Appendix H:
Transportation Supporting Information

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Traffic Impact Analysis Report

Fresno Southeast Development Area (SEDA) Specific Plan TIA Final

City of Fresno, California

January 30, 2025

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EXECUTIVE SUMMARY

This report summarizes the results of the Traffic Impact Analysis (TIA) conducted for the Southeast Development Area (SEDA) located east of the city of Fresno, California. The SEDA comprises approximately 9,000 acres of land and was formally designated as a Growth Area in the 2035 Fresno General Plan. The plan consists of various mixed uses. There will be approximately 37,000 new jobs created along with 45,000 new housing units. The SEDA area is located southeast of the City of Fresno, with East North Avenue as its southern border, McCall Avenue as its eastern border, and Ashlan Avenue as its northern border.

This report provides the roadway segment level of service (LOS) related to the project. Additionally, the report also includes evaluations and recommendations concerning project site access and on-site circulation for vehicles, bicycles, and pedestrians, as well as a vehicle miles traveled (VMT) analysis.

To evaluate the impacts on the transportation infrastructure due to the addition of traffic from the proposed project, 20 study roadway segments were evaluated during the weekday morning (a.m.) peak hour and evening (p.m.) peak hour, and daily scenarios. The study segments were evaluated under *Existing Conditions, Year 2035 Baseline (No Project) Conditions,* and *Year 2035 Project Conditions*. For the purpose of this analysis, potential traffic operational effects from the proposed project are identified based on established operational thresholds described in the report.

Preliminary Safety Assessment

The Preliminary Safety Assessment focuses on the frequency of collisions, providing analysis of their severity, type, and concentration within the project area.

Existing Conditions

Existing volumes for the SEDA area for AM/PM peak hour and daily are low due to the rural nature of the project area. Peak daily volumes are less than 15,000 while the highest AM/PM peak volumes observed hover around 1,000.

Year 2035 Baseline (No Project) Condition

Year 2035 no project scenario volumes for the project area were projected from existing volumes using the delta method and the Fresno Council of Governments Travel Demand Model (Fresno ABM). Low growth in the no project condition results in volumes very similar to existing conditions.

Year 2035 Project Conditions

Year 2035 project scenario volumes were projected with SEDA project land use coded into the Fresno ABM. Higher growth rates derived from the model resulted in almost doubling of daily volumes in some roadway segments for the daily time period.

Vehicle Miles Traveled

The proposed project will be located at the southeast boundary of Fresno. The project is expected to increase the total VMT in the area; but will not have a significant impact due to the mixed use nature of the project. The construction of additional sidewalks, other walkways, and bicycle facilities on the project site will encourage future residents and customers to use alternate modes (walking, biking, transit), further

reducing potential VMT impacts. In addition, the mixed use nature of the project with added commercial destinations mean that residents will travel shorter for their needs, shortening the VMT per capita and VMT per employee impacts. Future transit operations are anticipated for the SEDA project area, further reducing its VMT impacts.

Project Trip Generation

The proposed project is expected to generate approximately 94,477 weekday p.m. peak hour trips and 866,452 total daily trips.

Queuing Analysis

Peak hour ramp queuing analysis was conducted for specific SR-180 interchanges and intersection at project buildout to determine potential impacts.

1.0 INTRODUCTION

This report summarizes the results of the Traffic Impact Analysis (TIA) for the proposed SEDA Specific Plan development in Fresno, California.

1.1 Project Description

The project proposes to 9,000 acres of mixed use development in the southeast of the City of Fresno in its sphere of influence. In total, there will be around 45,000 housing units (split between 26,000 single family dwelling units and 19,000 multi family dwelling units), 12,000 retail employees, 8,000 office employees, and 17,000 civic institutional employees for a total of 37,000 employees.

The project is located in the southeast of the City of Fresno, with Ashlan Avenue as the northern border, McCall Avenue as eastern border, E North Avenue as southern border, and Temperance Road as the western border.

The following section discusses the TIA Purpose, study segments, and analysis scenarios.

1.2 Project Purpose

The purpose of the Traffic Impact Analysis is to evaluate the impacts on the transportation infrastructure due to the addition of the traffic from the proposed SEDA project. The report also includes evaluations and recommendations concerning project site access and on-site circulation for vehicles, bicycles, and pedestrians, queuing analysis at the interchanges, and intersections, preliminary safety assessment, parking supply, and a VMT analysis.

1.3 Study Segments

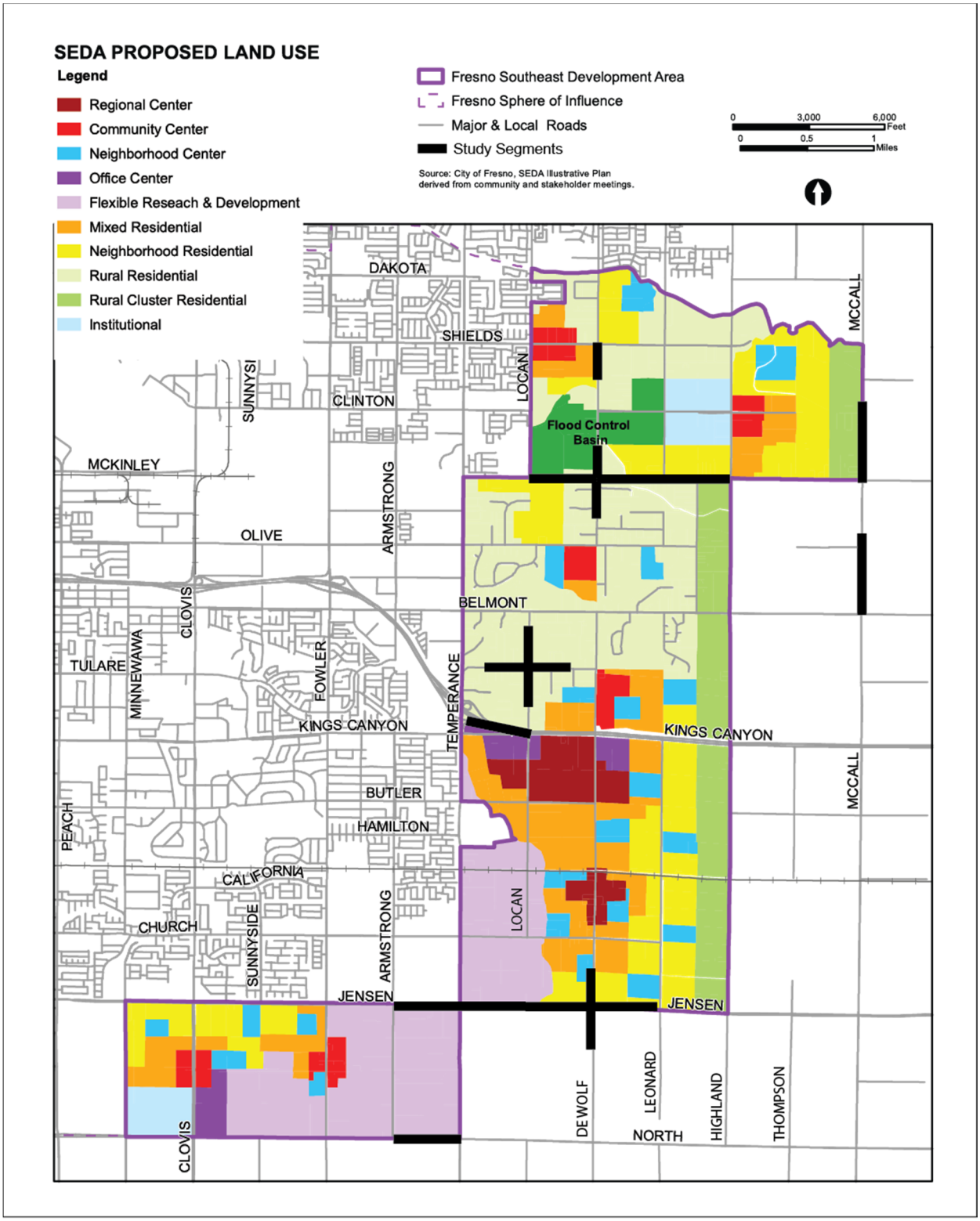
TJKM evaluated traffic conditions at twenty study segments during the a.m. and p.m. peak hours and daily conditions for a typical weekday. The study segments were based on availability of count data from both the City and County of Fresno count databases. No new counts were conducted due to the worldwide COVID-19 pandemic affecting recent traffic patterns. The peak periods were between 6:30 a.m. – 8:30 a.m. and 4:30 p.m. – 6:30 p.m. The study segments and associated traffic controls are as follows:

1. Clovis Avenue south of American Avenue
2. De Wolf Avenue north of McKinley Avenue
3. De Wolf Avenue south of McKinley Avenue
4. De Wolf Avenue south of Clinton Avenue
5. De Wolf Avenue north of Jensen Avenue
6. De Wolf Avenue south of Jensen Avenue
7. Jensen Avenue east of Bethel Avenue
8. Jensen Avenue east of De Wolf Avenue
9. Jensen Avenue west of De Wolf Avenue
10. Jensen Avenue east of Temperance Avenue
11. Jensen Avenue west of Temperance Avenue
12. Kings Canyon Road east of Temperance Avenue

13. Locan Avenue north of Tulare Avenue
14. Locan Avenue south of Tulare Avenue
15. McCall Avenue north of McKinley Avenue
16. McCall Avenue north of Ashlan Avenue
17. McCall Avenue north of Belmont Avenue
18. Tulare Avenue east of Locan Avenue
19. Tulare Avenue west of Locan Avenue
20. North Street west of Temperance Avenue

Figure 1 illustrates the study segments and the vicinity map of the proposed project.

