crossing guard should be stationed at this crossing to foster a safe crossing of Gibson Blvd.
- Striped crosswalks should be installed across all three access driveways and on sight where students have to cross circulation driveways or parking lots.
- A staff member should be present during drop-off/pick-up operations to help students safely cross the lines of queued vehicles if double stacking is implemented.
- Solare Collegiate Charter School should review the EPA Idle-Free Schools Toolkit and implement a campaign to minimize vehicle and bus idling in order to reduce student exposure to toxic vehicle exhaust and noise.
- The sight distance specified within this report should be free of any obstructions.
- The proposed median on Gibson Blvd meets COA DPM specifications. The eastbound left-turn lane should be long enough to accommodate future traffic and meet COA DPM standards.
- All construction including driveways, curb ramps, and sidewalks should adhere to current COA standards as outlined in the DPM.

Appendix A: Scoping Meeting Notes

Agenda for Solare Collegiate School NIA Scoping Meeting February 15, 2019

Attendees:

Ernest Armijo – CABQ

Paul Barricklow – Lee Engineering

Antonio Vigil – Mullen Heller Architecture

Racquel Michel – CABQ

Chris Sobie – Lee Engineering

1. Introductions
2. Review of Site Plan
 - a. Barbados Ave
 - i. There are two driveways on Barbados Ave which will both operate as full movement access.
 - b. Gibson Blvd
 - i. There are two driveways on Gibson Blvd. The driveway to the east will be for the bus loop and be a one-way ingress movement accessible to westbound Gibson Blvd. The driveway to the west will be a full access driveway including a new median opening on Gibson Blvd to allow access for eastbound vehicles.
3. Discussion of Scope for NIA
 - a. Study Intersections
 - i. Gibson Blvd and Unser Blvd
 - ii. Gibson Blvd and Barbados Ave/Stampede Dr
 - iii. Gibson Blvd and Snow Vista Blvd (98th St)
 - iv. Blake Rd and 98th St
 - v. 86th S and Snow Vista Blvd (98th St)
 - vi. Site Intersections on Gibson Blvd
 - vii. Site intersections on Barbados Ave
 - b. Data Collection
 - i. Gibson Blvd and Unser Blvd
 - ii. Gibson Blvd and Barbados Ave/Stampede Dr
 - iii. Gibson Blvd and Snow Vista Blvd (98th St)
 - iv. Blake Rd and 98th St
 - v. 86th S and Snow Vista Blvd (98th St)
 - c. Trip Generation, Pass By, & Internal Capture
 - i. Trip Generation Manual (10th Edition) Land Use
 - Private School K-8 (ITE 534) – ~~314~~ 416 Students

Use	Units		TRIP GENERATION						PEAK HOUR TRIPS			
			AM Peak			PM Peak			AM Peak		PM Peak	
			Rate	Enter	Exit	Rate	Enter	Exit	In	Out	In	Out
Private School K-8 (ITE 534)	416	Students	0.93	56%	44%	0.62	47%	53%	217	171	122	137

- The peak hour trips shown in the table are for the peak hour of the generator.

- ii. No pass-by trips
 - iii. No Internal Capture
- b. Known Developments or Pending Improvements in Area:
 - i. None currently known
 - Investigation of CABQ DMD Municipal Development Projects showed the following:
 - o New traffic signal at 98th St and Gibson Blvd in 2022
 - o New traffic signal at 98th St and Blake Rd in 2022
 - Los Diamonts – Residential housing development located on southwest lot of 98th St and Gibson Blvd.
 - o TIA completed by Goodwin Engineers. Hiram will provide study to Lee Engineering
 - o Count Empty lots and trip gen as partially built
- c. Build-out Year and Growth Rate
 - i. Build-Out Year (2023)
 - Will look at MRCOG Model Projections and calculate growth rate (if any), otherwise will assume 1% growth per year.
 - o Either one acceptable
 - i. CABQ said to use 1% annual growth rate
- b. Analysis scenarios
 - i. Initial Phase Existing (No Build)
 - ii. Initial Phase Build Out
 - iii. Final Phase 2023 Background (No Build)
 - iv. Final Phase 2023 Built Out
- c. Required Analysis & Methodology
 - i. LOS Capacity analysis based on HCM 6th Edition (Vistro)
 - ii. 95th Percentile Queue demands (Vistro)
 - iii. Auxiliary Lane Analysis
 - iv. Sight Distance Analysis at Proposed Driveways
 - ~~v. No Safety Analysis~~ No crash analysis required
- d. Neighborhood Impact ~~Analysis~~ Assessment Components
 - i. On-site Circulation and Access Analysis
 - ii. Access Management Analysis
 - Compliance with ~~SAMM~~-DPM (Chapter 7)
 - ii. Pedestrian and Bicycle Circulation Routes
 - Analyze the impact from Solare Collegiate School on pedestrian and bicycle circulation routes
 - iii. Automobile and Pedestrian Conflict Points
 - iv. Noise and Air Quality
 - Analyze the impacts from stacking and idling.

- o Applicant must email environmental health with loading plan and distance from homes in the area. The email should include:
 - i. Description
 - ii. Reference NIA
 - o Raquel will provide Lee Engineering with Environmental Health Email address
 - v. “analyze...any other potential impacts as determined by the Planning Director, City Engineer, or designees at the scoping meeting”
 - None
 - vi. Add small paragraph section about transit in the area and if Solare Charter School will be connecting
- 2. Agency Input (Comments & Issues)
 - Trip Gen
 - i. School Recruiting
 - Mostly form area
 - Middle school
 - K-8 south of Dennis Chavez
 - 3 Mile radius – gravity model
 - Mullen Heller to provide materials with demographics
 - Mullen to let Lee Engineering know of development use on westside of property
 - Beginning of report should include
 - i. Executive summary
 - ii. Recommendations
 - The City requires 1 paper copy, 1 digital copy to Ernest.
 - Fill out CABQ application form (Drainage and Transportation Form)
- 3. Meeting Notes (distributed by Lee Engineering)

Appendix B:

Turning Movement Counts

Appendix B:
Turning Movement Counts
Unser Blvd and Gibson Blvd



Lee Engineering, LLC
Phoenix, Arizona - Dallas, Texas
Oklahoma City, Oklahoma - San Antonio, Texas
Albuquerque, New Mexico, United States
jkruse@lee-eng.com

Count Name: NM273.01 - Solare Collegiate NIA
Site Code: Gibson & Unser
Start Date: 02/28/2019
Page No: 1

Turning Movement Data

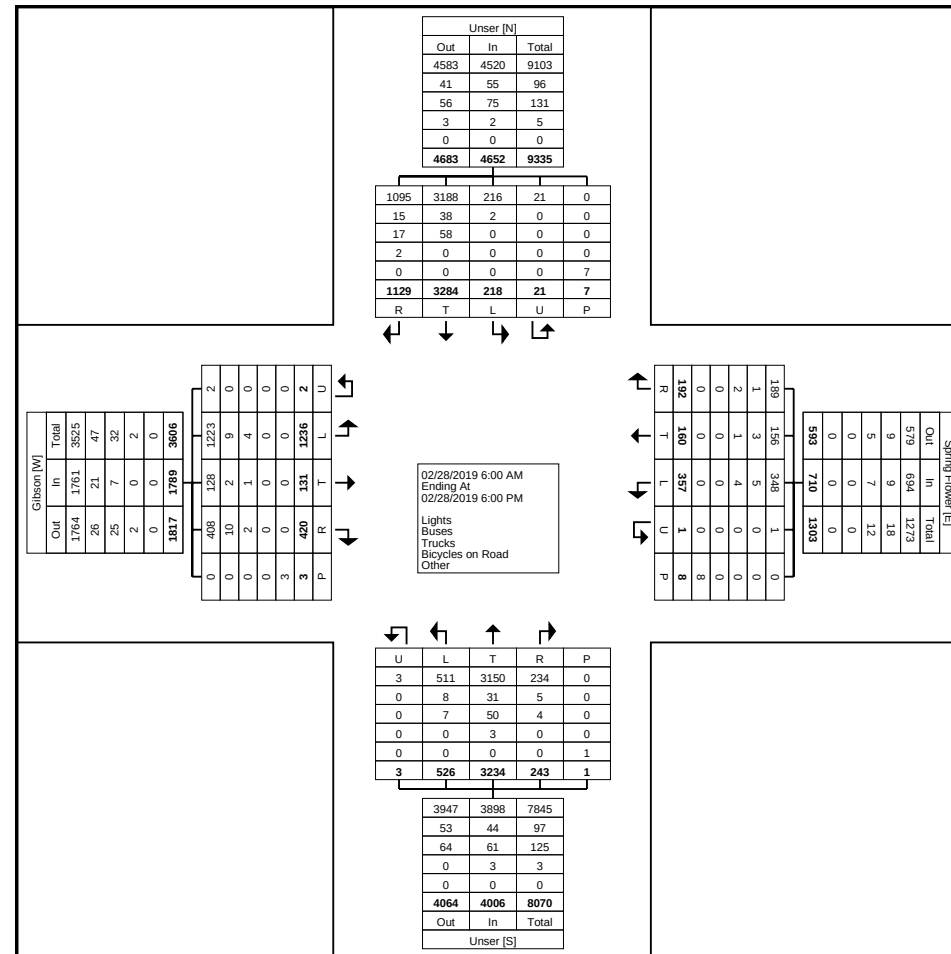
Start Time	Unser Southbound						Spring Flower Westbound						Unser Northbound						Gibson Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
6:00 AM	6	41	1	0	0	48	4	3	7	0	0	14	1	60	3	0	0	64	10	1	35	0	0	46	172
6:15 AM	5	55	3	0	0	63	7	4	10	0	0	21	5	78	10	0	0	93	5	1	46	0	0	52	229
6:30 AM	6	85	2	0	0	93	6	4	19	0	0	29	2	101	9	0	0	112	17	3	55	0	0	75	309
6:45 AM	16	116	1	0	0	133	11	7	9	0	0	27	6	120	8	0	0	134	14	3	64	0	0	81	375
Hourly Total	33	297	7	0	0	337	28	18	45	0	0	91	14	359	30	0	0	403	46	8	200	0	0	254	1085
7:00 AM	34	130	1	0	0	165	15	3	22	0	0	40	6	135	6	0	0	147	14	2	92	0	0	108	460
7:15 AM	12	94	10	0	0	116	19	9	16	0	0	44	6	162	16	0	0	184	16	5	91	0	0	112	456
7:30 AM	18	96	5	0	1	119	8	14	15	0	0	37	3	126	24	0	0	153	20	8	102	0	0	130	439
7:45 AM	23	159	11	1	0	194	7	8	10	0	1	25	7	113	11	0	0	131	13	4	51	0	0	68	418
Hourly Total	87	479	27	1	1	594	49	34	63	0	1	146	22	536	57	0	0	615	63	19	336	0	0	418	1773
8:00 AM	20	114	9	0	0	143	5	4	20	0	1	29	4	87	15	0	0	106	18	5	42	0	0	65	343
8:15 AM	20	92	5	1	0	118	4	2	11	0	1	17	3	85	12	0	0	100	9	4	38	0	0	51	286
8:30 AM	16	105	5	0	0	126	11	3	8	0	0	22	5	85	7	1	0	98	7	1	43	0	0	51	297
8:45 AM	11	66	1	0	0	78	2	3	4	0	0	9	9	88	9	0	0	106	12	3	33	0	1	48	241
Hourly Total	67	377	20	1	0	465	22	12	43	0	2	77	21	345	43	1	0	410	46	13	156	0	1	215	1167
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	16	64	3	1	0	84	1	1	10	1	1	13	6	54	7	0	0	67	8	2	21	0	0	31	195
11:15 AM	21	50	2	1	0	74	1	4	7	0	0	12	5	55	12	0	0	72	4	1	20	0	0	25	183
11:30 AM	22	55	4	1	0	82	2	0	5	0	0	7	5	54	4	0	0	63	8	4	19	0	0	31	183
11:45 AM	20	75	3	0	0	98	1	3	10	0	0	14	9	58	10	0	0	77	6	0	24	0	0	30	219
Hourly Total	79	244	12	3	0	338	5	8	32	1	1	46	25	221	33	0	0	279	26	7	84	0	0	117	780
12:00 PM	21	49	4	1	0	75	3	0	3	0	0	6	9	64	7	0	0	80	13	3	17	0	0	33	194
12:15 PM	22	66	3	0	0	91	5	0	6	0	0	11	4	68	10	0	0	82	6	3	22	0	0	31	215
12:30 PM	28	68	2	0	0	98	7	4	9	0	0	20	6	64	14	0	0	84	15	1	23	0	0	39	241
12:45 PM	30	79	2	0	0	111	3	2	3	0	0	8	8	56	6	0	0	70	8	0	15	0	0	23	212
Hourly Total	101	262	11	1	0	375	18	6	21	0	0	45	27	252	37	0	0	316	42	7	77	0	0	126	862
1:00 PM	22	56	4	1	0	83	2	3	7	0	0	12	5	64	8	0	0	77	9	2	19	0	1	30	202
1:15 PM	20	56	4	0	0	80	1	2	4	0	0	7	4	75	9	0	0	88	9	5	21	0	0	35	210
1:30 PM	27	68	4	2	0	101	7	4	16	0	0	27	4	61	18	1	0	84	8	2	12	0	0	22	234
1:45 PM	34	77	9	0	0	120	2	5	8	0	2	15	9	70	17	0	0	96	9	3	15	0	0	27	258
Hourly Total	103	257	21	3	0	384	12	14	35	0	2	61	22	270	52	1	0	345	35	12	67	0	1	114	904
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	29	108	7	2	0	146	4	9	6	0	0	19	0	115	17	0	0	132	16	9	27	0	0	52	349
3:15 PM	47	112	16	0	3	175	5	5	11	0	0	21	1	90	24	0	0	115	9	7	17	0	1	33	344
3:30 PM	56	130	4	5	0	195	5	4	8	0	0	17	5	106	24	0	0	135	19	4	18	1	0	42	389
3:45 PM	51	111	14	1	0	177	5	3	10	0	0	18	7	114	20	0	0	141	6	7	33	1	0	47	383
Hourly Total	183	461	41	8	3	693	19	21	35	0	0	75	13	425	85	0	0	523	50	27	95	2	1	174	1465

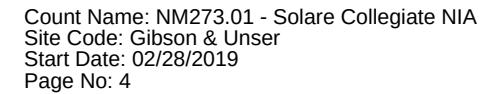
4:00 PM	51	97	14	0	0	162	1	6	9	0	0	16	9	139	14	0	0	162	11	3	25	0	0	39	379
4:15 PM	50	98	12	0	0	160	6	6	9	0	0	21	16	122	24	0	0	162	11	4	27	0	0	42	385
4:30 PM	56	132	7	1	0	196	7	4	11	0	0	22	11	97	24	0	0	132	11	7	28	0	0	46	396
4:45 PM	63	116	9	1	0	189	4	9	7	0	0	20	13	111	28	0	0	152	22	3	24	0	0	49	410
Hourly Total	220	443	42	2	0	707	18	25	36	0	0	79	49	469	90	0	0	608	55	17	104	0	0	176	1570
5:00 PM	74	110	8	2	1	194	4	7	15	0	2	26	11	99	41	0	1	151	7	7	30	0	0	44	415
5:15 PM	62	110	8	0	0	180	2	8	13	0	0	23	12	78	17	0	0	107	12	3	35	0	0	50	360
5:30 PM	53	114	10	0	0	177	5	3	11	0	0	19	13	98	19	0	0	130	23	5	21	0	0	49	375
5:45 PM	67	130	11	0	2	208	10	4	8	0	0	22	14	82	22	1	0	119	15	6	31	0	0	52	401
Hourly Total	256	464	37	2	3	759	21	22	47	0	2	90	50	357	99	1	1	507	57	21	117	0	0	195	1551
Grand Total	1129	3284	218	21	7	4652	192	160	357	1	8	710	243	3234	526	3	1	4006	420	131	1236	2	3	1789	11157
Approach %	24.3	70.6	4.7	0.5	-	-	27.0	22.5	50.3	0.1	-	-	6.1	80.7	13.1	0.1	-	-	23.5	7.3	69.1	0.1	-	-	-
Total %	10.1	29.4	2.0	0.2	-	41.7	1.7	1.4	3.2	0.0	-	6.4	2.2	29.0	4.7	0.0	-	35.9	3.8	1.2	11.1	0.0	-	16.0	-
Lights	1095	3188	216	21	-	4520	189	156	348	1	-	694	234	3150	511	3	-	3898	408	128	1223	2	-	1761	10873
% Lights	97.0	97.1	99.1	100.0	-	97.2	98.4	97.5	97.5	100.0	-	97.7	96.3	97.4	97.1	100.0	-	97.3	97.1	97.7	98.9	100.0	-	98.4	97.5
Buses	15	38	2	0	-	55	1	3	5	0	-	9	5	31	8	0	-	44	10	2	9	0	-	21	129
% Buses	1.3	1.2	0.9	0.0	-	1.2	0.5	1.9	1.4	0.0	-	1.3	2.1	1.0	1.5	0.0	-	1.1	2.4	1.5	0.7	0.0	-	1.2	1.2
Trucks	17	58	0	0	-	75	2	1	4	0	-	7	4	50	7	0	-	61	2	1	4	0	-	7	150
% Trucks	1.5	1.8	0.0	0.0	-	1.6	1.0	0.6	1.1	0.0	-	1.0	1.6	1.5	1.3	0.0	-	1.5	0.5	0.8	0.3	0.0	-	0.4	1.3
Bicycles on Road	2	0	0	0	-	2	0	0	0	0	-	0	0	3	0	0	-	3	0	0	0	0	-	0	5
% Bicycles on Road	0.2	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.1	0.0	0.0	-	0.1	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	25.0	-	-	-	-	-	100.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	7	-	-	-	-	-	6	-	-	-	-	-	0	-	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	75.0	-	-	-	-	-	0.0	-	-	-	-	-	100.0	-	-



Lee Engineering, LLC
Phoenix, Arizona - Dallas, Texas
Oklahoma City, Oklahoma - San Antonio, Texas
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jkruse@lee-eng.com

Count Name: NM273.01 - Solare Collegiate NIA
Site Code: Gibson & Unser
Start Date: 02/28/2019
Page No: 3

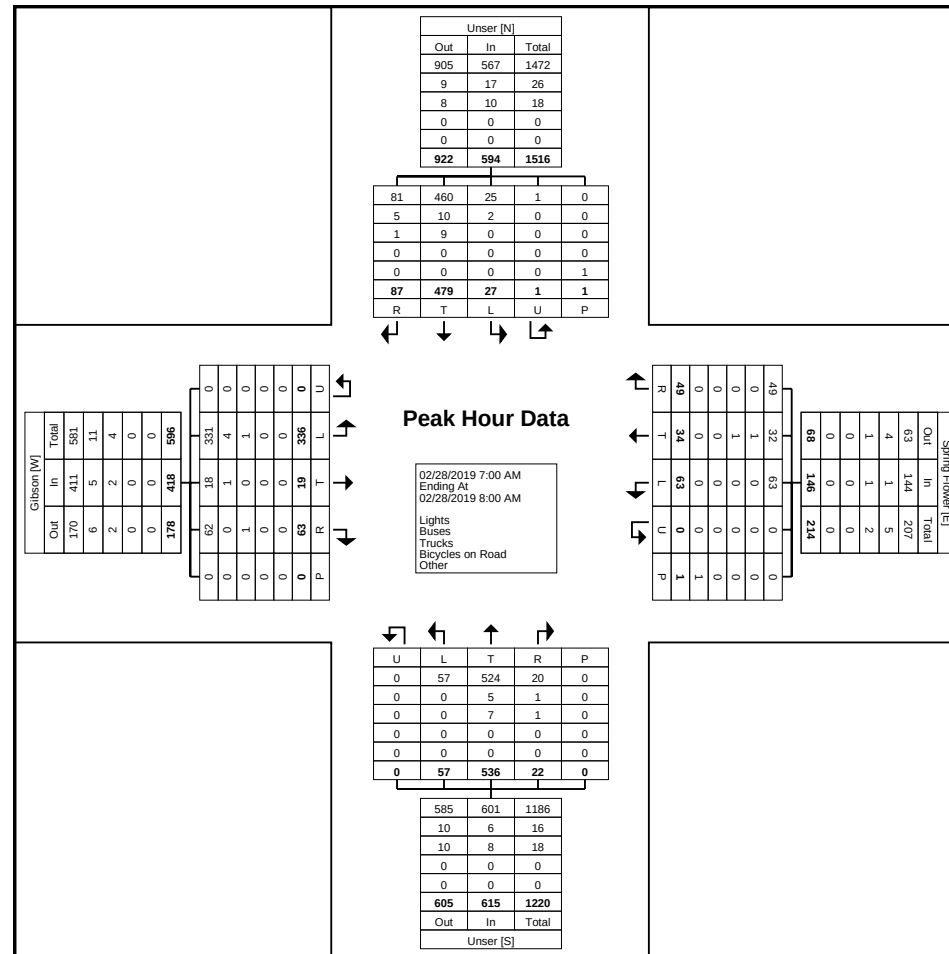






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Count Name: NM273.01 - Solare Collegiate NIA
Site Code: Gibson & Unser
Start Date: 02/28/2019
Page No: 5



Turning Movement Peak Hour Data Plot (7:00 AM)



Lee Engineering, LLC
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Oklahoma City, Oklahoma - San Antonio, Texas
Albuquerque, New Mexico, United States
jkruse@lee-eng.com

Count Name: NM273.01 - Solare Collegiate NIA
Site Code: Gibson & Unser
Start Date: 02/28/2019
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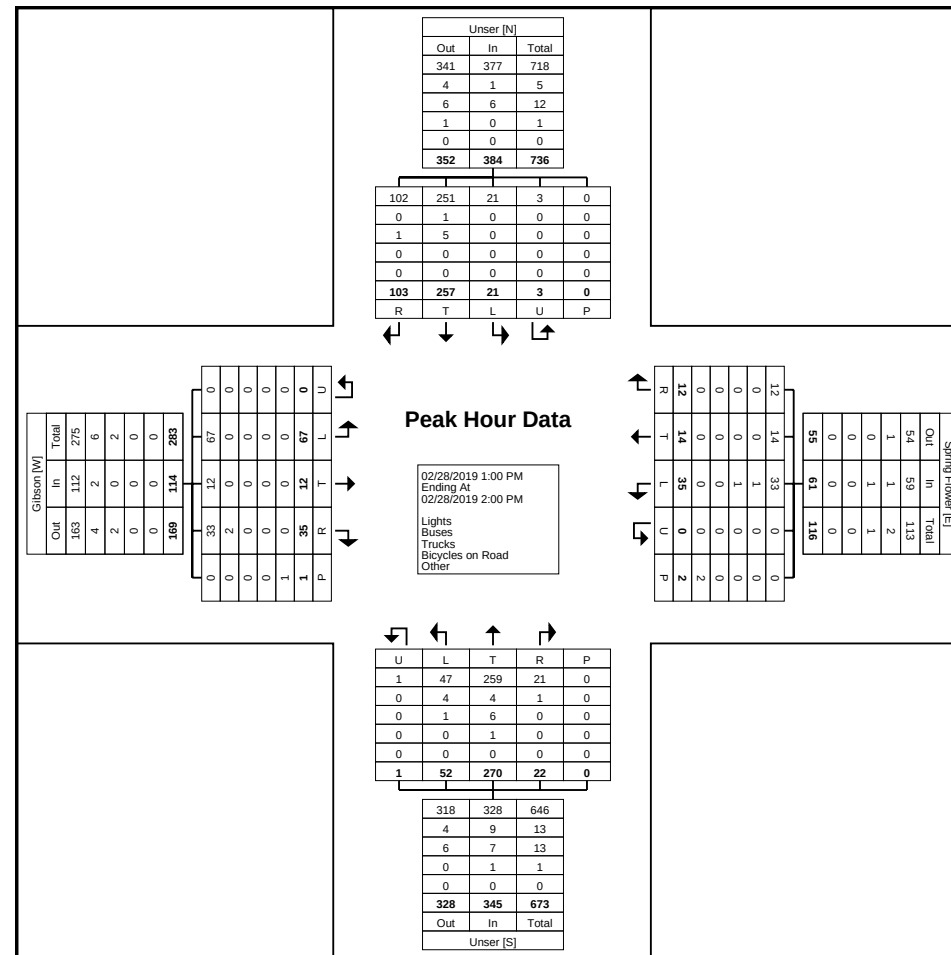
Turning Movement Peak Hour Data (1:00 PM)

Start Time	Unser Southbound						Spring Flower Westbound						Unser Northbound						Gibson Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
1:00 PM	22	56	4	1	0	83	2	3	7	0	0	12	5	64	8	0	0	77	9	2	19	0	1	30	202
1:15 PM	20	56	4	0	0	80	1	2	4	0	0	7	4	75	9	0	0	88	9	5	21	0	0	35	210
1:30 PM	27	68	4	2	0	101	7	4	16	0	0	27	4	61	18	1	0	84	8	2	12	0	0	22	234
1:45 PM	34	77	9	0	0	120	2	5	8	0	2	15	9	70	17	0	0	96	9	3	15	0	0	27	258
Total	103	257	21	3	0	384	12	14	35	0	2	61	22	270	52	1	0	345	35	12	67	0	1	114	904
Approach %	26.8	66.9	5.5	0.8	-	-	19.7	23.0	57.4	0.0	-	-	6.4	78.3	15.1	0.3	-	-	30.7	10.5	58.8	0.0	-	-	-
Total %	11.4	28.4	2.3	0.3	-	42.5	1.3	1.5	3.9	0.0	-	6.7	2.4	29.9	5.8	0.1	-	38.2	3.9	1.3	7.4	0.0	-	12.6	-
PHF	0.757	0.834	0.583	0.375	-	0.800	0.429	0.700	0.547	0.000	-	0.565	0.611	0.900	0.722	0.250	-	0.898	0.972	0.600	0.798	0.000	-	0.814	0.876
Lights	102	251	21	3	-	377	12	14	33	0	-	59	21	259	47	1	-	328	33	12	67	0	-	112	876
% Lights	99.0	97.7	100.0	100.0	-	98.2	100.0	100.0	94.3	-	-	96.7	95.5	95.9	90.4	100.0	-	95.1	94.3	100.0	100.0	-	-	98.2	96.9
Buses	0	1	0	0	-	1	0	0	1	0	-	1	1	4	4	0	-	9	2	0	0	0	-	2	13
% Buses	0.0	0.4	0.0	0.0	-	0.3	0.0	0.0	2.9	-	-	1.6	4.5	1.5	7.7	0.0	-	2.6	5.7	0.0	0.0	-	-	1.8	1.4
Trucks	1	5	0	0	-	6	0	0	1	0	-	1	0	6	1	0	-	7	0	0	0	0	-	0	14
% Trucks	1.0	1.9	0.0	0.0	-	1.6	0.0	0.0	2.9	-	-	1.6	0.0	2.2	1.9	0.0	-	2.0	0.0	0.0	0.0	-	-	0.0	1.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.4	0.0	0.0	-	0.3	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



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Turning Movement Peak Hour Data Plot (1:00 PM)



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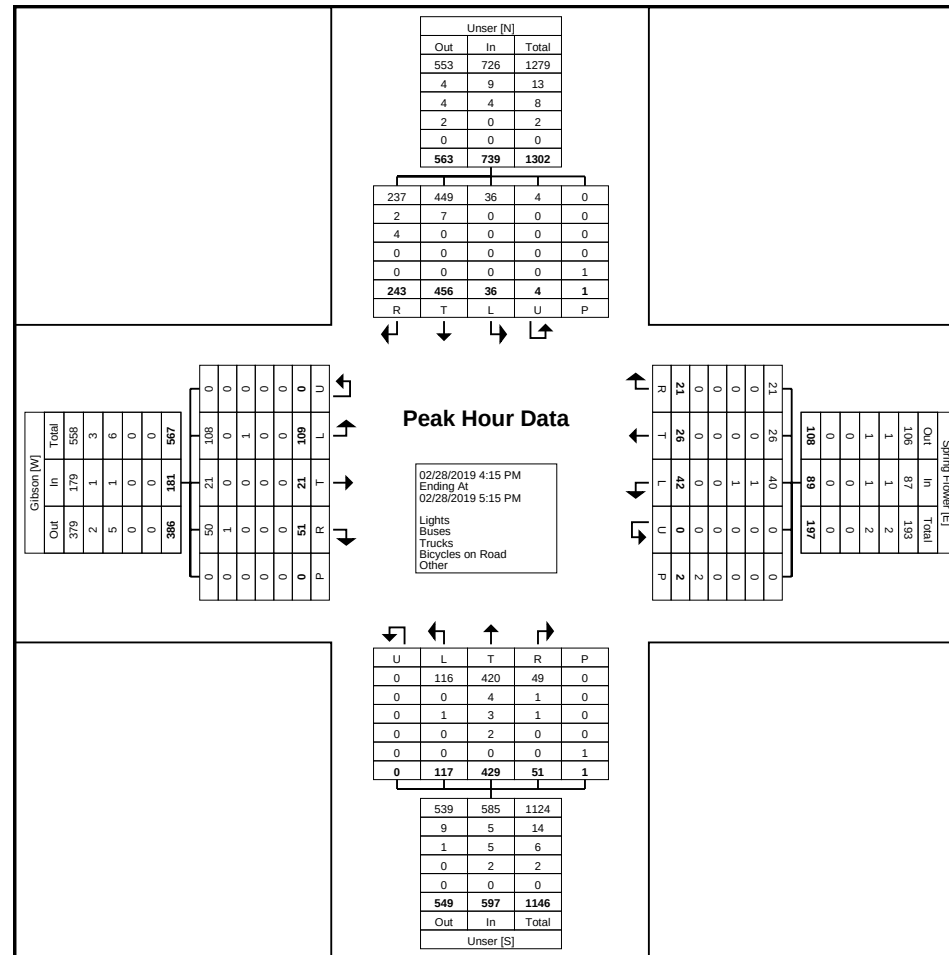
Turning Movement Peak Hour Data (4:15 PM)

Start Time	Unser Southbound						Spring Flower Westbound						Unser Northbound						Gibson Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
4:15 PM	50	98	12	0	0	160	6	6	9	0	0	21	16	122	24	0	0	162	11	4	27	0	0	42	385
4:30 PM	56	132	7	1	0	196	7	4	11	0	0	22	11	97	24	0	0	132	11	7	28	0	0	46	396
4:45 PM	63	116	9	1	0	189	4	9	7	0	0	20	13	111	28	0	0	152	22	3	24	0	0	49	410
5:00 PM	74	110	8	2	1	194	4	7	15	0	2	26	11	99	41	0	1	151	7	7	30	0	0	44	415
Total	243	456	36	4	1	739	21	26	42	0	2	89	51	429	117	0	1	597	51	21	109	0	0	181	1606
Approach %	32.9	61.7	4.9	0.5	-	-	23.6	29.2	47.2	0.0	-	-	8.5	71.9	19.6	0.0	-	-	28.2	11.6	60.2	0.0	-	-	-
Total %	15.1	28.4	2.2	0.2	-	46.0	1.3	1.6	2.6	0.0	-	5.5	3.2	26.7	7.3	0.0	-	37.2	3.2	1.3	6.8	0.0	-	11.3	-
PHF	0.821	0.864	0.750	0.500	-	0.943	0.750	0.722	0.700	0.000	-	0.856	0.797	0.879	0.713	0.000	-	0.921	0.580	0.750	0.908	0.000	-	0.923	0.967
Lights	237	449	36	4	-	726	21	26	40	0	-	87	49	420	116	0	-	585	50	21	108	0	-	179	1577
% Lights	97.5	98.5	100.0	100.0	-	98.2	100.0	100.0	95.2	-	-	97.8	96.1	97.9	99.1	-	-	98.0	98.0	100.0	99.1	-	-	98.9	98.2
Buses	2	7	0	0	-	9	0	0	1	0	-	1	1	4	0	0	-	5	1	0	0	0	-	1	16
% Buses	0.8	1.5	0.0	0.0	-	1.2	0.0	0.0	2.4	-	-	1.1	2.0	0.9	0.0	-	-	0.8	2.0	0.0	0.0	-	-	0.6	1.0
Trucks	4	0	0	0	-	4	0	0	1	0	-	1	1	3	1	0	-	5	0	0	1	0	-	1	11
% Trucks	1.6	0.0	0.0	0.0	-	0.5	0.0	0.0	2.4	-	-	1.1	2.0	0.7	0.9	-	-	0.8	0.0	0.0	0.9	-	-	0.6	0.7
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	0	0	0	0	-	0	2
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.5	0.0	-	-	0.3	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-



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Appendix B:
Turning Movement Counts
Gibson Blvd and Barbados Ave



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Turning Movement Data

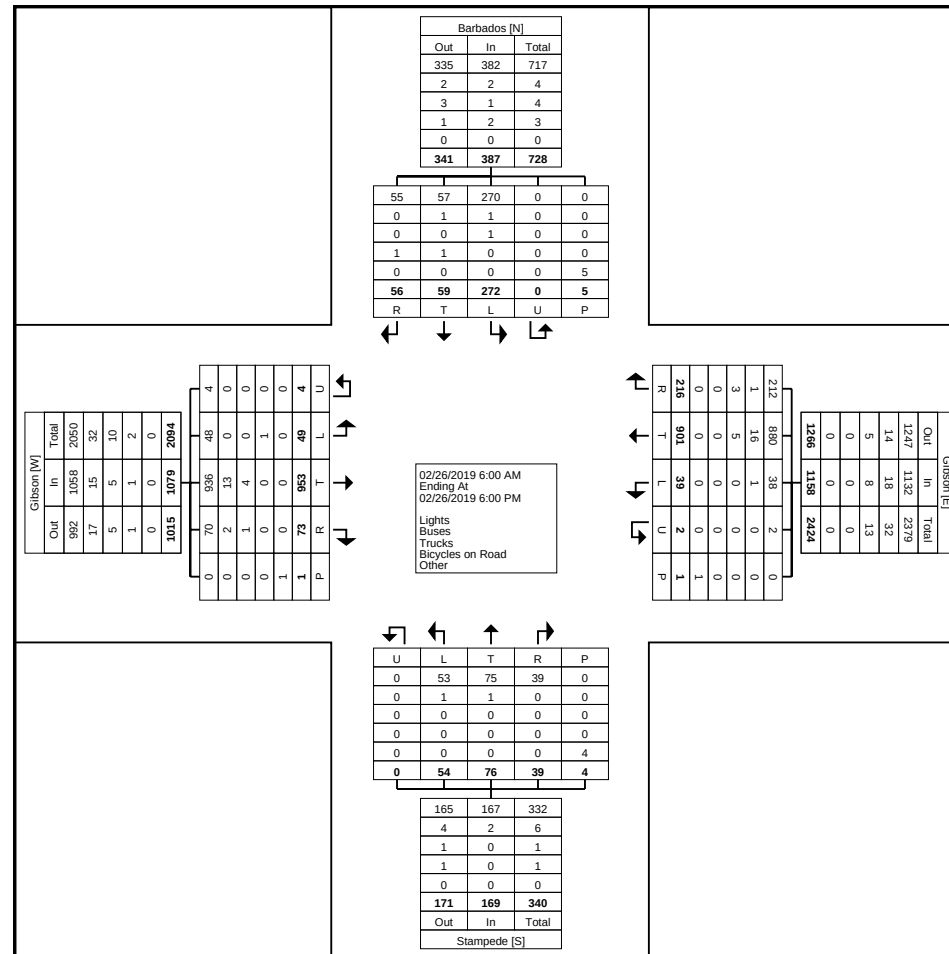
Start Time	Barbados Southbound						Gibson Westbound						Stampede Northbound						Gibson Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
6:00 AM	1	1	4	0	0	6	2	4	0	0	0	6	0	2	1	0	0	3	1	15	0	0	0	16	31
6:15 AM	2	0	8	0	0	10	1	11	0	0	0	12	1	0	2	0	0	3	1	22	0	0	0	23	48
6:30 AM	1	1	10	0	0	12	6	21	0	0	0	27	1	3	2	0	0	6	0	34	1	0	0	35	80
6:45 AM	2	0	11	0	0	13	6	25	1	0	0	32	0	1	3	0	0	4	3	40	0	0	0	43	92
Hourly Total	6	2	33	0	0	41	15	61	1	0	0	77	2	6	8	0	0	16	5	111	1	0	0	117	251
7:00 AM	4	0	6	0	0	10	1	30	0	0	1	31	1	4	1	0	0	6	0	60	1	0	0	61	108
7:15 AM	0	5	14	0	0	19	3	21	1	0	0	25	1	6	0	0	0	7	1	56	2	0	0	59	110
7:30 AM	2	2	15	0	0	19	2	19	0	0	0	21	3	3	5	0	1	11	0	62	4	1	0	67	118
7:45 AM	0	3	11	0	0	14	4	26	2	0	0	32	1	5	2	0	0	8	3	45	1	1	0	50	104
Hourly Total	6	10	46	0	0	62	10	96	3	0	1	109	6	18	8	0	1	32	4	223	8	2	0	237	440
8:00 AM	4	1	13	0	0	18	6	27	2	0	0	35	0	8	0	0	0	8	0	38	0	0	0	38	99
8:15 AM	1	1	6	0	0	8	4	13	0	0	0	17	0	3	3	0	0	6	0	15	0	0	0	15	46
8:30 AM	3	0	10	0	0	13	2	19	0	0	0	21	0	1	2	0	0	3	1	38	3	0	0	42	79
8:45 AM	0	1	8	0	0	9	4	12	1	0	0	17	0	2	1	0	1	3	2	23	2	0	0	27	56
Hourly Total	8	3	37	0	0	48	16	71	3	0	0	90	0	14	6	0	1	20	3	114	5	0	0	122	280
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	1	2	6	0	0	9	3	19	1	0	0	23	2	3	0	0	0	5	2	9	0	0	0	11	48
11:15 AM	0	1	5	0	0	6	7	13	1	0	0	21	2	0	0	0	0	2	2	16	1	0	0	19	48
11:30 AM	3	1	2	0	0	6	3	14	1	0	0	18	0	1	1	0	0	2	2	12	1	0	0	15	41
11:45 AM	1	0	8	0	0	9	5	10	0	0	0	15	1	0	2	0	0	3	3	16	1	0	0	20	47
Hourly Total	5	4	21	0	0	30	18	56	3	0	0	77	5	4	3	0	0	12	9	53	3	0	0	65	184
12:00 PM	0	0	4	0	0	4	1	18	1	0	0	20	0	0	0	0	1	0	0	12	1	0	1	13	37
12:15 PM	0	1	8	0	0	9	4	18	1	0	0	23	2	1	1	0	0	4	1	18	1	0	0	20	56
12:30 PM	0	2	1	0	0	3	6	23	1	0	0	30	2	1	2	0	0	5	0	18	1	0	0	19	57
12:45 PM	3	1	4	0	1	8	3	16	1	0	0	20	0	0	0	0	0	0	1	20	2	0	0	23	51
Hourly Total	3	4	17	0	1	24	14	75	4	0	0	93	4	2	3	0	1	9	2	68	5	0	1	75	201
1:00 PM	1	0	5	0	0	6	10	27	1	0	0	38	2	3	1	0	0	6	3	22	3	0	0	28	78
1:15 PM	0	1	6	0	0	7	3	11	0	1	0	15	0	3	0	0	0	3	2	13	0	0	0	15	40
1:30 PM	3	0	4	0	0	7	3	17	4	0	0	24	2	2	0	0	0	4	1	16	1	0	0	18	53
1:45 PM	1	3	4	0	0	8	5	21	4	0	0	30	0	1	0	0	0	1	1	17	2	0	0	20	59
Hourly Total	5	4	19	0	0	28	21	76	9	1	0	107	4	9	1	0	0	14	7	68	6	0	0	81	230
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	5	6	0	0	11	8	26	0	0	0	34	3	1	1	0	0	5	4	23	2	0	0	29	79
3:15 PM	1	1	11	0	1	13	6	32	0	0	0	38	1	4	3	0	0	8	4	18	2	0	0	24	83
3:30 PM	0	2	4	0	0	6	5	33	0	0	0	38	2	2	0	0	1	4	3	23	0	0	0	26	74
3:45 PM	3	5	8	0	1	16	12	36	1	0	0	49	1	2	3	0	0	6	2	26	3	0	0	31	102
Hourly Total	4	13	29	0	2	46	31	127	1	0	0	159	7	9	7	0	1	23	13	90	7	0	0	110	338

4:00 PM	6	3	12	0	0	21	11	40	0	0	0	51	1	1	4	0	0	6	4	31	2	0	0	37	115
4:15 PM	0	1	12	0	2	13	14	44	1	0	0	59	1	1	1	0	0	3	4	33	4	0	0	41	116
4:30 PM	1	2	5	0	0	8	11	35	2	0	0	48	0	0	1	0	0	1	4	32	0	0	0	36	93
4:45 PM	4	1	8	0	0	13	7	27	2	0	0	36	1	2	2	0	0	5	2	33	3	0	0	38	92
Hourly Total	11	7	37	0	2	55	43	146	5	0	0	194	3	4	8	0	0	15	14	129	9	0	0	152	416
5:00 PM	1	6	6	0	0	13	14	44	1	0	0	59	5	4	1	0	0	10	2	23	2	1	0	28	110
5:15 PM	2	2	9	0	0	13	11	50	2	1	0	64	1	1	2	0	0	4	6	26	0	0	0	32	113
5:30 PM	2	3	11	0	0	16	14	52	4	0	0	70	1	4	5	0	0	10	3	24	2	1	0	30	126
5:45 PM	3	1	7	0	0	11	9	47	3	0	0	59	1	1	2	0	0	4	5	24	1	0	0	30	104
Hourly Total	8	12	33	0	0	53	48	193	10	1	0	252	8	10	10	0	0	28	16	97	5	2	0	120	453
Grand Total	56	59	272	0	5	387	216	901	39	2	1	1158	39	76	54	0	4	169	73	953	49	4	1	1079	2793
Approach %	14.5	15.2	70.3	0.0	-	-	18.7	77.8	3.4	0.2	-	-	23.1	45.0	32.0	0.0	-	-	6.8	88.3	4.5	0.4	-	-	-
Total %	2.0	2.1	9.7	0.0	-	13.9	7.7	32.3	1.4	0.1	-	41.5	1.4	2.7	1.9	0.0	-	6.1	2.6	34.1	1.8	0.1	-	38.6	-
Lights	55	57	270	0	-	382	212	880	38	2	-	1132	39	75	53	0	-	167	70	936	48	4	-	1058	2739
% Lights	98.2	96.6	99.3	-	-	98.7	98.1	97.7	97.4	100.0	-	97.8	100.0	98.7	98.1	-	-	98.8	95.9	98.2	98.0	100.0	-	98.1	98.1
Buses	0	1	1	0	-	2	1	16	1	0	-	18	0	1	1	0	-	2	2	13	0	0	-	15	37
% Buses	0.0	1.7	0.4	-	-	0.5	0.5	1.8	2.6	0.0	-	1.6	0.0	1.3	1.9	-	-	1.2	2.7	1.4	0.0	0.0	-	1.4	1.3
Trucks	0	0	1	0	-	1	3	5	0	0	-	8	0	0	0	0	-	0	1	4	0	0	-	5	14
% Trucks	0.0	0.0	0.4	-	-	0.3	1.4	0.6	0.0	0.0	-	0.7	0.0	0.0	0.0	-	-	0.0	1.4	0.4	0.0	0.0	-	0.5	0.5
Bicycles on Road	1	1	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	3
% Bicycles on Road	1.8	1.7	0.0	-	-	0.5	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	2.0	0.0	-	0.1	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	5	-	-	-	-	-	1	-	-	-	-	-	4	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



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Turning Movement Data Plot



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Turning Movement Peak Hour Data (7:00 AM)

Start Time	Barbados Southbound						Gibson Westbound						Stampede Northbound						Gibson Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:00 AM	4	0	6	0	0	10	1	30	0	0	1	31	1	4	1	0	0	6	0	60	1	0	0	61	108
7:15 AM	0	5	14	0	0	19	3	21	1	0	0	25	1	6	0	0	0	7	1	56	2	0	0	59	110
7:30 AM	2	2	15	0	0	19	2	19	0	0	0	21	3	3	5	0	1	11	0	62	4	1	0	67	118
7:45 AM	0	3	11	0	0	14	4	26	2	0	0	32	1	5	2	0	0	8	3	45	1	1	0	50	104
Total	6	10	46	0	0	62	10	96	3	0	1	109	6	18	8	0	1	32	4	223	8	2	0	237	440
Approach %	9.7	16.1	74.2	0.0	-	-	9.2	88.1	2.8	0.0	-	-	18.8	56.3	25.0	0.0	-	-	1.7	94.1	3.4	0.8	-	-	-
Total %	1.4	2.3	10.5	0.0	-	14.1	2.3	21.8	0.7	0.0	-	24.8	1.4	4.1	1.8	0.0	-	7.3	0.9	50.7	1.8	0.5	-	53.9	-
PHF	0.375	0.500	0.767	0.000	-	0.816	0.625	0.800	0.375	0.000	-	0.852	0.500	0.750	0.400	0.000	-	0.727	0.333	0.899	0.500	0.500	-	0.884	0.932
Lights	6	9	46	0	-	61	10	94	2	0	-	106	6	17	8	0	-	31	4	218	8	2	-	232	430
% Lights	100.0	90.0	100.0	-	-	98.4	100.0	97.9	66.7	-	-	97.2	100.0	94.4	100.0	-	-	96.9	100.0	97.8	100.0	100.0	-	97.9	97.7
Buses	0	1	0	0	-	1	0	2	1	0	-	3	0	1	0	0	-	1	0	5	0	0	-	5	10
% Buses	0.0	10.0	0.0	-	-	1.6	0.0	2.1	33.3	-	-	2.8	0.0	5.6	0.0	-	-	3.1	0.0	2.2	0.0	0.0	-	2.1	2.3
Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-



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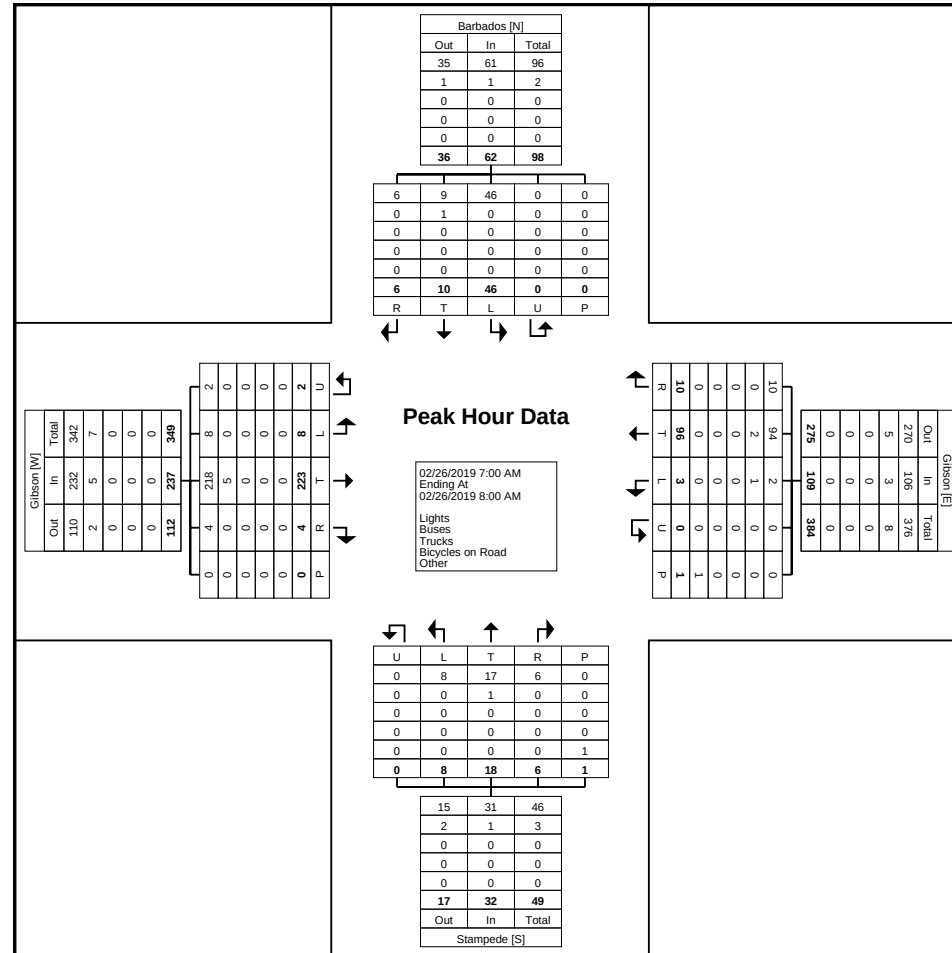
jkruse@lee-eng.com

Count Name: NM273.01 - Solare Collegiate NIA

Site Code: Gibson & Barbados

Start Date: 02/26/2019

Page No: 5

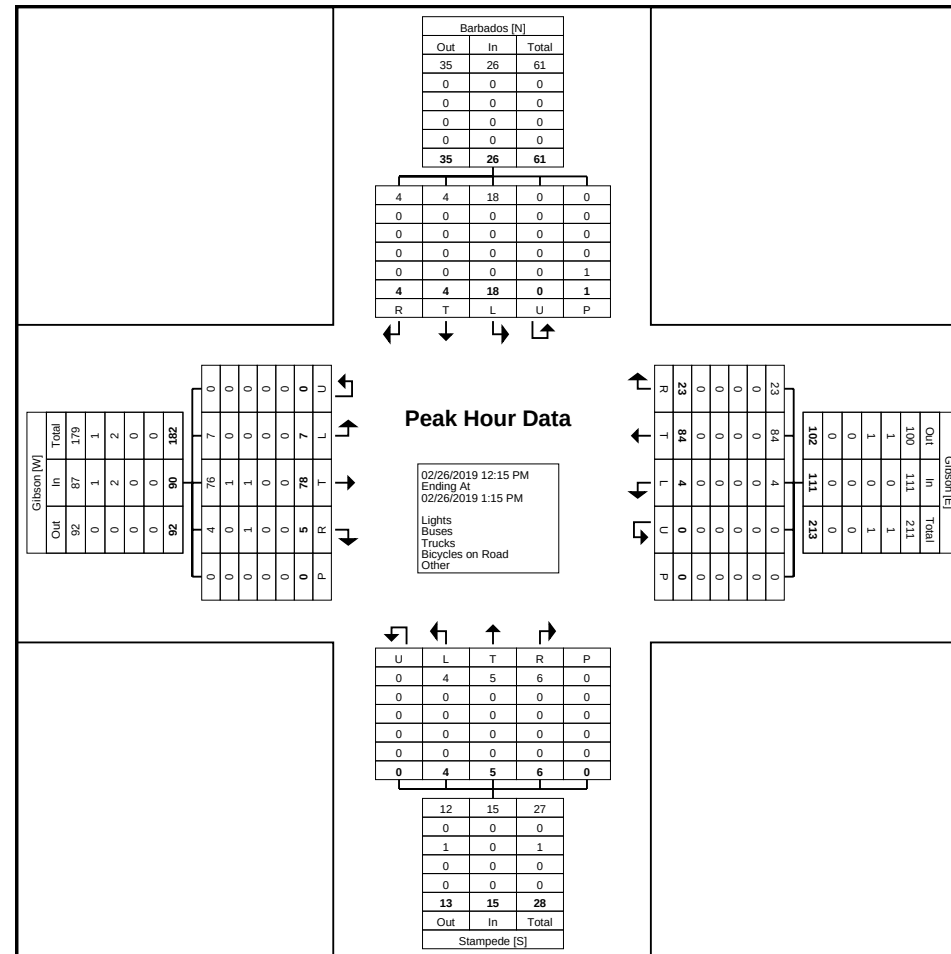


Turning Movement Peak Hour Data Plot (7:00 AM)



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Page No: 7

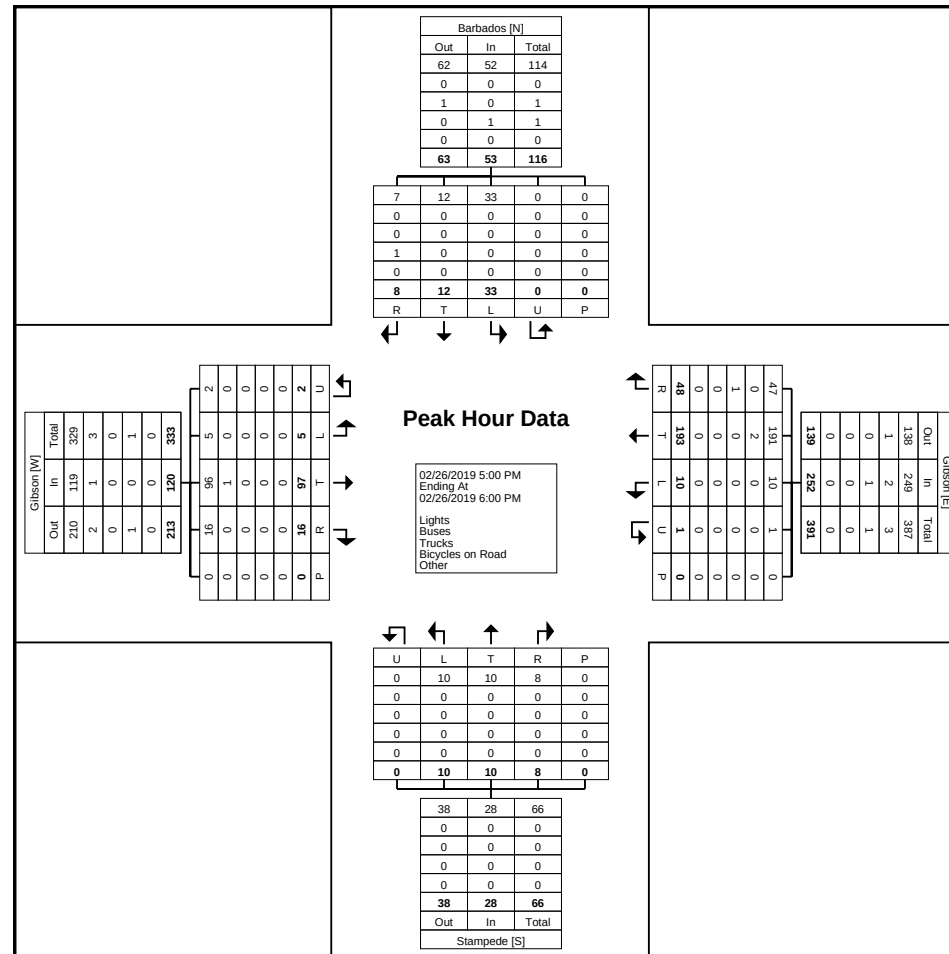


Turning Movement Peak Hour Data Plot (12:15 PM)



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Turning Movement Peak Hour Data Plot (5:00 PM)



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Site Code: Gibson & Barbados
Start Date: 02/26/2019
Page No: 10

Appendix B:
Turning Movement Counts
Gibson Blvd and 98th St



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Albuquerque, New Mexico, United States
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Count Name: NM273.01 - Solare Collegiate NIA
Site Code: 98th & Gibson
Start Date: 03/05/2019
Page No: 1

Turning Movement Data

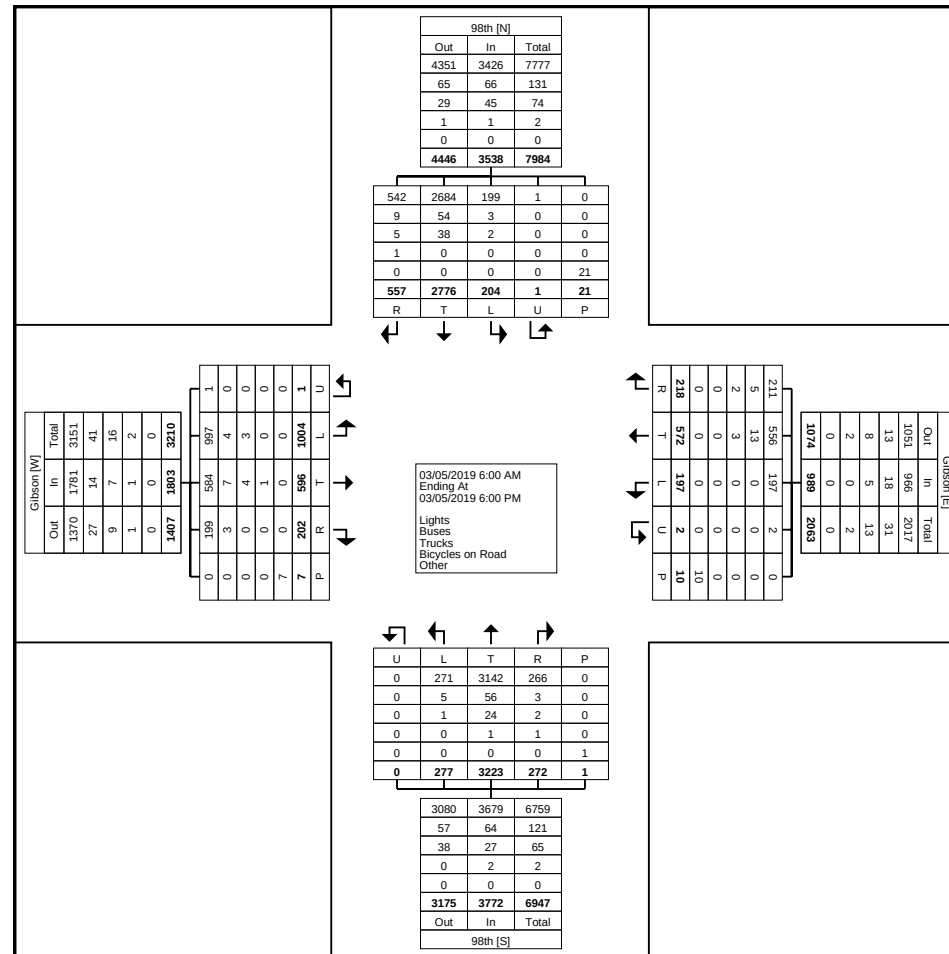
Start Time	98th Southbound						Gibson Westbound						98th Northbound						Gibson Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
6:00 AM	1	26	2	0	0	29	6	1	3	0	0	10	1	75	3	0	0	79	2	11	23	0	0	36	154
6:15 AM	3	37	1	0	0	41	10	2	2	0	0	14	9	84	2	0	0	95	1	26	40	0	0	67	217
6:30 AM	6	53	4	0	0	63	5	6	3	0	0	14	11	132	1	0	0	144	1	32	53	0	0	86	307
6:45 AM	11	91	0	0	0	102	7	18	8	0	0	33	12	96	3	0	0	111	6	26	54	0	0	86	332
Hourly Total	21	207	7	0	0	235	28	27	16	0	0	71	33	387	9	0	0	429	10	95	170	0	0	275	1010
7:00 AM	17	118	4	0	0	139	5	20	10	0	0	35	21	133	9	0	0	163	9	37	55	0	0	101	438
7:15 AM	6	88	8	0	0	102	4	13	3	0	0	20	19	125	3	0	0	147	9	47	51	0	0	107	376
7:30 AM	5	96	3	0	0	104	7	10	6	0	0	23	15	116	5	0	0	136	8	42	30	0	0	80	343
7:45 AM	8	105	5	0	0	118	13	11	2	0	0	26	12	113	6	0	0	131	5	24	27	0	0	56	331
Hourly Total	36	407	20	0	0	463	29	54	21	0	0	104	67	487	23	0	0	577	31	150	163	0	0	344	1488
8:00 AM	14	91	3	0	1	108	12	14	6	0	1	32	11	88	4	0	0	103	5	14	40	0	0	59	302
8:15 AM	16	65	6	0	3	87	4	16	8	0	1	28	6	95	4	0	0	105	8	17	36	0	0	61	281
8:30 AM	12	69	3	0	0	84	2	9	6	0	0	17	10	114	3	0	0	127	1	20	27	1	0	49	277
8:45 AM	7	46	4	0	0	57	6	7	1	0	0	14	13	92	7	0	0	112	7	14	26	0	0	47	230
Hourly Total	49	271	16	0	4	336	24	46	21	0	2	91	40	389	18	0	0	447	21	65	129	1	0	216	1090
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	12	44	2	0	0	58	7	10	4	0	0	21	6	48	7	0	0	61	4	10	20	0	0	34	174
11:15 AM	14	41	4	0	0	59	2	7	2	0	3	11	6	57	6	0	0	69	3	6	26	0	0	35	174
11:30 AM	10	45	2	0	0	57	3	5	3	0	1	11	2	56	4	0	0	62	8	4	16	0	1	28	158
11:45 AM	14	47	5	0	0	66	1	7	6	0	0	14	0	57	4	0	0	61	4	13	17	0	3	34	175
Hourly Total	50	177	13	0	0	240	13	29	15	0	4	57	14	218	21	0	0	253	19	33	79	0	4	131	681
12:00 PM	12	42	5	0	0	59	6	10	4	1	0	21	2	73	9	0	0	84	4	8	21	0	0	33	197
12:15 PM	10	62	2	0	0	74	1	17	6	0	0	24	7	79	3	0	0	89	5	12	24	0	0	41	228
12:30 PM	11	57	3	0	2	71	2	13	5	0	0	20	5	81	0	0	0	86	7	9	18	0	0	34	211
12:45 PM	10	47	4	0	0	61	4	13	6	0	0	23	5	71	5	0	0	81	1	9	23	0	0	33	198
Hourly Total	43	208	14	0	2	265	13	53	21	1	0	88	19	304	17	0	0	340	17	38	86	0	0	141	834
1:00 PM	12	39	2	0	0	53	3	12	5	0	0	20	3	47	13	0	0	63	5	10	21	0	0	36	172
1:15 PM	6	53	3	0	0	62	0	8	1	0	0	9	5	67	6	0	0	78	6	11	18	0	1	35	184
1:30 PM	14	77	4	1	1	96	11	12	9	0	0	32	5	77	2	0	0	84	4	13	21	0	0	38	250
1:45 PM	10	77	6	0	1	93	5	18	7	0	1	30	6	70	7	0	0	83	3	8	18	0	0	29	235
Hourly Total	42	246	15	1	2	304	19	50	22	0	1	91	19	261	28	0	0	308	18	42	78	0	1	138	841
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	22	90	15	0	0	127	5	20	3	0	0	28	5	88	11	0	0	104	4	6	30	0	1	40	299
3:15 PM	18	95	6	0	0	119	3	27	7	0	0	37	5	77	12	0	0	94	6	13	23	0	0	42	292
3:30 PM	18	77	10	0	0	105	9	21	7	0	0	37	2	94	12	0	0	108	6	10	14	0	0	30	280
3:45 PM	24	114	2	0	0	140	9	17	4	0	0	30	7	89	16	0	0	112	5	13	25	0	0	43	325
Hourly Total	82	376	33	0	0	491	26	85	21	0	0	132	19	348	51	0	0	418	21	42	92	0	1	155	1196

4:00 PM	28	93	12	0	4	133	5	27	7	0	0	39	7	123	14	0	0	144	13	15	25	0	0	53	369
4:15 PM	25	107	13	0	0	145	5	21	4	0	0	30	4	96	14	0	0	114	7	11	21	0	0	39	328
4:30 PM	32	112	12	0	4	156	9	21	10	0	0	40	6	103	9	0	0	118	6	13	26	0	1	45	359
4:45 PM	33	98	13	0	0	144	9	24	4	0	1	37	9	91	17	0	0	117	4	17	24	0	0	45	343
Hourly Total	118	410	50	0	8	578	28	93	25	0	1	146	26	413	54	0	0	493	30	56	96	0	1	182	1399
5:00 PM	32	127	11	0	0	170	4	37	12	0	0	53	8	99	14	0	0	121	9	15	28	0	0	52	396
5:15 PM	35	127	9	0	2	171	9	41	8	0	0	58	11	95	18	0	0	124	6	16	30	0	0	52	405
5:30 PM	22	110	8	0	2	140	13	27	7	0	2	47	6	106	14	0	0	126	14	24	26	0	0	64	377
5:45 PM	27	110	8	0	1	145	12	30	8	1	0	51	10	116	10	0	1	136	6	20	27	0	0	53	385
Hourly Total	116	474	36	0	5	626	38	135	35	1	2	209	35	416	56	0	1	507	35	75	111	0	0	221	1563
Grand Total	557	2776	204	1	21	3538	218	572	197	2	10	989	272	3223	277	0	1	3772	202	596	1004	1	7	1803	10102
Approach %	15.7	78.5	5.8	0.0	-	-	22.0	57.8	19.9	0.2	-	-	7.2	85.4	7.3	0.0	-	-	11.2	33.1	55.7	0.1	-	-	-
Total %	5.5	27.5	2.0	0.0	-	35.0	2.2	5.7	2.0	0.0	-	9.8	2.7	31.9	2.7	0.0	-	37.3	2.0	5.9	9.9	0.0	-	17.8	-
Lights	542	2684	199	1	-	3426	211	556	197	2	-	966	266	3142	271	0	-	3679	199	584	997	1	-	1781	9852
% Lights	97.3	96.7	97.5	100.0	-	96.8	96.8	97.2	100.0	100.0	-	97.7	97.8	97.5	97.8	-	-	97.5	98.5	98.0	99.3	100.0	-	98.8	97.5
Buses	9	54	3	0	-	66	5	13	0	0	-	18	3	56	5	0	-	64	3	7	4	0	-	14	162
% Buses	1.6	1.9	1.5	0.0	-	1.9	2.3	2.3	0.0	0.0	-	1.8	1.1	1.7	1.8	-	-	1.7	1.5	1.2	0.4	0.0	-	0.8	1.6
Trucks	5	38	2	0	-	45	2	3	0	0	-	5	2	24	1	0	-	27	0	4	3	0	-	7	84
% Trucks	0.9	1.4	1.0	0.0	-	1.3	0.9	0.5	0.0	0.0	-	0.5	0.7	0.7	0.4	-	-	0.7	0.0	0.7	0.3	0.0	-	0.4	0.8
Bicycles on Road	1	0	0	0	-	1	0	0	0	0	-	0	1	1	0	0	-	2	0	1	0	0	-	1	4
% Bicycles on Road	0.2	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.4	0.0	0.0	-	-	0.1	0.0	0.2	0.0	0.0	-	0.1	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	21	-	-	-	-	-	10	-	-	-	-	-	1	-	-	-	-	-	7	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



