



# Transportation Impact Study for the Powers Creek District Project



Prepared for the City of Blue Lake

Submitted by  
**W-Trans**

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**TRAFFIC ENGINEERING  
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# Executive Summary

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The proposed project includes mixed-use development on four different sites on Taylor Way in the City of Blue Lake. While specific projects are currently only proposed for one of the four sites, it was assumed that the project could include a total of 70 housing units, 13 live/work units, 26,650 square feet of retail space and 14,350 square feet of manufacturing space. Based on the assumed land uses, the project would be expected to generate an average of 1,591 net new trips daily, including 89 a.m. peak hour trips and 155 p.m. peak hour trips.

While there is an existing network of sidewalks, crosswalks, and curb ramps in the vicinity of the project site as well as unpaved trail access to the project site, there are currently no pedestrian facilities along the project frontage on Taylor Way. Each project should install sidewalks and streetlighting along their respective frontages, and the Dayken project should include construction of ADA-compliant curb ramps at the intersection of Taylor Way/Monda Way as well as a crosswalk across the north leg of the intersection. It should also be ensured that the existing Powers Creek District Loop Trail and unmarked trail between Monda Way and Broderick Lane between the Paradise Cay and Rousseau Investments sites be maintained.

Existing bicycle and transit facilities serving the project site are adequate, and bicycle connectivity nearby would improve with the completion of planned facilities. While bicycle storage requirements are not maintained by the City or County, it is recommended that bicycle racks for the commercial spaces and long-term bicycle parking spaces for residents be included on each project site plan.

While access to transit is limited, given the rural nature of the area this is typical. The project would have a less-than-significant impact on all modes of transportation as it does not conflict with any policies or plans.

Based on applied guidance, the project's impact on vehicle miles traveled (VMT) would be less than significant upon considering both the residential and commercial uses associated with the project.

Left-turn lanes are not warranted on Taylor Way to enter any of the project sites, and sight distances from the proposed driveway locations are adequate provided that signs and other project components do not obstruct sight lines. Vehicle queues in turn lanes at the study intersections would not exceed the available storage space for all evaluated scenarios. The project would therefore have a less-than-significant impact in terms of introducing any hazards.

It is anticipated that all four projects would be designed and constructed to meet applicable codes for emergency response, so would have adequate site access and circulation. The project would be expected to have a less-than-significant impact on emergency response as emergency vehicles can claim the right-of-way through use of their lights and sirens.

All six study intersections are currently and are expected to continue operating at acceptable Levels of Service without and with the addition of project trips under Existing and Future conditions; as a result, the project's effect on operations would be considered acceptable.

# Introduction

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This report presents an analysis of the potential traffic impacts and adverse operational effects that would be associated with the proposed development of four projects on six parcels known collectively as the Powers Creek District project. The project site is on Taylor Way in the City of Blue Lake. The traffic study was completed in accordance with the criteria established by the City, reflects a scope of work approved by City staff, and is consistent with standard traffic engineering techniques.

## Prelude

The purpose of a traffic impact study is to provide City staff and policy makers with data that they can use to make an informed decision regarding the potential transportation impacts of a proposed project, and any associated improvements that would be required to mitigate these impacts to an acceptable level under the California Environmental Quality Act (CEQA), the City's General Plan, or other policies. This report provides an analysis of those items that are identified as areas of environmental concern under the California Environmental Quality Act (CEQA) and that, if significant and unavoidable, require an EIR. Impacts associated with access for pedestrians, bicyclists, and to transit; the vehicle miles traveled (VMT) generated by the project; potential safety concerns such as increased queuing in dedicated turn lanes, adequacy of sight distance, need for turn lanes, and need for additional right-of-way controls; and emergency access are addressed in the context of the CEQA criteria. While no longer a part of the CEQA review process, vehicular traffic service levels at key intersections were evaluated for consistency with General Plan policies by determining the number of new trips that the proposed use would be expected to generate, distributing these trips to the surrounding street system based on anticipated travel patterns specific to the proposed project, then analyzing the effect the new traffic would be expected to have on the study intersections and need for improvements to maintain acceptable operation.

## Applied Standards and Criteria

The report is organized to provide background data that supports the various aspects of the analysis, followed by the assessment of CEQA issues and then evaluation of policy-related issues. The CEQA criteria evaluated are as follows.

Would the project:

- a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?
- b. Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?
- c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- d. Result in inadequate emergency access?

## Project Profile

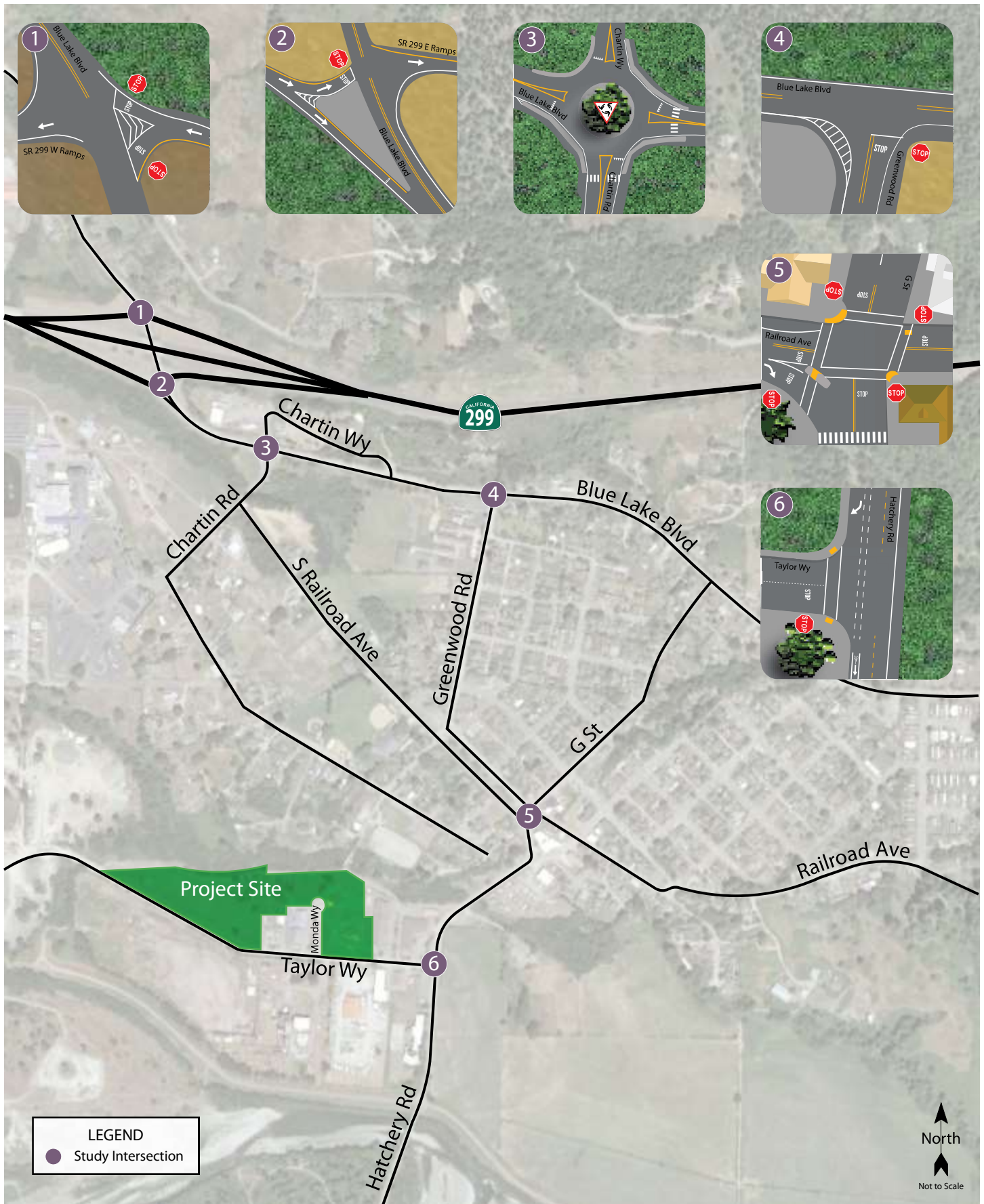
The "project" as defined for this analysis consists of the following four development proposals.

1. Danco Communities Mixed-Use: This project would include a three-story mixed-use building with 36 affordable units, three market-rate units, one manager's unit and three live/work units together with 18,000 square feet of commercial and/or light manufacturing space on the ground floor. The type of commercial and/or light manufacturing uses are unknown at this time but are anticipated to include retail, restaurant space, and food production.



2. Paradise Cay Mixed-Use Project: This project would include two multi-story mixed-use buildings with ten live-work units with a total of approximately 15,000 square feet of commercial and/or light manufacturing workspace on the lower floor and apartment units on the upper floor; one unit would be designed to be accessible. The project also includes ten apartment units.
3. Dayken Properties Mixed-Use Project: This project would include a two-story mixed-use building with 20,000 square feet of retail commercial space and five apartment units.
4. Rousseau Investments Mixed-Use Project: The project would include a one or more two-story mixed-use buildings with 3,000 square feet of commercial space and five apartment units.

The project site is located on Taylor Way, as shown in Figure 1.



Transportation Impact Study for the Powers Creek District Project  
**Figure 1 – Study Area and Existing Lane Configurations**



# Transportation Setting

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## Study Area and Periods

The study area varies depending on the topic. For pedestrian trips it consists of all streets within a half-mile of the project site that would lie along primary routes of pedestrian travel, or those leading to nearby attractions. For bicycle trips it consists of all streets within one mile of the project site that would lie along primary routes of bicycle travel. For the safety and operational analyses, it consists of the project frontage and the following intersections:

1. Blue Lake Boulevard/SR 299 West Ramps
2. Blue Lake Boulevard/SR 299 East Ramps
3. Blue Lake Boulevard/Chartin Way-Chartin Road
4. Blue Lake Boulevard/Greenwood Road
5. Railroad Avenue/G Street
6. Hatchery Road/Taylor Way

Operating conditions during the a.m. and p.m. peak periods were evaluated to capture the highest potential impacts for the proposed project as well as the highest volumes on the local transportation network. The morning peak hour occurs between 7:00 and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute. Counts for the study intersections were obtained on Tuesday, February 7, 2023, while local schools were in session.

## Study Intersections

**Blue Lake Boulevard/SR 299 West Ramps** is a four-legged intersection with a stop control on the westbound SR 299 off-ramp approach. There is a flared left-turn lane on the SR 299 off-ramp approach with storage space to accommodate approximately one to two left-turning vehicles while another vehicle waits to continue straight or turn right.

**Blue Lake Boulevard/SR 299 East Ramps** is a four-legged intersection that is stop-controlled on the eastbound SR 299 off-ramp approach. The eastbound approach has a channelized right-turn lane with yield control applying to right-turning vehicles. There is storage space to accommodate approximately ten vehicles in the right-turn lane.

**Blue Lake Boulevard/Chartin Way-Chartin Road** is a four-legged roundabout with yield control applying to all approaches. There are raised splitter islands on all legs of the roundabout as well as continental-style crosswalks marked across the east and south legs.

**Blue Lake Boulevard/Greenwood Road** is an unsignalized tee intersection with a stop control on the northbound Greenwood Road approach. One curb ramp exists on the southeastern corner of the intersection.

**Railroad Avenue/G Street** is a four-legged intersection with all-way stop control. The eastbound Railroad Avenue approach has a channelized right-turn lane with space for approximately three vehicles and a stop control applying to right-turning vehicles. Crosswalks with decorative brick paving and curb ramps are located on all legs of the intersection.

**Hatchery Road/Taylor Way** is an unsignalized tee intersection with the eastbound Taylor Way approach stop-controlled. A crosswalk and curb ramps are present on the west leg of the intersection. There are bicycle lanes in both directions on Hatchery Road.

The locations of the study intersections and the existing lane configurations and controls are shown in Figure 1.

## Study Roadway

**Taylor Way** is a two-lane road classified as a local road by the California Department of Transportation (Caltrans) *California Road System – Functional Classification* map. Taylor Way generally has an east-west configuration in the vicinity of the project site. The road has a *prima facie* speed limit of 25 miles per hour (mph); carries approximately 840 vehicles per day according to 24-hour vehicle counts from Tuesday, February 7, 2023; and has a roadway width of 40 feet in the study area with one travel lane in each direction.

## Collision History

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue. Collision rates were calculated based on records available from the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports. The most current five-year period available is August 1, 2016, through July 31, 2021.

As presented in Table 1, the calculated collision rates for the study intersections were compared to average collision rates for similar facilities statewide, as indicated in *2019 Collision Data on California State Highways*, California Department of Transportation (Caltrans). These average rates statewide are for intersections in the same environment (urban, suburban, or rural), with the same number of approaches (three or four), and the same controls (all-way stop, two-way stop, or traffic signal). Two of the six study intersections were determined to have above-average collision rates, as indicated with bold type. For those intersections, the records were further reviewed. The collision rate calculations are provided in Appendix A.

**Table 1 – Collision Rates for the Study Intersections**

<b>Study Intersection</b>	<b>Number of Collisions (2016-2021)</b>	<b>Calculated Collision Rate (c/mve)</b>	<b>Statewide Average Collision Rate (c/mve)</b>
1. Blue Lake Blvd/SR 299 West Ramps	0	0.00	0.25
2. Blue Lake Blvd/SR 299 East Ramps	2	0.15	0.25
3. Blue Lake Blvd/Chartin Wy-Rd	0	0.00	0.46
4. Blue Lake Blvd/Greenwood Rd	3	<b>0.34</b>	0.19
5. Railroad Ave/G St	0	0.00	0.17
6. Hatchery Rd/Taylor Wy	1	<b>0.37</b>	0.09

Note: c/mve = collisions per million vehicles entering; **Bold** text = rate is higher than statewide average

There were three collisions reported at Blue Lake Boulevard/Greenwood Road. All three collisions involved only one vehicle and no pedestrians or bicyclists. One collision was a westbound vehicle overturning with the driver under the influence, another involved a northbound driver improperly turning left and overturning, and the third was a hit object collision attributed to improper turning from a westbound driver. The City may wish to coordinate with the County to stripe an edgeline on the north side of Blue Lake Boulevard west of Greenwood Road to be consistent with the south side of the road and reduce the likelihood of drivers crashing due to misinterpreting the extents of the road.

At the intersection of Hatchery Road/Taylor Way, there was one reported hit-object collision attributed to improper turning. Given that only one collision occurred at the intersection over the five-year period, no clear pattern or trend was identified that would indicate a safety concern. Rather, the high collision rate is due to the low volume at this location.

# Project Data

The project consists of mixed-use development on four different sites, consisting of a total of 70 new housing units, dispersed between apartment and live/work units, 26,650 square feet of retail space and 14,350 square feet of manufacturing space. The proposed project location is shown in Figure 2.

## Trip Generation

The total trip generation for the four projects was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 11<sup>th</sup> Edition, 2021, for Manufacturing (LU #140), Multifamily Dwellings (Low-Rise) (LU #220), Affordable Housing (LU #223), and Strip Retail Plaza (LU #822) as these descriptions most closely match the potential uses. A portion of the trips associated with retail uses would not be new trips but would instead be pass-by (drivers passing by the Powers Creek District site on Hatchery Road while traveling to a primary destination). The 40-percent p.m. peak hour rate published by ITE in the *Trip Generation Manual* was applied to the p.m. peak hour while a lower rate of 25 percent was assumed for the a.m. peak hour and daily trips. There are no standard rates for live-work units so rates developed by W-Trans previously were used to estimate trips for this land use; it is noted that these rates encompass both the residential and commercial uses of each unit.

Based on the application of these rates, the four proposed projects are expected to generate a total average of 1,954 trips per day, including 105 a.m. peak hour trips and 225 trips during the p.m. peak hour. After applying the pass-by deduction associated with the retail uses, the net new trips would be expected to include 1,591 daily trips, with 89 during the morning peak hour and 155 during the evening peak hour. These results are summarized in Table 2.

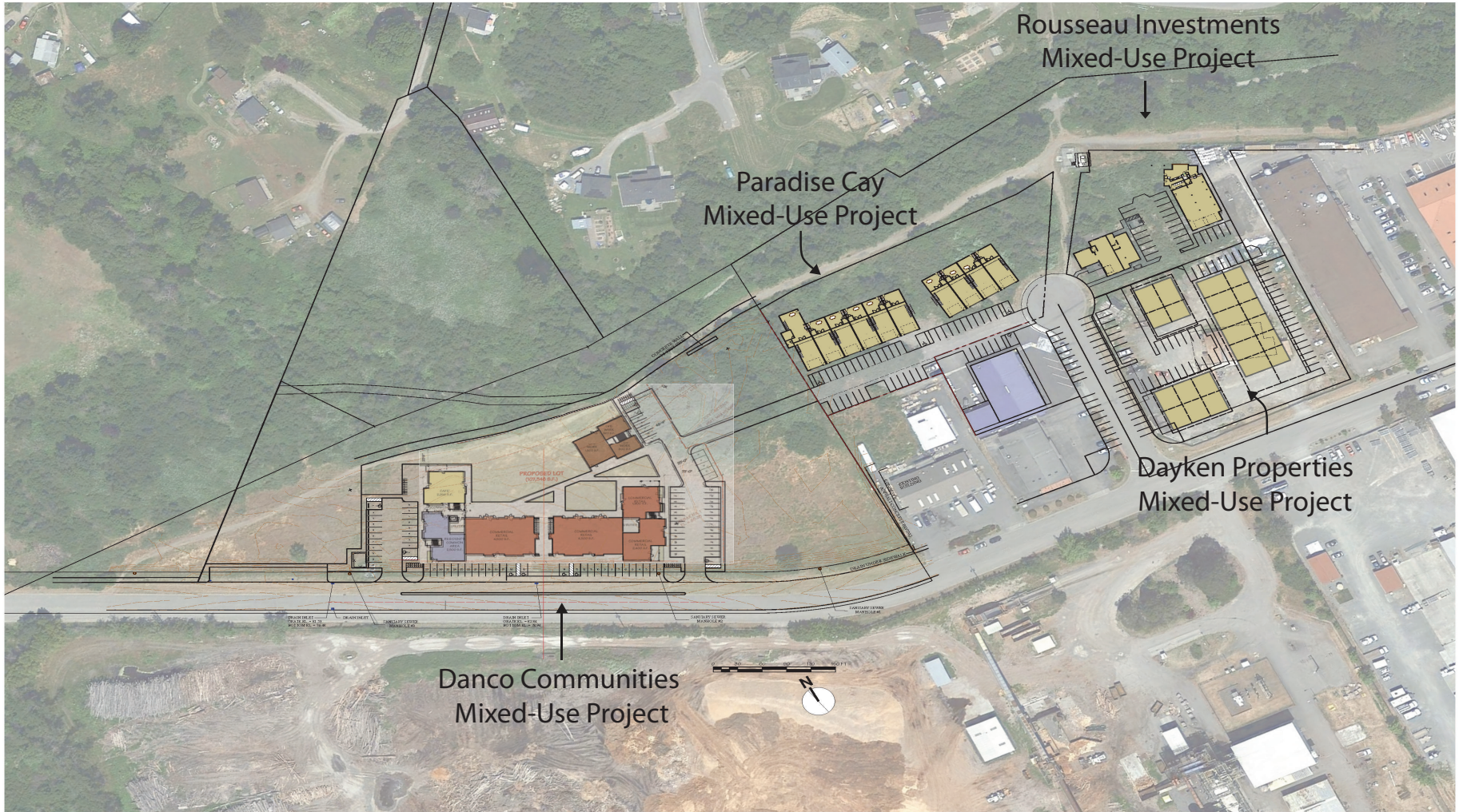
Land Use	Units	Daily		AM Peak Hour				PM Peak Hour			
		Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
<b>Proposed</b>											
Multifamily (Low-Rise)	24 du	6.74	162	0.40	10	2	8	0.51	12	8	4
Affordable Housing	36 du	4.81	173	0.36	13	4	9	0.46	17	10	7
Live-Work Housing	13 du	9.95	129	0.86	11	7	4	0.94	12	4	8
Strip Retail (<40 ksf)	26.65 ksf	54.45	1,451	2.36	63	38	25	6.59	176	88	88
<i>Pass-by</i>		-25%	-363	-25%	-16	-10	-6	-40%	-70	-35	-35
Manufacturing	14.35 ksf	4.75	68	0.68	10	7	3	0.74	11	3	8
<b>Total</b>			<b>1,591</b>		<b>89</b>	<b>47</b>	<b>42</b>		<b>155</b>	<b>77</b>	<b>78</b>

Note: du = dwelling unit; ksf = 1,000 square feet

## Trip Distribution

The pattern used to allocate new project trips to the street network was based on input from City staff and takes the one-way operation of Railroad Avenue west of Greenwood Avenue into account. The applied distribution assumptions are shown in Table 3.