Figure 1: SEDA Site Plan and Study Segments



Source: City of Fresno, SEDA Regulating Districts, 02/10/2022.

1.4 Analysis Scenarios

This study addresses the following three traffic scenarios:

- **Existing Conditions** – This scenario evaluates the study segments based on existing traffic volumes, lane geometry, and traffic controls.
- **Year 2035 Baseline (No Project) Conditions** – This scenario evaluates study segments for the future with no build conditions.
- **Year 2035 Project Conditions** – This scenario is identical to the earlier one but with the addition of build conditions. It presumes building of SEDA plan land uses by 2035 for impact analysis, consistent with General Plan EIR.

2.0 STUDY METHODOLOGY

Traffic impacts related to the proposed project were evaluated for both compliance with applicable regulatory documents and environmental significance as defined in the California Environmental Quality Act (CEQA). In Accordance with the *Technical Advisory* published by the Governor's Office of Planning and Research (OPR), a qualitative and quantitative VMT analysis forms the basis of the CEQA analysis for the proposed project. An LOS analysis was conducted to determine consistency with City of Fresno plans and standards.

2.1 Level of Service Analysis Methodology

Roadway segment traffic operations were conducted using the roadway segment analysis methodology utilized in Fresno's General Plan. Traffic volumes on the study roadway segments are used to determine the overall usage and congestion. Do note that roadway segment analysis is based on the traffic counts taken at a single location, which are intended to be representative of the entire segment. A roadway link connects two intersections; and a segment is a series of links. The segments used in the SEDA analysis were developed based on where existing count data have been collected in the SEDA project area.

Traffic operations on the study roadway segments were measured using a qualitative measure called level of service (LOS). LOS generally measures traffic operating conditions whereby a letter grade from A (the best) to F (the worst) are assigned. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving, as well as speed, travel time, traffic interruptions, and freedom to maneuver. The next section of this report denotes the LOS standards.

2.2 Level of Service Standards

LOS grades are generally defined as follows:

- **A** represents free flow travel with excellent level of comfort and convenience and the freedom to maneuver.
- **B** represents stable operating conditions, but the presence of other road users causes a noticeable, though slight, reduction in comfort, convenience, and maneuvering freedom.
- **C** represents stable operating conditions, but the operation of individual users is substantially affected by the interaction with others in the traffic stream.
- **D** represents high density, but stable flow. Users experience severe restriction in speed and freedom to maneuver, with poor levels of comfort and convenience.
- **E** represents operating conditions at or near capacity. Speeds are reduced to a low but relatively uniform value. Freedom to maneuver is difficult with users experiencing frustration and poor comfort and convenience. Unstable operation is frequent, and minor disturbances in traffic flow can cause breakdown conditions.
- **F** represents forced or breakdown conditions. This conditions exists when volume of traffic exceeds the capacity of the roadways. Long queues form and stop and go traffic becomes the norm.

The LOS was calculated for each of the study roadway segments to evaluate the quality of traffic conditions. LOS was determined by comparing traffic volumes for each roadway segment, incorporating roadway functional classification, the number of travel lanes, and the presence of left turn lanes at peak hour LOS capacity thresholds. The LOS thresholds are shown in **Table 1** below.

Table 1: Roadway Functional Class and Peak Hour LOS Thresholds

Functional Class	Median	Lanes	Peak Hour Level of Service Capacity Thresholds				
			A	B	C	D	E
Freeway	N/A[1]	4	2,720	4,460	6,630	7,720	8,630
		3+Aux[2]	2,360	3,860	5,640	6,730	7,530
		3	2,000	3,270	4,660	5,740	6,430
		2+Aux	1,650	2,700	3,850	4,760	5,340
		2	1,300	2,130	3,050	3,790	4,260
State Expressway	Divided	6	2,410	3,960	5,730	7,450	8,450
		4	1,610	2,650	3,810	4,960	5,630
		2	810	1,340	1,890	2,470	2,810
City Expressway	Raised Median	6			1,860	6,170	6,520
		5			1,520	5,110	5,430
		4			1,180	4,050	4,340
		2			520	1,910	2,160
Super Arterial	Raised Median	6				4,910	6,240
		5				4,040	5,195
		4				3,170	4,150
Arterial	Raised Median	8			2,120	7,070	7,490
		6			1,560	5,270	5,610
		5			1,280	4,370	4,670
		4			1,000	3,470	3,730
		3			720	2,555	2,795
		2			440	1,640	1,860
	TWLTL	4			940	3,290	3,550
		2			420	1,550	1,760
	Undivided	4			770	2,740	2,980
		2			340	1,270	1,480
Collector	TWLTL	4			940	3,290	3,550
		2			420	1,550	1,760
	Undivided	4			770	2,740	2,980
		2			340	1,270	1,480
One-Way	Undivided	3		1,960	2,240	2,430	2,610
		2		1,250	1,490	1,620	1,740
		1		550	740	800	870
Rural State Highway	Undivided	2	310	570	1,020	1,730	2,470
Rural Arterial	Divided	4			1,950	3,580	3,780
	Undivided	2			570	1,230	1,310
Rural Collector/Local	Undivided	2			700	930	1,000

Notes:
[1] N/A – Not applicable for operational class
[2] Aux – Auxiliary Lane
– LOS is not achievable because of type of facility.

For daily segment volume LOS analysis, the Transportation Research Board's Highway Capacity Manual special report 209 was used. **Table 2** shows the level of service criteria for daily segment volumes based on volume to capacity ratios.

Table 2: LOS Thresholds for Daily Segment Volumes based on V/C Ratios

Level of Service	Description	V/C[b]
A	Free-flow conditions with unimpeded maneuverability. Stopped delay at signalized intersection is minimal.	0.00 to 0.60
B	Reasonably unimpeded operations with slightly restricted maneuverability. Stopped delays are not bothersome.	0.61 to 0.70
C	Stable operations with somewhat more restrictions in making mid-block lane changes than LOS B. Motorists will experience appreciable tension while driving.	0.71 to 0.80
D	Approaching unstable operations where small increases in volume produce substantial increases in delay and decreases in speed.	0.81 to 0.90
E	Operations with significant intersection approach delays and low average speeds.	0.91 to 1.00
F	Operations with extremely low speeds caused by intersection congestion, high delay, and adverse signal progression.	Greater Than 1.00

[a] For arterials that are multilane divided or undivided with some parking, a signalized intersection density of four to eight per mile, and moderate roadside development.
[b] Volume-to-capacity ratio.

≥ greater than or equal to.
< less than.

Source: Transportation Research Board, *Highway Capacity Manual, Special Report 209* (Washington, D.C., 1994).

The City of Fresno adopted its General Plan in December 2014 and serves as the community's guide for continued development, enhancement, and revitalization of the Fresno metropolitan area. The General Plan's policies and standards for specific plans such as the SEDA project requires a transportation impact study to assess the impact on existing and planned streets. Since the SEDA project is located in Traffic Impact Zone III (TIZ-III), the General Plan standards require that the project maintain a LOS standard of D or better for all roadway segments according to General Plan Policies MT-1-k and MT-2-i. However, the SEDA Specific Plan calls for a standard of LOS E or better, which is the standard used in the traffic analysis.