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Site Code: 98th & Gibson
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Turning Movement Data Plot



Turning Movement Peak Hour Data (6:45 AM)

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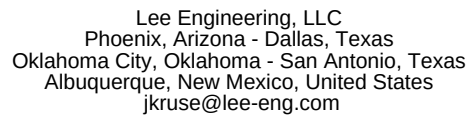


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Turning Movement Peak Hour Data (1:00 PM)

Start Time	98th Southbound						Gibson Westbound						98th Northbound						Gibson Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
1:00 PM	12	39	2	0	0	53	3	12	5	0	0	20	3	47	13	0	0	63	5	10	21	0	0	36	172
1:15 PM	6	53	3	0	0	62	0	8	1	0	0	9	5	67	6	0	0	78	6	11	18	0	1	35	184
1:30 PM	14	77	4	1	1	96	11	12	9	0	0	32	5	77	2	0	0	84	4	13	21	0	0	38	250
1:45 PM	10	77	6	0	1	93	5	18	7	0	1	30	6	70	7	0	0	83	3	8	18	0	0	29	235
Total	42	246	15	1	2	304	19	50	22	0	1	91	19	261	28	0	0	308	18	42	78	0	1	138	841
Approach %	13.8	80.9	4.9	0.3	-	-	20.9	54.9	24.2	0.0	-	-	6.2	84.7	9.1	0.0	-	-	13.0	30.4	56.5	0.0	-	-	-
Total %	5.0	29.3	1.8	0.1	-	36.1	2.3	5.9	2.6	0.0	-	10.8	2.3	31.0	3.3	0.0	-	36.6	2.1	5.0	9.3	0.0	-	16.4	-
PHF	0.750	0.799	0.625	0.250	-	0.792	0.432	0.694	0.611	0.000	-	0.711	0.792	0.847	0.538	0.000	-	0.917	0.750	0.808	0.929	0.000	-	0.908	0.841
Lights	39	233	15	1	-	288	18	48	22	0	-	88	18	256	28	0	-	302	18	40	76	0	-	134	812
% Lights	92.9	94.7	100.0	100.0	-	94.7	94.7	96.0	100.0	-	-	96.7	94.7	98.1	100.0	-	-	98.1	100.0	95.2	97.4	-	-	97.1	96.6
Buses	1	10	0	0	-	11	0	2	0	0	-	2	0	3	0	0	-	3	0	1	0	0	-	1	17
% Buses	2.4	4.1	0.0	0.0	-	3.6	0.0	4.0	0.0	-	-	2.2	0.0	1.1	0.0	-	-	1.0	0.0	2.4	0.0	-	-	0.7	2.0
Trucks	2	3	0	0	-	5	1	0	0	0	-	1	1	2	0	0	-	3	0	1	2	0	-	3	12
% Trucks	4.8	1.2	0.0	0.0	-	1.6	5.3	0.0	0.0	-	-	1.1	5.3	0.8	0.0	-	-	1.0	0.0	2.4	2.6	-	-	2.2	1.4
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



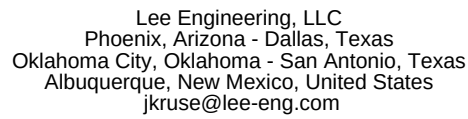


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 jkruse@lee-eng.com

Count Name: NM273.01 - Solare Collegiate NIA
 Site Code: 98th & Gibson
 Start Date: 03/05/2019
 Page No: 8

Turning Movement Peak Hour Data (5:00 PM)

Start Time	98th Southbound						Gibson Westbound						98th Northbound						Gibson Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
5:00 PM	32	127	11	0	0	170	4	37	12	0	0	53	8	99	14	0	0	121	9	15	28	0	0	52	396
5:15 PM	35	127	9	0	2	171	9	41	8	0	0	58	11	95	18	0	0	124	6	16	30	0	0	52	405
5:30 PM	22	110	8	0	2	140	13	27	7	0	2	47	6	106	14	0	0	126	14	24	26	0	0	64	377
5:45 PM	27	110	8	0	1	145	12	30	8	1	0	51	10	116	10	0	1	136	6	20	27	0	0	53	385
Total	116	474	36	0	5	626	38	135	35	1	2	209	35	416	56	0	1	507	35	75	111	0	0	221	1563
Approach %	18.5	75.7	5.8	0.0	-	-	18.2	64.6	16.7	0.5	-	-	6.9	82.1	11.0	0.0	-	-	15.8	33.9	50.2	0.0	-	-	-
Total %	7.4	30.3	2.3	0.0	-	40.1	2.4	8.6	2.2	0.1	-	13.4	2.2	26.6	3.6	0.0	-	32.4	2.2	4.8	7.1	0.0	-	14.1	-
PHF	0.829	0.933	0.818	0.000	-	0.915	0.731	0.823	0.729	0.250	-	0.901	0.795	0.897	0.778	0.000	-	0.932	0.625	0.781	0.925	0.000	-	0.863	0.965
Lights	116	468	36	0	-	620	38	134	35	1	-	208	35	410	56	0	-	501	35	74	111	0	-	220	1549
% Lights	100.0	98.7	100.0	-	-	99.0	100.0	99.3	100.0	100.0	-	99.5	100.0	98.6	100.0	-	-	98.8	100.0	98.7	100.0	-	-	99.5	99.1
Buses	0	2	0	0	-	2	0	1	0	0	-	1	0	3	0	0	-	3	0	0	0	0	-	0	6
% Buses	0.0	0.4	0.0	-	-	0.3	0.0	0.7	0.0	0.0	-	0.5	0.0	0.7	0.0	-	-	0.6	0.0	0.0	0.0	-	-	0.0	0.4
Trucks	0	4	0	0	-	4	0	0	0	0	-	0	0	3	0	0	-	3	0	0	0	0	-	0	7
% Trucks	0.0	0.8	0.0	-	-	0.6	0.0	0.0	0.0	0.0	-	0.0	0.0	0.7	0.0	-	-	0.6	0.0	0.0	0.0	-	-	0.0	0.4
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	1.3	0.0	-	-	0.5	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	5	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-





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Count Name: NM273.01 - Solare Collegiate NIA
Site Code: 98th & Gibson
Start Date: 03/05/2019
Page No: 10

Appendix B:
Turning Movement Counts
98th St and Blake Rd



Lee Engineering, LLC
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Count Name: NM273.01 - Solare Collegiate NIA
Site Code: 98th & Blake
Start Date: 02/28/2019
Page No: 1

Turning Movement Data

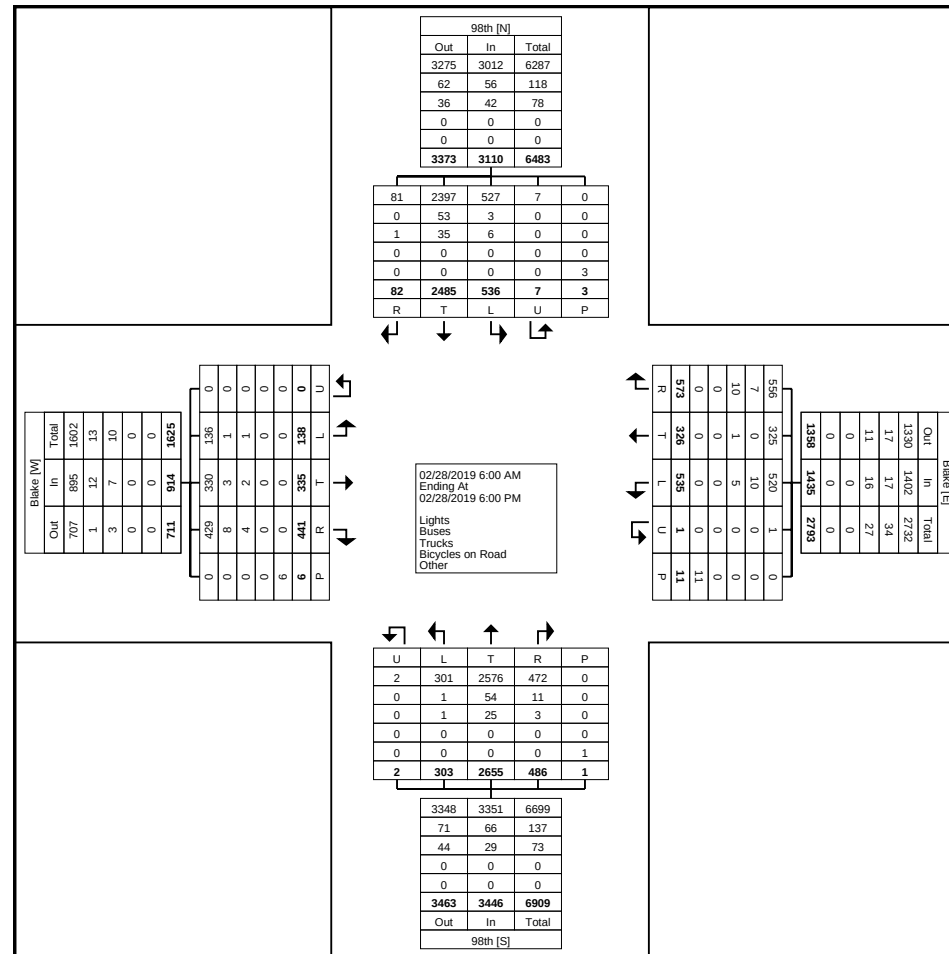
Start Time	98th Southbound						Blake Westbound						98th Northbound						Blake Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
6:00 AM	0	33	8	0	0	41	5	1	4	0	0	10	6	64	3	0	0	73	12	0	2	0	0	14	138
6:15 AM	1	26	3	0	0	30	10	0	7	0	0	17	8	71	2	0	0	81	11	6	6	0	0	23	151
6:30 AM	0	51	8	0	0	59	9	4	9	0	1	22	13	71	2	0	0	86	18	12	2	0	0	32	199
6:45 AM	0	97	9	0	0	106	16	7	20	0	0	43	17	81	6	0	0	104	17	10	7	0	0	34	287
Hourly Total	1	207	28	0	0	236	40	12	40	0	1	92	44	287	13	0	0	344	58	28	17	0	0	103	775
7:00 AM	0	118	15	0	1	133	21	8	30	0	0	59	24	104	7	0	0	135	25	12	8	0	0	45	372
7:15 AM	1	118	13	0	0	132	14	4	18	0	2	36	37	106	5	0	0	148	18	22	3	0	0	43	359
7:30 AM	2	115	22	0	0	139	16	8	16	0	0	40	31	111	14	0	0	156	37	20	5	0	0	62	397
7:45 AM	1	98	22	0	0	121	23	10	21	0	0	54	23	87	18	1	0	129	28	18	3	0	0	49	353
Hourly Total	4	449	72	0	1	525	74	30	85	0	2	189	115	408	44	1	0	568	108	72	19	0	0	199	1481
8:00 AM	1	97	16	0	0	114	16	10	15	0	0	41	14	69	6	0	0	89	10	15	4	0	0	29	273
8:15 AM	1	83	24	0	0	108	16	11	15	0	0	42	15	67	3	0	0	85	15	9	6	0	0	30	265
8:30 AM	2	70	20	1	0	93	16	7	17	0	0	40	14	89	3	0	0	106	17	14	4	0	1	35	274
8:45 AM	1	41	18	0	0	60	10	5	7	0	0	22	14	82	6	0	0	102	7	10	4	0	0	21	205
Hourly Total	5	291	78	1	0	375	58	33	54	0	0	145	57	307	18	0	0	382	49	48	18	0	1	115	1017
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	0	28	8	0	0	36	8	9	7	0	0	24	11	43	5	0	0	59	9	5	0	0	0	14	133
11:15 AM	0	44	4	0	0	48	11	8	3	0	0	22	11	41	10	0	1	62	6	6	4	0	0	16	148
11:30 AM	0	57	14	0	0	71	11	5	3	0	0	19	12	37	4	0	0	53	5	10	3	0	0	18	161
11:45 AM	4	54	13	0	0	71	13	10	5	0	0	28	13	56	6	0	0	75	6	8	6	0	0	20	194
Hourly Total	4	183	39	0	0	226	43	32	18	0	0	93	47	177	25	0	1	249	26	29	13	0	0	68	636
12:00 PM	1	26	9	0	0	36	14	4	6	0	0	24	9	55	9	0	0	73	6	6	3	0	0	15	148
12:15 PM	3	38	9	0	0	50	6	0	8	0	0	14	5	74	6	0	0	85	8	2	6	0	0	16	165
12:30 PM	0	40	10	0	1	50	11	7	13	0	0	31	7	61	8	0	0	76	16	9	1	0	0	26	183
12:45 PM	3	46	20	0	0	69	15	3	17	0	0	35	14	56	3	0	0	73	5	7	4	0	0	16	193
Hourly Total	7	150	48	0	1	205	46	14	44	0	0	104	35	246	26	0	0	307	35	24	14	0	0	73	689
1:00 PM	1	49	10	0	1	60	13	11	15	0	2	39	7	70	2	0	0	79	6	7	5	0	0	18	196
1:15 PM	2	47	11	1	0	61	14	9	7	0	0	30	4	57	6	0	0	67	5	5	2	0	0	12	170
1:30 PM	5	59	6	0	0	70	19	7	12	0	0	38	9	62	17	0	0	88	16	3	7	0	0	26	222
1:45 PM	2	65	10	1	0	78	13	12	20	1	1	46	8	56	6	0	0	70	14	10	2	0	0	26	220
Hourly Total	10	220	37	2	1	269	59	39	54	1	3	153	28	245	31	0	0	304	41	25	16	0	0	82	808
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	4	95	12	2	0	113	18	9	19	0	0	46	14	87	11	0	0	112	7	6	7	0	0	20	291
3:15 PM	2	92	16	0	0	110	18	10	18	0	0	46	7	89	15	0	0	111	10	7	5	0	0	22	289
3:30 PM	2	92	17	0	0	111	20	11	17	0	0	48	6	79	16	0	0	101	14	4	1	0	0	19	279
3:45 PM	5	70	15	0	0	90	16	9	14	0	1	39	16	99	11	0	0	126	9	7	4	0	0	20	275
Hourly Total	13	349	60	2	0	424	72	39	68	0	1	179	43	354	53	0	0	450	40	24	17	0	0	81	1134

4:00 PM	2	74	20	1	0	97	23	14	17	0	0	54	18	123	16	0	0	157	10	15	5	0	0	30	338
4:15 PM	3	79	19	0	0	101	25	15	25	0	0	65	16	76	10	0	0	102	7	4	6	0	1	17	285
4:30 PM	6	68	17	0	0	91	29	18	19	0	4	66	7	81	13	1	0	102	10	15	4	0	1	29	288
4:45 PM	6	82	21	0	0	109	14	18	15	0	0	47	18	73	16	0	0	107	12	11	4	0	0	27	290
Hourly Total	17	303	77	1	0	398	91	65	76	0	4	232	59	353	55	1	0	468	39	45	19	0	2	103	1201
5:00 PM	6	78	31	0	0	115	28	11	18	0	0	57	12	68	11	0	0	91	10	9	0	0	0	19	282
5:15 PM	4	79	25	0	0	108	24	23	25	0	0	72	17	79	7	0	0	103	12	12	1	0	0	25	308
5:30 PM	6	96	20	0	0	122	19	12	19	0	0	50	13	61	8	0	0	82	10	12	1	0	0	23	277
5:45 PM	5	80	21	1	0	107	19	16	34	0	0	69	16	70	12	0	0	98	13	7	3	0	3	23	297
Hourly Total	21	333	97	1	0	452	90	62	96	0	0	248	58	278	38	0	0	374	45	40	5	0	3	90	1164
Grand Total	82	2485	536	7	3	3110	573	326	535	1	11	1435	486	2655	303	2	1	3446	441	335	138	0	6	914	8905
Approach %	2.6	79.9	17.2	0.2	-	-	39.9	22.7	37.3	0.1	-	-	14.1	77.0	8.8	0.1	-	-	48.2	36.7	15.1	0.0	-	-	-
Total %	0.9	27.9	6.0	0.1	-	34.9	6.4	3.7	6.0	0.0	-	16.1	5.5	29.8	3.4	0.0	-	38.7	5.0	3.8	1.5	0.0	-	10.3	-
Lights	81	2397	527	7	-	3012	556	325	520	1	-	1402	472	2576	301	2	-	3351	429	330	136	0	-	895	8660
% Lights	98.8	96.5	98.3	100.0	-	96.8	97.0	99.7	97.2	100.0	-	97.7	97.1	97.0	99.3	100.0	-	97.2	97.3	98.5	98.6	-	-	97.9	97.2
Buses	0	53	3	0	-	56	7	0	10	0	-	17	11	54	1	0	-	66	8	3	1	0	-	12	151
% Buses	0.0	2.1	0.6	0.0	-	1.8	1.2	0.0	1.9	0.0	-	1.2	2.3	2.0	0.3	0.0	-	1.9	1.8	0.9	0.7	-	-	1.3	1.7
Trucks	1	35	6	0	-	42	10	1	5	0	-	16	3	25	1	0	-	29	4	2	1	0	-	7	94
% Trucks	1.2	1.4	1.1	0.0	-	1.4	1.7	0.3	0.9	0.0	-	1.1	0.6	0.9	0.3	0.0	-	0.8	0.9	0.6	0.7	-	-	0.8	1.1
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	3	-	-	-	-	-	11	-	-	-	-	-	1	-	-	-	-	-	6	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

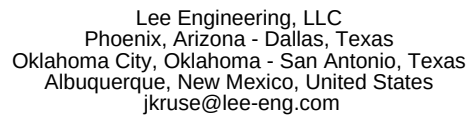


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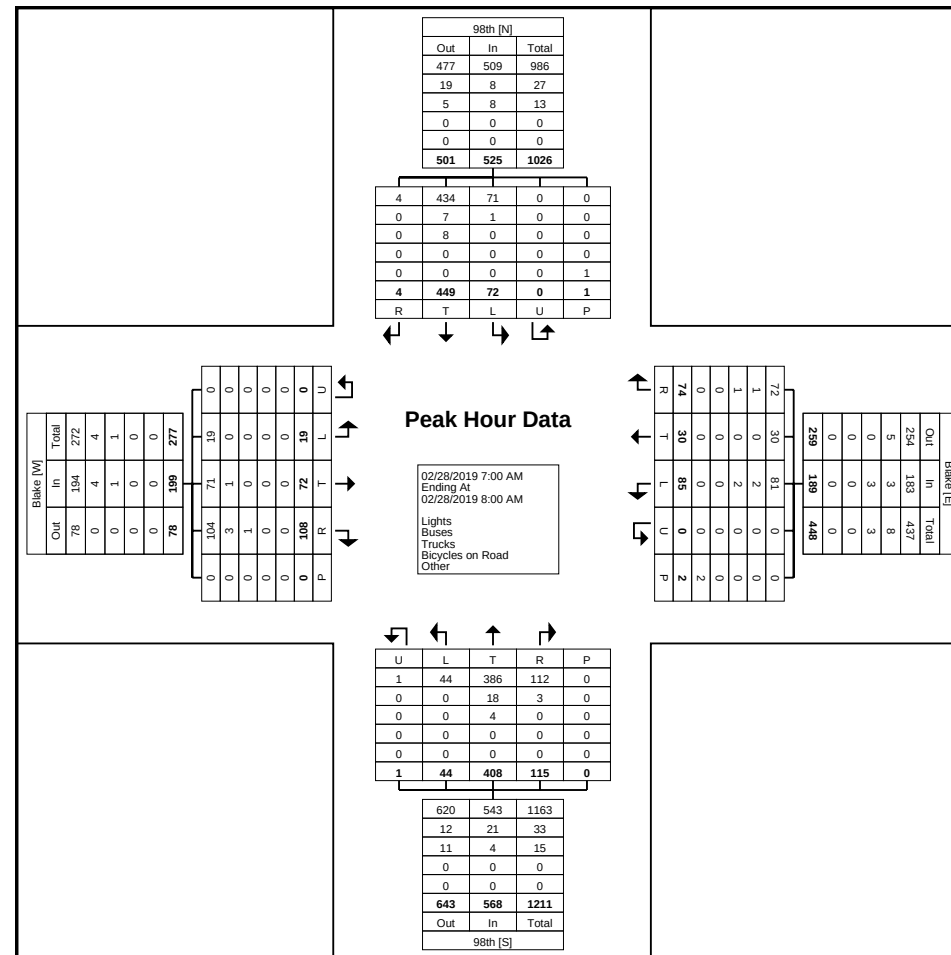
Count Name: NM273.01 - Solare Collegiate NIA
Site Code: 98th & Blake
Start Date: 02/28/2019
Page No: 3



Turning Movement Data Plot



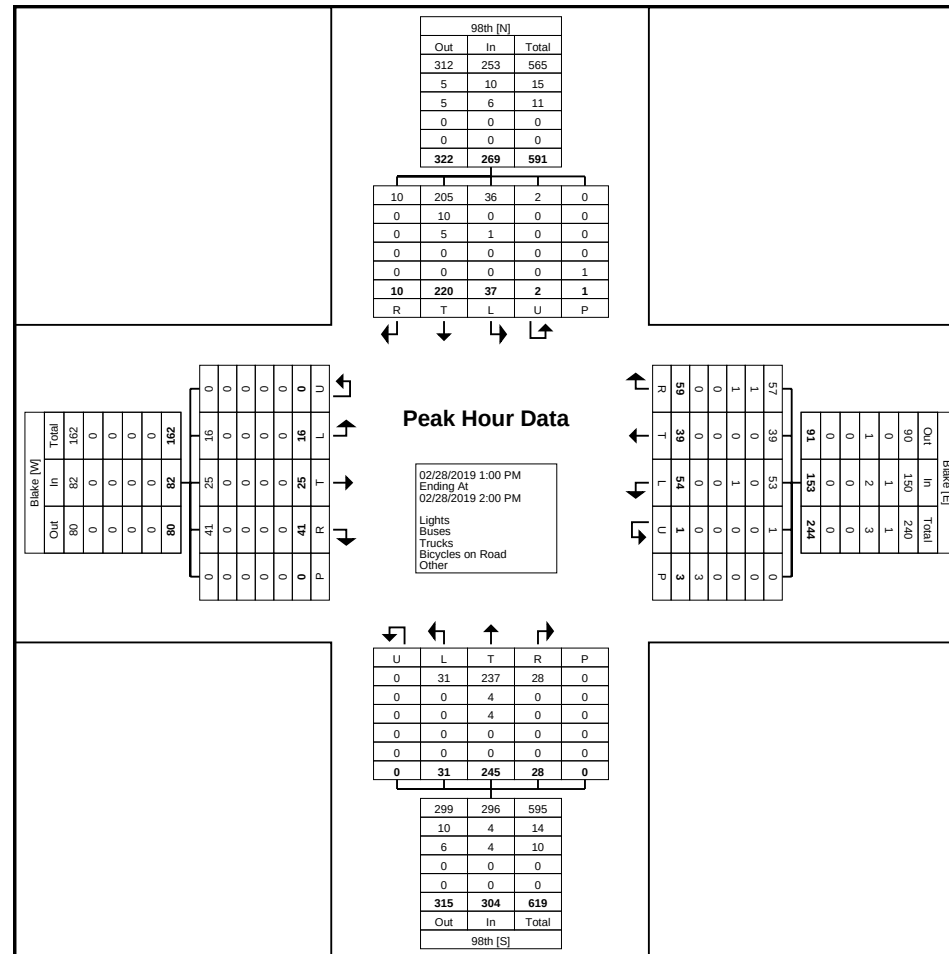
Count Name: NM273.01 - Solare Collegiate NIA
Site Code: 98th & Blake
Start Date: 02/28/2019
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Count Name: NM273.01 - Solare Collegiate NIA
Site Code: 98th & Blake
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Turning Movement Peak Hour Data Plot (1:00 PM)



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Count Name: NM273.01 - Solare Collegiate NIA
Site Code: 98th & Blake
Start Date: 02/28/2019
Page No: 8

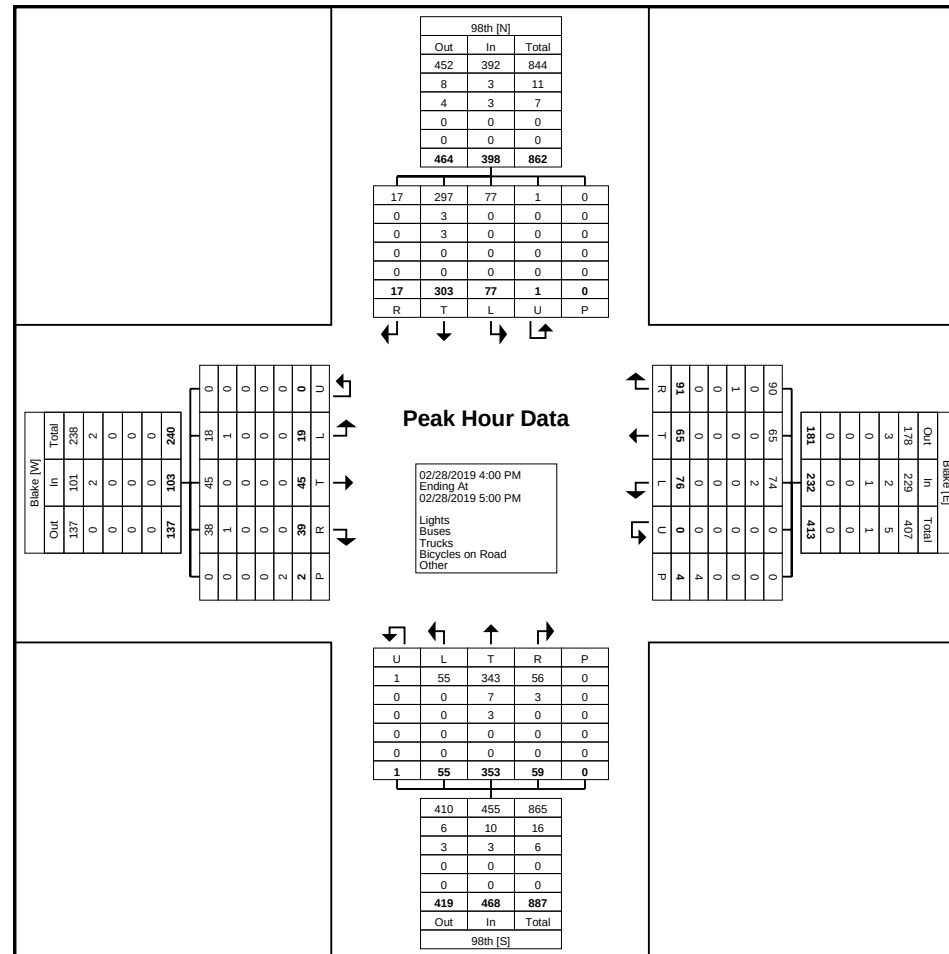
Turning Movement Peak Hour Data (4:00 PM)

Start Time	98th Southbound						Blake Westbound						98th Northbound						Blake Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
4:00 PM	2	74	20	1	0	97	23	14	17	0	0	54	18	123	16	0	0	157	10	15	5	0	0	30	338
4:15 PM	3	79	19	0	0	101	25	15	25	0	0	65	16	76	10	0	0	102	7	4	6	0	1	17	285
4:30 PM	6	68	17	0	0	91	29	18	19	0	4	66	7	81	13	1	0	102	10	15	4	0	1	29	288
4:45 PM	6	82	21	0	0	109	14	18	15	0	0	47	18	73	16	0	0	107	12	11	4	0	0	27	290
Total	17	303	77	1	0	398	91	65	76	0	4	232	59	353	55	1	0	468	39	45	19	0	2	103	1201
Approach %	4.3	76.1	19.3	0.3	-	-	39.2	28.0	32.8	0.0	-	-	12.6	75.4	11.8	0.2	-	-	37.9	43.7	18.4	0.0	-	-	-
Total %	1.4	25.2	6.4	0.1	-	33.1	7.6	5.4	6.3	0.0	-	19.3	4.9	29.4	4.6	0.1	-	39.0	3.2	3.7	1.6	0.0	-	8.6	-
PHF	0.708	0.924	0.917	0.250	-	0.913	0.784	0.903	0.760	0.000	-	0.879	0.819	0.717	0.859	0.250	-	0.745	0.813	0.750	0.792	0.000	-	0.858	0.888
Lights	17	297	77	1	-	392	90	65	74	0	-	229	56	343	55	1	-	455	38	45	18	0	-	101	1177
% Lights	100.0	98.0	100.0	100.0	-	98.5	98.9	100.0	97.4	-	-	98.7	94.9	97.2	100.0	100.0	-	97.2	97.4	100.0	94.7	-	-	98.1	98.0
Buses	0	3	0	0	-	3	0	0	2	0	-	2	3	7	0	0	-	10	1	0	1	0	-	2	17
% Buses	0.0	1.0	0.0	0.0	-	0.8	0.0	0.0	2.6	-	-	0.9	5.1	2.0	0.0	0.0	-	2.1	2.6	0.0	5.3	-	-	1.9	1.4
Trucks	0	3	0	0	-	3	1	0	0	0	-	1	0	3	0	0	-	3	0	0	0	0	-	0	7
% Trucks	0.0	1.0	0.0	0.0	-	0.8	1.1	0.0	0.0	-	-	0.4	0.0	0.8	0.0	0.0	-	0.6	0.0	0.0	0.0	-	-	0.0	0.6
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	0	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



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Count Name: NM273.01 - Solare Collegiate NIA
Site Code: 98th & Blake
Start Date: 02/28/2019
Page No: 9



Turning Movement Peak Hour Data Plot (4:00 PM)



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Count Name: NM273.01 - Solare Collegiate NIA
Site Code: 98th & Blake
Start Date: 02/28/2019
Page No: 10

Appendix B:
Turning Movement Counts
98th St and 86th St



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Count Name: NM273.01 - Solare Collegiate NIA
Site Code: 98th & 86th
Start Date: 02/26/2019
Page No: 1

Turning Movement Data

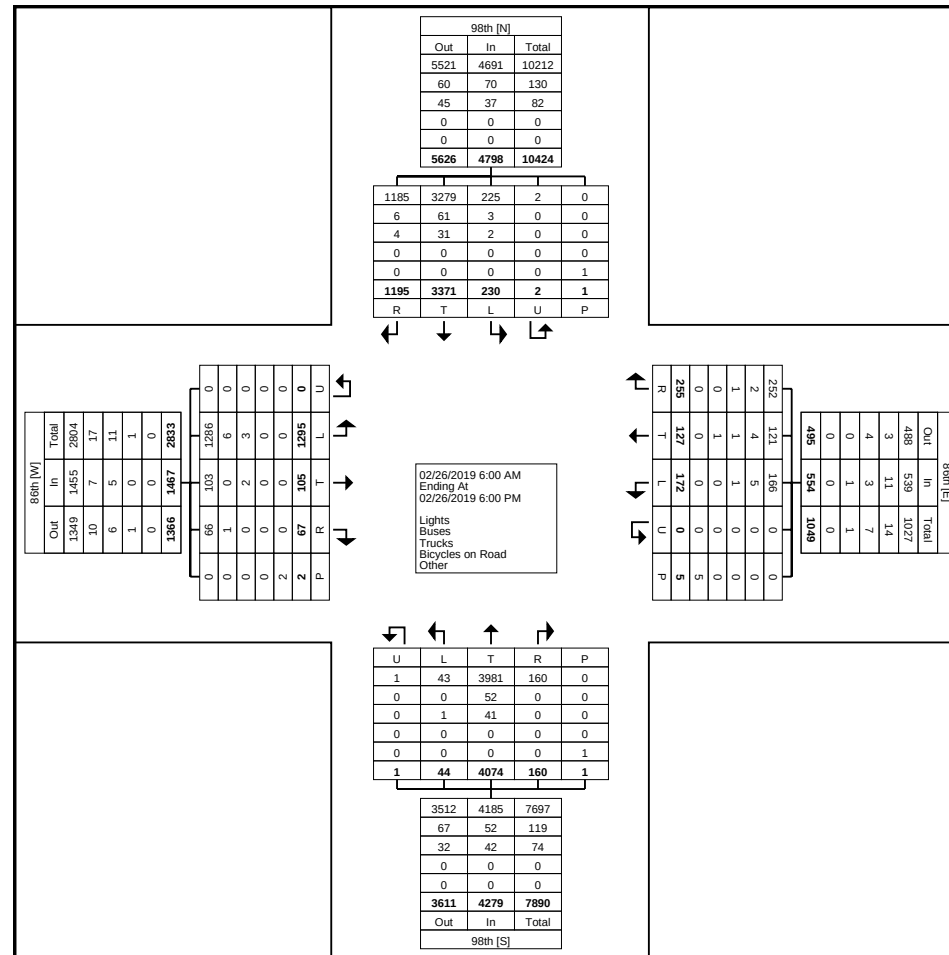
Start Time	98th Southbound						86th Westbound						98th Northbound						86th Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
6:00 AM	4	29	1	0	0	34	11	2	2	0	0	15	2	87	0	0	0	89	2	0	38	0	0	40	178
6:15 AM	8	49	1	0	0	58	3	0	0	0	0	3	1	152	0	0	0	153	0	1	51	0	0	52	266
6:30 AM	12	60	4	0	0	76	18	2	4	0	0	24	2	178	1	0	0	181	1	1	74	0	0	76	357
6:45 AM	20	92	1	0	0	113	12	4	14	0	0	30	5	159	1	0	0	165	3	1	79	0	0	83	391
Hourly Total	44	230	7	0	0	281	44	8	20	0	0	72	10	576	2	0	0	588	6	3	242	0	0	251	1192
7:00 AM	27	104	2	0	0	133	11	5	13	0	0	29	4	181	0	0	0	185	3	4	76	0	0	83	430
7:15 AM	19	101	2	0	0	122	10	4	7	0	0	21	8	182	1	0	0	191	4	8	80	0	0	92	426
7:30 AM	11	81	1	0	0	93	10	7	6	0	0	23	11	154	4	0	0	169	0	10	60	0	0	70	355
7:45 AM	24	92	5	0	0	121	7	4	7	0	0	18	3	130	1	0	0	134	5	3	33	0	0	41	314
Hourly Total	81	378	10	0	0	469	38	20	33	0	0	91	26	647	6	0	0	679	12	25	249	0	0	286	1525
8:00 AM	24	74	3	0	0	101	9	3	10	0	0	22	6	122	0	0	0	128	1	4	41	0	0	46	297
8:15 AM	28	89	6	0	0	123	7	3	5	0	0	15	7	104	0	0	0	111	1	0	44	0	0	45	294
8:30 AM	15	73	2	0	0	90	7	2	3	0	1	12	8	134	1	0	0	143	0	5	37	0	0	42	287
8:45 AM	9	55	2	0	0	66	7	1	4	0	0	12	2	117	1	0	0	120	1	1	36	0	0	38	236
Hourly Total	76	291	13	0	0	380	30	9	22	0	1	61	23	477	2	0	0	502	3	10	158	0	0	171	1114
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	23	43	3	0	0	69	8	5	0	0	0	13	2	70	1	0	0	73	2	2	19	0	1	23	178
11:15 AM	25	43	0	0	0	68	2	2	1	0	0	5	0	71	0	0	0	71	2	1	22	0	0	25	169
11:30 AM	26	58	2	1	0	87	4	3	2	0	0	9	3	67	0	0	0	70	2	3	22	0	0	27	193
11:45 AM	25	58	3	0	0	86	5	4	3	0	0	12	4	73	0	0	0	77	1	1	27	0	0	29	204
Hourly Total	99	202	8	1	0	310	19	14	6	0	0	39	9	281	1	0	0	291	7	7	90	0	1	104	744
12:00 PM	38	74	8	0	0	120	5	4	5	0	0	14	2	89	0	0	0	91	0	0	22	0	0	22	247
12:15 PM	19	59	7	0	0	85	4	2	1	0	0	7	4	96	1	0	0	101	3	0	24	0	0	27	220
12:30 PM	28	67	7	0	0	102	3	1	1	0	1	5	4	86	4	0	0	94	1	3	18	0	0	22	223
12:45 PM	23	61	2	0	0	86	6	0	1	0	0	7	3	74	1	0	0	78	2	4	19	0	0	25	196
Hourly Total	108	261	24	0	0	393	18	7	8	0	1	33	13	345	6	0	0	364	6	7	83	0	0	96	886
1:00 PM	31	77	5	0	0	113	6	2	2	0	0	10	3	80	2	0	0	85	3	5	26	0	0	34	242
1:15 PM	32	63	6	0	0	101	7	4	5	0	0	16	6	70	0	0	0	76	2	2	28	0	0	32	225
1:30 PM	27	82	5	0	0	114	3	2	2	0	0	7	2	82	3	0	0	87	1	5	26	0	0	32	240
1:45 PM	31	105	6	0	0	142	4	0	4	0	0	8	4	84	1	0	0	89	2	2	16	0	0	20	259
Hourly Total	121	327	22	0	0	470	20	8	13	0	0	41	15	316	6	0	0	337	8	14	96	0	0	118	966
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	51	116	13	1	0	181	9	9	12	0	0	30	9	133	2	0	0	144	4	2	35	0	0	41	396
3:15 PM	38	127	8	0	0	173	10	3	2	0	0	15	4	115	1	0	1	120	2	6	28	0	0	36	344
3:30 PM	53	129	13	0	1	195	1	4	4	0	0	9	4	110	2	0	0	116	4	5	25	0	0	34	354
3:45 PM	52	128	13	0	0	193	9	5	6	0	0	20	6	112	1	0	0	119	1	3	26	0	0	30	362
Hourly Total	194	500	47	1	1	742	29	21	24	0	0	74	23	470	6	0	1	499	11	16	114	0	0	141	1456

4:00 PM	53	139	12	0	0	204	6	6	6	0	0	18	5	136	3	0	0	144	0	3	31	0	0	34	400
4:15 PM	67	146	18	0	0	231	8	7	5	0	0	20	6	125	0	0	0	131	1	2	37	0	0	40	422
4:30 PM	66	151	11	0	0	228	5	7	7	0	0	19	4	121	2	0	0	127	1	4	36	0	0	41	415
4:45 PM	55	150	10	0	0	215	3	1	8	0	3	12	2	118	1	0	0	121	0	3	36	0	0	39	387
Hourly Total	241	586	51	0	0	878	22	21	26	0	3	69	17	500	6	0	0	523	2	12	140	0	0	154	1624
5:00 PM	63	170	12	0	0	245	9	5	3	0	0	17	6	113	1	0	0	120	5	5	23	0	0	33	415
5:15 PM	55	157	10	0	0	222	7	5	7	0	0	19	6	111	5	0	0	122	5	3	29	0	0	37	400
5:30 PM	59	154	17	0	0	230	10	5	3	0	0	18	6	120	0	0	0	126	1	0	31	0	1	32	406
5:45 PM	54	115	9	0	0	178	9	4	7	0	0	20	6	118	3	1	0	128	1	3	40	0	0	44	370
Hourly Total	231	596	48	0	0	875	35	19	20	0	0	74	24	462	9	1	0	496	12	11	123	0	1	146	1591
Grand Total	1195	3371	230	2	1	4798	255	127	172	0	5	554	160	4074	44	1	1	4279	67	105	1295	0	2	1467	11098
Approach %	24.9	70.3	4.8	0.0	-	-	46.0	22.9	31.0	0.0	-	-	3.7	95.2	1.0	0.0	-	-	4.6	7.2	88.3	0.0	-	-	-
Total %	10.8	30.4	2.1	0.0	-	43.2	2.3	1.1	1.5	0.0	-	5.0	1.4	36.7	0.4	0.0	-	38.6	0.6	0.9	11.7	0.0	-	13.2	-
Lights	1185	3279	225	2	-	4691	252	121	166	0	-	539	160	3981	43	1	-	4185	66	103	1286	0	-	1455	10870
% Lights	99.2	97.3	97.8	100.0	-	97.8	98.8	95.3	96.5	-	-	97.3	100.0	97.7	97.7	100.0	-	97.8	98.5	98.1	99.3	-	-	99.2	97.9
Buses	6	61	3	0	-	70	2	4	5	0	-	11	0	52	0	0	-	52	1	0	6	0	-	7	140
% Buses	0.5	1.8	1.3	0.0	-	1.5	0.8	3.1	2.9	-	-	2.0	0.0	1.3	0.0	0.0	-	1.2	1.5	0.0	0.5	-	-	0.5	1.3
Trucks	4	31	2	0	-	37	1	1	1	0	-	3	0	41	1	0	-	42	0	2	3	0	-	5	87
% Trucks	0.3	0.9	0.9	0.0	-	0.8	0.4	0.8	0.6	-	-	0.5	0.0	1.0	2.3	0.0	-	1.0	0.0	1.9	0.2	-	-	0.3	0.8
Bicycles on Road	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.8	0.0	-	-	0.2	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	100.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	5	-	-	-	-	-	0	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	0.0	-	-	-	-	-	100.0	-	-

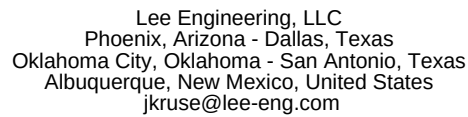


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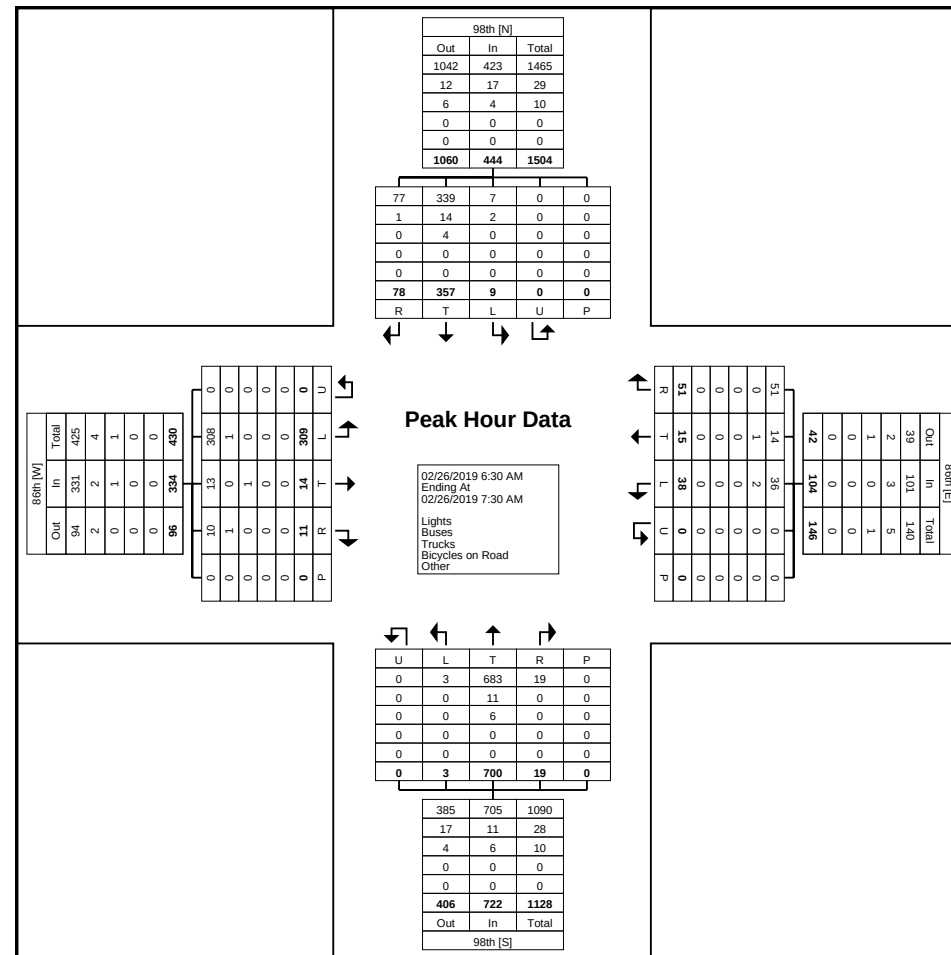
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Site Code: 98th & 86th
Start Date: 02/26/2019
Page No: 3



Turning Movement Data Plot



Count Name: NM273.01 - Solare Collegiate NIA
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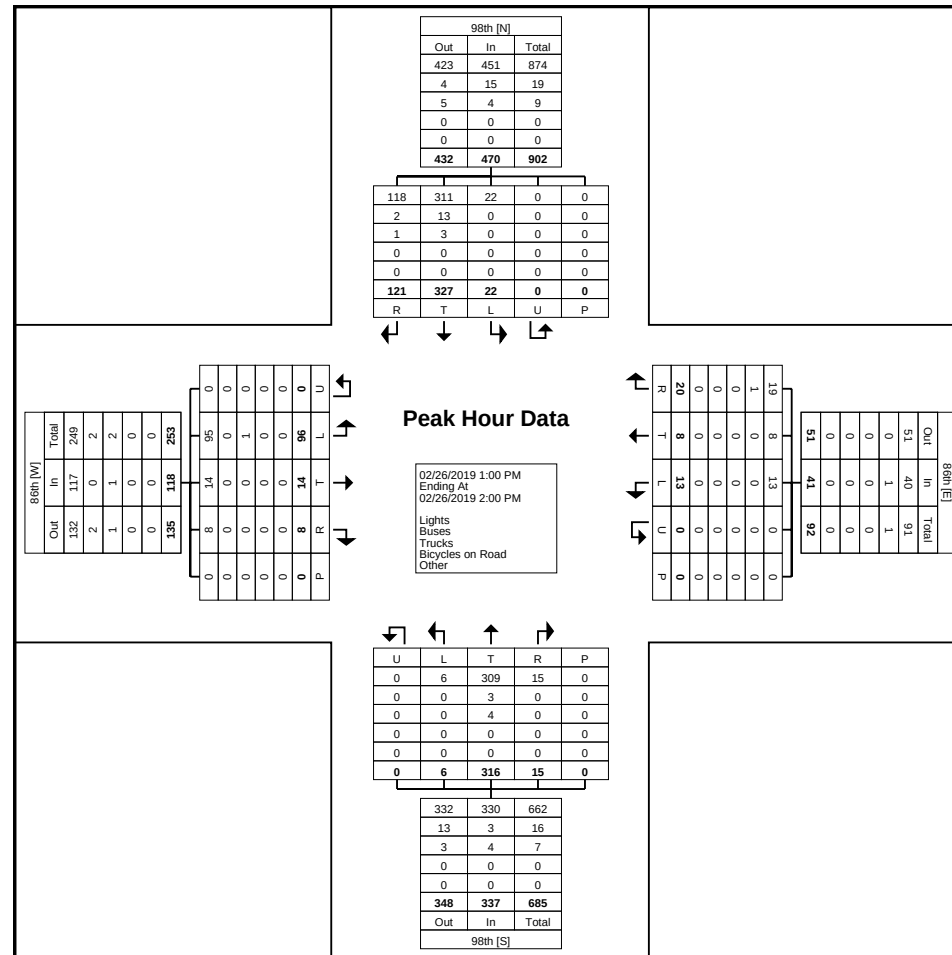
Turning Movement Peak Hour Data (1:00 PM)

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Turning Movement Peak Hour Data Plot (1:00 PM)



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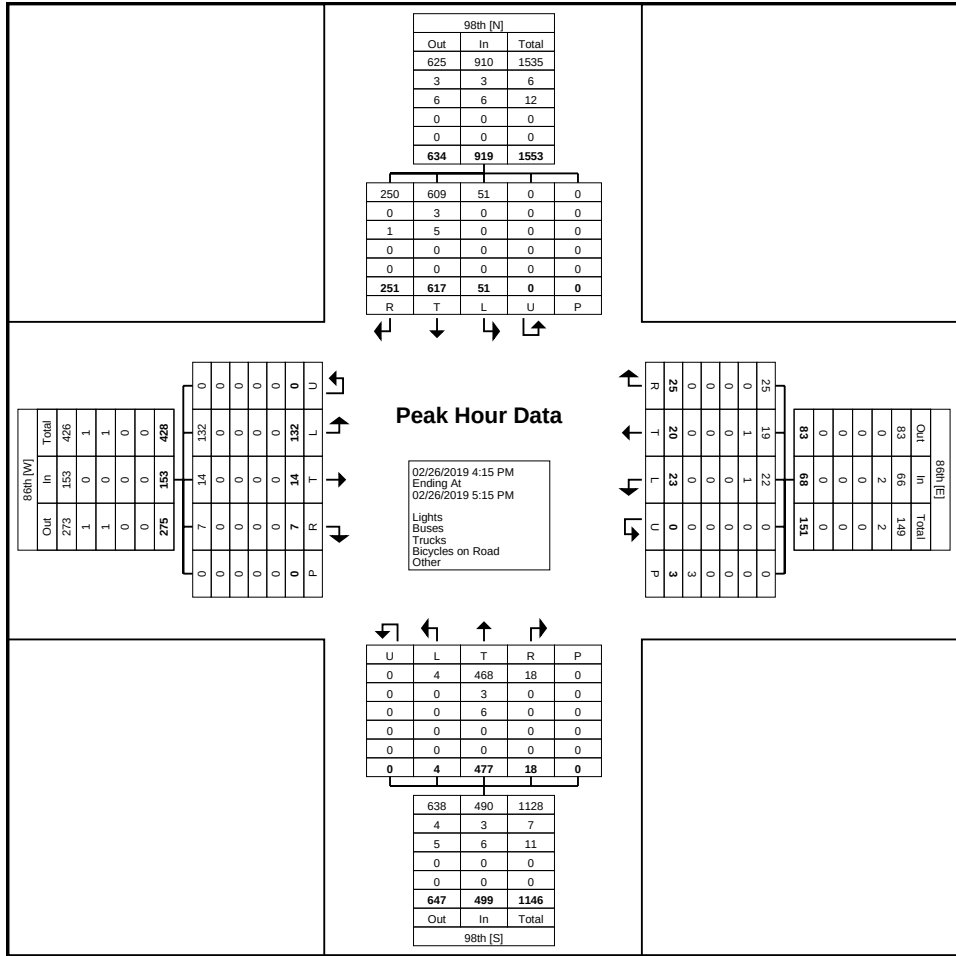
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Site Code: 98th & 86th

Start Date: 02/26/2019

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Turning Movement Peak Hour Data Plot (4:15 PM)



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Site Code: 98th & 86th
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Appendix C:
Level of Service and Capacity Output
Sheets

Appendix C:
Level of Service and Capacity Output
Sheets
Existing No Build AM

Solare Collegiate School NIA

Vistro File: L:\...\Solare Charter School Analysis.vistro

Scenario 1 Existing No Build AM

Report File: L:\...\1. Existing No Build AM.pdf

4/16/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Gibson Blvd and Unser Blvd	Signalized	HCM 6th Edition	EB Left	0.310	24.5	C
2	Gibson Blvd and Barbados Ave	Two-way stop	HCM 6th Edition	SB Thru	0.018	11.9	B
3	Gibson Blvd and 98th St	All-way stop	HCM 6th Edition	EB Left	0.417	12.3	B
4	Blake Rd and 98th St	All-way stop	HCM 6th Edition	SB Thru	0.437	13.2	B
5	86th St and 98th St	All-way stop	HCM 6th Edition	NB Thru	0.786	29.8	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: Gibson Blvd and Unser Blvd

Control Type:	Signalized	Delay (sec / veh):	24.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.310

Intersection Setup

Name	Unser Blvd			Unser Blvd			Gibson Blvd			Spring Flower Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵↵			↵↵↵			↵↵↵			↵↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	12.00	12.00	11.00	12.00	12.00	11.00	11.00	12.00	11.00	11.00	11.00
No. of Lanes in Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	460.00	100.00	100.00	315.00	100.00	600.00	225.00	100.00	150.00	80.00	100.00	100.00
Speed [mph]	40.00			40.00			40.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Unser Blvd			Unser Blvd			Gibson Blvd			Spring Flower Rd		
Base Volume Input [veh/h]	57	536	22	28	479	87	336	19	63	63	34	49
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	57	536	22	28	479	87	336	19	63	63	34	49
Peak Hour Factor	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640
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	139	6	7	124	23	87	5	16	16	9	13
Total Analysis Volume [veh/h]	59	556	23	29	497	90	349	20	65	65	35	51
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	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	1			0			1			0		
v_ci, Inbound Pedestrian Volume crossing	0			1			0			1		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	44.4
Offset Reference	LeadGreen
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	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	3	12	0	3	12	0	3	12	0	3	12	0
Maximum Green [s]	16	36	0	16	36	0	16	24	0	16	24	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.5	0.0	3.5	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.5	0.0	1.0	2.0	0.0	1.0	3.5	0.0
Split [s]	14	36	0	14	36	0	28	56	0	14	42	0
Vehicle Extension [s]	1.5	4.0	0.0	1.5	4.0	0.0	2.5	2.0	0.0	1.5	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	22	0	0	27	0	0	28	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]	2.5	3.0	0.0	2.5	3.5	0.0	2.5	4.5	0.0	2.5	4.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		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]	30.0	0.0	0.0	30.0	0.0	0.0	20.0	20.0	0.0	20.0	20.0	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	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]	5.00	5.00	5.00	5.50	5.50	5.50	4.50	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	3.00	3.00	0.00	3.50	3.50	2.50	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	77	71	71	77	69	69	15	22	22	31	11	11
g / C, Green / Cycle	0.65	0.59	0.59	0.64	0.58	0.58	0.13	0.18	0.18	0.26	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.04	0.17	0.17	0.03	0.15	0.06	0.11	0.01	0.04	0.05	0.03	0.03
s, saturation flow rate [veh/h]	1601	1683	1660	813	3204	1431	3113	1683	1431	1337	1624	1431
c, Capacity [veh/h]	1032	996	982	540	1849	825	396	304	258	425	153	135
d1, Uniform Delay [s]	7.85	11.99	12.00	8.38	12.63	11.43	51.22	40.74	42.14	34.26	50.53	50.61
k, delay calibration	0.50	0.50	0.50	0.04	0.50	0.50	0.08	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]	0.10	0.71	0.72	0.01	0.34	0.26	3.99	0.03	0.18	0.06	0.37	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	0.06	0.28	0.28	0.05	0.26	0.11	0.85	0.06	0.24	0.15	0.28	0.30
d, Delay for Lane Group [s/veh]	7.95	12.70	12.72	8.39	12.97	11.69	55.21	40.77	42.32	34.32	50.90	51.06
Lane Group LOS	A	B	B	A	B	B	E	D	D	C	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.53	3.65	3.61	0.25	3.11	1.05	5.07	0.46	1.59	1.45	1.23	1.15
50th-Percentile Queue Length [ft/ln]	13.27	91.19	90.21	6.20	77.81	26.35	126.74	11.59	39.85	36.32	30.73	28.82
95th-Percentile Queue Length [veh/ln]	0.96	6.57	6.49	0.45	5.60	1.90	8.76	0.83	2.87	2.61	2.21	2.08
95th-Percentile Queue Length [ft/ln]	23.89	164.15	162.37	11.16	140.06	47.43	219.06	20.87	71.73	65.37	55.31	51.88

Movement, Approach, & Intersection Results

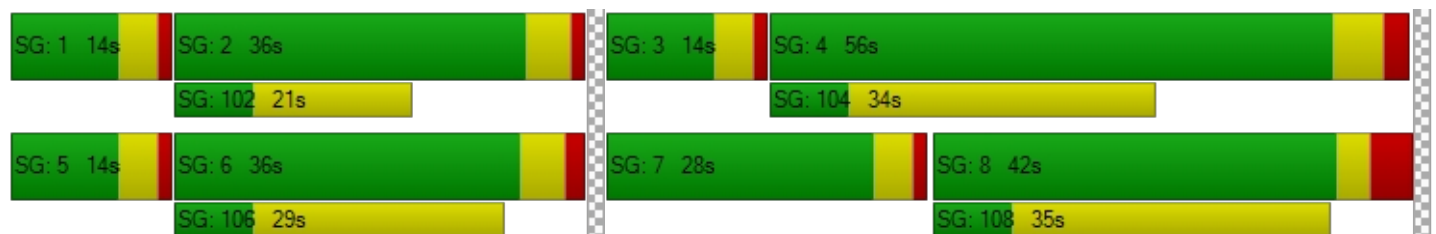
d_M, Delay for Movement [s/veh]	7.95	12.71	12.72	8.39	12.97	11.69	55.21	40.77	42.32	34.32	50.90	51.04
Movement LOS	A	B	B	A	B	B	E	D	D	C	D	D
d_A, Approach Delay [s/veh]	12.27			12.56			52.61			43.79		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	24.48											
Intersection LOS	C											
Intersection V/C	0.310											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
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			11511.86			11021.15		
d_p, Pedestrian Delay [s]	49.50			49.50			49.50			49.50		
I_p,int, Pedestrian LOS Score for Intersection	2.678			2.819			2.723			2.371		
Crosswalk LOS	B			C			B			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	517			508			825			592		
d_b, Bicycle Delay [s]	33.00			33.38			20.71			29.75		
I_b,int, Bicycle LOS Score for Intersection	0.781			0.763			2.249			1.801		
Bicycle LOS	A			A			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 2: Gibson Blvd and Barbados Ave

Control Type:	Two-way stop	Delay (sec / veh):	11.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.018

Intersection Setup

Name	Stampede Dr			Barbados Ave			Gibson Blvd			Gibson Blvd		
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 Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	25.00			30.00			40.00			40.00		
Grade [%]	0.00			0.00			-2.00			2.00		
Crosswalk	No			No			No			No		

Volumes

Name	Stampede Dr			Barbados Ave			Gibson Blvd			Gibson Blvd		
Base Volume Input [veh/h]	8	18	6	46	10	6	10	223	4	3	96	10
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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
Total Hourly Volume [veh/h]	8	18	6	46	10	6	10	223	4	3	96	10
Peak Hour Factor	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320
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]	2	5	2	12	3	2	3	60	1	1	26	3
Total Analysis Volume [veh/h]	9	19	6	49	11	6	11	239	4	3	103	11
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.03	0.01	0.07	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.23	11.71	9.24	11.01	11.93	9.15	7.30	0.00	0.00	8.06	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.16	0.16	0.16	0.31	0.31	0.31	0.02	0.00	0.00	0.01	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.08	4.08	4.08	7.72	7.72	7.72	0.48	0.00	0.00	0.19	0.00	0.00
d_A, Approach Delay [s/veh]	11.13			10.98			0.31			0.22		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	2.58											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 3: Gibson Blvd and 98th St

Control Type: All-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 12.3
 Level Of Service: B
 Volume to Capacity (v/c): 0.417

Intersection Setup

Name	98 St			98 St			Gibson Blvd			Gibson Blvd		
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 Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	280.00	100.00	170.00	360.00	100.00	140.00	420.00	100.00	180.00	320.00	100.00	160.00
Speed [mph]	35.00			35.00			40.00			40.00		
Grade [%]	1.00			-1.00			-2.00			2.00		
Crosswalk	No			No			No			No		

Volumes

Name	98 St			98 St			Gibson Blvd			Gibson Blvd		
Base Volume Input [veh/h]	20	470	67	15	393	39	190	152	32	27	61	23
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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
Total Hourly Volume [veh/h]	20	470	67	15	393	39	190	152	32	27	61	23
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
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]	6	138	20	4	116	11	56	45	9	8	18	7
Total Analysis Volume [veh/h]	24	553	79	18	462	46	224	179	38	32	72	27
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	526	564	564	628	522	559	559	621	498	533	533	590	512	545	545	601
Degree of Utilization, x	0.04	0.42	0.42	0.11	0.03	0.35	0.35	0.06	0.38	0.14	0.14	0.05	0.05	0.06	0.06	0.04

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.12	2.12	2.12	0.36	0.09	1.61	1.61	0.20	1.83	0.50	0.50	0.17	0.17	0.18	0.18	0.12
95th-Percentile Queue Length [ft]	2.97	52.92	52.92	8.95	2.22	40.29	40.29	5.02	45.71	12.46	12.46	4.31	4.17	4.44	4.44	2.99
Approach Delay [s/veh]	12.95				12.20				12.39				9.64			
Approach LOS	B				B				B				A			
Intersection Delay [s/veh]	12.34															
Intersection LOS	B															

Intersection Level Of Service Report

Intersection 4: Blake Rd and 98th St

Control Type: All-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 13.2
 Level Of Service: B
 Volume to Capacity (v/c): 0.437

Intersection Setup

Name	98th St			98 St			Blake Rd			Blake Rd		
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	15.00	15.00	12.00	18.00	18.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	110.00	100.00	125.00	415.00	100.00	100.00	200.00	100.00	100.00	210.00	100.00	100.00
Speed [mph]	30.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			-2.50			2.50		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	98th St			98 St			Blake Rd			Blake Rd		
Base Volume Input [veh/h]	44	408	115	72	449	4	19	72	108	85	30	74
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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
Total Hourly Volume [veh/h]	44	408	115	72	449	4	19	72	108	85	30	74
Peak Hour Factor	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330
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]	12	109	31	19	120	1	5	19	29	23	8	20
Total Analysis Volume [veh/h]	47	437	123	77	481	4	20	77	116	91	32	79
Pedestrian Volume [ped/h]	0			1			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	480	514	514	571	484	519	520	518	581	492	558
Degree of Utilization, x	0.09	0.40	0.40	0.20	0.15	0.44	0.44	0.04	0.31	0.17	0.19

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.30	1.95	1.95	0.75	0.52	2.29	2.28	0.11	1.34	0.63	0.69
95th-Percentile Queue Length [ft]	7.56	48.73	48.73	18.86	13.06	57.23	57.06	2.86	33.38	15.64	17.14
Approach Delay [s/veh]	13.28				14.49			11.49		11.05	
Approach LOS	B				B			B		B	
Intersection Delay [s/veh]	13.18										
Intersection LOS	B										

Intersection Level Of Service Report

Intersection 5: 86th St and 98th St

Control Type: All-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 29.8
 Level Of Service: D
 Volume to Capacity (v/c): 0.786

Intersection Setup

Name	98 St			98 St			De Anza Dr SW			86th St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	12.00	12.00	20.00	20.00	20.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	220.00	100.00	120.00	125.00	100.00	110.00	100.00	100.00	100.00	350.00	100.00	100.00
Speed [mph]	35.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			-2.00			2.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	98 St			98 St			De Anza Dr SW			86th St		
Base Volume Input [veh/h]	3	700	19	9	357	78	309	14	11	38	15	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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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
Total Hourly Volume [veh/h]	3	700	19	9	357	78	309	14	11	38	15	51
Peak Hour Factor	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330
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]	1	188	5	2	96	21	83	4	3	10	4	14
Total Analysis Volume [veh/h]	3	750	20	10	383	84	331	15	12	41	16	55
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	418	446	446	490	384	407	407	444	443	369	412
Degree of Utilization, x	0.01	0.79	0.79	0.04	0.02	0.44	0.44	0.18	0.75	0.10	0.16

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.02	9.23	9.23	0.12	0.07	2.30	2.30	0.64	8.03	0.34	0.57
95th-Percentile Queue Length [ft]	0.54	230.7	230.7	3.02	1.80	57.43	57.43	15.89	200.79	8.60	14.25
Approach Delay [s/veh]	37.62				17.25				34.85	13.27	
Approach LOS	E				C				D	B	
Intersection Delay [s/veh]	29.83										
Intersection LOS	D										