Transportation Impact Study for the Powers Creek District Project  
**Figure 2 – Site Plan**

**Table 3 – Trip Distribution Assumptions**

<b>Route</b>	<b>Percent</b>	
	<b>In</b>	<b>Out</b>
From SR 299 West of Blue Lake via Greenwood Rd	48%	
To SR 299 West of Blue Lake via Greenwood Rd		36%
To SR 299 West of Blue Lake via Railroad Ave		12%
To/From SR 299 West of Blue Lake via G St	12%	12%
To/From Blue Lake Downtown via G St	20%	20%
To/From South on Hatchery Rd	12%	12%
To/From East of Blue Lake via Railroad Ave	8%	8%
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>

# Circulation System

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This section addresses the first transportation bullet point on the CEQA checklist, which relates to the potential for a project to conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

## Pedestrian Facilities

### Existing and Planned Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, pedestrian signal phases, curb ramps, curb extensions, and various streetscape amenities such as lighting, benches, etc. A connected network of sidewalks, crosswalks, and curb ramps provides some access for pedestrians in the vicinity of the project site; however, significant sidewalk gaps can be found along the roadways connecting to the project site. Unpaved and paved trails exist near the project site and offer alternate access to the project site for pedestrians without disabilities.

- **Taylor Way** – There are existing sidewalks on Taylor Way for about 350 feet to the west of Hatchery Road. Otherwise, there are no sidewalks or streetlighting along Taylor Way except for one disconnected, 75-foot segment of sidewalk west of Monda Way. The intersection of Taylor Way/Monda Way has no existing curb ramps or crosswalks.
- **Monda Way** – There are no pedestrian facilities along Monda Way. At the north end of Monda Way, there is a trail entrance which connects to the Powers Creek District Loop Trail and an unmarked trail to Broderick Lane.
- **Hatchery Road** – There are continuous sidewalks along the west side of Hatchery Road between the Mad River bridge crossing and South Railroad Avenue. Streetlights are present on Hatchery Road north of Taylor Avenue. At the intersection of Hatchery Road/Taylor Road, there is a crosswalk across the west leg and curb ramps on the northwest and southwest corners of the intersection.
- **Powers Creek District Loop Trail** – The Powers Creek District Loop Trail is an approximately one-mile-long recreational trail with unpaved and paved segments. Trailheads are located on Hatchery Road between Taylor Way and South Railroad Avenue, on Hatchery Road at the Mad River bridge crossing, and at the end of Taylor Way.

### Pedestrian Safety

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue for pedestrians. Collision records available from the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports were reviewed for the most current five-year period available, which was August 1, 2016, through July 31, 2021, at the time of the analysis. During the five-year study period there were no reported collisions involving pedestrians at any of the study intersections.

### Project Impacts on Pedestrian Facilities

Given the proximity of the site to adjacent residences, parks, and commercial land uses, it is reasonable to assume that some project residents and employees would want to walk between these uses and the project site. Additionally, it is expected that there would be walking trips made by nearby residents to the commercial uses within the project site. To ensure that the proposed project would be connected to the surrounding pedestrian network, it is recommended that each project include construction of sidewalks along their respective project frontages on Taylor Way and Monda Way. The Dayken project should include installation of ADA-compliant curb ramps at the intersection of Taylor Way/Monda Way and installation of a crosswalk across the north leg of the intersection. It is also recommended that the existing trail connection between the project site and Broderick Lane be maintained to allow alternate pedestrian access to/from the north of the project site. The connection between the project site and the Powers Creek Loop Trail located between the Paradise Cay and Rousseau Investment sites should be preserved as well, and the project should not block the Powers Creek Loop Trail for recreational users.

**Finding** – The project site plan is a tentative sketch and does not identify any pedestrian facilities such as sidewalks, crosswalks, or curb ramps. While there is existing unpaved trail access to the project site, there are no pedestrian facilities along the project frontage on Taylor Way or Monda Way.

**Recommendation** – The projects should provide sidewalks and streetlighting along their respective frontages on Taylor Way and Monda Way, as well as ADA-compliant curb ramps at the intersection of Taylor Way/Monda Way and a crosswalk across the north leg. The existing connections on Monda Way to the Powers Creek Loop Trail and unpaved trail to Broderick Lane should be maintained with the projects.

## Bicycle Facilities

### Existing and Planned Bicycle Facilities

The *Highway Design Manual*, Caltrans, 2020, classifies bikeways into four categories:

- **Class I Multi-Use Path** – a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.
- **Class II Bike Lane** – a striped and signed lane for one-way bike travel on a street or highway.
- **Class III Bike Route** – signing only for shared use with motor vehicles within the same travel lane on a street or highway.
- **Class IV Bikeway** – also known as a separated bikeway, a Class IV Bikeway is for the exclusive use of bicycles and includes a separation between the bikeway and the motor vehicle traffic lane. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

In the project area, Class II bike lanes exist on Chartin Road and on Hatchery Road north of the Mad River bridge crossing. A Class I multi-use path is located alongside South Railroad Avenue and is part of the planned Annie & Mary Rail Trail which would connect the cities of Arcata and Blue Lake. Bicyclists ride in the roadway and/or on sidewalks along all other streets within the project study area. Table 4 summarizes the existing and planned bicycle facilities in the project vicinity, as contained in the *Humboldt Regional Bicycle Plan Update 2018*, Humboldt County Association of Governments (HCAOG).

Status Facility	Class	Length (miles)	Begin Point	End Point
<b>Existing</b>				
Annie & Mary Rail Trail	I	0.50	Chartin Rd	Hatchery Rd
Chartin Rd	II	0.20	Blue Lake Rd	Casino
Hatchery Rd	II	0.32	Railroad Ave	Mad River Bridge
<b>Planned</b>				
Annie & Mary Rail Trail*	I	3.40	Arcata City Limit	Blue Lake City Limit
Blue Lake Blvd	III	1.40	West City Limit	Southeast City Limit
Greenwood Rd	III	0.30	Blue Lake Blvd	Railroad Ave
Hatchery Rd*	III	0.60	Mad River bridge	Fish Hatchery
Railroad Ave	III	0.80	Greenwood Rd	City Limit

Notes: \* All or portions of these bikeways are located within Unincorporated Humboldt County

Source: *Humboldt Regional Bicycle Plan Update*, HCAOG, 2018

## Bicyclist Safety

Collision records for the study area were reviewed to determine if there had been any bicyclist-involved crashes. During the five-year study period between August 1, 2016, through July 31, 2021, there were no reported collisions involving a bicyclist at any of the study intersections.

## Project Impacts on Bicycle Facilities

Existing bicycle facilities, including the bicycle lanes on Hatchery Road adjacent to the project site, together with shared use of minor streets provide adequate access for bicyclists. Connectivity would be further improved upon completion of planned facilities outlined in the regional bicycle plan such as the Class I multi-use trail between Blue Lake and Arcata.

## Bicycle Storage

The project site plan is a tentative sketch and does not identify the provision of bicycle parking or storage facilities. Neither the City of Blue Lake nor the County maintain bicycle storage requirements for the proposed uses. However, it is recommended that the project include bicycle racks adjacent to the commercial and light industrial spaces, as well as long-term bicycle parking spaces for residents.

**Finding** – Off-site bicycle facilities are adequate. The project site plan is a tentative sketch and does not include bicycle parking.

**Recommendation** – The site plans for each individual project should include bicycle racks near the commercial and light industrial spaces and long-term bicycle parking for residents.

## Transit Facilities

### Existing Transit Facilities

The Blue Lake Rancheria Tribe provides bus service in Blue Lake, Arcata, McKinleyville, and Eureka with a single, partially fixed route and some stops that can be requested by phone. The Blue Lake Rancheria Transit System (BLRTS) operates between 7:00 a.m. and 6:00 p.m. on weekdays with eight daily trips in each direction. The transit stops nearest the project site are at Railroad Avenue/H Street, 0.3 mile from the project site, and at Chartin Road/Broderick Lane, 0.1 mile from the project site via the unmarked trail over Powers Creek. Bicycles and wheelchairs are accommodated on BLRTS buses.

On-demand private taxi services are available in Blue Lake 24 hours a day. Taxis can be used within the study area and adjacent destinations. Other ride-hailing applications are also available in Blue Lake.

### Impact on Transit Facilities

Upon the construction of pedestrian facilities and assuming maintenance of the existing trail connections at the project site, BLRTS stops would be readily accessible from the project site. The limited available transit service is considered adequate given the rural setting and project residents are not expected to overwhelm the capacity of BLRTS. However, the City may wish to coordinate with the Blue Lake Rancheria or Humboldt Transit Authority for increased transit service should demand increase in the future.

**Finding** – The limited access to transit is considered adequate due to the rural setting of the project site.

**Significance Finding** – Upon the addition of sidewalks, crosswalks, and curb ramps near the project site; preservation of the existing nearby trails; and provision of on-site bicycle parking, the proposed project would not conflict with any plans or policies for transportation facilities. It would therefore have a less-than-significant impact on these facilities.



# Vehicle Miles Traveled (VMT)

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The potential for the project to conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b) was evaluated based on the project's anticipated Vehicle Miles Traveled (VMT).

Senate Bill (SB) 743 established VMT as the metric to be applied for determining transportation impacts associated with development projects. As of the date of this analysis, the City of Blue Lake has not yet established thresholds of significance related to VMT. As a result, the project-related VMT impacts were assessed based on guidance provided by the California Governor's Office of Planning and Research (OPR) in the publication *Transportation Impacts (SB 743) CEQA Guidelines Update and Technical Advisory, 2018*, referred to herein as the Technical Advisory. The Technical Advisory recommends the use of travel demand models for the purpose of assessing VMT impacts, although lead agencies have the discretion to deploy a qualitative approach if that more accurately reflects local conditions. To analyze the impacts of the proposed projects, a combination of quantitative and qualitative measures were used.

## VMT Significance Thresholds

The Technical Advisory identifies several criteria that may be used by jurisdictions to identify certain types of projects that are unlikely to have a VMT impact and can be "screened" from further VMT analysis. One of these screening criteria pertains to small projects, which OPR identifies as generating fewer than 110 vehicle trips per day. For projects that require VMT analysis, the Technical Advisory recommends significance thresholds for various land uses. In the case of residential uses, projects have a less-than-significant VMT impact if the project's VMT per capita is at least 15 percent below the citywide or regional average. For retail development, projects that are less than 50,000 square feet are considered to be local-serving. While larger projects may draw customers from greater distances, projects below this threshold typically redistribute trips by providing additional retail opportunities closer to where people live.

All four of the proposed projects include a mix of uses. The Technical Advisory states that for mixed use projects it is recommended that VMT be evaluated for each use independently or, if one of the uses is considered incidental to the project, then analyzing only the dominant use may be appropriate.

## VMT Assessment by Site

The VMT analyses for the four project sites are discussed below. The Danco and Paradise sites include commercial spaces of similar size and involve a similar analysis approach, so both projects are discussed together. The Dayken and Rousseau sites have unique characteristics and are discussed separately.

### Danco and Paradise Sites

As mixed-use projects, each use was analyzed separately, beginning with the residential component of each project and followed by consideration of the commercial uses.

#### *Residential Uses*

For VMT analysis based on travel demand models, the Technical Advisory indicates that it may be appropriate to apply a countywide, rather than regional, average if most people both live and work within the smaller geographic area. Given the rural character and size of Humboldt County, the countywide average is the appropriate metric for this analysis. Estimates of VMT per capita for the project area were obtained from Caltrans District 1, which oversees the Humboldt County travel demand model. The Humboldt County model is based on geographic areas known as transportation analysis zones (TAZs), and incoming development is presumed to have similar transportation patterns as existing development in the project's TAZ. Therefore, projects proposed for low-VMT

zones are expected to generate low levels of VMT per resident, while projects proposed in high-VMT areas are presumed to have relatively high levels of VMT.

The proposed projects are all located in TAZ 229, where the VMT per resident is 18.85. Since the countywide average for Humboldt County 19.7 VMT per resident, the significance threshold is 16.7; therefore, residential projects that are large enough to require VMT analysis would need to reduce their trip lengths by 11.4 percent. It is noted that for residential projects, VMT reductions can often be assumed based on project characteristics such as density, which is associated with reduced VMT. The proposed projects are located within the Blue Lake city limits and less than one-half mile from the center of town, have access to bus stops with service to Arcata, and existing sidewalk connectivity. Therefore, residents of the proposed projects would be expected to make some local trips using transportation modes other than vehicles.

- *Danco*: The project includes 40 multifamily residential units on a 2.5-acre project site, including 36 affordable units. According to the publication *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*, California Air Pollution Control Officers Association (CAPCOA), 2021, residential development at a greater density than typical suburban development is associated with reduced VMT. Applying the methodology in the Handbook, the VMT is estimated to be 26.35 percent lower than projects consisting of single-family homes. The VMT per capita would therefore be reduced from 18.85 to 13.88. This is below the countywide threshold of 16.7, so the impact would be considered less than significant. This reduction is further supported by the project location within the Blue Lake city limits less than one-half mile from the center of town, with sidewalk connectivity and access to bus stops that provide service to Arcata. Given these locational factors and availability of non-vehicle transportation options, residents of the proposed projects would be expected to make some local trips using transportation modes other than vehicles. It is noted that affordable housing is also associated with reduced VMT; since 90 percent of the proposed units at the Danco site would be affordable, the VMT would be further reduced.

Additionally, this site has three units proposed as live/work spaces, which are intended to be developed as local-serving businesses. Since there is no state guidance available for analyzing this use, they were considered as residential uses; it is estimated that trips generated by work-related activities would generally be offset by the elimination of commute trips for residents.

- *Paradise*: The residential component of this project includes 20 units on a 1.4-acre site. It is noted that 10 of the units are proposed as live/work spaces, which are intended to be developed as local-serving businesses. As noted for the Danco site, they were considered as residential uses; it is estimated that trips generated by work-related activities would generally be offset by the elimination of commute trips for residents. Similar to the Danco site, the residential density of the project is considerably higher than typical single-family developments. Applying the methodology from the Handbook, a VMT reduction of 12.5 percent was taken, reducing the VMT per capita from 18.85 to 16.49. As this is below the countywide threshold of 16.7, the impact of the proposed residential uses would be less than significant.

### *Commercial Uses*

As proposed, the Danco and Paradise sites include 18,000 and 15,000 square feet of commercial space, respectively. While the applicants have indicated that it is intended that much or all of this space be developed as retail, a broader range of commercial uses would be permitted to provide flexibility. Therefore, the potential VMT impacts were analyzed to account for each of the potential uses that these projects might ultimately include.

- *Retail Uses*: The Technical Advisory indicates that retail development under 50,000 square feet can be considered to be local-serving, and that local-serving retail tends to result in more efficient travel patterns. In this case, customers would be expected to take advantage of retail options in Blue Lake rather than driving to more distant locations such as Arcata or Eureka. Since the introduction of local-serving retail tends to redistribute existing trips rather than generate new ones, this supports a reduction in regional VMT. The proposed commercial development for both of these sites is well below the 50,000 square foot threshold. A review was also conducted of the existing land use types in the project TAZ as indicated in the Humboldt County travel demand model. In TAZ 229, only 2.5 percent of all employment is in the retail sector, indicating

very limited retail opportunities in the area, so it is expected that there would be demand for such uses at this location among existing and incoming residents. In addition, given the geographic location of Blue Lake relative to larger population centers, retail projects of this size are unlikely to attract regional traffic from elsewhere in the County. Therefore, the VMT impact for retail uses at both sites would be less than significant.

- *Other Commercial Uses:* If demand is not sufficient to develop the commercial space at the Danco and Paradise sites solely as retail, at least some portion of this space could potentially be developed as office or manufacturing uses. Given Blue Lake's rural location these uses are expected to be small-scale, offering local services and employment opportunities, rather than regional-serving offices. Such uses would be expected to provide services and employment for existing residents in the area as well as incoming residents of the proposed residential units. As the project sites are within walking distance of one another and the center of Blue Lake, some of the employees and customers of such businesses would be expected to use transportation modes other than personal vehicles. With uses that are expected to be local-serving and would be accessible for residents of the proposed housing as well as existing Blue Lake residents, it is unlikely that such commercial uses would generate a significant impact on regional VMT.

## **Dayken Site**

The Dayken site is proposed to include 20,000 square feet of retail space as well as five residential units. As noted, the Technical Advisory indicates that an acceptable approach for analyzing mixed use projects is to analyze only the dominant use. Applying the standard trip generation rate for Strip Retail Plaza (LU #822), the retail use is estimated to generate 1,089 trips per day. By comparison, the proposed multifamily residential units (LU #220) would generate approximately 34 trips per day. As the trips associated with the residential development make up only three percent of the total site trips, this use can be considered incidental to the project; it is therefore appropriate to analyze only the dominant use. Since the proposed retail development at the Dayken site would be 20,000 square feet, which is below the 50,000 square foot threshold, the project's VMT impact is considered less than significant.