2.3 Vehicle Miles Traveled

SB 743, which was signed into law by Governor Brown in 2013 and codified in Public Resources Code 21099, tasked OPR with establishing new criteria for determining the significance of transportation impacts under CEQA. SB 743 requires the new criteria to "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." SB 743 changes the way that public agencies evaluate the transportation impacts of projects under CEQA, recognizing that roadway congestion, while an inconvenience to drivers, is not itself an environmental impact (see Pub. Resource Code, § 21099, subd. (b)(2)). In December 2018, OPR circulated its most recent *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR) that provides recommendations and describes various options for assessing VMT for transportation analysis purposes. "Vehicle miles traveled" refers to the amount and distance of automobile travel "attributable to a project". Other relevant considerations may include the effects of the project on transit or non-motorized travel. The VMT analysis options described by OPR are primarily tailored towards single-use development residential, office projects, not mixed use projects and not athletic facility projects. OPR recommends the following methodology and criteria for specific land uses:

- For residential projects, OPR recommends that VMT impacts be considered potentially significant if a residential project is expected to generate VMT per Capita (i.e., VMT per resident) at a rate that exceeds 85 percent of a regional average. However, the City's VMT threshold is 87 percent of a regional average.
- For office projects, OPR recommends that VMT impacts be considered potentially significant if an office project is expected to generate VMT per Employee at a rate that exceeds 85 percent of a regional average. However, the City's VMT threshold is 87 percent of a regional average.
- For retail projects, OPR recommends that VMT impacts be considered potentially significant if a project results in a net increase in total VMT. This approach takes into account the likelihood that retail developments may lead to increases or decreases in VMT, depending on previously existing retail travel patterns. This approach may also be used for other types of projects with customer components.
- OPR also indicates that local serving retail (projects smaller than 50,000 square feet) may be presumed to have a less than significant VMT impact.
- OPR does not provide specific guidance on evaluating other land use types, except to say that other land uses could choose to use the method applicable to the land use with the most similarity to the proposed project.
- For mixed-use projects, OPR describes several options that include (1) evaluating each land use separately; or (2) evaluating mixed-use projects based on the method applicable to the dominant land use. Evaluating each land use separately would potentially fail to measure the positive effects of mixed-use projects in reducing VMT.

OPR also recommends exempting some project types from VMT analysis based on the likelihood that such projects will generate low rates of VMT:

- OPR recommends that projects generating less than 110 trips per day generally may be assumed to cause a less than significant transportation impact.

- OPR notes that residential and office projects that located in areas with low VMT, and that incorporate similar features, will tend to exhibit similar low VMT, and can be screened out.
- OPR states that residential, retail, office and mixed-use projects near transit stations or major transit stops should be screened out based on the likelihood that such projects will have a less than significant impact on VMT.

VMT Screening Criteria

City of Fresno guidelines include the following screening criteria for identifying projects that can be presumed to have a less-than-significant impact:

- Residential, retail, office projects, or mixed-use projects proposed within 0.5 mile of an existing major transit stop or an existing stop along a high-quality transit corridor.
- Projects involving local serving retail space of less than 50,000 square feet.
- Projects having a high level of affordable housing units.
- Projects generating less than 500 Average Daily Trips (ADT).
- Projects that develop institutional/government and public service uses that support community health, safety, and welfare.
- Residential and office projects located in areas with low VMT and incorporate similar features.
- Consistency with other plans to reduce GHG emissions.

2.4 Fresno Activity Based Travel Demand Model (FresnoABM)

The latest approved version of the Fresno Activity Based Travel Demand Model (Fresno ABM) was obtained for use in travel demand forecasting, VMT analysis, and queuing analysis for this project. All traffic volume forecasts were adjusted, using the difference (DELTA) method, to account for the difference between existing counts and base year model forecasts. The FresnoABM has a base year of 2019 and a forecast year of 2035, while the count data collected from the Fresno City count database were from the year 2018.

3.0 EXISTING CONDITIONS

This section describes existing conditions in the immediate project site vicinity, including roadway facilities, bicycle and pedestrian facilities, and available transit service. In addition, existing traffic volumes and operations are presented for the study intersections, including the results of LOS calculations.

3.1 Existing Setting and Roadway System

Regional roadway facilities providing access to the proposed SEDA development is provided via State Route 180. Local access to the SEDA plan area is provided by various arterials and connectors.

State Route 180 (SR-180) is generally a four-lane, east-west State Highway in Fresno County connecting Centerville to the east and Mendota to the west. It runs through the central portion of the SEDA development and its speed limit is 65 miles per hour (mph). The highway merges with Kings Canyon Road when the highway portion ends near De Wolf Avenue.

Kings Canyon Road is a four-lane, east-west arterial that connects downtown Fresno to SR-180 in the east. It runs through the central portion of the SEDA development and its speed limit is 40 miles per hour (mph).

Clovis Avenue is primarily a four-lane, north-south arterial in eastern Fresno, connecting residents from Clovis all the way down to State Route 99 (SR-99). It is primarily a six lane arterial within the SEDA area and surrounding land uses include single-family and commercial/retail uses. The speed limit along Clovis Avenue is 45 mph.

Temperance Avenue is a four-lane, north-south super arterial in Fresno County with an interchange at SR-180. Temperance Avenue varies from two to four lanes within the Plan Area. Temperance Avenue consists of mostly rural residential land uses and the road becomes a two-lane facility south of Hamilton Avenue. The speed limit along Temperance Avenue ranges from 45 to 50 mph. By full buildout of the Specific Plan, Temperance Avenue is expected to be expanded to six lanes.

De Wolf Avenue is a two-lane, north-south collector in eastern Fresno County that runs perpendicular to SR-180. Land adjacent to the road consists of mostly farmland and the road connects multiple elementary schools. It runs through the central portion of Plan Area. The speed limit along De Wolf Avenue is 45 mph.

McCall Avenue is a two-lane, north-south collector in eastern Fresno County that intersects with SR-180. Land adjacent to the road consists of mostly farmland and the road connects the City of Selma to Fresno. It runs through the eastern edge of the Plan Area. The speed limit along McCall Avenue is 40 mph.

Jensen Avenue is a four-lane, east-west super arterial in southern Fresno County that connects SR-99 with the City of Sanger. The land adjacent to Jensen Avenue consists of mostly farmland, and the road runs through the southern portion of SEDA Specific Plan Area. The speed limit along Jensen Avenue is 55 mph from Chestnut Avenue to Clovis Avenue and 60 mph from Clovis Avenue to Fowler Avenue.

Belmont Avenue is a two-lane, east-west collector in eastern Fresno that runs north of and parallel to SR-180. The land adjacent to the road consists of mostly farmland, and the road through the central portion of Plan Area. The speed limit along Belmont Avenue is 45 mph from Peach Avenue to Armstrong Avenue and 50 mph from Armstrong Avenue to Temperance Avenue.

Tulare Avenue is a two-lane, east-west collector in eastern Fresno that runs south of and parallel to SR-180. The land adjacent to the road consists of mostly suburban tracts and runs through the central portion of the Plan Area. The speed limit along Tulare Avenue is 40 mph from First Street to Clovis Avenue.

Armstrong Avenue is a two-lane, north-south collector in eastern Fresno that runs parallel to Temperance Avenue. The land adjacent to the road consists of mostly rural tracts and the road runs through the western portion of the Plan Area. The speed limit along Armstrong Avenue is 45 mph.

Fowler Avenue is a two-lane, north-south collector in eastern Fresno that runs parallel to Temperance Avenue. The land adjacent to the road consists of mostly rural tracts and the road is located at the western boundary of the Plan Area. The speed limit along Fowler Avenue is 45 mph.

North Avenue is a two-lane, east–west collector in eastern Fresno that runs parallel to Jensen Avenue. The land adjacent to the road consists of mostly rural tracts and agricultural fields, and the road runs through the southern portion of the Plan Area. The speed limit along North Avenue is 40 mph.

3.2 Existing Pedestrian Facilities

Walkability is defined as the ability to travel easily and safely between various origins and destinations without having to rely on automobiles or other motorized travel. The ideal "walkable" community includes wide sidewalks, a mix of land uses such as residential, employment, and shopping opportunities, a limited number of conflict points with vehicle traffic, easy access to transit facilities and services and a network of pedestrian facilities. Pedestrian facilities are comprised of crosswalks, sidewalks, pedestrian signals, and off-street paths, which provide safe and convenient routes for pedestrians to access the destinations such as institutions, businesses, public transportation, and recreation facilities. Pedestrian facilities must be Americans with Disabilities Act (ADA)-compliant.

As this project is a Specific Plan proposed in an area that is currently rural and developed in Fresno County, there are very limited pedestrian facilities in the project vicinity.

3.3 Existing Bicycle Facilities

The 2017 City of Fresno Active Transportation Plan (ATP) outlines policies and objectives to improve the current active transportation system that includes walking and biking. The various bicycle facilities throughout the City and its Sphere of Influence are described below.