Signal Warrants Report For Intersection 2: Gibson Blvd and Barbados Ave

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	109	237	32	62
2	105	228	31	60
3	102	223	30	58
4	87	190	26	50
5	83	180	24	47
6	74	161	22	42
7	69	149	20	39
8	65	142	19	37
9	52	114	15	30
10	49	107	14	28
11	49	107	14	28
12	47	102	14	27
13	43	92	12	24
14	39	85	12	22
15	39	85	12	22
16	38	83	11	22
17	22	47	6	12
18	12	26	4	7
19	11	24	3	6
20	4	9	1	2
21	3	7	1	2
22	3	7	1	2
23	2	5	1	1
24	2	5	1	1

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	346	2	94	No	No	No	No	No	No	No	No	No	No
2	6	333	2	91	No	No	No	No	No	No	No	No	No	No
3	6	325	2	88	No	No	No	No	No	No	No	No	No	No
4	6	277	2	76	No	No	No	No	No	No	No	No	No	No
5	6	263	2	71	No	No	No	No	No	No	No	No	No	No
6	6	235	2	64	No	No	No	No	No	No	No	No	No	No
7	6	218	2	59	No	No	No	No	No	No	No	No	No	No
8	6	207	2	56	No	No	No	No	No	No	No	No	No	No
9	6	166	2	45	No	No	No	No	No	No	No	No	No	No
10	6	156	2	42	No	No	No	No	No	No	No	No	No	No
11	6	156	2	42	No	No	No	No	No	No	No	No	No	No
12	6	149	2	41	No	No	No	No	No	No	No	No	No	No
13	6	135	2	36	No	No	No	No	No	No	No	No	No	No
14	6	124	2	34	No	No	No	No	No	No	No	No	No	No
15	6	124	2	34	No	No	No	No	No	No	No	No	No	No
16	6	121	2	33	No	No	No	No	No	No	No	No	No	No
17	6	69	2	18	No	No	No	No	No	No	No	No	No	No
18	6	38	2	11	No	No	No	No	No	No	No	No	No	No
19	6	35	2	9	No	No	No	No	No	No	No	No	No	No
20	6	13	2	3	No	No	No	No	No	No	No	No	No	No
21	6	10	2	3	No	No	No	No	No	No	No	No	No	No
22	6	10	2	3	No	No	No	No	No	No	No	No	No	No
23	6	7	2	2	No	No	No	No	No	No	No	No	No	No
24	6	7	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.1	11
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:05	0:11
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	32	62
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	440	440
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 3: Gibson Blvd and 98th St

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	557	447	111	374
2	535	429	107	359
3	524	420	104	352
4	446	358	89	299
5	423	340	84	284
6	379	304	75	254
7	351	282	70	236
8	334	268	67	224
9	267	215	53	180
10	251	201	50	168
11	251	201	50	168
12	240	192	48	161
13	217	174	43	146
14	201	161	40	135
15	201	161	40	135
16	195	156	39	131
17	111	89	22	75
18	61	49	12	41
19	56	45	11	37
20	22	18	4	15
21	17	13	3	11
22	17	13	3	11
23	11	9	2	7
24	11	9	2	7

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	8	1004	8	485	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	8	964	8	466	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
3	8	944	8	456	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
4	8	804	8	388	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
5	8	763	8	368	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
6	8	683	8	329	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No
7	8	633	8	306	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No
8	8	602	8	291	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No
9	8	482	8	233	No	Yes	Yes	Yes	No	No	No	No	No	No
10	8	452	8	218	No	No	Yes	Yes	No	No	No	No	No	No
11	8	452	8	218	No	No	Yes	Yes	No	No	No	No	No	No
12	8	432	8	209	No	No	Yes	Yes	No	No	No	No	No	No
13	8	391	8	189	No	No	No	Yes	No	No	No	No	No	No
14	8	362	8	175	No	No	No	Yes	No	No	No	No	No	No
15	8	362	8	175	No	No	No	Yes	No	No	No	No	No	No
16	8	351	8	170	No	No	No	Yes	No	No	No	No	No	No
17	8	200	8	97	No	No	No	No	No	No	No	No	No	No
18	8	110	8	53	No	No	No	No	No	No	No	No	No	No
19	8	101	8	48	No	No	No	No	No	No	No	No	No	No
20	8	40	8	19	No	No	No	No	No	No	No	No	No	No
21	8	30	8	14	No	No	No	No	No	No	No	No	No	No
22	8	30	8	14	No	No	No	No	No	No	No	No	No	No
23	8	20	8	9	No	No	No	No	No	No	No	No	No	No
24	8	20	8	9	No	No	No	No	No	No	No	No	No	No
Hours Met					8	9	12	16	3	5	7	8	4	1

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.6	12.4
Number of Lanes on Minor Street Approach	4	4
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:17	1:17
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	111	374
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	1489	1489
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 4: Blake Rd and 98th St

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	N	S	E	W
1	525	567	189	199
2	504	544	181	191
3	494	533	178	187
4	420	454	151	159
5	399	431	144	151
6	357	386	129	135
7	331	357	119	125
8	315	340	113	119
9	252	272	91	96
10	236	255	85	90
11	236	255	85	90
12	226	244	81	86
13	205	221	74	78
14	189	204	68	72
15	189	204	68	72
16	184	198	66	70
17	105	113	38	40
18	58	62	21	22
19	53	57	19	20
20	21	23	8	8
21	16	17	6	6
22	16	17	6	6
23	11	11	4	4
24	11	11	4	4

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	7	1092	4	388	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
2	7	1048	4	372	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
3	7	1027	4	365	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
4	7	874	4	310	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No
5	7	830	4	295	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No
6	7	743	4	264	No	No	No	Yes	No	Yes	Yes	Yes	No	No
7	7	688	4	244	No	No	No	Yes	No	No	Yes	Yes	No	No
8	7	655	4	232	No	No	No	Yes	No	No	Yes	Yes	No	No
9	7	524	4	187	No	No	No	No	No	No	No	Yes	No	No
10	7	491	4	175	No	No	No	No	No	No	No	No	No	No
11	7	491	4	175	No	No	No	No	No	No	No	No	No	No
12	7	470	4	167	No	No	No	No	No	No	No	No	No	No
13	7	426	4	152	No	No	No	No	No	No	No	No	No	No
14	7	393	4	140	No	No	No	No	No	No	No	No	No	No
15	7	393	4	140	No	No	No	No	No	No	No	No	No	No
16	7	382	4	136	No	No	No	No	No	No	No	No	No	No
17	7	218	4	78	No	No	No	No	No	No	No	No	No	No
18	7	120	4	43	No	No	No	No	No	No	No	No	No	No
19	7	110	4	39	No	No	No	No	No	No	No	No	No	No
20	7	44	4	16	No	No	No	No	No	No	No	No	No	No
21	7	33	4	12	No	No	No	No	No	No	No	No	No	No
22	7	33	4	12	No	No	No	No	No	No	No	No	No	No
23	7	22	4	8	No	No	No	No	No	No	No	No	No	No
24	7	22	4	8	No	No	No	No	No	No	No	No	No	No
Hours Met					0	3	5	8	3	6	8	9	2	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.1	11.5
Number of Lanes on Minor Street Approach	2	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:34	0:38
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	189	199
High Minor Volume Condition Met	Yes	Yes
Total Entering Volume on All Approaches During Same Hour	1480	1480
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 5: 86th St and 98th St

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	722	444	104	334
2	693	426	100	321
3	679	417	98	314
4	578	355	83	267
5	549	337	79	254
6	491	302	71	227
7	455	280	66	210
8	433	266	62	200
9	347	213	50	160
10	325	200	47	150
11	325	200	47	150
12	310	191	45	144
13	282	173	41	130
14	260	160	37	120
15	260	160	37	120
16	253	155	36	117
17	144	89	21	67
18	79	49	11	37
19	72	44	10	33
20	29	18	4	13
21	22	13	3	10
22	22	13	3	10
23	14	9	2	7
24	14	9	2	7

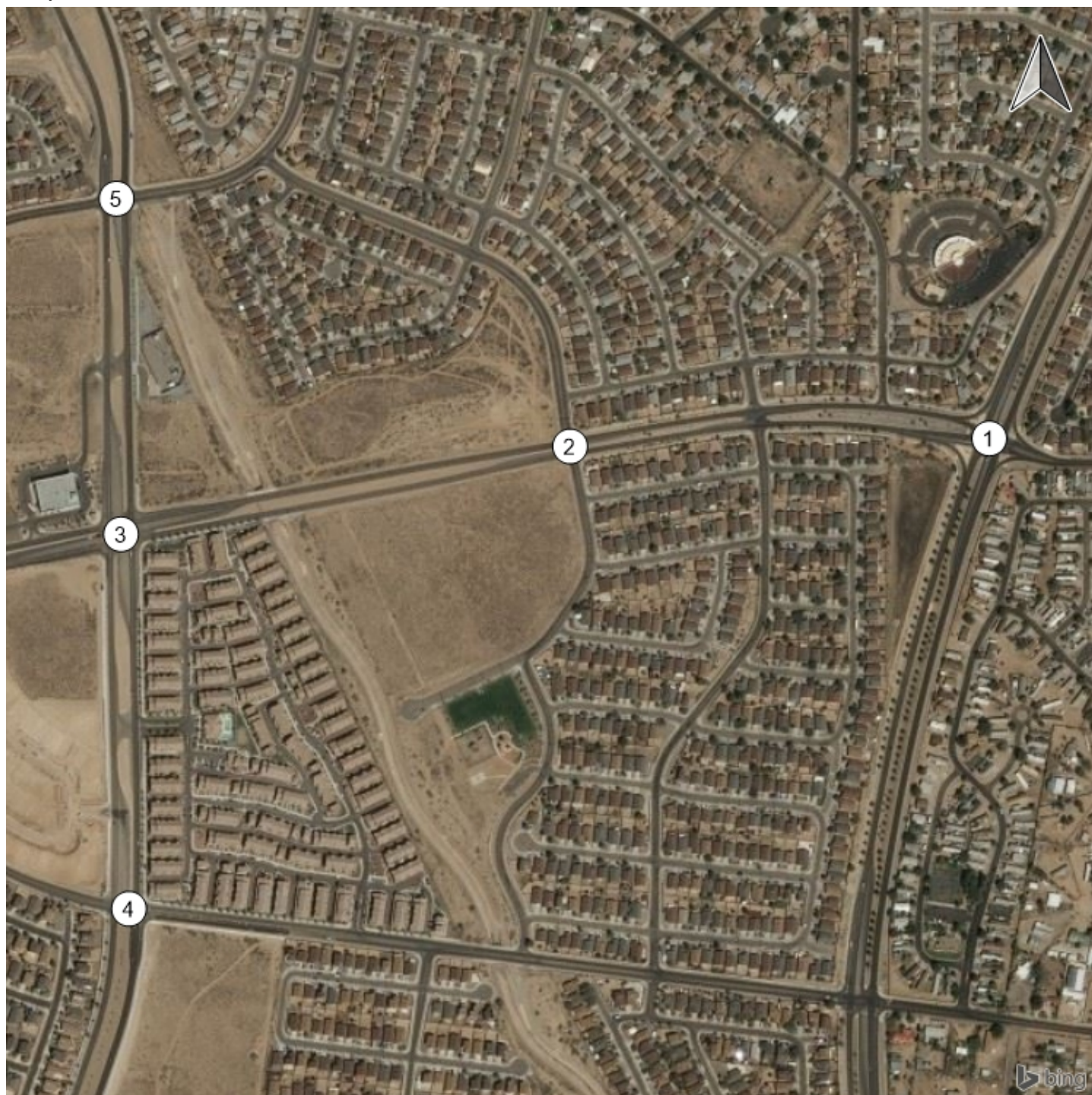
Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	8	1166	3	438	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	8	1119	3	421	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	8	1096	3	412	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	8	933	3	350	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
5	8	886	3	333	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
6	8	793	3	298	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
7	8	735	3	276	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
8	8	699	3	262	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No
9	8	560	3	210	No	Yes	Yes	Yes	No	No	No	Yes	No	No
10	8	525	3	197	No	Yes	Yes	Yes	No	No	No	Yes	No	No
11	8	525	3	197	No	Yes	Yes	Yes	No	No	No	Yes	No	No
12	8	501	3	189	No	Yes	Yes	Yes	No	No	No	No	No	No
13	8	455	3	171	No	No	Yes	Yes	No	No	No	No	No	No
14	8	420	3	157	No	No	Yes	Yes	No	No	No	No	No	No
15	8	420	3	157	No	No	Yes	Yes	No	No	No	No	No	No
16	8	408	3	153	No	No	No	Yes	No	No	No	No	No	No
17	8	233	3	88	No	No	No	No	No	No	No	No	No	No
18	8	128	3	48	No	No	No	No	No	No	No	No	No	No
19	8	116	3	43	No	No	No	No	No	No	No	No	No	No
20	8	47	3	17	No	No	No	No	No	No	No	No	No	No
21	8	35	3	13	No	No	No	No	No	No	No	No	No	No
22	8	35	3	13	No	No	No	No	No	No	No	No	No	No
23	8	23	3	9	No	No	No	No	No	No	No	No	No	No
24	8	23	3	9	No	No	No	No	No	No	No	No	No	No
Hours Met					8	12	15	16	4	7	8	11	6	3

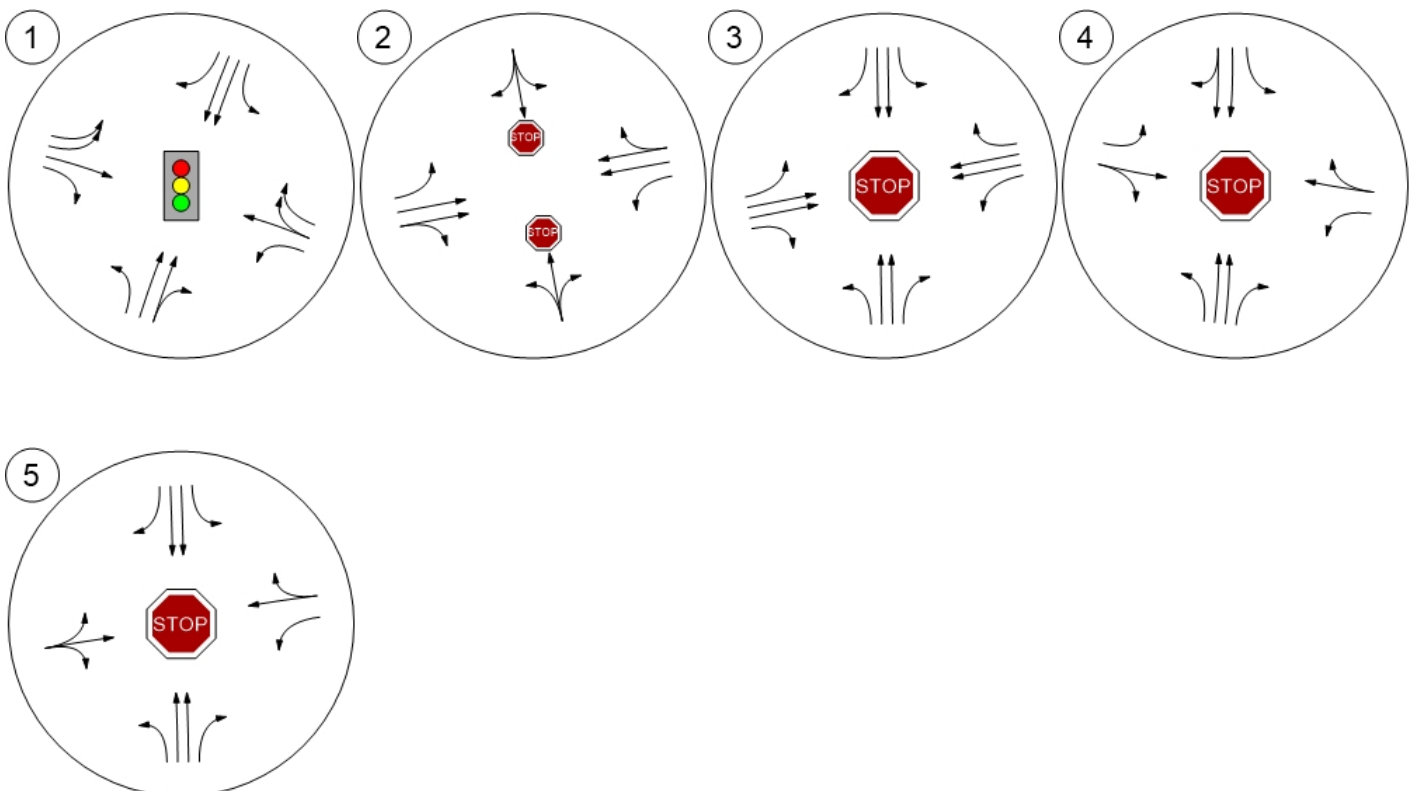
Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	13.3	34.8
Number of Lanes on Minor Street Approach	2	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:23	3:13
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	104	334
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	1604	1604
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

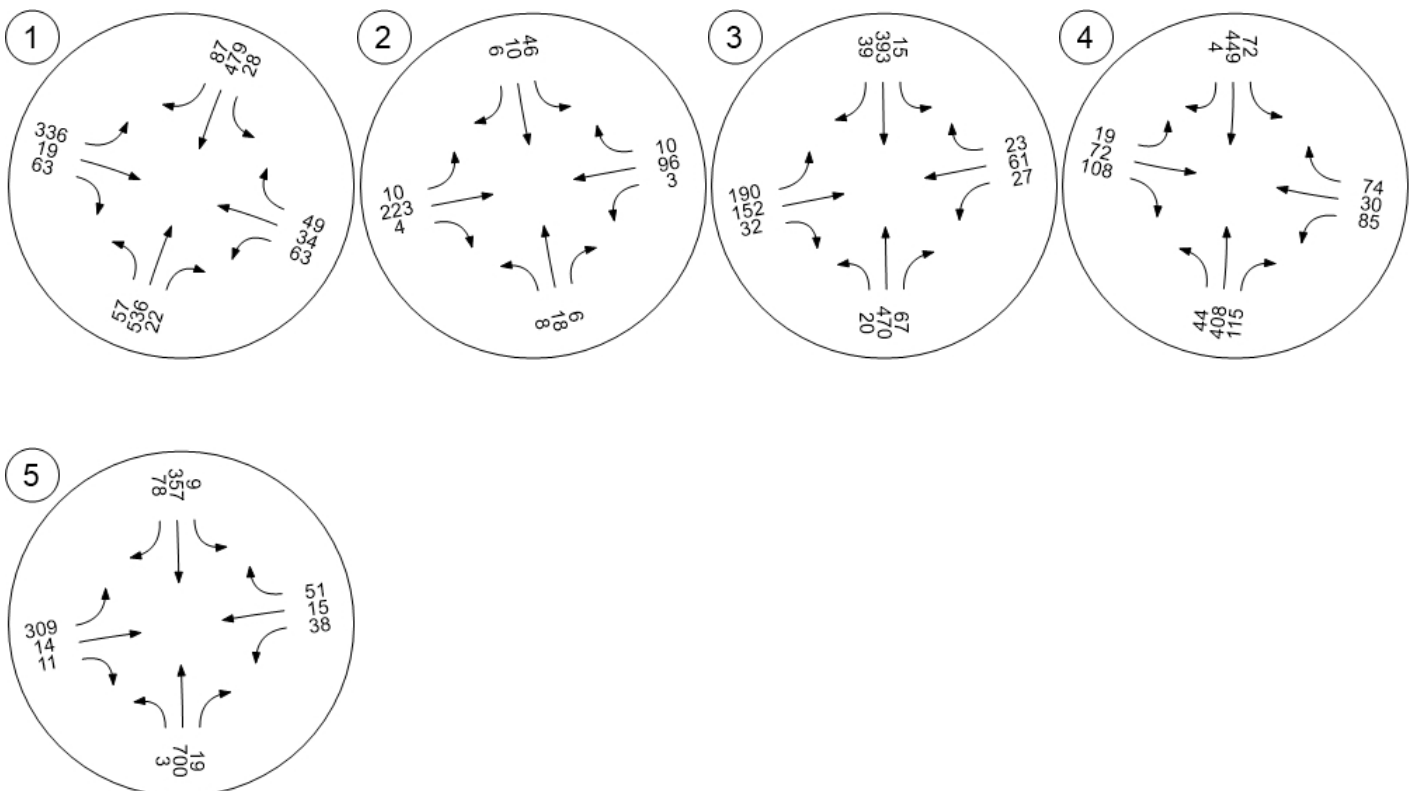
Study Intersections



Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



Appendix C:
Level of Service and Capacity Output
Sheets
Existing No Build PM

Solare Collegiate School NIA

Vistro File: L:\...\Solare Charter School Analysis.vistro

Scenario 2 Existing No Build PM

Report File: L:\...\2. Existing No Build PM.pdf

4/16/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Gibson Blvd and Unser Blvd	Signalized	HCM 6th Edition	EB Left	0.280	16.4	B
2	Gibson Blvd and Barbados Ave	Two-way stop	HCM 6th Edition	SB Thru	0.022	12.0	B
3	Gibson Blvd and 98th St	All-way stop	HCM 6th Edition	SB Thru	0.399	11.3	B
4	Blake Rd and 98th St	All-way stop	HCM 6th Edition	NB Thru	0.318	11.3	B
5	86th St and 98th St	All-way stop	HCM 6th Edition	SB Thru	0.582	16.2	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: Gibson Blvd and Unser Blvd

Control Type:	Signalized	Delay (sec / veh):	16.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.280

Intersection Setup

Name	Unser Blvd			Unser Blvd			Gibson Blvd			Spring Flower Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	12.00	12.00	11.00	12.00	12.00	11.00	11.00	12.00	11.00	11.00	11.00
No. of Lanes in Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	460.00	100.00	100.00	315.00	100.00	600.00	225.00	100.00	150.00	80.00	100.00	100.00
Speed [mph]	40.00			40.00			40.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Unser Blvd			Unser Blvd			Gibson Blvd			Spring Flower Rd		
Base Volume Input [veh/h]	117	429	51	40	456	243	109	21	51	42	26	21
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	117	429	51	40	456	243	109	21	51	42	26	21
Peak Hour Factor	0.9670	0.9670	0.9670	0.9670	0.9670	0.9670	0.9670	0.9670	0.9670	0.9670	0.9670	0.9670
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]	30	111	13	10	118	63	28	5	13	11	7	5
Total Analysis Volume [veh/h]	121	444	53	41	472	251	113	22	53	43	27	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			2			1			1		
v_di, Inbound Pedestrian Volume crossing	1			1			0			2		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	2			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	44.2
Offset Reference	LeadGreen
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	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	3	12	0	3	12	0	3	12	0	3	12	0
Maximum Green [s]	16	36	0	16	36	0	16	24	0	16	24	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.5	0.0	3.5	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.5	0.0	1.0	2.0	0.0	1.0	3.5	0.0
Split [s]	22	55	0	16	49	0	17	43	0	16	42	0
Vehicle Extension [s]	1.5	4.0	0.0	1.5	4.0	0.0	2.5	2.0	0.0	1.5	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	22	0	0	27	0	0	28	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]	2.5	3.0	0.0	2.5	3.5	0.0	2.5	4.5	0.0	2.5	4.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		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]	30.0	0.0	0.0	30.0	0.0	0.0	20.0	20.0	0.0	20.0	20.0	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	R	L	C	R	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.50	5.50	5.50	4.50	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	3.00	3.00	0.00	3.50	3.50	2.50	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	96	90	90	96	86	86	6	14	14	22	11	11
g / C, Green / Cycle	0.74	0.69	0.69	0.74	0.66	0.66	0.05	0.11	0.11	0.17	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.07	0.14	0.15	0.05	0.14	0.17	0.04	0.01	0.04	0.03	0.02	0.01
s, saturation flow rate [veh/h]	1603	1683	1613	862	3204	1431	3113	1683	1431	1352	1683	1431
c, Capacity [veh/h]	1188	1159	1111	669	2128	950	155	179	152	298	145	123
d1, Uniform Delay [s]	4.70	7.37	7.38	4.83	8.55	8.83	60.83	52.56	53.83	45.93	55.13	55.09
k, delay calibration	0.50	0.50	0.50	0.04	0.50	0.50	0.08	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]	0.17	0.41	0.44	0.01	0.23	0.65	4.41	0.11	0.48	0.08	0.22	0.24
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	0.10	0.21	0.21	0.06	0.21	0.26	0.70	0.12	0.34	0.14	0.18	0.17
d, Delay for Lane Group [s/veh]	4.87	7.78	7.82	4.84	8.78	9.48	65.24	52.67	54.31	46.01	55.35	55.33
Lane Group LOS	A	A	A	A	A	A	E	D	D	D	E	E
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.81	2.38	2.32	0.25	2.40	2.74	1.84	0.62	1.55	1.18	0.81	0.66
50th-Percentile Queue Length [ft/ln]	20.32	59.61	57.99	6.37	60.01	68.50	46.11	15.52	38.77	29.60	20.25	16.38
95th-Percentile Queue Length [veh/ln]	1.46	4.29	4.18	0.46	4.32	4.93	3.32	1.12	2.79	2.13	1.46	1.18
95th-Percentile Queue Length [ft/ln]	36.57	107.30	104.38	11.46	108.02	123.29	83.00	27.93	69.78	53.29	36.46	29.48

Movement, Approach, & Intersection Results

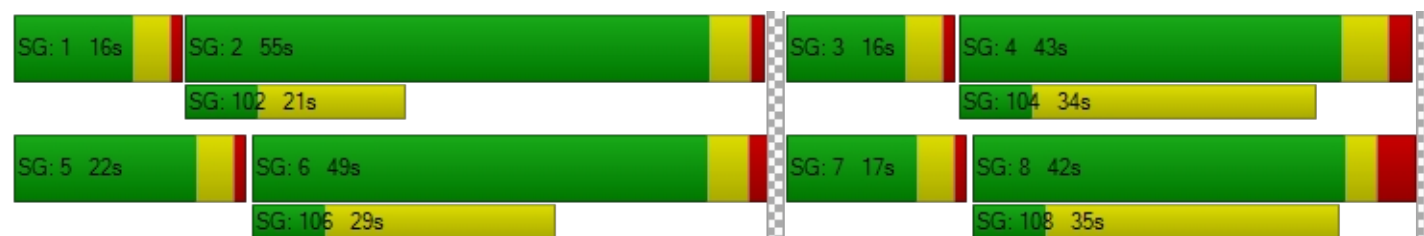
d_M, Delay for Movement [s/veh]	4.87	7.80	7.82	4.84	8.78	9.48	65.24	52.67	54.31	46.01	55.35	55.33
Movement LOS	A	A	A	A	A	A	E	D	D	D	E	E
d_A, Approach Delay [s/veh]	7.23			8.80			60.70			50.94		
Approach LOS	A			A			E			D		
d_I, Intersection Delay [s/veh]	16.40											
Intersection LOS	B											
Intersection V/C	0.280											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	11198.94			3875.87			0.00			0.00		
d_p, Pedestrian Delay [s]	54.47			54.47			54.47			54.47		
I_p,int, Pedestrian LOS Score for Intersection	2.663			2.800			2.724			2.390		
Crosswalk LOS	B			C			B			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	769			669			562			546		
d_b, Bicycle Delay [s]	24.64			28.78			33.62			34.35		
I_b,int, Bicycle LOS Score for Intersection	0.766			0.883			1.858			1.706		
Bicycle LOS	A			A			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 2: Gibson Blvd and Barbados Ave

Control Type:	Two-way stop	Delay (sec / veh):	12.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.022

Intersection Setup

Name	Stampede Dr			Barbados Ave			Gibson Blvd			Gibson Blvd		
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 Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	25.00			25.00			40.00			40.00		
Grade [%]	0.00			0.00			-2.00			2.00		
Crosswalk	No			No			No			No		

Volumes

Name	Stampede Dr			Barbados Ave			Gibson Blvd			Gibson Blvd		
Base Volume Input [veh/h]	10	10	8	33	12	8	7	97	16	11	193	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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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
Total Hourly Volume [veh/h]	10	10	8	33	12	8	7	97	16	11	193	48
Peak Hour Factor	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990
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]	3	3	2	9	3	2	2	27	4	3	54	13
Total Analysis Volume [veh/h]	11	11	9	37	13	9	8	108	18	12	215	53
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.01	0.05	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	10.63	11.86	8.84	11.50	12.04	9.50	7.39	0.00	0.00	7.62	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.13	0.13	0.13	0.28	0.28	0.28	0.01	0.00	0.00	0.02	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.24	3.24	3.24	6.97	6.97	6.97	0.35	0.00	0.00	0.60	0.00	0.00
d_A, Approach Delay [s/veh]	10.56			11.32			0.43			0.33		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	2.28											
Intersection LOS	B											

Intersection Level Of Service Report Intersection 3: Gibson Blvd and 98th St

Control Type: All-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 1 hour

Delay (sec / veh): 11.3
Level Of Service: B
Volume to Capacity (v/c): 0.399

Intersection Setup

Name	98 St			98 St			Gibson Blvd			Gibson Blvd		
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 Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	280.00	100.00	170.00	360.00	100.00	140.00	420.00	100.00	180.00	320.00	100.00	160.00
Speed [mph]	35.00			35.00			40.00			40.00		
Grade [%]	1.00			-1.00			-2.00			2.00		
Crosswalk	No			No			No			No		

Volumes

Name	98 St			98 St			Gibson Blvd			Gibson Blvd		
Base Volume Input [veh/h]	56	416	35	36	474	116	111	75	35	36	135	38
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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
Total Hourly Volume [veh/h]	56	416	35	36	474	116	111	75	35	36	135	38
Peak Hour Factor	0.9650	0.9650	0.9650	0.9650	0.9650	0.9650	0.9650	0.9650	0.9650	0.9650	0.9650	0.9650
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	108	9	9	123	30	29	19	9	9	35	10
Total Analysis Volume [veh/h]	58	431	36	37	491	120	115	78	36	37	140	39
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	550	591	591	659	552	594	594	664	539	575	575	636	533	569	569	629
Degree of Utilization, x	0.10	0.35	0.35	0.05	0.07	0.40	0.40	0.17	0.21	0.07	0.07	0.06	0.07	0.12	0.12	0.06

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.34	1.62	1.62	0.17	0.21	1.97	1.97	0.63	0.78	0.21	0.21	0.17	0.22	0.40	0.40	0.19
95th-Percentile Queue Length [ft]	8.49	40.45	40.45	4.21	5.22	49.21	49.21	15.84	19.39	5.22	5.22	4.37	5.42	10.07	10.07	4.82
Approach Delay [s/veh]	11.62				11.94				10.15				9.69			
Approach LOS	B				B				B				A			
Intersection Delay [s/veh]	11.28															
Intersection LOS	B															

Intersection Level Of Service Report

Intersection 4: Blake Rd and 98th St

Control Type: All-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 11.3
 Level Of Service: B
 Volume to Capacity (v/c): 0.318

Intersection Setup

Name	98th St			98 St			Blake Rd			Blake Rd		
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	15.00	15.00	12.00	18.00	18.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	110.00	100.00	125.00	415.00	100.00	100.00	200.00	100.00	100.00	210.00	100.00	100.00
Speed [mph]	30.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			-2.50			2.50		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	98th St			98 St			Blake Rd			Blake Rd		
Base Volume Input [veh/h]	56	353	59	78	303	17	19	45	39	76	65	91
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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
Total Hourly Volume [veh/h]	56	353	59	78	303	17	19	45	39	76	65	91
Peak Hour Factor	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880
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]	16	99	17	22	85	5	5	13	11	21	18	26
Total Analysis Volume [veh/h]	63	398	66	88	341	19	21	51	44	86	73	102
Pedestrian Volume [ped/h]	0			0			2			4		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	515	554	554	621	511	550	556	529	591	526	598
Degree of Utilization, x	0.11	0.32	0.32	0.10	0.15	0.29	0.29	0.04	0.14	0.14	0.26

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.37	1.39	1.39	0.31	0.54	1.22	1.20	0.11	0.50	0.51	1.05
95th-Percentile Queue Length [ft]	9.14	34.78	34.78	7.87	13.46	30.56	30.08	2.80	12.41	12.63	26.33
Approach Delay [s/veh]	11.63				11.68			9.80		10.79	
Approach LOS	B				B			A		B	
Intersection Delay [s/veh]	11.33										
Intersection LOS	B										

Intersection Level Of Service Report Intersection 5: 86th St and 98th St

Control Type: All-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 1 hour

Delay (sec / veh): 16.2
Level Of Service: C
Volume to Capacity (v/c): 0.582

Intersection Setup

Name	98 St			98 St			De Anza Dr SW			86th St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	12.00	12.00	20.00	20.00	20.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	220.00	100.00	120.00	125.00	100.00	110.00	100.00	100.00	100.00	350.00	100.00	100.00
Speed [mph]	35.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			-2.00			2.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	98 St			98 St			De Anza Dr SW			86th St		
Base Volume Input [veh/h]	4	477	18	51	617	251	132	14	7	23	20	25
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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
Total Hourly Volume [veh/h]	4	477	18	51	617	251	132	14	7	23	20	25
Peak Hour Factor	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710
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]	1	123	5	13	159	65	34	4	2	6	5	6
Total Analysis Volume [veh/h]	4	491	19	53	635	258	136	14	7	24	21	26
Pedestrian Volume [ped/h]	0			0			0			3		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	465	497	497	549	493	530	530	592	479	434	481
Degree of Utilization, x	0.01	0.48	0.48	0.03	0.10	0.58	0.58	0.42	0.32	0.05	0.09

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.03	2.71	2.71	0.10	0.35	4.03	4.03	2.18	1.40		0.17	0.31
95th-Percentile Queue Length [ft]	0.65	67.83	67.83	2.54	8.64	100.8	100.8	54.58	34.93		4.19	7.73
Approach Delay [s/veh]	16.29				16.88				14.04		11.13	
Approach LOS	C				C				B		B	
Intersection Delay [s/veh]	16.19											
Intersection LOS	C											

Signal Warrants Report For Intersection 2: Gibson Blvd and Barbados Ave

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	252	120	28	53
2	242	115	27	51
3	237	113	26	50
4	202	96	22	42
5	192	91	21	40
6	171	82	19	36
7	159	76	18	33
8	151	72	17	32
9	121	58	13	25
10	113	54	13	24
11	113	54	13	24
12	108	52	12	23
13	98	47	11	21
14	91	43	10	19
15	91	43	10	19
16	88	42	10	19
17	50	24	6	11
18	28	13	3	6
19	25	12	3	5
20	10	5	1	2
21	8	4	1	2
22	8	4	1	2
23	5	2	1	1
24	5	2	1	1

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	372	2	81	No	No	No	No	No	No	No	No	No	No
2	6	357	2	78	No	No	No	No	No	No	No	No	No	No
3	6	350	2	76	No	No	No	No	No	No	No	No	No	No
4	6	298	2	64	No	No	No	No	No	No	No	No	No	No
5	6	283	2	61	No	No	No	No	No	No	No	No	No	No
6	6	253	2	55	No	No	No	No	No	No	No	No	No	No
7	6	235	2	51	No	No	No	No	No	No	No	No	No	No
8	6	223	2	49	No	No	No	No	No	No	No	No	No	No
9	6	179	2	38	No	No	No	No	No	No	No	No	No	No
10	6	167	2	37	No	No	No	No	No	No	No	No	No	No
11	6	167	2	37	No	No	No	No	No	No	No	No	No	No
12	6	160	2	35	No	No	No	No	No	No	No	No	No	No
13	6	145	2	32	No	No	No	No	No	No	No	No	No	No
14	6	134	2	29	No	No	No	No	No	No	No	No	No	No
15	6	134	2	29	No	No	No	No	No	No	No	No	No	No
16	6	130	2	29	No	No	No	No	No	No	No	No	No	No
17	6	74	2	17	No	No	No	No	No	No	No	No	No	No
18	6	41	2	9	No	No	No	No	No	No	No	No	No	No
19	6	37	2	8	No	No	No	No	No	No	No	No	No	No
20	6	15	2	3	No	No	No	No	No	No	No	No	No	No
21	6	12	2	3	No	No	No	No	No	No	No	No	No	No
22	6	12	2	3	No	No	No	No	No	No	No	No	No	No
23	6	7	2	2	No	No	No	No	No	No	No	No	No	No
24	6	7	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	10.6	11.3
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:04	0:10
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	28	53
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	453	453
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 3: Gibson Blvd and 98th St

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	507	626	209	221
2	487	601	201	212
3	477	588	196	208
4	406	501	167	177
5	385	476	159	168
6	345	426	142	150
7	319	394	132	139
8	304	376	125	133
9	243	300	100	106
10	228	282	94	99
11	228	282	94	99
12	218	269	90	95
13	198	244	82	86
14	183	225	75	80
15	183	225	75	80
16	177	219	73	77
17	101	125	42	44
18	56	69	23	24
19	51	63	21	22
20	20	25	8	9
21	15	19	6	7
22	15	19	6	7
23	10	13	4	4
24	10	13	4	4

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	8	1133	8	430	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
2	8	1088	8	413	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
3	8	1065	8	404	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
4	8	907	8	344	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
5	8	861	8	327	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
6	8	771	8	292	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No
7	8	713	8	271	No	No	No	Yes	No	No	Yes	Yes	No	No
8	8	680	8	258	No	No	No	Yes	No	No	Yes	Yes	No	No
9	8	543	8	206	No	No	No	No	No	No	No	Yes	No	No
10	8	510	8	193	No	No	No	No	No	No	No	Yes	No	No
11	8	510	8	193	No	No	No	No	No	No	No	Yes	No	No
12	8	487	8	185	No	No	No	No	No	No	No	No	No	No
13	8	442	8	168	No	No	No	No	No	No	No	No	No	No
14	8	408	8	155	No	No	No	No	No	No	No	No	No	No
15	8	408	8	155	No	No	No	No	No	No	No	No	No	No
16	8	396	8	150	No	No	No	No	No	No	No	No	No	No
17	8	226	8	86	No	No	No	No	No	No	No	No	No	No
18	8	125	8	47	No	No	No	No	No	No	No	No	No	No
19	8	114	8	43	No	No	No	No	No	No	No	No	No	No
20	8	45	8	17	No	No	No	No	No	No	No	No	No	No
21	8	34	8	13	No	No	No	No	No	No	No	No	No	No
22	8	34	8	13	No	No	No	No	No	No	No	No	No	No
23	8	23	8	8	No	No	No	No	No	No	No	No	No	No
24	8	23	8	8	No	No	No	No	No	No	No	No	No	No
Hours Met					3	5	6	8	4	6	8	11	3	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.7	10.1
Number of Lanes on Minor Street Approach	4	4
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:33	0:37
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	209	221
High Minor Volume Condition Met	Yes	Yes
Total Entering Volume on All Approaches During Same Hour	1563	1563
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 4: Blake Rd and 98th St

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	N	S	E	W
1	398	468	232	103
2	382	449	223	99
3	374	440	218	97
4	318	374	186	82
5	302	356	176	78
6	271	318	158	70
7	251	295	146	65
8	239	281	139	62
9	191	225	111	49
10	179	211	104	46
11	179	211	104	46
12	171	201	100	44
13	155	183	90	40
14	143	168	84	37
15	143	168	84	37
16	139	164	81	36
17	80	94	46	21
18	44	51	26	11
19	40	47	23	10
20	16	19	9	4
21	12	14	7	3
22	12	14	7	3
23	8	9	5	2
24	8	9	5	2

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	7	866	4	335	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
2	7	831	4	322	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
3	7	814	4	315	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
4	7	692	4	268	No	Yes	Yes	Yes	No	No	Yes	Yes	No	No
5	7	658	4	254	No	Yes	Yes	Yes	No	No	Yes	Yes	No	No
6	7	589	4	228	No	No	Yes	Yes	No	No	No	Yes	No	No
7	7	546	4	211	No	No	Yes	Yes	No	No	No	Yes	No	No
8	7	520	4	201	No	No	No	Yes	No	No	No	Yes	No	No
9	7	416	4	160	No	No	No	No	No	No	No	No	No	No
10	7	390	4	150	No	No	No	No	No	No	No	No	No	No
11	7	390	4	150	No	No	No	No	No	No	No	No	No	No
12	7	372	4	144	No	No	No	No	No	No	No	No	No	No
13	7	338	4	130	No	No	No	No	No	No	No	No	No	No
14	7	311	4	121	No	No	No	No	No	No	No	No	No	No
15	7	311	4	121	No	No	No	No	No	No	No	No	No	No
16	7	303	4	117	No	No	No	No	No	No	No	No	No	No
17	7	174	4	67	No	No	No	No	No	No	No	No	No	No
18	7	95	4	37	No	No	No	No	No	No	No	No	No	No
19	7	87	4	33	No	No	No	No	No	No	No	No	No	No
20	7	35	4	13	No	No	No	No	No	No	No	No	No	No
21	7	26	4	10	No	No	No	No	No	No	No	No	No	No
22	7	26	4	10	No	No	No	No	No	No	No	No	No	No
23	7	17	4	7	No	No	No	No	No	No	No	No	No	No
24	7	17	4	7	No	No	No	No	No	No	No	No	No	No
Hours Met					3	5	7	8	0	3	5	8	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	10.8	9.8
Number of Lanes on Minor Street Approach	2	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:41	0:16
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	232	103
High Minor Volume Condition Met	Yes	No
Total Entering Volume on All Approaches During Same Hour	1201	1201
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 5: 86th St and 98th St

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	499	919	68	153
2	479	882	65	147
3	469	864	64	144
4	399	735	54	122
5	379	698	52	116
6	339	625	46	104
7	314	579	43	96
8	299	551	41	92
9	240	441	33	73
10	225	414	31	69
11	225	414	31	69
12	215	395	29	66
13	195	358	27	60
14	180	331	24	55
15	180	331	24	55
16	175	322	24	54
17	100	184	14	31
18	55	101	7	17
19	50	92	7	15
20	20	37	3	6
21	15	28	2	5
22	15	28	2	5
23	10	18	1	3
24	10	18	1	3

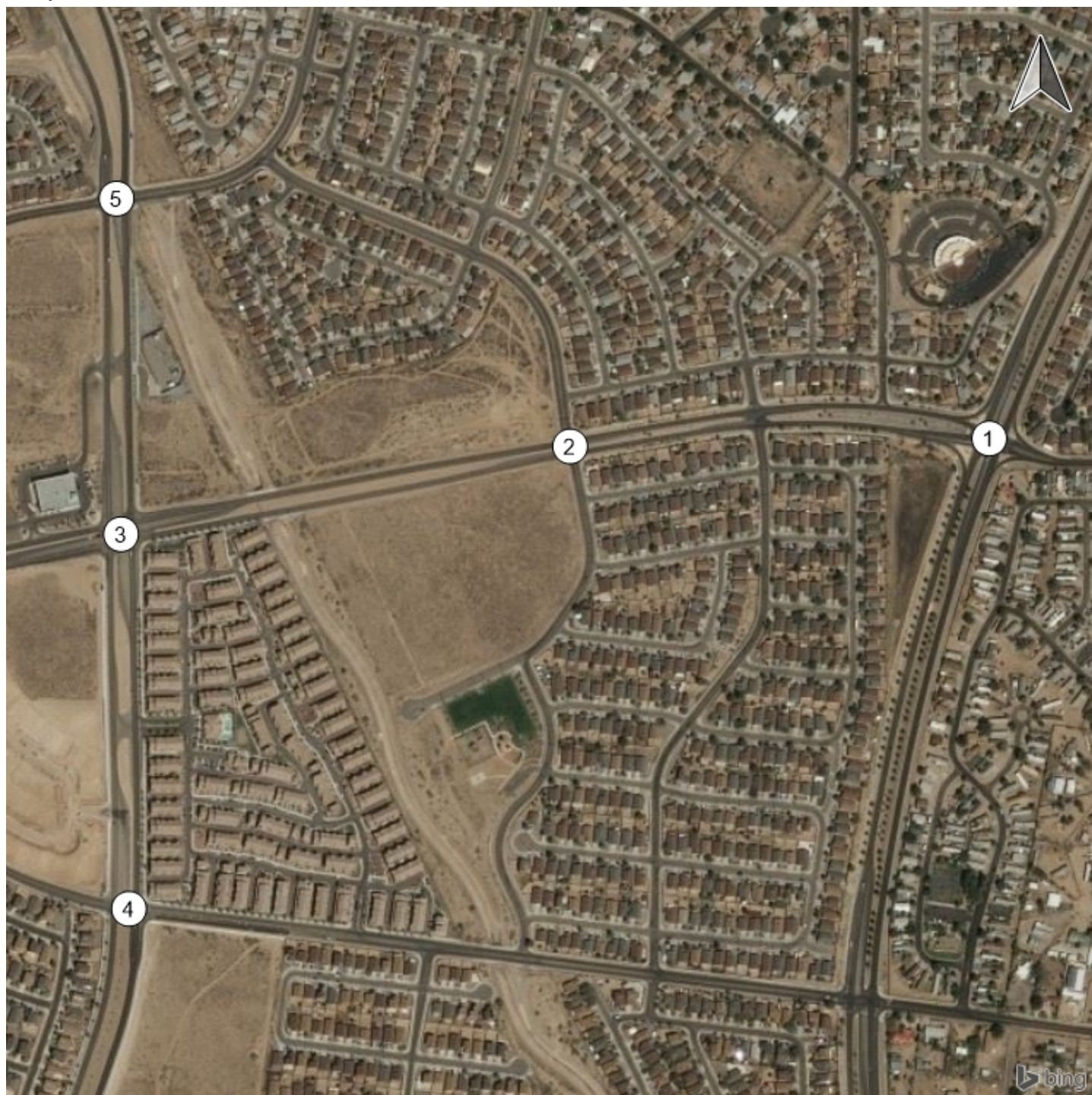
Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	8	1418	3	221	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
2	8	1361	3	212	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
3	8	1333	3	208	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
4	8	1134	3	176	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
5	8	1077	3	168	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
6	8	964	3	150	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No
7	8	893	3	139	No	No	No	Yes	No	Yes	Yes	Yes	No	No
8	8	850	3	133	No	No	No	Yes	No	Yes	Yes	Yes	No	No
9	8	681	3	106	No	No	No	No	No	No	Yes	Yes	No	No
10	8	639	3	100	No	No	No	No	No	No	Yes	Yes	No	No
11	8	639	3	100	No	No	No	No	No	No	Yes	Yes	No	No
12	8	610	3	95	No	No	No	No	No	No	No	Yes	No	No
13	8	553	3	87	No	No	No	No	No	No	No	Yes	No	No
14	8	511	3	79	No	No	No	No	No	No	No	Yes	No	No
15	8	511	3	79	No	No	No	No	No	No	No	Yes	No	No
16	8	497	3	78	No	No	No	No	No	No	No	No	No	No
17	8	284	3	45	No	No	No	No	No	No	No	No	No	No
18	8	156	3	24	No	No	No	No	No	No	No	No	No	No
19	8	142	3	22	No	No	No	No	No	No	No	No	No	No
20	8	57	3	9	No	No	No	No	No	No	No	No	No	No
21	8	43	3	7	No	No	No	No	No	No	No	No	No	No
22	8	43	3	7	No	No	No	No	No	No	No	No	No	No
23	8	28	3	4	No	No	No	No	No	No	No	No	No	No
24	8	28	3	4	No	No	No	No	No	No	No	No	No	No
Hours Met					1	4	5	8	6	8	11	15	4	0

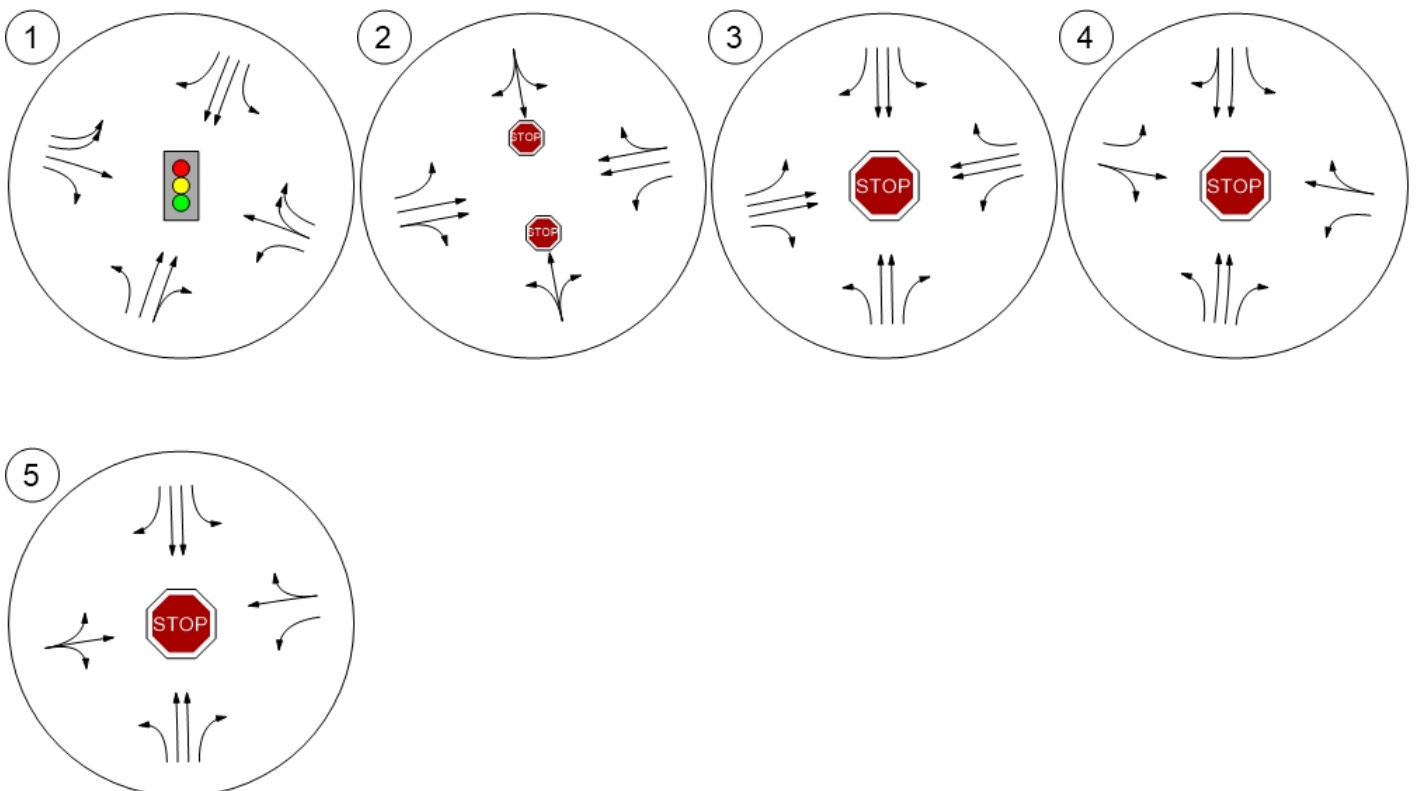
Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.1	14
Number of Lanes on Minor Street Approach	2	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:12	0:35
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	68	153
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	1639	1639
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

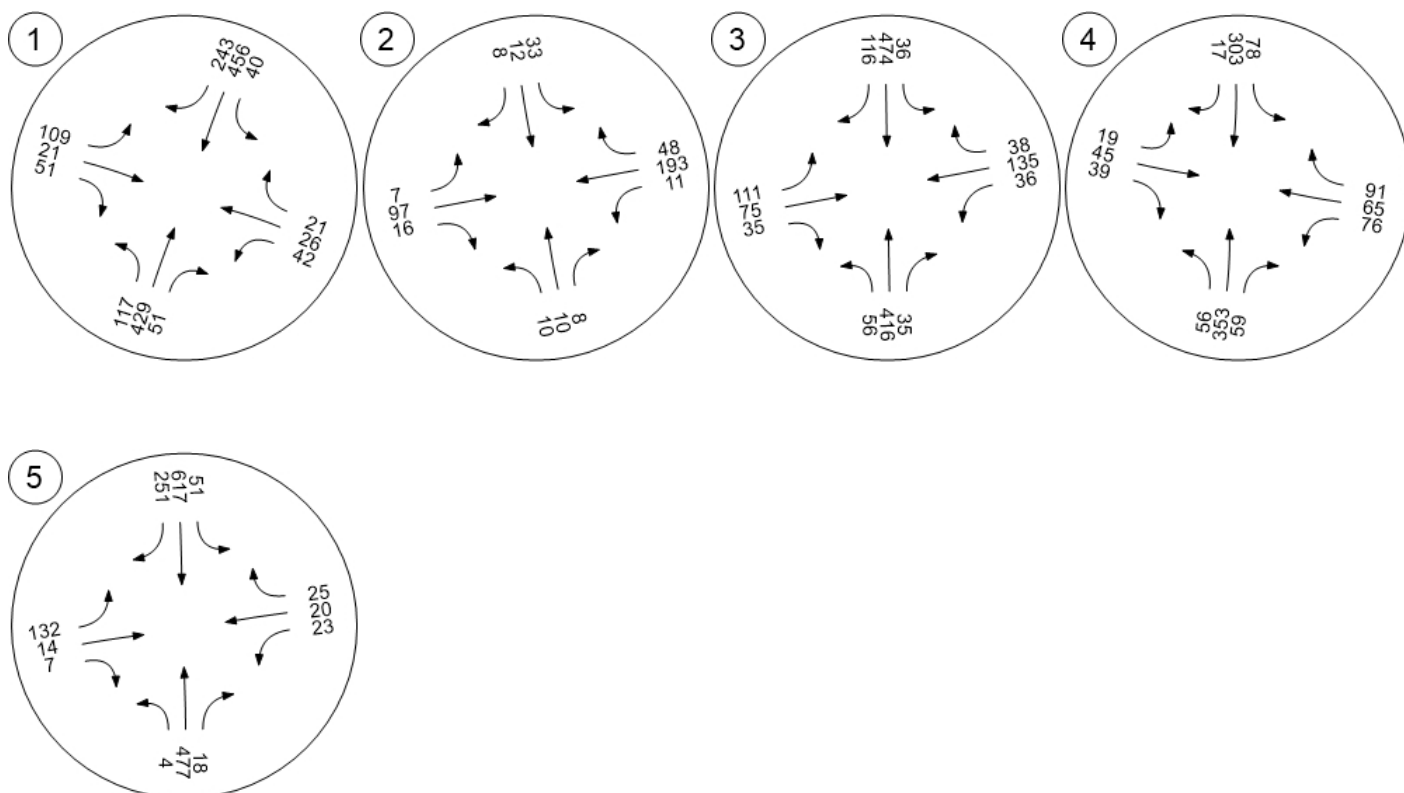
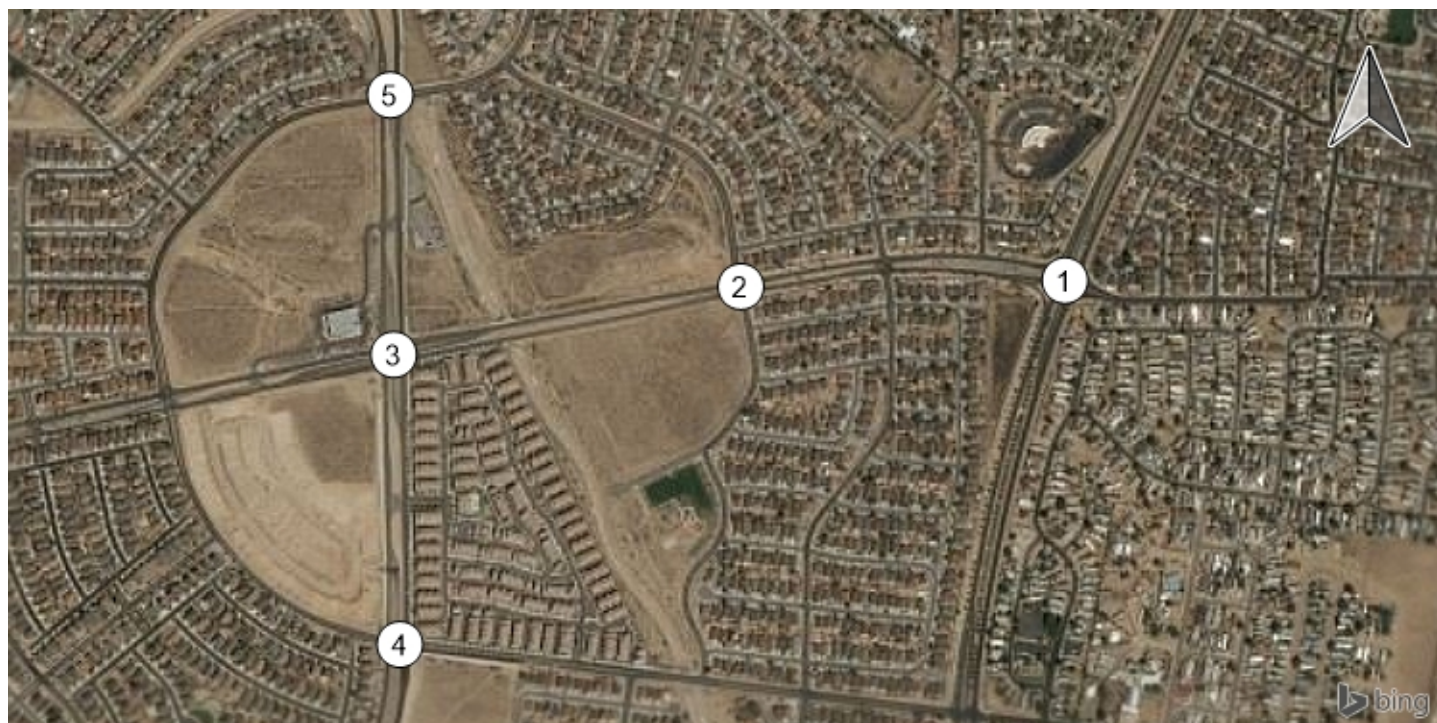
Study Intersections



Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



Appendix C:
Level of Service and Capacity Output
Sheets
Initial Phase 2019 Build Out AM

Solare Collegiate School NIA

Vistro File: L:\...\Solare Charter School Analysis.vistro

Scenario 3 Initial Phase Build Out AM

Report File: L:\...\3. Initial Build 2019 AM.pdf

4/16/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Gibson Blvd and Unser Blvd	Signalized	HCM 6th Edition	EB Left	0.341	25.5	C
2	Gibson Blvd and Barbados Ave	Two-way stop	HCM 6th Edition	SB Thru	0.033	16.3	C
3	Gibson Blvd and 98th St	All-way stop	HCM 6th Edition	EB Left	0.410	12.0	B
4	Blake Rd and 98th St	All-way stop	HCM 6th Edition	SB Thru	0.445	13.3	B
5	86th St and 98th St	All-way stop	HCM 6th Edition	NB Thru	0.813	31.9	D
9	Barbados Ave and South Solare Parent Driveway	Two-way stop	HCM 6th Edition	WB Left	0.029	14.1	B
10	Barbados Ave and North Solare Parent Driveway	Two-way stop	HCM 6th Edition	EB Left	0.051	9.3	A
11	New Intersection	Two-way stop	HCM 6th Edition	SB Left	0.000	8.8	A
12	New Intersection	Two-way stop	HCM 6th Edition	WB Left	0.000	8.7	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report Intersection 1: Gibson Blvd and Unser Blvd

Control Type: Signalized
Analysis Method: HCM 6th Edition
Analysis Period: 1 hour

Delay (sec / veh): 25.5
Level Of Service: C
Volume to Capacity (v/c): 0.341

Intersection Setup

Name	Unser Blvd			Unser Blvd			Gibson Blvd			Spring Flower Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	12.00	12.00	11.00	12.00	12.00	11.00	11.00	12.00	11.00	11.00	11.00
No. of Lanes in Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	460.00	100.00	100.00	315.00	100.00	600.00	225.00	100.00	150.00	80.00	100.00	100.00
Speed [mph]	40.00			40.00			40.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Unser Blvd			Unser Blvd			Gibson Blvd			Spring Flower Rd		
Base Volume Input [veh/h]	57	536	22	28	479	87	336	19	63	63	34	49
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	61	0	0	0	0	43	34	2	48	0	2	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	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	118	536	22	28	479	130	370	21	111	63	36	49
Peak Hour Factor	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640
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]	31	139	6	7	124	34	96	5	29	16	9	13
Total Analysis Volume [veh/h]	122	556	23	29	497	135	384	22	115	65	37	51
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	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	1			0			1			0		
v_ci, Inbound Pedestrian Volume crossing	0			1			0			1		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	44.4
Offset Reference	LeadGreen
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	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	3	12	0	3	12	0	3	12	0	3	12	0
Maximum Green [s]	16	36	0	16	36	0	16	24	0	16	24	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.5	0.0	3.5	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.5	0.0	1.0	2.0	0.0	1.0	3.5	0.0
Split [s]	14	36	0	14	36	0	28	56	0	14	42	0
Vehicle Extension [s]	1.5	4.0	0.0	1.5	4.0	0.0	2.5	2.0	0.0	1.5	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	22	0	0	27	0	0	28	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]	2.5	3.0	0.0	2.5	3.5	0.0	2.5	4.5	0.0	2.5	4.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		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]	30.0	0.0	0.0	30.0	0.0	0.0	20.0	20.0	0.0	20.0	20.0	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	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]	5.00	5.00	5.00	5.50	5.50	5.50	4.50	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	3.00	3.00	0.00	3.50	3.50	2.50	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	76	70	70	76	66	66	17	23	23	32	11	11
g / C, Green / Cycle	0.63	0.58	0.58	0.63	0.55	0.55	0.14	0.19	0.19	0.27	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.07	0.17	0.17	0.03	0.15	0.09	0.12	0.01	0.08	0.05	0.03	0.03
s, saturation flow rate [veh/h]	1601	1683	1660	814	3204	1431	3113	1683	1431	1332	1631	1431
c, Capacity [veh/h]	1014	977	964	530	1747	780	430	324	275	437	155	136
d1, Uniform Delay [s]	8.70	12.66	12.67	8.90	14.59	13.65	50.58	39.64	42.44	33.23	50.51	50.60
k, delay calibration	0.50	0.50	0.50	0.04	0.50	0.50	0.08	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]	0.23	0.74	0.75	0.02	0.39	0.46	4.07	0.03	0.36	0.06	0.37	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	0.12	0.29	0.29	0.05	0.27	0.17	0.86	0.06	0.40	0.14	0.28	0.30
d, Delay for Lane Group [s/veh]	8.93	13.40	13.42	8.92	14.98	14.11	54.65	39.67	42.80	33.29	50.89	51.06
Lane Group LOS	A	B	B	A	B	B	D	D	D	C	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.19	3.78	3.74	0.26	3.42	1.79	5.57	0.50	2.87	1.43	1.26	1.18
50th-Percentile Queue Length [ft/ln]	29.87	94.51	93.42	6.47	85.41	44.68	139.35	12.62	71.69	35.70	31.52	29.48
95th-Percentile Queue Length [veh/ln]	2.15	6.80	6.73	0.47	6.15	3.22	9.45	0.91	5.16	2.57	2.27	2.12
95th-Percentile Queue Length [ft/ln]	53.76	170.12	168.16	11.64	153.75	80.42	236.15	22.71	129.04	64.25	56.73	53.06

Movement, Approach, & Intersection Results

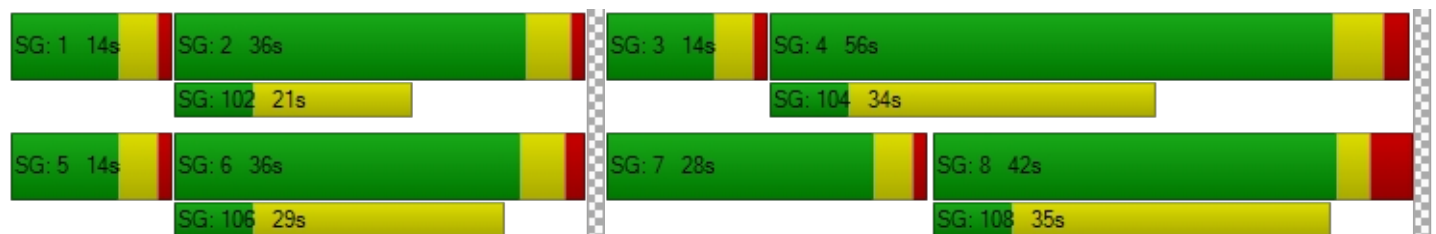
d_M, Delay for Movement [s/veh]	8.93	13.41	13.42	8.92	14.98	14.11	54.65	39.67	42.80	33.29	50.89	51.04
Movement LOS	A	B	B	A	B	B	D	D	D	C	D	D
d_A, Approach Delay [s/veh]	12.63			14.54			51.40			43.44		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	25.49											
Intersection LOS	C											
Intersection V/C	0.341											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
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			10841.11			11028.75		
d_p, Pedestrian Delay [s]	49.50			49.50			49.50			49.50		
I_p,int, Pedestrian LOS Score for Intersection	2.693			2.827			2.743			2.371		
Crosswalk LOS	B			C			B			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	517			508			825			592		
d_b, Bicycle Delay [s]	33.00			33.38			20.71			29.75		
I_b,int, Bicycle LOS Score for Intersection	0.831			0.799			2.388			1.804		
Bicycle LOS	A			A			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 2: Gibson Blvd and Barbados Ave