## **Rousseau Site**

This site is the smallest of the four included in this analysis, with only five residential units and 3,000 square feet of commercial space. Applying standard ITE trip generation rates, the five residential units are estimated to generate 34 trips per day. For the commercial use, the estimated project trips for office, light industrial, or manufacturing would be 33, 15, or 14 trips per day. Therefore, regardless of the particular use, the combined trip generation for the residential and commercial uses on the site would be less than 110 trips per day. Per the Technical Advisory, this would be considered a small project and is therefore considered to have a less-than-significant VMT impact.

Alternatively, if the commercial space is developed as retail, this would result in a higher trip generation, so the project-related trips would exceed the 110 trips per day threshold. However, the 3,000 square feet of retail space would be considered local-serving as it is well below the 50,000 square foot threshold for regional retail. Following the Technical Advisory recommendation for analyzing mixed use projects, the trip generation of the residential and retail uses were considered. Applying ITE trip generation rates, the retail use would generate an estimated 163 trips per day, while the residential use would generate an estimated 34 trips per day. Since the residential component of the project would make up only 17 percent of the overall trip generation, this is considered an incidental use and only the dominant use needs to be evaluated. As the retail use would be local-serving, the VMT impact of this project if developed as residential and retail would be less than significant.

## **Policy Support for VMT Findings**

There are several policies and actions by the City of Blue Lake and County of Humboldt that further support reduction of VMT in the project area. The County's *Regional Climate Action Plan* (2022 draft) discusses mixed-use development patterns as a land-use planning strategy to reduce VMT. As discussed in the Plan, a higher ratio of jobs to housing indicates that people can live close to where they work and more easily walk, bike, or use transit to access critical services.

The City has amended its zoning code to designate the Powers Creek District as an Opportunity zone to encourage the development of such mixed uses. This includes live-work units and the inclusion of other residential uses in addition to the commercial uses allowed in the District.

The City has also included the following planned improvements in its Capital Improvement Program (CIP) to support pedestrian, bicycle, and transit use in the Powers Creek District.

- Paving the existing trail system;
- Eliminating pedestrian facility gaps to improve access between the District, Downtown, and the Blue Lake Elementary School;
- Constructing complete streets improvements along the City's industrial truck route;
- Providing bicycle parking spaces; and
- Constructing a new bus stop to more directly serve the District.

Given the proximity of the project sites to the center of Blue Lake, as well as the mix of uses to be provided as part of these projects, the project would support short trips to access a variety of destinations by non-vehicle transportation modes and the completion of these infrastructure improvements would be expected to reduce VMT associated with the projects.

**Significance Finding** – All four of the proposed projects would be expected to have a less-than-significant impact on VMT.

# Safety Issues

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The potential for the project to impact safety was evaluated in terms of the adequacy of sight distance and need for turn lanes at the project accesses as well as the adequacy of stacking space in dedicated turn lanes at the study intersections to accommodate additional queuing due to adding project-generated trips. This section addresses the third transportation bullet on the CEQA checklist which is whether or not the project would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

## Site Access

The project site would be accessed via Taylor Way. While the site plan is still preliminary, it is anticipated that all aspects of the site, including street and driveway widths and turning radii, would be designed in accordance with applicable standards.

## Sight Distance

Sight distances along Taylor Way from the project locations were evaluated based on sight distance criteria contained in the *Highway Design Manual* published by Caltrans. The recommended sight distance for driveways is based on stopping sight distance, with the approach travel speed used as the basis for determining the recommended sight distance. Additionally, the stopping sight distance needed for a following driver to stop if there is a vehicle waiting to turn into a side street or driveway is evaluated based on stopping sight distance criterion and the approach speed on the major street.

Field measurements were obtained at the potential driveway locations. Based on a design speed of 25 mph, the minimum stopping sight distance needed is 150 feet. At any location along Taylor Way there is at least 150 feet of sight distance in either direction. Sight distance is therefore adequate. Signs and other project components can negatively affect sight lines, so care should be taken during the design phase to ensure that adequate sight lines are maintained.

## Access Analysis

Consideration was given to the potential need for a left-turn lane on Taylor Way to serve the project sites. However, all, or nearly all, inbound trips would be via a right turn as drivers would be traveling westbound from Hatchery Road, and the site is on the north side of the roadway. Given the limited potential for left turns inbound as well as the low volume on Taylor Way, a left-turn lane is not warranted and therefore not recommended.

## Queuing

The City of Blue Lake does not prescribe thresholds of significance regarding queue lengths. However, an increase in queue length due to project traffic was considered a potentially significant impact if the increase would cause the queue to extend out of a dedicated turn lane into a through traffic lane, or the back of queue into a visually restricted area, such as a blind corner. If queues would already be expected to extend past a dedicated turn lane or into a visually restricted area without project traffic, the addition of project traffic was considered to constitute a potentially adverse effect only if it would cause a new unacceptable conditions; in other words, if the queue were already beyond the turn lane and the project would cause it to stack into an adjacent intersection or a visually restricted area, and that would not occur without the project, that would be considered an impact.

Under each scenario, the projected 95<sup>th</sup> percentile queues in dedicated turn pockets at the study intersections were determined based on the output from the analysis software. Only the three intersections that have dedicated

turn pockets on stop-controlled approaches are shown. Summarized in Table 5 are the predicted queue lengths for all movements with limited storage capacity. Copies of the calculations are contained in Appendix B.

**Table 5 – 95<sup>th</sup> Percentile Queues in Dedicated Turn Lanes**

Study Intersection Approach	Available Storage	95 <sup>th</sup> Percentile Queues							
		AM Peak Hour				PM Peak Hour			
		E	E+P	F	F+P	E	E+P	F	F+P
1. Blue Lake Blvd/SR 299 W									
WB Left-Turn Lane	50	5	6	7	8	7	9	10	12
WB Right-Turn Lane	55	0	0	0	0	0	0	0	0
2. Blue Lake Blvd/SR 299 E									
EB Left-Turn Lane	105	1	1	1	2	1	1	2	2
5. Railroad Ave/G St									
EB Right-Turn Lane	45	6	8	6	9	5	10	5	10

Notes: 95<sup>th</sup> percentile queue based on Vistro output; all distances are measured in feet; E = existing conditions; E+P = existing plus project conditions; F = future conditions; F+P = future plus project conditions

**Finding** – The existing turn lanes at the study intersections have sufficient storage length to accommodate the estimated 95<sup>th</sup> percentile queues under all scenarios; therefore, the proposed project’s impact on queueing would be less than significant.

**Significance Finding** – The proposed project would not introduce any new hazards and would therefore be expected to have a less-than-significant impact on safety.

# Emergency Access and Response

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The final transportation bullet on the CEQA checklist requires an evaluation as to whether the project would result in inadequate emergency access or not.

## Site Access and Circulation

In *Emergency Response, Traffic Calming and Traditional Neighborhood Streets* published by the Local Government Commission, concerns that fire departments and other emergency responders have about efforts by residents and developers to calm traffic and build narrower streets are addressed. This reference discusses the impact of different treatments on emergency response times and explains what works and what does not. Fire departments have traditionally required a 36-foot curb-to-curb width on residential streets to ensure a 20-foot clear path for their use in the case of an emergency, assuming that parking takes up 8 feet on each side. Based on recent experience, the Commission has found that a 30- to 32-foot cross-section is adequate on low volume residential streets.

Taylor Way is 39 feet wide, so exceeds this standard.

As noted above, it is anticipated that all aspects of the site, including street and driveway widths and turning radii, would be designed in accordance with applicable standards. The internal transportation facilities would therefore be expected to accommodate emergency response vehicles adequately.

## Off-Site Impacts

While the project would be expected to result in slight increases in delay for traffic on Hatchery Road as detailed in the Capacity Analysis section of this report, emergency response vehicles can claim the right-of-way by using their lights and sirens; therefore, the project would be expected to have a nominal effect on emergency response times.

**Finding** – Emergency access and site circulation are anticipated to function acceptably with incorporation of applicable design standards into the site layout, and traffic from the proposed development would be expected to have a less-than-significant impact on emergency response times.

# Capacity Analysis

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## Intersection Level of Service Methodologies

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation.

The study intersections were analyzed using methodologies published in the *Highway Capacity Manual (HCM)*, Transportation Research Board, 7<sup>th</sup> Edition, 2022. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle.

The Levels of Service for the intersections with side street stop controls, or those which are unsignalized and have one or two approaches stop controlled, were analyzed using the “Two-Way Stop-Controlled” intersection capacity method from the HCM. This methodology determines a level of service for each minor turning movement by estimating the level of average delay in seconds per vehicle. Results are presented for individual movements and approaches together with the weighted overall average delay for the intersection.

The study intersection of Railroad Avenue/G Street, which has stop signs on all approaches, was analyzed using the “All-Way Stop-Controlled” Intersection methodology from the HCM. This methodology evaluates delay for each approach based on turning movements, opposing and conflicting traffic volumes, and the number of lanes. Average vehicle delay is computed for the intersection as a whole and is then related to a Level of Service.

The intersection of Blue Lake Boulevard/Chartin Way-Chartin Road is controlled by a modern roundabout and was evaluated using the FHWA Roundabout Method, also contained within the *Unsignalized Methodology of the HCM* 7<sup>th</sup> Edition, Transportation Research Board, 2022. This methodology determines intersection operation using a gap acceptance method along with basic geometric and volume data to calculate entering and circulating flows. This information is then translated to average vehicle delays, with LOS break points at the same delays as used in the two-way stop-controlled methodology.

The ranges of delay associated with the various levels of service are indicated in Table 6.



**Table 6 – Intersection Level of Service Criteria**

<b>LOS</b>	<b>Two-Way Stop-Controlled</b>	<b>All-Way Stop-Controlled</b>	<b>Roundabout</b>
A	Delay of 0 to 10 seconds. Gaps in traffic are readily available for drivers exiting the minor street.	Delay of 0 to 10 seconds. Upon stopping, drivers are immediately able to proceed.	Delay of 0 to 10 seconds.
B	Delay of 10 to 15 seconds. Gaps in traffic are somewhat less readily available than with LOS A, but no queuing occurs on the minor street.	Delay of 10 to 15 seconds. Drivers may wait for one or two vehicles to clear the intersection before proceeding from a stop.	Delay of 10 to 15 seconds.
C	Delay of 15 to 25 seconds. Acceptable gaps in traffic are less frequent, and drivers may approach while another vehicle is already waiting to exit the side street.	Delay of 15 to 25 seconds. Drivers will enter a queue of one or two vehicles on the same approach, and wait for vehicle to clear from one or more approaches prior to entering the intersection.	Delay of 15 to 25 seconds.
D	Delay of 25 to 35 seconds. There are fewer acceptable gaps in traffic, and drivers may enter a queue of one or two vehicles on the side street.	Delay of 25 to 35 seconds. Queues of more than two vehicles are encountered on one or more approaches.	Delay of 25 to 35 seconds.
E	Delay of 35 to 50 seconds. Few acceptable gaps in traffic are available, and longer queues may form on the side street.	Delay of 35 to 50 seconds. Longer queues are encountered on more than one approach to the intersection.	Delay of 35 to 50 seconds.
F	Delay of more than 50 seconds. Drivers may wait for long periods before there is an acceptable gap in traffic for exiting the side streets, creating long queues.	Delay of more than 50 seconds. Drivers enter long queues on all approaches.	Delay of more than 50 seconds.

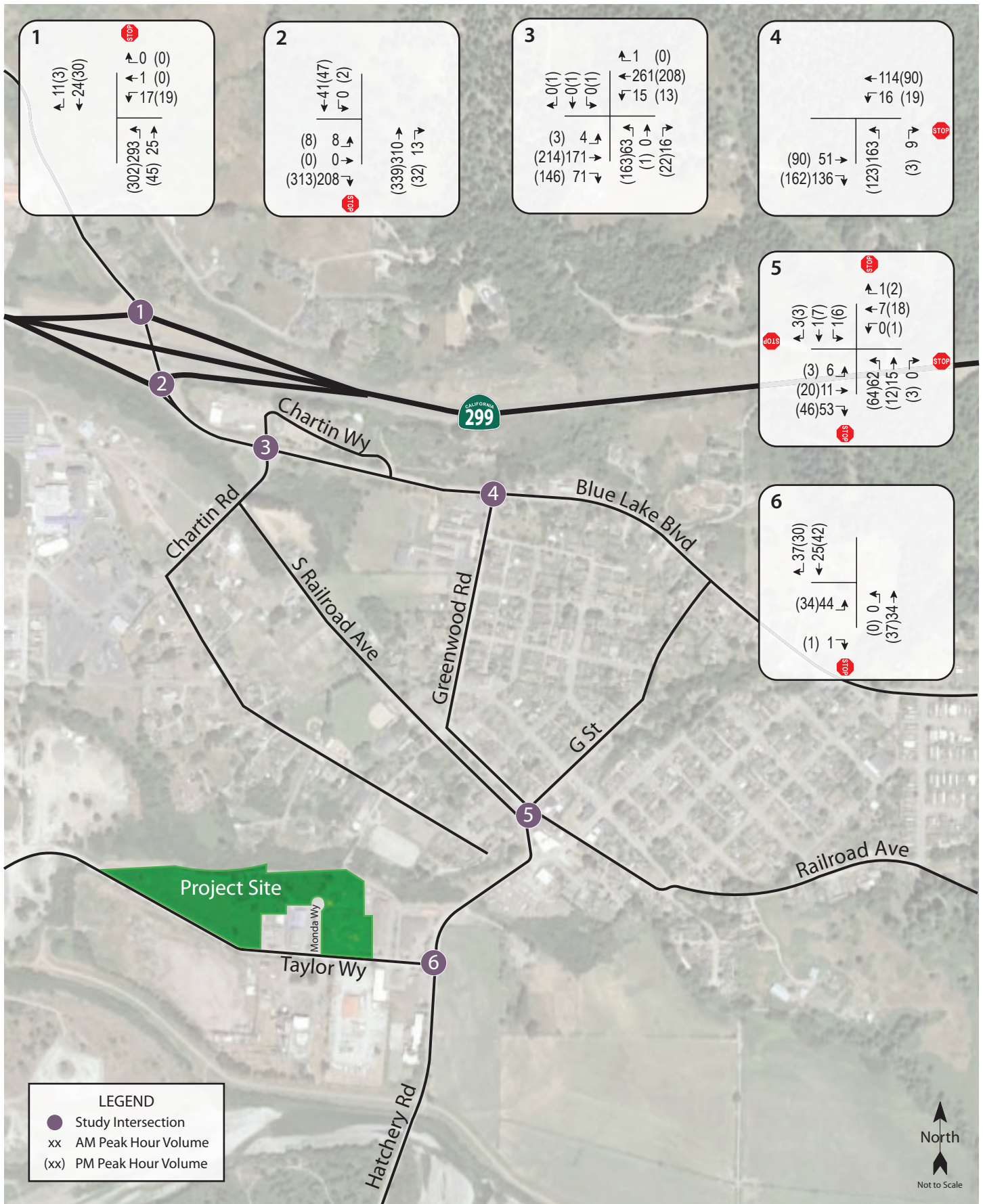
Reference: *Highway Capacity Manual*, Transportation Research Board, 2022

## Traffic Operation Standards

As the *City of Blue Lake General Plan*, 1986, does not include a standard of significance relative to Level of Service, the *Humboldt County General Plan*, 2017, was consulted. According to Policy 5 of the Circulation Element, the County’s goal is LOS C on all roadway segments and at all intersections, except for US 101 which has a standard of LOS D on its mainline and at its intersections. This standard was applied to the overall operation of the intersection, though consideration was given to the need for capacity enhancements where the service level on a stop-controlled approach dropped to LOS D or lower. It is noted that Caltrans no longer has an operational standard, so LOS E or F would be considered acceptable for any intersection under their jurisdiction.

## Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the a.m. and p.m. peak periods. This condition does not include project-generated traffic volumes. Volume data was collected on Tuesday, February 7, 2023, when local schools were in session. Under existing conditions, the study intersections operate acceptably at LOS A overall during both peak hours and LOS C or better for individual movements. The existing traffic volumes are shown in Figure 3. A summary of the intersection Level of Service calculations is contained in Table 7, and copies of the calculations are provided in Appendix B.