- **Class I Shared-Use Path**: Class I bikeways are a completely separate right-of-way designed for the exclusive use of cyclists and pedestrians, with minimal crossings for motorists. These paths are often located along creeks, canals, and rail lines. Near or within the study area, there is Temperance Avenue Trail north of Shields Avenue, north of the study area is Gould Canal Trail that connects to Temperance Avenue Trail, Janice Trail north of the Flood Control Basin, Columbia Canal Trail west of Clovis Avenue south of Kings Canyon Road, Granville Trail north of Jensen Avenue west of Fowler Avenue, and one small Class I bike path near Temperance Avenue near Shields Avenue on the northwestern portion of the Plan Area.
- **Class II Bike Lanes**: Class II bike lanes use special lane markings, pavement legends, and signage. Bike lanes provide designated street space for bicyclists, typically adjacent to outer vehicle travel

lanes. Buffered bike lanes increase separation through painted buffers between vehicle lanes and/or parking, and green paint at conflict zones (e.g., driveways or intersections). Class II bike lanes are present in the study area along Belmont Avenue, portions of Armstrong Avenue, Shields Avenue, Locan Avenue, Butler Avenue, S. Temperance Avenue and there are many more planned in the Fresno General Plan and in the SEDA plan for the project area.

- **Class III Bike Routes**: Bike routes provide enhanced mixed-traffic conditions for bicyclists through signage, shared arrow (sharrow) striping, and/or traffic calming treatments and provide continuity to a bikeway network. Bike routes are typically designated along gaps between bike trails or bike lanes or along low-volume, low-speed streets. Bicycle boulevards further enhance bike routes by encouraging slower speeds and discouraging non-local vehicle traffic using traffic diverters, chicanes, traffic circles, and speed tables. There are no existing Class III facilities in the project area, but there are many planned in the SEDA plan for the project area. Sharrows shall only be implemented on designated streets where speed limits are 30 mph or less.
- **Class IV Bikeway**: Bikeways are also known as cycle tracks or separated bikeways, are set aside for the exclusive use of bicycles and physically separated from vehicle traffic. Separated bikeways were adopted by the California Department of Transportation (Caltrans) in 2015. Separation may include grade separation, flexible posts, physical barriers, or on-street parking. There are no existing or planned Class IV facilities in the future within SEDA.

3.4 Existing Transit Facilities

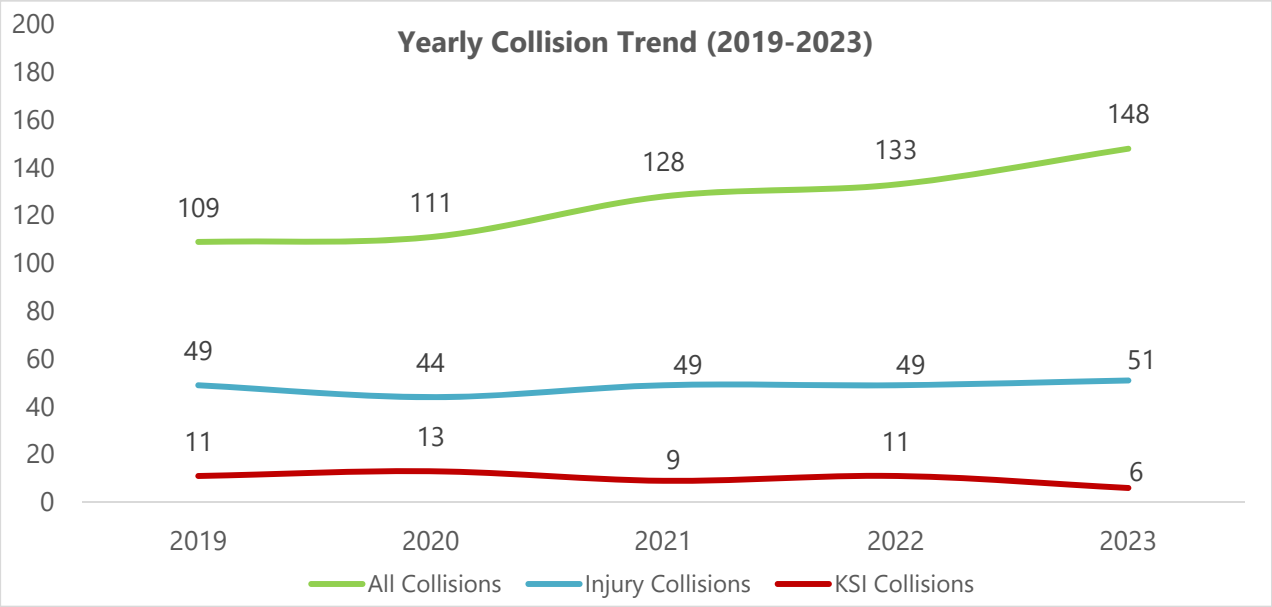
Fresno Area Express (FAX) is the local bus system for the City of Fresno. Currently, there are no bus lines that run through the Plan Area. Bus routes 1, 22, and 35 runs on Clovis Street near the Plan Area, but do not directly serve the Plan Area. There are plans to extend the Fresno bus rapid transit line (Route 1) into the Plan Area in the future and to add local transit routes to significant origins and destinations with the project area.

3.5 Preliminary Safety Assessment

The Preliminary Safety Assessment focuses on the frequency of collisions, providing analysis of their severity, type, and concentration within the project area. Five years of countywide data from 2019 to 2023 was collected from the Statewide Integrated Traffic Records System (SWITRS) for assessment purposes. After thorough analysis, Fresno South-East Development Area (SEDA) recorded a total of 629 collisions between 2019 and 2023. Please refer to **Appendix A** for detailed analysis.

Among all the collisions, 12 were fatal, 38 resulted in severe injuries, while 70 caused visible injuries. Additionally, 122 collisions involved complaints of pain, and the majority of collisions (387) were property damage only, with no reported injuries. In terms of injury collisions, a total of 242 collisions occurred over these five years. Within **Appendix A**, Collision Analysis depicts collisions by severity over the five-year period. Figure 2 illustrates the collisions by the severity over the five-year period.

Figure 2: SEDA Collisions by Severity (2019-2023)



Overall collisions have remained relatively constant over the past five years, with a decline in fatalities and severe injuries in 2023. However, the total number of collisions increased from 109 (in 2019) to 148 (in 2023), reflecting a 36 percent increase. This year-on-year increase in total collisions is primarily due to the increase in Property Damage Only (PDO) collisions.

The data indicates there have been fatal collisions occurring on Jensen Avenue, SR-180, Temperance Avenue, and McKinley Avenue. Severe injuries have also been reported on Jensen Avenue, SR-180, Clovis Avenue, Belmont Avenue, Temperance Avenue, and De Wolf Avenue. Please refer to Figures 6 and 7 of the Collision Analysis (**Appendix A**) for the Severity and Density Map.

The analysis also compares the number of collisions between the intersection and roadway segments. Of the total collisions, 63 percent occurred at intersections, while 37 percent took place on roadway segments. Only specific to injury collisions, approximately 70 percent occurred at intersections, and 30 percent took place on roadway segments. Furthermore, the most common violation leading to injury collisions is automobile right of way (35 percent), followed by violation of traffic signals and signs (17 percent). Other significant violations include improper turning, driving under the influence, and unsafe speed. Please refer to Figures 4 and 8 of the Collision Analysis (**Appendix A**) display the segregation of roadway and intersection collisions, as well as the top violation categories for both injury collisions and all collisions.

The most frequent collision types for injury collisions are broadside (51 percent), hitting an object (17 percent), and rear-end collisions (16 percent). A similar trend is observed for all collisions, with broadside (35 percent), hitting an object (26 percent), and rear-end collisions (21 percent) being the most common. Collisions involving hitting an object and rear-end accidents are more prevalent in all collisions compared to injury collisions. Please refer to Figure 9 of the Collision Analysis (**Appendix A**) for an illustration of collisions based on type of collision.

With injury collisions, 57 percent occurred during daylight, while 32 percent took place in dark conditions on streets without streetlights. Additionally, 88 percent of injury collisions involved passenger cars and

pickup trucks, while trucks accounted for 6 percent. The least number of injury collisions involved pedestrians and bicycles. Please refer to Figure 10 of the Collision Analysis (**Appendix A**) for an illustration of collisions based on lighting conditions.

Focusing specifically on pedestrian and bicycle collisions within the project area, a total of seven pedestrian collisions occurred, including one fatality and six resulting in severe injuries. A total of six bicycle collisions occurred, two were fatal, one resulted in a severe injury, two caused visible injuries, and one was property damage-only collision. The one pedestrian fatal collision analyzed was reported on Jensen Avenue between Armstrong Avenue and Temperance Avenue. A fatal bicycle collision was reported on Jensen Avenue between Temperance Avenue and Highland Avenue, and another fatal collision was reported on Pine Avenue between Temperance Avenue and De Wolf Avenue. Please refer to Figures 12 and 13 of the Collision Analysis (**Appendix A**) for illustrations of pedestrian and bicycle collisions.