Control Type:	Two-way stop	Delay (sec / veh):	16.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.033

Intersection Setup

Name	Stampede Dr			Barbados Ave			Gibson Blvd			Gibson Blvd		
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 Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	25.00			30.00			40.00			40.00		
Grade [%]	0.00			0.00			-2.00			2.00		
Crosswalk	No			No			No			No		

Volumes

Name	Stampede Dr			Barbados Ave			Gibson Blvd			Gibson Blvd		
Base Volume Input [veh/h]	8	18	6	46	10	6	10	223	4	3	96	10
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	7	0	84	5	35	45	0	0	0	0	106
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
Total Hourly Volume [veh/h]	8	25	6	130	15	41	55	223	4	3	96	116
Peak Hour Factor	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320
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]	2	7	2	35	4	11	15	60	1	1	26	31
Total Analysis Volume [veh/h]	9	27	6	139	16	44	59	239	4	3	103	124
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.06	0.01	0.26	0.03	0.04	0.04	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.08	14.20	9.60	15.59	16.26	12.23	7.45	0.00	0.00	8.06	0.00	0.00
Movement LOS	B	B	A	C	C	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.27	0.27	0.27	1.52	1.52	1.52	0.11	0.00	0.00	0.01	0.00	0.00
95th-Percentile Queue Length [ft/ln]	6.70	6.70	6.70	38.08	38.08	38.08	2.81	0.00	0.00	0.19	0.00	0.00
d_A, Approach Delay [s/veh]	13.26			14.90			1.45			0.11		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	5.16											
Intersection LOS	C											

Intersection Level Of Service Report Intersection 3: Gibson Blvd and 98th St

Control Type: All-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 1 hour

Delay (sec / veh): 12.0
Level Of Service: B
Volume to Capacity (v/c): 0.410

Intersection Setup

Name	98 St			98 St			Gibson Blvd			Gibson Blvd		
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 Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	280.00	100.00	170.00	360.00	100.00	140.00	420.00	100.00	180.00	320.00	100.00	160.00
Speed [mph]	35.00			35.00			40.00			40.00		
Grade [%]	1.00			-1.00			-2.00			2.00		
Crosswalk	No			No			No			No		

Volumes

Name	98 St			98 St			Gibson Blvd			Gibson Blvd		
Base Volume Input [veh/h]	20	470	67	15	393	39	190	152	32	27	61	23
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	17	13	0	0	0	15	0	13	12	10
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
Total Hourly Volume [veh/h]	20	470	84	28	393	39	190	167	32	40	73	33
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
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]	6	138	25	8	116	11	56	49	9	12	21	10
Total Analysis Volume [veh/h]	24	553	99	33	462	46	224	196	38	47	86	39
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	535	574	574	639	530	568	568	630	512	546	546	604	528	562	562	619
Degree of Utilization, x	0.04	0.41	0.41	0.13	0.05	0.35	0.35	0.06	0.37	0.15	0.15	0.05	0.08	0.06	0.06	0.05

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.12	2.06	2.06	0.45	0.17	1.57	1.57	0.20	1.76	0.54	0.54	0.17	0.25	0.21	0.21	0.17
95th-Percentile Queue Length [ft]	2.91	51.42	51.42	11.35	4.18	39.36	39.36	4.94	43.88	13.50	13.50	4.19	6.15	5.20	5.20	4.22
Approach Delay [s/veh]	12.58				11.93				12.02				9.53			
Approach LOS	B				B				B				A			
Intersection Delay [s/veh]	11.97															
Intersection LOS	B															

Intersection Level Of Service Report

Intersection 4: Blake Rd and 98th St

Control Type: All-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 13.3
 Level Of Service: B
 Volume to Capacity (v/c): 0.445

Intersection Setup

Name	98th St			98 St			Blake Rd			Blake Rd		
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	15.00	15.00	12.00	18.00	18.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	110.00	100.00	125.00	415.00	100.00	100.00	200.00	100.00	100.00	210.00	100.00	100.00
Speed [mph]	30.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			-2.50			2.50		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	98th St			98 St			Blake Rd			Blake Rd		
Base Volume Input [veh/h]	44	408	115	72	449	4	19	72	108	85	30	74
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	7	0	2	5	3	4	0	0	0	0	2
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
Total Hourly Volume [veh/h]	44	415	115	74	454	7	23	72	108	85	30	76
Peak Hour Factor	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330
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]	12	111	31	20	122	2	6	19	29	23	8	20
Total Analysis Volume [veh/h]	47	445	123	79	487	8	25	77	116	91	32	81
Pedestrian Volume [ped/h]	0			1			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	479	513	513	568	483	518	519	516	580	492	559
Degree of Utilization, x	0.09	0.40	0.40	0.20	0.15	0.45	0.44	0.04	0.31	0.17	0.19

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.30	2.01	2.01	0.76	0.54	2.37	2.36	0.14	1.34	0.62	0.70
95th-Percentile Queue Length [ft]	7.58	50.37	50.37	18.95	13.52	59.20	58.89	3.50	33.51	15.61	17.51
Approach Delay [s/veh]	13.45				14.66			11.50		11.05	
Approach LOS	B				B			B		B	
Intersection Delay [s/veh]	13.31										
Intersection LOS	B										

Intersection Level Of Service Report

Intersection 5: 86th St and 98th St

Control Type: All-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 31.9
 Level Of Service: D
 Volume to Capacity (v/c): 0.813

Intersection Setup

Name	98 St			98 St			De Anza Dr SW			86th St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	12.00	12.00	20.00	20.00	20.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	220.00	100.00	120.00	125.00	100.00	110.00	100.00	100.00	100.00	350.00	100.00	100.00
Speed [mph]	35.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			-2.00			2.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	98 St			98 St			De Anza Dr SW			86th St		
Base Volume Input [veh/h]	3	700	19	9	357	78	309	14	11	38	15	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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	10	0	36	12	0	0	3	1	0	3	29
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
Total Hourly Volume [veh/h]	3	710	19	45	369	78	309	17	12	38	18	80
Peak Hour Factor	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330
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]	1	190	5	12	99	21	83	5	3	10	5	21
Total Analysis Volume [veh/h]	3	761	20	48	395	84	331	18	13	41	19	86
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	411	437	437	479	374	397	397	433	442	374	418
Degree of Utilization, x	0.01	0.81	0.81	0.04	0.12	0.47	0.47	0.18	0.76	0.10	0.23

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.02	10.39	10.39	0.12	0.41	2.55	2.55	0.66	8.38	0.34	0.91
95th-Percentile Queue Length [ft]	0.55	259.7	259.7	3.10	10.23	63.75	63.75	16.44	209.51	8.48	22.85
Approach Delay [s/veh]	42.59				18.00				36.07	13.81	
Approach LOS	E				C				E	B	
Intersection Delay [s/veh]	31.86										
Intersection LOS	D										

Intersection Level Of Service Report**Intersection 9: Barbados Ave and South Solare Parent Driveway**

Control Type:	Two-way stop	Delay (sec / veh):	14.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.029

Intersection Setup

Name	Barbados Ave			Barbados Ave			Ba Av			Ba Av		
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 Pocket	0	0	0	0	0	0	0	0	0	0	0	0
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
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Barbados Ave			Barbados Ave			Ba Av			Ba Av		
Base Volume Input [veh/h]	0	30	8	0	50	0	0	0	0	12	0	0
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	158	0	0	0	0	0	0	2	124	0	2	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
Total Hourly Volume [veh/h]	158	30	8	0	50	0	0	2	124	12	2	0
Peak Hour 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
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]	40	8	2	0	13	0	0	1	31	3	1	0
Total Analysis Volume [veh/h]	158	30	8	0	50	0	0	2	124	12	2	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.03	0.00	0.00
d_M, Delay for Movement [s/veh]	7.57	0.00	0.00	7.29	0.00	0.00	12.53	13.02	9.05	14.07	12.76	8.76
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.43	0.43	0.43	0.00	0.00	0.00	0.43	0.43	0.43	0.10	0.10	0.10
95th-Percentile Queue Length [ft/ln]	10.80	10.80	10.80	0.00	0.00	0.00	10.80	10.80	10.80	2.59	2.59	2.59
d_A, Approach Delay [s/veh]	6.11			0.00			9.12			13.88		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	6.58											
Intersection LOS	B											

Intersection Level Of Service Report**Intersection 10: Barbados Ave and North Solare Parent Driveway**

Control Type:	Two-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.051

Intersection Setup

Name	Barbados Ave		North Parent Driveway		Barbados Ave	
Approach	Northbound		Eastbound		Southeastbound	
Lane Configuration						
Turning Movement	Left	Thru	Left	Right	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Barbados Ave		North Parent Driveway		Barbados Ave	
Base Volume Input [veh/h]	0	30	0	0	50	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 Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	45	0	0	56
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	0	0	0	0
Total Hourly Volume [veh/h]	0	30	45	0	50	56
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	8	11	0	13	14
Total Analysis Volume [veh/h]	0	30	45	0	50	56
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Stop	Free
Flared Lane		No	
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	0.00	0.05	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.42	0.00	9.26	8.88	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.16	0.16	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	4.00	4.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		9.26		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.30					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 11: New Intersection

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 8.8
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name	Barbados Ave Driveway North		Gibson Blvd		Gibson Blvd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		-2.00		2.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Barbados Ave Driveway North		Gibson Blvd		Gibson Blvd	
Base Volume Input [veh/h]	0	0	0	0	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 Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	45	35	0
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	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	45	35	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	11	9	0
Total Analysis Volume [veh/h]	0	0	0	45	35	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.82	8.41	7.24	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.61		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 12: New Intersection

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 8.7
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name	98th St (Snow Vista Blvd SW)		98th St (Snow Vista Blvd SW)		Diamond Mesa	
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 Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	140.00	150.00	100.00	100.00	100.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	1.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	98th St (Snow Vista Blvd SW)		98th St (Snow Vista Blvd SW)		Diamond Mesa	
Base Volume Input [veh/h]	0	0	0	0	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 Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	0	3	10	0	4
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	0	0	0	0
Total Hourly Volume [veh/h]	13	0	3	10	0	4
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	0	1	3	0	1
Total Analysis Volume [veh/h]	13	0	3	10	0	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
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	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.25	0.00	8.66	8.36
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.01	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.14	0.00	0.28	0.28
d_A, Approach Delay [s/veh]	0.00		1.67		8.36	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.84					
Intersection LOS	A					

Signal Warrants Report For Intersection 2: Gibson Blvd and Barbados Ave

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	215	282	39	186
2	206	271	37	179
3	202	265	37	175
4	172	226	31	149
5	163	214	30	141
6	146	192	27	126
7	135	178	25	117
8	129	169	23	112
9	103	135	19	89
10	97	127	18	84
11	97	127	18	84
12	92	121	17	80
13	84	110	15	73
14	77	102	14	67
15	77	102	14	67
16	75	99	14	65
17	43	56	8	37
18	24	31	4	20
19	22	28	4	19
20	9	11	2	7
21	6	8	1	6
22	6	8	1	6
23	4	6	1	4
24	4	6	1	4

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	497	2	225	No	Yes	Yes	Yes	No	No	No	No	No	No
2	6	477	2	216	No	No	Yes	Yes	No	No	No	No	No	No
3	6	467	2	212	No	No	Yes	Yes	No	No	No	No	No	No
4	6	398	2	180	No	No	No	Yes	No	No	No	No	No	No
5	6	377	2	171	No	No	No	Yes	No	No	No	No	No	No
6	6	338	2	153	No	No	No	Yes	No	No	No	No	No	No
7	6	313	2	142	No	No	No	No	No	No	No	No	No	No
8	6	298	2	135	No	No	No	No	No	No	No	No	No	No
9	6	238	2	108	No	No	No	No	No	No	No	No	No	No
10	6	224	2	102	No	No	No	No	No	No	No	No	No	No
11	6	224	2	102	No	No	No	No	No	No	No	No	No	No
12	6	213	2	97	No	No	No	No	No	No	No	No	No	No
13	6	194	2	88	No	No	No	No	No	No	No	No	No	No
14	6	179	2	81	No	No	No	No	No	No	No	No	No	No
15	6	179	2	81	No	No	No	No	No	No	No	No	No	No
16	6	174	2	79	No	No	No	No	No	No	No	No	No	No
17	6	99	2	45	No	No	No	No	No	No	No	No	No	No
18	6	55	2	24	No	No	No	No	No	No	No	No	No	No
19	6	50	2	23	No	No	No	No	No	No	No	No	No	No
20	6	20	2	9	No	No	No	No	No	No	No	No	No	No
21	6	14	2	7	No	No	No	No	No	No	No	No	No	No
22	6	14	2	7	No	No	No	No	No	No	No	No	No	No
23	6	10	2	5	No	No	No	No	No	No	No	No	No	No
24	6	10	2	5	No	No	No	No	No	No	No	No	No	No
Hours Met					0	1	3	6	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	13.3	14.9
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:08	0:46
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	39	186
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	722	722
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 3: Gibson Blvd and 98th St

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	574	460	146	389
2	551	442	140	373
3	540	432	137	366
4	459	368	117	311
5	436	350	111	296
6	390	313	99	265
7	362	290	92	245
8	344	276	88	233
9	276	221	70	187
10	258	207	66	175
11	258	207	66	175
12	247	198	63	167
13	224	179	57	152
14	207	166	53	140
15	207	166	53	140
16	201	161	51	136
17	115	92	29	78
18	63	51	16	43
19	57	46	15	39
20	23	18	6	16
21	17	14	4	12
22	17	14	4	12
23	11	9	3	8
24	11	9	3	8

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	8	1034	8	535	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	8	993	8	513	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
3	8	972	8	503	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
4	8	827	8	428	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
5	8	786	8	407	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
6	8	703	8	364	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No
7	8	652	8	337	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No
8	8	620	8	321	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No
9	8	497	8	257	No	Yes	Yes	Yes	No	No	No	No	No	No
10	8	465	8	241	No	No	Yes	Yes	No	No	No	No	No	No
11	8	465	8	241	No	No	Yes	Yes	No	No	No	No	No	No
12	8	445	8	230	No	No	Yes	Yes	No	No	No	No	No	No
13	8	403	8	209	No	No	No	Yes	No	No	No	No	No	No
14	8	373	8	193	No	No	No	Yes	No	No	No	No	No	No
15	8	373	8	193	No	No	No	Yes	No	No	No	No	No	No
16	8	362	8	187	No	No	No	Yes	No	No	No	No	No	No
17	8	207	8	107	No	No	No	No	No	No	No	No	No	No
18	8	114	8	59	No	No	No	No	No	No	No	No	No	No
19	8	103	8	54	No	No	No	No	No	No	No	No	No	No
20	8	41	8	22	No	No	No	No	No	No	No	No	No	No
21	8	31	8	16	No	No	No	No	No	No	No	No	No	No
22	8	31	8	16	No	No	No	No	No	No	No	No	No	No
23	8	20	8	11	No	No	No	No	No	No	No	No	No	No
24	8	20	8	11	No	No	No	No	No	No	No	No	No	No
Hours Met					8	9	12	16	3	5	7	8	5	1

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.5	12
Number of Lanes on Minor Street Approach	4	4
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:23	1:17
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	146	389
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	1569	1569
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 4: Blake Rd and 98th St

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	N	S	E	W
1	535	574	191	203
2	514	551	183	195
3	503	540	180	191
4	428	459	153	162
5	407	436	145	154
6	364	390	130	138
7	337	362	120	128
8	321	344	115	122
9	257	276	92	97
10	241	258	86	91
11	241	258	86	91
12	230	247	82	87
13	209	224	74	79
14	193	207	69	73
15	193	207	69	73
16	187	201	67	71
17	107	115	38	41
18	59	63	21	22
19	54	57	19	20
20	21	23	8	8
21	16	17	6	6
22	16	17	6	6
23	11	11	4	4
24	11	11	4	4

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	7	1109	4	394	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
2	7	1065	4	378	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
3	7	1043	4	371	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
4	7	887	4	315	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
5	7	843	4	299	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No
6	7	754	4	268	No	No	No	Yes	No	Yes	Yes	Yes	No	No
7	7	699	4	248	No	No	No	Yes	No	No	Yes	Yes	No	No
8	7	665	4	237	No	No	No	Yes	No	No	Yes	Yes	No	No
9	7	533	4	189	No	No	No	No	No	No	No	Yes	No	No
10	7	499	4	177	No	No	No	No	No	No	No	No	No	No
11	7	499	4	177	No	No	No	No	No	No	No	No	No	No
12	7	477	4	169	No	No	No	No	No	No	No	No	No	No
13	7	433	4	153	No	No	No	No	No	No	No	No	No	No
14	7	400	4	142	No	No	No	No	No	No	No	No	No	No
15	7	400	4	142	No	No	No	No	No	No	No	No	No	No
16	7	388	4	138	No	No	No	No	No	No	No	No	No	No
17	7	222	4	79	No	No	No	No	No	No	No	No	No	No
18	7	122	4	43	No	No	No	No	No	No	No	No	No	No
19	7	111	4	39	No	No	No	No	No	No	No	No	No	No
20	7	44	4	16	No	No	No	No	No	No	No	No	No	No
21	7	33	4	12	No	No	No	No	No	No	No	No	No	No
22	7	33	4	12	No	No	No	No	No	No	No	No	No	No
23	7	22	4	8	No	No	No	No	No	No	No	No	No	No
24	7	22	4	8	No	No	No	No	No	No	No	No	No	No
Hours Met					1	4	5	8	3	6	8	9	3	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	11	11.5
Number of Lanes on Minor Street Approach	2	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:35	0:38
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	191	203
High Minor Volume Condition Met	Yes	Yes
Total Entering Volume on All Approaches During Same Hour	1503	1503
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 5: 86th St and 98th St

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	732	492	136	338
2	703	472	131	324
3	688	462	128	318
4	586	394	109	270
5	556	374	103	257
6	498	335	92	230
7	461	310	86	213
8	439	295	82	203
9	351	236	65	162
10	329	221	61	152
11	329	221	61	152
12	315	212	58	145
13	285	192	53	132
14	264	177	49	122
15	264	177	49	122
16	256	172	48	118
17	146	98	27	68
18	81	54	15	37
19	73	49	14	34
20	29	20	5	14
21	22	15	4	10
22	22	15	4	10
23	15	10	3	7
24	15	10	3	7

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	8	1224	3	474	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	8	1175	3	455	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	8	1150	3	446	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	8	980	3	379	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
5	8	930	3	360	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
6	8	833	3	322	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
7	8	771	3	299	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
8	8	734	3	285	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
9	8	587	3	227	No	Yes	Yes	Yes	No	No	No	Yes	No	No
10	8	550	3	213	No	Yes	Yes	Yes	No	No	No	Yes	No	No
11	8	550	3	213	No	Yes	Yes	Yes	No	No	No	Yes	No	No
12	8	527	3	203	No	Yes	Yes	Yes	No	No	No	Yes	No	No
13	8	477	3	185	No	No	Yes	Yes	No	No	No	No	No	No
14	8	441	3	171	No	No	Yes	Yes	No	No	No	No	No	No
15	8	441	3	171	No	No	Yes	Yes	No	No	No	No	No	No
16	8	428	3	166	No	No	Yes	Yes	No	No	No	No	No	No
17	8	244	3	95	No	No	No	No	No	No	No	No	No	No
18	8	135	3	52	No	No	No	No	No	No	No	No	No	No
19	8	122	3	48	No	No	No	No	No	No	No	No	No	No
20	8	49	3	19	No	No	No	No	No	No	No	No	No	No
21	8	37	3	14	No	No	No	No	No	No	No	No	No	No
22	8	37	3	14	No	No	No	No	No	No	No	No	No	No
23	8	25	3	10	No	No	No	No	No	No	No	No	No	No
24	8	25	3	10	No	No	No	No	No	No	No	No	No	No
Hours Met					8	12	16	16	5	8	8	12	6	3

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	13.8	36.1
Number of Lanes on Minor Street Approach	2	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:31	3:23
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	136	338
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	1698	1698
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 9: Barbados Ave and South Solare Parent Driveway

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	196	50	14	126
2	188	48	13	121
3	184	47	13	118
4	157	40	11	101
5	149	38	11	96
6	133	34	10	86
7	123	32	9	79
8	118	30	8	76
9	94	24	7	60
10	88	23	6	57
11	88	23	6	57
12	84	22	6	54
13	76	20	5	49
14	71	18	5	45
15	71	18	5	45
16	69	18	5	44
17	39	10	3	25
18	22	6	2	14
19	20	5	1	13
20	8	2	1	5
21	6	2	0	4
22	6	2	0	4
23	4	1	0	3
24	4	1	0	3

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	246	2	140	No	No	No	No	No	No	No	No	No	No
2	2	236	2	134	No	No	No	No	No	No	No	No	No	No
3	2	231	2	131	No	No	No	No	No	No	No	No	No	No
4	2	197	2	112	No	No	No	No	No	No	No	No	No	No
5	2	187	2	107	No	No	No	No	No	No	No	No	No	No
6	2	167	2	96	No	No	No	No	No	No	No	No	No	No
7	2	155	2	88	No	No	No	No	No	No	No	No	No	No
8	2	148	2	84	No	No	No	No	No	No	No	No	No	No
9	2	118	2	67	No	No	No	No	No	No	No	No	No	No
10	2	111	2	63	No	No	No	No	No	No	No	No	No	No
11	2	111	2	63	No	No	No	No	No	No	No	No	No	No
12	2	106	2	60	No	No	No	No	No	No	No	No	No	No
13	2	96	2	54	No	No	No	No	No	No	No	No	No	No
14	2	89	2	50	No	No	No	No	No	No	No	No	No	No
15	2	89	2	50	No	No	No	No	No	No	No	No	No	No
16	2	87	2	49	No	No	No	No	No	No	No	No	No	No
17	2	49	2	28	No	No	No	No	No	No	No	No	No	No
18	2	28	2	16	No	No	No	No	No	No	No	No	No	No
19	2	25	2	14	No	No	No	No	No	No	No	No	No	No
20	2	10	2	6	No	No	No	No	No	No	No	No	No	No
21	2	8	2	4	No	No	No	No	No	No	No	No	No	No
22	2	8	2	4	No	No	No	No	No	No	No	No	No	No
23	2	5	2	3	No	No	No	No	No	No	No	No	No	No
24	2	5	2	3	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	13.9	9.1
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:03	0:19
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	14	126
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	386	386
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 10: Barbados Ave and North Solare Parent Driveway

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, NW
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	NW	W
1	30	106	45
2	29	102	43
3	28	100	42
4	24	85	36
5	23	81	34
6	20	72	31
7	19	67	28
8	18	64	27
9	14	51	22
10	14	48	20
11	14	48	20
12	13	46	19
13	12	41	18
14	11	38	16
15	11	38	16
16	11	37	16
17	6	21	9
18	3	12	5
19	3	11	5
20	1	4	2
21	1	3	1
22	1	3	1
23	1	2	1
24	1	2	1

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	136	1	45	No	No	No	No	No	No	No	No	No	No
2	2	131	1	43	No	No	No	No	No	No	No	No	No	No
3	2	128	1	42	No	No	No	No	No	No	No	No	No	No
4	2	109	1	36	No	No	No	No	No	No	No	No	No	No
5	2	104	1	34	No	No	No	No	No	No	No	No	No	No
6	2	92	1	31	No	No	No	No	No	No	No	No	No	No
7	2	86	1	28	No	No	No	No	No	No	No	No	No	No
8	2	82	1	27	No	No	No	No	No	No	No	No	No	No
9	2	65	1	22	No	No	No	No	No	No	No	No	No	No
10	2	62	1	20	No	No	No	No	No	No	No	No	No	No
11	2	62	1	20	No	No	No	No	No	No	No	No	No	No
12	2	59	1	19	No	No	No	No	No	No	No	No	No	No
13	2	53	1	18	No	No	No	No	No	No	No	No	No	No
14	2	49	1	16	No	No	No	No	No	No	No	No	No	No
15	2	49	1	16	No	No	No	No	No	No	No	No	No	No
16	2	48	1	16	No	No	No	No	No	No	No	No	No	No
17	2	27	1	9	No	No	No	No	No	No	No	No	No	No
18	2	15	1	5	No	No	No	No	No	No	No	No	No	No
19	2	14	1	5	No	No	No	No	No	No	No	No	No	No
20	2	5	1	2	No	No	No	No	No	No	No	No	No	No
21	2	4	1	1	No	No	No	No	No	No	No	No	No	No
22	2	4	1	1	No	No	No	No	No	No	No	No	No	No
23	2	3	1	1	No	No	No	No	No	No	No	No	No	No
24	2	3	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.3
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:06
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	45
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	181
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

Signal Warrants Report For Intersection 11: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	35	45	0
2	34	43	0
3	33	42	0
4	28	36	0
5	27	34	0
6	24	31	0
7	22	28	0
8	21	27	0
9	17	22	0
10	16	20	0
11	16	20	0
12	15	19	0
13	14	18	0
14	13	16	0
15	13	16	0
16	12	16	0
17	7	9	0
18	4	5	0
19	4	5	0
20	1	2	0
21	1	1	0
22	1	1	0
23	1	1	0
24	1	1	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	5	80	1	0	No	No	No	No	No	No	No	No	No	No
2	5	77	1	0	No	No	No	No	No	No	No	No	No	No
3	5	75	1	0	No	No	No	No	No	No	No	No	No	No
4	5	64	1	0	No	No	No	No	No	No	No	No	No	No
5	5	61	1	0	No	No	No	No	No	No	No	No	No	No
6	5	55	1	0	No	No	No	No	No	No	No	No	No	No
7	5	50	1	0	No	No	No	No	No	No	No	No	No	No
8	5	48	1	0	No	No	No	No	No	No	No	No	No	No
9	5	39	1	0	No	No	No	No	No	No	No	No	No	No
10	5	36	1	0	No	No	No	No	No	No	No	No	No	No
11	5	36	1	0	No	No	No	No	No	No	No	No	No	No
12	5	34	1	0	No	No	No	No	No	No	No	No	No	No
13	5	32	1	0	No	No	No	No	No	No	No	No	No	No
14	5	29	1	0	No	No	No	No	No	No	No	No	No	No
15	5	29	1	0	No	No	No	No	No	No	No	No	No	No
16	5	28	1	0	No	No	No	No	No	No	No	No	No	No
17	5	16	1	0	No	No	No	No	No	No	No	No	No	No
18	5	9	1	0	No	No	No	No	No	No	No	No	No	No
19	5	9	1	0	No	No	No	No	No	No	No	No	No	No
20	5	3	1	0	No	No	No	No	No	No	No	No	No	No
21	5	2	1	0	No	No	No	No	No	No	No	No	No	No
22	5	2	1	0	No	No	No	No	No	No	No	No	No	No
23	5	2	1	0	No	No	No	No	No	No	No	No	No	No
24	5	2	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.6
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	0
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	80
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

Signal Warrants Report For Intersection 12: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	N	E
1	13	13	4
2	12	12	4
3	12	12	4
4	10	10	3
5	10	10	3
6	9	9	3
7	8	8	3
8	8	8	2
9	6	6	2
10	6	6	2
11	6	6	2
12	6	6	2
13	5	5	2
14	5	5	1
15	5	5	1
16	5	5	1
17	3	3	1
18	1	1	0
19	1	1	0
20	1	1	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	26	1	4	No	No	No	No	No	No	No	No	No	No
2	6	24	1	4	No	No	No	No	No	No	No	No	No	No
3	6	24	1	4	No	No	No	No	No	No	No	No	No	No
4	6	20	1	3	No	No	No	No	No	No	No	No	No	No
5	6	20	1	3	No	No	No	No	No	No	No	No	No	No
6	6	18	1	3	No	No	No	No	No	No	No	No	No	No
7	6	16	1	3	No	No	No	No	No	No	No	No	No	No
8	6	16	1	2	No	No	No	No	No	No	No	No	No	No
9	6	12	1	2	No	No	No	No	No	No	No	No	No	No
10	6	12	1	2	No	No	No	No	No	No	No	No	No	No
11	6	12	1	2	No	No	No	No	No	No	No	No	No	No
12	6	12	1	2	No	No	No	No	No	No	No	No	No	No
13	6	10	1	2	No	No	No	No	No	No	No	No	No	No
14	6	10	1	1	No	No	No	No	No	No	No	No	No	No
15	6	10	1	1	No	No	No	No	No	No	No	No	No	No
16	6	10	1	1	No	No	No	No	No	No	No	No	No	No
17	6	6	1	1	No	No	No	No	No	No	No	No	No	No
18	6	2	1	0	No	No	No	No	No	No	No	No	No	No
19	6	2	1	0	No	No	No	No	No	No	No	No	No	No
20	6	2	1	0	No	No	No	No	No	No	No	No	No	No
21	6	0	1	0	No	No	No	No	No	No	No	No	No	No
22	6	0	1	0	No	No	No	No	No	No	No	No	No	No
23	6	0	1	0	No	No	No	No	No	No	No	No	No	No
24	6	0	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

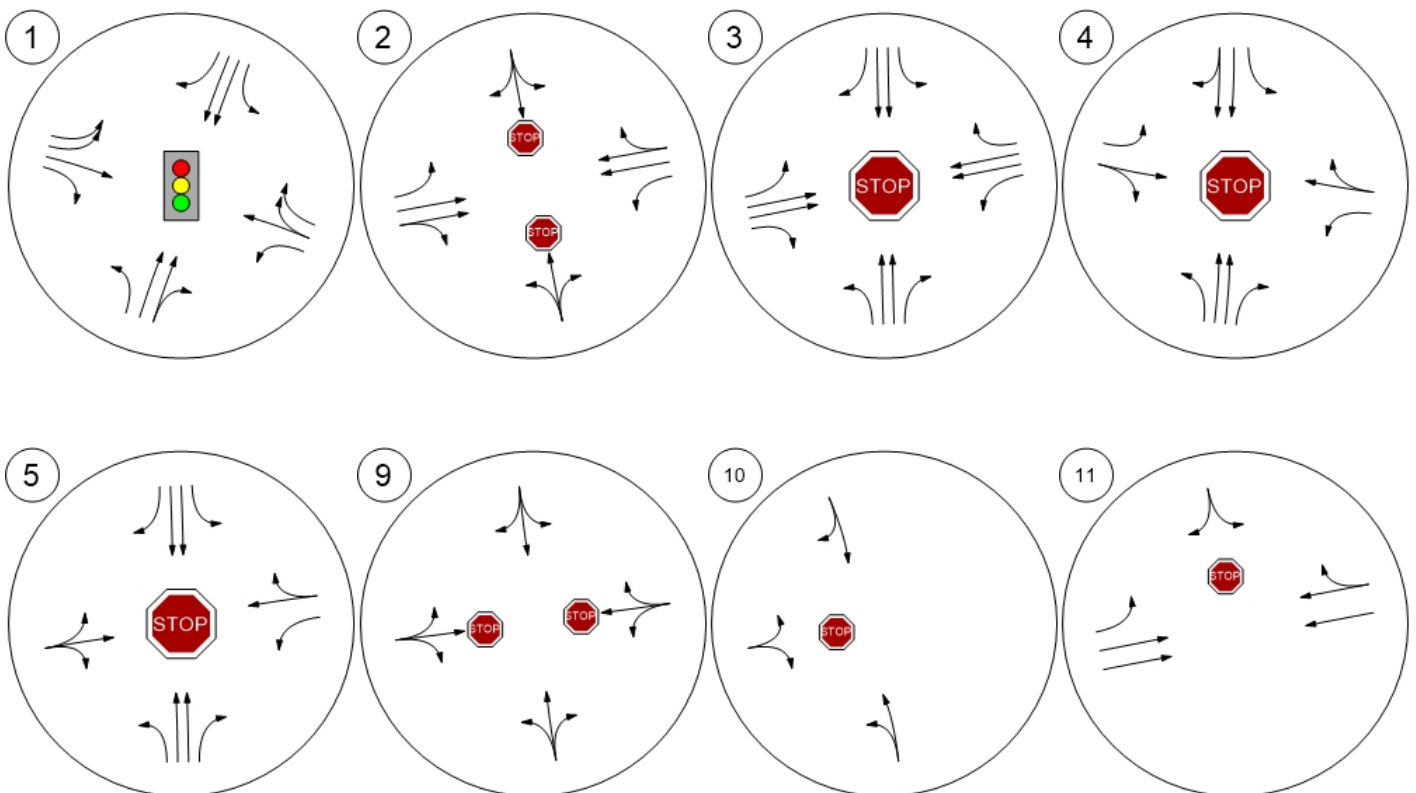
Warrant 3 Condition A

Orientation	E
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.4
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	4
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	30
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

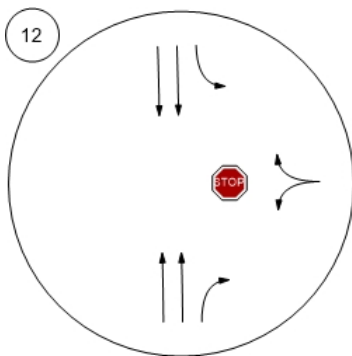
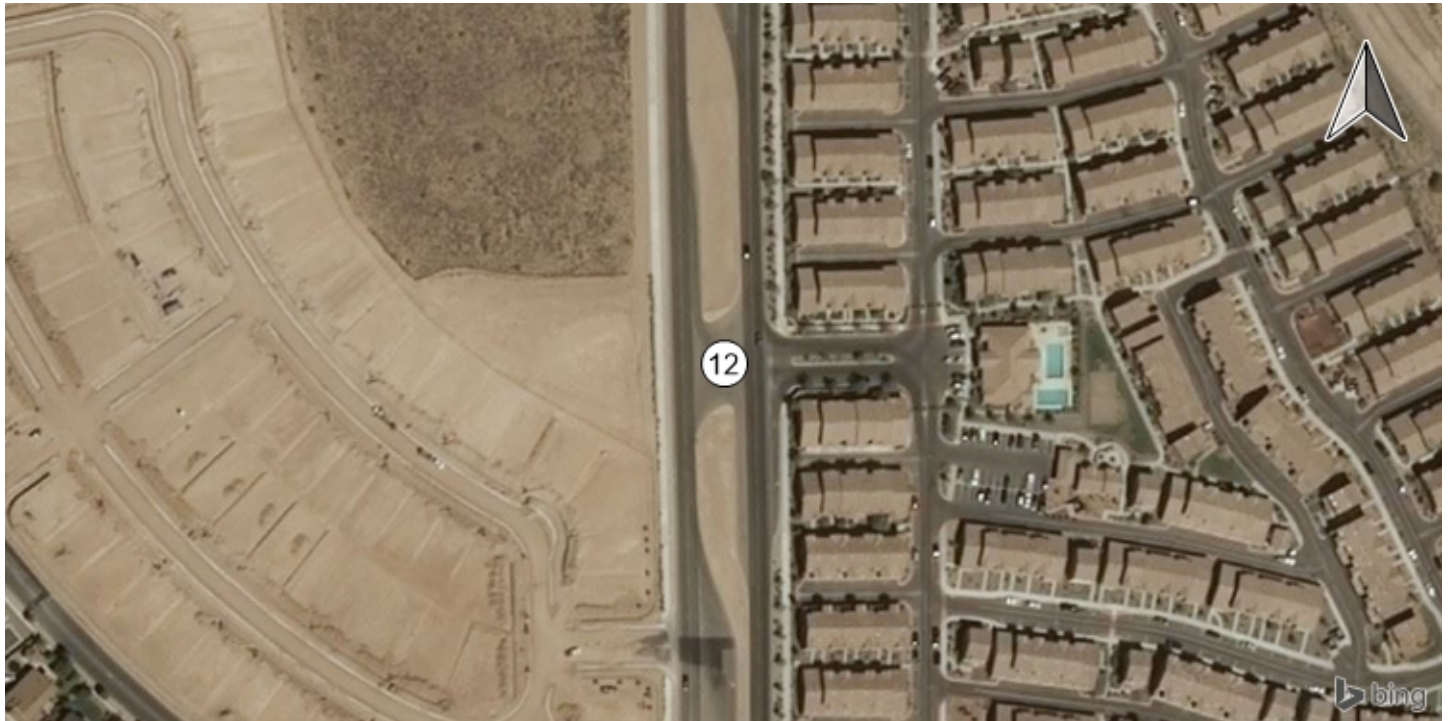
Study Intersections



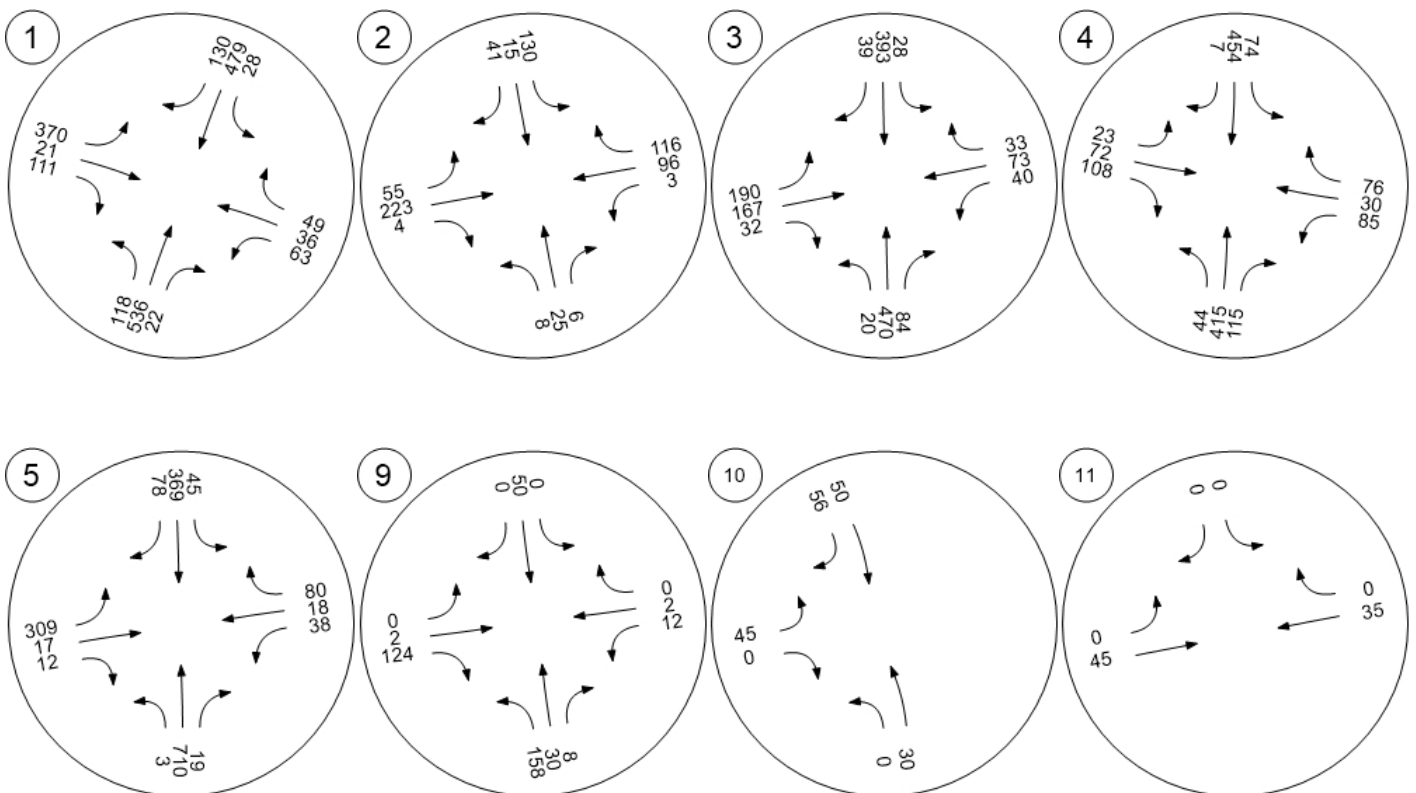
Lane Configuration and Traffic Control



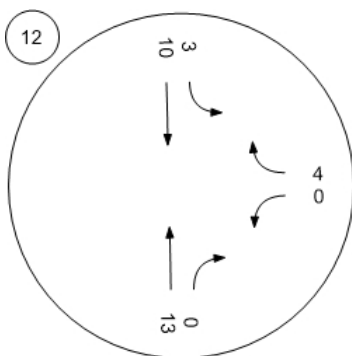
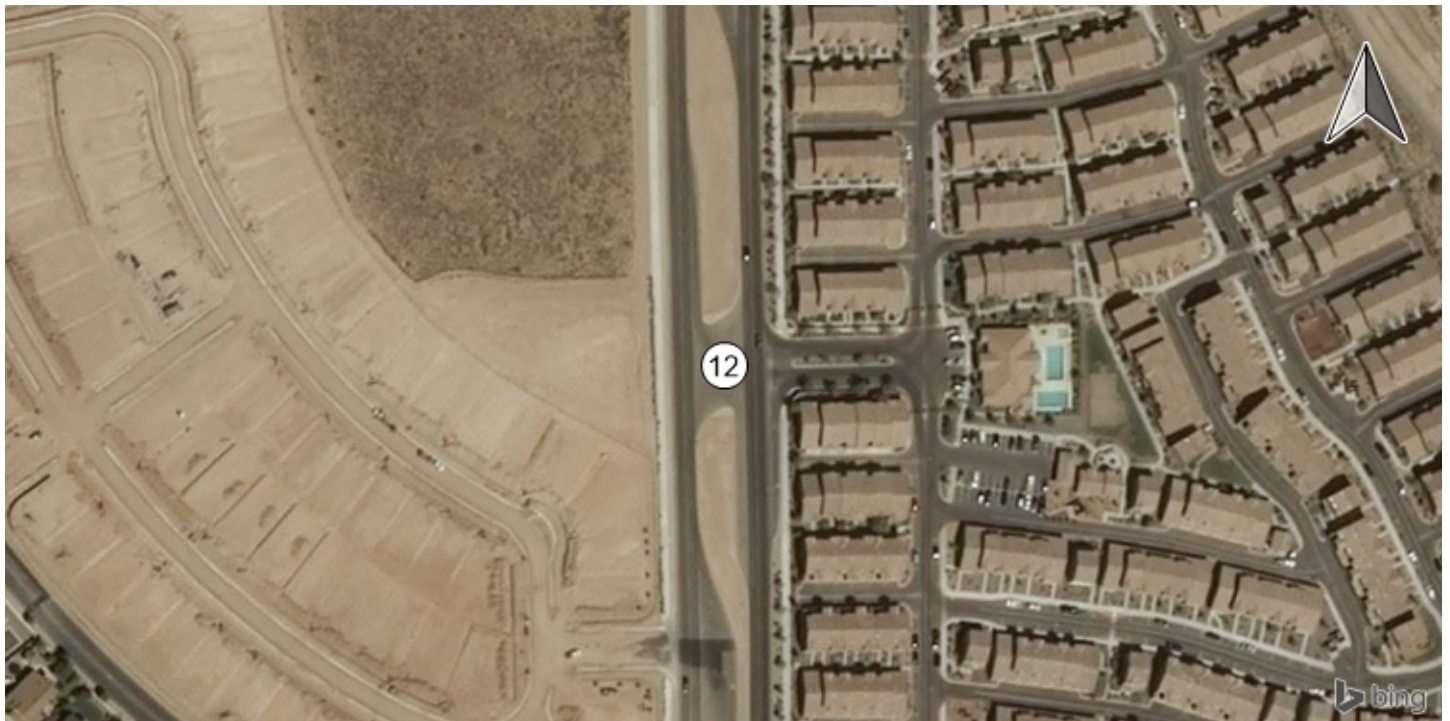
Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



Traffic Volume - Future Total Volume



Appendix C:
Level of Service and Capacity Output
Sheets
Initial Phase 2019 Build Out PM

Solare Collegiate School NIA

Vistro File: L:\...\Solare Charter School Analysis.vistro

Scenario 4 Initial Phase Build Out PM

Report File: L:\...\4. Initial Build 2019 PM.pdf

4/16/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Gibson Blvd and Unser Blvd	Signalized	HCM 6th Edition	EB Left	0.341	18.1	B
2	Gibson Blvd and Barbados Ave	Two-way stop	HCM 6th Edition	SB Thru	0.033	14.6	B
3	Gibson Blvd and 98th St	All-way stop	HCM 6th Edition	SB Thru	0.396	11.1	B
4	Blake Rd and 98th St	All-way stop	HCM 6th Edition	NB Thru	0.323	11.4	B
5	86th St and 98th St	All-way stop	HCM 6th Edition	SB Thru	0.606	17.0	C
9	Barbados Ave and South Solare Parent Driveway	Two-way stop	HCM 6th Edition	WB Left	0.015	11.8	B
10	Barbados Ave and North Solare Parent Driveway	Two-way stop	HCM 6th Edition	EB Left	0.041	9.2	A
11	New Intersection	Two-way stop	HCM 6th Edition	SB Left	0.000	8.7	A
12	New Intersection	Two-way stop	HCM 6th Edition	WB Left	0.000	8.6	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: Gibson Blvd and Unser Blvd

Control Type: Signalized
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 18.1
 Level Of Service: B
 Volume to Capacity (v/c): 0.341

Intersection Setup

Name	Unser Blvd			Unser Blvd			Gibson Blvd			Spring Flower Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	12.00	12.00	11.00	12.00	12.00	11.00	11.00	12.00	11.00	11.00	11.00
No. of Lanes in Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	460.00	100.00	100.00	315.00	100.00	600.00	225.00	100.00	150.00	80.00	100.00	100.00
Speed [mph]	40.00			40.00			40.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Unser Blvd			Unser Blvd			Gibson Blvd			Spring Flower Rd		
Base Volume Input [veh/h]	117	429	51	40	456	243	109	21	51	42	26	21
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	34	0	0	0	0	24	27	1	39	0	1	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	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	151	429	51	40	456	267	136	22	90	42	27	21
Peak Hour Factor	0.9670	0.9670	0.9670	0.9670	0.9670	0.9670	0.9670	0.9670	0.9670	0.9670	0.9670	0.9670
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	111	13	10	118	69	35	6	23	11	7	5
Total Analysis Volume [veh/h]	156	444	53	41	472	276	141	23	93	43	28	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	2			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			2			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			1			0			2		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	44.2
Offset Reference	LeadGreen
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	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	3	12	0	3	12	0	3	12	0	3	12	0
Maximum Green [s]	16	36	0	16	36	0	16	24	0	16	24	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.5	0.0	3.5	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.5	0.0	1.0	2.0	0.0	1.0	3.5	0.0
Split [s]	22	55	0	16	49	0	17	43	0	16	42	0
Vehicle Extension [s]	1.5	4.0	0.0	1.5	4.0	0.0	2.5	2.0	0.0	1.5	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	22	0	0	27	0	0	28	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]	2.5	3.0	0.0	2.5	3.5	0.0	2.5	4.5	0.0	2.5	4.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		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]	30.0	0.0	0.0	30.0	0.0	0.0	20.0	20.0	0.0	20.0	20.0	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	R	L	C	R	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.50	5.50	5.50	4.50	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	3.00	3.00	0.00	3.50	3.50	2.50	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	96	90	90	96	85	85	8	14	14	22	10	10
g / C, Green / Cycle	0.74	0.69	0.69	0.74	0.66	0.66	0.06	0.11	0.11	0.17	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.09	0.14	0.15	0.05	0.14	0.19	0.04	0.01	0.06	0.03	0.02	0.02
s, saturation flow rate [veh/h]	1603	1683	1613	862	3204	1413	3113	1683	1431	1352	1683	1388
c, Capacity [veh/h]	1189	1160	1112	669	2105	928	183	178	151	297	129	106
d1, Uniform Delay [s]	4.79	7.34	7.35	4.80	8.92	9.41	60.20	52.67	55.47	46.00	56.35	56.28
k, delay calibration	0.50	0.50	0.50	0.04	0.50	0.50	0.08	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]	0.22	0.41	0.44	0.01	0.24	0.78	4.48	0.11	1.40	0.08	0.30	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	0.13	0.21	0.21	0.06	0.22	0.29	0.74	0.12	0.60	0.14	0.21	0.20
d, Delay for Lane Group [s/veh]	5.01	7.75	7.79	4.82	9.16	10.19	64.68	52.78	56.87	46.08	56.65	56.61
Lane Group LOS	A	A	A	A	A	B	E	D	E	D	E	E
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.07	2.38	2.31	0.25	2.47	3.17	2.29	0.65	2.84	1.19	0.85	0.66
50th-Percentile Queue Length [ft/ln]	26.76	59.48	57.80	6.34	61.77	79.19	57.33	16.28	71.01	29.63	21.33	16.61
95th-Percentile Queue Length [veh/ln]	1.93	4.28	4.16	0.46	4.45	5.70	4.13	1.17	5.11	2.13	1.54	1.20
95th-Percentile Queue Length [ft/ln]	48.16	107.07	104.04	11.42	111.19	142.54	103.20	29.31	127.82	53.33	38.39	29.89

Movement, Approach, & Intersection Results

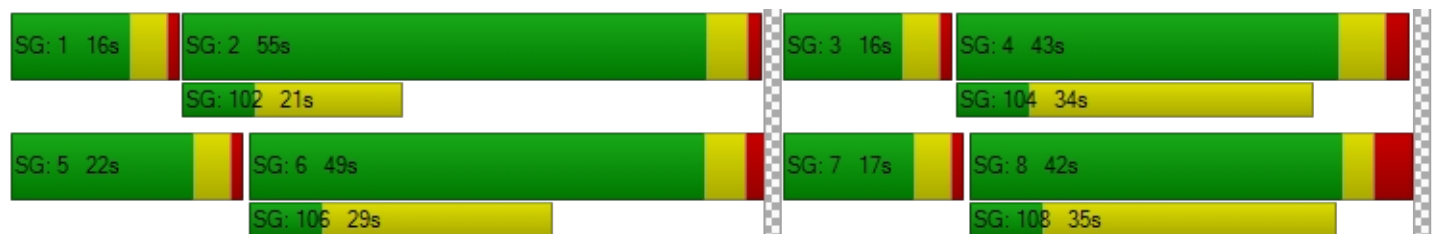
d_M, Delay for Movement [s/veh]	5.01	7.77	7.79	4.82	9.16	10.19	64.68	52.78	56.87	46.08	56.65	56.61
Movement LOS	A	A	A	A	A	B	E	D	E	D	E	E
d_A, Approach Delay [s/veh]	7.11			9.29			60.79			51.71		
Approach LOS	A			A			E			D		
d_I, Intersection Delay [s/veh]	18.08											
Intersection LOS	B											
Intersection V/C	0.341											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	5318.85			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	54.47			54.47			54.47			54.47		
I_p,int, Pedestrian LOS Score for Intersection	2.672			2.806			2.737			2.390		
Crosswalk LOS	B			C			B			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	769			669			562			546		
d_b, Bicycle Delay [s]	24.63			28.79			33.62			34.38		
I_b,int, Bicycle LOS Score for Intersection	0.794			0.903			1.969			1.708		
Bicycle LOS	A			A			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 2: Gibson Blvd and Barbados Ave

Control Type:	Two-way stop	Delay (sec / veh):	14.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.033

Intersection Setup

Name	Stampede Dr			Barbados Ave			Gibson Blvd			Gibson Blvd		
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 Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	25.00			30.00			40.00			40.00		
Grade [%]	0.00			0.00			-2.00			2.00		
Crosswalk	No			No			No			No		

Volumes

Name	Stampede Dr			Barbados Ave			Gibson Blvd			Gibson Blvd		
Base Volume Input [veh/h]	10	10	8	33	12	8	7	97	16	11	193	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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	0	67	4	29	25	0	0	0	0	59
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
Total Hourly Volume [veh/h]	10	14	8	100	16	37	32	97	16	11	193	107
Peak Hour Factor	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990
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]	3	4	2	28	4	10	9	27	4	3	54	30
Total Analysis Volume [veh/h]	11	16	9	111	18	41	36	108	18	12	215	119
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.03	0.01	0.19	0.03	0.04	0.02	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	11.59	13.15	8.97	14.29	14.65	11.46	7.48	0.00	0.00	7.62	0.00	0.00
Movement LOS	B	B	A	B	B	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.18	0.18	0.18	1.10	1.10	1.10	0.07	0.00	0.00	0.02	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.41	4.41	4.41	27.41	27.41	27.41	1.65	0.00	0.00	0.60	0.00	0.00
d_A, Approach Delay [s/veh]	11.62			13.64			1.65			0.27		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	4.34											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 3: Gibson Blvd and 98th St

Control Type: All-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 11.1
 Level Of Service: B
 Volume to Capacity (v/c): 0.396

Intersection Setup

Name	98 St			98 St			Gibson Blvd			Gibson Blvd		
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 Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	280.00	100.00	170.00	360.00	100.00	140.00	420.00	100.00	180.00	320.00	100.00	160.00
Speed [mph]	35.00			35.00			40.00			40.00		
Grade [%]	1.00			-1.00			-2.00			2.00		
Crosswalk	No			No			No			No		

Volumes

Name	98 St			98 St			Gibson Blvd			Gibson Blvd		
Base Volume Input [veh/h]	56	416	35	36	474	116	111	75	35	36	135	38
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	9	7	0	0	0	9	0	11	10	8
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
Total Hourly Volume [veh/h]	56	416	44	43	474	116	111	84	35	47	145	46
Peak Hour Factor	0.9650	0.9650	0.9650	0.9650	0.9650	0.9650	0.9650	0.9650	0.9650	0.9650	0.9650	0.9650
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	108	11	11	123	30	29	22	9	12	38	12
Total Analysis Volume [veh/h]	58	431	46	45	491	120	115	87	36	49	150	48
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	557	598	598	666	557	599	599	669	553	591	591	653	543	580	580	640
Degree of Utilization, x	0.10	0.35	0.35	0.07	0.08	0.40	0.40	0.17	0.20	0.07	0.07	0.05	0.09	0.13	0.13	0.07

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.34	1.59	1.59	0.21	0.25	1.94	1.94	0.63	0.75	0.23	0.23	0.17	0.28	0.43	0.43	0.23
95th-Percentile Queue Length [ft]	8.38	39.74	39.74	5.30	6.26	48.55	48.55	15.69	18.76	5.73	5.73	4.24	7.11	10.71	10.71	5.81
Approach Delay [s/veh]	11.42				11.80				9.91				9.63			
Approach LOS	B				B				A				A			
Intersection Delay [s/veh]	11.09															
Intersection LOS	B															

Intersection Level Of Service Report

Intersection 4: Blake Rd and 98th St

Control Type: All-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 11.4
 Level Of Service: B
 Volume to Capacity (v/c): 0.323

Intersection Setup

Name	98th St			98 St			Blake Rd			Blake Rd		
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	15.00	15.00	12.00	18.00	18.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	110.00	100.00	125.00	415.00	100.00	100.00	200.00	100.00	100.00	210.00	100.00	100.00
Speed [mph]	30.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			-2.50			2.50		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	98th St			98 St			Blake Rd			Blake Rd		
Base Volume Input [veh/h]	56	353	59	78	303	17	19	45	39	76	65	91
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	0	1	4	3	2	0	0	0	0	1
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
Total Hourly Volume [veh/h]	56	357	59	79	307	20	21	45	39	76	65	92
Peak Hour Factor	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880
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]	16	101	17	22	86	6	6	13	11	21	18	26
Total Analysis Volume [veh/h]	63	402	66	89	346	23	24	51	44	86	73	104
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	513	552	552	619	510	549	557	528	590	525	597
Degree of Utilization, x	0.11	0.32	0.32	0.10	0.15	0.30	0.29	0.04	0.14	0.14	0.26

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.37	1.42	1.42	0.32	0.55	1.26	1.24	0.12	0.50	0.51	1.06
95th-Percentile Queue Length [ft]	9.17	35.54	35.54	7.90	13.69	31.59	31.02	3.11	12.44	12.65	26.62
Approach Delay [s/veh]	11.72				11.77			9.82		10.82	
Approach LOS	B				B			A		B	
Intersection Delay [s/veh]	11.40										
Intersection LOS	B										

Intersection Level Of Service Report Intersection 5: 86th St and 98th St

Control Type: All-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 1 hour

Delay (sec / veh): 17.0
Level Of Service: C
Volume to Capacity (v/c): 0.606

Intersection Setup

Name	98 St			98 St			De Anza Dr SW			86th St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	12.00	12.00	20.00	20.00	20.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	220.00	100.00	120.00	125.00	100.00	110.00	100.00	100.00	100.00	350.00	100.00	100.00
Speed [mph]	35.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			-2.00			2.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	98 St			98 St			De Anza Dr SW			86th St		
Base Volume Input [veh/h]	4	477	18	51	617	251	132	14	7	23	20	25
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	8	0	20	7	0	0	2	0	0	3	23
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
Total Hourly Volume [veh/h]	4	485	18	71	624	251	132	16	7	23	23	48
Peak Hour Factor	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330
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]	1	130	5	19	167	67	35	4	2	6	6	13
Total Analysis Volume [veh/h]	4	520	19	76	669	269	141	17	8	25	25	51
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	454	484	484	534	480	515	515	574	471	427	476
Degree of Utilization, x	0.01	0.50	0.50	0.03	0.15	0.61	0.61	0.44	0.33	0.05	0.15

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.03	2.94	2.94	0.10	0.52	4.41	4.41	2.30	1.46		0.17	0.52
95th-Percentile Queue Length [ft]	0.67	73.56	73.56	2.62	12.98	110.3	110.3	57.53	36.47		4.27	13.11
Approach Delay [s/veh]	17.22				17.90				14.39		11.59	
Approach LOS	C				C				B		B	
Intersection Delay [s/veh]	17.03											
Intersection LOS	C											

Intersection Level Of Service Report**Intersection 9: Barbados Ave and South Solare Parent Driveway**

Control Type:	Two-way stop	Delay (sec / veh):	11.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.015

Intersection Setup

Name	Barbados Ave			Barbados Ave			Ba Av			Ba Av		
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 Pocket	0	0	0	0	0	0	0	0	0	0	0	0
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
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Barbados Ave			Barbados Ave			Ba Av			Ba Av		
Base Volume Input [veh/h]	0	50	15	0	45	0	0	0	0	8	0	0
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	88	0	0	0	0	0	0	1	100	0	1	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
Total Hourly Volume [veh/h]	88	50	15	0	45	0	0	1	100	8	1	0
Peak Hour 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
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]	22	13	4	0	11	0	0	0	25	2	0	0
Total Analysis Volume [veh/h]	88	50	15	0	45	0	0	1	100	8	1	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	7.44	0.00	0.00	7.34	0.00	0.00	10.99	11.52	8.90	11.81	11.19	8.68
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.33	0.33	0.33	0.00	0.00	0.00	0.33	0.33	0.33	0.05	0.05	0.05
95th-Percentile Queue Length [ft/ln]	8.13	8.13	8.13	0.00	0.00	0.00	8.26	8.26	8.26	1.26	1.26	1.26
d_A, Approach Delay [s/veh]	4.28			0.00			8.93			11.74		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	5.40											
Intersection LOS	B											

Intersection Level Of Service Report**Intersection 10: Barbados Ave and North Solare Parent Driveway**

Control Type:	Two-way stop	Delay (sec / veh):	9.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.041

Intersection Setup

Name	Barbados Ave		North Parent Driveway		Barbados Ave	
Approach	Northbound		Eastbound		Southeastbound	
Lane Configuration						
Turning Movement	Left	Thru	Left	Right	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Barbados Ave		North Parent Driveway		Barbados Ave	
Base Volume Input [veh/h]	0	50	0	0	45	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 Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	36	0	0	32
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	0	0	0	0
Total Hourly Volume [veh/h]	0	50	36	0	45	32
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	13	9	0	11	8
Total Analysis Volume [veh/h]	0	50	36	0	45	32
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Stop	Free
Flared Lane		No	
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	0.00	0.04	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.37	0.00	9.24	8.76	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.13	0.13	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	3.18	3.18	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		9.24		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.04					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 11: New Intersection

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 8.7
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name	Barbados Ave Driveway North		Gibson Blvd		Gibson Blvd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		-2.00		2.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Barbados Ave Driveway North		Gibson Blvd		Gibson Blvd	
Base Volume Input [veh/h]	0	0	0	0	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 Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	25	29	0
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	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	25	29	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	6	7	0
Total Analysis Volume [veh/h]	0	0	0	25	29	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.73	8.39	7.24	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.56		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 12: New Intersection

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 8.6
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name	98th St (Snow Vista Blvd SW)		98th St (Snow Vista Blvd SW)		Diamond Mesa	
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 Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	140.00	150.00	100.00	100.00	100.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	1.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	98th St (Snow Vista Blvd SW)		98th St (Snow Vista Blvd SW)		Diamond Mesa	
Base Volume Input [veh/h]	0	0	0	0	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 Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	0	3	8	0	2
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	0	0	0	0
Total Hourly Volume [veh/h]	7	0	3	8	0	2
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	1	2	0	1
Total Analysis Volume [veh/h]	7	0	3	8	0	2
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
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	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.24	0.00	8.62	8.34
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.01	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.14	0.00	0.14	0.14
d_A, Approach Delay [s/veh]	0.00		1.97		8.34	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.92					
Intersection LOS	A					

Signal Warrants Report For Intersection 2: Gibson Blvd and Barbados Ave

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	311	145	32	153
2	299	139	31	147
3	292	136	30	144
4	249	116	26	122
5	236	110	24	116
6	211	99	22	104
7	196	91	20	96
8	187	87	19	92
9	149	70	15	73
10	140	65	14	69
11	140	65	14	69
12	134	62	14	66
13	121	57	12	60
14	112	52	12	55
15	112	52	12	55
16	109	51	11	54
17	62	29	6	31
18	34	16	4	17
19	31	15	3	15
20	12	6	1	6
21	9	4	1	5
22	9	4	1	5
23	6	3	1	3
24	6	3	1	3

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	456	2	185	No	No	Yes	Yes	No	No	No	No	No	No
2	6	438	2	178	No	No	Yes	Yes	No	No	No	No	No	No
3	6	428	2	174	No	No	Yes	Yes	No	No	No	No	No	No
4	6	365	2	148	No	No	No	Yes	No	No	No	No	No	No
5	6	346	2	140	No	No	No	Yes	No	No	No	No	No	No
6	6	310	2	126	No	No	No	No	No	No	No	No	No	No
7	6	287	2	116	No	No	No	No	No	No	No	No	No	No
8	6	274	2	111	No	No	No	No	No	No	No	No	No	No
9	6	219	2	88	No	No	No	No	No	No	No	No	No	No
10	6	205	2	83	No	No	No	No	No	No	No	No	No	No
11	6	205	2	83	No	No	No	No	No	No	No	No	No	No
12	6	196	2	80	No	No	No	No	No	No	No	No	No	No
13	6	178	2	72	No	No	No	No	No	No	No	No	No	No
14	6	164	2	67	No	No	No	No	No	No	No	No	No	No
15	6	164	2	67	No	No	No	No	No	No	No	No	No	No
16	6	160	2	65	No	No	No	No	No	No	No	No	No	No
17	6	91	2	37	No	No	No	No	No	No	No	No	No	No
18	6	50	2	21	No	No	No	No	No	No	No	No	No	No
19	6	46	2	18	No	No	No	No	No	No	No	No	No	No
20	6	18	2	7	No	No	No	No	No	No	No	No	No	No
21	6	13	2	6	No	No	No	No	No	No	No	No	No	No
22	6	13	2	6	No	No	No	No	No	No	No	No	No	No
23	6	9	2	4	No	No	No	No	No	No	No	No	No	No
24	6	9	2	4	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	3	5	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.6	13.6
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:06	0:34
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	32	153
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	641	641
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 3: Gibson Blvd and 98th St

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	516	633	238	230
2	495	608	228	221
3	485	595	224	216
4	413	506	190	184
5	392	481	181	175
6	351	430	162	156
7	325	399	150	145
8	310	380	143	138
9	248	304	114	110
10	232	285	107	104
11	232	285	107	104
12	222	272	102	99
13	201	247	93	90
14	186	228	86	83
15	186	228	86	83
16	181	222	83	81
17	103	127	48	46
18	57	70	26	25
19	52	63	24	23
20	21	25	10	9
21	15	19	7	7
22	15	19	7	7
23	10	13	5	5
24	10	13	5	5