Transportation Impact Study for the Powers Creek District Project  
**Figure 3 – Existing Traffic Volumes**

**Table 7 – Existing Peak Hour Intersection Levels of Service**

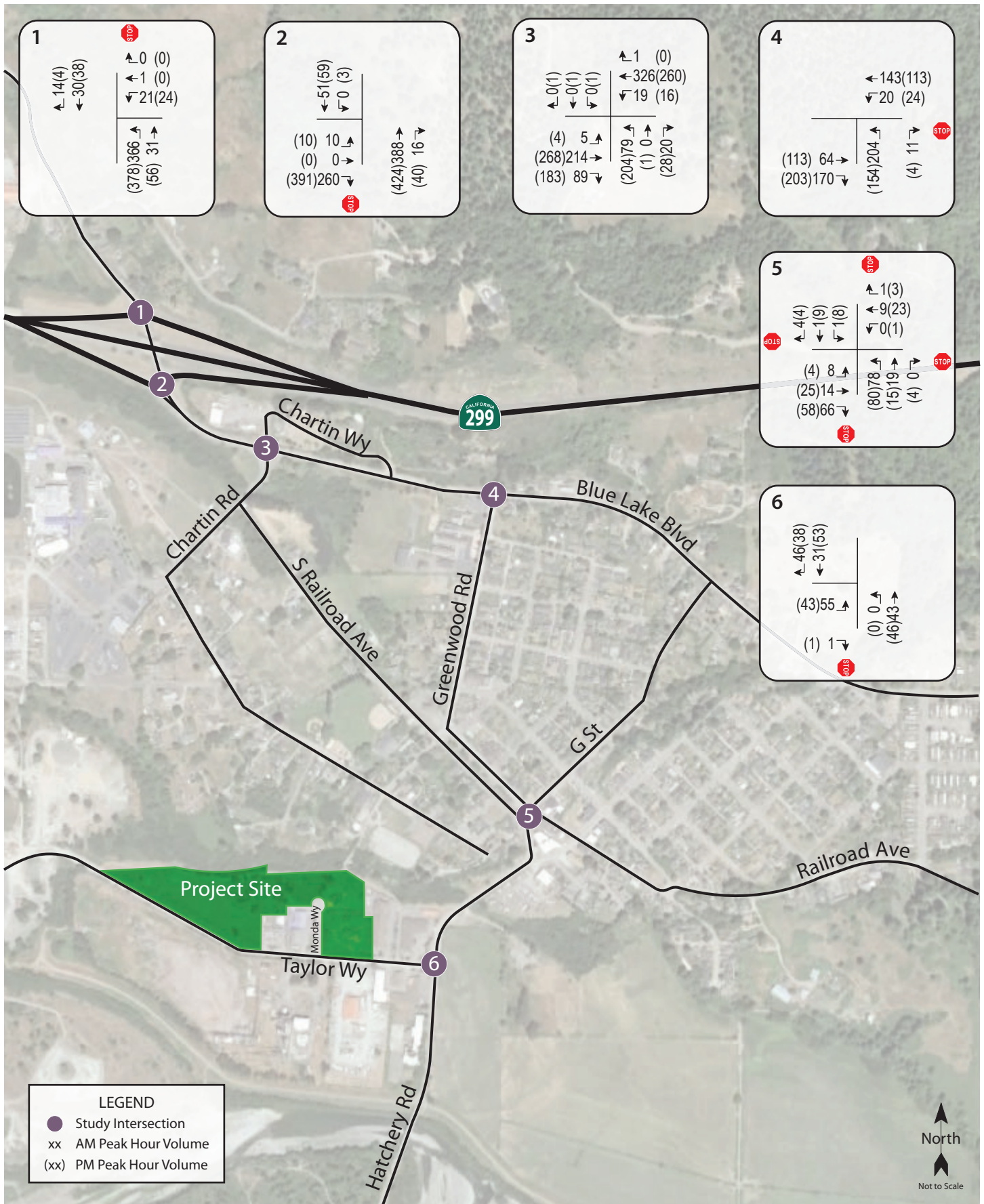
<b>Study Intersection</b> <b>Approach</b>	<b>AM Peak</b>		<b>PM Peak</b>	
	<b>Delay</b>	<b>LOS</b>	<b>Delay</b>	<b>LOS</b>
1. Blue Lake Blvd/SR 299 West Ramps	7.1	A	6.9	A
<i>Westbound (SR 299 Ramp) Left Turn</i>	<i>18.8</i>	<i>C</i>	<i>21.1</i>	<i>C</i>
<i>Westbound (SR 299 Ramp) Thru/Right Turn</i>	<i>8.5</i>	<i>A</i>	<i>8.5</i>	<i>A</i>
2. Blue Lake Blvd/SR 299 East Ramps	3.6	A	4.4	A
<i>Eastbound (SR 299 Ramp) Left Turn</i>	<i>11.6</i>	<i>B</i>	<i>11.7</i>	<i>B</i>
3. Blue Lake Blvd/Chartin Wy-Rd	4.7	A	5.0	A
4. Blue Lake Blvd/Greenwood Rd	4.7	A	3.4	A
<i>Northbound (Greenwood Rd) Approach</i>	<i>12.5</i>	<i>B</i>	<i>11.9</i>	<i>B</i>
5. Railroad Ave/G St	7.5	A	7.5	A
6. Hatchery Rd/Taylor Wy	2.9	A	2.2	A
<i>Eastbound (Taylor Wy) Approach</i>	<i>9.1</i>	<i>A</i>	<i>9.3</i>	<i>A</i>

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor movements and approaches to two-way stop-controlled intersections are indicated in *italics*

## Future Conditions

Future volume projections were developed through application of a growth factor developed and published by Caltrans District 1 in the “2014 Growth Factor Map”. Per this guidance a factor of 1.25, which is the 20-year growth factor estimated for SR 299, was applied to all movements at the study intersections to estimate volumes in 2043.

Under the anticipated future volumes, the study intersections are expected to operate acceptably at LOS A overall. Future volumes are shown in Figure 4 and operating conditions are summarized in Table 8.



Transportation Impact Study for the Powers Creek District Project  
**Figure 4 – Future Traffic Volumes**

**Table 8 – Future Peak Hour Intersection Levels of Service**

<b>Study Intersection</b> <b>Approach</b>	<b>AM Peak</b>		<b>PM Peak</b>	
	<b>Delay</b>	<b>LOS</b>	<b>Delay</b>	<b>LOS</b>
1. Blue Lake Blvd/SR 299 West Ramps	7.3	A	7.1	A
<i>Westbound (SR 299 Ramp) Left Turn</i>	<i>22.0</i>	<i>C</i>	<i>24.4</i>	<i>C</i>
<i>Westbound (SR 299 Ramp) Right Turn</i>	<i>8.5</i>	<i>A</i>	<i>8.6</i>	<i>A</i>
2. Blue Lake Blvd/SR 299 East Ramps	3.7	A	4.7	A
<i>Eastbound (SR 299 Ramp) Left Turn</i>	<i>12.0</i>	<i>B</i>	<i>12.8</i>	<i>B</i>
3. Blue Lake Blvd/Chartin Wy-Rd	5.0	A	5.8	A
4. Blue Lake Blvd/Greenwood Rd	4.8	A	3.6	A
<i>Northbound (Greenwood Rd) Approach</i>	<i>13.0</i>	<i>B</i>	<i>12.8</i>	<i>B</i>
5. Railroad Ave/G St	7.6	A	7.6	A
6. Hatchery Rd/Taylor Wy	2.9	A	2.3	A
<i>Eastbound (Taylor Wy) Approach</i>	<i>9.2</i>	<i>A</i>	<i>9.3</i>	<i>A</i>

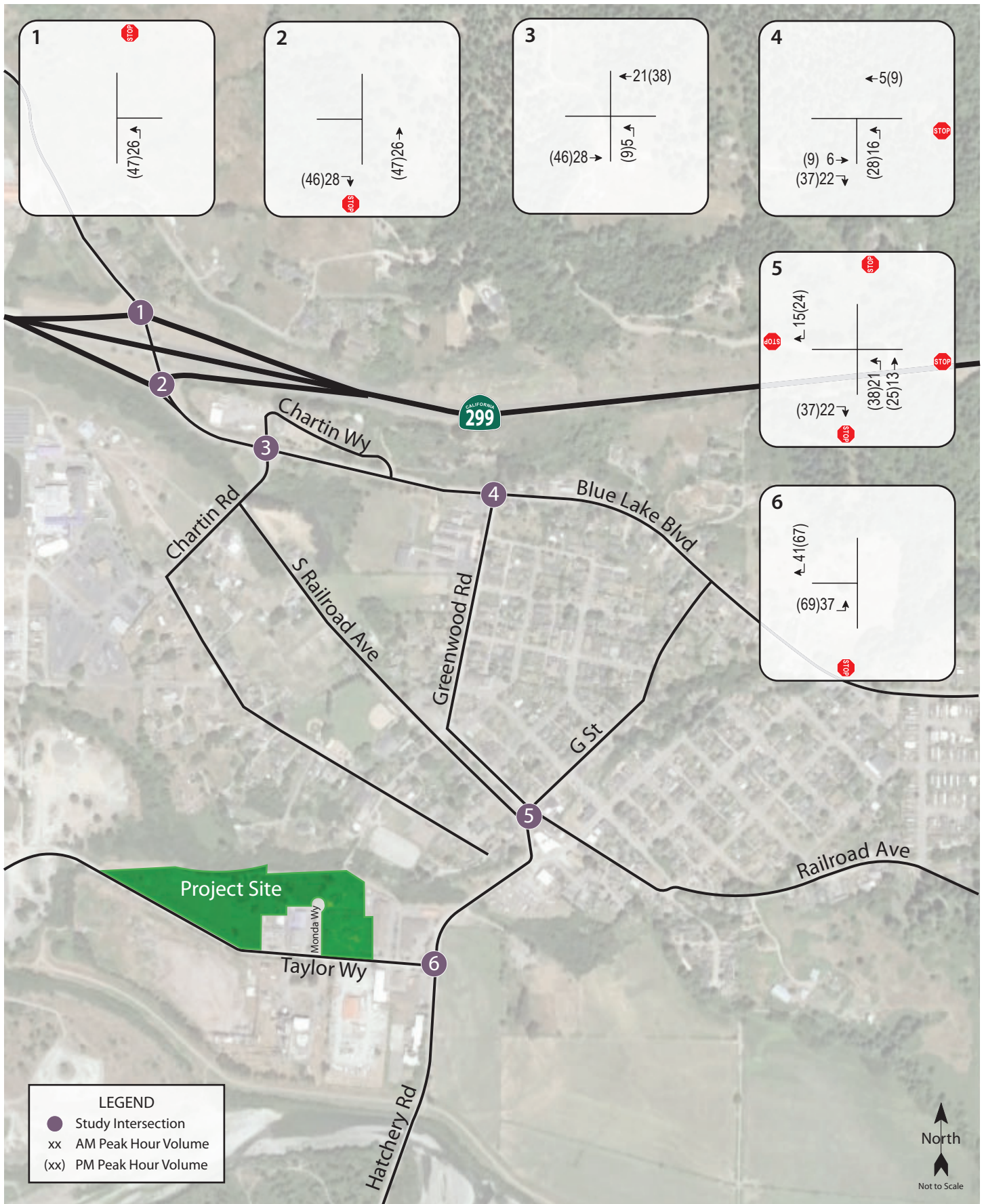
Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor movements and approaches to two-way stop-controlled intersections are indicated in *italics*

## Project Conditions

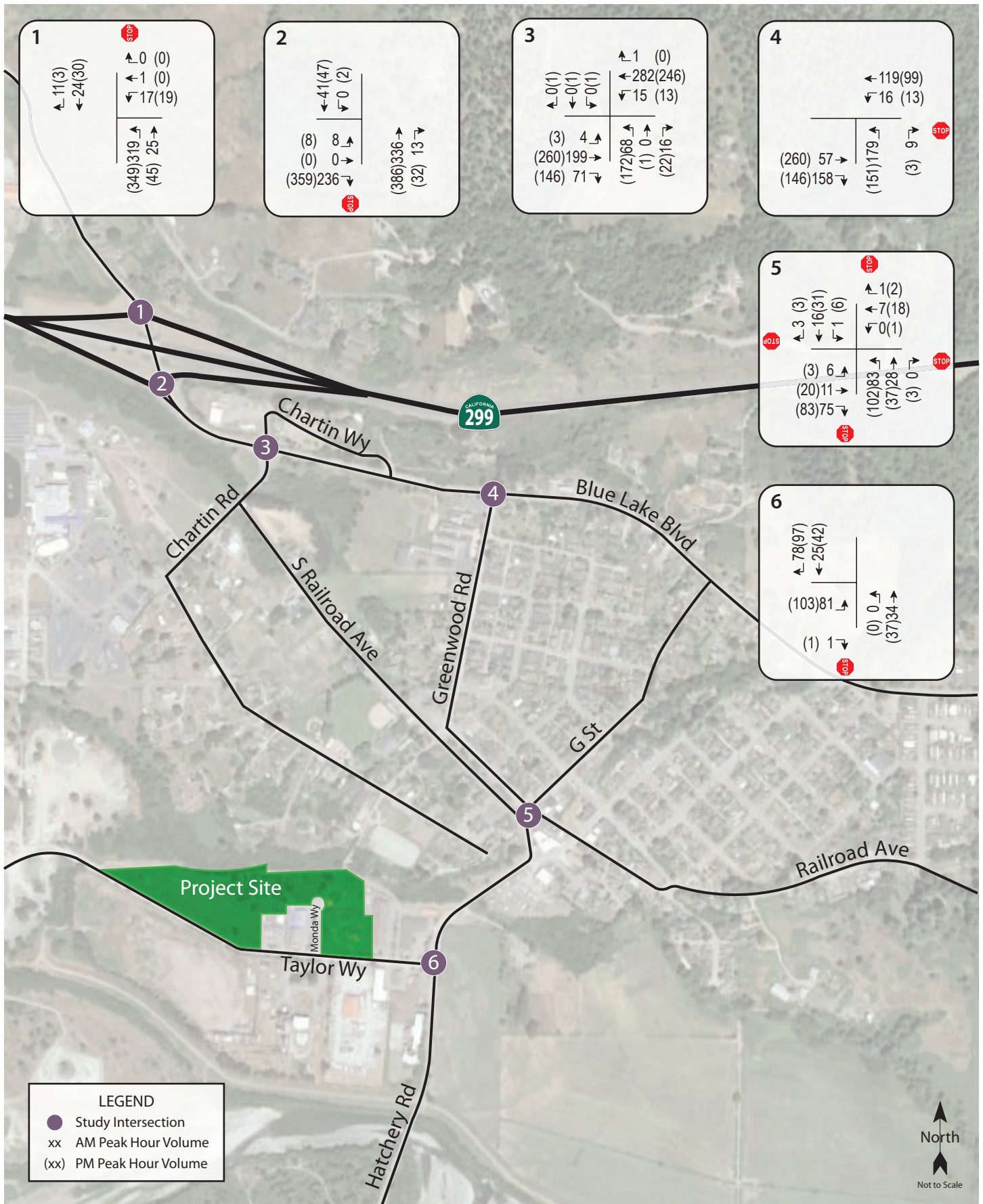
It is noted that subsequent to the preparation of the following analysis the Danco project was modified to include three live/work units. While these units are included in the project description and trip generation indicated above, they were not included in the analysis. However, given that these additional units result in no more than two new trips either inbound or outbound during both peak periods evaluated, no changes to the results indicated below would be anticipated as a result of these added trips. The analysis was therefore not updated to reflect this nominal change in the trip generation.

## Existing plus Project Conditions

Upon the addition of project-related traffic to the existing volumes, the study intersections are expected to continue operating acceptably at LOS A overall. Project traffic volumes are shown in Figure 5 and Existing plus Project Traffic volumes in Figure 6. These results are summarized in Table 9.



Transportation Impact Study for the Powers Creek District Project  
**Figure 5 – Project Traffic Volumes**



Transportation Impact Study for the Powers Creek District Project  
**Figure 6 – Existing plus Project Traffic Volumes**



**Table 9 – Existing and Existing Plus Project Peak Hour Intersection Levels of Service**

Study Intersection Approach	Existing Conditions				Existing plus Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Blue Lake Blvd/SR 299 West Ramps <i>WB (SR 299 Ramp) Left Turn</i> <i>WB (SR 299 Ramp) Right Turn</i>	7.1	A	6.9	A	7.3	A	7.3	A
	<i>18.8</i>	<i>C</i>	<i>21.1</i>	<i>C</i>	<i>20.7</i>	<i>C</i>	<i>25.4</i>	<i>D</i>
	8.5	A	8.5	A	8.5	A	8.5	A
2. Blue Lake Blvd/SR 299 East Ramps <i>EB (SR 299 Ramp) Left Turn</i>	3.6	A	4.4	A	3.8	A	4.7	A
	<i>11.6</i>	<i>B</i>	<i>11.7</i>	<i>B</i>	<i>11.9</i>	<i>B</i>	<i>12.2</i>	<i>B</i>
3. Blue Lake Blvd/Chartin Wy-Rd	4.7	A	5.0	A	5.0	A	5.4	A
4. Blue Lake Blvd/Greenwood Rd <i>NB (Greenwood Rd) Approach</i>	4.7	A	3.4	A	4.9	A	3.7	A
	<i>12.5</i>	<i>B</i>	<i>11.9</i>	<i>B</i>	<i>13.3</i>	<i>B</i>	<i>12.9</i>	<i>B</i>
5. Railroad Ave/G St	7.5	A	7.5	A	7.8	A	8.1	A
6. Hatchery Rd/Taylor Wy <i>EB (Taylor Wy) Approach</i>	2.9	A	2.3	A	3.8	A	4.0	A
	<i>9.1</i>	<i>A</i>	<i>9.3</i>	<i>A</i>	<i>9.4</i>	<i>A</i>	<i>9.9</i>	<i>A</i>

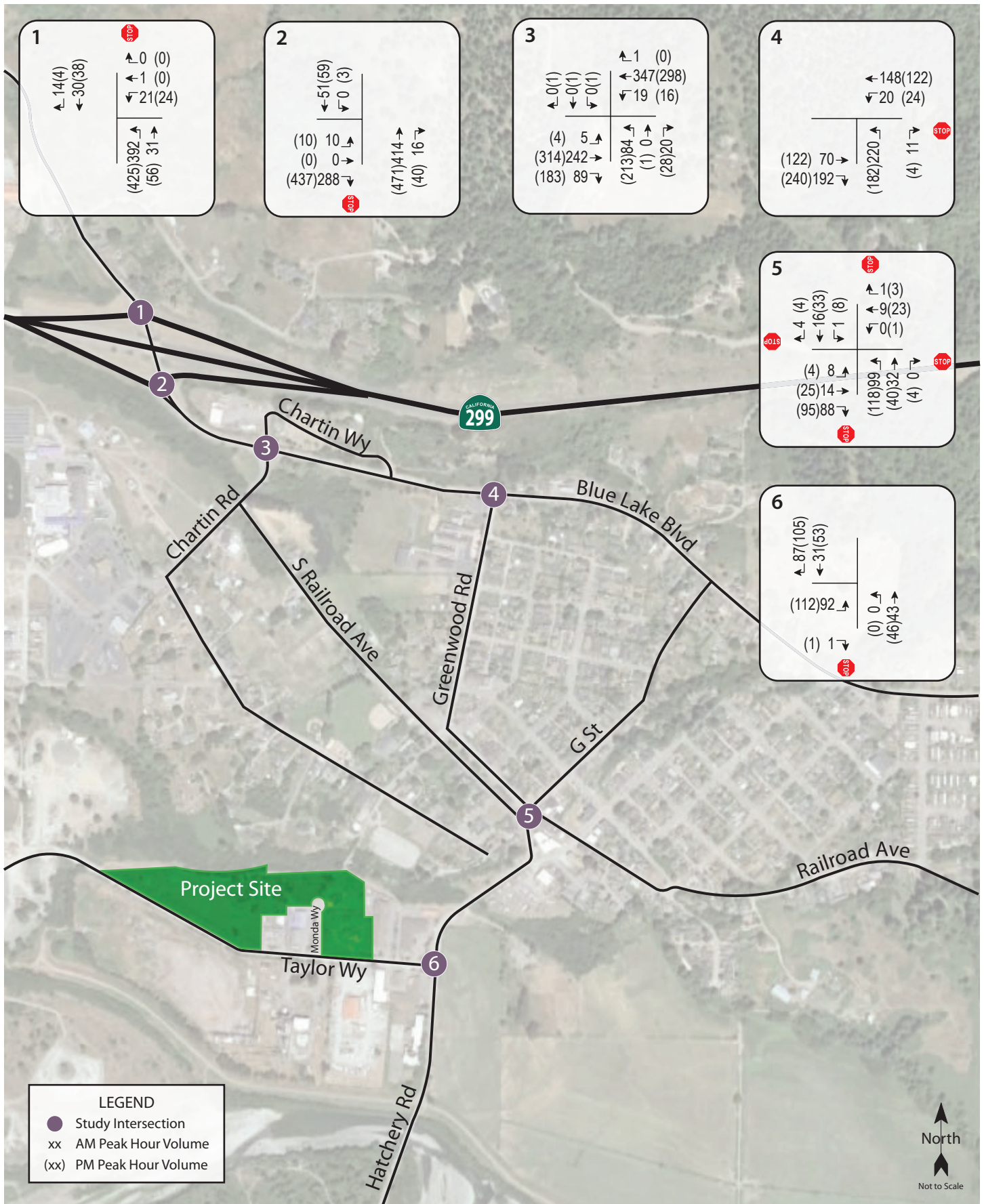
Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor movements and approaches to two-way stop-controlled intersections are indicated in *italics*

**Finding** – The study intersections are expected to continue operating at an acceptable overall Level of Service overall upon the addition of project-generated traffic to existing volumes. While LOS D is projected for the left-turn movement from the SR 299 West off-ramp to Blue Lake Boulevard, this movement carries a volume of only 19 vehicles, the delay exceeds the minimum for LOS C by 0.4 seconds, and the increase in delay is less than five seconds. Further, as this intersection is under Caltrans’ jurisdiction, there is no standard for an acceptable service level, so LOS D operation would be considered acceptable. The project’s effect on operations is therefore considered acceptable.