In terms of safety the city has been actively participating in improving it through various planning efforts and policy adoptions, such as Complete Streets, Active Transportation Plan and the Vision Zero Action Plan. Active Transportation, which encourages non-motorized travel like walking, cycling, and using transit, helps to reduce vehicle congestion and collisions while encouraging healthier, more sustainable habits. It enhances safety by providing dedicated lanes for cyclists and pedestrians, enhancing pedestrian infrastructure such as crosswalks and islands, and reducing vehicle speeds in areas with high foot or bike traffic. Complete Streets policies make roads safer for everyone by incorporating bike lanes, wider sidewalks, bus lanes, and traffic calming measures like speed bumps or roundabouts. These policies also improve visibility for pedestrians and cyclists at intersections. Vision Zero aims to eliminate traffic fatalities and serious injuries by improving road design, addressing hazardous conditions, lowering speed limits in high-risk areas, and promoting safe driving through education and enforcement. Together, these initiatives create safer, more inclusive roadways.

The City adopted its Complete Streets Policy in 2019. The Policy's intent is to aid in the planning, design, and construction of transportation facilities that balance safety, access, and mobility for users of all abilities and ages. The Complete Streets Policy is implemented in all neighborhoods, with particular attention to areas identified as priority areas in the Active Transportation Plan (ATP) and corridors with high collision rates. This policy is intended to guide implementation of the complete street and multimodal objectives and policies outlined in the General Plan.

The City's Active Transportation Plan (ATP) was initially adopted in 2017 and is now being updated. The goal of the ATP is to enhance accessibility, safety and connectivity for various modes such as walking, biking, and other human-powered travel modes. The ATP outlines strategies informed by the latest data and community input, aiming to increase active transportation use while supporting public health and social equity. It also aligns with broader city planning efforts in creating a more connected and vibrant community. The updated ATP is expected to be complete by late summer 2025. It will be accompanied by a Vision Zero Action Plan, which specifically focuses on safety.

The Vision Zero Action Plan is crucial to the city's commitments to systemic change leading to the reduction or elimination of traffic fatalities and serious injuries while increasing health, safety, and equitable mobility for all. The Vision Zero Action Plan will outline a strategic planning framework to prioritize and implement safety enhancements that most effectively improve safety for all users as a step towards reducing traffic deaths. The Vision Zero Action Plan is currently underway, and its completion is expected for fall 2025.

3.6 Existing Peak Hour Traffic Volumes For Study Segments

The existing operations of the study roadway segments were evaluated for the highest one-hour volumes during weekday morning and evening peak periods. In addition to peak hour, daily volumes were also evaluated. **Table 3** below shows the list of segments that have count data from both the City and County of Fresno.

Table 3: Existing Conditions Study Segment Traffic Volumes

Segment Name	#	AM Peak Hour	PM Peak Hour	Daily
Clovis Avenue south of American Avenue	1	1,037	1,154	14,404
De Wolf Avenue north of McKinley Avenue	2	472	326	2,766
De Wolf Avenue south of McKinley Avenue	3	282	248	1,881
De Wolf Avenue south of Clinton Avenue	4	332	228	2,271
De Wolf Avenue north of Jensen Avenue	5	187	174	1,693
De Wolf Avenue south of Jensen Avenue	6	95	120	1,139
Jensen Avenue east of Bethel Avenue	7	924	1,057	13,941
Jensen Avenue east of De Wolf Avenue	8	608	718	9,710
Jensen Avenue west of De Wolf Avenue	9	503	715	8,609
Jensen Avenue east of Temperance Avenue	10	1,015	801	9,856
Jensen Avenue west of Temperance Avenue	11	1,019	876	10,748
Kings Canyon Road east of Temperance Avenue	12	4	4	52
Locan Avenue north of Tulare Avenue	13	18	17	162
Locan Avenue south of Tulare Avenue	14	12	19	154
McCall Avenue north of McKinley Avenue	15	500	382	4,197
McCall Avenue north of Ashlan Avenue	16	390	439	5,167
McCall Avenue north of Belmont Avenue	17	485	518	5,730
Tulare Avenue east of Locan Avenue	18	24	27	248
Tulare Avenue west of Locan Avenue	19	38	54	595
North Avenue west of Temperance Avenue	20	193	216	2,442

3.7 Existing Vehicle Miles Traveled

For existing conditions VMT, the SEDA project area was overlaid on top of the Fresno County Council of Government's (Fresno COG) Activity Based Travel Demand Model (FresnoABM) loaded vehicle assignment network and the total VMT for the SEDA project was calculated by multiplying daily volumes by distance travelled. In addition, VMT per service population (which is the sum of population and employees) was calculated. **Table 4** summarizes the existing VMT from the FresnoABM for the SEDA project area.

Table 4: Existing Conditions VMT

Category	2015 Base Year Model
SEDA VMT	330,350
Population	3,410
Employment	2,306
SEDA VMT per Service Population	57.79

Notes:
SEDA = Southeast Development Area
VMT = Vehicle Miles Traveled

4.0 YEAR 2035 BASELINE (NO PROJECT) CONDITIONS

This chapter presents the results of the level of service (LOS) calculations under the year 2035 baseline conditions without the project. Level of service analysis at the study segments were conducted for 2035 no project conditions to establish a base to evaluate the impacts due to the addition of traffic from the proposed project. Study segment volumes were forecasted using the Fresno Activity Based Travel Demand Model. **Table 5** shows the forecasted study segment volumes for the year 2035 baseline (no project) conditions.

Table 5: Year 2035 Baseline (No Project) Conditions Study Segment Traffic Volumes

Segment Name	#	AM Peak Hour	PM Peak Hour	Daily
Clovis Avenue south of American Avenue	1	1,071	1,163	15,309
De Wolf Avenue north of McKinley Avenue	2	688	495	4,237
De Wolf Avenue south of McKinley Avenue	3	282	258	1,881
De Wolf Avenue south of Clinton Avenue	4	484	347	3,470
De Wolf Avenue north of Jensen Avenue	5	187	174	1,693
De Wolf Avenue south of Jensen Avenue	6	95	137	1,221
Jensen Avenue east of Bethel Avenue	7	1,006	1,105	15,079
Jensen Avenue east of De Wolf Avenue	8	705	830	11,518
Jensen Avenue west of De Wolf Avenue	9	597	850	10,143
Jensen Avenue east of Temperance Avenue	10	1,606	1,095	13,894
Jensen Avenue west of Temperance Avenue	11	1,333	1,107	12,676
Kings Canyon Road east of Temperance Avenue	12	4	4	52
Locan Avenue north of Tulare Avenue	13	18	32	218
Locan Avenue south of Tulare Avenue	14	12	34	199
McCall Avenue north of McKinley Avenue	15	500	382	4,197
McCall Avenue north of Ashlan Avenue	16	390	439	5,167
McCall Avenue north of Belmont Avenue	17	485	518	5,730
Tulare Avenue east of Locan Avenue	18	38	45	363
Tulare Avenue west of Locan Avenue	19	59	90	861
North Avenue west of Temperance Avenue	20	193	216	2,442

4.1 Study segment Level of Service Analysis – Year 2035 No Project Conditions

The study segment level of service analysis for the forecasted volumes are presented in **Table 6.** All of the study segments in the year 2035 no project conditions are forecasted to perform at a LOS of D or better.

Table 6: Year 2035 Baseline (No Project) Conditions Study Segment LOS

Segment Name	#	AM Peak Hour	PM Peak Hour	Daily
Clovis Avenue south of American Avenue	1	C	C	B
De Wolf Avenue north of McKinley Avenue	2	D	D	C
De Wolf Avenue south of McKinley Avenue	3	C	C	B
De Wolf Avenue south of Clinton Avenue	4	D	C	B
De Wolf Avenue north of Jensen Avenue	5	C	C	A
De Wolf Avenue south of Jensen Avenue	6	B	B	A
Jensen Avenue east of Bethel Avenue	7	C	C	B
Jensen Avenue east of De Wolf Avenue	8	B	B	A
Jensen Avenue west of De Wolf Avenue	9	B	B	A
Jensen Avenue east of Temperance Avenue	10	C	C	B
Jensen Avenue west of Temperance Avenue	11	C	C	B
Kings Canyon Road east of Temperance Avenue	12	A	A	A
Locan Avenue north of Tulare Avenue	13	A	A	A
Locan Avenue south of Tulare Avenue	14	A	A	A
McCall Avenue north of McKinley Avenue	15	D	D	C
McCall Avenue north of Ashlan Avenue	16	D	D	C
McCall Avenue north of Belmont Avenue	17	D	D	C
Tulare Avenue east of Locan Avenue	18	A	A	A
Tulare Avenue west of Locan Avenue	19	A	A	A
North Avenue west of Temperance Avenue	20	A	A	A

4.2 Year 2035 No Project Conditions Vehicle Miles Traveled

For the Year 2035 baseline no project conditions VMT, the SEDA project area was overlaid on top of the FresnoABM loaded vehicle assignment network and the total VMT for the SEDA project was calculated by multiplying daily volumes by distance travelled. In addition, VMT per service population (which is the sum

of population and employees) was calculated. **Table 7** summarizes the 2035 baseline no project VMT from the FresnoABM for the SEDA project area. In the forecast year no project condition, VMT per service population for the SEDA project area falls slightly compared to the existing base year condition.