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	8	1149	8	468	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
2	8	1103	8	449	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
3	8	1080	8	440	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
4	8	919	8	374	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
5	8	873	8	356	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
6	8	781	8	318	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
7	8	724	8	295	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No
8	8	690	8	281	No	No	Yes	Yes	No	No	Yes	Yes	No	No
9	8	552	8	224	No	No	No	Yes	No	No	No	Yes	No	No
10	8	517	8	211	No	No	No	No	No	No	No	Yes	No	No
11	8	517	8	211	No	No	No	No	No	No	No	Yes	No	No
12	8	494	8	201	No	No	No	No	No	No	No	No	No	No
13	8	448	8	183	No	No	No	No	No	No	No	No	No	No
14	8	414	8	169	No	No	No	No	No	No	No	No	No	No
15	8	414	8	169	No	No	No	No	No	No	No	No	No	No
16	8	403	8	164	No	No	No	No	No	No	No	No	No	No
17	8	230	8	94	No	No	No	No	No	No	No	No	No	No
18	8	127	8	51	No	No	No	No	No	No	No	No	No	No
19	8	115	8	47	No	No	No	No	No	No	No	No	No	No
20	8	46	8	19	No	No	No	No	No	No	No	No	No	No
21	8	34	8	14	No	No	No	No	No	No	No	No	No	No
22	8	34	8	14	No	No	No	No	No	No	No	No	No	No
23	8	23	8	10	No	No	No	No	No	No	No	No	No	No
24	8	23	8	10	No	No	No	No	No	No	No	No	No	No
Hours Met					3	6	8	9	4	7	8	11	3	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.6	9.9
Number of Lanes on Minor Street Approach	4	4
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:38	0:37
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	238	230
High Minor Volume Condition Met	Yes	Yes
Total Entering Volume on All Approaches During Same Hour	1617	1617
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 4: Blake Rd and 98th St

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	N	S	E	W
1	406	472	233	105
2	390	453	224	101
3	382	444	219	99
4	325	378	186	84
5	309	359	177	80
6	276	321	158	71
7	256	297	147	66
8	244	283	140	63
9	195	227	112	50
10	183	212	105	47
11	183	212	105	47
12	175	203	100	45
13	158	184	91	41
14	146	170	84	38
15	146	170	84	38
16	142	165	82	37
17	81	94	47	21
18	45	52	26	12
19	41	47	23	11
20	16	19	9	4
21	12	14	7	3
22	12	14	7	3
23	8	9	5	2
24	8	9	5	2

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	7	878	4	338	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
2	7	843	4	325	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
3	7	826	4	318	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
4	7	703	4	270	No	Yes	Yes	Yes	No	No	Yes	Yes	No	No
5	7	668	4	257	No	Yes	Yes	Yes	No	No	Yes	Yes	No	No
6	7	597	4	229	No	No	Yes	Yes	No	No	No	Yes	No	No
7	7	553	4	213	No	No	Yes	Yes	No	No	No	Yes	No	No
8	7	527	4	203	No	No	Yes	Yes	No	No	No	Yes	No	No
9	7	422	4	162	No	No	No	Yes	No	No	No	No	No	No
10	7	395	4	152	No	No	No	No	No	No	No	No	No	No
11	7	395	4	152	No	No	No	No	No	No	No	No	No	No
12	7	378	4	145	No	No	No	No	No	No	No	No	No	No
13	7	342	4	132	No	No	No	No	No	No	No	No	No	No
14	7	316	4	122	No	No	No	No	No	No	No	No	No	No
15	7	316	4	122	No	No	No	No	No	No	No	No	No	No
16	7	307	4	119	No	No	No	No	No	No	No	No	No	No
17	7	175	4	68	No	No	No	No	No	No	No	No	No	No
18	7	97	4	38	No	No	No	No	No	No	No	No	No	No
19	7	88	4	34	No	No	No	No	No	No	No	No	No	No
20	7	35	4	13	No	No	No	No	No	No	No	No	No	No
21	7	26	4	10	No	No	No	No	No	No	No	No	No	No
22	7	26	4	10	No	No	No	No	No	No	No	No	No	No
23	7	17	4	7	No	No	No	No	No	No	No	No	No	No
24	7	17	4	7	No	No	No	No	No	No	No	No	No	No
Hours Met					3	5	8	9	0	3	5	8	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	10.8	9.8
Number of Lanes on Minor Street Approach	2	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:42	0:17
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	233	105
High Minor Volume Condition Met	Yes	No
Total Entering Volume on All Approaches During Same Hour	1216	1216
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 5: 86th St and 98th St

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	507	946	94	155
2	487	908	90	149
3	477	889	88	146
4	406	757	75	124
5	385	719	71	118
6	345	643	64	105
7	319	596	59	98
8	304	568	56	93
9	243	454	45	74
10	228	426	42	70
11	228	426	42	70
12	218	407	40	67
13	198	369	37	60
14	183	341	34	56
15	183	341	34	56
16	177	331	33	54
17	101	189	19	31
18	56	104	10	17
19	51	95	9	16
20	20	38	4	6
21	15	28	3	5
22	15	28	3	5
23	10	19	2	3
24	10	19	2	3

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	8	1453	3	249	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	8	1395	3	239	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
3	8	1366	3	234	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
4	8	1163	3	199	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
5	8	1104	3	189	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
6	8	988	3	169	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
7	8	915	3	157	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No
8	8	872	3	149	No	No	No	Yes	No	Yes	Yes	Yes	No	No
9	8	697	3	119	No	No	No	No	No	No	Yes	Yes	No	No
10	8	654	3	112	No	No	No	No	No	No	Yes	Yes	No	No
11	8	654	3	112	No	No	No	No	No	No	Yes	Yes	No	No
12	8	625	3	107	No	No	No	No	No	No	No	Yes	No	No
13	8	567	3	97	No	No	No	No	No	No	No	Yes	No	No
14	8	524	3	90	No	No	No	No	No	No	No	Yes	No	No
15	8	524	3	90	No	No	No	No	No	No	No	Yes	No	No
16	8	508	3	87	No	No	No	No	No	No	No	Yes	No	No
17	8	290	3	50	No	No	No	No	No	No	No	No	No	No
18	8	160	3	27	No	No	No	No	No	No	No	No	No	No
19	8	146	3	25	No	No	No	No	No	No	No	No	No	No
20	8	58	3	10	No	No	No	No	No	No	No	No	No	No
21	8	43	3	8	No	No	No	No	No	No	No	No	No	No
22	8	43	3	8	No	No	No	No	No	No	No	No	No	No
23	8	29	3	5	No	No	No	No	No	No	No	No	No	No
24	8	29	3	5	No	No	No	No	No	No	No	No	No	No
Hours Met					1	4	6	8	7	8	11	16	4	1

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.6	14.4
Number of Lanes on Minor Street Approach	2	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:18	0:37
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	94	155
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	1702	1702
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 9: Barbados Ave and South Solare Parent Driveway

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	153	45	9	101
2	147	43	9	97
3	144	42	8	95
4	122	36	7	81
5	116	34	7	77
6	104	31	6	69
7	96	28	6	64
8	92	27	5	61
9	73	22	4	48
10	69	20	4	45
11	69	20	4	45
12	66	19	4	43
13	60	18	4	39
14	55	16	3	36
15	55	16	3	36
16	54	16	3	35
17	31	9	2	20
18	17	5	1	11
19	15	5	1	10
20	6	2	0	4
21	5	1	0	3
22	5	1	0	3
23	3	1	0	2
24	3	1	0	2

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	198	2	110	No	No	No	No	No	No	No	No	No	No
2	2	190	2	106	No	No	No	No	No	No	No	No	No	No
3	2	186	2	103	No	No	No	No	No	No	No	No	No	No
4	2	158	2	88	No	No	No	No	No	No	No	No	No	No
5	2	150	2	84	No	No	No	No	No	No	No	No	No	No
6	2	135	2	75	No	No	No	No	No	No	No	No	No	No
7	2	124	2	70	No	No	No	No	No	No	No	No	No	No
8	2	119	2	66	No	No	No	No	No	No	No	No	No	No
9	2	95	2	52	No	No	No	No	No	No	No	No	No	No
10	2	89	2	49	No	No	No	No	No	No	No	No	No	No
11	2	89	2	49	No	No	No	No	No	No	No	No	No	No
12	2	85	2	47	No	No	No	No	No	No	No	No	No	No
13	2	78	2	43	No	No	No	No	No	No	No	No	No	No
14	2	71	2	39	No	No	No	No	No	No	No	No	No	No
15	2	71	2	39	No	No	No	No	No	No	No	No	No	No
16	2	70	2	38	No	No	No	No	No	No	No	No	No	No
17	2	40	2	22	No	No	No	No	No	No	No	No	No	No
18	2	22	2	12	No	No	No	No	No	No	No	No	No	No
19	2	20	2	11	No	No	No	No	No	No	No	No	No	No
20	2	8	2	4	No	No	No	No	No	No	No	No	No	No
21	2	6	2	3	No	No	No	No	No	No	No	No	No	No
22	2	6	2	3	No	No	No	No	No	No	No	No	No	No
23	2	4	2	2	No	No	No	No	No	No	No	No	No	No
24	2	4	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.7	8.9
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:01	0:15
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	9	101
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	308	308
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 10: Barbados Ave and North Solare Parent Driveway

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, NW
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	NW	W
1	50	77	36
2	48	74	35
3	47	72	34
4	40	62	29
5	38	59	27
6	34	52	24
7	32	49	23
8	30	46	22
9	24	37	17
10	23	35	16
11	23	35	16
12	22	33	15
13	20	30	14
14	18	28	13
15	18	28	13
16	18	27	13
17	10	15	7
18	6	8	4
19	5	8	4
20	2	3	1
21	2	2	1
22	2	2	1
23	1	2	1
24	1	2	1

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	127	1	36	No	No	No	No	No	No	No	No	No	No
2	2	122	1	35	No	No	No	No	No	No	No	No	No	No
3	2	119	1	34	No	No	No	No	No	No	No	No	No	No
4	2	102	1	29	No	No	No	No	No	No	No	No	No	No
5	2	97	1	27	No	No	No	No	No	No	No	No	No	No
6	2	86	1	24	No	No	No	No	No	No	No	No	No	No
7	2	81	1	23	No	No	No	No	No	No	No	No	No	No
8	2	76	1	22	No	No	No	No	No	No	No	No	No	No
9	2	61	1	17	No	No	No	No	No	No	No	No	No	No
10	2	58	1	16	No	No	No	No	No	No	No	No	No	No
11	2	58	1	16	No	No	No	No	No	No	No	No	No	No
12	2	55	1	15	No	No	No	No	No	No	No	No	No	No
13	2	50	1	14	No	No	No	No	No	No	No	No	No	No
14	2	46	1	13	No	No	No	No	No	No	No	No	No	No
15	2	46	1	13	No	No	No	No	No	No	No	No	No	No
16	2	45	1	13	No	No	No	No	No	No	No	No	No	No
17	2	25	1	7	No	No	No	No	No	No	No	No	No	No
18	2	14	1	4	No	No	No	No	No	No	No	No	No	No
19	2	13	1	4	No	No	No	No	No	No	No	No	No	No
20	2	5	1	1	No	No	No	No	No	No	No	No	No	No
21	2	4	1	1	No	No	No	No	No	No	No	No	No	No
22	2	4	1	1	No	No	No	No	No	No	No	No	No	No
23	2	3	1	1	No	No	No	No	No	No	No	No	No	No
24	2	3	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.2
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:05
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	36
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	163
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

Signal Warrants Report For Intersection 11: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	29	25	0
2	28	24	0
3	27	24	0
4	23	20	0
5	22	19	0
6	20	17	0
7	18	16	0
8	17	15	0
9	14	12	0
10	13	11	0
11	13	11	0
12	12	11	0
13	11	10	0
14	10	9	0
15	10	9	0
16	10	9	0
17	6	5	0
18	3	3	0
19	3	3	0
20	1	1	0
21	1	1	0
22	1	1	0
23	1	1	0
24	1	1	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	5	54	1	0	No	No	No	No	No	No	No	No	No	No
2	5	52	1	0	No	No	No	No	No	No	No	No	No	No
3	5	51	1	0	No	No	No	No	No	No	No	No	No	No
4	5	43	1	0	No	No	No	No	No	No	No	No	No	No
5	5	41	1	0	No	No	No	No	No	No	No	No	No	No
6	5	37	1	0	No	No	No	No	No	No	No	No	No	No
7	5	34	1	0	No	No	No	No	No	No	No	No	No	No
8	5	32	1	0	No	No	No	No	No	No	No	No	No	No
9	5	26	1	0	No	No	No	No	No	No	No	No	No	No
10	5	24	1	0	No	No	No	No	No	No	No	No	No	No
11	5	24	1	0	No	No	No	No	No	No	No	No	No	No
12	5	23	1	0	No	No	No	No	No	No	No	No	No	No
13	5	21	1	0	No	No	No	No	No	No	No	No	No	No
14	5	19	1	0	No	No	No	No	No	No	No	No	No	No
15	5	19	1	0	No	No	No	No	No	No	No	No	No	No
16	5	19	1	0	No	No	No	No	No	No	No	No	No	No
17	5	11	1	0	No	No	No	No	No	No	No	No	No	No
18	5	6	1	0	No	No	No	No	No	No	No	No	No	No
19	5	6	1	0	No	No	No	No	No	No	No	No	No	No
20	5	2	1	0	No	No	No	No	No	No	No	No	No	No
21	5	2	1	0	No	No	No	No	No	No	No	No	No	No
22	5	2	1	0	No	No	No	No	No	No	No	No	No	No
23	5	2	1	0	No	No	No	No	No	No	No	No	No	No
24	5	2	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.6
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	0
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	54
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

Signal Warrants Report For Intersection 12: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	N	E
1	7	11	2
2	7	11	2
3	7	10	2
4	6	9	2
5	5	8	2
6	5	7	1
7	4	7	1
8	4	7	1
9	3	5	1
10	3	5	1
11	3	5	1
12	3	5	1
13	3	4	1
14	3	4	1
15	3	4	1
16	2	4	1
17	1	2	0
18	1	1	0
19	1	1	0
20	0	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0

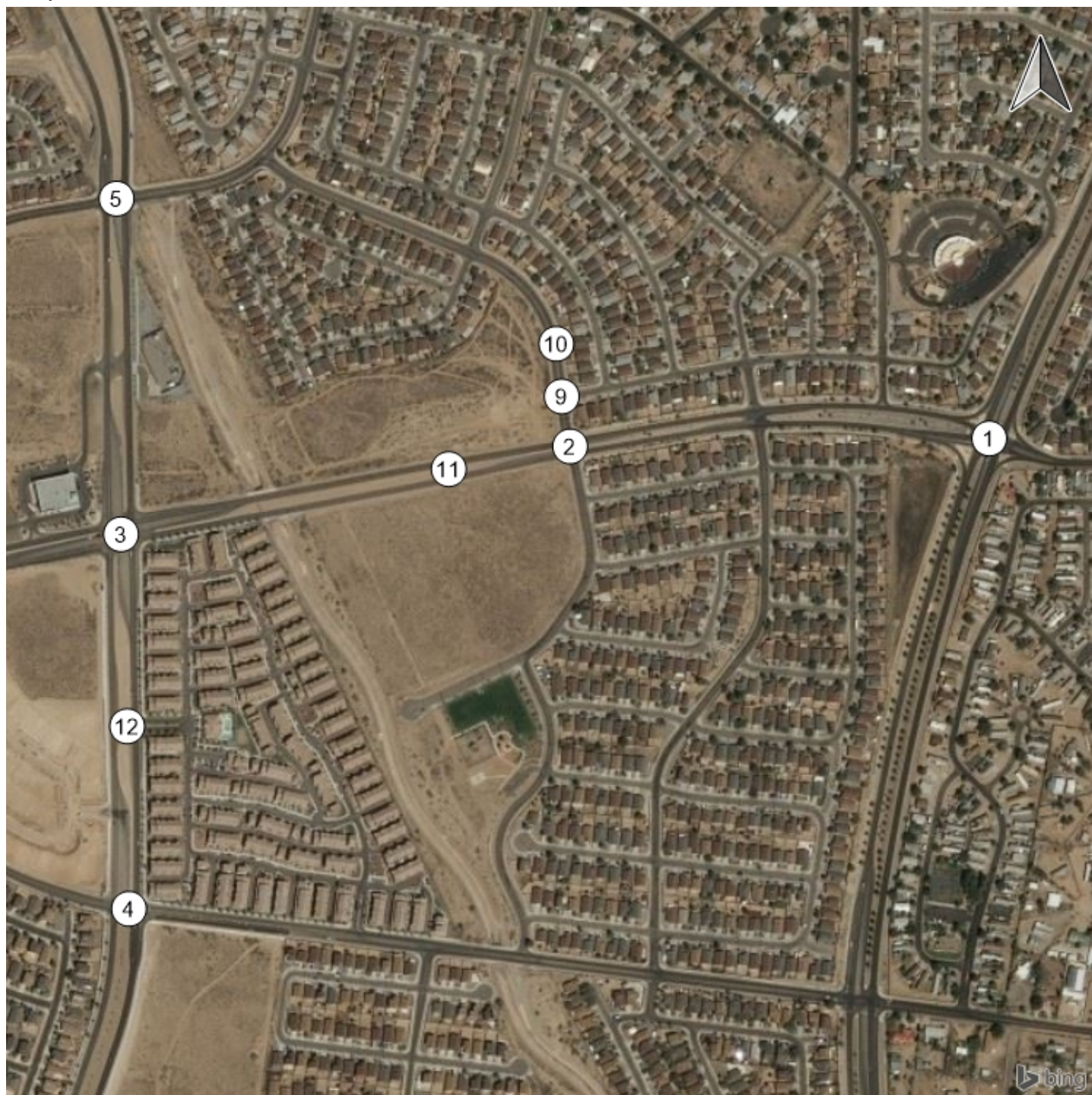
Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	18	1	2	No	No	No	No	No	No	No	No	No	No
2	6	18	1	2	No	No	No	No	No	No	No	No	No	No
3	6	17	1	2	No	No	No	No	No	No	No	No	No	No
4	6	15	1	2	No	No	No	No	No	No	No	No	No	No
5	6	13	1	2	No	No	No	No	No	No	No	No	No	No
6	6	12	1	1	No	No	No	No	No	No	No	No	No	No
7	6	11	1	1	No	No	No	No	No	No	No	No	No	No
8	6	11	1	1	No	No	No	No	No	No	No	No	No	No
9	6	8	1	1	No	No	No	No	No	No	No	No	No	No
10	6	8	1	1	No	No	No	No	No	No	No	No	No	No
11	6	8	1	1	No	No	No	No	No	No	No	No	No	No
12	6	8	1	1	No	No	No	No	No	No	No	No	No	No
13	6	7	1	1	No	No	No	No	No	No	No	No	No	No
14	6	7	1	1	No	No	No	No	No	No	No	No	No	No
15	6	7	1	1	No	No	No	No	No	No	No	No	No	No
16	6	6	1	1	No	No	No	No	No	No	No	No	No	No
17	6	3	1	0	No	No	No	No	No	No	No	No	No	No
18	6	2	1	0	No	No	No	No	No	No	No	No	No	No
19	6	2	1	0	No	No	No	No	No	No	No	No	No	No
20	6	0	1	0	No	No	No	No	No	No	No	No	No	No
21	6	0	1	0	No	No	No	No	No	No	No	No	No	No
22	6	0	1	0	No	No	No	No	No	No	No	No	No	No
23	6	0	1	0	No	No	No	No	No	No	No	No	No	No
24	6	0	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

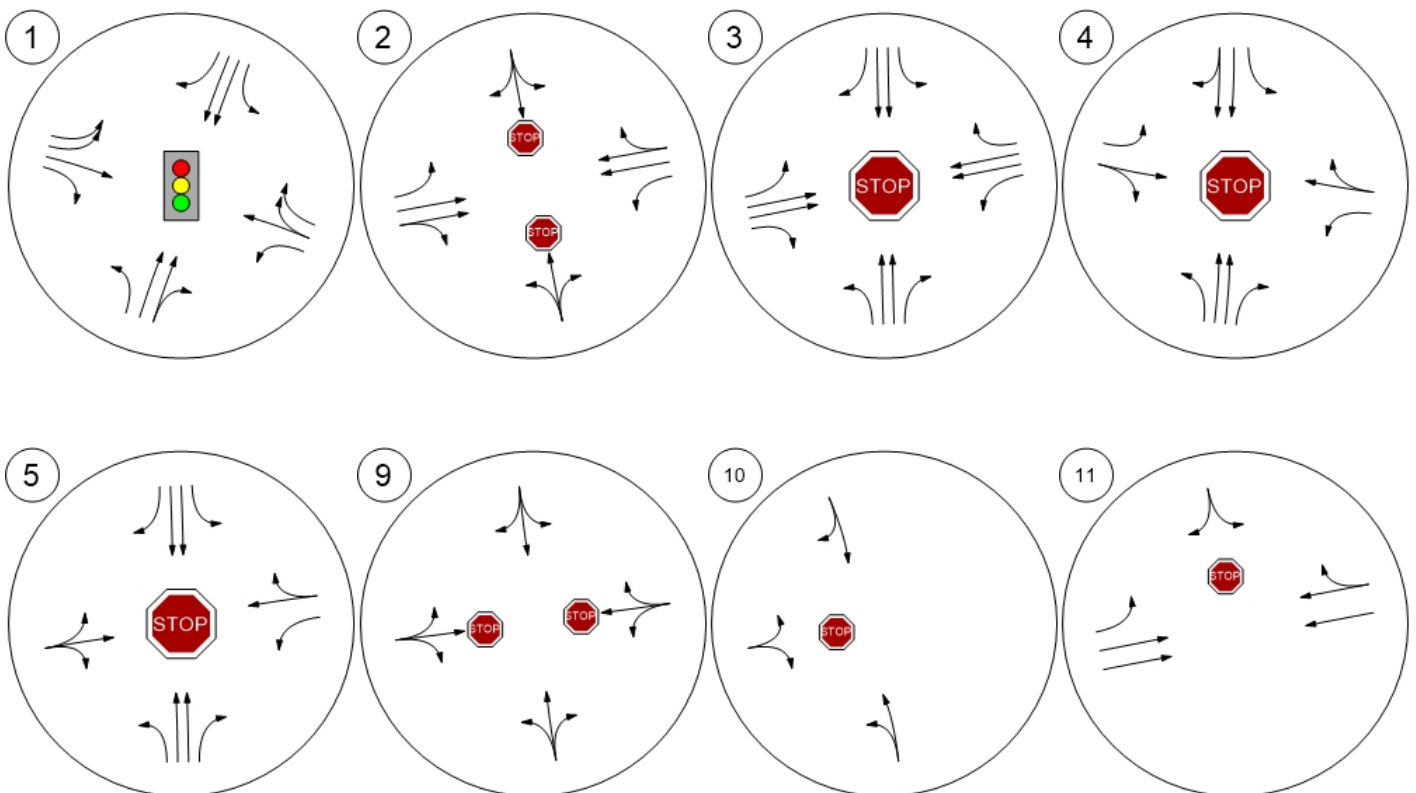
Warrant 3 Condition A

Orientation	E
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.3
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	2
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	20
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

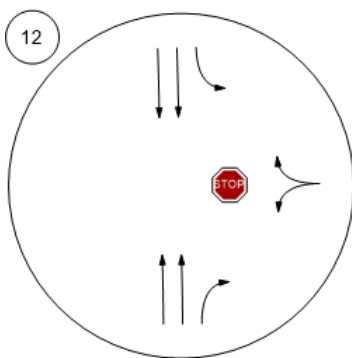
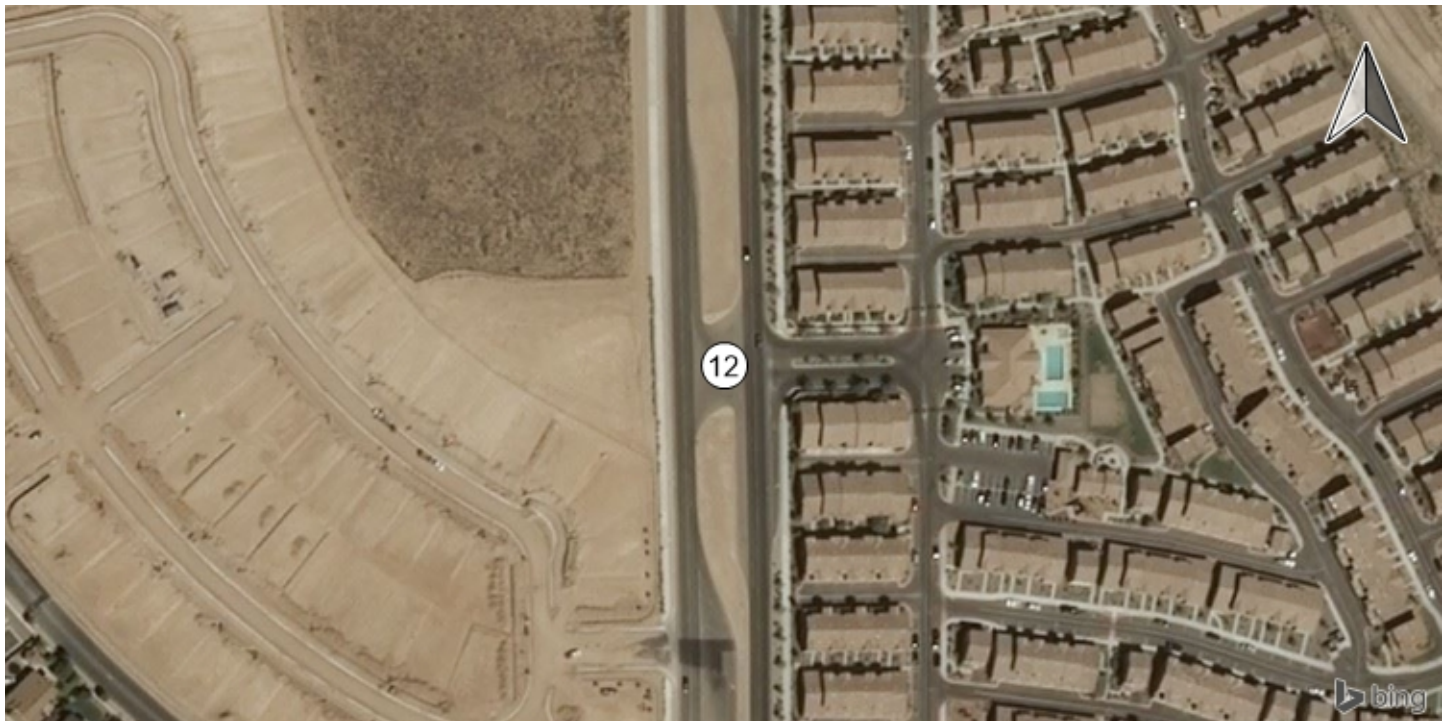
Study Intersections



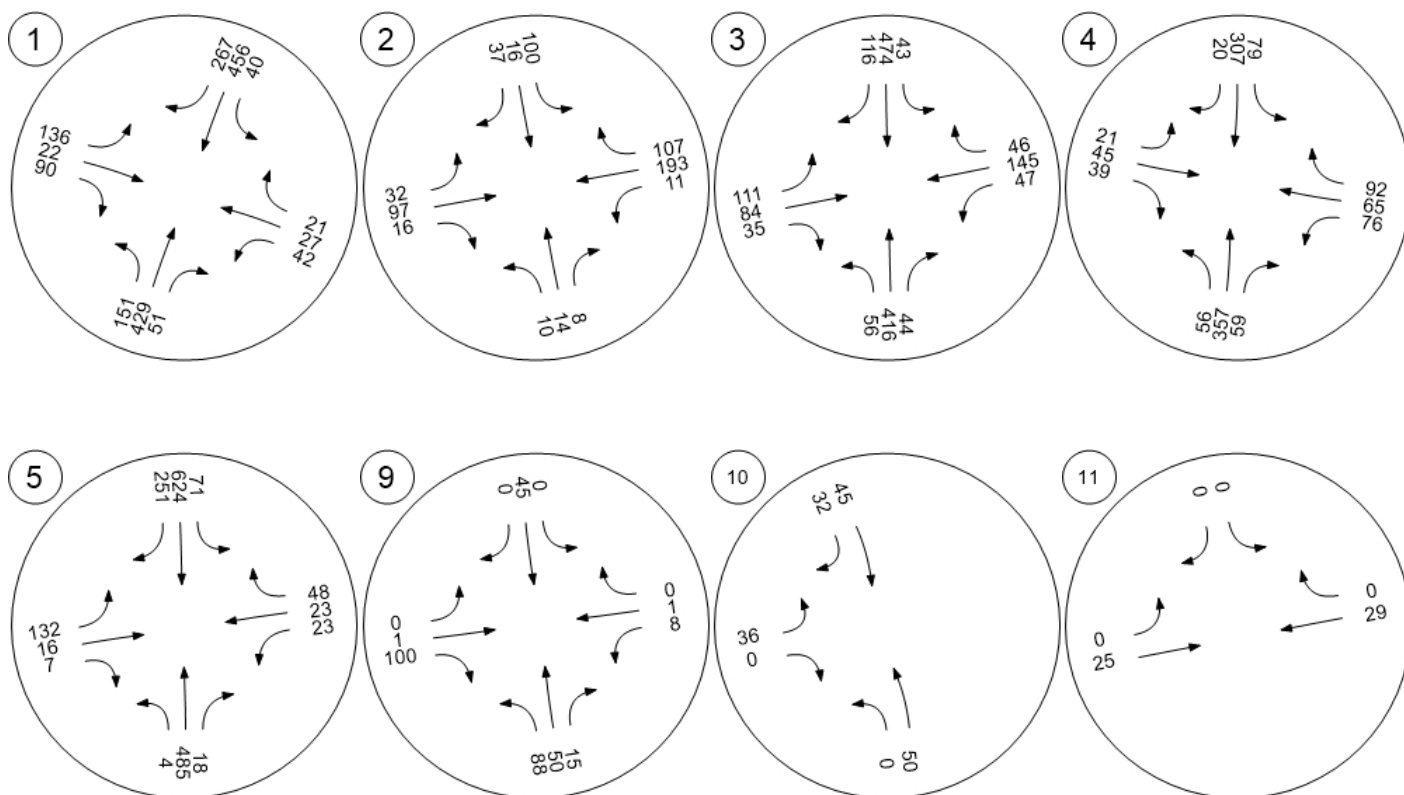
Lane Configuration and Traffic Control



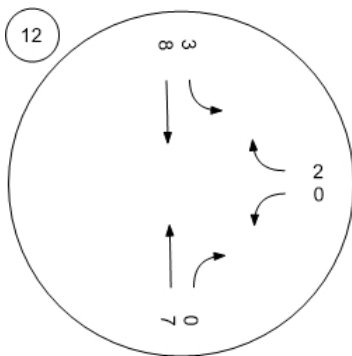
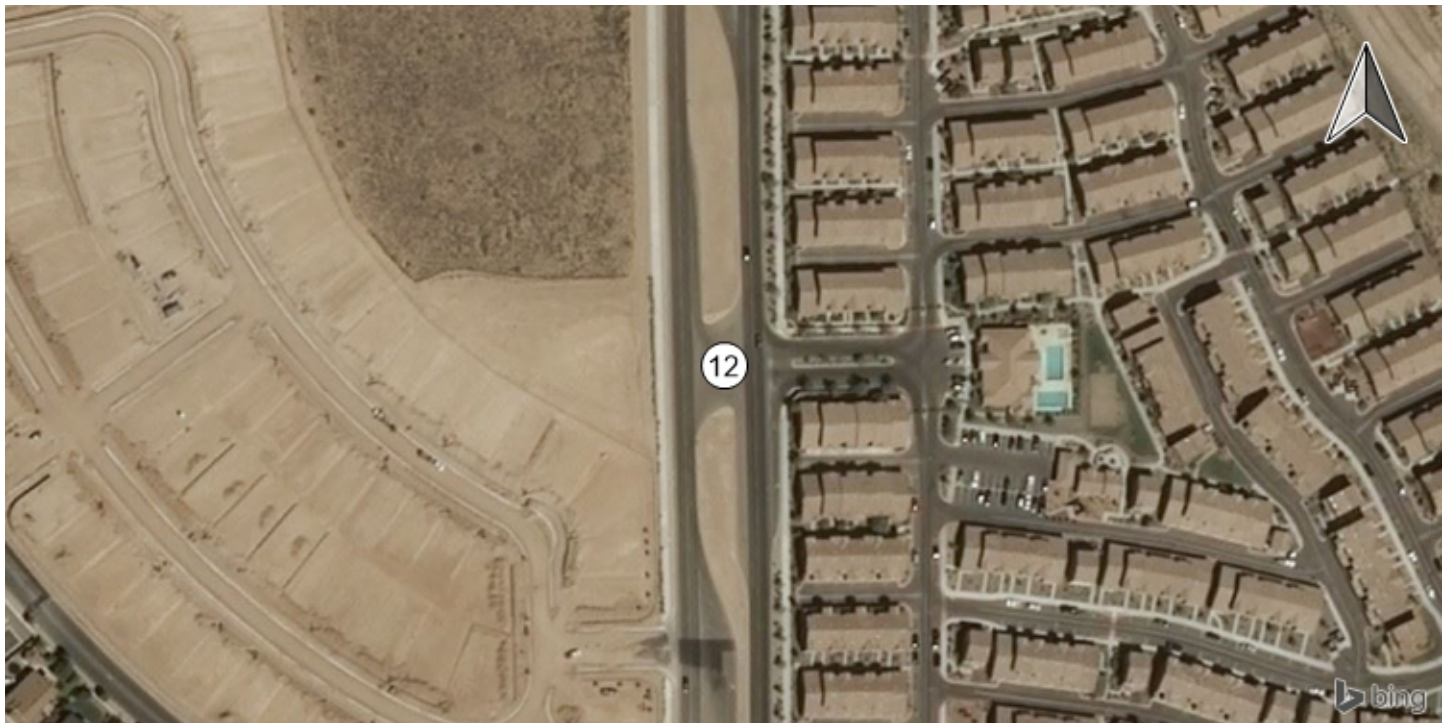
Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



Traffic Volume - Future Total Volume



Appendix C:
Level of Service and Capacity Output
Sheets
Background 2023 No Build AM

Solare Collegiate School NIA

Vistro File: L:\...\Solare Charter School Analysis.vistro

Scenario 5 Final Phase 2023 No Build AM

Report File: L:\...\5. Background 2023 AM.pdf

4/16/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Gibson Blvd and Unser Blvd	Signalized	HCM 6th Edition	EB Left	0.327	25.0	C
2	Gibson Blvd and Barbados Ave	Two-way stop	HCM 6th Edition	SB Thru	0.018	12.3	B
3	Gibson Blvd and 98th St	Signalized	HCM 6th Edition	WB Right	0.296	19.6	B
4	Blake Rd and 98th St	Signalized	HCM 6th Edition	EB Right	0.330	19.2	B
5	86th St and 98th St	All-way stop	HCM 6th Edition	NB Thru	0.863	40.4	E
9	New Intersection	Two-way stop	HCM 6th Edition	WB Thru	0.000	9.0	A
10	New Intersection	Two-way stop	HCM 6th Edition	EB Left	0.000	8.5	A
11	New Intersection	Two-way stop	HCM 6th Edition	SB Left	0.000	8.6	A
12	New Intersection	Two-way stop	HCM 6th Edition	WB Left	0.000	8.5	A
13	New Intersection	Two-way stop	HCM 6th Edition	NB Thru	0.000	9.2	A
15	New Intersection	Two-way stop	HCM 6th Edition	SWB Thru	0.000	9.3	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: Gibson Blvd and Unser Blvd

Control Type:	Signalized	Delay (sec / veh):	25.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.327

Intersection Setup

Name	Unser Blvd			Unser Blvd			Gibson Blvd			Spring Flower Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵↵			↵↵↵			↵↵↵			↵↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	12.00	12.00	11.00	12.00	12.00	11.00	11.00	12.00	11.00	11.00	11.00
No. of Lanes in Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	460.00	100.00	100.00	315.00	100.00	600.00	225.00	100.00	150.00	80.00	100.00	100.00
Speed [mph]	40.00			40.00			40.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Unser Blvd			Unser Blvd			Gibson Blvd			Spring Flower Rd		
Base Volume Input [veh/h]	57	536	22	28	479	87	336	19	63	63	34	49
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
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
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	5	14	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	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	59	557	23	29	498	95	363	20	66	66	35	51
Peak Hour Factor	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640
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	144	6	8	129	25	94	5	17	17	9	13
Total Analysis Volume [veh/h]	61	578	24	30	517	99	377	21	68	68	36	53
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	1			0			1			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			1			0			1		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	44.4
Offset Reference	LeadGreen
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	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	3	12	0	3	12	0	3	12	0	3	12	0
Maximum Green [s]	16	36	0	16	36	0	16	24	0	16	24	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.5	0.0	3.5	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.5	0.0	1.0	2.0	0.0	1.0	3.5	0.0
Split [s]	14	36	0	14	36	0	28	56	0	14	42	0
Vehicle Extension [s]	1.5	4.0	0.0	1.5	4.0	0.0	2.5	2.0	0.0	1.5	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	22	0	0	27	0	0	28	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]	2.5	3.0	0.0	2.5	3.5	0.0	2.5	4.5	0.0	2.5	4.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		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]	30.0	0.0	0.0	30.0	0.0	0.0	20.0	20.0	0.0	20.0	20.0	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	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]	5.00	5.00	5.00	5.50	5.50	5.50	4.50	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	3.00	3.00	0.00	3.50	3.50	2.50	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	76	70	70	76	68	68	16	23	23	32	11	11
g / C, Green / Cycle	0.64	0.58	0.58	0.63	0.57	0.57	0.14	0.19	0.19	0.27	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.04	0.17	0.17	0.04	0.16	0.07	0.12	0.01	0.05	0.05	0.03	0.03
s, saturation flow rate [veh/h]	1601	1683	1660	800	3204	1431	3113	1683	1431	1336	1622	1431
c, Capacity [veh/h]	1018	980	967	521	1816	811	423	317	269	436	154	136
d1, Uniform Delay [s]	8.27	12.66	12.66	8.86	13.34	12.07	50.71	40.01	41.44	33.48	50.52	50.60
k, delay calibration	0.50	0.50	0.50	0.04	0.50	0.50	0.08	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]	0.11	0.78	0.79	0.02	0.37	0.29	4.05	0.03	0.17	0.06	0.38	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	0.06	0.30	0.30	0.06	0.27	0.12	0.86	0.06	0.24	0.15	0.29	0.31
d, Delay for Lane Group [s/veh]	8.38	13.44	13.46	8.88	13.71	12.36	54.76	40.04	41.62	33.54	50.90	51.07
Lane Group LOS	A	B	B	A	B	B	D	D	D	C	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.57	3.94	3.90	0.27	3.36	1.19	5.47	0.48	1.66	1.50	1.28	1.19
50th-Percentile Queue Length [ft/ln]	14.24	98.52	97.42	6.65	84.05	29.86	136.75	12.08	41.38	37.59	31.88	29.85
95th-Percentile Queue Length [veh/ln]	1.03	7.09	7.01	0.48	6.05	2.15	9.31	0.87	2.98	2.71	2.30	2.15
95th-Percentile Queue Length [ft/ln]	25.63	177.34	175.36	11.98	151.30	53.74	232.65	21.74	74.49	67.66	57.38	53.73

Movement, Approach, & Intersection Results

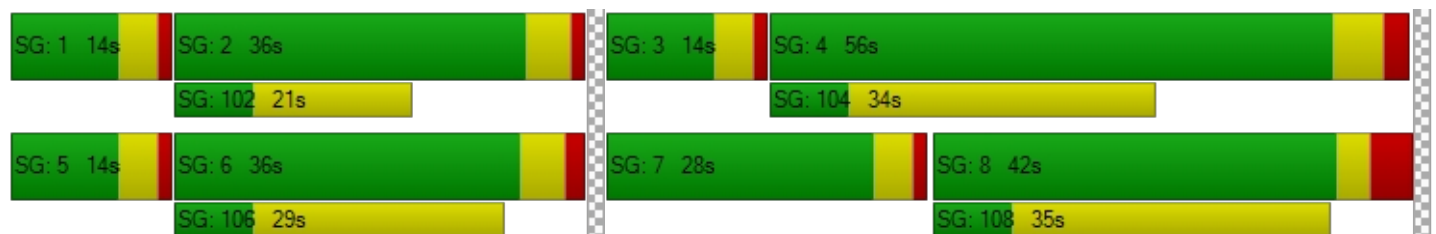
d_M, Delay for Movement [s/veh]	8.38	13.45	13.46	8.88	13.71	12.36	54.76	40.04	41.62	33.54	50.90	51.04
Movement LOS	A	B	B	A	B	B	D	D	D	C	D	D
d_A, Approach Delay [s/veh]	12.98			13.28			52.17			43.41		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	25.01											
Intersection LOS	C											
Intersection V/C	0.327											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
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			11387.07			10989.04		
d_p, Pedestrian Delay [s]	49.50			49.50			49.50			49.50		
I_p,int, Pedestrian LOS Score for Intersection	2.686			2.827			2.728			2.372		
Crosswalk LOS	B			C			B			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	517			508			825			592		
d_b, Bicycle Delay [s]	33.00			33.38			20.71			29.75		
I_b,int, Bicycle LOS Score for Intersection	0.800			0.786			2.300			1.810		
Bicycle LOS	A			A			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 2: Gibson Blvd and Barbados Ave

Control Type:	Two-way stop	Delay (sec / veh):	12.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.018

Intersection Setup

Name	Stampede Dr			Barbados Ave			Gibson Blvd			Gibson Blvd		
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 Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	25.00			30.00			40.00			40.00		
Grade [%]	0.00			0.00			-2.00			2.00		
Crosswalk	No			No			No			No		

Volumes

Name	Stampede Dr			Barbados Ave			Gibson Blvd			Gibson Blvd		
Base Volume Input [veh/h]	8	18	6	46	10	6	10	223	4	3	96	10
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
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
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	14	0	0	5	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
Total Hourly Volume [veh/h]	8	19	6	48	10	6	10	246	4	3	105	10
Peak Hour Factor	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320
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]	2	5	2	13	3	2	3	66	1	1	28	3
Total Analysis Volume [veh/h]	9	20	6	52	11	6	11	264	4	3	113	11
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.04	0.01	0.08	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.54	12.03	9.35	11.28	12.27	9.24	7.31	0.00	0.00	8.16	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.18	0.18	0.18	0.33	0.33	0.33	0.02	0.00	0.00	0.01	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.41	4.41	4.41	8.32	8.32	8.32	0.48	0.00	0.00	0.20	0.00	0.00
d_A, Approach Delay [s/veh]	11.42			11.24			0.28			0.21		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	2.51											
Intersection LOS	B											

Intersection Level Of Service Report Intersection 3: Gibson Blvd and 98th St

Control Type: Signalized
Analysis Method: HCM 6th Edition
Analysis Period: 1 hour

Delay (sec / veh): 19.6
Level Of Service: B
Volume to Capacity (v/c): 0.296

Intersection Setup

Name	98 St			98 St			Gibson Blvd			Gibson Blvd		
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 Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	280.00	100.00	170.00	360.00	100.00	140.00	420.00	100.00	180.00	320.00	100.00	160.00
Speed [mph]	35.00			35.00			40.00			40.00		
Grade [%]	1.00			-1.00			-2.00			2.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	98 St			98 St			Gibson Blvd			Gibson Blvd		
Base Volume Input [veh/h]	20	470	67	15	393	39	190	152	32	27	61	23
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
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	2	0	1	4	11	12	0	1	4	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	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	491	72	16	410	45	209	170	33	29	67	24
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
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]	6	144	21	5	121	13	61	50	10	9	20	7
Total Analysis Volume [veh/h]	25	578	85	19	482	53	246	200	39	34	79	28
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	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	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	Yes
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
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	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	3	12	0	3	12	0	3	12	0	3	12	0
Maximum Green [s]	16	36	0	16	36	0	16	24	0	16	24	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.0	0.0
All red [s]	1.5	2.0	0.0	1.5	2.0	0.0	1.5	2.0	0.0	1.5	2.0	0.0
Split [s]	14	50	0	8	44	0	21	31	0	11	21	0
Vehicle Extension [s]	1.5	4.0	0.0	1.5	4.0	0.0	1.5	4.0	0.0	1.5	4.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	28	0	0	28	0	0	36	0	0	36	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]	3.0	4.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		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]	40.0	0.0	0.0	40.0	0.0	0.0	40.0	40.0	0.0	40.0	40.0	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]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
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	4.00	4.00	0.00	4.00	4.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	59	53	53	59	53	53	29	22	22	29	11	11
g / C, Green / Cycle	0.59	0.53	0.53	0.59	0.53	0.53	0.29	0.22	0.22	0.29	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.02	0.16	0.05	0.02	0.13	0.03	0.15	0.05	0.02	0.03	0.02	0.02
s, saturation flow rate [veh/h]	913	3137	1400	870	3205	1431	1421	3205	1431	1130	3070	1370
c, Capacity [veh/h]	575	1659	741	542	1684	752	495	708	316	386	341	152
d1, Uniform Delay [s]	8.83	13.16	11.70	8.93	12.91	11.62	29.00	32.06	31.07	25.78	40.39	40.22
k, delay calibration	0.50	0.50	0.50	0.04	0.50	0.50	0.15	0.15	0.15	0.04	0.15	0.15
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]	0.12	0.46	0.26	0.01	0.34	0.15	0.82	0.25	0.20	0.03	0.40	0.68
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	0.04	0.30	0.10	0.03	0.24	0.06	0.42	0.24	0.10	0.08	0.20	0.16
d, Delay for Lane Group [s/veh]	8.95	13.61	11.96	8.93	13.25	11.78	29.82	32.31	31.28	25.81	40.79	40.90
Lane Group LOS	A	B	B	A	B	B	C	C	C	C	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.20	3.01	0.81	0.13	2.44	0.50	4.05	1.67	0.64	0.49	0.75	0.55
50th-Percentile Queue Length [ft/ln]	4.88	75.13	20.25	3.37	61.05	12.46	101.29	41.69	15.91	12.19	18.76	13.77
95th-Percentile Queue Length [veh/ln]	0.35	5.41	1.46	0.24	4.40	0.90	7.29	3.00	1.15	0.88	1.35	0.99
95th-Percentile Queue Length [ft/ln]	8.78	135.24	36.46	6.07	109.89	22.44	182.33	75.04	28.63	21.95	33.77	24.78

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.95	13.61	11.96	8.93	13.25	11.78	29.82	32.31	31.28	25.81	40.79	40.90
Movement LOS	A	B	B	A	B	B	C	C	C	C	D	D
d_A, Approach Delay [s/veh]	13.24			12.97			30.96			37.19		
Approach LOS	B			B			C			D		
d_I, Intersection Delay [s/veh]	19.57											
Intersection LOS	B											
Intersection V/C	0.296											

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]	880			760			500			300		
d_b, Bicycle Delay [s]	15.68			19.22			28.13			36.13		
I_b,int, Bicycle LOS Score for Intersection	2.041			1.948			1.900			1.659		
Bicycle LOS	B			A			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: Blake Rd and 98th St

Control Type: Signalized
Analysis Method: HCM 6th Edition
Analysis Period: 1 hour

Delay (sec / veh): 19.2
Level Of Service: B
Volume to Capacity (v/c): 0.330

Intersection Setup

Name	98th St			98 St			Blake Rd			Blake Rd		
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	15.00	15.00	12.00	18.00	18.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	110.00	100.00	125.00	415.00	100.00	100.00	200.00	100.00	100.00	210.00	100.00	100.00
Speed [mph]	30.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			-2.50			2.50		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	98th St			98 St			Blake Rd			Blake Rd		
Base Volume Input [veh/h]	44	408	115	72	449	4	19	72	108	85	30	74
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
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	0	0	0	0	2	4	8	9	0	3	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	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	424	120	75	467	6	24	83	121	88	34	77
Peak Hour Factor	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330
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]	13	114	32	20	125	2	6	22	32	24	9	21
Total Analysis Volume [veh/h]	53	454	129	80	501	6	26	89	130	94	36	83
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			1			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			1		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	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	Yes
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	45.4
Offset Reference	LeadGreen
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	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	3	12	0	3	12	0	3	12	0	3	12	0
Maximum Green [s]	16	36	0	16	36	0	16	24	0	16	24	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.0	0.0
All red [s]	1.5	2.0	0.0	1.5	2.0	0.0	1.5	2.0	0.0	1.5	2.0	0.0
Split [s]	8	35	0	8	35	0	8	49	0	8	49	0
Vehicle Extension [s]	1.5	3.0	0.0	1.5	3.0	0.0	1.5	3.0	0.0	1.5	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	5	0
Pedestrian Clearance [s]	0	12	0	0	18	0	0	36	0	0	30	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]	3.0	4.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		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]	40.0	0.0	0.0	40.0	0.0	0.0	40.0	40.0	0.0	40.0	40.0	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	C	L	C	L	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
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	4.00	4.00	0.00	4.00	4.00	0.00	4.00	0.00	4.00
g_i, Effective Green Time [s]	65	57	57	65	57	57	23	15	23	17
g / C, Green / Cycle	0.65	0.57	0.57	0.65	0.57	0.57	0.23	0.15	0.23	0.17
(v / s)_i Volume / Saturation Flow Rate	0.05	0.13	0.08	0.08	0.14	0.14	0.02	0.13	0.08	0.08
s, saturation flow rate [veh/h]	893	3204	1431	935	1683	1675	1241	1584	1136	1475
c, Capacity [veh/h]	616	1815	810	645	964	960	323	243	250	248
d1, Uniform Delay [s]	6.78	10.84	10.26	6.86	10.61	10.62	30.01	41.11	31.93	37.41
k, delay calibration	0.50	0.50	0.50	0.04	0.50	0.50	0.11	0.11	0.04	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
d2, Incremental Delay [s]	0.25	0.30	0.39	0.03	0.61	0.61	0.10	8.04	0.31	1.27
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
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	0.08	0.23	0.15	0.12	0.25	0.25	0.07	0.84	0.35	0.45
d, Delay for Lane Group [s/veh]	7.03	11.14	10.65	6.89	11.22	11.23	30.10	49.14	32.24	38.68
Lane Group LOS	A	B	B	A	B	B	C	D	C	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.39	2.31	1.29	0.53	2.57	2.56	0.45	5.32	1.72	2.49
50th-Percentile Queue Length [ft/ln]	9.83	57.80	32.14	13.31	64.30	64.10	11.30	133.06	43.02	62.21
95th-Percentile Queue Length [veh/ln]	0.71	4.16	2.31	0.96	4.63	4.62	0.81	9.11	3.10	4.48
95th-Percentile Queue Length [ft/ln]	17.70	104.03	57.85	23.96	115.75	115.38	20.33	227.65	77.43	111.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.03	11.14	10.65	6.89	11.23	11.23	30.10	49.14	49.14	32.24	38.68	38.68
Movement LOS	A	B	B	A	B	B	C	D	D	C	D	D
d_A, Approach Delay [s/veh]	10.70			10.63			47.14			35.83		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	19.16											
Intersection LOS	B											
Intersection V/C	0.330											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			9.0			11.0			11.0		
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			10807.64			0.00			0.00		
d_p, Pedestrian Delay [s]	39.61			41.41			39.61			39.61		
I_p,int, Pedestrian LOS Score for Intersection	2.686			2.557			2.107			2.188		
Crosswalk LOS	B			B			B			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	580			580			860			860		
d_b, Bicycle Delay [s]	25.21			25.21			16.25			16.25		
I_b,int, Bicycle LOS Score for Intersection	2.049			2.012			1.936			1.888		
Bicycle LOS	B			B			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 5: 86th St and 98th St

Control Type: All-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 40.4
 Level Of Service: E
 Volume to Capacity (v/c): 0.863

Intersection Setup

Name	98 St			98 St			De Anza Dr SW			86th St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	12.00	12.00	20.00	20.00	20.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	220.00	100.00	120.00	125.00	100.00	110.00	100.00	100.00	100.00	350.00	100.00	100.00
Speed [mph]	35.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			-2.00			2.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	98 St			98 St			De Anza Dr SW			86th St		
Base Volume Input [veh/h]	3	700	19	9	357	78	309	14	11	38	15	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
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	13	0	0	5	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
Total Hourly Volume [veh/h]	3	741	20	9	376	81	321	15	11	40	16	53
Peak Hour Factor	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330
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]	1	199	5	2	101	22	86	4	3	11	4	14
Total Analysis Volume [veh/h]	3	794	21	10	403	87	344	16	12	43	17	57
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	404	430	430	471	369	391	391	425	424	353	392
Degree of Utilization, x	0.01	0.86	0.86	0.04	0.02	0.48	0.48	0.19	0.82	0.11	0.18

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.02	13.09	13.09	0.13	0.08	2.72	2.72	0.70	10.63	0.38	0.64
95th-Percentile Queue Length [ft]	0.56	327.3	327.3	3.33	1.88	67.91	67.91	17.58	265.69	9.58	15.94
Approach Delay [s/veh]	54.52				19.01				46.23	13.97	
Approach LOS	F				C				E	B	
Intersection Delay [s/veh]	40.38										
Intersection LOS	E										

Intersection Level Of Service Report Intersection 9: New Intersection

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 1 hour

Delay (sec / veh): 9.0
Level Of Service: A
Volume to Capacity (v/c): 0.000

Intersection Setup

Name	Barbados Ave			Barbados Ave			Ba Av			Ba Av		
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 Pocket	0	0	0	0	0	0	0	0	0	0	0	0
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
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Barbados Ave			Barbados Ave			Ba Av			Ba Av		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour 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
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]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	0.00	7.22	0.00	0.00	8.52	9.02	8.32	8.52	9.02	8.32
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	2.41			2.41			8.62			8.62		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	5.51											
Intersection LOS	A											

Intersection Level Of Service Report Intersection 10: New Intersection

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 1 hour

Delay (sec / veh): 8.5
Level Of Service: A
Volume to Capacity (v/c): 0.000

Intersection Setup

Name	Barbados Ave				Barbados Ave	
Approach	Northbound		Eastbound		Southeastbound	
Lane Configuration						
Turning Movement	Left	Thru	Left	Right	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Barbados Ave				Barbados Ave	
Base Volume Input [veh/h]	0	0	0	0	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 Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
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	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Stop	Free
Flared Lane		No	
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	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	8.52	8.32	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	3.61		8.42		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.01					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 11: New Intersection

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 8.6
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name	Barbados Ave Driveway North		Gibson Blvd		Gibson Blvd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		-2.00		2.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Barbados Ave Driveway North		Gibson Blvd		Gibson Blvd	
Base Volume Input [veh/h]	0	0	0	0	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 Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	14	5	0
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	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	14	5	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	4	1	0
Total Analysis Volume [veh/h]	0	0	0	14	5	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.58	8.33	7.22	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.46		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 12: New Intersection

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 8.5
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name	98th St (Snow Vista Blvd SW)		98th St (Snow Vista Blvd SW)		Diamond Mesa	
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 Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	140.00	150.00	100.00	100.00	100.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	1.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	98th St (Snow Vista Blvd SW)		98th St (Snow Vista Blvd SW)		Diamond Mesa	
Base Volume Input [veh/h]	0	0	0	0	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 Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	0	0	2	0	0
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	0	0	0	0
Total Hourly Volume [veh/h]	4	0	0	2	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	0	1	0	0
Total Analysis Volume [veh/h]	4	0	0	2	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
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	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.23	0.00	8.54	8.33
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		8.44	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 13: New Intersection

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 9.2
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name	Blake Rd						Gibson Blvd			Gibson Blvd		
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 Pocket	0	0	0	0	0	0	0	0	0	0	0	0
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
Speed [mph]	30.00			30.00			40.00			30.00		
Grade [%]	0.00			0.00			-2.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Blake Rd						Gibson Blvd			Gibson Blvd		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	23	0	0	0	0	0	0	9	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
Total Hourly Volume [veh/h]	0	0	23	0	0	0	0	0	0	9	0	0
Peak Hour 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
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]	0	0	6	0	0	0	0	0	0	2	0	0
Total Analysis Volume [veh/h]	0	0	23	0	0	0	0	0	0	9	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	8.71	9.21	8.39	8.72	9.14	8.32	7.22	0.00	0.00	7.23	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.07	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00
95th-Percentile Queue Length [ft/ln]	1.63	1.63	1.63	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.21	0.00
d_A, Approach Delay [s/veh]	8.39			8.72			2.41			7.23		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	8.07											
Intersection LOS	A											

Intersection Level Of Service Report

Intersection 15: New Intersection

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 9.3
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name							Blake Rd			Blake Rd		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
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 Pocket	0	0	0	0	0	0	0	0	0	0	0	0
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
Speed [mph]	30.00			30.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			-2.50		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name							Blake Rd			Blake Rd		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	21	0	23	0	0	8	9	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
Total Hourly Volume [veh/h]	0	0	0	21	0	23	0	0	8	9	0	0
Peak Hour 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
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]	0	0	0	5	0	6	0	0	2	2	0	0
Total Analysis Volume [veh/h]	0	0	0	21	0	23	0	0	8	9	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	8.79	9.17	8.32	8.81	9.31	8.49	7.22	0.00	0.00	7.23	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.13	0.13	0.13	0.00	0.00	0.00	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.42	0.42	0.42
d_A, Approach Delay [s/veh]	8.76			8.64			0.00			7.23		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	7.30											
Intersection LOS	A											

Signal Warrants Report For Intersection 2: Gibson Blvd and Barbados Ave

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	118	260	33	64
2	113	250	32	61
3	111	244	31	60
4	94	208	26	51
5	90	198	25	49
6	80	177	22	44
7	74	164	21	40
8	71	156	20	38
9	57	125	16	31
10	53	117	15	29
11	53	117	15	29
12	51	112	14	28
13	46	101	13	25
14	42	94	12	23
15	42	94	12	23
16	41	91	12	22
17	24	52	7	13
18	13	29	4	7
19	12	26	3	6
20	5	10	1	3
21	4	8	1	2
22	4	8	1	2
23	2	5	1	1
24	2	5	1	1

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	378	2	97	No	No	No	No	No	No	No	No	No	No
2	6	363	2	93	No	No	No	No	No	No	No	No	No	No
3	6	355	2	91	No	No	No	No	No	No	No	No	No	No
4	6	302	2	77	No	No	No	No	No	No	No	No	No	No
5	6	288	2	74	No	No	No	No	No	No	No	No	No	No
6	6	257	2	66	No	No	No	No	No	No	No	No	No	No
7	6	238	2	61	No	No	No	No	No	No	No	No	No	No
8	6	227	2	58	No	No	No	No	No	No	No	No	No	No
9	6	182	2	47	No	No	No	No	No	No	No	No	No	No
10	6	170	2	44	No	No	No	No	No	No	No	No	No	No
11	6	170	2	44	No	No	No	No	No	No	No	No	No	No
12	6	163	2	42	No	No	No	No	No	No	No	No	No	No
13	6	147	2	38	No	No	No	No	No	No	No	No	No	No
14	6	136	2	35	No	No	No	No	No	No	No	No	No	No
15	6	136	2	35	No	No	No	No	No	No	No	No	No	No
16	6	132	2	34	No	No	No	No	No	No	No	No	No	No
17	6	76	2	20	No	No	No	No	No	No	No	No	No	No
18	6	42	2	11	No	No	No	No	No	No	No	No	No	No
19	6	38	2	9	No	No	No	No	No	No	No	No	No	No
20	6	15	2	4	No	No	No	No	No	No	No	No	No	No
21	6	12	2	3	No	No	No	No	No	No	No	No	No	No
22	6	12	2	3	No	No	No	No	No	No	No	No	No	No
23	6	7	2	2	No	No	No	No	No	No	No	No	No	No
24	6	7	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.4	11.2
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:06	0:11
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	33	64
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	475	475
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 5: 86th St and 98th St

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	764	466	109	347
2	733	447	105	333
3	718	438	102	326
4	611	373	87	278
5	581	354	83	264
6	520	317	74	236
7	481	294	69	219
8	458	280	65	208
9	367	224	52	167
10	344	210	49	156
11	344	210	49	156
12	329	200	47	149
13	298	182	43	135
14	275	168	39	125
15	275	168	39	125
16	267	163	38	121
17	153	93	22	69
18	84	51	12	38
19	76	47	11	35
20	31	19	4	14
21	23	14	3	10
22	23	14	3	10
23	15	9	2	7
24	15	9	2	7

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	8	1230	3	456	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	8	1180	3	438	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	8	1156	3	428	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	8	984	3	365	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
5	8	935	3	347	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
6	8	837	3	310	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
7	8	775	3	288	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
8	8	738	3	273	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
9	8	591	3	219	No	Yes	Yes	Yes	No	No	No	Yes	No	No
10	8	554	3	205	No	Yes	Yes	Yes	No	No	No	Yes	No	No
11	8	554	3	205	No	Yes	Yes	Yes	No	No	No	Yes	No	No
12	8	529	3	196	No	Yes	Yes	Yes	No	No	No	Yes	No	No
13	8	480	3	178	No	Yes	Yes	Yes	No	No	No	No	No	No
14	8	443	3	164	No	No	Yes	Yes	No	No	No	No	No	No
15	8	443	3	164	No	No	Yes	Yes	No	No	No	No	No	No
16	8	430	3	159	No	No	Yes	Yes	No	No	No	No	No	No
17	8	246	3	91	No	No	No	No	No	No	No	No	No	No
18	8	135	3	50	No	No	No	No	No	No	No	No	No	No
19	8	123	3	46	No	No	No	No	No	No	No	No	No	No
20	8	50	3	18	No	No	No	No	No	No	No	No	No	No
21	8	37	3	13	No	No	No	No	No	No	No	No	No	No
22	8	37	3	13	No	No	No	No	No	No	No	No	No	No
23	8	24	3	9	No	No	No	No	No	No	No	No	No	No
24	8	24	3	9	No	No	No	No	No	No	No	No	No	No
Hours Met					8	13	16	16	5	8	8	12	7	3

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	14	46.2
Number of Lanes on Minor Street Approach	2	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:25	4:27
Delay Condition Met	No	Yes
Volume on Minor Street Approach During Same Hour	109	347
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	1686	1686
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	Yes
Warrant Met for Intersection	Yes	

Signal Warrants Report For Intersection 9: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	0	2	0	No	No	No	No	No	No	No	No	No	No
2	2	0	2	0	No	No	No	No	No	No	No	No	No	No
3	2	0	2	0	No	No	No	No	No	No	No	No	No	No
4	2	0	2	0	No	No	No	No	No	No	No	No	No	No
5	2	0	2	0	No	No	No	No	No	No	No	No	No	No
6	2	0	2	0	No	No	No	No	No	No	No	No	No	No
7	2	0	2	0	No	No	No	No	No	No	No	No	No	No
8	2	0	2	0	No	No	No	No	No	No	No	No	No	No
9	2	0	2	0	No	No	No	No	No	No	No	No	No	No
10	2	0	2	0	No	No	No	No	No	No	No	No	No	No
11	2	0	2	0	No	No	No	No	No	No	No	No	No	No
12	2	0	2	0	No	No	No	No	No	No	No	No	No	No
13	2	0	2	0	No	No	No	No	No	No	No	No	No	No
14	2	0	2	0	No	No	No	No	No	No	No	No	No	No
15	2	0	2	0	No	No	No	No	No	No	No	No	No	No
16	2	0	2	0	No	No	No	No	No	No	No	No	No	No
17	2	0	2	0	No	No	No	No	No	No	No	No	No	No
18	2	0	2	0	No	No	No	No	No	No	No	No	No	No
19	2	0	2	0	No	No	No	No	No	No	No	No	No	No
20	2	0	2	0	No	No	No	No	No	No	No	No	No	No
21	2	0	2	0	No	No	No	No	No	No	No	No	No	No
22	2	0	2	0	No	No	No	No	No	No	No	No	No	No
23	2	0	2	0	No	No	No	No	No	No	No	No	No	No
24	2	0	2	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)		
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00	0:00
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	0	0
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	0	0
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 10: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, NW
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	NW	W
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	0	1	0	No	No	No	No	No	No	No	No	No	No
2	2	0	1	0	No	No	No	No	No	No	No	No	No	No
3	2	0	1	0	No	No	No	No	No	No	No	No	No	No
4	2	0	1	0	No	No	No	No	No	No	No	No	No	No
5	2	0	1	0	No	No	No	No	No	No	No	No	No	No
6	2	0	1	0	No	No	No	No	No	No	No	No	No	No
7	2	0	1	0	No	No	No	No	No	No	No	No	No	No
8	2	0	1	0	No	No	No	No	No	No	No	No	No	No
9	2	0	1	0	No	No	No	No	No	No	No	No	No	No
10	2	0	1	0	No	No	No	No	No	No	No	No	No	No
11	2	0	1	0	No	No	No	No	No	No	No	No	No	No
12	2	0	1	0	No	No	No	No	No	No	No	No	No	No
13	2	0	1	0	No	No	No	No	No	No	No	No	No	No
14	2	0	1	0	No	No	No	No	No	No	No	No	No	No
15	2	0	1	0	No	No	No	No	No	No	No	No	No	No
16	2	0	1	0	No	No	No	No	No	No	No	No	No	No
17	2	0	1	0	No	No	No	No	No	No	No	No	No	No
18	2	0	1	0	No	No	No	No	No	No	No	No	No	No
19	2	0	1	0	No	No	No	No	No	No	No	No	No	No
20	2	0	1	0	No	No	No	No	No	No	No	No	No	No
21	2	0	1	0	No	No	No	No	No	No	No	No	No	No
22	2	0	1	0	No	No	No	No	No	No	No	No	No	No
23	2	0	1	0	No	No	No	No	No	No	No	No	No	No
24	2	0	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	0
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	0
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