### Future plus Project Conditions

Upon the addition of project-generated traffic to the anticipated future volumes, the study intersections are expected to operate acceptably. The traffic volumes are shown in Figure 7, and the Future plus Project operating conditions are summarized in Table 10.





Transportation Impact Study for the Powers Creek District Project  
**Figure 7 – Future plus Project Traffic Volumes**



**Table 10 – Future and Future plus Project Peak Hour Intersection Levels of Service**

Study Intersection Approach	Future Conditions				Future plus Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Blue Lake Blvd/SR 299 West Ramps	7.3	A	7.1	A	7.5	A	7.5	A
<i>WB (SR 299 Ramp) Left Turn</i>	<i>22.1</i>	<i>C</i>	<i>24.4</i>	<i>C</i>	<i>24.2</i>	<i>C</i>	<i>29.0</i>	<i>D</i>
<i>WB (SR 299 Ramp) Right Turn</i>	<i>8.5</i>	<i>A</i>	<i>8.6</i>	<i>A</i>	<i>8.5</i>	<i>A</i>	<i>8.6</i>	<i>A</i>
2. Blue Lake Blvd/SR 299 East Ramps	3.7	A	4.7	A	3.8	A	5.0	A
<i>EB (SR 299 Ramp) Left Turn</i>	<i>12.0</i>	<i>B</i>	<i>12.8</i>	<i>B</i>	<i>12.3</i>	<i>B</i>	<i>13.4</i>	<i>B</i>
3. Blue Lake Blvd/Chartin Wy-Rd	5.0	A	5.8	A	5.2	A	6.2	A
4. Blue Lake Blvd/Greenwood Rd	4.8	A	3.6	A	5.0	A	4.0	A
<i>NB (Greenwood Rd) Approach</i>	<i>13.0</i>	<i>B</i>	<i>12.8</i>	<i>B</i>	<i>13.7</i>	<i>B</i>	<i>14.0</i>	<i>B</i>
5. Railroad Ave/G St	7.6	A	7.6	A	7.8	A	8.1	A
6. Hatchery Rd/Taylor Wy	2.9	A	2.3	A	3.6	A	3.8	A
<i>EB (Taylor Wy) Approach</i>	<i>9.2</i>	<i>A</i>	<i>9.3</i>	<i>A</i>	<i>9.4</i>	<i>A</i>	<i>9.7</i>	<i>A</i>

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

**Finding** – The study intersections will continue operating acceptably overall with project traffic added, at the same overall Levels of Service as without it. Again, while LOS D operation is projected for the westbound left turn at Blue Lake Boulevard/SR 299 West Ramps, because this affects only 24 vehicles per hour, and is acceptable under Caltrans policy, the project’s effect on traffic operation is considered acceptable.

# Conclusions and Recommendations

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## Conclusions

- The proposed project is expected to generate an average of 1,591 trips per day, including 89 a.m. peak hour trips and 155 p.m. peak hour trips.
- The project site plan is a tentative sketch and does not identify any pedestrian facilities such as sidewalks, crosswalks, or curb ramps. There are no existing pedestrian facilities along the project frontage on Taylor Way or Monda Way, although the project site does have unpaved trail access.
- Existing bicycle and transit facilities serving the project site are adequate.
- Bicycle parking is not included on the site plan.
- The project is expected to have a less-than-significant impact on VMT.
- The proposed project would not introduce any new hazards and would therefore be expected to have a less-than-significant impact on safety.
- Emergency access and site circulation are anticipated to function acceptably with the incorporation of applicable design standards into the site layout.
- All six study intersections would operate at acceptable overall Levels of Service under Existing and Future conditions, without and with traffic generated by the project.

## Recommendations

- Sidewalks and streetlighting should be installed along the project frontages on Taylor Way and Monda Way, as well as ADA-compliant curb ramps at the intersection of Taylor Way/Monda Way and a crosswalk across the north leg of the intersection. The project should not block access to the existing unpaved trails in the area.
- Bicycle racks should be installed near the project's commercial and light industrial uses, and long-term bicycle parking should be provided for project residents.
- Care should be taken during the design phase to ensure that any signing or landscaping does not block sight lines from the driveways.

# Study Participants and References

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## Study Participants

<b>Principal in Charge</b>	Dalene J. Whitlock, PE, PTOE
<b>Transportation Planner</b>	Barry Bergman, AICP
<b>Associate Engineer</b>	Allison Jaromin, PE
<b>Assistant Engineer</b>	Nathan Sharafian, EIT
<b>Graphics</b>	Cameron Wong
<b>Editing/Formatting</b>	Jessica Bender
<b>Quality Control</b>	Dalene J. Whitlock, PE, PTOE

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BLA001



# Appendix A

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## Collision Rate Calculations





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### Intersection Collision Rate Worksheet

#### TIS for the Powers Creek District Project

**Intersection # 1:** Blue Lake Blvd & SR 299 West Ramps

**Date of Count:** Tuesday, February 7, 2023

**Number of Collisions:** 0  
**Number of Injuries:** 0  
**Number of Fatalities:** 0  
**Average Daily Traffic (ADT):** 4000  
**Start Date:** August 1, 2016  
**End Date:** July 31, 2021  
**Number of Years:** 5

**Intersection Type:** Four-Legged  
**Control Type:** Stop & Yield Controls  
**Area:** Rural

$$\text{Collision Rate} = \frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times \text{Days per Year} \times \text{Number of Years}}$$

$$\text{Collision Rate} = \frac{0}{4,000} \times \frac{1,000,000}{365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
<b>Study Intersection</b>	0.00 c/mve	0.0%	0.0%
<b>Statewide Average*</b>	0.25 c/mve	2.5%	44.1%

**Notes**

ADT = average daily total vehicles entering intersection  
c/mve = collisions per million vehicles entering intersection  
\* 2019 Collision Data on California State Highways, Caltrans

**Intersection # 2:** Blue Lake Blvd & SR 299 East Ramps

**Date of Count:** Tuesday, February 7, 2023

**Number of Collisions:** 2  
**Number of Injuries:** 1  
**Number of Fatalities:** 0  
**Average Daily Traffic (ADT):** 7400  
**Start Date:** August 1, 2016  
**End Date:** July 31, 2021  
**Number of Years:** 5

**Intersection Type:** Four-Legged  
**Control Type:** Stop & Yield Controls  
**Area:** Rural

$$\text{Collision Rate} = \frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times \text{Days per Year} \times \text{Number of Years}}$$

$$\text{Collision Rate} = \frac{2}{7,400} \times \frac{1,000,000}{365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
<b>Study Intersection</b>	0.15 c/mve	0.0%	50.0%
<b>Statewide Average*</b>	0.25 c/mve	2.5%	44.1%

**Notes**

ADT = average daily total vehicles entering intersection  
c/mve = collisions per million vehicles entering intersection  
\* 2019 Collision Data on California State Highways, Caltrans

### Intersection Collision Rate Worksheet

#### TIS for the Powers Creek District Project

**Intersection # 3:** Blue Lake Blvd & Chartin Way-Chartin Road

**Date of Count:** Tuesday, February 7, 2023

**Number of Collisions:** 0  
**Number of Injuries:** 0  
**Number of Fatalities:** 0  
**Average Daily Traffic (ADT):** 7700  
**Start Date:** August 1, 2016  
**End Date:** July 31, 2021  
**Number of Years:** 5

**Intersection Type:** Four-Legged  
**Control Type:** Roundabout  
**Area:** Rural

$$\text{Collision Rate} = \frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times \text{Days per Year} \times \text{Number of Years}}$$

$$\text{Collision Rate} = \frac{0}{7,700} \times \frac{1,000,000}{365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
<b>Study Intersection</b>	<b>0.00 c/mve</b>	<b>0.0%</b>	<b>0.0%</b>
<b>Statewide Average*</b>	<b>0.46 c/mve</b>	<b>1.5%</b>	<b>36.0%</b>

**Notes**

ADT = average daily total vehicles entering intersection  
c/mve = collisions per million vehicles entering intersection  
\* 2019 Collision Data on California State Highways, Caltrans

**Intersection # 4:** Blue Lake Blvd & Greenwood Rd

**Date of Count:** Tuesday, February 7, 2023

**Number of Collisions:** 3  
**Number of Injuries:** 0  
**Number of Fatalities:** 0  
**Average Daily Traffic (ADT):** 4900  
**Start Date:** August 1, 2016  
**End Date:** July 31, 2021  
**Number of Years:** 5

**Intersection Type:** Tee  
**Control Type:** Stop & Yield Controls  
**Area:** Rural

$$\text{Collision Rate} = \frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times \text{Days per Year} \times \text{Number of Years}}$$

$$\text{Collision Rate} = \frac{3}{4,900} \times \frac{1,000,000}{365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
<b>Study Intersection</b>	<b>0.34 c/mve</b>	<b>0.0%</b>	<b>0.0%</b>
<b>Statewide Average*</b>	<b>0.19 c/mve</b>	<b>1.7%</b>	<b>39.8%</b>

**Notes**

ADT = average daily total vehicles entering intersection  
c/mve = collisions per million vehicles entering intersection  
\* 2019 Collision Data on California State Highways, Caltrans



**Intersection Collision Rate Worksheet**

**TIS for the Powers Creek District Project**

**Intersection # 5:** Railroad Ave & G St  
**Date of Count:** Tuesday, February 7, 2023

**Number of Collisions:** 0  
**Number of Injuries:** 0  
**Number of Fatalities:** 0  
**Average Daily Traffic (ADT):** 1900  
**Start Date:** August 1, 2016  
**End Date:** July 31, 2021  
**Number of Years:** 5

**Intersection Type:** Four-Legged  
**Control Type:** 4 Way Stop  
**Area:** Urban

$$\text{Collision Rate} = \frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times \text{Days per Year} \times \text{Number of Years}}$$

$$\text{Collision Rate} = \frac{0}{1,900} \times \frac{1,000,000}{365 \times 5}$$

	<u>Collision Rate</u>	<u>Fatality Rate</u>	<u>Injury Rate</u>
<b>Study Intersection</b>	<b>0.00 c/mve</b>	<b>0.0%</b>	<b>0.0%</b>
<b>Statewide Average*</b>	<b>0.17 c/mve</b>	<b>0.4%</b>	<b>26.8%</b>

**Notes**

ADT = average daily total vehicles entering intersection  
c/mve = collisions per million vehicles entering intersection  
\* 2019 Collision Data on California State Highways, Caltrans

**Intersection # 6:** Hatchery Rd & Taylor Wy  
**Date of Count:** Tuesday, February 7, 2023

**Number of Collisions:** 1  
**Number of Injuries:** 0  
**Number of Fatalities:** 0  
**Average Daily Traffic (ADT):** 1500  
**Start Date:** August 1, 2016  
**End Date:** July 31, 2021  
**Number of Years:** 5

**Intersection Type:** Tee  
**Control Type:** Stop & Yield Controls  
**Area:** Urban

$$\text{Collision Rate} = \frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times \text{Days per Year} \times \text{Number of Years}}$$

$$\text{Collision Rate} = \frac{1}{1,500} \times \frac{1,000,000}{365 \times 5}$$

	<u>Collision Rate</u>	<u>Fatality Rate</u>	<u>Injury Rate</u>
<b>Study Intersection</b>	<b>0.37 c/mve</b>	<b>0.0%</b>	<b>0.0%</b>
<b>Statewide Average*</b>	<b>0.09 c/mve</b>	<b>1.2%</b>	<b>46.9%</b>

**Notes**

ADT = average daily total vehicles entering intersection  
c/mve = collisions per million vehicles entering intersection  
\* 2019 Collision Data on California State Highways, Caltrans

# Appendix B

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## Intersection Level of Service Calculations





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**Intersection Level Of Service Report**

**Intersection 1: Blue Lake Boulevard/SR 299 West Ramps**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 18.8  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.068

**Intersection Setup**

Name	Blue Lake Boulevard			Blue Lake Boulevard			Eastbound			SR 299 West Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Blue Lake Boulevard			Blue Lake Boulevard			Eastbound			SR 299 West Ramp		
Base Volume Input [veh/h]	293	25	0	0	24	11	0	0	0	17	1	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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	293	25	0	0	24	11	0	0	0	17	1	0
Peak Hour Factor	0.9100	0.9100	1.0000	1.0000	0.9100	0.9100	1.0000	1.0000	1.0000	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	7	0	0	7	3	0	0	0	5	0	0
Total Analysis Volume [veh/h]	322	27	0	0	26	12	0	0	0	19	1	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00
d_M, Delay for Movement [s/veh]	7.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.84	17.70	8.48
Movement LOS	A	A				A	A				C	C	A
95th-Percentile Queue Length [veh/ln]	0.71	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.01	0.01
95th-Percentile Queue Length [ft/ln]	17.73	17.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.44	0.26	0.26
d_A, Approach Delay [s/veh]	7.19		0.00		0.00		0.00		0.00		18.79		
Approach LOS	A		A		A		A		C				
d_I, Intersection Delay [s/veh]	7.09												
Intersection LOS	C												

**Intersection Level Of Service Report**  
**Intersection 2: Blue Lake Boulevard/SR 299 East Ramps**

Control Type: Two-way stop  
Analysis Method: HCM 7th Edition  
Analysis Period: 15 minutes  
Delay (sec / veh): 11.6  
Level Of Service: B  
Volume to Capacity (v/c): 0.016

**Intersection Setup**

Name	Blue Lake Boulevard			Blue Lake Boulevard			SR 299 East Ramps					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Blue Lake Boulevard			Blue Lake Boulevard			SR 299 East Ramps					
Base Volume Input [veh/h]	0	310	13	0	41	0	8	0	208	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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	310	13	0	41	0	8	0	208	0	0	0
Peak Hour Factor	1.0000	0.8800	0.8800	0.8800	0.8800	1.0000	0.8800	0.8800	0.8800	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	88	4	0	12	0	2	0	59	0	0	0
Total Analysis Volume [veh/h]	0	352	15	0	47	0	9	0	236	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			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	0.02	0.00	0.23	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.02	0.00	0.00	11.59	11.92	9.58	0.00	0.00	0.00
Movement LOS		A	A	A	A		B	B	A			
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.89	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	1.24	1.24	22.31	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			0.00			9.65			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]							3.59					
Intersection LOS	B											

**Intersection Level Of Service Report**

**Intersection 3: Blue Lake Boulevard/Chartin Way-Chartin Road**

Control Type: Roundabout Delay (sec / veh): 4.7  
 Analysis Method: HCM 7th Edition Level Of Service: A  
 Analysis Period: 15 minutes

**Intersection Setup**

Name	Chartin Road			Chartin Way			Blue Lake Boulevard			Blue Lake Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

**Volumes**

Name	Chartin Road			Chartin Way			Blue Lake Boulevard			Blue Lake Boulevard		
Base Volume Input [veh/h]	63	0	16	0	0	0	4	171	71	15	261	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	63	0	16	0	0	0	4	171	71	15	261	1
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
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	0	5	0	0	0	1	49	20	4	75	0
Total Analysis Volume [veh/h]	72	0	18	0	0	0	5	197	82	17	300	1
Pedestrian Volume [ped/h]	0											

**Intersection Settings**

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	206			397			17			79		
Exiting Flow Rate [veh/h]	101			6			379			219		
Demand Flow Rate [veh/h]	63	0	16	0	0	0	4	171	71	15	261	1
Adjusted Demand Flow Rate [veh/h]	72	0	18	0	0	0	5	197	82	17	300	1

**Lanes**

Override Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Override Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	92	0	290	325
Capacity of Entry and Bypass Lanes [veh/h]	1119	921	1356	1274
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1097	903	1330	1249
X, volume / capacity	0.08	0.00	0.21	0.25

**Movement, Approach, & Intersection Results**

Lane LOS	A	A	A	A
95th-Percentile Queue Length [veh]	0.27	0.00	0.81	1.02
95th-Percentile Queue Length [ft]	6.69	0.00	20.25	25.40
Approach Delay [s/veh]	3.99	3.99	4.51	5.14
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	4.73			
Intersection LOS	A			

**Intersection Level Of Service Report**

**Intersection 4: Blue Lake Boulevard/Greenwood Road**

Control Type:	Two-way stop	Delay (sec / veh):	12.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.286

**Intersection Setup**

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	T		T		T	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Base Volume Input [veh/h]	163	9	51	136	16	114
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	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]	163	9	51	136	16	114
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	48	3	15	40	5	34
Total Analysis Volume [veh/h]	192	11	60	160	19	134
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	0.29	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	12.61	11.20	0.00	0.00	7.69	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.25	1.25	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	31.27	31.27	0.00	0.00	0.80	0.80
d_A, Approach Delay [s/veh]	12.53		0.00		0.95	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]			4.67			
Intersection LOS			B			

**Intersection Level Of Service Report**  
**Intersection 5: Railroad Avenue/G Street**

Control Type: All-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 7.5  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.106

**Intersection Setup**

Name	G Street			G Street			Railroad Avenue			Railroad Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	G Street			G Street			Railroad Avenue			Railroad Avenue		
Base Volume Input [veh/h]	62	15	0	1	1	3	6	11	53	0	7	1
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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	15	0	1	1	3	6	11	53	0	7	1
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
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	4	0	0	0	1	2	3	15	0	2	0
Total Analysis Volume [veh/h]	72	17	0	1	1	3	7	13	62	0	8	1
Pedestrian Volume [ped/h]	4			2			6			5		

**Intersection Settings**

**Lanes**

Capacity per Entry Lane [veh/h]	838	923	730	888	844
Degree of Utilization, x	0.11	0.01	0.03	0.07	0.01

**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.36	0.02	0.08	0.22	0.03
95th-Percentile Queue Length [ft]	8.88	0.41	2.11	5.62	0.81
Approach Delay [s/veh]	7.81	6.92	7.23		7.31
Approach LOS	A	A	A		A
Intersection Delay [s/veh]	7.50				
Intersection LOS	A				



**Intersection Level Of Service Report**  
**Intersection 6: Hatchery Road/Taylor Way**

Control Type:	Two-way stop	Delay (sec / veh):	9.1
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.056