Based on the model outputs, from 2015 (Base Year) to 2035 No Project, VMT per service population decreased from 57.79 to 45.72 due to minor population and employment growth without significant changes to land use or transportation infrastructure.

Table 7: Year 2035 No Project Conditions VMT

Category	2035 Baseline No Project Model
SEDA Project Area VMT	371,397
Population	5,046
Employment	3,077
SEDA VMT per Service Population	45.72

Notes:
SEDA = Southeast Development Area
VMT = Vehicle Miles Traveled

5.0 YEAR 2035 PROJECT CONDITIONS

This chapter presents the results of the level of service calculations for the year 2035 conditions with the SEDA project. Level of service analysis at the study segments were conducted for 2035 with project conditions. Study segment volumes were forecasted using delta method using the Fresno Activity Based Travel Demand Model. **Table 8** shows the forecasted study segment volumes for the year 2035 with project conditions.

Table 8: Year 2035 With Project Conditions Study Segment Traffic Volumes

Segment Name	#	AM Peak Hour	PM Peak Hour	Daily
Clovis Avenue south of American Avenue	1	1,266	1,367	18,223
De Wolf Avenue north of McKinley Avenue	2	838	544	5,510
De Wolf Avenue south of McKinley Avenue	3	457	357	3,614
De Wolf Avenue south of Clinton Avenue	4	610	395	4,678
De Wolf Avenue north of Jensen Avenue	5	322	305	3,549
De Wolf Avenue south of Jensen Avenue	6	178	235	2,166
Jensen Avenue east of Bethel Avenue	7	1,135	1,375	18,813
Jensen Avenue east of De Wolf Avenue	8	1,040	1,179	16,757
Jensen Avenue west of De Wolf Avenue	9	866	1,180	15,122
Jensen Avenue east of Temperance Avenue	10	2,096	1,519	20,017
Jensen Avenue west of Temperance Avenue	11	1,862	1,562	19,744
Kings Canyon Road east of Temperance Avenue	12	8	8	111
Locan Avenue north of Tulare Avenue	13	44	44	392
Locan Avenue south of Tulare Avenue	14	29	48	320
McCall Avenue north of McKinley Avenue	15	831	651	6,377
McCall Avenue north of Ashlan Avenue	16	562	612	5,662
McCall Avenue north of Belmont Avenue	17	867	919	9,956
Tulare Avenue east of Locan Avenue	18	54	61	582
Tulare Avenue west of Locan Avenue	19	80	118	1,391
North Avenue west of Temperance Avenue	20	193	286	2,442

Compared to the 2035 no project condition, Jensen Avenue and McCall Avenue saw the most growth in AM peak, PM peak, and daily volumes with the SEDA project built out. Due to the existing low volumes from the City of Fresno count data, the forecasted with project SEDA volumes are not as high as raw FresnoABM output volumes.

5.1 Study Segment Level of Service Analysis – Year 2035 With Project Conditions

The study segment level of service analysis for the forecasted volumes are presented in **Table 9.** All of the study segments in the year 2035 with project conditions are forecasted to perform at a LOS of D or better.

Table 9: Year 2035 With Project Conditions Study Segment LOS

Segment Name	#	AM Peak Hour	PM Peak Hour	Daily
Clovis Avenue south of American Avenue	1	C	C	B
De Wolf Avenue north of McKinley Avenue	2	D	D	D
De Wolf Avenue south of McKinley Avenue	3	D	D	D
De Wolf Avenue south of Clinton Avenue	4	D	D	D
De Wolf Avenue north of Jensen Avenue	5	D	D	D
De Wolf Avenue south of Jensen Avenue	6	D	D	D
Jensen Avenue east of Bethel Avenue	7	C	C	B
Jensen Avenue east of De Wolf Avenue	8	C	C	B
Jensen Avenue west of De Wolf Avenue	9	C	C	B
Jensen Avenue east of Temperance Avenue	10	C	C	B
Jensen Avenue west of Temperance Avenue	11	C	C	A
Kings Canyon Road east of Temperance Avenue	12	A	A	A
Locan Avenue north of Tulare Avenue	13	A	A	A
Locan Avenue south of Tulare Avenue	14	A	A	A
McCall Avenue north of McKinley Avenue	15	D	D	C
McCall Avenue north of Ashlan Avenue	16	D	D	C
McCall Avenue north of Belmont Avenue	17	D	D	C
Tulare Avenue east of Locan Avenue	18	A	A	A
Tulare Avenue west of Locan Avenue	19	A	A	A
North Ave west of Temperance	20	A	A	A

5.2 Year 2035 With Project Conditions Vehicle Miles Traveled

For the Year 2035 with project conditions VMT, the SEDA project area was overlaid on top of the FresnoABM loaded vehicle assignment network and the total VMT for the SEDA project was calculated by multiplying daily volumes by distance travelled. In addition, VMT per service population (which is the sum of population and employees) was calculated. **Table 10** summarizes the 2035 baseline with project VMT from the FresnoABM for the SEDA project area.

Table 10: Year 2035 With Project Conditions VMT

Category	2035 With Project Model (SEDA)
SEDA VMT	974,369
Population	151,670
Employment	40,490
SEDA VMT per Service Population	5.07

Notes:
SEDA = Southeast Development Area
VMT = Vehicle Miles Traveled

The VMT per Service Population in the SEDA project area with the project built out in 2035 drops from 45.72 to 5.07. There is a substantial reduction in VMT per service population in the horizon year (2035). While total VMT is projected to increase due to population and employment growth, the VMT per Service Population is expected to decrease from 45.72 in the 'No Project' scenario to 5.07 in the 'With Project' scenario.

The transition from a mostly rural area (which the project area currently is) to a developed urbanized mixed-use site results in a large VMT reduction. This is because trip distances for both the production side (residential) and attraction side (commercial) are shortened since residents and employees are now better connected to jobs and services within the project area. By grouping residential, commercial, and employment land uses, the project minimizes the need for long vehicular trips. This integration significantly reduces trip lengths, as daily needs can be met within the project area itself. This significant reduction demonstrates the project's alignment with sustainable land use and transportation principles, as it facilitates shorter and more efficient trips for residents and employees.

The findings conclude that the proposed project will result in less-than-significant impacts on VMT due to its efficient land use integration. This integration significantly reduces trip lengths, as daily needs can be met within the project area itself.

In addition, with the incorporation of multimodal strategies, the SEDA project incorporates a comprehensive transportation network designed to reduce vehicle dependence. Key components include:

- Expansive pedestrian and bicycle infrastructure.
- Integration with regional transit systems, including planned Bus Rapid Transit (BRT) routes.
- Transportation Demand Management strategies such as shared parking, transit subsidies, and local shuttle services. These features encourage active and shared transportation modes, further mitigating potential VMT impacts.

5.3 SEDA Project Trip Generation

Table 11 summarizes daily and PM peak hour trip generation for the proposed SEDA Project. Institute of Traffic Engineers (ITE) Trip Generation 11th Edition was used to generate the trip rates for the four types of land uses in the SEDA Project.

Table 11: SEDA Project Trip Generation

Land Use (Units)	*Size*		*Daily*		*P.M. Peak*	
			Rate	*Trips*	*Rate*	*Trips*
Housing (Dwelling Units)	45,274	Dwelling Units	8.35	378,038	0.77	34,861
Retail / Commercial (Employees)	12,648	Employees	26.60	336,437	3.49	44,142
Office (Employees)	8,069	Employees	3.33	26,870	0.45	3,631
Government / Civic (Employees)	16,681	Employees	7.50	125,108	0.71	11,844
Total Trips				**866,452**		**94,477**

In total, the SEDA project is expected to generate 866,452 total daily trips and 94,477 PM peak hour trips from the 45,274 total dwelling units and 37,398 total employees.