Signal Warrants Report For Intersection 11: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	5	14	0
2	5	13	0
3	5	13	0
4	4	11	0
5	4	11	0
6	3	10	0
7	3	9	0
8	3	8	0
9	2	7	0
10	2	6	0
11	2	6	0
12	2	6	0
13	2	5	0
14	2	5	0
15	2	5	0
16	2	5	0
17	1	3	0
18	1	2	0
19	1	1	0
20	0	1	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	5	19	1	0	No	No	No	No	No	No	No	No	No	No
2	5	18	1	0	No	No	No	No	No	No	No	No	No	No
3	5	18	1	0	No	No	No	No	No	No	No	No	No	No
4	5	15	1	0	No	No	No	No	No	No	No	No	No	No
5	5	15	1	0	No	No	No	No	No	No	No	No	No	No
6	5	13	1	0	No	No	No	No	No	No	No	No	No	No
7	5	12	1	0	No	No	No	No	No	No	No	No	No	No
8	5	11	1	0	No	No	No	No	No	No	No	No	No	No
9	5	9	1	0	No	No	No	No	No	No	No	No	No	No
10	5	8	1	0	No	No	No	No	No	No	No	No	No	No
11	5	8	1	0	No	No	No	No	No	No	No	No	No	No
12	5	8	1	0	No	No	No	No	No	No	No	No	No	No
13	5	7	1	0	No	No	No	No	No	No	No	No	No	No
14	5	7	1	0	No	No	No	No	No	No	No	No	No	No
15	5	7	1	0	No	No	No	No	No	No	No	No	No	No
16	5	7	1	0	No	No	No	No	No	No	No	No	No	No
17	5	4	1	0	No	No	No	No	No	No	No	No	No	No
18	5	3	1	0	No	No	No	No	No	No	No	No	No	No
19	5	2	1	0	No	No	No	No	No	No	No	No	No	No
20	5	1	1	0	No	No	No	No	No	No	No	No	No	No
21	5	0	1	0	No	No	No	No	No	No	No	No	No	No
22	5	0	1	0	No	No	No	No	No	No	No	No	No	No
23	5	0	1	0	No	No	No	No	No	No	No	No	No	No
24	5	0	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.5
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	0
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	19
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

Signal Warrants Report For Intersection 12: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	N	E
1	4	2	0
2	4	2	0
3	4	2	0
4	3	2	0
5	3	2	0
6	3	1	0
7	3	1	0
8	2	1	0
9	2	1	0
10	2	1	0
11	2	1	0
12	2	1	0
13	2	1	0
14	1	1	0
15	1	1	0
16	1	1	0
17	1	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	6	1	0	No	No	No	No	No	No	No	No	No	No
2	6	6	1	0	No	No	No	No	No	No	No	No	No	No
3	6	6	1	0	No	No	No	No	No	No	No	No	No	No
4	6	5	1	0	No	No	No	No	No	No	No	No	No	No
5	6	5	1	0	No	No	No	No	No	No	No	No	No	No
6	6	4	1	0	No	No	No	No	No	No	No	No	No	No
7	6	4	1	0	No	No	No	No	No	No	No	No	No	No
8	6	3	1	0	No	No	No	No	No	No	No	No	No	No
9	6	3	1	0	No	No	No	No	No	No	No	No	No	No
10	6	3	1	0	No	No	No	No	No	No	No	No	No	No
11	6	3	1	0	No	No	No	No	No	No	No	No	No	No
12	6	3	1	0	No	No	No	No	No	No	No	No	No	No
13	6	3	1	0	No	No	No	No	No	No	No	No	No	No
14	6	2	1	0	No	No	No	No	No	No	No	No	No	No
15	6	2	1	0	No	No	No	No	No	No	No	No	No	No
16	6	2	1	0	No	No	No	No	No	No	No	No	No	No
17	6	1	1	0	No	No	No	No	No	No	No	No	No	No
18	6	0	1	0	No	No	No	No	No	No	No	No	No	No
19	6	0	1	0	No	No	No	No	No	No	No	No	No	No
20	6	0	1	0	No	No	No	No	No	No	No	No	No	No
21	6	0	1	0	No	No	No	No	No	No	No	No	No	No
22	6	0	1	0	No	No	No	No	No	No	No	No	No	No
23	6	0	1	0	No	No	No	No	No	No	No	No	No	No
24	6	0	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.4
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	0
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	6
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

Signal Warrants Report For Intersection 13: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	9	0	23	0
2	9	0	22	0
3	8	0	22	0
4	7	0	18	0
5	7	0	17	0
6	6	0	16	0
7	6	0	14	0
8	5	0	14	0
9	4	0	11	0
10	4	0	10	0
11	4	0	10	0
12	4	0	10	0
13	4	0	9	0
14	3	0	8	0
15	3	0	8	0
16	3	0	8	0
17	2	0	5	0
18	1	0	3	0
19	1	0	2	0
20	0	0	1	0
21	0	0	1	0
22	0	0	1	0
23	0	0	0	0
24	0	0	0	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	9	2	23	No	No	No	No	No	No	No	No	No	No
2	4	9	2	22	No	No	No	No	No	No	No	No	No	No
3	4	8	2	22	No	No	No	No	No	No	No	No	No	No
4	4	7	2	18	No	No	No	No	No	No	No	No	No	No
5	4	7	2	17	No	No	No	No	No	No	No	No	No	No
6	4	6	2	16	No	No	No	No	No	No	No	No	No	No
7	4	6	2	14	No	No	No	No	No	No	No	No	No	No
8	4	5	2	14	No	No	No	No	No	No	No	No	No	No
9	4	4	2	11	No	No	No	No	No	No	No	No	No	No
10	4	4	2	10	No	No	No	No	No	No	No	No	No	No
11	4	4	2	10	No	No	No	No	No	No	No	No	No	No
12	4	4	2	10	No	No	No	No	No	No	No	No	No	No
13	4	4	2	9	No	No	No	No	No	No	No	No	No	No
14	4	3	2	8	No	No	No	No	No	No	No	No	No	No
15	4	3	2	8	No	No	No	No	No	No	No	No	No	No
16	4	3	2	8	No	No	No	No	No	No	No	No	No	No
17	4	2	2	5	No	No	No	No	No	No	No	No	No	No
18	4	1	2	3	No	No	No	No	No	No	No	No	No	No
19	4	1	2	2	No	No	No	No	No	No	No	No	No	No
20	4	0	2	1	No	No	No	No	No	No	No	No	No	No
21	4	0	2	1	No	No	No	No	No	No	No	No	No	No
22	4	0	2	1	No	No	No	No	No	No	No	No	No	No
23	4	0	2	0	No	No	No	No	No	No	No	No	No	No
24	4	0	2	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.4	8.7
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:03	0:00
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	23	0
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	32	32
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 15: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	SE, NW
Minor Approaches	NE, SW
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	SE	NW	NE	SW
1	8	9	44	0
2	8	9	42	0
3	8	8	41	0
4	6	7	35	0
5	6	7	33	0
6	5	6	30	0
7	5	6	28	0
8	5	5	26	0
9	4	4	21	0
10	4	4	20	0
11	4	4	20	0
12	3	4	19	0
13	3	4	17	0
14	3	3	16	0
15	3	3	16	0
16	3	3	15	0
17	2	2	9	0
18	1	1	5	0
19	1	1	4	0
20	0	0	2	0
21	0	0	1	0
22	0	0	1	0
23	0	0	1	0
24	0	0	1	0

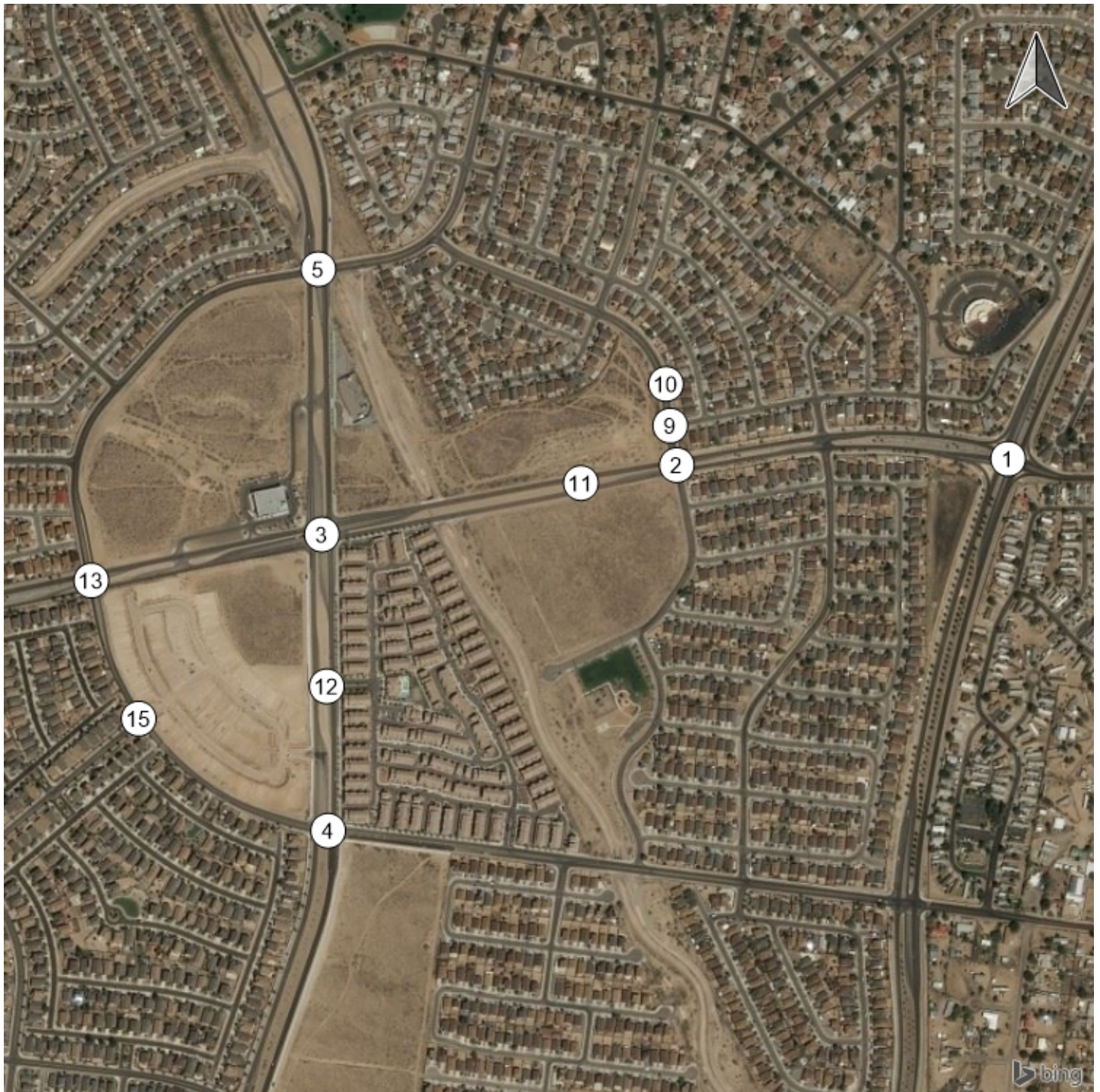
Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	17	2	44	No	No	No	No	No	No	No	No	No	No
2	2	17	2	42	No	No	No	No	No	No	No	No	No	No
3	2	16	2	41	No	No	No	No	No	No	No	No	No	No
4	2	13	2	35	No	No	No	No	No	No	No	No	No	No
5	2	13	2	33	No	No	No	No	No	No	No	No	No	No
6	2	11	2	30	No	No	No	No	No	No	No	No	No	No
7	2	11	2	28	No	No	No	No	No	No	No	No	No	No
8	2	10	2	26	No	No	No	No	No	No	No	No	No	No
9	2	8	2	21	No	No	No	No	No	No	No	No	No	No
10	2	8	2	20	No	No	No	No	No	No	No	No	No	No
11	2	8	2	20	No	No	No	No	No	No	No	No	No	No
12	2	7	2	19	No	No	No	No	No	No	No	No	No	No
13	2	7	2	17	No	No	No	No	No	No	No	No	No	No
14	2	6	2	16	No	No	No	No	No	No	No	No	No	No
15	2	6	2	16	No	No	No	No	No	No	No	No	No	No
16	2	6	2	15	No	No	No	No	No	No	No	No	No	No
17	2	4	2	9	No	No	No	No	No	No	No	No	No	No
18	2	2	2	5	No	No	No	No	No	No	No	No	No	No
19	2	2	2	4	No	No	No	No	No	No	No	No	No	No
20	2	0	2	2	No	No	No	No	No	No	No	No	No	No
21	2	0	2	1	No	No	No	No	No	No	No	No	No	No
22	2	0	2	1	No	No	No	No	No	No	No	No	No	No
23	2	0	2	1	No	No	No	No	No	No	No	No	No	No
24	2	0	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

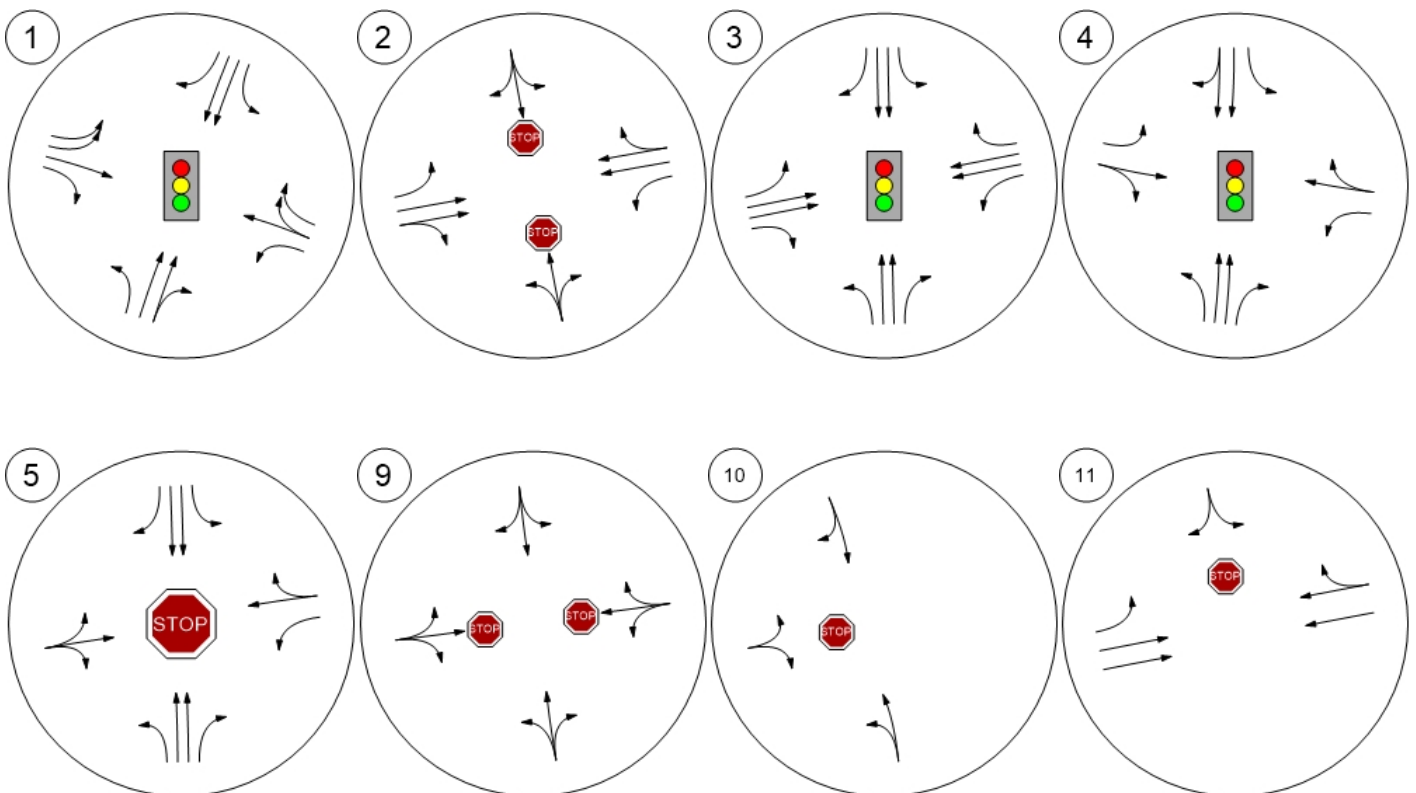
Warrant 3 Condition A

Orientation	NE	SW
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.6	8.8
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:06	0:00
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	44	0
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	61	61
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

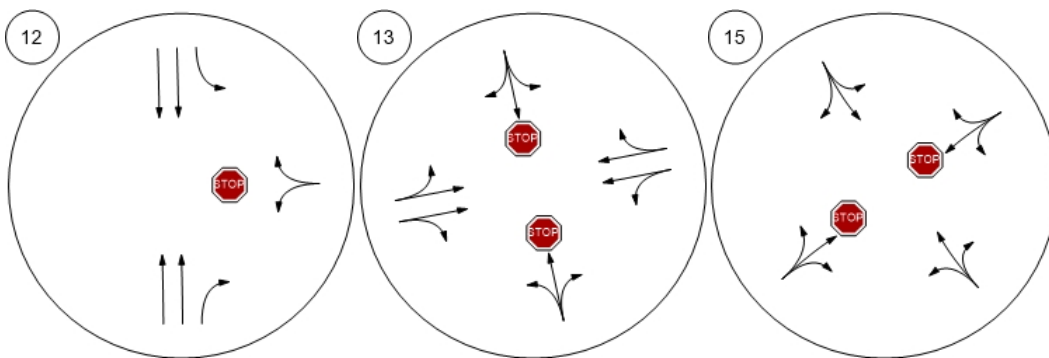
Study Intersections



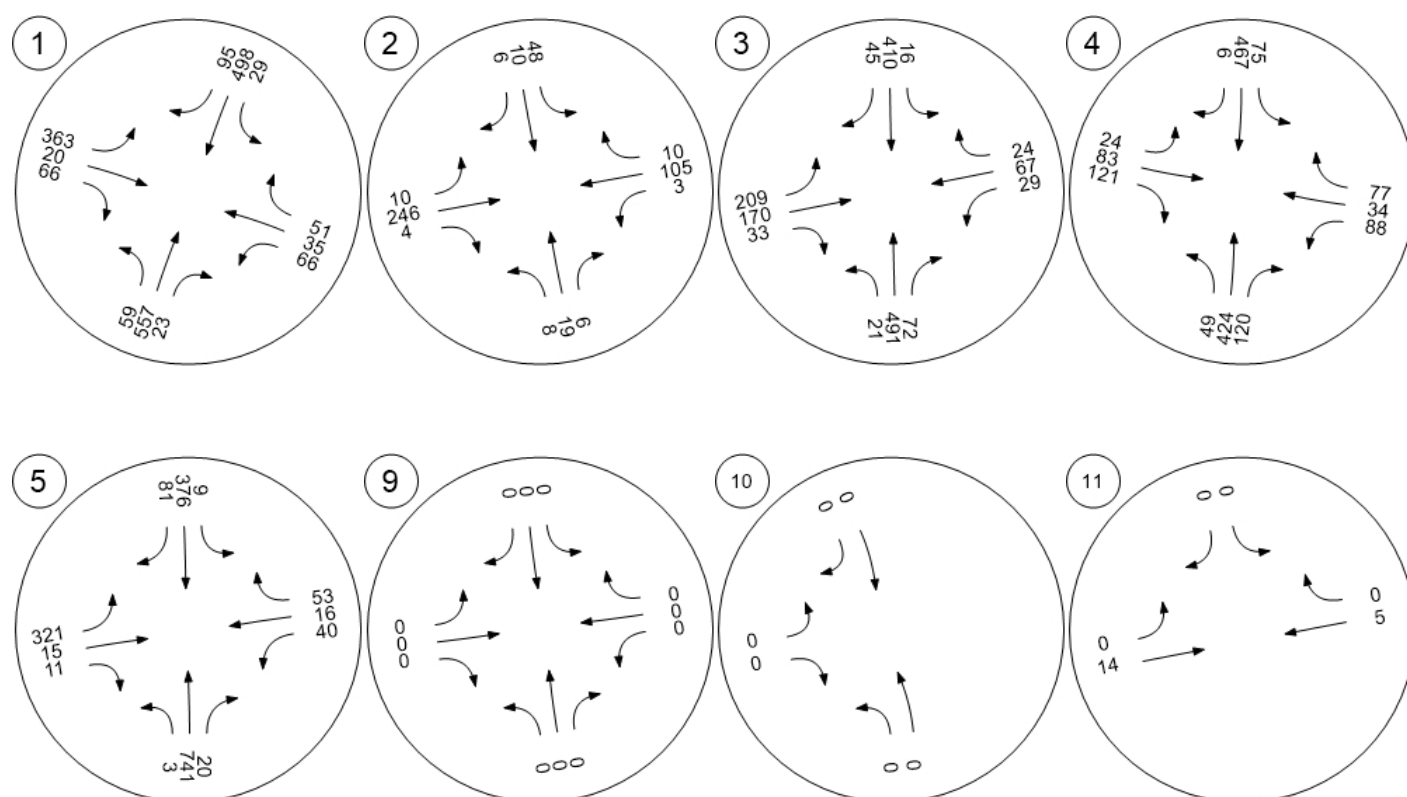
Lane Configuration and Traffic Control



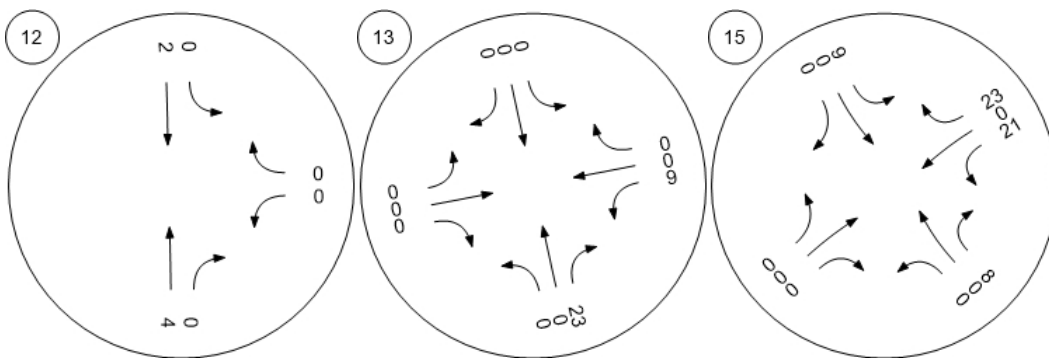
Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



Traffic Volume - Future Total Volume



Appendix C:
Level of Service and Capacity Output
Sheets
Background 2023 No Build PM

Solare Collegiate School NIA

Vistro File: L:\...\Solare Charter School Analysis.vistro

Scenario 6 Final Phase 2023 No Build PM

Report File: L:\...\6. Background 2023 PM.pdf

4/16/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Gibson Blvd and Unser Blvd	Signalized	HCM 6th Edition	EB Left	0.303	16.6	B
2	Gibson Blvd and Barbados Ave	Two-way stop	HCM 6th Edition	SB Thru	0.023	12.4	B
3	Gibson Blvd and 98th St	Signalized	HCM 6th Edition	WB Thru	0.286	18.2	B
4	Blake Rd and 98th St	Signalized	HCM 6th Edition	WB Right	0.260	18.8	B
5	86th St and 98th St	All-way stop	HCM 6th Edition	SB Thru	0.635	17.9	C
9	New Intersection	Two-way stop	HCM 6th Edition	WB Thru	0.000	9.0	A
10	New Intersection	Two-way stop	HCM 6th Edition	EB Left	0.000	8.5	A
11	New Intersection	Two-way stop	HCM 6th Edition	SB Left	0.000	8.6	A
12	New Intersection	Two-way stop	HCM 6th Edition	WB Left	0.000	8.5	A
13	New Intersection	Two-way stop	HCM 6th Edition	NB Thru	0.000	9.4	A
15	New Intersection	Two-way stop	HCM 6th Edition	SWB Thru	0.000	9.5	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: Gibson Blvd and Unser Blvd

Control Type: Signalized
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 16.6
 Level Of Service: B
 Volume to Capacity (v/c): 0.303

Intersection Setup

Name	Unser Blvd			Unser Blvd			Gibson Blvd			Spring Flower Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	12.00	12.00	11.00	12.00	12.00	11.00	11.00	12.00	11.00	11.00	11.00
No. of Lanes in Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	460.00	100.00	100.00	315.00	100.00	600.00	225.00	100.00	150.00	80.00	100.00	100.00
Speed [mph]	40.00			40.00			40.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Unser Blvd			Unser Blvd			Gibson Blvd			Spring Flower Rd		
Base Volume Input [veh/h]	117	429	51	40	456	243	109	21	51	42	26	21
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
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	0	0	0	0	15	9	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	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	123	446	53	42	474	268	122	22	53	44	27	22
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]	33	121	14	11	129	73	33	6	14	12	7	6
Total Analysis Volume [veh/h]	134	485	58	46	515	291	133	24	58	48	29	24
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	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	1			0			1			0		
v_ci, Inbound Pedestrian Volume crossing	0			1			0			1		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	44.2
Offset Reference	LeadGreen
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	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	3	12	0	3	12	0	3	12	0	3	12	0
Maximum Green [s]	16	36	0	16	36	0	16	24	0	16	24	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.5	0.0	3.5	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.5	0.0	1.0	2.0	0.0	1.0	3.5	0.0
Split [s]	22	55	0	16	49	0	17	43	0	16	42	0
Vehicle Extension [s]	1.5	4.0	0.0	1.5	4.0	0.0	2.5	2.0	0.0	1.5	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	22	0	0	27	0	0	28	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]	2.5	3.0	0.0	2.5	3.5	0.0	2.5	4.5	0.0	2.5	4.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		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]	30.0	0.0	0.0	30.0	0.0	0.0	20.0	20.0	0.0	20.0	20.0	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	R	L	C	R	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.50	5.50	5.50	4.50	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	3.00	3.00	0.00	3.50	3.50	2.50	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	97	90	90	96	87	87	7	13	13	22	10	10
g / C, Green / Cycle	0.75	0.69	0.69	0.74	0.67	0.67	0.05	0.10	0.10	0.17	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.08	0.15	0.15	0.05	0.15	0.19	0.04	0.01	0.04	0.03	0.02	0.02
s, saturation flow rate [veh/h]	1601	1683	1621	849	3204	1431	3113	1683	1431	1357	1683	1431
c, Capacity [veh/h]	1194	1166	1123	663	2140	955	169	168	143	292	130	110
d1, Uniform Delay [s]	4.55	7.21	7.22	4.68	8.42	8.82	60.52	53.34	54.67	46.52	56.28	56.25
k, delay calibration	0.50	0.50	0.50	0.04	0.50	0.50	0.08	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]	0.17	0.43	0.45	0.01	0.24	0.73	4.43	0.13	0.59	0.09	0.29	0.33
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	0.10	0.22	0.22	0.06	0.22	0.28	0.72	0.13	0.37	0.15	0.21	0.20
d, Delay for Lane Group [s/veh]	4.72	7.64	7.67	4.69	8.66	9.56	64.95	53.47	55.26	46.61	56.58	56.57
Lane Group LOS	A	A	A	A	A	A	E	D	E	D	E	E
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.83	2.45	2.38	0.26	2.47	3.04	2.06	0.66	1.63	1.25	0.85	0.70
50th-Percentile Queue Length [ft/ln]	20.87	61.23	59.44	6.51	61.86	76.10	51.51	16.41	40.72	31.25	21.31	17.39
95th-Percentile Queue Length [veh/ln]	1.50	4.41	4.28	0.47	4.45	5.48	3.71	1.18	2.93	2.25	1.53	1.25
95th-Percentile Queue Length [ft/ln]	37.57	110.21	106.99	11.72	111.34	136.99	92.72	29.53	73.30	56.26	38.36	31.30

Movement, Approach, & Intersection Results

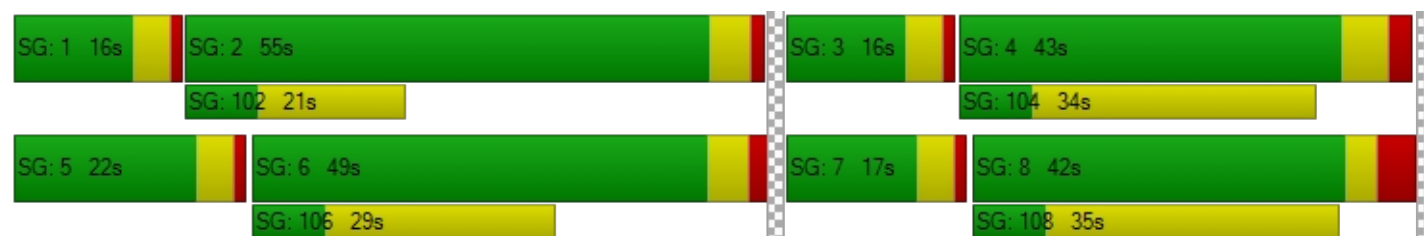
d_M, Delay for Movement [s/veh]	4.72	7.65	7.67	4.69	8.66	9.56	64.95	53.47	55.26	46.61	56.58	56.57
Movement LOS	A	A	A	A	A	A	E	D	E	D	E	E
d_A, Approach Delay [s/veh]	7.08			8.75			61.06			51.86		
Approach LOS	A			A			E			D		
d_I, Intersection Delay [s/veh]	16.58											
Intersection LOS	B											
Intersection V/C	0.303											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
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			7698.39			9045.47		
d_p, Pedestrian Delay [s]	54.47			54.47			54.47			54.47		
I_p,int, Pedestrian LOS Score for Intersection	2.668			2.808			2.729			2.393		
Crosswalk LOS	B			C			B			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	769			669			562			546		
d_b, Bicycle Delay [s]	24.62			28.78			33.62			34.35		
I_b,int, Bicycle LOS Score for Intersection	0.786			0.920			1.885			1.713		
Bicycle LOS	A			A			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 2: Gibson Blvd and Barbados Ave

Control Type:	Two-way stop	Delay (sec / veh):	12.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.023

Intersection Setup

Name	Stampede Dr			Barbados Ave			Gibson Blvd			Gibson Blvd		
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 Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	25.00			30.00			40.00			40.00		
Grade [%]	0.00			0.00			-2.00			2.00		
Crosswalk	No			No			No			No		

Volumes

Name	Stampede Dr			Barbados Ave			Gibson Blvd			Gibson Blvd		
Base Volume Input [veh/h]	10	10	8	33	12	8	7	97	16	11	193	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
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
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	9	0	0	16	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
Total Hourly Volume [veh/h]	10	10	8	34	12	8	7	110	17	11	217	50
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]	3	3	2	9	3	2	2	30	5	3	59	14
Total Analysis Volume [veh/h]	11	11	9	37	13	9	8	120	18	12	236	54
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.01	0.06	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	10.89	12.23	8.89	11.90	12.45	9.65	7.41	0.00	0.00	7.67	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.14	0.14	0.14	0.30	0.30	0.30	0.01	0.00	0.00	0.02	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.38	3.38	3.38	7.51	7.51	7.51	0.35	0.00	0.00	0.61	0.00	0.00
d_A, Approach Delay [s/veh]	10.80			11.69			0.39			0.30		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	2.17											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 3: Gibson Blvd and 98th St

Control Type: Signalized
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 18.2
 Level Of Service: B
 Volume to Capacity (v/c): 0.286

Intersection Setup

Name	98 St			98 St			Gibson Blvd			Gibson Blvd		
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 Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	280.00	100.00	170.00	360.00	100.00	140.00	420.00	100.00	180.00	320.00	100.00	160.00
Speed [mph]	35.00			35.00			40.00			40.00		
Grade [%]	1.00			-1.00			-2.00			2.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	98 St			98 St			Gibson Blvd			Gibson Blvd		
Base Volume Input [veh/h]	56	416	35	36	474	116	111	75	35	36	135	38
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
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	1	0	2	13	8	8	0	2	14	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	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	58	434	37	37	495	134	123	86	36	39	154	40
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]	16	118	10	10	135	36	33	23	10	11	42	11
Total Analysis Volume [veh/h]	63	472	40	40	538	146	134	93	39	42	167	43
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	Yes
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
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	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	3	12	0	3	12	0	3	12	0	3	12	0
Maximum Green [s]	16	36	0	16	36	0	16	24	0	16	24	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.0	0.0
All red [s]	1.5	2.0	0.0	1.5	2.0	0.0	1.5	2.0	0.0	1.5	2.0	0.0
Split [s]	8	53	0	13	58	0	11	20	0	14	23	0
Vehicle Extension [s]	1.5	4.0	0.0	1.5	4.0	0.0	1.5	4.0	0.0	1.5	4.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	28	0	0	28	0	0	36	0	0	36	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]	3.0	4.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		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]	40.0	0.0	0.0	40.0	0.0	0.0	40.0	40.0	0.0	40.0	40.0	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]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
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	4.00	4.00	0.00	4.00	4.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	65	58	58	65	57	57	23	15	15	23	12	12
g / C, Green / Cycle	0.65	0.58	0.58	0.65	0.57	0.57	0.23	0.15	0.15	0.23	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.07	0.14	0.03	0.04	0.15	0.09	0.09	0.03	0.03	0.03	0.05	0.03
s, saturation flow rate [veh/h]	863	3137	1400	916	3205	1431	1302	3205	1431	1232	3070	1370
c, Capacity [veh/h]	599	1818	812	636	1836	820	355	490	219	359	369	165
d1, Uniform Delay [s]	6.73	10.26	9.08	6.57	10.79	10.07	32.20	36.88	36.82	30.43	40.74	39.86
k, delay calibration	0.50	0.50	0.50	0.04	0.50	0.50	0.15	0.15	0.15	0.04	0.15	0.15
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]	0.32	0.31	0.11	0.01	0.36	0.43	0.83	0.24	0.50	0.05	1.07	1.08
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	0.10	0.24	0.05	0.06	0.27	0.16	0.35	0.18	0.16	0.11	0.42	0.24
d, Delay for Lane Group [s/veh]	7.05	10.57	9.18	6.58	11.15	10.50	33.02	37.12	37.32	30.48	41.82	40.94
Lane Group LOS	A	B	A	A	B	B	C	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]	0.45	2.23	0.35	0.25	2.65	1.39	2.49	0.91	0.78	0.73	1.77	0.92
50th-Percentile Queue Length [ft/ln]	11.29	55.76	8.72	6.32	66.28	34.75	62.17	22.72	19.40	18.18	44.16	22.98
95th-Percentile Queue Length [veh/ln]	0.81	4.01	0.63	0.45	4.77	2.50	4.48	1.64	1.40	1.31	3.18	1.65
95th-Percentile Queue Length [ft/ln]	20.32	100.36	15.69	11.37	119.30	62.56	111.91	40.89	34.93	32.73	79.49	41.36

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.05	10.57	9.18	6.58	11.15	10.50	33.02	37.12	37.32	30.48	41.82	40.94
Movement LOS	A	B	A	A	B	B	C	D	D	C	D	D
d_A, Approach Delay [s/veh]	10.09			10.77			35.09			39.77		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	18.15											
Intersection LOS	B											
Intersection V/C	0.286											

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]	940			1040			280			340		
d_b, Bicycle Delay [s]	14.05			11.52			36.98			34.45		
I_b,int, Bicycle LOS Score for Intersection	1.996			2.109			1.762			1.752		
Bicycle LOS	A			B			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: Blake Rd and 98th St

Control Type: Signalized
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 18.8
 Level Of Service: B
 Volume to Capacity (v/c): 0.260

Intersection Setup

Name	98th St			98 St			Blake Rd			Blake Rd		
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	15.00	15.00	12.00	18.00	18.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	110.00	100.00	125.00	415.00	100.00	100.00	200.00	100.00	100.00	210.00	100.00	100.00
Speed [mph]	30.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			-2.50			2.50		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	98th St			98 St			Blake Rd			Blake Rd		
Base Volume Input [veh/h]	56	353	59	78	303	17	19	45	39	76	65	91
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
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	0	0	0	0	5	3	5	6	0	9	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	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	367	61	81	315	23	23	52	47	79	77	95
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]	18	100	17	22	86	6	6	14	13	21	21	26
Total Analysis Volume [veh/h]	74	399	66	88	342	25	25	57	51	86	84	103
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			1			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			1		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	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	Yes
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	50.0
Offset Reference	LeadGreen
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	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	3	12	0	3	12	0	3	12	0	3	12	0
Maximum Green [s]	16	36	0	16	36	0	16	24	0	16	24	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.0	0.0
All red [s]	1.5	2.0	0.0	1.5	2.0	0.0	1.5	2.0	0.0	1.5	2.0	0.0
Split [s]	8	35	0	8	35	0	8	49	0	8	49	0
Vehicle Extension [s]	1.5	3.0	0.0	1.5	3.0	0.0	1.5	3.0	0.0	1.5	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	5	0
Pedestrian Clearance [s]	0	12	0	0	18	0	0	36	0	0	30	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]	3.0	4.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		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]	40.0	0.0	0.0	40.0	0.0	0.0	40.0	40.0	0.0	40.0	40.0	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	C	L	C	L	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
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	4.00	4.00	0.00	4.00	4.00	0.00	4.00	0.00	4.00
g_i, Effective Green Time [s]	68	60	60	68	60	60	20	12	20	14
g / C, Green / Cycle	0.68	0.60	0.60	0.68	0.60	0.60	0.20	0.12	0.20	0.14
(v / s)_i Volume / Saturation Flow Rate	0.07	0.11	0.04	0.08	0.10	0.10	0.02	0.06	0.06	0.11
s, saturation flow rate [veh/h]	997	3204	1431	975	1683	1643	1203	1615	1226	1509
c, Capacity [veh/h]	725	1905	851	706	1002	978	240	203	299	212
d1, Uniform Delay [s]	5.69	9.28	8.58	5.78	9.12	9.13	32.56	40.74	33.44	41.69
k, delay calibration	0.50	0.50	0.50	0.04	0.50	0.50	0.11	0.11	0.04	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
d2, Incremental Delay [s]	0.26	0.23	0.16	0.03	0.37	0.38	0.17	1.83	0.17	7.72
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	0.09	0.19	0.07	0.11	0.17	0.17	0.10	0.49	0.26	0.81
d, Delay for Lane Group [s/veh]	5.95	9.51	8.75	5.81	9.49	9.51	32.73	42.57	33.61	49.41
Lane Group LOS	A	A	A	A	A	A	C	D	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.49	1.79	0.57	0.51	1.64	1.62	0.45	2.34	1.60	4.49
50th-Percentile Queue Length [ft/ln]	12.19	44.81	14.28	12.74	41.02	40.46	11.36	58.47	39.90	112.22
95th-Percentile Queue Length [veh/ln]	0.88	3.23	1.03	0.92	2.95	2.91	0.82	4.21	2.87	7.96
95th-Percentile Queue Length [ft/ln]	21.95	80.65	25.71	22.93	73.84	72.82	20.44	105.25	71.82	199.08

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	5.95	9.51	8.75	5.81	9.50	9.51	32.73	42.57	42.57	33.61	49.41	49.41
Movement LOS	A	A	A	A	A	A	C	D	D	C	D	D
d_A, Approach Delay [s/veh]	8.93			8.78			40.72			44.44		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	18.81											
Intersection LOS	B											
Intersection V/C	0.260											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			9.0			11.0			11.0		
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			10608.32			0.00			0.00		
d_p, Pedestrian Delay [s]	39.61			41.41			39.61			39.61		
I_p,int, Pedestrian LOS Score for Intersection	2.626			2.517			2.115			2.185		
Crosswalk LOS	B			B			B			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	580			580			860			860		
d_b, Bicycle Delay [s]	25.21			25.21			16.25			16.25		
I_b,int, Bicycle LOS Score for Intersection	1.969			1.905			1.761			1.974		
Bicycle LOS	A			A			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 5: 86th St and 98th St

Control Type: All-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 17.9
 Level Of Service: C
 Volume to Capacity (v/c): 0.635

Intersection Setup

Name	98 St			98 St			De Anza Dr SW			86th St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	12.00	12.00	20.00	20.00	20.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	220.00	100.00	120.00	125.00	100.00	110.00	100.00	100.00	100.00	350.00	100.00	100.00
Speed [mph]	35.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			-2.00			2.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	98 St			98 St			De Anza Dr SW			86th St		
Base Volume Input [veh/h]	4	477	18	51	617	251	132	14	7	23	20	25
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
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	0	15	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
Total Hourly Volume [veh/h]	4	505	19	53	657	261	137	15	7	24	21	26
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]	1	137	5	14	179	71	37	4	2	7	6	7
Total Analysis Volume [veh/h]	4	549	21	58	714	284	149	16	8	26	23	28
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	454	484	484	534	482	517	517	576	464	420	463
Degree of Utilization, x	0.01	0.52	0.52	0.04	0.11	0.64	0.64	0.45	0.34	0.06	0.10

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.03	3.18	3.18	0.11	0.37	4.97	4.97	2.45	1.55		0.18	0.34
95th-Percentile Queue Length [ft]	0.67	79.54	79.54	2.76	9.25	124.2	124.2	61.25	38.71		4.54	8.45
Approach Delay [s/veh]	17.80				19.01				14.79		11.50	
Approach LOS	C				C				B		B	
Intersection Delay [s/veh]	17.94											
Intersection LOS	C											

Intersection Level Of Service Report Intersection 9: New Intersection

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 1 hour

Delay (sec / veh): 9.0
Level Of Service: A
Volume to Capacity (v/c): 0.000

Intersection Setup

Name	Barbados Ave			Barbados Ave			Ba Av			Ba Av		
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 Pocket	0	0	0	0	0	0	0	0	0	0	0	0
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
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Barbados Ave			Barbados Ave			Ba Av			Ba Av		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour 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
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]	0	0	0	0	0	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	0.00	7.22	0.00	0.00	8.52	9.02	8.32	8.52	9.02	8.32
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	2.41			2.41			8.62			8.62		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	5.51											
Intersection LOS	A											

Intersection Level Of Service Report

Intersection 10: New Intersection

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 8.5
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name	Barbados Ave				Barbados Ave	
Approach	Northbound		Eastbound		Southeastbound	
Lane Configuration						
Turning Movement	Left	Thru	Left	Right	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Barbados Ave				Barbados Ave	
Base Volume Input [veh/h]	0	0	0	0	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 Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
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	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Stop	Free
Flared Lane		No	
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	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	8.52	8.32	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	3.61		8.42		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.01					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 11: New Intersection

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 8.6
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name	Barbados Ave Driveway North		Gibson Blvd		Gibson Blvd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		-2.00		2.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Barbados Ave Driveway North		Gibson Blvd		Gibson Blvd	
Base Volume Input [veh/h]	0	0	0	0	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 Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	9	16	0
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	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	9	16	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	2	4	0
Total Analysis Volume [veh/h]	0	0	0	9	16	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.62	8.36	7.23	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.49		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 12: New Intersection

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 8.5
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name	98th St (Snow Vista Blvd SW)		98th St (Snow Vista Blvd SW)		Diamond Mesa	
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 Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	140.00	150.00	100.00	100.00	100.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	1.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	98th St (Snow Vista Blvd SW)		98th St (Snow Vista Blvd SW)		Diamond Mesa	
Base Volume Input [veh/h]	0	0	0	0	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 Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	0	0	5	0	0
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	0	0	0	0
Total Hourly Volume [veh/h]	3	0	0	5	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	0	1	0	0
Total Analysis Volume [veh/h]	3	0	0	5	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
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	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.23	0.00	8.55	8.33
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		8.44	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 13: New Intersection

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 9.4
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name	Blake Rd						Gibson Blvd			Gibson Blvd		
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 Pocket	0	0	0	0	0	0	0	0	0	0	0	0
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
Speed [mph]	30.00			30.00			40.00			30.00		
Grade [%]	0.00			0.00			-2.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Blake Rd						Gibson Blvd			Gibson Blvd		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	15	0	0	0	0	0	1	26	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
Total Hourly Volume [veh/h]	0	0	15	0	0	0	0	0	1	26	0	0
Peak Hour 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
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]	0	0	4	0	0	0	0	0	0	7	0	0
Total Analysis Volume [veh/h]	0	0	15	0	0	0	0	0	1	26	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	8.92	9.41	8.37	8.93	9.37	8.32	7.22	0.00	0.00	7.26	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.02	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.05	1.05	1.05	0.00	0.00	0.00	0.00	0.00	0.00	1.22	0.61	0.00	0.00
d_A, Approach Delay [s/veh]	8.37			8.87			0.00			7.26			
Approach LOS	A			A			A			A			
d_I, Intersection Delay [s/veh]	7.48												
Intersection LOS	A												

Intersection Level Of Service Report

Intersection 15: New Intersection

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 9.5
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name							Blake Rd			Blake Rd		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
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 Pocket	0	0	0	0	0	0	0	0	0	0	0	0
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
Speed [mph]	30.00			30.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			-2.50		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name							Blake Rd			Blake Rd		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	14	0	15	0	0	24	27	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
Total Hourly Volume [veh/h]	0	0	0	14	0	15	0	0	24	27	0	0
Peak Hour 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
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]	0	0	0	4	0	4	0	0	6	7	0	0
Total Analysis Volume [veh/h]	0	0	0	14	0	15	0	0	24	27	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	9.03	9.51	8.32	9.04	9.55	8.48	7.22	0.00	0.00	7.26	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.09	0.09	0.09	0.00	0.00	0.00	0.05	0.05	0.05
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	2.27	2.27	2.27	0.00	0.00	0.00	1.27	1.27	1.27
d_A, Approach Delay [s/veh]	8.95			8.75			0.00			7.26		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	5.62											
Intersection LOS	A											

Signal Warrants Report For Intersection 2: Gibson Blvd and Barbados Ave

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	278	134	28	54
2	267	129	27	52
3	261	126	26	51
4	222	107	22	43
5	211	102	21	41
6	189	91	19	37
7	175	84	18	34
8	167	80	17	32
9	133	64	13	26
10	125	60	13	24
11	125	60	13	24
12	120	58	12	23
13	108	52	11	21
14	100	48	10	19
15	100	48	10	19
16	97	47	10	19
17	56	27	6	11
18	31	15	3	6
19	28	13	3	5
20	11	5	1	2
21	8	4	1	2
22	8	4	1	2
23	6	3	1	1
24	6	3	1	1

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	412	2	82	No	No	No	No	No	No	No	No	No	No
2	6	396	2	79	No	No	No	No	No	No	No	No	No	No
3	6	387	2	77	No	No	No	No	No	No	No	No	No	No
4	6	329	2	65	No	No	No	No	No	No	No	No	No	No
5	6	313	2	62	No	No	No	No	No	No	No	No	No	No
6	6	280	2	56	No	No	No	No	No	No	No	No	No	No
7	6	259	2	52	No	No	No	No	No	No	No	No	No	No
8	6	247	2	49	No	No	No	No	No	No	No	No	No	No
9	6	197	2	39	No	No	No	No	No	No	No	No	No	No
10	6	185	2	37	No	No	No	No	No	No	No	No	No	No
11	6	185	2	37	No	No	No	No	No	No	No	No	No	No
12	6	178	2	35	No	No	No	No	No	No	No	No	No	No
13	6	160	2	32	No	No	No	No	No	No	No	No	No	No
14	6	148	2	29	No	No	No	No	No	No	No	No	No	No
15	6	148	2	29	No	No	No	No	No	No	No	No	No	No
16	6	144	2	29	No	No	No	No	No	No	No	No	No	No
17	6	83	2	17	No	No	No	No	No	No	No	No	No	No
18	6	46	2	9	No	No	No	No	No	No	No	No	No	No
19	6	41	2	8	No	No	No	No	No	No	No	No	No	No
20	6	16	2	3	No	No	No	No	No	No	No	No	No	No
21	6	12	2	3	No	No	No	No	No	No	No	No	No	No
22	6	12	2	3	No	No	No	No	No	No	No	No	No	No
23	6	9	2	2	No	No	No	No	No	No	No	No	No	No
24	6	9	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	10.8	11.7
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:05	0:10
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	28	54
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	494	494
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 5: 86th St and 98th St

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	528	971	71	159
2	507	932	68	153
3	496	913	67	149
4	422	777	57	127
5	401	738	54	121
6	359	660	48	108
7	333	612	45	100
8	317	583	43	95
9	253	466	34	76
10	238	437	32	72
11	238	437	32	72
12	227	418	31	68
13	206	379	28	62
14	190	350	26	57
15	190	350	26	57
16	185	340	25	56
17	106	194	14	32
18	58	107	8	17
19	53	97	7	16
20	21	39	3	6
21	16	29	2	5
22	16	29	2	5
23	11	19	1	3
24	11	19	1	3

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	8	1499	3	230	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	8	1439	3	221	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
3	8	1409	3	216	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
4	8	1199	3	184	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
5	8	1139	3	175	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
6	8	1019	3	156	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
7	8	945	3	145	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No
8	8	900	3	138	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No
9	8	719	3	110	No	No	No	No	No	No	Yes	Yes	No	No
10	8	675	3	104	No	No	No	No	No	No	Yes	Yes	No	No
11	8	675	3	104	No	No	No	No	No	No	Yes	Yes	No	No
12	8	645	3	99	No	No	No	No	No	No	Yes	Yes	No	No
13	8	585	3	90	No	No	No	No	No	No	No	Yes	No	No
14	8	540	3	83	No	No	No	No	No	No	No	Yes	No	No
15	8	540	3	83	No	No	No	No	No	No	No	Yes	No	No
16	8	525	3	81	No	No	No	No	No	No	No	Yes	No	No
17	8	300	3	46	No	No	No	No	No	No	No	No	No	No
18	8	165	3	25	No	No	No	No	No	No	No	No	No	No
19	8	150	3	23	No	No	No	No	No	No	No	No	No	No
20	8	60	3	9	No	No	No	No	No	No	No	No	No	No
21	8	45	3	7	No	No	No	No	No	No	No	No	No	No
22	8	45	3	7	No	No	No	No	No	No	No	No	No	No
23	8	30	3	4	No	No	No	No	No	No	No	No	No	No
24	8	30	3	4	No	No	No	No	No	No	No	No	No	No
Hours Met					2	5	6	8	8	8	12	16	5	1

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.5	14.8
Number of Lanes on Minor Street Approach	2	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:13	0:39
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	71	159
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	1729	1729
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 9: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	0	2	0	No	No	No	No	No	No	No	No	No	No
2	2	0	2	0	No	No	No	No	No	No	No	No	No	No
3	2	0	2	0	No	No	No	No	No	No	No	No	No	No
4	2	0	2	0	No	No	No	No	No	No	No	No	No	No
5	2	0	2	0	No	No	No	No	No	No	No	No	No	No
6	2	0	2	0	No	No	No	No	No	No	No	No	No	No
7	2	0	2	0	No	No	No	No	No	No	No	No	No	No
8	2	0	2	0	No	No	No	No	No	No	No	No	No	No
9	2	0	2	0	No	No	No	No	No	No	No	No	No	No
10	2	0	2	0	No	No	No	No	No	No	No	No	No	No
11	2	0	2	0	No	No	No	No	No	No	No	No	No	No
12	2	0	2	0	No	No	No	No	No	No	No	No	No	No
13	2	0	2	0	No	No	No	No	No	No	No	No	No	No
14	2	0	2	0	No	No	No	No	No	No	No	No	No	No
15	2	0	2	0	No	No	No	No	No	No	No	No	No	No
16	2	0	2	0	No	No	No	No	No	No	No	No	No	No
17	2	0	2	0	No	No	No	No	No	No	No	No	No	No
18	2	0	2	0	No	No	No	No	No	No	No	No	No	No
19	2	0	2	0	No	No	No	No	No	No	No	No	No	No
20	2	0	2	0	No	No	No	No	No	No	No	No	No	No
21	2	0	2	0	No	No	No	No	No	No	No	No	No	No
22	2	0	2	0	No	No	No	No	No	No	No	No	No	No
23	2	0	2	0	No	No	No	No	No	No	No	No	No	No
24	2	0	2	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)		
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00	0:00
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	0	0
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	0	0
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 10: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, NW
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	NW	W
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	0	1	0	No	No	No	No	No	No	No	No	No	No
2	2	0	1	0	No	No	No	No	No	No	No	No	No	No
3	2	0	1	0	No	No	No	No	No	No	No	No	No	No
4	2	0	1	0	No	No	No	No	No	No	No	No	No	No
5	2	0	1	0	No	No	No	No	No	No	No	No	No	No
6	2	0	1	0	No	No	No	No	No	No	No	No	No	No
7	2	0	1	0	No	No	No	No	No	No	No	No	No	No
8	2	0	1	0	No	No	No	No	No	No	No	No	No	No
9	2	0	1	0	No	No	No	No	No	No	No	No	No	No
10	2	0	1	0	No	No	No	No	No	No	No	No	No	No
11	2	0	1	0	No	No	No	No	No	No	No	No	No	No
12	2	0	1	0	No	No	No	No	No	No	No	No	No	No
13	2	0	1	0	No	No	No	No	No	No	No	No	No	No
14	2	0	1	0	No	No	No	No	No	No	No	No	No	No
15	2	0	1	0	No	No	No	No	No	No	No	No	No	No
16	2	0	1	0	No	No	No	No	No	No	No	No	No	No
17	2	0	1	0	No	No	No	No	No	No	No	No	No	No
18	2	0	1	0	No	No	No	No	No	No	No	No	No	No
19	2	0	1	0	No	No	No	No	No	No	No	No	No	No
20	2	0	1	0	No	No	No	No	No	No	No	No	No	No
21	2	0	1	0	No	No	No	No	No	No	No	No	No	No
22	2	0	1	0	No	No	No	No	No	No	No	No	No	No
23	2	0	1	0	No	No	No	No	No	No	No	No	No	No
24	2	0	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	0
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	0
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

Signal Warrants Report For Intersection 11: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	16	9	0
2	15	9	0
3	15	8	0
4	13	7	0
5	12	7	0
6	11	6	0
7	10	6	0
8	10	5	0
9	8	4	0
10	7	4	0
11	7	4	0
12	7	4	0
13	6	4	0
14	6	3	0
15	6	3	0
16	6	3	0
17	3	2	0
18	2	1	0
19	2	1	0
20	1	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	5	25	1	0	No	No	No	No	No	No	No	No	No	No
2	5	24	1	0	No	No	No	No	No	No	No	No	No	No
3	5	23	1	0	No	No	No	No	No	No	No	No	No	No
4	5	20	1	0	No	No	No	No	No	No	No	No	No	No
5	5	19	1	0	No	No	No	No	No	No	No	No	No	No
6	5	17	1	0	No	No	No	No	No	No	No	No	No	No
7	5	16	1	0	No	No	No	No	No	No	No	No	No	No
8	5	15	1	0	No	No	No	No	No	No	No	No	No	No
9	5	12	1	0	No	No	No	No	No	No	No	No	No	No
10	5	11	1	0	No	No	No	No	No	No	No	No	No	No
11	5	11	1	0	No	No	No	No	No	No	No	No	No	No
12	5	11	1	0	No	No	No	No	No	No	No	No	No	No
13	5	10	1	0	No	No	No	No	No	No	No	No	No	No
14	5	9	1	0	No	No	No	No	No	No	No	No	No	No
15	5	9	1	0	No	No	No	No	No	No	No	No	No	No
16	5	9	1	0	No	No	No	No	No	No	No	No	No	No
17	5	5	1	0	No	No	No	No	No	No	No	No	No	No
18	5	3	1	0	No	No	No	No	No	No	No	No	No	No
19	5	3	1	0	No	No	No	No	No	No	No	No	No	No
20	5	1	1	0	No	No	No	No	No	No	No	No	No	No
21	5	0	1	0	No	No	No	No	No	No	No	No	No	No
22	5	0	1	0	No	No	No	No	No	No	No	No	No	No
23	5	0	1	0	No	No	No	No	No	No	No	No	No	No
24	5	0	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.5
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	0
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	25
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

Signal Warrants Report For Intersection 12: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	N	E
1	3	5	0
2	3	5	0
3	3	5	0
4	2	4	0
5	2	4	0
6	2	3	0
7	2	3	0
8	2	3	0
9	1	2	0
10	1	2	0
11	1	2	0
12	1	2	0
13	1	2	0
14	1	2	0
15	1	2	0
16	1	2	0
17	1	1	0
18	0	1	0
19	0	1	0
20	0	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	8	1	0	No	No	No	No	No	No	No	No	No	No
2	6	8	1	0	No	No	No	No	No	No	No	No	No	No
3	6	8	1	0	No	No	No	No	No	No	No	No	No	No
4	6	6	1	0	No	No	No	No	No	No	No	No	No	No
5	6	6	1	0	No	No	No	No	No	No	No	No	No	No
6	6	5	1	0	No	No	No	No	No	No	No	No	No	No
7	6	5	1	0	No	No	No	No	No	No	No	No	No	No
8	6	5	1	0	No	No	No	No	No	No	No	No	No	No
9	6	3	1	0	No	No	No	No	No	No	No	No	No	No
10	6	3	1	0	No	No	No	No	No	No	No	No	No	No
11	6	3	1	0	No	No	No	No	No	No	No	No	No	No
12	6	3	1	0	No	No	No	No	No	No	No	No	No	No
13	6	3	1	0	No	No	No	No	No	No	No	No	No	No
14	6	3	1	0	No	No	No	No	No	No	No	No	No	No
15	6	3	1	0	No	No	No	No	No	No	No	No	No	No
16	6	3	1	0	No	No	No	No	No	No	No	No	No	No
17	6	2	1	0	No	No	No	No	No	No	No	No	No	No
18	6	1	1	0	No	No	No	No	No	No	No	No	No	No
19	6	1	1	0	No	No	No	No	No	No	No	No	No	No
20	6	0	1	0	No	No	No	No	No	No	No	No	No	No
21	6	0	1	0	No	No	No	No	No	No	No	No	No	No
22	6	0	1	0	No	No	No	No	No	No	No	No	No	No
23	6	0	1	0	No	No	No	No	No	No	No	No	No	No
24	6	0	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.4
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	0
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	8
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

Signal Warrants Report For Intersection 13: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	26	1	15	0
2	25	1	14	0
3	24	1	14	0
4	21	1	12	0
5	20	1	11	0
6	18	1	10	0
7	16	1	9	0
8	16	1	9	0
9	12	0	7	0
10	12	0	7	0
11	12	0	7	0
12	11	0	6	0
13	10	0	6	0
14	9	0	5	0
15	9	0	5	0
16	9	0	5	0
17	5	0	3	0
18	3	0	2	0
19	3	0	2	0
20	1	0	1	0
21	1	0	0	0
22	1	0	0	0
23	1	0	0	0
24	1	0	0	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	27	2	15	No	No	No	No	No	No	No	No	No	No
2	4	26	2	14	No	No	No	No	No	No	No	No	No	No
3	4	25	2	14	No	No	No	No	No	No	No	No	No	No
4	4	22	2	12	No	No	No	No	No	No	No	No	No	No
5	4	21	2	11	No	No	No	No	No	No	No	No	No	No
6	4	19	2	10	No	No	No	No	No	No	No	No	No	No
7	4	17	2	9	No	No	No	No	No	No	No	No	No	No
8	4	17	2	9	No	No	No	No	No	No	No	No	No	No
9	4	12	2	7	No	No	No	No	No	No	No	No	No	No
10	4	12	2	7	No	No	No	No	No	No	No	No	No	No
11	4	12	2	7	No	No	No	No	No	No	No	No	No	No
12	4	11	2	6	No	No	No	No	No	No	No	No	No	No
13	4	10	2	6	No	No	No	No	No	No	No	No	No	No
14	4	9	2	5	No	No	No	No	No	No	No	No	No	No
15	4	9	2	5	No	No	No	No	No	No	No	No	No	No
16	4	9	2	5	No	No	No	No	No	No	No	No	No	No
17	4	5	2	3	No	No	No	No	No	No	No	No	No	No
18	4	3	2	2	No	No	No	No	No	No	No	No	No	No
19	4	3	2	2	No	No	No	No	No	No	No	No	No	No
20	4	1	2	1	No	No	No	No	No	No	No	No	No	No
21	4	1	2	0	No	No	No	No	No	No	No	No	No	No
22	4	1	2	0	No	No	No	No	No	No	No	No	No	No
23	4	1	2	0	No	No	No	No	No	No	No	No	No	No
24	4	1	2	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.4	8.9
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:02	0:00
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	15	0
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	42	42
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 15: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	SE, NW
Minor Approaches	NE, SW
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	SE	NW	NE	SW
1	24	27	29	0
2	23	26	28	0
3	23	25	27	0
4	19	22	23	0
5	18	21	22	0
6	16	18	20	0
7	15	17	18	0
8	14	16	17	0
9	12	13	14	0
10	11	12	13	0
11	11	12	13	0
12	10	12	12	0
13	9	11	11	0
14	9	10	10	0
15	9	10	10	0
16	8	9	10	0
17	5	5	6	0
18	3	3	3	0
19	2	3	3	0
20	1	1	1	0
21	1	1	1	0
22	1	1	1	0
23	0	1	1	0
24	0	1	1	0