**Intersection Setup**

Name	Hatchery Road		Hatchery Road		Taylor Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	←		→		←	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	90.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

**Volumes**

Name	Hatchery Road		Hatchery Road		Taylor Way	
Base Volume Input [veh/h]	0	34	25	37	44	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	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	34	25	37	44	1
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	0	10	7	11	13	0
Total Analysis Volume [veh/h]	0	40	29	44	52	1
Pedestrian Volume [ped/h]	0		0		5	

**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	0.06	0.00
d_M, Delay for Movement [s/veh]	7.38	0.00	0.00	0.00	9.13	8.72
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.18	0.18
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	4.54	4.54
d_A, Approach Delay [s/veh]	0.00		0.00		9.12	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]				2.91		
Intersection LOS	A					

**Intersection Level Of Service Report**

**Intersection 1: Blue Lake Boulevard/SR 299 West Ramps**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 21.1  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.090

**Intersection Setup**

Name	Blue Lake Boulevard			Blue Lake Boulevard			Eastbound			SR 299 West Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Blue Lake Boulevard			Blue Lake Boulevard			Eastbound			SR 299 West Ramp		
Base Volume Input [veh/h]	302	45	0	0	30	3	0	0	0	19	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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	302	45	0	0	30	3	0	0	0	19	0	0
Peak Hour Factor	0.8800	0.8800	1.0000	1.0000	0.8800	0.8800	1.0000	1.0000	1.0000	0.8800	0.8800	0.8800
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]	86	13	0	0	9	1	0	0	0	5	0	0
Total Analysis Volume [veh/h]	343	51	0	0	34	3	0	0	0	22	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00
d_M, Delay for Movement [s/veh]	7.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.11	19.09	8.54
Movement LOS	A	A			A	A				C	C	A
95th-Percentile Queue Length [veh/ln]	0.73	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.00
95th-Percentile Queue Length [ft/ln]	18.13	18.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.31	0.00	0.00
d_A, Approach Delay [s/veh]	6.78		0.00		0.00						21.11	
Approach LOS	A		A		A						C	
d_I, Intersection Delay [s/veh]							6.92					
Intersection LOS	C											

**Intersection Level Of Service Report**  
**Intersection 2: Blue Lake Boulevard/SR 299 East Ramps**

Control Type: Two-way stop  
Analysis Method: HCM 7th Edition  
Analysis Period: 15 minutes  
Delay (sec / veh): 11.7  
Level Of Service: B  
Volume to Capacity (v/c): 0.015

**Intersection Setup**

Name	Blue Lake Boulevard			Blue Lake Boulevard			SR 299 East Ramps					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T			T			T					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Blue Lake Boulevard			Blue Lake Boulevard			SR 299 East Ramps					
Base Volume Input [veh/h]	0	339	32	2	47	0	8	0	313	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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	339	32	2	47	0	8	0	313	0	0	0
Peak Hour Factor	1.0000	0.9700	0.9700	0.9700	0.9700	1.0000	0.9700	0.9700	0.9700	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	87	8	1	12	0	2	0	81	0	0	0
Total Analysis Volume [veh/h]	0	349	33	2	48	0	8	0	323	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			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	0.01	0.00	0.32	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.06	0.00	0.00	11.71	12.10	10.15	0.00	0.00	0.00
Movement LOS		A	A	A	A		B	B	B			
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	1.37	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.08	0.08	0.00	1.12	1.12	34.18	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			0.32			10.19			0.00		
Approach LOS	A			A			B			A		
d_I, Intersection Delay [s/veh]							4.44					
Intersection LOS	B											

**Intersection Level Of Service Report**

**Intersection 3: Blue Lake Boulevard/Chartin Way-Chartin Road**

Control Type: Roundabout Delay (sec / veh): 5.0  
 Analysis Method: HCM 7th Edition Level Of Service: A  
 Analysis Period: 15 minutes

**Intersection Setup**

Name	Chartin Road			Chartin Way			Blue Lake Boulevard			Blue Lake Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

**Volumes**

Name	Chartin Road			Chartin Way			Blue Lake Boulevard			Blue Lake Boulevard		
Base Volume Input [veh/h]	163	1	22	1	1	1	3	214	146	13	208	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
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	163	1	22	1	1	1	3	214	146	13	208	0
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	0	6	0	0	0	1	55	37	3	53	0
Total Analysis Volume [veh/h]	166	1	22	1	1	1	3	218	149	13	212	0
Pedestrian Volume [ped/h]	1			0			0			0		

**Intersection Settings**

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	226			399			15			173		
Exiting Flow Rate [veh/h]	166			4			387			246		
Demand Flow Rate [veh/h]	163	1	22	1	1	1	3	214	146	13	208	0
Adjusted Demand Flow Rate [veh/h]	166	1	22	1	1	1	3	218	149	13	212	0

**Lanes**

Override Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Override Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	193	4	378	230
Capacity of Entry and Bypass Lanes [veh/h]	1096	919	1359	1157
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1074	901	1332	1134
X, volume / capacity	0.18	0.00	0.28	0.20

**Movement, Approach, & Intersection Results**

Lane LOS	A	A	A	A
95th-Percentile Queue Length [veh]	0.64	0.01	1.14	0.74
95th-Percentile Queue Length [ft]	15.93	0.25	28.57	18.45
Approach Delay [s/veh]	4.95	4.03	5.13	4.95
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	5.03			
Intersection LOS	A			

**Intersection Level Of Service Report**

**Intersection 4: Blue Lake Boulevard/Greenwood Road**

Control Type:	Two-way stop	Delay (sec / veh):	11.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.204

**Intersection Setup**

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	T		T		T	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Base Volume Input [veh/h]	123	3	90	162	19	90
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	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]	123	3	90	162	19	90
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	1	24	44	5	24
Total Analysis Volume [veh/h]	134	3	98	176	21	98
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	0.20	0.00	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	11.91	10.63	0.00	0.00	7.82	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.78	0.78	0.00	0.00	0.04	0.04
95th-Percentile Queue Length [ft/ln]	19.42	19.42	0.00	0.00	0.89	0.89
d_A, Approach Delay [s/veh]	11.88		0.00		1.38	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]			3.38			
Intersection LOS			B			

**Intersection Level Of Service Report**  
**Intersection 5: Railroad Avenue/G Street**

Control Type: All-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 7.5  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.108

**Intersection Setup**

Name	G Street			G Street			Railroad Avenue			Railroad Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	G Street			G Street			Railroad Avenue			Railroad Avenue		
Base Volume Input [veh/h]	64	12	3	6	7	3	3	20	46	1	18	2
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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	64	12	3	6	7	3	3	20	46	1	18	2
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
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	3	1	2	2	1	1	6	13	0	5	1
Total Analysis Volume [veh/h]	73	14	3	7	8	3	3	23	52	1	20	2
Pedestrian Volume [ped/h]	17			2			6			13		

**Intersection Settings**

**Lanes**

Capacity per Entry Lane [veh/h]	835	852	742	879	834
Degree of Utilization, x	0.11	0.02	0.04	0.06	0.03

**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.36	0.06	0.11	0.19	0.09
95th-Percentile Queue Length [ft]	9.03	1.62	2.72	4.71	2.13
Approach Delay [s/veh]	7.84	7.32	7.28		7.44
Approach LOS	A	A	A		A
Intersection Delay [s/veh]	7.54				
Intersection LOS	A				

**Intersection Level Of Service Report**  
**Intersection 6: Hatchery Road/Taylor Way**

Control Type:	Two-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.045

**Intersection Setup**

Name	Hatchery Road		Hatchery Road		Taylor Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	←		←→		→	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	90.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

**Volumes**

Name	Hatchery Road		Hatchery Road		Taylor Way	
Base Volume Input [veh/h]	0	37	42	30	34	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	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	37	42	30	34	1
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	0	11	12	9	10	0
Total Analysis Volume [veh/h]	0	44	49	35	40	1
Pedestrian Volume [ped/h]	0		0		13	

**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	0.05	0.00
d_M, Delay for Movement [s/veh]	7.44	0.00	0.00	0.00	9.29	8.83
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.15	0.15
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	3.65	3.65
d_A, Approach Delay [s/veh]	0.00		0.00		9.28	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]					2.25	
Intersection LOS	A					

**Intersection Level Of Service Report**

**Intersection 1: Blue Lake Boulevard/SR 299 West Ramps**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 22.1  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.091

**Intersection Setup**

Name	Blue Lake Boulevard			Blue Lake Boulevard			Eastbound			SR 299 West Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	←			→						↕		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Blue Lake Boulevard			Blue Lake Boulevard			Eastbound			SR 299 West Ramp		
Base Volume Input [veh/h]	366	31	0	0	30	14	0	0	0	21	1	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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	366	31	0	0	30	14	0	0	0	21	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]	92	8	0	0	8	4	0	0	0	5	0	0
Total Analysis Volume [veh/h]	366	31	0	0	30	14	0	0	0	21	1	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00
d_M, Delay for Movement [s/veh]	7.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.14	20.05	8.51
Movement LOS	A	A			A	A					C	C	A
95th-Percentile Queue Length [veh/ln]	0.84	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.01	0.01
95th-Percentile Queue Length [ft/ln]	20.98	20.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.42	0.31	0.31
d_A, Approach Delay [s/veh]	7.29		0.00		0.00						22.05		
Approach LOS	A		A		A						C		
d_I, Intersection Delay [s/veh]							7.30						
Intersection LOS	C												



**Intersection Level Of Service Report**  
**Intersection 2: Blue Lake Boulevard/SR 299 East Ramps**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 12.0  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.019

**Intersection Setup**

Name	Blue Lake Boulevard			Blue Lake Boulevard			SR 299 East Ramps					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T			T			T					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Blue Lake Boulevard			Blue Lake Boulevard			SR 299 East Ramps					
Base Volume Input [veh/h]	0	388	16	0	51	0	10	0	260	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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	388	16	0	51	0	10	0	260	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	97	4	0	13	0	3	0	65	0	0	0
Total Analysis Volume [veh/h]	0	388	16	0	51	0	10	0	260	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	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	0.02	0.00	0.26	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.12	0.00	0.00	12.03	12.32	9.75	0.00	0.00	0.00
Movement LOS		A	A	A	A		B	B	A			
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	1.02	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	1.46	1.46	25.48	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			0.00			9.84			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]							3.66					
Intersection LOS	B											

**Intersection Level Of Service Report**

**Intersection 3: Blue Lake Boulevard/Chartin Way-Chartin Road**

Control Type: Roundabout Delay (sec / veh): 5.0  
 Analysis Method: HCM 7th Edition Level Of Service: A  
 Analysis Period: 15 minutes

**Intersection Setup**

Name	Chartin Road			Chartin Way			Blue Lake Boulevard			Blue Lake Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

**Volumes**

Name	Chartin Road			Chartin Way			Blue Lake Boulevard			Blue Lake Boulevard		
Base Volume Input [veh/h]	79	0	20	0	0	0	5	214	89	19	326	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	79	0	20	0	0	0	5	214	89	19	326	1
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]	20	0	5	0	0	0	1	54	22	5	82	0
Total Analysis Volume [veh/h]	79	0	20	0	0	0	5	214	89	19	326	1
Pedestrian Volume [ped/h]	0											

**Intersection Settings**

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	223			432			19			86		
Exiting Flow Rate [veh/h]	110			6			413			239		
Demand Flow Rate [veh/h]	79	0	20	0	0	0	5	214	89	19	326	1
Adjusted Demand Flow Rate [veh/h]	79	0	20	0	0	0	5	214	89	19	326	1

**Lanes**

Override Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Override Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	101	0	315	353
Capacity of Entry and Bypass Lanes [veh/h]	1099	888	1353	1265
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1078	871	1327	1240
X, volume / capacity	0.09	0.00	0.23	0.28

**Movement, Approach, & Intersection Results**

Lane LOS	A	A	A	A
95th-Percentile Queue Length [veh]	0.30	0.00	0.90	1.15
95th-Percentile Queue Length [ft]	7.57	0.00	22.52	28.74
Approach Delay [s/veh]	4.14	4.14	4.69	5.42
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	4.95			
Intersection LOS	A			

**Intersection Level Of Service Report**

**Intersection 4: Blue Lake Boulevard/Greenwood Road**

Control Type:	Two-way stop	Delay (sec / veh):	13.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.313

**Intersection Setup**

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	T		T		T	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Base Volume Input [veh/h]	204	11	64	170	20	143
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	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]	204	11	64	170	20	143
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]	51	3	16	43	5	36
Total Analysis Volume [veh/h]	204	11	64	170	20	143
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]		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	0.31	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	13.12	11.61	0.00	0.00	7.72	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.41	1.41	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	35.24	35.24	0.00	0.00	0.84	0.84
d_A, Approach Delay [s/veh]	13.04		0.00		0.95	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]			4.83			
Intersection LOS			B			

Intersection Level Of Service Report

Intersection 4: Blue Lake Boulevard/Greenwood Road

Control Type: Roundabout Delay (sec / veh): 4.3  
 Analysis Method: HCM 7th Edition Level Of Service: A  
 Analysis Period: 15 minutes

Intersection Setup

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	T		T		T	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Base Volume Input [veh/h]	204	11	64	170	20	143
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
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	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]	204	11	64	170	20	143
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]	51	3	16	43	5	36
Total Analysis Volume [veh/h]	204	11	64	170	20	143
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	65		20		208	
Exiting Flow Rate [veh/h]	194		354		77	
Demand Flow Rate [veh/h]	204	11	64	170	20	143
Adjusted Demand Flow Rate [veh/h]	204	11	64	170	20	143

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	0.98	0.98
Entry Flow Rate [veh/h]	220	239	167
Capacity of Entry and Bypass Lanes [veh/h]	1292	1352	1117
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1266	1266	1095
X, volume / capacity	0.17	0.18	0.15

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	0.61	0.64	0.52
95th-Percentile Queue Length [ft]	15.27	16.01	13.07
Approach Delay [s/veh]	4.27	4.18	4.61
Approach LOS	A	A	A
Intersection Delay [s/veh]	4.33		
Intersection LOS	A		

**Intersection Level Of Service Report**

**Intersection 5: Railroad Avenue/G Street**

Control Type: All-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 7.6  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.116

**Intersection Setup**

Name	G Street			G Street			Railroad Avenue			Railroad Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	G Street			G Street			Railroad Avenue			Railroad Avenue		
Base Volume Input [veh/h]	78	19	0	1	1	4	8	14	66	0	9	1
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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	19	0	1	1	4	8	14	66	0	9	1
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]	20	5	0	0	0	1	2	4	17	0	2	0
Total Analysis Volume [veh/h]	78	19	0	1	1	4	8	14	66	0	9	1
Pedestrian Volume [ped/h]	4			2			6			5		

**Intersection Settings**

**Lanes**

Capacity per Entry Lane [veh/h]	835	928	726	883	838
Degree of Utilization, x	0.12	0.01	0.03	0.07	0.01

**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.39	0.02	0.09	0.24	0.04
95th-Percentile Queue Length [ft]	9.82	0.49	2.34	6.04	0.91
Approach Delay [s/veh]	7.88	6.90	7.28		7.35
Approach LOS	A	A	A		A
Intersection Delay [s/veh]	7.56				
Intersection LOS	A				

**Intersection Level Of Service Report**  
**Intersection 6: Hatchery Road/Taylor Way**

Control Type:	Two-way stop	Delay (sec / veh):	9.2
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.060

**Intersection Setup**

Name	Hatchery Road		Hatchery Road		Taylor Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	←		←→		→	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	90.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

**Volumes**

Name	Hatchery Road		Hatchery Road		Taylor Way	
Base Volume Input [veh/h]	0	43	31	46	55	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	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	43	31	46	55	1
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	11	8	12	14	0
Total Analysis Volume [veh/h]	0	43	31	46	55	1
Pedestrian Volume [ped/h]	0		0		5	

**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	0.06	0.00
d_M, Delay for Movement [s/veh]	7.39	0.00	0.00	0.00	9.17	8.74
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.19	0.19
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	4.85	4.85
d_A, Approach Delay [s/veh]	0.00		0.00		9.16	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]					2.92	
Intersection LOS	A					

**Intersection Level Of Service Report**

**Intersection 1: Blue Lake Boulevard/SR 299 West Ramps**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 24.3  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.114

**Intersection Setup**

Name	Blue Lake Boulevard			Blue Lake Boulevard			Eastbound			SR 299 West Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	←			→						↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Blue Lake Boulevard			Blue Lake Boulevard			Eastbound			SR 299 West Ramp		
Base Volume Input [veh/h]	378	56	0	0	38	4	0	0	0	24	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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	378	56	0	0	38	4	0	0	0	24	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]	95	14	0	0	10	1	0	0	0	6	0	0
Total Analysis Volume [veh/h]	378	56	0	0	38	4	0	0	0	24	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00
d_M, Delay for Movement [s/veh]	7.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.35	21.20	8.56
Movement LOS	A	A			A	A					C	C	A
95th-Percentile Queue Length [veh/ln]	0.83	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.00	0.00
95th-Percentile Queue Length [ft/ln]	20.67	20.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.52	0.00	0.00
d_A, Approach Delay [s/veh]	6.85		0.00		0.00						24.35		
Approach LOS	A		A		A						C		
d_I, Intersection Delay [s/veh]							7.12						
Intersection LOS	C												

**Intersection Level Of Service Report**  
**Intersection 2: Blue Lake Boulevard/SR 299 East Ramps**

Control Type: Two-way stop  
Analysis Method: HCM 7th Edition  
Analysis Period: 15 minutes  
Delay (sec / veh): 12.8  
Level Of Service: B  
Volume to Capacity (v/c): 0.021

**Intersection Setup**

Name	Blue Lake Boulevard			Blue Lake Boulevard			SR 299 East Ramps					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T			T			T					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Blue Lake Boulevard			Blue Lake Boulevard			SR 299 East Ramps					
Base Volume Input [veh/h]	0	424	40	3	59	0	10	0	391	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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	424	40	3	59	0	10	0	391	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	106	10	1	15	0	3	0	98	0	0	0
Total Analysis Volume [veh/h]	0	424	40	3	59	0	10	0	391	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			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	0.02	0.00	0.39	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.28	0.00	0.00	12.77	13.10	10.83	0.00	0.00	0.00
Movement LOS		A	A	A	A		B	B	B			
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.01	0.01	0.00	0.06	0.06	1.86	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.13	0.13	0.00	1.62	1.62	46.50	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			0.40			10.88			0.00		
Approach LOS	A			A			B			A		
d_I, Intersection Delay [s/veh]							4.73					
Intersection LOS	B											



**Intersection Level Of Service Report**

**Intersection 3: Blue Lake Boulevard/Chartin Way-Chartin Road**

Control Type: Roundabout Delay (sec / veh): 5.8  
 Analysis Method: HCM 7th Edition Level Of Service: A  
 Analysis Period: 15 minutes

**Intersection Setup**

Name	Chartin Road			Chartin Way			Blue Lake Boulevard			Blue Lake Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