5.4 Queueing Analysis

TJKM conducted a ramp queuing analysis for specific SR-180 interchanges and intersections at project buildout to determine potential impacts. The interchanges include Clovis Avenue, Fowler Avenue, and Temperance Avenue, and the intersections include De Wolf Avenue, Highland Avenue, and McCall Avenue. An unacceptable queueing condition exists if queue lengths extend past existing queue lanes or exit ramps (queue spillback), creating a potential traffic hazard. A significant impact could occur if new or worsening queue spillback occurs. Excess queueing can generate speed differentials between slow or stopped traffic on ramps or in turn pockets, and faster traffic in through lanes. Thus, the following analysis contains results of queue length analyses for all of the interchanges and intersections identified above.

The queueing analysis was conducted using expected lane geometry and traffic control at the Specific Plan buildout in 2035, which includes the anticipated widening of Temperance Avenue to six lanes, De Wolf Avenue to four lanes, and signal timings obtained from Caltrans. Estimated turning movements at all study locations were extracted from the Fresno Activity Based Model (FresnoABM) and adjusted to projected 2035 No Project and 2035 Proposed Project conditions using current ramp and mainline volumes. Using these volumes, the queueing analysis was conducted using Synchro 11 and SimTraffic 11 software. Simulation results were based on the average results of five one-hour runs, in accordance with Caltrans methodology and are included in **Appendix B**.

Additionally, through coordination with Caltrans, TJKM updated the queuing analysis to reflect the use of auxiliary lanes for additional storage. All the interchanges and intersections analyzed, and the results of queueing analysis, are included in **Table 12**: below.

Table 12: 2035 Project and No Project Queue Analyses Results

#	Intersection/ Interchange	Direction	Lane Group	Storage (in feet)	Peak	No Project Conditions (2035)	Proposed Project Conditions (2035)	Change
1	Clovis Avenue and SR-180 EB Ramp	EB	Left (pocket)	255	AM	79	9	-70
					PM	**335**	**375**	40
			Left (full lane)	1,270	AM	350	55	-295
					PM	**1,581**	**1,738**	157
			Right (full lane plus aux lane)	2,990	AM	717	261	-456
					PM	1,582	1,706	124
			Right (pocket)	885	AM	685	245	-440
					PM	**989**	**1,016**	27
2	Clovis Avenue and SR-180 WB Ramp	WB	Left	440	AM	**853**	**687**	-166
					PM	66	86	20
			Right	1,090	AM	**1,738**	**1,789**	51
					PM	139	124	-15
3	Fowler Avenue and SR-180 EB Ramp	EB	Left (pocket)	400	AM	0	5	5
					PM	0	0	0
			Left (full lane)	1,260	AM	9	18	9
					PM	15	20	5
			Right (full lane plus aux lane)	3,000	AM	111	118	7
					PM	207	232	25
			Right (pocket)	235	AM	91	102	11
					PM	205	237	32
4	Fowler Avenue and SR-180 WB Ramp	WB	Left	650	AM	31	78	47
					PM	33	36	3
			Right	1,420	AM	177	112	-65
					PM	80	61	-19
5	Temperance Avenue and SR-180 EB Ramp	EB	Left (pocket)	440	AM	0	0	0
					PM	4	**604**	600
			Left (full lane)	1,665	AM	23	27	4
					PM	25	**2,046**	2,021
			Right (full lane)	3,500	AM	124	95	-29
					PM	162	2,019	1,857
				680	AM	112	78	-34

#	Intersection/ Interchange	Direction	Lane Group	Storage (in feet)	Peak	No Project Conditions (2035)	Proposed Project Conditions (2035)	Change
			Right (pocket)		PM	155	**946**	791
6	Temperance Avenue and SR-180 WB Ramp	WB	Left (pocket)	400	AM	82	42	-40
					PM	46	41	-5
			Left (full lane)	1,485	AM	112	69	-43
					PM	90	63	-27
			Right (pocket)	840	AM	0	159	159
					PM	0	0	0
7	De Wolf Avenue and SR-180	EB	Left	725	AM	372	**806**	434
					PM	212	663	451
			Right	700	AM	482	**1,110**	628
					PM	10	681	671
		WB	Left	690	AM	98	178	80
					PM	67	209	142
			Right	690	AM	21	43	22
					PM	40	39	-1
8	Highland Avenue and SR-180	EB	Left/Right	965	AM	24	73	49
					PM	19	150	131
		WB	Left	630	AM	11	17	6
					PM	11	118	107
9	McCall Avenue and SR-180	EB	Left	555	AM	315	185	-130
					PM	100	194	94
			Right	510	AM	**821**	159	-662
					PM	65	90	25
		WB	Left	550	AM	**983**	**737**	-246
					PM	31	37	6
			Right	630	AM	**839**	**1,069**	230
					PM	47	88	41

Notes:
EB = eastbound
WB = westbound
Bold text indicates queues extending beyond available storage

As shown in **Table 12**, above, the queueing analysis using available storage from the State Route 180 auxiliary lane means that the Clovis Avenue and SR-180 interchange would not require any mitigation for future with project conditions. As noted in Caltrans' letter dated August 16, 2024, auxiliary lanes can be used for additional storage.

Interchange 1 (Clovis Avenue and SR-180 eastbound ramp) queuing now does not indicate a deficit.

For Interchange 2 (Clovis Avenue and SR 180 westbound ramp), the project already fails in the no project condition, so no mitigation is necessary from the SEDA project.

Interchange 5 (Temperance Avenue and SR-180 eastbound ramp) like Interchange 1 utilizes the auxiliary lane to provide enough storage for the left and right turn movements in the project buildout condition. The only mitigation measures needed are for intersections 7 and 9, where the existing queue length isn't enough to accommodate the increased project traffic.

For Intersection 7 (De Wolf Avenue and SR-180 intersection), suggested mitigation measures include lengthening the eastbound turning lane to 875 feet and the eastbound right turning lane to 1,150 feet.

For Intersection 9 (McCall Avenue and SR-180 intersection), suggested mitigation measures include lengthening the eastbound right turning lane to 830 feet. , and westbound turning lane to 1,075 feet.

6.0 FINDINGS AND RECOMMENDATIONS

The following sections provide additional analyses of other transportation issues associated with the project site, including:

- Roadway Impact Analysis
- Pedestrian, Bicycle, and Transit Recommendations

Unlike the LOS impact methodology, the analyses in these sections is based on professional judgment in accordance with the standards and methods employed by traffic engineers. Although operational issues are not considered CEQA impacts, they do describe traffic conditions that are relevant to the project environment.

6.1 Roadway Impact Analysis – Traffic Increase

The SEDA Project would have an impact on the existing roadways within the project area. While the LOS analysis does not show any deficient roadways for the 2035 project condition, De Wolf Avenue and McCall Avenue are most impacted with LOS of D in the project scenario. Widening these two collector streets from 1 lane in each direction to 2 lanes in each direction will better serve the SEDA project and allow for smoother north-south traffic flow within the SEDA project. Likewise, it is recommended that McKinley Avenue be widened from its current configuration of 1 lane in each direction to 2 lanes in each direction for better east west connectivity within the SEDA area.

Other roadways within the SEDA plan should be upgraded into a network of Complete Streets as defined by the Fresno Complete Streets Policy adopted in 2019. A Complete Street is defined as a transportation facility that is planned, designed, operated, and maintained to provide safe mobility for all users – including bicyclists, pedestrians, transit vehicles, trucks, and motorists. In addition to Complete Streets, the safety of the designed roadway network environment shall be implemented such that driver, pedestrian, and bicyclist safety are paramount.

6.2 Pedestrian, Bicycle, and Transit Recommendations

Pedestrian facilities recommended for the SEDA area include sidewalks on all roadways, trails and greenways to connect the regional town center (De Wolf and Kings Canyon Blvd) with the community town centers and should complement the natural landscape of the SEDA plan area. The focus shall be on the identified roadways where fatal and severe injury collisions have occurred, and to achieve the Vision Zero goal of eliminating local traffic fatalities, it is crucial to implement safe practices and programs.

Bicycle facilities within SEDA should be compliant with the latest Fresno Active Transportation Plan guidelines and enhance connectivity between the SEDA mixed use areas to the residential areas.

Transit facilities within SEDA should provide for a safe, integrated, and efficient multimodal transportation system. The regional center of SEDA should be well connected by transit to provide access to and from central Fresno to the SEDA area. Transit stations and stops should be located near major activity centers and mixed use zones. Bus lines should connect public places, schools, medical facilities, concentrations of commercial space, and high density residential and employment areas.

Appendix A: Safety Assessment

APPENDIX A

Collision Analysis for Fresno South-East Development Area

For the purpose of this study, five years of countywide collision data from 2019 to 2023 was taken from the Statewide Integrated Traffic Records System (SWITRS). The **Fresno South-East Development Area** recorded a total of **629 collisions** between 2019 and 2023. Among these, 12 were fatal, 38 resulted in severe injuries, while 70 caused visible injuries. Additionally, 122 collisions involved complaint of pain and the majority 387 collisions, were property damage only, with no reported injuries. In terms of injury collisions, a total of 242 collisions occurred over these five years.