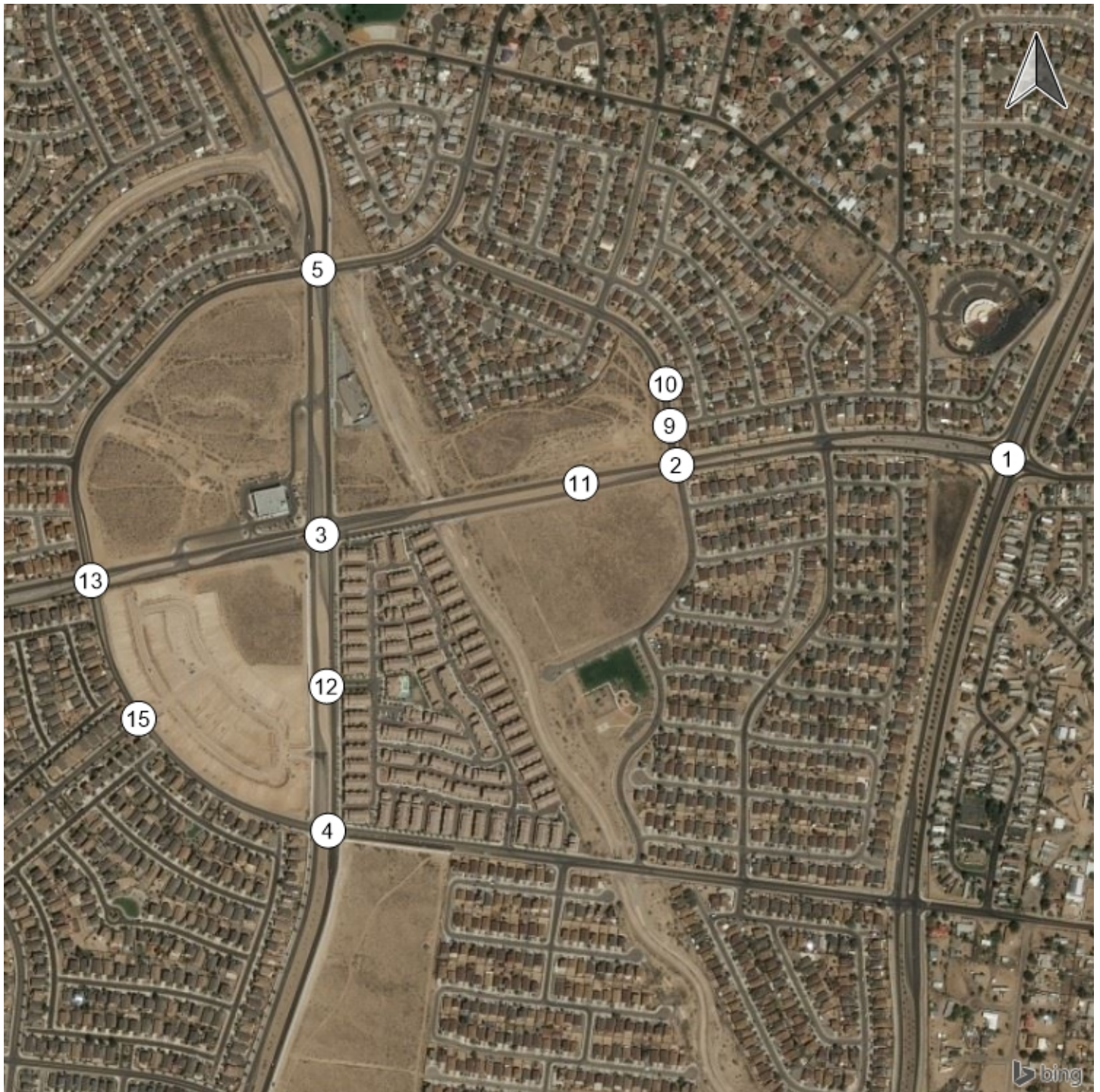
Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	51	2	29	No	No	No	No	No	No	No	No	No	No
2	2	49	2	28	No	No	No	No	No	No	No	No	No	No
3	2	48	2	27	No	No	No	No	No	No	No	No	No	No
4	2	41	2	23	No	No	No	No	No	No	No	No	No	No
5	2	39	2	22	No	No	No	No	No	No	No	No	No	No
6	2	34	2	20	No	No	No	No	No	No	No	No	No	No
7	2	32	2	18	No	No	No	No	No	No	No	No	No	No
8	2	30	2	17	No	No	No	No	No	No	No	No	No	No
9	2	25	2	14	No	No	No	No	No	No	No	No	No	No
10	2	23	2	13	No	No	No	No	No	No	No	No	No	No
11	2	23	2	13	No	No	No	No	No	No	No	No	No	No
12	2	22	2	12	No	No	No	No	No	No	No	No	No	No
13	2	20	2	11	No	No	No	No	No	No	No	No	No	No
14	2	19	2	10	No	No	No	No	No	No	No	No	No	No
15	2	19	2	10	No	No	No	No	No	No	No	No	No	No
16	2	17	2	10	No	No	No	No	No	No	No	No	No	No
17	2	10	2	6	No	No	No	No	No	No	No	No	No	No
18	2	6	2	3	No	No	No	No	No	No	No	No	No	No
19	2	5	2	3	No	No	No	No	No	No	No	No	No	No
20	2	2	2	1	No	No	No	No	No	No	No	No	No	No
21	2	2	2	1	No	No	No	No	No	No	No	No	No	No
22	2	2	2	1	No	No	No	No	No	No	No	No	No	No
23	2	1	2	1	No	No	No	No	No	No	No	No	No	No
24	2	1	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

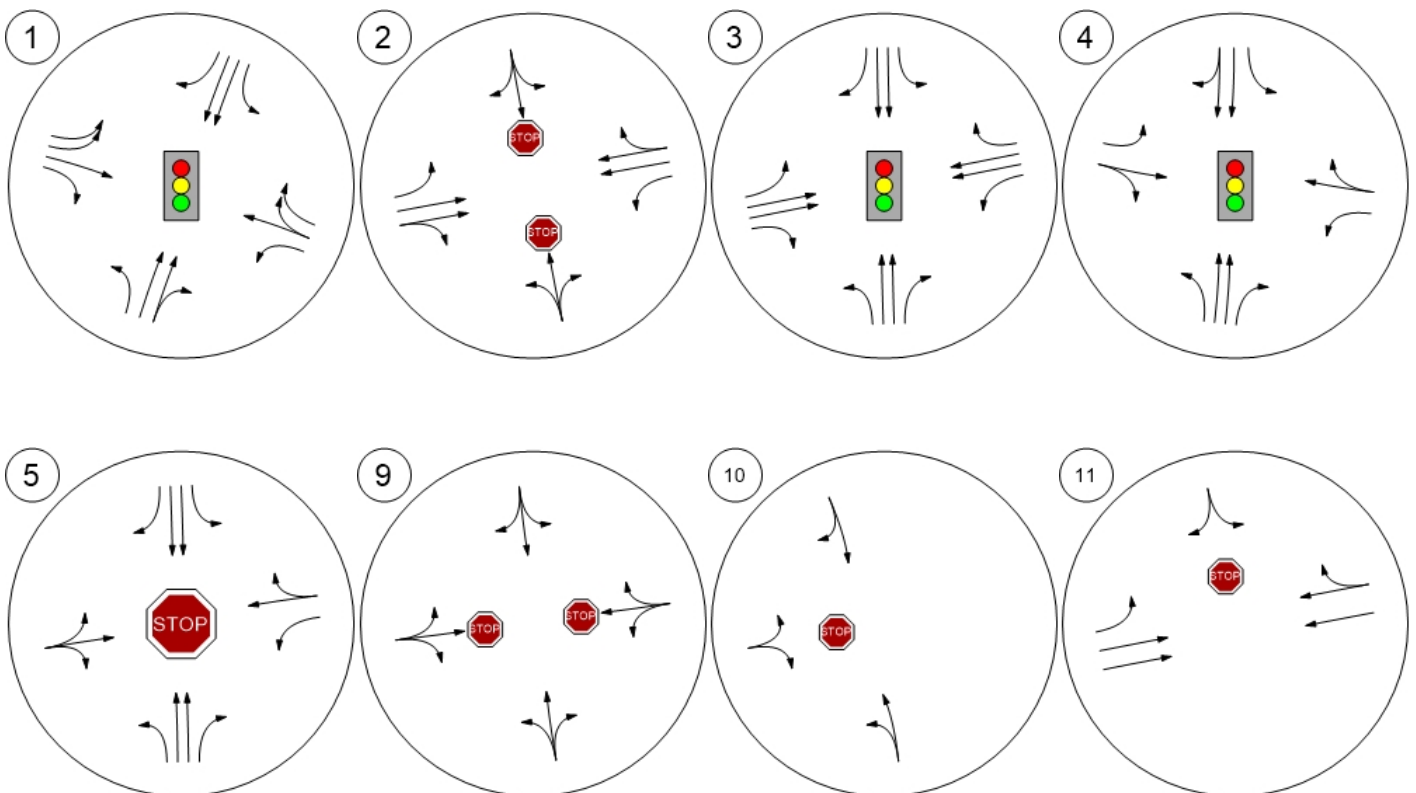
Warrant 3 Condition A

Orientation	NE	SW
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.8	9
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:04	0:00
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	29	0
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	80	80
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

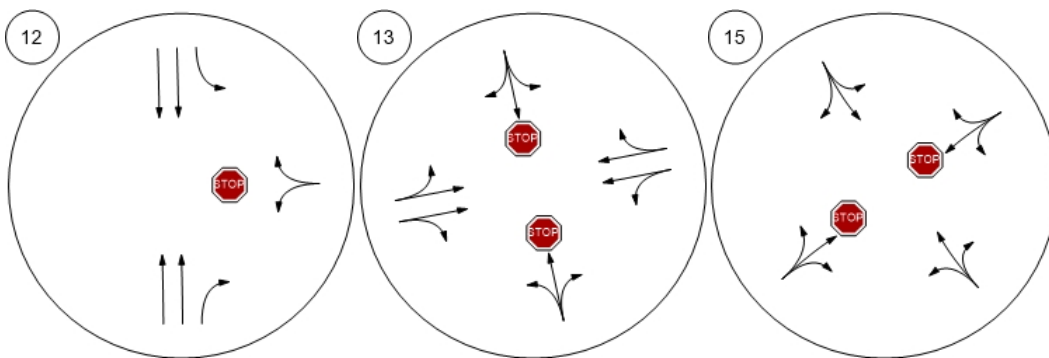
Study Intersections



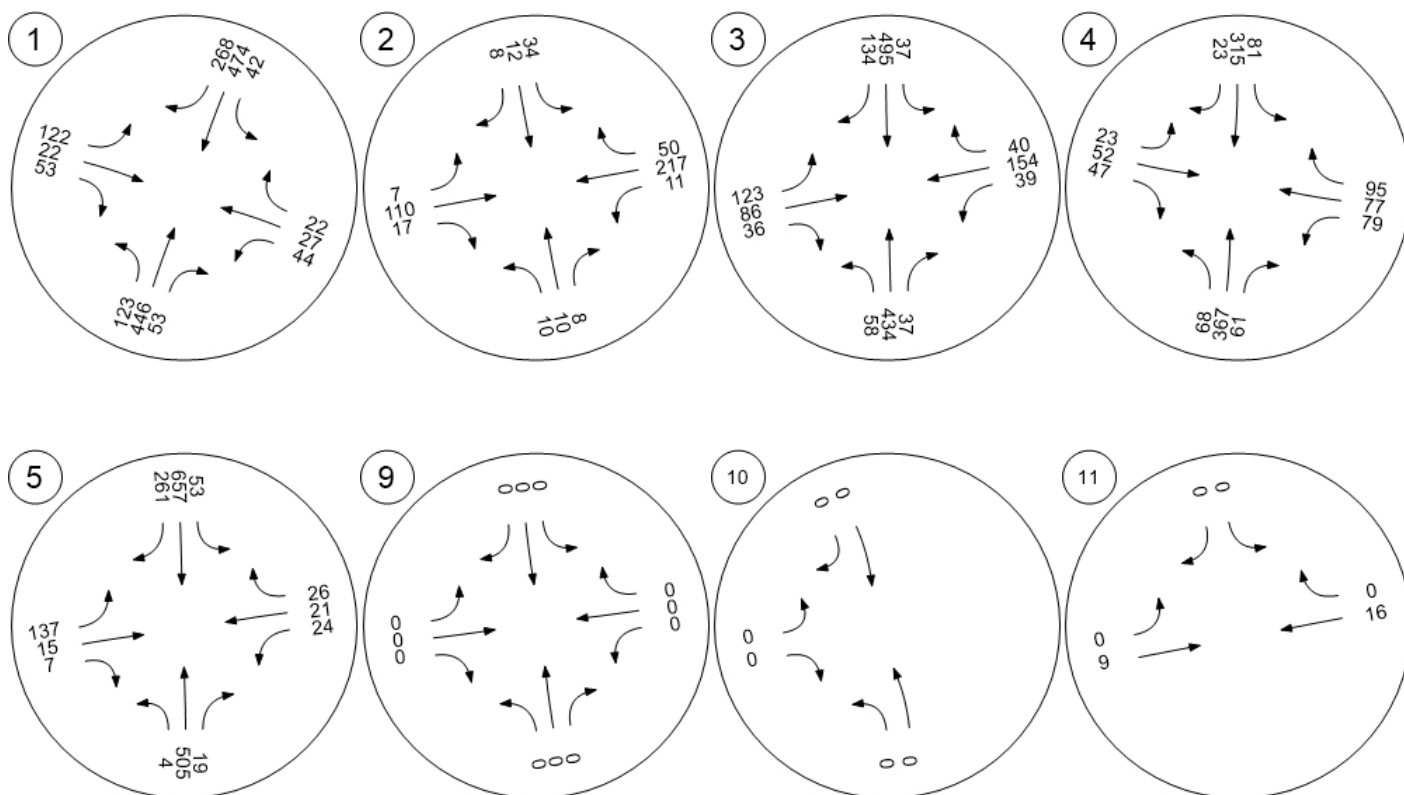
Lane Configuration and Traffic Control



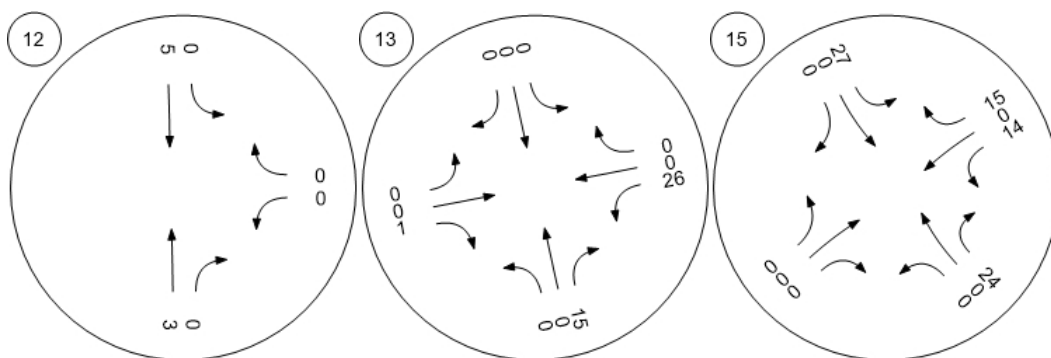
Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



Traffic Volume - Future Total Volume



Appendix C:
Level of Service and Capacity Output
Sheets
Full Build 2023 AM

Solare Collegiate School NIA

Vistro File: L:\...\Solare Charter School Analysis.vistro

Scenario 7 Final Phase 2023 Full Build AM

Report File: L:\...\7. Full Build 2023 AM.pdf

4/16/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Gibson Blvd and Unser Blvd	Signalized	HCM 6th Edition	EB Left	0.357	26.0	C
2	Gibson Blvd and Barbados Ave	Two-way stop	HCM 6th Edition	SB Thru	0.034	16.7	C
3	Gibson Blvd and 98th St	Signalized	HCM 6th Edition	WB Right	0.303	20.1	C
4	Blake Rd and 98th St	Signalized	HCM 6th Edition	EB Right	0.331	19.1	B
5	86th St and 98th St	All-way stop	HCM 6th Edition	NB Thru	0.895	45.7	E
9	Barbados Ave and South Solare Parent Driveway	Two-way stop	HCM 6th Edition	WB Left	0.027	13.4	B
10	Barbados Ave and North Solare Parent Driveway	Two-way stop	HCM 6th Edition	EB Left	0.049	9.1	A
11	New Intersection	Two-way stop	HCM 6th Edition	SB Left	0.000	8.9	A
12	New Intersection	Two-way stop	HCM 6th Edition	WB Left	0.000	8.7	A
13	New Intersection	Two-way stop	HCM 6th Edition	NB Thru	0.000	9.4	A
15	New Intersection	Two-way stop	HCM 6th Edition	SWB Thru	0.000	9.3	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: Gibson Blvd and Unser Blvd

Control Type:	Signalized	Delay (sec / veh):	26.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.357

Intersection Setup

Name	Unser Blvd			Unser Blvd			Gibson Blvd			Spring Flower Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵↵			↵↵↵			↵↵↵			↵↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	12.00	12.00	11.00	12.00	12.00	11.00	11.00	12.00	11.00	11.00	11.00
No. of Lanes in Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	460.00	100.00	100.00	315.00	100.00	600.00	225.00	100.00	150.00	80.00	100.00	100.00
Speed [mph]	40.00			40.00			40.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Unser Blvd			Unser Blvd			Gibson Blvd			Spring Flower Rd		
Base Volume Input [veh/h]	57	536	22	28	479	87	336	19	63	63	34	49
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
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	61	0	0	0	0	48	48	2	48	0	2	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	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	120	557	23	29	498	138	397	22	114	66	37	51
Peak Hour Factor	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640	0.9640
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]	31	144	6	8	129	36	103	6	30	17	10	13
Total Analysis Volume [veh/h]	124	578	24	30	517	143	412	23	118	68	38	53
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	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	1			0			1			0		
v_ci, Inbound Pedestrian Volume crossing	0			1			0			1		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	44.4
Offset Reference	LeadGreen
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	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	3	12	0	3	12	0	3	12	0	3	12	0
Maximum Green [s]	16	36	0	16	36	0	16	24	0	16	24	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.5	0.0	3.5	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.5	0.0	1.0	2.0	0.0	1.0	3.5	0.0
Split [s]	14	36	0	14	36	0	28	56	0	14	42	0
Vehicle Extension [s]	1.5	4.0	0.0	1.5	4.0	0.0	2.5	2.0	0.0	1.5	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	22	0	0	27	0	0	28	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]	2.5	3.0	0.0	2.5	3.5	0.0	2.5	4.5	0.0	2.5	4.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		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]	30.0	0.0	0.0	30.0	0.0	0.0	20.0	20.0	0.0	20.0	20.0	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	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]	5.00	5.00	5.00	5.50	5.50	5.50	4.50	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	3.00	3.00	0.00	3.50	3.50	2.50	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	75	69	69	74	64	64	18	24	24	34	11	11
g / C, Green / Cycle	0.62	0.57	0.57	0.62	0.54	0.54	0.15	0.20	0.20	0.28	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.07	0.17	0.17	0.04	0.16	0.10	0.13	0.01	0.08	0.05	0.03	0.03
s, saturation flow rate [veh/h]	1601	1683	1660	801	3204	1431	3113	1683	1431	1330	1629	1431
c, Capacity [veh/h]	1000	961	948	511	1714	765	456	336	286	448	155	137
d1, Uniform Delay [s]	9.14	13.34	13.34	9.39	15.37	14.37	50.08	38.93	41.75	32.48	50.50	50.59
k, delay calibration	0.50	0.50	0.50	0.04	0.50	0.50	0.08	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]	0.25	0.82	0.83	0.02	0.43	0.52	4.15	0.03	0.34	0.06	0.39	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	0.12	0.30	0.30	0.06	0.29	0.18	0.87	0.07	0.40	0.15	0.29	0.31
d, Delay for Lane Group [s/veh]	9.39	14.16	14.17	9.41	15.80	14.88	54.23	38.96	42.08	32.53	50.89	51.07
Lane Group LOS	A	B	B	A	B	B	D	D	D	C	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.26	4.08	4.03	0.28	3.68	1.96	5.98	0.52	2.92	1.48	1.31	1.22
50th-Percentile Queue Length [ft/ln]	31.42	101.96	100.76	6.93	92.05	49.11	149.39	13.08	72.98	36.95	32.67	30.51
95th-Percentile Queue Length [veh/ln]	2.26	7.34	7.25	0.50	6.63	3.54	9.98	0.94	5.25	2.66	2.35	2.20
95th-Percentile Queue Length [ft/ln]	56.56	183.53	181.36	12.47	165.70	88.40	249.61	23.55	131.37	66.50	58.80	54.91

Movement, Approach, & Intersection Results

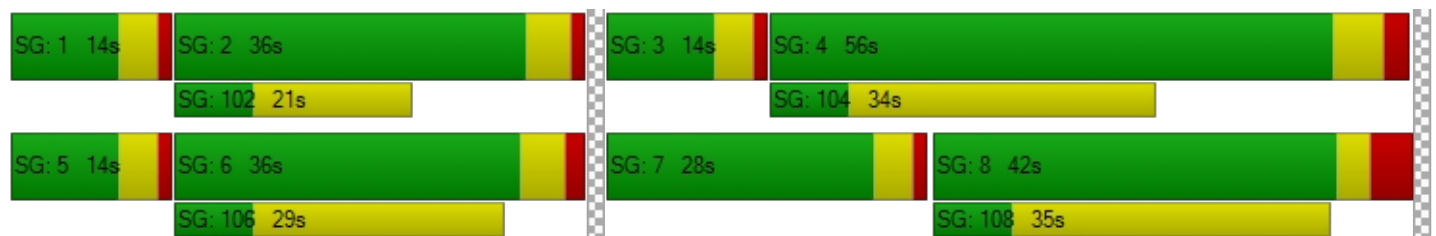
d_M, Delay for Movement [s/veh]	9.39	14.16	14.17	9.41	15.80	14.88	54.23	38.96	42.08	32.53	50.89	51.04
Movement LOS	A	B	B	A	B	B	D	D	D	C	D	D
d_A, Approach Delay [s/veh]	13.34			15.33			51.00			43.07		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	26.00											
Intersection LOS	C											
Intersection V/C	0.357											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
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			10716.32			10996.80		
d_p, Pedestrian Delay [s]	49.50			49.50			49.50			49.50		
I_p,int, Pedestrian LOS Score for Intersection	2.701			2.835			2.747			2.371		
Crosswalk LOS	B			C			B			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	517			508			825			592		
d_b, Bicycle Delay [s]	33.00			33.38			20.71			29.75		
I_b,int, Bicycle LOS Score for Intersection	0.851			0.822			2.439			1.814		
Bicycle LOS	A			A			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 2: Gibson Blvd and Barbados Ave

Control Type:	Two-way stop	Delay (sec / veh):	16.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.034

Intersection Setup

Name	Stampede Dr			Barbados Ave			Gibson Blvd			Gibson Blvd		
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 Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	25.00			30.00			40.00			40.00		
Grade [%]	0.00			0.00			-2.00			2.00		
Crosswalk	No			No			No			No		

Volumes

Name	Stampede Dr			Barbados Ave			Gibson Blvd			Gibson Blvd		
Base Volume Input [veh/h]	8	18	6	46	10	6	10	223	4	3	96	10
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
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	7	0	84	5	32	41	14	0	0	5	106
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
Total Hourly Volume [veh/h]	8	26	6	132	15	38	51	246	4	3	105	116
Peak Hour Factor	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320	0.9320
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]	2	7	2	35	4	10	14	66	1	1	28	31
Total Analysis Volume [veh/h]	9	28	6	142	16	41	55	264	4	3	113	124
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.06	0.01	0.27	0.03	0.04	0.03	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.35	14.51	9.73	15.98	16.72	12.48	7.45	0.00	0.00	8.16	0.00	0.00
Movement LOS	B	B	A	C	C	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.29	0.29	0.29	1.58	1.58	1.58	0.10	0.00	0.00	0.01	0.00	0.00
95th-Percentile Queue Length [ft/ln]	7.13	7.13	7.13	39.46	39.46	39.46	2.60	0.00	0.00	0.20	0.00	0.00
d_A, Approach Delay [s/veh]	13.56			15.32			1.26			0.11		
Approach LOS	B			C			A			A		
d_I, Intersection Delay [s/veh]	5.04											
Intersection LOS	C											

Intersection Level Of Service Report

Intersection 3: Gibson Blvd and 98th St

Control Type: Signalized
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 20.1
 Level Of Service: C
 Volume to Capacity (v/c): 0.303

Intersection Setup

Name	98 St			98 St			Gibson Blvd			Gibson Blvd		
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 Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	280.00	100.00	170.00	360.00	100.00	140.00	420.00	100.00	180.00	320.00	100.00	160.00
Speed [mph]	35.00			35.00			40.00			40.00		
Grade [%]	1.00			-1.00			-2.00			2.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	98 St			98 St			Gibson Blvd			Gibson Blvd		
Base Volume Input [veh/h]	20	470	67	15	393	39	190	152	32	27	61	23
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
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	15	13	1	4	11	27	0	11	16	10
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	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	491	85	29	410	45	209	185	33	39	79	34
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
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]	6	144	25	9	121	13	61	54	10	11	23	10
Total Analysis Volume [veh/h]	25	578	100	34	482	53	246	218	39	46	93	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	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	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	Yes
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
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	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	3	12	0	3	12	0	3	12	0	3	12	0
Maximum Green [s]	16	36	0	16	36	0	16	24	0	16	24	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.0	0.0
All red [s]	1.5	2.0	0.0	1.5	2.0	0.0	1.5	2.0	0.0	1.5	2.0	0.0
Split [s]	8	47	0	8	47	0	21	36	0	9	24	0
Vehicle Extension [s]	1.5	4.0	0.0	1.5	4.0	0.0	1.5	4.0	0.0	1.5	4.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	28	0	0	28	0	0	36	0	0	36	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]	3.0	4.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		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]	40.0	0.0	0.0	40.0	0.0	0.0	40.0	40.0	0.0	40.0	40.0	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]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
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	4.00	4.00	0.00	4.00	4.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	59	52	52	59	52	52	29	22	22	29	12	12
g / C, Green / Cycle	0.59	0.52	0.52	0.59	0.52	0.52	0.29	0.22	0.22	0.29	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.02	0.16	0.06	0.03	0.13	0.03	0.15	0.06	0.02	0.03	0.03	0.02
s, saturation flow rate [veh/h]	912	3137	1400	878	3205	1431	1411	3205	1431	1128	3070	1370
c, Capacity [veh/h]	573	1629	727	541	1674	747	495	700	313	389	356	159
d1, Uniform Delay [s]	8.98	13.71	12.31	9.20	13.08	11.77	28.68	32.41	31.26	25.67	40.12	40.08
k, delay calibration	0.50	0.50	0.50	0.04	0.50	0.50	0.15	0.15	0.15	0.04	0.15	0.15
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]	0.12	0.48	0.33	0.02	0.35	0.15	0.82	0.28	0.21	0.04	0.45	0.95
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	0.04	0.30	0.12	0.05	0.24	0.06	0.42	0.26	0.11	0.10	0.22	0.21
d, Delay for Lane Group [s/veh]	9.10	14.18	12.64	9.21	13.43	11.93	29.49	32.69	31.46	25.71	40.57	41.03
Lane Group LOS	A	B	B	A	B	B	C	C	C	C	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.20	3.09	0.99	0.25	2.47	0.50	4.03	1.83	0.64	0.66	0.88	0.78
50th-Percentile Queue Length [ft/ln]	4.94	77.16	24.81	6.24	61.63	12.58	100.63	45.79	15.97	16.40	22.08	19.56
95th-Percentile Queue Length [veh/ln]	0.36	5.56	1.79	0.45	4.44	0.91	7.25	3.30	1.15	1.18	1.59	1.41
95th-Percentile Queue Length [ft/ln]	8.88	138.89	44.65	11.24	110.93	22.65	181.14	82.43	28.75	29.52	39.74	35.21

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	9.10	14.18	12.64	9.21	13.43	11.93	29.49	32.69	31.46	25.71	40.57	41.03
Movement LOS	A	B	B	A	B	B	C	C	C	C	D	D
d_A, Approach Delay [s/veh]	13.78			13.03			31.03			36.86		
Approach LOS	B			B			C			D		
d_I, Intersection Delay [s/veh]	20.12											
Intersection LOS	C											
Intersection V/C	0.303											

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]	820			820			600			360		
d_b, Bicycle Delay [s]	17.41			17.41			24.50			33.62		
I_b,int, Bicycle LOS Score for Intersection	2.052			1.959			1.912			1.685		
Bicycle LOS	B			A			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: Blake Rd and 98th St

Control Type: Signalized
Analysis Method: HCM 6th Edition
Analysis Period: 1 hour

Delay (sec / veh): 19.1
Level Of Service: B
Volume to Capacity (v/c): 0.331

Intersection Setup

Name	98th St			98 St			Blake Rd			Blake Rd		
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	15.00	15.00	12.00	18.00	18.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	110.00	100.00	125.00	415.00	100.00	100.00	200.00	100.00	100.00	210.00	100.00	100.00
Speed [mph]	30.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			-2.50			2.50		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	98th St			98 St			Blake Rd			Blake Rd		
Base Volume Input [veh/h]	44	408	115	72	449	4	19	72	108	85	30	74
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
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	7	0	2	5	2	4	8	9	0	3	2
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	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	431	120	77	472	6	24	83	121	88	34	79
Peak Hour Factor	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330
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]	13	115	32	21	126	2	6	22	32	24	9	21
Total Analysis Volume [veh/h]	53	462	129	83	506	6	26	89	130	94	36	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			1			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			1		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	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	Yes
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	39.0
Offset Reference	LeadGreen
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	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	3	12	0	3	12	0	3	12	0	3	12	0
Maximum Green [s]	16	36	0	16	36	0	16	24	0	16	24	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.0	0.0
All red [s]	1.5	2.0	0.0	1.5	2.0	0.0	1.5	2.0	0.0	1.5	2.0	0.0
Split [s]	8	35	0	8	35	0	8	49	0	8	49	0
Vehicle Extension [s]	1.5	3.0	0.0	1.5	3.0	0.0	1.5	3.0	0.0	1.5	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	5	0
Pedestrian Clearance [s]	0	12	0	0	18	0	0	36	0	0	30	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]	3.0	4.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		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]	40.0	0.0	0.0	40.0	0.0	0.0	40.0	40.0	0.0	40.0	40.0	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	C	L	C	L	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
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	4.00	4.00	0.00	4.00	4.00	0.00	4.00	0.00	4.00
g_i, Effective Green Time [s]	65	57	57	65	57	57	23	15	23	17
g / C, Green / Cycle	0.65	0.57	0.57	0.65	0.57	0.57	0.23	0.15	0.23	0.17
(v / s)_i Volume / Saturation Flow Rate	0.06	0.13	0.08	0.08	0.14	0.14	0.02	0.13	0.08	0.08
s, saturation flow rate [veh/h]	889	3204	1431	930	1683	1676	1239	1584	1136	1474
c, Capacity [veh/h]	613	1815	810	641	964	960	321	243	250	248
d1, Uniform Delay [s]	6.78	10.86	10.26	6.88	10.63	10.63	30.01	41.11	31.93	37.47
k, delay calibration	0.50	0.50	0.50	0.04	0.50	0.50	0.11	0.11	0.04	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
d2, Incremental Delay [s]	0.25	0.31	0.39	0.03	0.62	0.62	0.10	8.04	0.31	1.31
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	0.08	0.24	0.15	0.12	0.25	0.25	0.07	0.84	0.35	0.46
d, Delay for Lane Group [s/veh]	7.04	11.17	10.65	6.91	11.25	11.25	30.11	49.14	32.24	38.78
Lane Group LOS	A	B	B	A	B	B	C	D	C	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.39	2.36	1.29	0.55	2.60	2.60	0.45	5.32	1.72	2.54
50th-Percentile Queue Length [ft/ln]	9.84	58.90	32.14	13.69	65.10	64.90	11.30	133.06	43.02	63.47
95th-Percentile Queue Length [veh/ln]	0.71	4.24	2.31	0.99	4.69	4.67	0.81	9.11	3.10	4.57
95th-Percentile Queue Length [ft/ln]	17.71	106.03	57.85	24.64	117.19	116.81	20.34	227.65	77.43	114.24

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.04	11.17	10.65	6.91	11.25	11.25	30.11	49.14	49.14	32.24	38.78	38.78
Movement LOS	A	B	B	A	B	B	C	D	D	C	D	D
d_A, Approach Delay [s/veh]	10.73			10.65			47.14			35.92		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	19.14											
Intersection LOS	B											
Intersection V/C	0.331											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			9.0			11.0			11.0		
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			10784.43			0.00			0.00		
d_p, Pedestrian Delay [s]	39.61			41.41			39.61			39.61		
I_p,int, Pedestrian LOS Score for Intersection	2.688			2.561			2.107			2.192		
Crosswalk LOS	B			B			B			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	580			580			860			860		
d_b, Bicycle Delay [s]	25.21			25.21			16.25			16.25		
I_b,int, Bicycle LOS Score for Intersection	2.055			2.017			1.936			1.891		
Bicycle LOS	B			B			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 5: 86th St and 98th St

Control Type: All-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 45.7
 Level Of Service: E
 Volume to Capacity (v/c): 0.895

Intersection Setup

Name	98 St			98 St			De Anza Dr SW			86th St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	12.00	12.00	20.00	20.00	20.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	220.00	100.00	120.00	125.00	100.00	110.00	100.00	100.00	100.00	350.00	100.00	100.00
Speed [mph]	35.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			-2.00			2.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	98 St			98 St			De Anza Dr SW			86th St		
Base Volume Input [veh/h]	3	700	19	9	357	78	309	14	11	38	15	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
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	22	0	36	17	0	0	3	1	0	3	29
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
Total Hourly Volume [veh/h]	3	750	20	45	388	81	321	18	12	40	19	82
Peak Hour Factor	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330
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]	1	201	5	12	104	22	86	5	3	11	5	22
Total Analysis Volume [veh/h]	3	804	21	48	416	87	344	19	13	43	20	88
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	395	419	419	458	357	378	378	411	419	353	393
Degree of Utilization, x	0.01	0.90	0.90	0.04	0.13	0.51	0.51	0.20	0.84	0.11	0.26

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.02	15.15	15.15	0.14	0.43	3.06	3.06	0.73	11.51	0.38	1.03
95th-Percentile Queue Length [ft]	0.57	378.8	378.8	3.42	10.78	76.60	76.60	18.34	287.82	9.56	25.75
Approach Delay [s/veh]	66.07				20.13				50.46	14.78	
Approach LOS	F				C				F	B	
Intersection Delay [s/veh]	45.65										
Intersection LOS	E										

Intersection Level Of Service Report**Intersection 9: Barbados Ave and South Solare Parent Driveway**

Control Type:	Two-way stop	Delay (sec / veh):	13.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.027

Intersection Setup

Name	Barbados Ave			Barbados Ave			Ba Av			Ba Av		
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 Pocket	0	0	0	0	0	0	0	0	0	0	0	0
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
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Barbados Ave			Barbados Ave			Ba Av			Ba Av		
Base Volume Input [veh/h]	0	0	0	0	50	0	0	0	0	12	0	0
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	154	0	0	0	0	0	0	2	121	0	2	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
Total Hourly Volume [veh/h]	154	0	0	0	50	0	0	2	121	12	2	0
Peak Hour 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
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	0	0	0	13	0	0	1	30	3	1	0
Total Analysis Volume [veh/h]	154	0	0	0	50	0	0	2	121	12	2	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.03	0.00	0.00
d_M, Delay for Movement [s/veh]	7.57	0.00	0.00	7.22	0.00	0.00	12.05	12.53	9.04	13.40	12.29	8.57
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.33	0.33	0.33	0.00	0.00	0.00	0.42	0.42	0.42	0.10	0.10	0.10
95th-Percentile Queue Length [ft/ln]	8.23	8.23	8.23	0.00	0.00	0.00	10.48	10.48	10.48	2.40	2.40	2.40
d_A, Approach Delay [s/veh]	7.57			0.00			9.09			13.24		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	7.24											
Intersection LOS	B											

Intersection Level Of Service Report**Intersection 10: Barbados Ave and North Solare Parent Driveway**

Control Type:	Two-way stop	Delay (sec / veh):	9.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.049

Intersection Setup

Name	Barbados Ave		North Parent Driveway		Barbados Ave	
Approach	Northbound		Eastbound		Southeastbound	
Lane Configuration						
Turning Movement	Left	Thru	Left	Right	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Barbados Ave		North Parent Driveway		Barbados Ave	
Base Volume Input [veh/h]	0	0	0	0	50	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 Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	45	0	0	56
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	0	0	0	0
Total Hourly Volume [veh/h]	0	0	45	0	50	56
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	11	0	13	14
Total Analysis Volume [veh/h]	0	0	45	0	50	56
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Stop	Free
Flared Lane		No	
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	0.00	0.05	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.42	0.00	9.09	8.86	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.15	0.15	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	3.83	3.83	0.00	0.00
d_A, Approach Delay [s/veh]	3.71		9.09		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.71					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 11: New Intersection

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 8.9
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name	Barbados Ave Driveway North		Gibson Blvd		Gibson Blvd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		-2.00		2.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Barbados Ave Driveway North		Gibson Blvd		Gibson Blvd	
Base Volume Input [veh/h]	0	0	0	0	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 Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	55	37	0
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	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	55	37	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	14	9	0
Total Analysis Volume [veh/h]	0	0	0	55	37	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.86	8.41	7.24	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.63		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 12: New Intersection

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 8.7
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name	98th St (Snow Vista Blvd SW)		98th St (Snow Vista Blvd SW)		Diamond Mesa	
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 Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	140.00	150.00	100.00	100.00	100.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	1.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	98th St (Snow Vista Blvd SW)		98th St (Snow Vista Blvd SW)		Diamond Mesa	
Base Volume Input [veh/h]	0	0	0	0	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 Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	0	3	9	0	4
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	0	0	0	0
Total Hourly Volume [veh/h]	13	0	3	9	0	4
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	0	1	2	0	1
Total Analysis Volume [veh/h]	13	0	3	9	0	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
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	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.25	0.00	8.66	8.36
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.01	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.14	0.00	0.28	0.28
d_A, Approach Delay [s/veh]	0.00		1.81		8.36	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.90					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 13: New Intersection

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 9.4
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name	Blake Rd						Gibson Blvd			Gibson Blvd		
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 Pocket	0	0	0	0	0	0	0	0	0	0	0	0
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
Speed [mph]	30.00			30.00			40.00			30.00		
Grade [%]	0.00			0.00			-2.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Blake Rd						Gibson Blvd			Gibson Blvd		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	23	0	0	0	0	15	0	9	12	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
Total Hourly Volume [veh/h]	0	0	23	0	0	0	0	15	0	9	12	0
Peak Hour 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
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]	0	0	6	0	0	0	0	4	0	2	3	0
Total Analysis Volume [veh/h]	0	0	23	0	0	0	0	15	0	9	12	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	8.84	9.35	8.43	8.84	9.28	8.35	7.23	0.00	0.00	7.26	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.07	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00
95th-Percentile Queue Length [ft/ln]	1.64	1.64	1.64	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.25	0.00
d_A, Approach Delay [s/veh]	8.43			8.82			0.00			3.11		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	4.39											
Intersection LOS	A											

Intersection Level Of Service Report Intersection 15: New Intersection

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 1 hour

Delay (sec / veh): 9.3
Level Of Service: A
Volume to Capacity (v/c): 0.000

Intersection Setup

Name							Blake Rd			Blake Rd		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
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 Pocket	0	0	0	0	0	0	0	0	0	0	0	0
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
Speed [mph]	30.00			30.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			-2.50		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name							Blake Rd			Blake Rd		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	21	0	23	0	0	8	9	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
Total Hourly Volume [veh/h]	0	0	0	21	0	23	0	0	8	9	0	0
Peak Hour 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
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]	0	0	0	5	0	6	0	0	2	2	0	0
Total Analysis Volume [veh/h]	0	0	0	21	0	23	0	0	8	9	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	8.79	9.17	8.32	8.81	9.31	8.49	7.22	0.00	0.00	7.23	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.13	0.13	0.13	0.00	0.00	0.00	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.42	0.42	0.42
d_A, Approach Delay [s/veh]	8.76			8.64			0.00			7.23		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	7.30											
Intersection LOS	A											

Signal Warrants Report For Intersection 2: Gibson Blvd and Barbados Ave

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	224	301	40	185
2	215	289	38	178
3	211	283	38	174
4	179	241	32	148
5	170	229	30	141
6	152	205	27	126
7	141	190	25	117
8	134	181	24	111
9	108	144	19	89
10	101	135	18	83
11	101	135	18	83
12	96	129	17	80
13	87	117	16	72
14	81	108	14	67
15	81	108	14	67
16	78	105	14	65
17	45	60	8	37
18	25	33	4	20
19	22	30	4	19
20	9	12	2	7
21	7	9	1	6
22	7	9	1	6
23	4	6	1	4
24	4	6	1	4

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	525	2	225	No	Yes	Yes	Yes	No	No	No	Yes	No	No
2	6	504	2	216	No	Yes	Yes	Yes	No	No	No	Yes	No	No
3	6	494	2	212	No	Yes	Yes	Yes	No	No	No	No	No	No
4	6	420	2	180	No	No	Yes	Yes	No	No	No	No	No	No
5	6	399	2	171	No	No	No	Yes	No	No	No	No	No	No
6	6	357	2	153	No	No	No	Yes	No	No	No	No	No	No
7	6	331	2	142	No	No	No	No	No	No	No	No	No	No
8	6	315	2	135	No	No	No	No	No	No	No	No	No	No
9	6	252	2	108	No	No	No	No	No	No	No	No	No	No
10	6	236	2	101	No	No	No	No	No	No	No	No	No	No
11	6	236	2	101	No	No	No	No	No	No	No	No	No	No
12	6	225	2	97	No	No	No	No	No	No	No	No	No	No
13	6	204	2	88	No	No	No	No	No	No	No	No	No	No
14	6	189	2	81	No	No	No	No	No	No	No	No	No	No
15	6	189	2	81	No	No	No	No	No	No	No	No	No	No
16	6	183	2	79	No	No	No	No	No	No	No	No	No	No
17	6	105	2	45	No	No	No	No	No	No	No	No	No	No
18	6	58	2	24	No	No	No	No	No	No	No	No	No	No
19	6	52	2	23	No	No	No	No	No	No	No	No	No	No
20	6	21	2	9	No	No	No	No	No	No	No	No	No	No
21	6	16	2	7	No	No	No	No	No	No	No	No	No	No
22	6	16	2	7	No	No	No	No	No	No	No	No	No	No
23	6	10	2	5	No	No	No	No	No	No	No	No	No	No
24	6	10	2	5	No	No	No	No	No	No	No	No	No	No
Hours Met					0	3	4	6	0	0	0	2	0	0

Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	13.6	15.3
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:09	0:47
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	40	185
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	750	750
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 5: 86th St and 98th St

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	773	514	141	351
2	742	493	135	337
3	727	483	133	330
4	618	411	113	281
5	587	391	107	267
6	526	350	96	239
7	487	324	89	221
8	464	308	85	211
9	371	247	68	168
10	348	231	63	158
11	348	231	63	158
12	332	221	61	151
13	301	200	55	137
14	278	185	51	126
15	278	185	51	126
16	271	180	49	123
17	155	103	28	70
18	85	57	16	39
19	77	51	14	35
20	31	21	6	14
21	23	15	4	11
22	23	15	4	11
23	15	10	3	7
24	15	10	3	7

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	8	1287	3	492	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	8	1235	3	472	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	8	1210	3	463	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	8	1029	3	394	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	8	978	3	374	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
6	8	876	3	335	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
7	8	811	3	310	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
8	8	772	3	296	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
9	8	618	3	236	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No
10	8	579	3	221	No	Yes	Yes	Yes	No	No	No	Yes	No	No
11	8	579	3	221	No	Yes	Yes	Yes	No	No	No	Yes	No	No
12	8	553	3	212	No	Yes	Yes	Yes	No	No	No	Yes	No	No
13	8	501	3	192	No	Yes	Yes	Yes	No	No	No	No	No	No
14	8	463	3	177	No	No	Yes	Yes	No	No	No	No	No	No
15	8	463	3	177	No	No	Yes	Yes	No	No	No	No	No	No
16	8	451	3	172	No	No	Yes	Yes	No	No	No	No	No	No
17	8	258	3	98	No	No	No	No	No	No	No	No	No	No
18	8	142	3	55	No	No	No	No	No	No	No	No	No	No
19	8	128	3	49	No	No	No	No	No	No	No	No	No	No
20	8	52	3	20	No	No	No	No	No	No	No	No	No	No
21	8	38	3	15	No	No	No	No	No	No	No	No	No	No
22	8	38	3	15	No	No	No	No	No	No	No	No	No	No
23	8	25	3	10	No	No	No	No	No	No	No	No	No	No
24	8	25	3	10	No	No	No	No	No	No	No	No	No	No
Hours Met					9	13	16	16	5	8	8	12	7	4

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	14.8	50.5
Number of Lanes on Minor Street Approach	2	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:34	4:55
Delay Condition Met	No	Yes
Volume on Minor Street Approach During Same Hour	141	351
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	1779	1779
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	Yes
Warrant Met for Intersection	Yes	

Signal Warrants Report For Intersection 9: Barbados Ave and South Solare Parent Driveway

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	154	50	14	123
2	148	48	13	118
3	145	47	13	116
4	123	40	11	98
5	117	38	11	93
6	105	34	10	84
7	97	32	9	77
8	92	30	8	74
9	74	24	7	59
10	69	23	6	55
11	69	23	6	55
12	66	22	6	53
13	60	20	5	48
14	55	18	5	44
15	55	18	5	44
16	54	18	5	43
17	31	10	3	25
18	17	6	2	14
19	15	5	1	12
20	6	2	1	5
21	5	2	0	4
22	5	2	0	4
23	3	1	0	2
24	3	1	0	2

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	204	2	137	No	No	No	No	No	No	No	No	No	No
2	2	196	2	131	No	No	No	No	No	No	No	No	No	No
3	2	192	2	129	No	No	No	No	No	No	No	No	No	No
4	2	163	2	109	No	No	No	No	No	No	No	No	No	No
5	2	155	2	104	No	No	No	No	No	No	No	No	No	No
6	2	139	2	94	No	No	No	No	No	No	No	No	No	No
7	2	129	2	86	No	No	No	No	No	No	No	No	No	No
8	2	122	2	82	No	No	No	No	No	No	No	No	No	No
9	2	98	2	66	No	No	No	No	No	No	No	No	No	No
10	2	92	2	61	No	No	No	No	No	No	No	No	No	No
11	2	92	2	61	No	No	No	No	No	No	No	No	No	No
12	2	88	2	59	No	No	No	No	No	No	No	No	No	No
13	2	80	2	53	No	No	No	No	No	No	No	No	No	No
14	2	73	2	49	No	No	No	No	No	No	No	No	No	No
15	2	73	2	49	No	No	No	No	No	No	No	No	No	No
16	2	72	2	48	No	No	No	No	No	No	No	No	No	No
17	2	41	2	28	No	No	No	No	No	No	No	No	No	No
18	2	23	2	16	No	No	No	No	No	No	No	No	No	No
19	2	20	2	13	No	No	No	No	No	No	No	No	No	No
20	2	8	2	6	No	No	No	No	No	No	No	No	No	No
21	2	7	2	4	No	No	No	No	No	No	No	No	No	No
22	2	7	2	4	No	No	No	No	No	No	No	No	No	No
23	2	4	2	2	No	No	No	No	No	No	No	No	No	No
24	2	4	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	13.2	9.1
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:03	0:18
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	14	123
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	341	341
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 10: Barbados Ave and North Solare Parent Driveway

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, NW
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	NW	W
1	0	106	45
2	0	102	43
3	0	100	42
4	0	85	36
5	0	81	34
6	0	72	31
7	0	67	28
8	0	64	27
9	0	51	22
10	0	48	20
11	0	48	20
12	0	46	19
13	0	41	18
14	0	38	16
15	0	38	16
16	0	37	16
17	0	21	9
18	0	12	5
19	0	11	5
20	0	4	2
21	0	3	1
22	0	3	1
23	0	2	1
24	0	2	1

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	106	1	45	No	No	No	No	No	No	No	No	No	No
2	2	102	1	43	No	No	No	No	No	No	No	No	No	No
3	2	100	1	42	No	No	No	No	No	No	No	No	No	No
4	2	85	1	36	No	No	No	No	No	No	No	No	No	No
5	2	81	1	34	No	No	No	No	No	No	No	No	No	No
6	2	72	1	31	No	No	No	No	No	No	No	No	No	No
7	2	67	1	28	No	No	No	No	No	No	No	No	No	No
8	2	64	1	27	No	No	No	No	No	No	No	No	No	No
9	2	51	1	22	No	No	No	No	No	No	No	No	No	No
10	2	48	1	20	No	No	No	No	No	No	No	No	No	No
11	2	48	1	20	No	No	No	No	No	No	No	No	No	No
12	2	46	1	19	No	No	No	No	No	No	No	No	No	No
13	2	41	1	18	No	No	No	No	No	No	No	No	No	No
14	2	38	1	16	No	No	No	No	No	No	No	No	No	No
15	2	38	1	16	No	No	No	No	No	No	No	No	No	No
16	2	37	1	16	No	No	No	No	No	No	No	No	No	No
17	2	21	1	9	No	No	No	No	No	No	No	No	No	No
18	2	12	1	5	No	No	No	No	No	No	No	No	No	No
19	2	11	1	5	No	No	No	No	No	No	No	No	No	No
20	2	4	1	2	No	No	No	No	No	No	No	No	No	No
21	2	3	1	1	No	No	No	No	No	No	No	No	No	No
22	2	3	1	1	No	No	No	No	No	No	No	No	No	No
23	2	2	1	1	No	No	No	No	No	No	No	No	No	No
24	2	2	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.1
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:06
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	45
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	151
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

Signal Warrants Report For Intersection 11: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	37	55	0
2	36	53	0
3	35	52	0
4	30	44	0
5	28	42	0
6	25	37	0
7	23	35	0
8	22	33	0
9	18	26	0
10	17	25	0
11	17	25	0
12	16	24	0
13	14	21	0
14	13	20	0
15	13	20	0
16	13	19	0
17	7	11	0
18	4	6	0
19	4	6	0
20	1	2	0
21	1	2	0
22	1	2	0
23	1	1	0
24	1	1	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	5	92	1	0	No	No	No	No	No	No	No	No	No	No
2	5	89	1	0	No	No	No	No	No	No	No	No	No	No
3	5	87	1	0	No	No	No	No	No	No	No	No	No	No
4	5	74	1	0	No	No	No	No	No	No	No	No	No	No
5	5	70	1	0	No	No	No	No	No	No	No	No	No	No
6	5	62	1	0	No	No	No	No	No	No	No	No	No	No
7	5	58	1	0	No	No	No	No	No	No	No	No	No	No
8	5	55	1	0	No	No	No	No	No	No	No	No	No	No
9	5	44	1	0	No	No	No	No	No	No	No	No	No	No
10	5	42	1	0	No	No	No	No	No	No	No	No	No	No
11	5	42	1	0	No	No	No	No	No	No	No	No	No	No
12	5	40	1	0	No	No	No	No	No	No	No	No	No	No
13	5	35	1	0	No	No	No	No	No	No	No	No	No	No
14	5	33	1	0	No	No	No	No	No	No	No	No	No	No
15	5	33	1	0	No	No	No	No	No	No	No	No	No	No
16	5	32	1	0	No	No	No	No	No	No	No	No	No	No
17	5	18	1	0	No	No	No	No	No	No	No	No	No	No
18	5	10	1	0	No	No	No	No	No	No	No	No	No	No
19	5	10	1	0	No	No	No	No	No	No	No	No	No	No
20	5	3	1	0	No	No	No	No	No	No	No	No	No	No
21	5	3	1	0	No	No	No	No	No	No	No	No	No	No
22	5	3	1	0	No	No	No	No	No	No	No	No	No	No
23	5	2	1	0	No	No	No	No	No	No	No	No	No	No
24	5	2	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.6
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	0
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	92
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

Signal Warrants Report For Intersection 12: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	N	E
1	13	12	4
2	12	12	4
3	12	11	4
4	10	10	3
5	10	9	3
6	9	8	3
7	8	8	3
8	8	7	2
9	6	6	2
10	6	5	2
11	6	5	2
12	6	5	2
13	5	5	2
14	5	4	1
15	5	4	1
16	5	4	1
17	3	2	1
18	1	1	0
19	1	1	0
20	1	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	25	1	4	No	No	No	No	No	No	No	No	No	No
2	6	24	1	4	No	No	No	No	No	No	No	No	No	No
3	6	23	1	4	No	No	No	No	No	No	No	No	No	No
4	6	20	1	3	No	No	No	No	No	No	No	No	No	No
5	6	19	1	3	No	No	No	No	No	No	No	No	No	No
6	6	17	1	3	No	No	No	No	No	No	No	No	No	No
7	6	16	1	3	No	No	No	No	No	No	No	No	No	No
8	6	15	1	2	No	No	No	No	No	No	No	No	No	No
9	6	12	1	2	No	No	No	No	No	No	No	No	No	No
10	6	11	1	2	No	No	No	No	No	No	No	No	No	No
11	6	11	1	2	No	No	No	No	No	No	No	No	No	No
12	6	11	1	2	No	No	No	No	No	No	No	No	No	No
13	6	10	1	2	No	No	No	No	No	No	No	No	No	No
14	6	9	1	1	No	No	No	No	No	No	No	No	No	No
15	6	9	1	1	No	No	No	No	No	No	No	No	No	No
16	6	9	1	1	No	No	No	No	No	No	No	No	No	No
17	6	5	1	1	No	No	No	No	No	No	No	No	No	No
18	6	2	1	0	No	No	No	No	No	No	No	No	No	No
19	6	2	1	0	No	No	No	No	No	No	No	No	No	No
20	6	1	1	0	No	No	No	No	No	No	No	No	No	No
21	6	0	1	0	No	No	No	No	No	No	No	No	No	No
22	6	0	1	0	No	No	No	No	No	No	No	No	No	No
23	6	0	1	0	No	No	No	No	No	No	No	No	No	No
24	6	0	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.4
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	4
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	29
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

Signal Warrants Report For Intersection 13: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	21	15	23	0
2	20	14	22	0
3	20	14	22	0
4	17	12	18	0
5	16	11	17	0
6	14	10	16	0
7	13	9	14	0
8	13	9	14	0
9	10	7	11	0
10	9	7	10	0
11	9	7	10	0
12	9	6	10	0
13	8	6	9	0
14	8	5	8	0
15	8	5	8	0
16	7	5	8	0
17	4	3	5	0
18	2	2	3	0
19	2	2	2	0
20	1	1	1	0
21	1	0	1	0
22	1	0	1	0
23	0	0	0	0
24	0	0	0	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	36	2	23	No	No	No	No	No	No	No	No	No	No
2	4	34	2	22	No	No	No	No	No	No	No	No	No	No
3	4	34	2	22	No	No	No	No	No	No	No	No	No	No
4	4	29	2	18	No	No	No	No	No	No	No	No	No	No
5	4	27	2	17	No	No	No	No	No	No	No	No	No	No
6	4	24	2	16	No	No	No	No	No	No	No	No	No	No
7	4	22	2	14	No	No	No	No	No	No	No	No	No	No
8	4	22	2	14	No	No	No	No	No	No	No	No	No	No
9	4	17	2	11	No	No	No	No	No	No	No	No	No	No
10	4	16	2	10	No	No	No	No	No	No	No	No	No	No
11	4	16	2	10	No	No	No	No	No	No	No	No	No	No
12	4	15	2	10	No	No	No	No	No	No	No	No	No	No
13	4	14	2	9	No	No	No	No	No	No	No	No	No	No
14	4	13	2	8	No	No	No	No	No	No	No	No	No	No
15	4	13	2	8	No	No	No	No	No	No	No	No	No	No
16	4	12	2	8	No	No	No	No	No	No	No	No	No	No
17	4	7	2	5	No	No	No	No	No	No	No	No	No	No
18	4	4	2	3	No	No	No	No	No	No	No	No	No	No
19	4	4	2	2	No	No	No	No	No	No	No	No	No	No
20	4	2	2	1	No	No	No	No	No	No	No	No	No	No
21	4	1	2	1	No	No	No	No	No	No	No	No	No	No
22	4	1	2	1	No	No	No	No	No	No	No	No	No	No
23	4	0	2	0	No	No	No	No	No	No	No	No	No	No
24	4	0	2	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.4	8.8
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:03	0:00
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	23	0
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	59	59
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 15: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	SE, NW
Minor Approaches	NE, SW
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	SE	NW	NE	SW
1	8	9	44	0
2	8	9	42	0
3	8	8	41	0
4	6	7	35	0
5	6	7	33	0
6	5	6	30	0
7	5	6	28	0
8	5	5	26	0
9	4	4	21	0
10	4	4	20	0
11	4	4	20	0
12	3	4	19	0
13	3	4	17	0
14	3	3	16	0
15	3	3	16	0
16	3	3	15	0
17	2	2	9	0
18	1	1	5	0
19	1	1	4	0
20	0	0	2	0
21	0	0	1	0
22	0	0	1	0
23	0	0	1	0
24	0	0	1	0

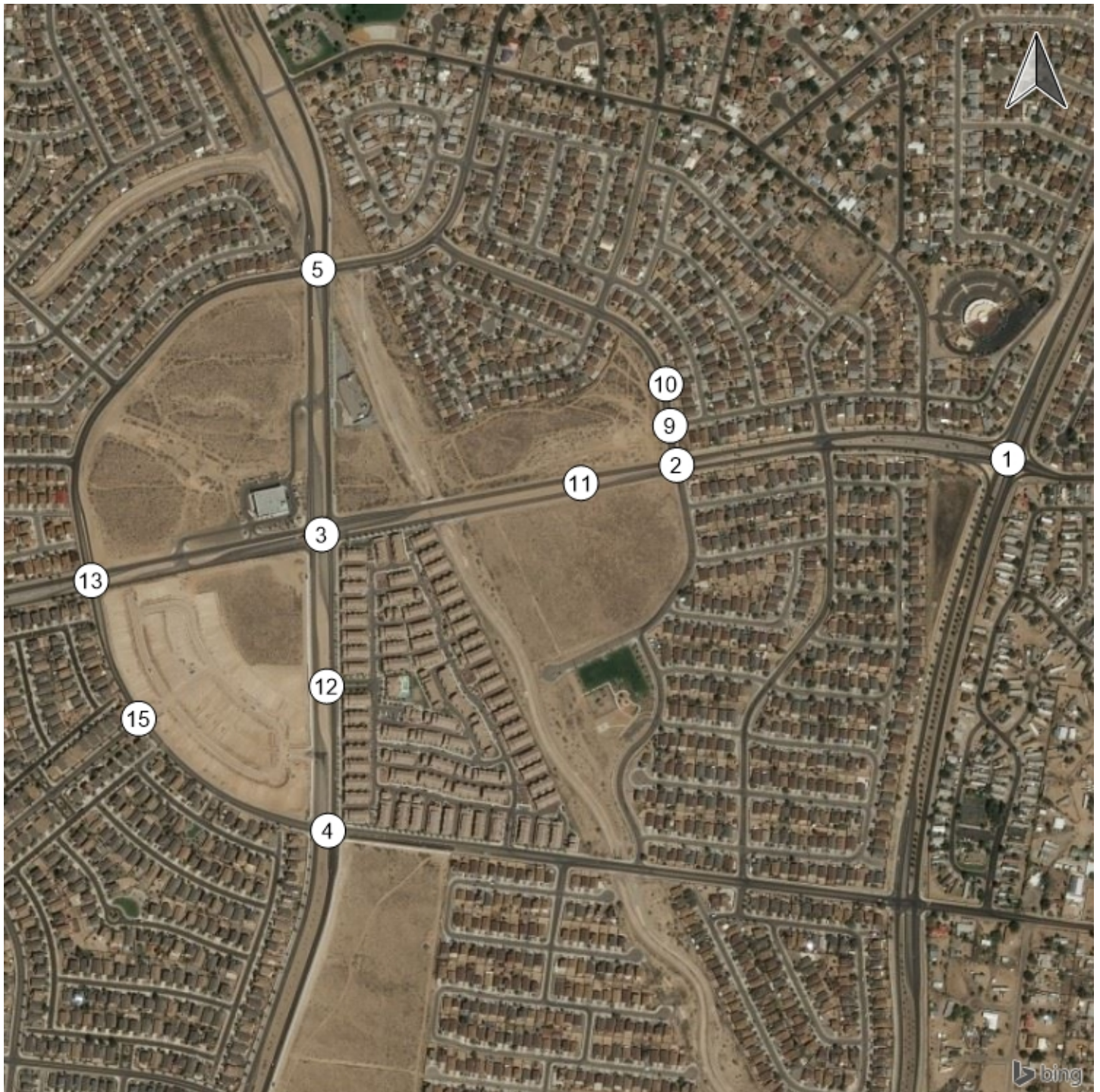
Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	17	2	44	No	No	No	No	No	No	No	No	No	No
2	2	17	2	42	No	No	No	No	No	No	No	No	No	No
3	2	16	2	41	No	No	No	No	No	No	No	No	No	No
4	2	13	2	35	No	No	No	No	No	No	No	No	No	No
5	2	13	2	33	No	No	No	No	No	No	No	No	No	No
6	2	11	2	30	No	No	No	No	No	No	No	No	No	No
7	2	11	2	28	No	No	No	No	No	No	No	No	No	No
8	2	10	2	26	No	No	No	No	No	No	No	No	No	No
9	2	8	2	21	No	No	No	No	No	No	No	No	No	No
10	2	8	2	20	No	No	No	No	No	No	No	No	No	No
11	2	8	2	20	No	No	No	No	No	No	No	No	No	No
12	2	7	2	19	No	No	No	No	No	No	No	No	No	No
13	2	7	2	17	No	No	No	No	No	No	No	No	No	No
14	2	6	2	16	No	No	No	No	No	No	No	No	No	No
15	2	6	2	16	No	No	No	No	No	No	No	No	No	No
16	2	6	2	15	No	No	No	No	No	No	No	No	No	No
17	2	4	2	9	No	No	No	No	No	No	No	No	No	No
18	2	2	2	5	No	No	No	No	No	No	No	No	No	No
19	2	2	2	4	No	No	No	No	No	No	No	No	No	No
20	2	0	2	2	No	No	No	No	No	No	No	No	No	No
21	2	0	2	1	No	No	No	No	No	No	No	No	No	No
22	2	0	2	1	No	No	No	No	No	No	No	No	No	No
23	2	0	2	1	No	No	No	No	No	No	No	No	No	No
24	2	0	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

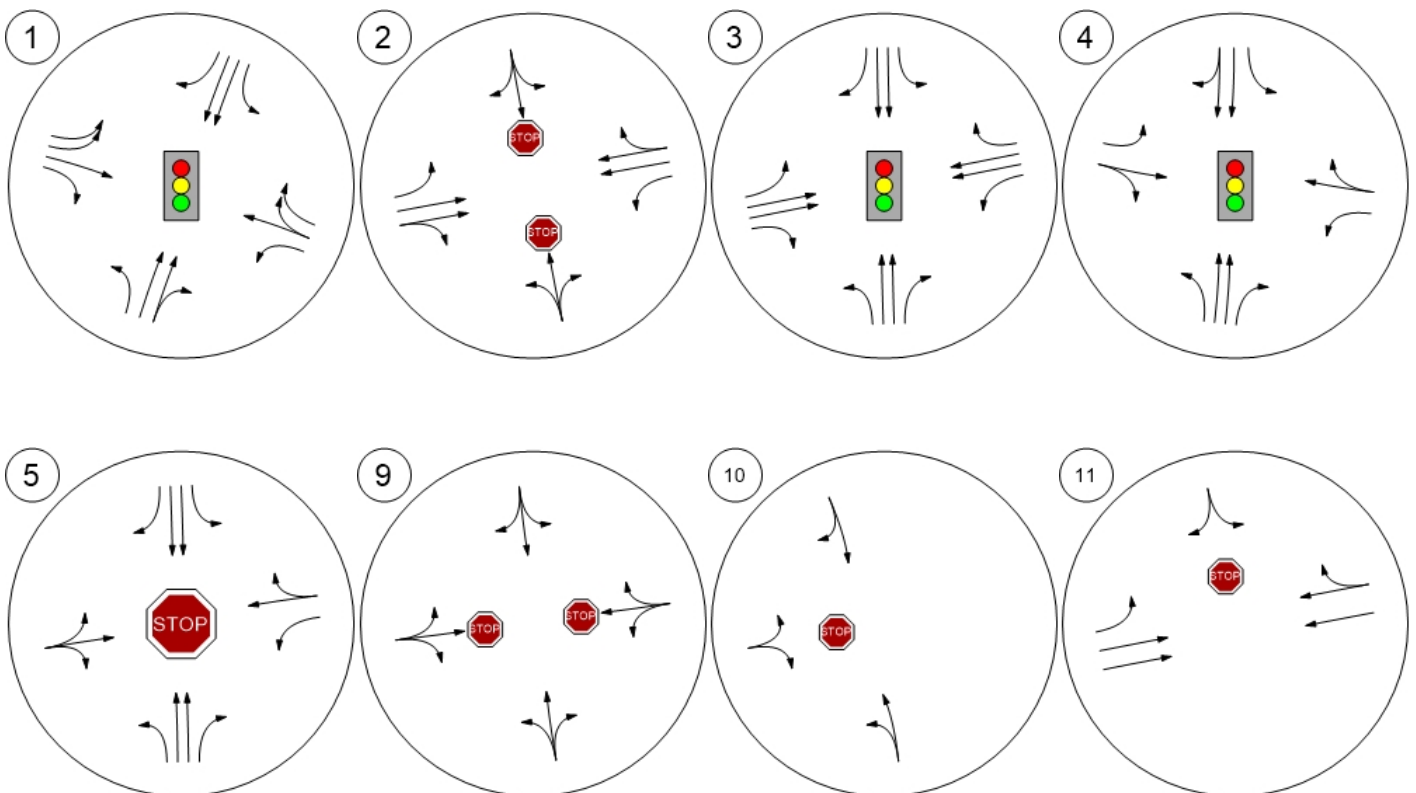
Warrant 3 Condition A

Orientation	NE	SW
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.6	8.8
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:06	0:00
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	44	0
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	61	61
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