**Volumes**

Name	Chartin Road			Chartin Way			Blue Lake Boulevard			Blue Lake Boulevard		
Base Volume Input [veh/h]	204	1	28	1	1	1	4	268	183	16	260	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
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	204	1	28	1	1	1	4	268	183	16	260	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]	51	0	7	0	0	0	1	67	46	4	65	0
Total Analysis Volume [veh/h]	204	1	28	1	1	1	4	268	183	16	260	0
Pedestrian Volume [ped/h]	1			0			0			0		

**Intersection Settings**

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	278			490			18			213		
Exiting Flow Rate [veh/h]	204			5			474			303		
Demand Flow Rate [veh/h]	204	1	28	1	1	1	4	268	183	16	260	0
Adjusted Demand Flow Rate [veh/h]	204	1	28	1	1	1	4	268	183	16	260	0

**Lanes**

Override Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Override Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	238	4	465	282
Capacity of Entry and Bypass Lanes [veh/h]	1039	838	1355	1111
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1019	822	1328	1089
X, volume / capacity	0.23	0.00	0.34	0.25

**Movement, Approach, & Intersection Results**

Lane LOS	A	A	A	A
95th-Percentile Queue Length [veh]	0.88	0.01	1.54	1.01
95th-Percentile Queue Length [ft]	22.06	0.27	38.55	25.23
Approach Delay [s/veh]	5.73	4.42	5.83	5.69
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	5.76			
Intersection LOS	A			

**Intersection Level Of Service Report**

**Intersection 4: Blue Lake Boulevard/Greenwood Road**

Control Type:	Two-way stop	Delay (sec / veh):	12.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.251

**Intersection Setup**

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	T		T		T	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Base Volume Input [veh/h]	154	4	113	203	24	113
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	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]	154	4	113	203	24	113
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]	39	1	28	51	6	28
Total Analysis Volume [veh/h]	154	4	113	203	24	113
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	0.25	0.00	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	12.87	11.36	0.00	0.00	7.92	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.01	1.01	0.00	0.00	0.04	0.04
95th-Percentile Queue Length [ft/ln]	25.37	25.37	0.00	0.00	1.01	1.01
d_A, Approach Delay [s/veh]	12.83		0.00		1.39	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]				3.63		
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 4: Blue Lake Boulevard/Greenwood Road

Control Type: Roundabout Delay (sec / veh): 4.5  
 Analysis Method: HCM 7th Edition Level Of Service: A  
 Analysis Period: 15 minutes

Intersection Setup

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	T		T		T	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Base Volume Input [veh/h]	154	4	113	203	24	113
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
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	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]	154	4	113	203	24	113
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]	39	1	28	51	6	28
Total Analysis Volume [veh/h]	154	4	113	203	24	113
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	115		24		157	
Exiting Flow Rate [veh/h]	232		272		119	
Demand Flow Rate [veh/h]	154	4	113	203	24	113
Adjusted Demand Flow Rate [veh/h]	154	4	113	203	24	113

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	0.98	0.98
Entry Flow Rate [veh/h]	162	323	140
Capacity of Entry and Bypass Lanes [veh/h]	1227	1346	1176
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1203	1320	1153
X, volume / capacity	0.13	0.24	0.12

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	0.45	0.94	0.40
95th-Percentile Queue Length [ft]	11.30	23.44	10.08
Approach Delay [s/veh]	4.10	4.78	4.14
Approach LOS	A	A	A
Intersection Delay [s/veh]	4.46		
Intersection LOS	A		

**Intersection Level Of Service Report**  
**Intersection 5: Railroad Avenue/G Street**

Control Type:	All-way stop	Delay (sec / veh):	7.6
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.119

**Intersection Setup**

Name	G Street			G Street			Railroad Avenue			Railroad Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	G Street			G Street			Railroad Avenue			Railroad Avenue		
Base Volume Input [veh/h]	80	15	4	8	9	4	4	25	58	1	23	3
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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	15	4	8	9	4	4	25	58	1	23	3
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]	20	4	1	2	2	1	1	6	15	0	6	1
Total Analysis Volume [veh/h]	80	15	4	8	9	4	4	25	58	1	23	3
Pedestrian Volume [ped/h]	17			2			6			13		

**Intersection Settings**

**Lanes**

Capacity per Entry Lane [veh/h]	829	847	735	872	829
Degree of Utilization, x	0.12	0.02	0.04	0.07	0.03

**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.40	0.08	0.12	0.21	0.10
95th-Percentile Queue Length [ft]	10.12	1.90	3.08	5.33	2.52
Approach Delay [s/veh]	7.93	7.36	7.35		7.49
Approach LOS	A	A	A		A
Intersection Delay [s/veh]	7.61				
Intersection LOS	A				

**Intersection Level Of Service Report**  
**Intersection 6: Hatchery Road/Taylor Way**

Control Type:	Two-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.049

**Intersection Setup**

Name	Hatchery Road		Hatchery Road		Taylor Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	←		→		←	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	90.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

**Volumes**

Name	Hatchery Road		Hatchery Road		Taylor Way	
Base Volume Input [veh/h]	0	46	53	38	43	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	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	46	53	38	43	1
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	12	13	10	11	0
Total Analysis Volume [veh/h]	0	46	53	38	43	1
Pedestrian Volume [ped/h]	0		0		13	

**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	0.05	0.00
d_M, Delay for Movement [s/veh]	7.45	0.00	0.00	0.00	9.34	8.87
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.16	0.16
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	3.96	3.96
d_A, Approach Delay [s/veh]	0.00		0.00		9.33	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]				2.27		
Intersection LOS	A					

**Intersection Level Of Service Report**

**Intersection 1: Blue Lake Boulevard/SR 299 West Ramps**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 20.6  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.076

**Intersection Setup**

Name	Blue Lake Boulevard			Blue Lake Boulevard			Eastbound			SR 299 West Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Blue Lake Boulevard			Blue Lake Boulevard			Eastbound			SR 299 West Ramp		
Base Volume Input [veh/h]	293	25	0	0	24	11	0	0	0	17	1	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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	26	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]	319	25	0	0	24	11	0	0	0	17	1	0
Peak Hour Factor	0.9100	0.9100	1.0000	1.0000	0.9100	0.9100	1.0000	1.0000	1.0000	0.9100	0.9100	0.9100
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]	88	7	0	0	7	3	0	0	0	5	0	0
Total Analysis Volume [veh/h]	351	27	0	0	26	12	0	0	0	19	1	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00
d_M, Delay for Movement [s/veh]	7.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.65	19.06	8.49
Movement LOS	A	A				A	A				C	C	A
95th-Percentile Queue Length [veh/ln]	0.80	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.01	0.01
95th-Percentile Queue Length [ft/ln]	19.90	19.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.14	0.29	0.29
d_A, Approach Delay [s/veh]	7.30		0.00		0.00						20.57		
Approach LOS	A		A		A						C		
d_I, Intersection Delay [s/veh]	7.27												
Intersection LOS	C												

**Intersection Level Of Service Report**

**Intersection 2: Blue Lake Boulevard/SR 299 East Ramps**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 11.9  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.017

**Intersection Setup**

Name	Blue Lake Boulevard			Blue Lake Boulevard			SR 299 East Ramps					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T			T			T					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Blue Lake Boulevard			Blue Lake Boulevard			SR 299 East Ramps					
Base Volume Input [veh/h]	0	310	13	0	41	0	8	0	208	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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	26	0	0	0	0	0	0	28	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	336	13	0	41	0	8	0	236	0	0	0
Peak Hour Factor	1.0000	0.8800	0.8800	0.8800	0.8800	1.0000	0.8800	0.8800	0.8800	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	95	4	0	12	0	2	0	67	0	0	0
Total Analysis Volume [veh/h]	0	382	15	0	47	0	9	0	268	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			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	0.02	0.00	0.26	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.10	0.00	0.00	11.91	12.20	9.77	0.00	0.00	0.00
Movement LOS		A	A	A	A		B	B	A			
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	1.05	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	1.29	1.29	26.36	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			0.00			9.84			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]							3.78					
Intersection LOS	B											

**Intersection Level Of Service Report**

**Intersection 3: Blue Lake Boulevard/Chartin Way-Chartin Road**

Control Type: Roundabout Delay (sec / veh): 5.0  
 Analysis Method: HCM 7th Edition Level Of Service: A  
 Analysis Period: 15 minutes

**Intersection Setup**

Name	Chartin Road			Chartin Way			Blue Lake Boulevard			Blue Lake Boulevard		
	Northbound			Southbound			Eastbound			Westbound		
Approach	+			+			+			+		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

**Volumes**

Name	Chartin Road			Chartin Way			Blue Lake Boulevard			Blue Lake Boulevard		
	Base Volume Input [veh/h]	63	0	16	0	0	0	4	171	71	15	261
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	0	0	0	0	0	0	28	0	0	21	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]	68	0	16	0	0	0	4	199	71	15	282	1
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
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]	20	0	5	0	0	0	1	57	20	4	81	0
Total Analysis Volume [veh/h]	78	0	18	0	0	0	5	229	82	17	324	1
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	239			427			17			85		
Exiting Flow Rate [veh/h]	101			6			410			252		
Demand Flow Rate [veh/h]	68	0	16	0	0	0	4	199	71	15	282	1
Adjusted Demand Flow Rate [veh/h]	78	0	18	0	0	0	5	229	82	17	324	1

**Lanes**

Override Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Override Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	98	0	323	349
Capacity of Entry and Bypass Lanes [veh/h]	1082	893	1356	1266
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1061	875	1330	1242
X, volume / capacity	0.09	0.00	0.24	0.28

**Movement, Approach, & Intersection Results**

Lane LOS	A	A	A	A
95th-Percentile Queue Length [veh]	0.30	0.00	0.93	1.13
95th-Percentile Queue Length [ft]	7.45	0.00	23.22	28.25
Approach Delay [s/veh]	4.18	4.11	4.74	5.38
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	4.96			
Intersection LOS	A			



**Intersection Level Of Service Report**

**Intersection 4: Blue Lake Boulevard/Greenwood Road**

Control Type:	Two-way stop	Delay (sec / veh):	13.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.326

**Intersection Setup**

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	T		T		T	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Base Volume Input [veh/h]	163	9	51	136	16	114
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	0	6	22	0	5
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]	179	9	57	158	16	119
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	53	3	17	46	5	35
Total Analysis Volume [veh/h]	211	11	67	186	19	140
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	0.33	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	13.34	11.85	0.00	0.00	7.76	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.49	1.49	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	37.33	37.33	0.00	0.00	0.80	0.80
d_A, Approach Delay [s/veh]	13.27		0.00		0.93	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]			4.88			
Intersection LOS			B			

**Intersection Level Of Service Report**

**Intersection 5: Railroad Avenue/G Street**

Control Type:	All-way stop	Delay (sec / veh):	7.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.158

**Intersection Setup**

Name	G Street			G Street			Railroad Avenue			Railroad Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	G Street			G Street			Railroad Avenue			Railroad Avenue		
Base Volume Input [veh/h]	62	15	0	1	1	3	6	11	53	0	7	1
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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	21	13	0	0	15	0	0	0	22	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]	83	28	0	1	16	3	6	11	75	0	7	1
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
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]	24	8	0	0	5	1	2	3	22	0	2	0
Total Analysis Volume [veh/h]	97	33	0	1	19	3	7	13	87	0	8	1
Pedestrian Volume [ped/h]	4			2			6			5		

**Intersection Settings**

**Lanes**

Capacity per Entry Lane [veh/h]	825	845	710	859	811
Degree of Utilization, x	0.16	0.03	0.03	0.10	0.01

**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.56	0.08	0.09	0.34	0.03
95th-Percentile Queue Length [ft]	13.95	2.10	2.17	8.43	0.84
Approach Delay [s/veh]	8.18	7.38	7.47		7.49
Approach LOS	A	A	A		A
Intersection Delay [s/veh]	7.81				
Intersection LOS	A				

**Intersection Level Of Service Report**  
**Intersection 6: Hatchery Road/Taylor Way**

Control Type:	Two-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.103

**Intersection Setup**

Name	Hatchery Road		Hatchery Road		Taylor Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration					T	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	90.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

**Volumes**

Name	Hatchery Road		Hatchery Road		Taylor Way	
Base Volume Input [veh/h]	0	34	25	37	44	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	41	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	34	25	78	81	1
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	0	10	7	23	24	0
Total Analysis Volume [veh/h]	0	40	29	92	95	1
Pedestrian Volume [ped/h]	0		0		5	

**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	0.10	0.00
d_M, Delay for Movement [s/veh]	7.48	0.00	0.00	0.00	9.34	8.93
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.35	0.35
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	8.64	8.64
d_A, Approach Delay [s/veh]	0.00		0.00		9.34	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]					3.49	
Intersection LOS	A					

**Intersection Level Of Service Report**

**Intersection 1: Blue Lake Boulevard/SR 299 West Ramps**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 25.4  
 Level Of Service: D  
 Volume to Capacity (v/c): 0.111

**Intersection Setup**

Name	Blue Lake Boulevard			Blue Lake Boulevard			Eastbound			SR 299 West Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Blue Lake Boulevard			Blue Lake Boulevard			Eastbound			SR 299 West Ramp		
Base Volume Input [veh/h]	302	45	0	0	30	3	0	0	0	19	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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	47	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]	349	45	0	0	30	3	0	0	0	19	0	0
Peak Hour Factor	0.8800	0.8800	1.0000	1.0000	0.8800	0.8800	1.0000	1.0000	1.0000	0.8800	0.8800	0.8800
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]	99	13	0	0	9	1	0	0	0	5	0	0
Total Analysis Volume [veh/h]	397	51	0	0	34	3	0	0	0	22	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00
d_M, Delay for Movement [s/veh]	7.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.44	22.06	8.54
Movement LOS	A	A			A	A				D	C	A
95th-Percentile Queue Length [veh/ln]	0.89	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.00
95th-Percentile Queue Length [ft/ln]	22.29	22.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.22	0.00	0.00
d_A, Approach Delay [s/veh]	7.01		0.00		0.00						25.44	
Approach LOS	A		A		A						D	
d_I, Intersection Delay [s/veh]							7.30					
Intersection LOS	D											

**Intersection Level Of Service Report**  
**Intersection 2: Blue Lake Boulevard/SR 299 East Ramps**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 12.2  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.016

**Intersection Setup**

Name	Blue Lake Boulevard			Blue Lake Boulevard			SR 299 East Ramps					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T			T			T					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Blue Lake Boulevard			Blue Lake Boulevard			SR 299 East Ramps					
Base Volume Input [veh/h]	0	339	32	2	47	0	8	0	313	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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	47	0	0	0	0	0	0	46	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	386	32	2	47	0	8	0	359	0	0	0
Peak Hour Factor	1.0000	0.9700	0.9700	0.9700	0.9700	1.0000	0.9700	0.9700	0.9700	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	99	8	1	12	0	2	0	93	0	0	0
Total Analysis Volume [veh/h]	0	398	33	2	48	0	8	0	370	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			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	0.02	0.00	0.36	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.19	0.00	0.00	12.24	12.58	10.52	0.00	0.00	0.00
Movement LOS		A	A	A	A		B	B	B			
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	1.67	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.08	0.08	0.00	1.20	1.20	41.78	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			0.33			10.55			0.00		
Approach LOS	A			A			B			A		
d_I, Intersection Delay [s/veh]							4.66					
Intersection LOS	B											

**Intersection Level Of Service Report**

**Intersection 3: Blue Lake Boulevard/Chartin Way-Chartin Road**

Control Type: Roundabout Delay (sec / veh): 5.4  
 Analysis Method: HCM 7th Edition Level Of Service: A  
 Analysis Period: 15 minutes

**Intersection Setup**

Name	Chartin Road			Chartin Way			Blue Lake Boulevard			Blue Lake Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

**Volumes**

Name	Chartin Road			Chartin Way			Blue Lake Boulevard			Blue Lake Boulevard		
Base Volume Input [veh/h]	163	1	22	1	1	1	3	214	146	13	208	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
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	0	0	0	0	0	0	46	0	0	38	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	172	1	22	1	1	1	3	260	146	13	246	0
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
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]	44	0	6	0	0	0	1	66	37	3	63	0
Total Analysis Volume [veh/h]	176	1	22	1	1	1	3	265	149	13	251	0
Pedestrian Volume [ped/h]	1			0			0			0		

**Intersection Settings**

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	274			449			15			184		
Exiting Flow Rate [veh/h]	166			4			437			294		
Demand Flow Rate [veh/h]	172	1	22	1	1	1	3	260	146	13	246	0
Adjusted Demand Flow Rate [veh/h]	176	1	22	1	1	1	3	265	149	13	251	0

**Lanes**

Override Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Override Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	203	4	426	270
Capacity of Entry and Bypass Lanes [veh/h]	1044	874	1359	1145
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1023	856	1332	1122
X, volume / capacity	0.19	0.00	0.31	0.24

**Movement, Approach, & Intersection Results**

Lane LOS	A	A	A	A
95th-Percentile Queue Length [veh]	0.72	0.01	1.35	0.92
95th-Percentile Queue Length [ft]	18.00	0.26	33.78	22.88
Approach Delay [s/veh]	5.34	4.24	5.49	5.37
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	5.42			
Intersection LOS	A			

**Intersection Level Of Service Report**

**Intersection 4: Blue Lake Boulevard/Greenwood Road**

Control Type:	Two-way stop	Delay (sec / veh):	12.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.264

**Intersection Setup**

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	T		T		T	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Base Volume Input [veh/h]	123	3	90	162	19	90
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	28	0	9	37	0	9
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]	151	3	99	199	19	99
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	1	27	54	5	27
Total Analysis Volume [veh/h]	164	3	108	216	21	108
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	0.26	0.00	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	12.87	11.46	0.00	0.00	7.94	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.07	1.07	0.00	0.00	0.04	0.04
95th-Percentile Queue Length [ft/ln]	26.84	26.84	0.00	0.00	0.89	0.89
d_A, Approach Delay [s/veh]	12.85		0.00		1.29	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]				3.73		
Intersection LOS	B					

**Intersection Level Of Service Report**

**Intersection 5: Railroad Avenue/G Street**

Control Type:	All-way stop	Delay (sec / veh):	8.1
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.199

**Intersection Setup**

Name	G Street			G Street			Railroad Avenue			Railroad Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	G Street			G Street			Railroad Avenue			Railroad Avenue		
Base Volume Input [veh/h]	64	12	3	6	7	3	3	20	46	1	18	2
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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	38	25	0	0	24	0	0	0	37	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]	102	37	3	6	31	3	3	20	83	1	18	2
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
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]	29	11	1	2	9	1	1	6	24	0	5	1
Total Analysis Volume [veh/h]	116	42	3	7	35	3	3	23	94	1	20	2
Pedestrian Volume [ped/h]	17			2			6			13		

**Intersection Settings**

**Lanes**

Capacity per Entry Lane [veh/h]	810	812	707	830	780
Degree of Utilization, x	0.20	0.06	0.04	0.11	0.03