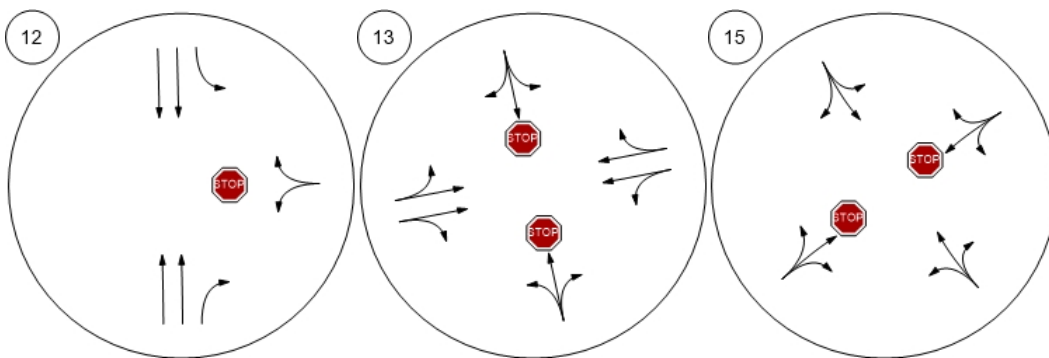
Study Intersections



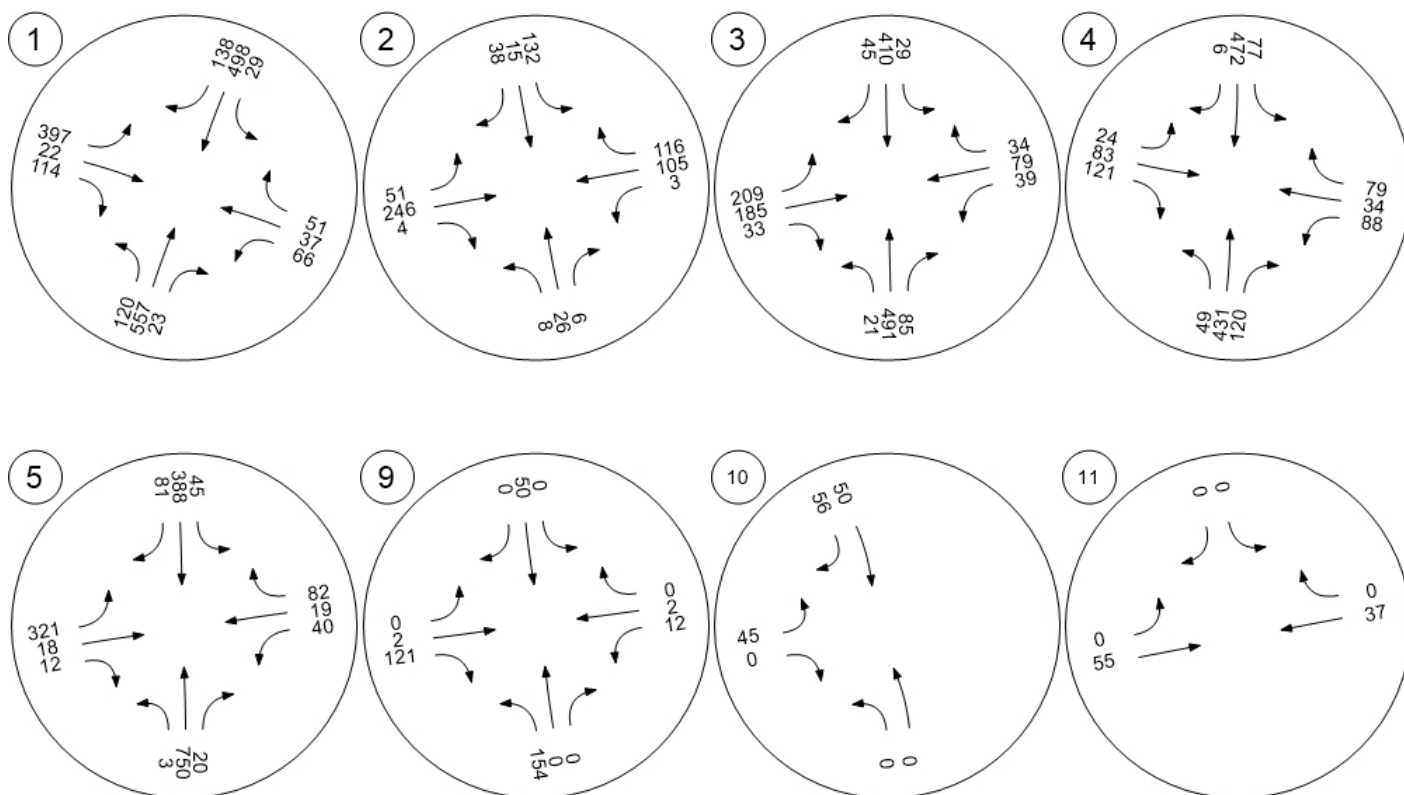
Lane Configuration and Traffic Control



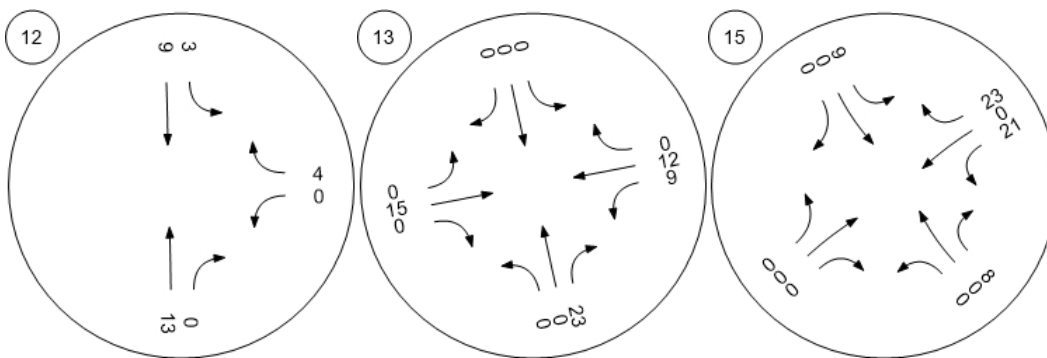
Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



Traffic Volume - Future Total Volume



Appendix C:
Level of Service and Capacity Output
Sheets
Full Build 2023 PM

Solare Collegiate School NIA

Vistro File: L:\...\Solare Charter School Analysis.vistro

Scenario 8 Final Phase 2023 Full Build PM

Report File: L:\...\8. Full Build 2023 PM.pdf

4/16/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Gibson Blvd and Unser Blvd	Signalized	HCM 6th Edition	EB Left	0.361	18.5	B
3	Gibson Blvd and 98th St	Signalized	HCM 6th Edition	WB Thru	0.289	18.6	B
4	Blake Rd and 98th St	Signalized	HCM 6th Edition	WB Right	0.262	18.8	B
5	86th St and 98th St	All-way stop	HCM 6th Edition	SB Thru	0.661	19.1	C
9	Barbados Ave and South Solare Parent Driveway	Two-way stop	HCM 6th Edition	WB Left	0.000	11.1	B
10	Barbados Ave and North Solare Parent Driveway	Two-way stop	HCM 6th Edition	EB Left	0.038	9.0	A
11	New Intersection	Two-way stop	HCM 6th Edition	SB Left	0.000	8.8	A
12	New Intersection	Two-way stop	HCM 6th Edition	WB Left	0.000	8.6	A
13	New Intersection	Two-way stop	HCM 6th Edition	NB Thru	0.000	9.5	A
15	New Intersection	Two-way stop	HCM 6th Edition	SWB Thru	0.000	9.5	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: Gibson Blvd and Unser Blvd

Control Type:	Signalized	Delay (sec / veh):	18.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.361

Intersection Setup

Name	Unser Blvd			Unser Blvd			Gibson Blvd			Spring Flower Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	12.00	12.00	11.00	12.00	12.00	11.00	11.00	12.00	11.00	11.00	11.00
No. of Lanes in Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	460.00	100.00	100.00	315.00	100.00	600.00	225.00	100.00	150.00	80.00	100.00	100.00
Speed [mph]	40.00			40.00			40.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Unser Blvd			Unser Blvd			Gibson Blvd			Spring Flower Rd		
Base Volume Input [veh/h]	117	429	51	40	456	243	109	21	51	42	26	21
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
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	35	0	0	0	0	39	36	1	39	0	1	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	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	157	446	53	42	474	292	149	23	92	44	28	22
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]	43	121	14	11	129	79	40	6	25	12	8	6
Total Analysis Volume [veh/h]	171	485	58	46	515	317	162	25	100	48	30	24
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	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	1			0			1			0		
v_ci, Inbound Pedestrian Volume crossing	0			1			0			1		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	44.2
Offset Reference	LeadGreen
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	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	3	12	0	3	12	0	3	12	0	3	12	0
Maximum Green [s]	16	36	0	16	36	0	16	24	0	16	24	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.5	0.0	3.5	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.5	0.0	1.0	2.0	0.0	1.0	3.5	0.0
Split [s]	22	55	0	16	49	0	17	43	0	16	42	0
Vehicle Extension [s]	1.5	4.0	0.0	1.5	4.0	0.0	2.5	2.0	0.0	1.5	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	22	0	0	27	0	0	28	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]	2.5	3.0	0.0	2.5	3.5	0.0	2.5	4.5	0.0	2.5	4.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		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]	30.0	0.0	0.0	30.0	0.0	0.0	20.0	20.0	0.0	20.0	20.0	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	R	L	C	R	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.50	5.50	5.50	4.50	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	3.00	3.00	0.00	3.50	3.50	2.50	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	96	89	89	95	84	84	8	14	14	23	10	10
g / C, Green / Cycle	0.74	0.68	0.68	0.73	0.65	0.65	0.06	0.11	0.11	0.18	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.10	0.15	0.15	0.05	0.15	0.20	0.05	0.01	0.06	0.03	0.02	0.02
s, saturation flow rate [veh/h]	1601	1683	1621	849	3204	1431	3113	1683	1431	1350	1683	1431
c, Capacity [veh/h]	1178	1150	1108	654	2081	929	197	185	157	303	130	111
d1, Uniform Delay [s]	5.01	7.67	7.67	5.03	9.37	10.03	59.92	52.22	55.05	45.46	56.25	56.18
k, delay calibration	0.50	0.50	0.50	0.04	0.50	0.50	0.08	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]	0.23	0.44	0.46	0.02	0.26	0.89	4.55	0.11	1.30	0.08	0.30	0.32
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	0.13	0.22	0.22	0.06	0.23	0.31	0.76	0.12	0.59	0.15	0.21	0.20
d, Delay for Lane Group [s/veh]	5.25	8.11	8.14	5.04	9.63	10.92	64.46	52.33	56.34	45.55	56.55	56.50
Lane Group LOS	A	A	A	A	A	B	E	D	E	D	E	E
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.15	2.56	2.48	0.28	2.66	3.64	2.51	0.68	2.89	1.23	0.88	0.69
50th-Percentile Queue Length [ft/ln]	28.81	63.89	61.96	6.88	66.53	91.05	62.75	16.94	72.24	30.86	22.10	17.37
95th-Percentile Queue Length [veh/ln]	2.07	4.60	4.46	0.50	4.79	6.56	4.52	1.22	5.20	2.22	1.59	1.25
95th-Percentile Queue Length [ft/ln]	51.86	115.01	111.53	12.39	119.75	163.89	112.95	30.49	130.04	55.54	39.78	31.27

Movement, Approach, & Intersection Results

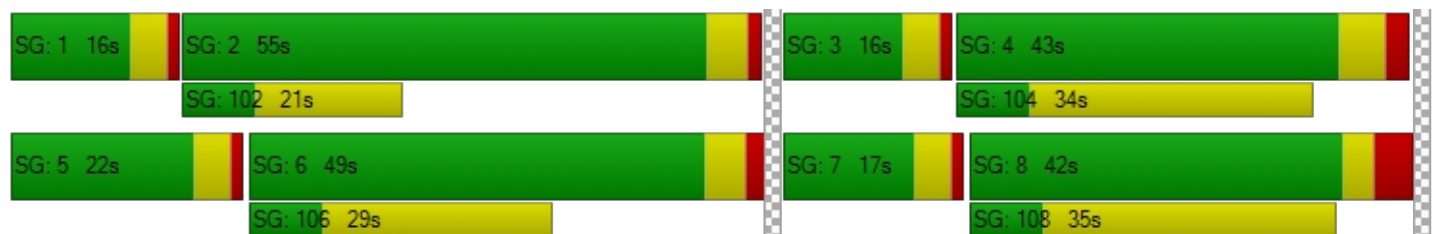
d_M, Delay for Movement [s/veh]	5.25	8.12	8.14	5.04	9.63	10.92	64.46	52.33	56.34	45.55	56.55	56.50
Movement LOS	A	A	A	A	A	B	E	D	E	D	E	E
d_A, Approach Delay [s/veh]	7.44			9.86			60.58			51.39		
Approach LOS	A			A			E			D		
d_I, Intersection Delay [s/veh]	18.48											
Intersection LOS	B											
Intersection V/C	0.361											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
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			7324.02			9055.16		
d_p, Pedestrian Delay [s]	54.47			54.47			54.47			54.47		
I_p,int, Pedestrian LOS Score for Intersection	2.678			2.814			2.742			2.392		
Crosswalk LOS	B			C			B			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	769			669			562			546		
d_b, Bicycle Delay [s]	24.62			28.78			33.62			34.35		
I_b,int, Bicycle LOS Score for Intersection	0.814			0.940			1.995			1.715		
Bicycle LOS	A			A			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 3: Gibson Blvd and 98th St

Control Type: Signalized
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 18.6
 Level Of Service: B
 Volume to Capacity (v/c): 0.289

Intersection Setup

Name	98 St			98 St			Gibson Blvd			Gibson Blvd		
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 Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	280.00	100.00	170.00	360.00	100.00	140.00	420.00	100.00	180.00	320.00	100.00	160.00
Speed [mph]	35.00			35.00			40.00			40.00		
Grade [%]	1.00			-1.00			-2.00			2.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	98 St			98 St			Gibson Blvd			Gibson Blvd		
Base Volume Input [veh/h]	56	416	35	36	474	116	111	75	35	36	135	38
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
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	8	7	2	13	8	17	0	10	24	8
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	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	58	434	44	44	495	134	123	95	36	47	164	48
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]	16	118	12	12	135	36	33	26	10	13	45	13
Total Analysis Volume [veh/h]	63	472	48	48	538	146	134	103	39	51	178	52
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	Yes
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
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	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	3	12	0	3	12	0	3	12	0	3	12	0
Maximum Green [s]	16	36	0	16	36	0	16	24	0	16	24	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.0	0.0
All red [s]	1.5	2.0	0.0	1.5	2.0	0.0	1.5	2.0	0.0	1.5	2.0	0.0
Split [s]	8	53	0	13	58	0	11	20	0	14	23	0
Vehicle Extension [s]	1.5	4.0	0.0	1.5	4.0	0.0	1.5	4.0	0.0	1.5	4.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	28	0	0	28	0	0	36	0	0	36	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]	3.0	4.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		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]	40.0	0.0	0.0	40.0	0.0	0.0	40.0	40.0	0.0	40.0	40.0	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]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
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	4.00	4.00	0.00	4.00	4.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	65	58	58	65	57	57	23	15	15	23	12	12
g / C, Green / Cycle	0.65	0.58	0.58	0.65	0.57	0.57	0.23	0.15	0.15	0.23	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.07	0.14	0.03	0.05	0.15	0.09	0.09	0.03	0.03	0.04	0.05	0.04
s, saturation flow rate [veh/h]	863	3137	1400	919	3205	1431	1296	3205	1431	1235	3070	1370
c, Capacity [veh/h]	599	1811	809	637	1835	819	351	472	211	358	370	165
d1, Uniform Delay [s]	6.74	10.36	9.22	6.61	10.80	10.08	32.20	37.47	37.30	30.58	40.86	40.08
k, delay calibration	0.50	0.50	0.50	0.04	0.50	0.50	0.15	0.15	0.15	0.04	0.15	0.15
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]	0.32	0.31	0.13	0.02	0.36	0.43	0.85	0.30	0.54	0.06	1.19	1.38
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	0.10	0.24	0.05	0.07	0.27	0.16	0.35	0.20	0.17	0.13	0.44	0.29
d, Delay for Lane Group [s/veh]	7.06	10.68	9.35	6.62	11.16	10.51	33.05	37.76	37.84	30.64	42.06	41.46
Lane Group LOS	A	B	A	A	B	B	C	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]	0.45	2.25	0.42	0.30	2.65	1.39	2.49	1.02	0.78	0.88	1.89	1.11
50th-Percentile Queue Length [ft/ln]	11.30	56.14	10.49	7.55	66.32	34.78	62.19	25.39	19.58	22.03	47.24	27.82
95th-Percentile Queue Length [veh/ln]	0.81	4.04	0.76	0.54	4.78	2.50	4.48	1.83	1.41	1.59	3.40	2.00
95th-Percentile Queue Length [ft/ln]	20.34	101.05	18.88	13.60	119.38	62.60	111.94	45.70	35.24	39.65	85.03	50.08

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.06	10.68	9.35	6.62	11.16	10.51	33.05	37.76	37.84	30.64	42.06	41.46
Movement LOS	A	B	A	A	B	B	C	D	D	C	D	D
d_A, Approach Delay [s/veh]	10.18			10.74			35.49			39.87		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	18.60											
Intersection LOS	B											
Intersection V/C	0.289											

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]	940			1040			280			340		
d_b, Bicycle Delay [s]	14.05			11.52			36.98			34.45		
I_b,int, Bicycle LOS Score for Intersection	2.002			2.115			1.769			1.773		
Bicycle LOS	B			B			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: Blake Rd and 98th St

Control Type: Signalized
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 18.8
 Level Of Service: B
 Volume to Capacity (v/c): 0.262

Intersection Setup

Name	98th St			98 St			Blake Rd			Blake Rd		
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	15.00	15.00	12.00	18.00	18.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	110.00	100.00	125.00	415.00	100.00	100.00	200.00	100.00	100.00	210.00	100.00	100.00
Speed [mph]	30.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			-2.50			2.50		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	98th St			98 St			Blake Rd			Blake Rd		
Base Volume Input [veh/h]	56	353	59	78	303	17	19	45	39	76	65	91
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
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	4	0	1	4	5	3	5	6	0	9	1
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	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	371	61	82	319	23	23	52	47	79	77	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]	18	101	17	22	87	6	6	14	13	21	21	26
Total Analysis Volume [veh/h]	74	403	66	89	347	25	25	57	51	86	84	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			1			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			1		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	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	Yes
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	50.0
Offset Reference	LeadGreen
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	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	3	12	0	3	12	0	3	12	0	3	12	0
Maximum Green [s]	16	36	0	16	36	0	16	24	0	16	24	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.0	0.0	3.5	4.0	0.0
All red [s]	1.5	2.0	0.0	1.5	2.0	0.0	1.5	2.0	0.0	1.5	2.0	0.0
Split [s]	8	35	0	8	35	0	8	49	0	8	49	0
Vehicle Extension [s]	1.5	3.0	0.0	1.5	3.0	0.0	1.5	3.0	0.0	1.5	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	5	0
Pedestrian Clearance [s]	0	12	0	0	18	0	0	36	0	0	30	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]	3.0	4.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		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]	40.0	0.0	0.0	40.0	0.0	0.0	40.0	40.0	0.0	40.0	40.0	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	C	L	C	L	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
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	4.00	4.00	0.00	4.00	4.00	0.00	4.00	0.00	4.00
g_i, Effective Green Time [s]	67	59	59	67	60	60	21	13	21	14
g / C, Green / Cycle	0.67	0.59	0.59	0.67	0.60	0.60	0.21	0.13	0.21	0.14
(v / s)_i Volume / Saturation Flow Rate	0.07	0.12	0.04	0.08	0.10	0.10	0.02	0.06	0.06	0.11
s, saturation flow rate [veh/h]	993	3204	1431	972	1683	1644	1202	1615	1225	1508
c, Capacity [veh/h]	722	1903	850	702	1000	977	240	204	299	213
d1, Uniform Delay [s]	5.72	9.33	8.61	5.82	9.16	9.17	32.51	40.68	33.38	41.66
k, delay calibration	0.50	0.50	0.50	0.04	0.50	0.50	0.11	0.11	0.04	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
d2, Incremental Delay [s]	0.26	0.23	0.16	0.03	0.37	0.39	0.17	1.80	0.17	7.73
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	0.09	0.19	0.07	0.12	0.17	0.17	0.10	0.49	0.26	0.81
d, Delay for Lane Group [s/veh]	5.98	9.56	8.78	5.84	9.54	9.56	32.68	42.48	33.55	49.38
Lane Group LOS	A	A	A	A	A	A	C	D	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.49	1.82	0.57	0.52	1.67	1.64	0.45	2.34	1.59	4.51
50th-Percentile Queue Length [ft/ln]	12.23	45.47	14.32	12.95	41.67	41.10	11.35	58.39	39.85	112.85
95th-Percentile Queue Length [veh/ln]	0.88	3.27	1.03	0.93	3.00	2.96	0.82	4.20	2.87	8.00
95th-Percentile Queue Length [ft/ln]	22.02	81.84	25.77	23.31	75.00	73.97	20.42	105.10	71.74	199.96

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	5.98	9.56	8.78	5.84	9.55	9.56	32.68	42.48	42.48	33.55	49.38	49.38
Movement LOS	A	A	A	A	A	A	C	D	D	C	D	D
d_A, Approach Delay [s/veh]	8.97			8.83			40.63			44.42		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	18.78											
Intersection LOS	B											
Intersection V/C	0.262											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			9.0			11.0			11.0		
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			10596.52			0.00			0.00		
d_p, Pedestrian Delay [s]	39.61			41.41			39.61			39.61		
I_p,int, Pedestrian LOS Score for Intersection	2.628			2.520			2.114			2.186		
Crosswalk LOS	B			B			B			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	580			580			860			860		
d_b, Bicycle Delay [s]	25.21			25.21			16.25			16.25		
I_b,int, Bicycle LOS Score for Intersection	1.972			1.909			1.761			1.975		
Bicycle LOS	A			A			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 5: 86th St and 98th St

Control Type: All-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 19.1
 Level Of Service: C
 Volume to Capacity (v/c): 0.661

Intersection Setup

Name	98 St			98 St			De Anza Dr SW			86th St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	12.00	12.00	20.00	20.00	20.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	220.00	100.00	120.00	125.00	100.00	110.00	100.00	100.00	100.00	350.00	100.00	100.00
Speed [mph]	35.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			-2.00			2.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	98 St			98 St			De Anza Dr SW			86th St		
Base Volume Input [veh/h]	4	477	18	51	617	251	132	14	7	23	20	25
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
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	17	0	20	22	0	0	2	0	0	3	23
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
Total Hourly Volume [veh/h]	4	513	19	73	664	261	137	17	7	24	24	49
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]	1	139	5	20	180	71	37	5	2	7	7	13
Total Analysis Volume [veh/h]	4	558	21	79	722	284	149	18	8	26	26	53
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	442	471	471	519	469	502	502	558	456	412	459
Degree of Utilization, x	0.01	0.54	0.54	0.04	0.16	0.66	0.66	0.47	0.35	0.06	0.16

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.03	3.47	3.47	0.11	0.55	5.50	5.50	2.59	1.62	0.19	0.57
95th-Percentile Queue Length [ft]	0.68	86.85	86.85	2.85	13.79	137.4	137.4	64.82	40.51	4.63	14.17
Approach Delay [s/veh]	18.98				20.39				15.19	12.03	
Approach LOS	C				C				C	B	
Intersection Delay [s/veh]	19.05										
Intersection LOS	C										

Intersection Level Of Service Report**Intersection 9: Barbados Ave and South Solare Parent Driveway**

Control Type:	Two-way stop	Delay (sec / veh):	11.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Barbados Ave			Barbados Ave			Ba Av			Ba Av		
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 Pocket	0	0	0	0	0	0	0	0	0	0	0	0
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
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Barbados Ave			Barbados Ave			Ba Av			Ba Av		
Base Volume Input [veh/h]	0	50	15	0	0	0	0	0	0	0	0	0
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	86	0	0	0	0	0	0	1	97	0	1	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
Total Hourly Volume [veh/h]	86	50	15	0	0	0	0	1	97	0	1	0
Peak Hour 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
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]	22	13	4	0	0	0	0	0	24	0	0	0
Total Analysis Volume [veh/h]	86	50	15	0	0	0	0	1	97	0	1	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.34	0.00	0.00	7.34	0.00	0.00	10.52	11.07	8.65	11.14	10.69	8.58
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.31	0.31	0.31	0.00	0.00	0.00	0.30	0.30	0.30	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	7.69	7.69	7.69	0.00	0.00	0.00	7.50	7.50	7.50	0.12	0.12	0.12
d_A, Approach Delay [s/veh]	4.18			2.45			8.68			10.69		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	5.97											
Intersection LOS	B											

Intersection Level Of Service Report**Intersection 10: Barbados Ave and North Solare Parent Driveway**

Control Type:	Two-way stop	Delay (sec / veh):	9.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.038

Intersection Setup

Name	Barbados Ave		North Parent Driveway		Barbados Ave	
Approach	Northbound		Eastbound		Southeastbound	
Lane Configuration						
Turning Movement	Left	Thru	Left	Right	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Barbados Ave		North Parent Driveway		Barbados Ave	
Base Volume Input [veh/h]	0	50	0	0	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 Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	36	0	0	32
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	0	0	0	0
Total Hourly Volume [veh/h]	0	50	36	0	0	32
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	13	9	0	0	8
Total Analysis Volume [veh/h]	0	50	36	0	0	32
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Stop	Free
Flared Lane		No	
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	0.00	0.04	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.28	0.00	8.99	8.54	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.12	0.12	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	2.99	2.99	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		8.99		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.74					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 11: New Intersection

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 8.8
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name	Barbados Ave Driveway North		Gibson Blvd		Gibson Blvd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		-2.00		2.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Barbados Ave Driveway North		Gibson Blvd		Gibson Blvd	
Base Volume Input [veh/h]	0	0	0	0	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 Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	32	42	0
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	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	32	42	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	8	11	0
Total Analysis Volume [veh/h]	0	0	0	32	42	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.82	8.42	7.25	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.62		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 12: New Intersection

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 1 hour

Delay (sec / veh): 8.6
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name	98th St (Snow Vista Blvd SW)		98th St (Snow Vista Blvd SW)		Diamond Mesa	
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 Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	140.00	150.00	100.00	100.00	100.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	1.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	98th St (Snow Vista Blvd SW)		98th St (Snow Vista Blvd SW)		Diamond Mesa	
Base Volume Input [veh/h]	0	0	0	0	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 Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	0	3	10	0	2
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	0	0	0	0
Total Hourly Volume [veh/h]	8	0	3	10	0	2
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	1	3	0	1
Total Analysis Volume [veh/h]	8	0	3	10	0	2
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
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	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.24	0.00	8.63	8.35
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.01	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.14	0.00	0.14	0.14
d_A, Approach Delay [s/veh]	0.00		1.67		8.35	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.67					
Intersection LOS	A					

Intersection Level Of Service Report Intersection 13: New Intersection

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 1 hour

Delay (sec / veh): 9.5
Level Of Service: A
Volume to Capacity (v/c): 0.000

Intersection Setup

Name	Blake Rd						Gibson Blvd			Gibson Blvd		
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 Pocket	0	0	0	0	0	0	0	0	0	0	0	0
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
Speed [mph]	30.00			30.00			40.00			30.00		
Grade [%]	0.00			0.00			-2.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Blake Rd						Gibson Blvd			Gibson Blvd		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	15	0	0	0	0	9	1	26	10	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
Total Hourly Volume [veh/h]	0	0	15	0	0	0	0	9	1	26	10	0
Peak Hour 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
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]	0	0	4	0	0	0	0	2	0	7	3	0
Total Analysis Volume [veh/h]	0	0	15	0	0	0	0	9	1	26	10	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	9.01	9.52	8.39	9.02	9.47	8.34	7.23	0.00	0.00	7.28	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.02	0.00
95th-Percentile Queue Length [ft/ln]	1.06	1.06	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	0.62	0.00
d_A, Approach Delay [s/veh]	8.39			8.95			0.00			5.25			
Approach LOS	A			A			A			A			
d_I, Intersection Delay [s/veh]	5.16												
Intersection LOS	A												

Intersection Level Of Service Report Intersection 15: New Intersection

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 1 hour

Delay (sec / veh): 9.5
Level Of Service: A
Volume to Capacity (v/c): 0.000

Intersection Setup

Name							Blake Rd			Blake Rd		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
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 Pocket	0	0	0	0	0	0	0	0	0	0	0	0
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
Speed [mph]	30.00			30.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			-2.50		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name							Blake Rd			Blake Rd		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
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
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	14	0	15	0	0	24	27	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
Total Hourly Volume [veh/h]	0	0	0	14	0	15	0	0	24	27	0	0
Peak Hour 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
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]	0	0	0	4	0	4	0	0	6	7	0	0
Total Analysis Volume [veh/h]	0	0	0	14	0	15	0	0	24	27	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	9.03	9.51	8.32	9.04	9.55	8.48	7.22	0.00	0.00	7.26	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.09	0.09	0.09	0.00	0.00	0.00	0.05	0.05	0.05
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	2.27	2.27	2.27	0.00	0.00	0.00	1.27	1.27	1.27
d_A, Approach Delay [s/veh]	8.95			8.75			0.00			7.26		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	5.62											
Intersection LOS	A											

Signal Warrants Report For Intersection 5: 86th St and 98th St

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	536	998	97	161
2	515	958	93	155
3	504	938	91	151
4	429	798	78	129
5	407	758	74	122
6	364	679	66	109
7	338	629	61	101
8	322	599	58	97
9	257	479	47	77
10	241	449	44	72
11	241	449	44	72
12	230	429	42	69
13	209	389	38	63
14	193	359	35	58
15	193	359	35	58
16	188	349	34	56
17	107	200	19	32
18	59	110	11	18
19	54	100	10	16
20	21	40	4	6
21	16	30	3	5
22	16	30	3	5
23	11	20	2	3
24	11	20	2	3

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	8	1534	3	258	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	8	1473	3	248	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	8	1442	3	242	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
4	8	1227	3	207	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
5	8	1165	3	196	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
6	8	1043	3	175	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
7	8	967	3	162	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No
8	8	921	3	155	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No
9	8	736	3	124	No	No	No	No	No	Yes	Yes	Yes	No	No
10	8	690	3	116	No	No	No	No	No	No	Yes	Yes	No	No
11	8	690	3	116	No	No	No	No	No	No	Yes	Yes	No	No
12	8	659	3	111	No	No	No	No	No	No	Yes	Yes	No	No
13	8	598	3	101	No	No	No	No	No	No	No	Yes	No	No
14	8	552	3	93	No	No	No	No	No	No	No	Yes	No	No
15	8	552	3	93	No	No	No	No	No	No	No	Yes	No	No
16	8	537	3	90	No	No	No	No	No	No	No	Yes	No	No
17	8	307	3	51	No	No	No	No	No	No	No	No	No	No
18	8	169	3	29	No	No	No	No	No	No	No	No	No	No
19	8	154	3	26	No	No	No	No	No	No	No	No	No	No
20	8	61	3	10	No	No	No	No	No	No	No	No	No	No
21	8	46	3	8	No	No	No	No	No	No	No	No	No	No
22	8	46	3	8	No	No	No	No	No	No	No	No	No	No
23	8	31	3	5	No	No	No	No	No	No	No	No	No	No
24	8	31	3	5	No	No	No	No	No	No	No	No	No	No
Hours Met					3	5	6	8	8	9	12	16	5	2

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	12	15.2
Number of Lanes on Minor Street Approach	2	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:19	0:40
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	97	161
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	1792	1792
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 9: Barbados Ave and South Solare Parent Driveway

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	151	0	1	98
2	145	0	1	94
3	142	0	1	92
4	121	0	1	78
5	115	0	1	74
6	103	0	1	67
7	95	0	1	62
8	91	0	1	59
9	72	0	0	47
10	68	0	0	44
11	68	0	0	44
12	65	0	0	42
13	59	0	0	38
14	54	0	0	35
15	54	0	0	35
16	53	0	0	34
17	30	0	0	20
18	17	0	0	11
19	15	0	0	10
20	6	0	0	4
21	5	0	0	3
22	5	0	0	3
23	3	0	0	2
24	3	0	0	2

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	151	2	99	No	No	No	No	No	No	No	No	No	No
2	2	145	2	95	No	No	No	No	No	No	No	No	No	No
3	2	142	2	93	No	No	No	No	No	No	No	No	No	No
4	2	121	2	79	No	No	No	No	No	No	No	No	No	No
5	2	115	2	75	No	No	No	No	No	No	No	No	No	No
6	2	103	2	68	No	No	No	No	No	No	No	No	No	No
7	2	95	2	63	No	No	No	No	No	No	No	No	No	No
8	2	91	2	60	No	No	No	No	No	No	No	No	No	No
9	2	72	2	47	No	No	No	No	No	No	No	No	No	No
10	2	68	2	44	No	No	No	No	No	No	No	No	No	No
11	2	68	2	44	No	No	No	No	No	No	No	No	No	No
12	2	65	2	42	No	No	No	No	No	No	No	No	No	No
13	2	59	2	38	No	No	No	No	No	No	No	No	No	No
14	2	54	2	35	No	No	No	No	No	No	No	No	No	No
15	2	54	2	35	No	No	No	No	No	No	No	No	No	No
16	2	53	2	34	No	No	No	No	No	No	No	No	No	No
17	2	30	2	20	No	No	No	No	No	No	No	No	No	No
18	2	17	2	11	No	No	No	No	No	No	No	No	No	No
19	2	15	2	10	No	No	No	No	No	No	No	No	No	No
20	2	6	2	4	No	No	No	No	No	No	No	No	No	No
21	2	5	2	3	No	No	No	No	No	No	No	No	No	No
22	2	5	2	3	No	No	No	No	No	No	No	No	No	No
23	2	3	2	2	No	No	No	No	No	No	No	No	No	No
24	2	3	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	10.7	8.7
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00	0:14
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	1	98
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	250	250
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 10: Barbados Ave and North Solare Parent Driveway

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, NW
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	NW	W
1	50	32	36
2	48	31	35
3	47	30	34
4	40	26	29
5	38	24	27
6	34	22	24
7	32	20	23
8	30	19	22
9	24	15	17
10	23	14	16
11	23	14	16
12	22	14	15
13	20	12	14
14	18	12	13
15	18	12	13
16	18	11	13
17	10	6	7
18	6	4	4
19	5	3	4
20	2	1	1
21	2	1	1
22	2	1	1
23	1	1	1
24	1	1	1

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	82	1	36	No	No	No	No	No	No	No	No	No	No
2	2	79	1	35	No	No	No	No	No	No	No	No	No	No
3	2	77	1	34	No	No	No	No	No	No	No	No	No	No
4	2	66	1	29	No	No	No	No	No	No	No	No	No	No
5	2	62	1	27	No	No	No	No	No	No	No	No	No	No
6	2	56	1	24	No	No	No	No	No	No	No	No	No	No
7	2	52	1	23	No	No	No	No	No	No	No	No	No	No
8	2	49	1	22	No	No	No	No	No	No	No	No	No	No
9	2	39	1	17	No	No	No	No	No	No	No	No	No	No
10	2	37	1	16	No	No	No	No	No	No	No	No	No	No
11	2	37	1	16	No	No	No	No	No	No	No	No	No	No
12	2	36	1	15	No	No	No	No	No	No	No	No	No	No
13	2	32	1	14	No	No	No	No	No	No	No	No	No	No
14	2	30	1	13	No	No	No	No	No	No	No	No	No	No
15	2	30	1	13	No	No	No	No	No	No	No	No	No	No
16	2	29	1	13	No	No	No	No	No	No	No	No	No	No
17	2	16	1	7	No	No	No	No	No	No	No	No	No	No
18	2	10	1	4	No	No	No	No	No	No	No	No	No	No
19	2	8	1	4	No	No	No	No	No	No	No	No	No	No
20	2	3	1	1	No	No	No	No	No	No	No	No	No	No
21	2	3	1	1	No	No	No	No	No	No	No	No	No	No
22	2	3	1	1	No	No	No	No	No	No	No	No	No	No
23	2	2	1	1	No	No	No	No	No	No	No	No	No	No
24	2	2	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	9
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:05
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	36
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	118
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

Signal Warrants Report For Intersection 11: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	42	32	0
2	40	31	0
3	39	30	0
4	34	26	0
5	32	24	0
6	29	22	0
7	26	20	0
8	25	19	0
9	20	15	0
10	19	14	0
11	19	14	0
12	18	14	0
13	16	12	0
14	15	12	0
15	15	12	0
16	15	11	0
17	8	6	0
18	5	4	0
19	4	3	0
20	2	1	0
21	1	1	0
22	1	1	0
23	1	1	0
24	1	1	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	5	74	1	0	No	No	No	No	No	No	No	No	No	No
2	5	71	1	0	No	No	No	No	No	No	No	No	No	No
3	5	69	1	0	No	No	No	No	No	No	No	No	No	No
4	5	60	1	0	No	No	No	No	No	No	No	No	No	No
5	5	56	1	0	No	No	No	No	No	No	No	No	No	No
6	5	51	1	0	No	No	No	No	No	No	No	No	No	No
7	5	46	1	0	No	No	No	No	No	No	No	No	No	No
8	5	44	1	0	No	No	No	No	No	No	No	No	No	No
9	5	35	1	0	No	No	No	No	No	No	No	No	No	No
10	5	33	1	0	No	No	No	No	No	No	No	No	No	No
11	5	33	1	0	No	No	No	No	No	No	No	No	No	No
12	5	32	1	0	No	No	No	No	No	No	No	No	No	No
13	5	28	1	0	No	No	No	No	No	No	No	No	No	No
14	5	27	1	0	No	No	No	No	No	No	No	No	No	No
15	5	27	1	0	No	No	No	No	No	No	No	No	No	No
16	5	26	1	0	No	No	No	No	No	No	No	No	No	No
17	5	14	1	0	No	No	No	No	No	No	No	No	No	No
18	5	9	1	0	No	No	No	No	No	No	No	No	No	No
19	5	7	1	0	No	No	No	No	No	No	No	No	No	No
20	5	3	1	0	No	No	No	No	No	No	No	No	No	No
21	5	2	1	0	No	No	No	No	No	No	No	No	No	No
22	5	2	1	0	No	No	No	No	No	No	No	No	No	No
23	5	2	1	0	No	No	No	No	No	No	No	No	No	No
24	5	2	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.6
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	0
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	74
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

Signal Warrants Report For Intersection 12: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	N	E
1	8	13	2
2	8	12	2
3	8	12	2
4	6	10	2
5	6	10	2
6	5	9	1
7	5	8	1
8	5	8	1
9	4	6	1
10	4	6	1
11	4	6	1
12	3	6	1
13	3	5	1
14	3	5	1
15	3	5	1
16	3	5	1
17	2	3	0
18	1	1	0
19	1	1	0
20	0	1	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	21	1	2	No	No	No	No	No	No	No	No	No	No
2	6	20	1	2	No	No	No	No	No	No	No	No	No	No
3	6	20	1	2	No	No	No	No	No	No	No	No	No	No
4	6	16	1	2	No	No	No	No	No	No	No	No	No	No
5	6	16	1	2	No	No	No	No	No	No	No	No	No	No
6	6	14	1	1	No	No	No	No	No	No	No	No	No	No
7	6	13	1	1	No	No	No	No	No	No	No	No	No	No
8	6	13	1	1	No	No	No	No	No	No	No	No	No	No
9	6	10	1	1	No	No	No	No	No	No	No	No	No	No
10	6	10	1	1	No	No	No	No	No	No	No	No	No	No
11	6	10	1	1	No	No	No	No	No	No	No	No	No	No
12	6	9	1	1	No	No	No	No	No	No	No	No	No	No
13	6	8	1	1	No	No	No	No	No	No	No	No	No	No
14	6	8	1	1	No	No	No	No	No	No	No	No	No	No
15	6	8	1	1	No	No	No	No	No	No	No	No	No	No
16	6	8	1	1	No	No	No	No	No	No	No	No	No	No
17	6	5	1	0	No	No	No	No	No	No	No	No	No	No
18	6	2	1	0	No	No	No	No	No	No	No	No	No	No
19	6	2	1	0	No	No	No	No	No	No	No	No	No	No
20	6	1	1	0	No	No	No	No	No	No	No	No	No	No
21	6	0	1	0	No	No	No	No	No	No	No	No	No	No
22	6	0	1	0	No	No	No	No	No	No	No	No	No	No
23	6	0	1	0	No	No	No	No	No	No	No	No	No	No
24	6	0	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.3
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	2
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	23
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

Signal Warrants Report For Intersection 13: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	36	10	15	0
2	35	10	14	0
3	34	9	14	0
4	29	8	12	0
5	27	8	11	0
6	24	7	10	0
7	23	6	9	0
8	22	6	9	0
9	17	5	7	0
10	16	5	7	0
11	16	5	7	0
12	15	4	6	0
13	14	4	6	0
14	13	4	5	0
15	13	4	5	0
16	13	4	5	0
17	7	2	3	0
18	4	1	2	0
19	4	1	2	0
20	1	0	1	0
21	1	0	0	0
22	1	0	0	0
23	1	0	0	0
24	1	0	0	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	46	2	15	No	No	No	No	No	No	No	No	No	No
2	4	45	2	14	No	No	No	No	No	No	No	No	No	No
3	4	43	2	14	No	No	No	No	No	No	No	No	No	No
4	4	37	2	12	No	No	No	No	No	No	No	No	No	No
5	4	35	2	11	No	No	No	No	No	No	No	No	No	No
6	4	31	2	10	No	No	No	No	No	No	No	No	No	No
7	4	29	2	9	No	No	No	No	No	No	No	No	No	No
8	4	28	2	9	No	No	No	No	No	No	No	No	No	No
9	4	22	2	7	No	No	No	No	No	No	No	No	No	No
10	4	21	2	7	No	No	No	No	No	No	No	No	No	No
11	4	21	2	7	No	No	No	No	No	No	No	No	No	No
12	4	19	2	6	No	No	No	No	No	No	No	No	No	No
13	4	18	2	6	No	No	No	No	No	No	No	No	No	No
14	4	17	2	5	No	No	No	No	No	No	No	No	No	No
15	4	17	2	5	No	No	No	No	No	No	No	No	No	No
16	4	17	2	5	No	No	No	No	No	No	No	No	No	No
17	4	9	2	3	No	No	No	No	No	No	No	No	No	No
18	4	5	2	2	No	No	No	No	No	No	No	No	No	No
19	4	5	2	2	No	No	No	No	No	No	No	No	No	No
20	4	1	2	1	No	No	No	No	No	No	No	No	No	No
21	4	1	2	0	No	No	No	No	No	No	No	No	No	No
22	4	1	2	0	No	No	No	No	No	No	No	No	No	No
23	4	1	2	0	No	No	No	No	No	No	No	No	No	No
24	4	1	2	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.4	8.9
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:02	0:00
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	15	0
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	61	61
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 15: New Intersection

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	SE, NW
Minor Approaches	NE, SW
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	SE	NW	NE	SW
1	24	27	29	0
2	23	26	28	0
3	23	25	27	0
4	19	22	23	0
5	18	21	22	0
6	16	18	20	0
7	15	17	18	0
8	14	16	17	0
9	12	13	14	0
10	11	12	13	0
11	11	12	13	0
12	10	12	12	0
13	9	11	11	0
14	9	10	10	0
15	9	10	10	0
16	8	9	10	0
17	5	5	6	0
18	3	3	3	0
19	2	3	3	0
20	1	1	1	0
21	1	1	1	0
22	1	1	1	0
23	0	1	1	0
24	0	1	1	0

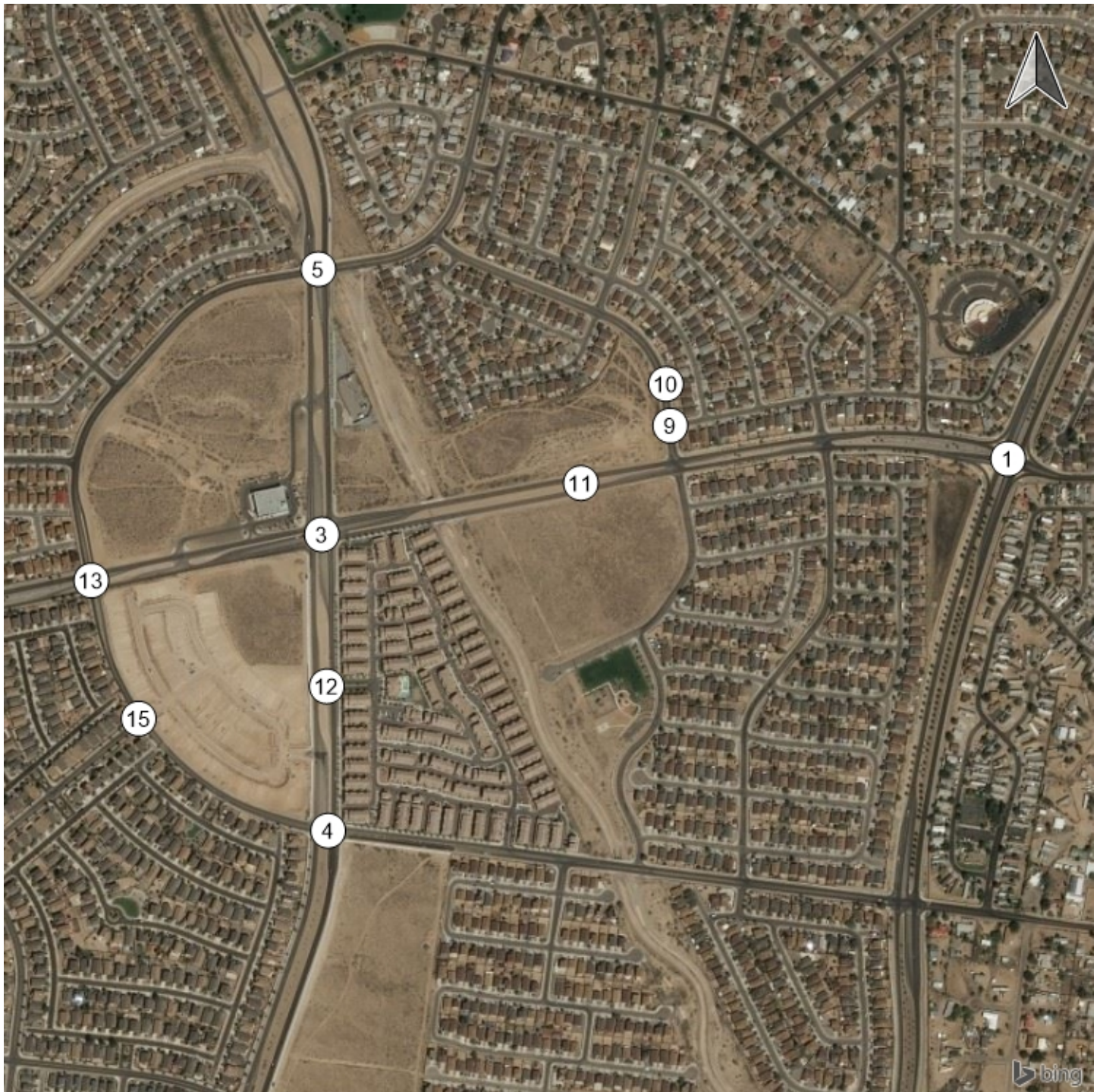
Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	51	2	29	No	No	No	No	No	No	No	No	No	No
2	2	49	2	28	No	No	No	No	No	No	No	No	No	No
3	2	48	2	27	No	No	No	No	No	No	No	No	No	No
4	2	41	2	23	No	No	No	No	No	No	No	No	No	No
5	2	39	2	22	No	No	No	No	No	No	No	No	No	No
6	2	34	2	20	No	No	No	No	No	No	No	No	No	No
7	2	32	2	18	No	No	No	No	No	No	No	No	No	No
8	2	30	2	17	No	No	No	No	No	No	No	No	No	No
9	2	25	2	14	No	No	No	No	No	No	No	No	No	No
10	2	23	2	13	No	No	No	No	No	No	No	No	No	No
11	2	23	2	13	No	No	No	No	No	No	No	No	No	No
12	2	22	2	12	No	No	No	No	No	No	No	No	No	No
13	2	20	2	11	No	No	No	No	No	No	No	No	No	No
14	2	19	2	10	No	No	No	No	No	No	No	No	No	No
15	2	19	2	10	No	No	No	No	No	No	No	No	No	No
16	2	17	2	10	No	No	No	No	No	No	No	No	No	No
17	2	10	2	6	No	No	No	No	No	No	No	No	No	No
18	2	6	2	3	No	No	No	No	No	No	No	No	No	No
19	2	5	2	3	No	No	No	No	No	No	No	No	No	No
20	2	2	2	1	No	No	No	No	No	No	No	No	No	No
21	2	2	2	1	No	No	No	No	No	No	No	No	No	No
22	2	2	2	1	No	No	No	No	No	No	No	No	No	No
23	2	1	2	1	No	No	No	No	No	No	No	No	No	No
24	2	1	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

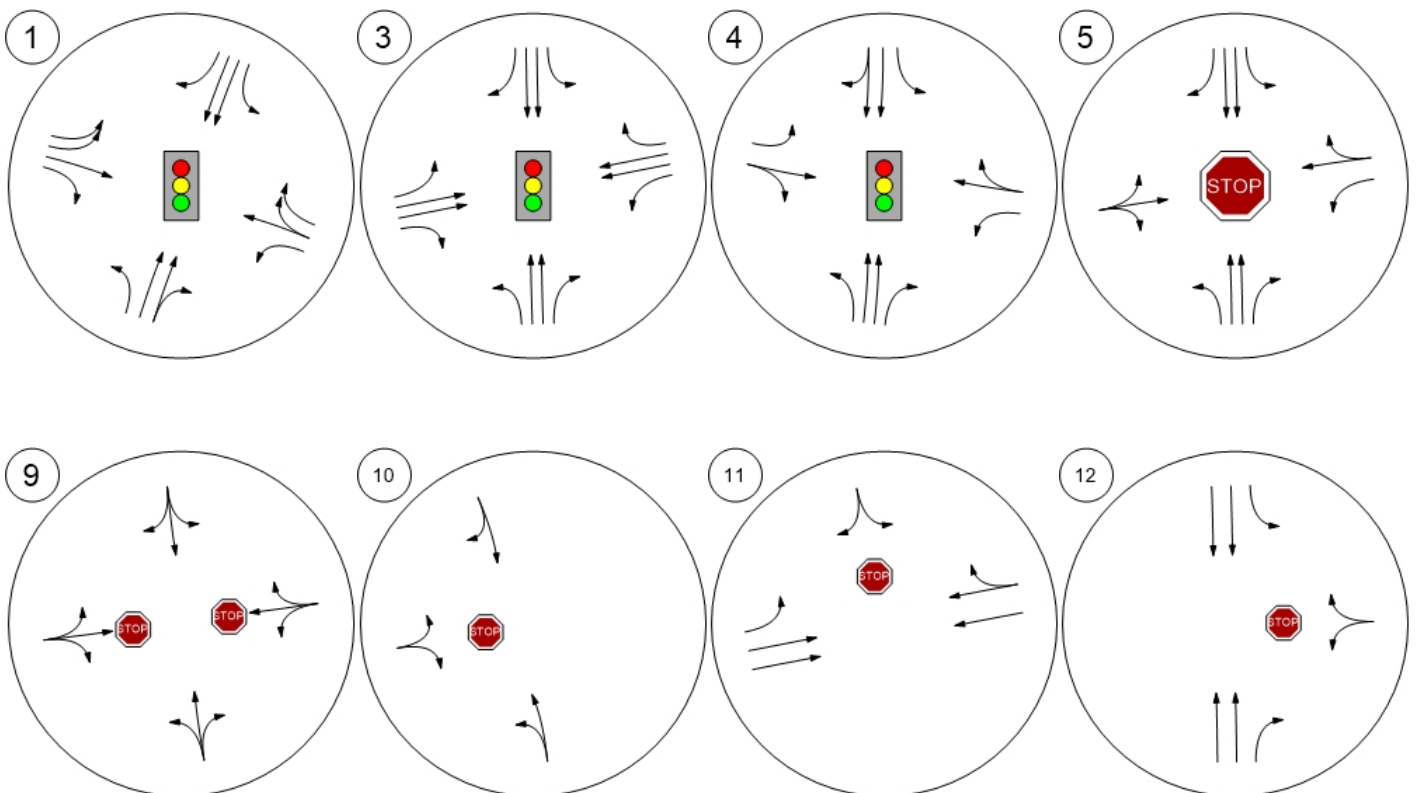
Warrant 3 Condition A

Orientation	NE	SW
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.8	9
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:04	0:00
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	29	0
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	80	80
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

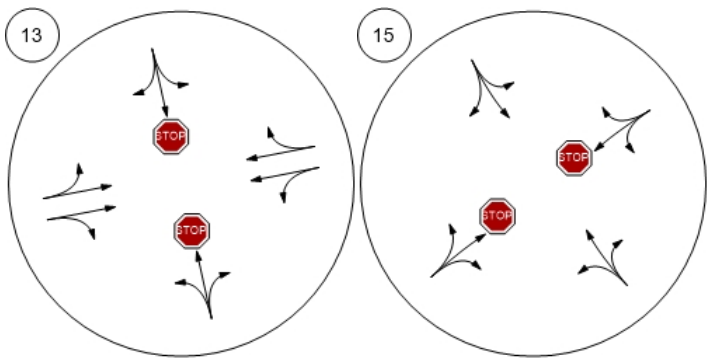
Study Intersections



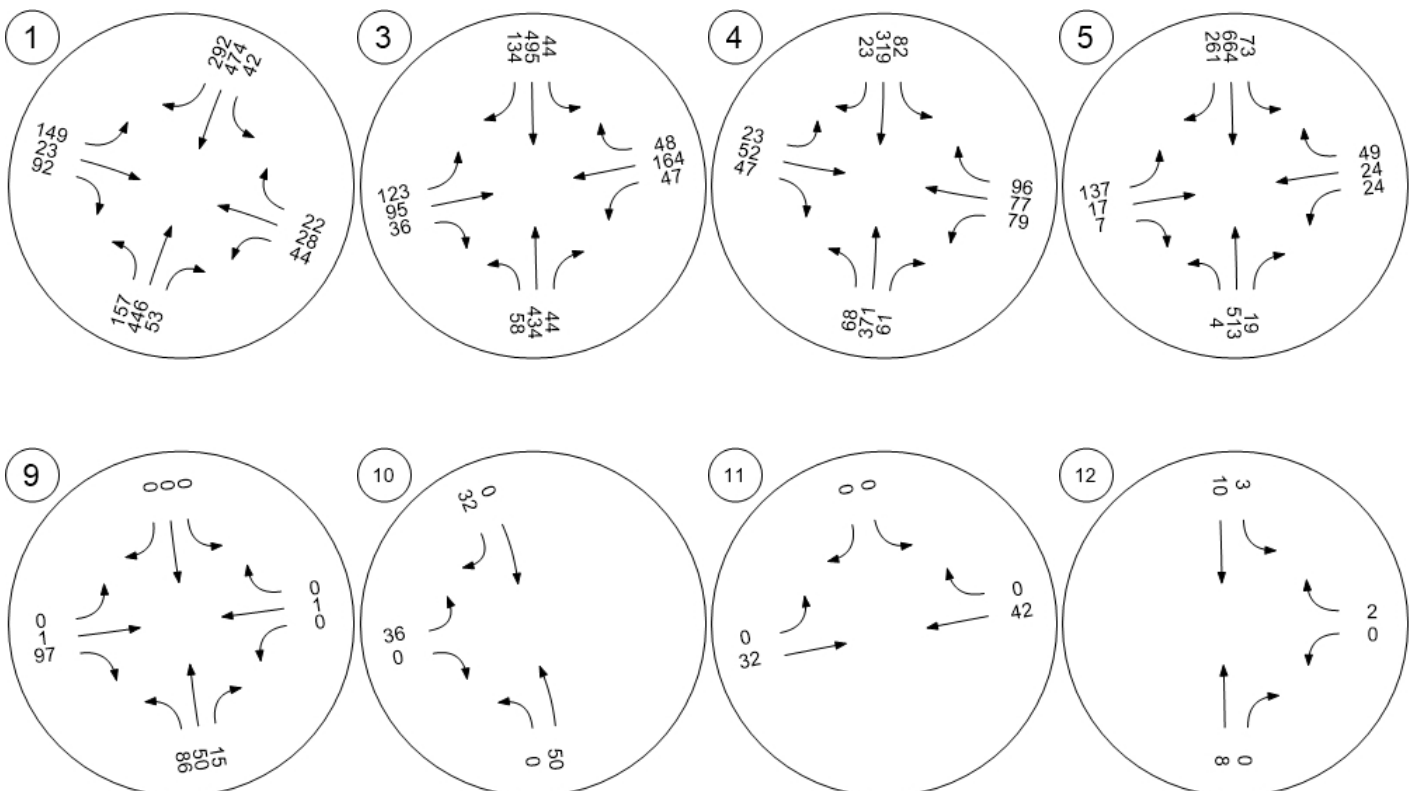
Lane Configuration and Traffic Control



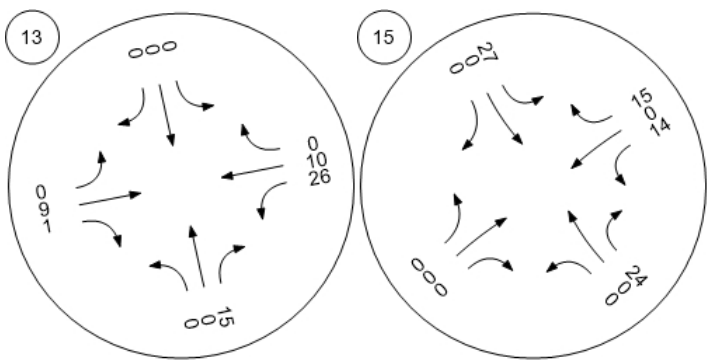
Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



Traffic Volume - Future Total Volume



Appendix D:

Raw Trip Generation Counts

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Untitled Path

Write a description for your map.

An aerial photograph of a city street grid. A large red 'X' is drawn over a specific intersection, indicating a point of interest. The surrounding area shows dense urban development with buildings and streets.

2015

22

22

39

Google Earth

4000 ft



Appendix E:
AASHTO Green Book Excerpt and Sight
Distance Calculation

$$ISD = 1.47 \times V_{major} t_g$$

Where:

ISD = intersection sight distance (length of the leg of sight triangle along the major road) (ft)

V_{major} = design speed of major road (mph)

t_g = time gap for minor road vehicle to enter the major road (s)

Time gap for single-unit truck to turn right is 8.5 plus an additional 0.7 for each additional lane to be crossed

Time gap for single-unit truck to turn left is 9.5 plus an additional 0.7 for each additional lane to be crossed

$$Case\ B1\ Gibson\ Blvd = 1.47 \times 40 \times (9.5 + 0.7 + 0.7 + 0.7) \approx 685$$

Case B1 Barbados Ave = Table 9.5: 280 feet

Case B2 Gibson Blvd = Table 9.6: 385 feet

Case B2 Barbados Ave = Table 9.6: 240 feet

+4	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	—	—
+5	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	—	—
+6	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	—	—
U.S. Customary														
Approach Grade (%)	Design Speed (mph)													
	15	20	25	30	35	40	45	50	55	60	65	70	75	80
Note: Based on ratio of stopping sight distance on specified approach grade to stopping sight distance on level terrain.														
−6	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2
−5	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2
−4	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
−3 to +3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
+4	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
+5	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
+6	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9

Table 9-5 Time Gap for Case B1, Left Turn from Stop

Design Vehicle	Time Gap (t_g)(s) at Design Speed of Major Road
Note: Time gaps are for a stopped vehicle to turn left onto a two-lane highway with no median and with grades of 3 percent or less. The table values should be adjusted as follows: For multilane highways—For left turns onto two-way highways with more than two lanes, add 0.5 s for passenger cars or 0.7 s for trucks for each additional lane, from the left, in excess of one, to be crossed by the turning vehicle. For minor road approach grades—If the approach grade is an upgrade that exceeds 3 percent, add 0.2 s for each percent grade for left turns.	
Passenger car	7.5
Single-unit truck	9.5
Combination truck	11.5

Table 9-6 Design Intersection Sight Distance—Case B1, Left Turn from Stop

Metric				U.S. Customary			
Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance for Passenger Cars		Design Speed (mph)	Stopping Sight Distance (ft)	Intersection Sight Distance for Passenger Cars	
		Calculated (m)	Design (m)			Calculated (ft)	Design (ft)
Note: Intersection sight distance shown is for a stopped passenger car to turn left onto a two-lane highway with no median and grades 3 percent or less. For other conditions, the time gap should be adjusted and the sight distance recalculated.							
20	20	41.7	45	15	80	165.4	170
30	35	62.6	65	20	115	220.5	225
40	50	83.4	85	25	155	275.6	280
50	65	104.3	105	30	200	330.8	335
60	85	125.1	130	35	250	385.9	390
70	105	146.0	150	40	305	441.0	445
80	130	166.8	170	45	360	496.1	500
90	160	187.7	190	50	425	551.3	555
100	185	208.5	210	55	495	606.4	610
110	220	229.4	230	60	570	661.5	665
120	250	250.2	255	65	645	716.6	720
130	285	271.1	275	70	730	771.8	775
—	—	—	—	75	820	826.9	830
—	—	—	—	80	910	882.0	885

Table 9-7 Time Gap for Case B2—Right Turn from Stop and Case B3—Crossing Maneuver

Design Vehicle	Time Gap (t_g)(s) at Design Speed of Major Road
Note: Time gaps are for a stopped vehicle to turn right onto or to cross a two-lane highway with no median and with grades of 3 percent or less. The table values should be adjusted as follows:	

For multilane highways—For crossing a major road with more than two lanes, add 0.5 s for passenger cars and 0.7 s for trucks for each additional lane to be crossed and for narrow medians that cannot store the design vehicle.

For minor road approach grades—If the approach grade is an upgrade that exceeds 3 percent, add 0.1 s for each percent grade.

Passenger car	6.5
Single-unit truck	8.5
Combination truck	10.5

Table 9-8 Design Intersection Sight Distance—Case B2, Right Turn from Stop, and Case B3, Crossing Maneuver

Metric				U.S. Customary			
Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance for Passenger Cars		Design Speed (mph)	Stopping Sight Distance (ft)	Intersection Sight Distance for Passenger Cars	
		Calculated (m)	Design (m)			Calculated (ft)	Design (ft)
Note: Intersection sight distance shown is for a stopped passenger car to turn right onto or to cross a two-lane highway with no median and with grades of 3 percent or less. For other conditions, the time gap should be adjusted and the sight distance recalculated.							
20	20	36.1	40	15	80	143.3	145
30	35	54.2	55	20	115	191.1	195
40	50	72.3	75	25	155	238.9	240
50	65	90.4	95	30	200	286.7	290
60	85	108.4	110	35	250	334.4	335
70	105	126.5	130	40	305	382.2	385
80	130	144.6	145	45	360	430.0	430
90	160	162.6	165	50	425	477.8	480
100	185	180.7	185	55	495	525.5	530
110	220	198.8	200	60	570	573.3	575
120	250	216.8	220	65	645	621.1	625

130	285	234.9	235	70	730	668.9	670
—	—	—	—	75	820	716.6	720
—	—	—	—	80	910	764.4	765

Table 9-9 Case C1—Crossing Maneuvers from Yield-Controlled Approaches, Length of Minor Road Leg and Travel Times

Metric					U.S. Customary				
Design Speed (km/h)	Minor-Road Approach		Travel Time (t_g) (s)		Design Speed (mph)	Minor-Road Approach		Travel Time (t_g) (s)	
	Length of Leg ^a (m)	Travel Time $t_{a,b}$ (s)	Calculated Value	Design Value ^{c,d}		Length of Leg ^a (ft)	Travel Time $t_{a,b}$ (s)	Calculated Value	Design Value ^{c,d}
^a For minor-road approach grades that exceed 3 percent, multiply the distance or the time in this table by the appropriate adjustment factor from <u>Table 9-4</u> .									
^b Travel time applies to a vehicle that slows before crossing the intersection but does not stop.									
^c The value of t_g should equal or exceed the appropriate time gap for crossing the major road from a stop-controlled approach.									
^d Values shown are for a passenger car crossing a two-lane highway with no median and with grades of 3 percent or less.									
20	20	3.2	7.1	7.1	15	75	3.4	6.7	6.7
30	30	3.6	6.2	6.5	20	100	3.7	6.1	6.5
40	40	4.0	6.0	6.5	25	130	4.0	6.0	6.5
50	55	4.4	6.0	6.5	30	160	4.3	5.9	6.5
60	65	4.8	6.1	6.5	35	195	4.6	6.0	6.5
70	80	5.1	6.2	6.5	40	235	4.9	6.1	6.5
80	100	5.5	6.5	6.5	45	275	5.2	6.3	6.5
90	115	5.9	6.8	6.8	50	320	5.5	6.5	6.5
100	135	6.3	7.1	7.1	55	370	5.8	6.7	6.7