**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.74	0.18	0.11	0.38	0.09
95th-Percentile Queue Length [ft]	18.43	4.39	2.86	9.54	2.28
Approach Delay [s/veh]	8.54	7.69	7.68		7.76
Approach LOS	A	A	A		A
Intersection Delay [s/veh]	8.08				
Intersection LOS	A				



**Intersection Level Of Service Report**  
**Intersection 6: Hatchery Road/Taylor Way**

Control Type:	Two-way stop	Delay (sec / veh):	9.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.137

**Intersection Setup**

Name	Hatchery Road		Hatchery Road		Taylor Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	←		→		←	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	90.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

**Volumes**

Name	Hatchery Road		Hatchery Road		Taylor Way	
Base Volume Input [veh/h]	0	37	42	30	34	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	67	69	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	37	42	97	103	1
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	0	11	12	29	30	0
Total Analysis Volume [veh/h]	0	44	49	114	121	1
Pedestrian Volume [ped/h]	0		0		13	

**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	0.14	0.00
d_M, Delay for Movement [s/veh]	7.60	0.00	0.00	0.00	9.74	9.29
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.48	0.48
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	11.99	11.99
d_A, Approach Delay [s/veh]	0.00		0.00		9.74	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]			3.61			
Intersection LOS			A			

**Intersection Level Of Service Report**

**Intersection 1: Blue Lake Boulevard/SR 299 West Ramps**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 24.2  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.101

**Intersection Setup**

Name	Blue Lake Boulevard			Blue Lake Boulevard			Eastbound			SR 299 West Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Blue Lake Boulevard			Blue Lake Boulevard			Eastbound			SR 299 West Ramp		
Base Volume Input [veh/h]	366	31	0	0	30	14	0	0	0	21	1	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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	26	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]	392	31	0	0	30	14	0	0	0	21	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]	98	8	0	0	8	4	0	0	0	5	0	0
Total Analysis Volume [veh/h]	392	31	0	0	30	14	0	0	0	21	1	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00
d_M, Delay for Movement [s/veh]	7.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.21	21.51	8.53
Movement LOS	A	A			A	A				C	C	A
95th-Percentile Queue Length [veh/ln]	0.92	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.01	0.01
95th-Percentile Queue Length [ft/ln]	23.07	23.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.29	0.34	0.34
d_A, Approach Delay [s/veh]	7.39		0.00		0.00						24.09	
Approach LOS	A		A		A						C	
d_I, Intersection Delay [s/veh]	7.47											
Intersection LOS	C											

**Intersection Level Of Service Report**

**Intersection 2: Blue Lake Boulevard/SR 299 East Ramps**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 12.3  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.020

**Intersection Setup**

Name	Blue Lake Boulevard			Blue Lake Boulevard			SR 299 East Ramps					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Blue Lake Boulevard			Blue Lake Boulevard			SR 299 East Ramps					
Base Volume Input [veh/h]	0	388	16	0	51	0	10	0	260	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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	26	0	0	0	0	0	0	28	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	414	16	0	51	0	10	0	288	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	104	4	0	13	0	3	0	72	0	0	0
Total Analysis Volume [veh/h]	0	414	16	0	51	0	10	0	288	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	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	0.02	0.00	0.28	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.19	0.00	0.00	12.32	12.58	9.93	0.00	0.00	0.00
Movement LOS		A	A	A	A		B	B	A			
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	1.17	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	1.52	1.52	29.25	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			0.00			10.01			0.00		
Approach LOS	A			A			B			A		
d_I, Intersection Delay [s/veh]							3.83					
Intersection LOS	B											

**Intersection Level Of Service Report**

**Intersection 3: Blue Lake Boulevard/Chartin Way-Chartin Road**

Control Type: Roundabout  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 5.2  
 Level Of Service: A

**Intersection Setup**

Name	Chartin Road			Chartin Way			Blue Lake Boulevard			Blue Lake Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

**Volumes**

Name	Chartin Road			Chartin Way			Blue Lake Boulevard			Blue Lake Boulevard		
Base Volume Input [veh/h]	79	0	20	0	0	0	5	214	89	19	326	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	0	0	0	0	0	0	28	0	0	21	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]	84	0	20	0	0	0	5	242	89	19	347	1
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]	21	0	5	0	0	0	1	61	22	5	87	0
Total Analysis Volume [veh/h]	84	0	20	0	0	0	5	242	89	19	347	1
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

	1			1			1			1		
Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	252			459			19			91		
Exiting Flow Rate [veh/h]	110			6			440			267		
Demand Flow Rate [veh/h]	84	0	20	0	0	0	5	242	89	19	347	1
Adjusted Demand Flow Rate [veh/h]	84	0	20	0	0	0	5	242	89	19	347	1

**Lanes**

	No			No			No			No		
Override Calculated Critical Headway	No			No			No			No		
User-Defined Critical Headway [s]	4.00			4.00			4.00			4.00		
Override Calculated Follow-Up Time	No			No			No			No		
User-Defined Follow-Up Time [s]	3.00			3.00			3.00			3.00		
A (intercept)	1380.00			1380.00			1380.00			1380.00		
B (coefficient)	0.00102			0.00102			0.00102			0.00102		
HV Adjustment Factor	0.98			0.98			0.98			0.98		
Entry Flow Rate [veh/h]	107			0			343			375		
Capacity of Entry and Bypass Lanes [veh/h]	1068			865			1353			1258		
Pedestrian Impedance	1.00			1.00			1.00			1.00		
Capacity per Entry Lane [veh/h]	1047			848			1327			1234		
X, volume / capacity	0.10			0.00			0.25			0.30		

**Movement, Approach, & Intersection Results**

	A			A			A			A		
Lane LOS	A			A			A			A		
95th-Percentile Queue Length [veh]	0.33			0.00			1.01			1.26		
95th-Percentile Queue Length [ft]	8.25			0.00			25.24			31.41		
Approach Delay [s/veh]	4.32			4.25			4.90			5.64		
Approach LOS	A			A			A			A		
Intersection Delay [s/veh]	5.16											
Intersection LOS	A											

**Intersection Level Of Service Report**

**Intersection 4: Blue Lake Boulevard/Greenwood Road**

Control Type:	Two-way stop	Delay (sec / veh):	13.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.348

**Intersection Setup**

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	T		T		T	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Base Volume Input [veh/h]	204	11	64	170	20	143
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	0	6	22	0	5
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]	220	11	70	192	20	148
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]	55	3	18	48	5	37
Total Analysis Volume [veh/h]	220	11	70	192	20	148
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	0.35	0.01	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	13.81	12.22	0.00	0.00	7.79	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.64	1.64	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	40.89	40.89	0.00	0.00	0.84	0.84
d_A, Approach Delay [s/veh]	13.73		0.00		0.93	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	5.04					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 4: Blue Lake Boulevard/Greenwood Road

Control Type: Roundabout Delay (sec / veh): 4.5  
 Analysis Method: HCM 7th Edition Level Of Service: A  
 Analysis Period: 15 minutes

Intersection Setup

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	T		T		T	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Base Volume Input [veh/h]	204	11	64	170	20	143
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
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	0	6	22	0	5
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]	220	11	70	192	20	148
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]	55	3	18	48	5	37
Total Analysis Volume [veh/h]	220	11	70	192	20	148
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

	1		1		1	
Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	71		20		224	
Exiting Flow Rate [veh/h]	216		375		83	
Demand Flow Rate [veh/h]	220	11	70	192	20	148
Adjusted Demand Flow Rate [veh/h]	220	11	70	192	20	148

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	0.98	0.98
Entry Flow Rate [veh/h]	236	268	172
Capacity of Entry and Bypass Lanes [veh/h]	1284	1352	1098
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1258	1326	1077
X, volume / capacity	0.18	0.20	0.16

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	0.67	0.74	0.55
95th-Percentile Queue Length [ft]	16.78	18.38	13.81
Approach Delay [s/veh]	4.42	4.37	4.74
Approach LOS	A	A	A
Intersection Delay [s/veh]	4.48		
Intersection LOS	A		

**Intersection Level Of Service Report**

**Intersection 5: Railroad Avenue/G Street**

Control Type: All-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 7.8  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.159

**Intersection Setup**

Name	G Street			G Street			Railroad Avenue			Railroad Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	G Street			G Street			Railroad Avenue			Railroad Avenue		
Base Volume Input [veh/h]	78	19	0	1	1	4	8	14	66	0	9	1
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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	21	13	0	0	15	0	0	0	22	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]	99	32	0	1	16	4	8	14	88	0	9	1
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]	25	8	0	0	4	1	2	4	22	0	2	0
Total Analysis Volume [veh/h]	99	32	0	1	16	4	8	14	88	0	9	1
Pedestrian Volume [ped/h]	4			2			6			5		

**Intersection Settings**

**Lanes**

Capacity per Entry Lane [veh/h]	823	850	709	859	810
Degree of Utilization, x	0.16	0.02	0.03	0.10	0.01

**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.56	0.08	0.10	0.34	0.04
95th-Percentile Queue Length [ft]	14.11	1.90	2.40	8.54	0.94
Approach Delay [s/veh]	8.20	7.35	7.49		7.50
Approach LOS	A	A	A		A
Intersection Delay [s/veh]	7.82				
Intersection LOS	A				

**Intersection Level Of Service Report**  
**Intersection 6: Hatchery Road/Taylor Way**

Control Type:	Two-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.100

**Intersection Setup**

Name	Hatchery Road		Hatchery Road		Taylor Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	←		→		←	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	90.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

**Volumes**

Name	Hatchery Road		Hatchery Road		Taylor Way	
Base Volume Input [veh/h]	0	43	31	46	55	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	41	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	43	31	87	92	1
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	11	8	22	23	0
Total Analysis Volume [veh/h]	0	43	31	87	92	1
Pedestrian Volume [ped/h]	0		0		5	

**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	0.10	0.00
d_M, Delay for Movement [s/veh]	7.47	0.00	0.00	0.00	9.36	8.93
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.34	0.34
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	8.40	8.40
d_A, Approach Delay [s/veh]	0.00		0.00		9.35	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]				3.42		
Intersection LOS	A					



**Intersection Level Of Service Report**

**Intersection 1: Blue Lake Boulevard/SR 299 West Ramps**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 29.0  
 Level Of Service: D  
 Volume to Capacity (v/c): 0.138

**Intersection Setup**

Name	Blue Lake Boulevard			Blue Lake Boulevard			Eastbound			SR 299 West Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	←			→						↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Blue Lake Boulevard			Blue Lake Boulevard			Eastbound			SR 299 West Ramp		
Base Volume Input [veh/h]	378	56	0	0	38	4	0	0	0	24	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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	47	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]	425	56	0	0	38	4	0	0	0	24	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]	106	14	0	0	10	1	0	0	0	6	0	0
Total Analysis Volume [veh/h]	425	56	0	0	38	4	0	0	0	24	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00
d_M, Delay for Movement [s/veh]	7.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.99	24.17	8.56
Movement LOS	A	A			A	A				D	C	A
95th-Percentile Queue Length [veh/ln]	0.98	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00
95th-Percentile Queue Length [ft/ln]	24.50	24.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.72	0.00	0.00
d_A, Approach Delay [s/veh]	7.05		0.00		0.00				28.99			
Approach LOS	A		A		A				D			
d_I, Intersection Delay [s/veh]							7.48					
Intersection LOS	D											

**Intersection Level Of Service Report**  
**Intersection 2: Blue Lake Boulevard/SR 299 East Ramps**

Control Type: Two-way stop  
Analysis Method: HCM 7th Edition  
Analysis Period: 15 minutes  
Delay (sec / veh): 13.4  
Level Of Service: B  
Volume to Capacity (v/c): 0.023

**Intersection Setup**

Name	Blue Lake Boulevard			Blue Lake Boulevard			SR 299 East Ramps					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T			T			T					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Blue Lake Boulevard			Blue Lake Boulevard			SR 299 East Ramps					
Base Volume Input [veh/h]	0	424	40	3	59	0	10	0	391	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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	47	0	0	0	0	0	0	46	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	471	40	3	59	0	10	0	437	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	118	10	1	15	0	3	0	109	0	0	0
Total Analysis Volume [veh/h]	0	471	40	3	59	0	10	0	437	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	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	0.02	0.00	0.43	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.42	0.00	0.00	13.36	13.63	11.29	0.00	0.00	0.00
Movement LOS		A	A	A	A		B	B	B			
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.01	0.01	0.00	0.07	0.07	2.23	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.13	0.13	0.00	1.74	1.74	55.78	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			0.41			11.34			0.00		
Approach LOS	A			A			B			A		
d_I, Intersection Delay [s/veh]	4.99											
Intersection LOS	B											

**Intersection Level Of Service Report**

**Intersection 3: Blue Lake Boulevard/Chartin Way-Chartin Road**

Control Type: Roundabout Delay (sec / veh): 6.2  
 Analysis Method: HCM 7th Edition Level Of Service: A  
 Analysis Period: 15 minutes

**Intersection Setup**

Name	Chartin Road			Chartin Way			Blue Lake Boulevard			Blue Lake Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

**Volumes**

Name	Chartin Road			Chartin Way			Blue Lake Boulevard			Blue Lake Boulevard		
Base Volume Input [veh/h]	204	1	28	1	1	1	4	268	183	16	260	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
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	0	0	0	0	0	0	46	0	0	38	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	213	1	28	1	1	1	4	314	183	16	298	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]	53	0	7	0	0	0	1	79	46	4	75	0
Total Analysis Volume [veh/h]	213	1	28	1	1	1	4	314	183	16	298	0
Pedestrian Volume [ped/h]	1			0			0			0		

**Intersection Settings**

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	325			538			18			222		
Exiting Flow Rate [veh/h]	204			5			522			350		
Demand Flow Rate [veh/h]	213	1	28	1	1	1	4	314	183	16	298	0
Adjusted Demand Flow Rate [veh/h]	213	1	28	1	1	1	4	314	183	16	298	0

**Lanes**

Override Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Override Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	247	4	512	321
Capacity of Entry and Bypass Lanes [veh/h]	991	798	1355	1100
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	971	782	1328	1079
X, volume / capacity	0.25	0.00	0.38	0.29

**Movement, Approach, & Intersection Results**

Lane LOS	A	A	A	A
95th-Percentile Queue Length [veh]	0.99	0.01	1.79	1.22
95th-Percentile Queue Length [ft]	24.64	0.29	44.67	30.42
Approach Delay [s/veh]	6.18	4.64	6.23	6.16
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	6.19			
Intersection LOS	A			

**Intersection Level Of Service Report**

**Intersection 4: Blue Lake Boulevard/Greenwood Road**

Control Type:	Two-way stop	Delay (sec / veh):	14.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.312

**Intersection Setup**

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	T		T		T	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Base Volume Input [veh/h]	154	4	113	203	24	113
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	28	0	9	37	0	9
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]	182	4	122	240	24	122
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]	46	1	31	60	6	31
Total Analysis Volume [veh/h]	182	4	122	240	24	122
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	0.31	0.01	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	13.99	12.34	0.00	0.00	8.04	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.36	1.36	0.00	0.00	0.04	0.04
95th-Percentile Queue Length [ft/ln]	33.89	33.89	0.00	0.00	1.01	1.01
d_A, Approach Delay [s/veh]	13.96		0.00		1.32	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]			4.02			
Intersection LOS			B			

Intersection Level Of Service Report

Intersection 4: Blue Lake Boulevard/Greenwood Road

Control Type: Roundabout Delay (sec / veh): 4.8  
 Analysis Method: HCM 7th Edition Level Of Service: A  
 Analysis Period: 15 minutes

Intersection Setup

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Greenwood Road		Blue Lake Boulevard		Blue Lake Boulevard	
Base Volume Input [veh/h]	154	4	113	203	24	113
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
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	28	0	9	37	0	9
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]	182	4	122	240	24	122
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]	46	1	31	60	6	31
Total Analysis Volume [veh/h]	182	4	122	240	24	122
Pedestrian Volume [ped/h]	0	0	0	0	0	0

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	124		24		186	
Exiting Flow Rate [veh/h]	269		310		129	
Demand Flow Rate [veh/h]	182	4	122	240	24	122
Adjusted Demand Flow Rate [veh/h]	182	4	122	240	24	122

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	0.98	0.98
Entry Flow Rate [veh/h]	190	370	149
Capacity of Entry and Bypass Lanes [veh/h]	1216	1346	1142
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1192	1320	1120
X, volume / capacity	0.16	0.27	0.13

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	0.55	1.12	0.45
95th-Percentile Queue Length [ft]	13.81	28.09	11.21
Approach Delay [s/veh]	4.36	5.13	4.35
Approach LOS	A	A	A
Intersection Delay [s/veh]	4.76		
Intersection LOS	A		

**Intersection Level Of Service Report**

**Intersection 5: Railroad Avenue/G Street**

Control Type: All-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 8.1  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.201

**Intersection Setup**

Name	G Street			G Street			Railroad Avenue			Railroad Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	G Street			G Street			Railroad Avenue			Railroad Avenue		
Base Volume Input [veh/h]	80	15	4	8	9	4	4	25	58	1	23	3
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 Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	38	25	0	0	24	0	0	0	37	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]	118	40	4	8	33	4	4	25	95	1	23	3
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]	30	10	1	2	8	1	1	6	24	0	6	1
Total Analysis Volume [veh/h]	118	40	4	8	33	4	4	25	95	1	23	3
Pedestrian Volume [ped/h]	17			2			6			13		

**Intersection Settings**

**Lanes**

Capacity per Entry Lane [veh/h]	807	810	704	829	781
Degree of Utilization, x	0.20	0.06	0.04	0.11	0.03

**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.75	0.18	0.13	0.39	0.11
95th-Percentile Queue Length [ft]	18.66	4.40	3.22	9.67	2.68
Approach Delay [s/veh]	8.58	7.71	7.71		7.77
Approach LOS	A	A	A		A
Intersection Delay [s/veh]	8.11				
Intersection LOS	A				

**Intersection Level Of Service Report**  
**Intersection 6: Hatchery Road/Taylor Way**

Control Type:	Two-way stop	Delay (sec / veh):	9.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.128

**Intersection Setup**

Name	Hatchery Road		Hatchery Road		Taylor Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	←		→		←	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	90.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

**Volumes**

Name	Hatchery Road		Hatchery Road		Taylor Way	
Base Volume Input [veh/h]	0	46	53	38	43	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	67	69	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	46	53	105	112	1
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	12	13	26	28	0
Total Analysis Volume [veh/h]	0	46	53	105	112	1
Pedestrian Volume [ped/h]	0		0		13	

**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	0.13	0.00
d_M, Delay for Movement [s/veh]	7.59	0.00	0.00	0.00	9.73	9.26
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.44	0.44
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	11.08	11.08
d_A, Approach Delay [s/veh]	0.00		0.00		9.73	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]				3.47		
Intersection LOS	A					