Figure 1: Yearly Collision Trend

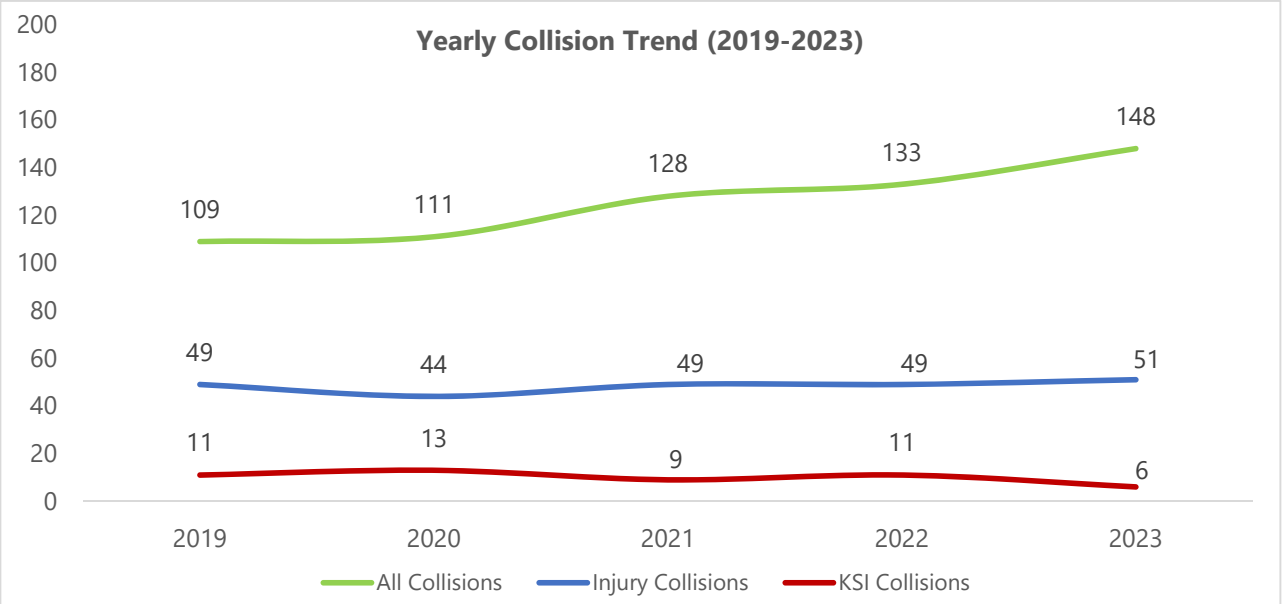
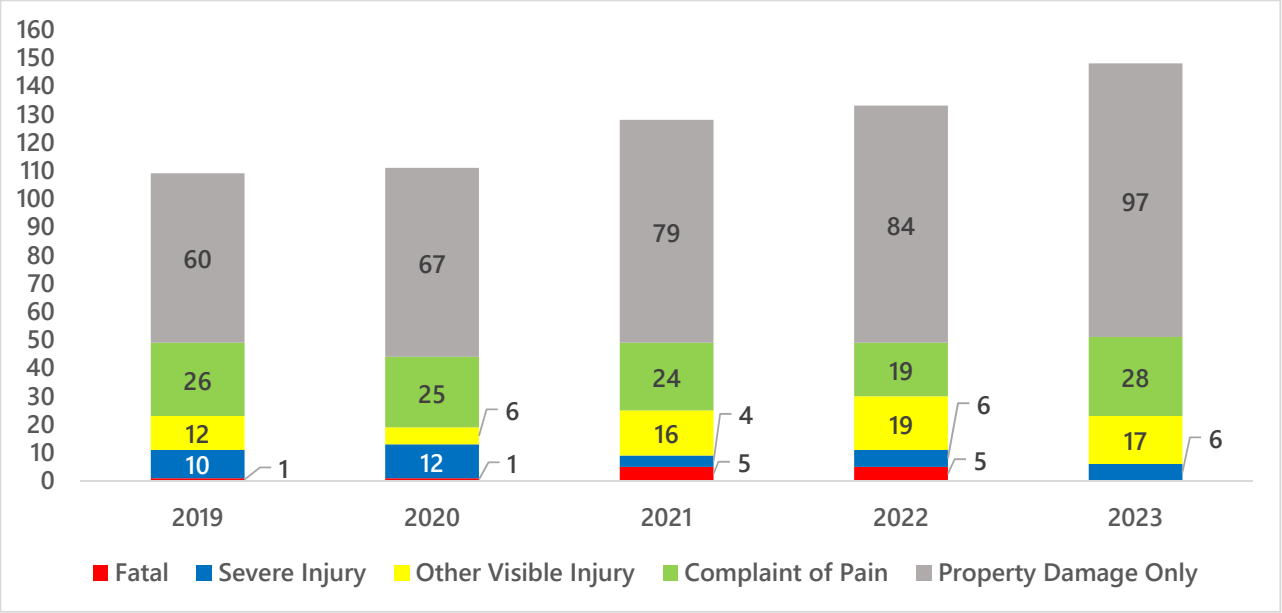


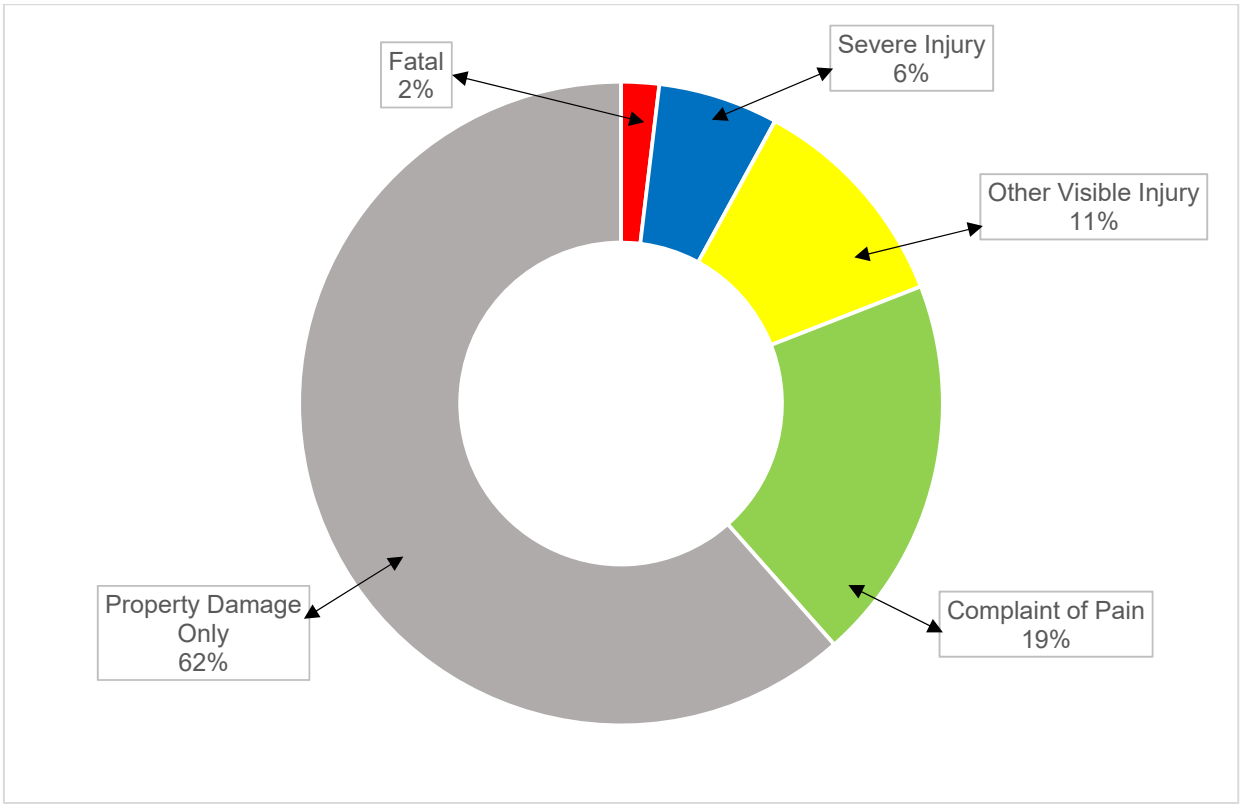
Figure 1 indicates that the trend of injury collisions remains uniform over five years, while killed and severe injury (KSI) collisions got decreased in 2023. The number of all collisions continued to rise over the period starting 109 in 2019 to 148 in 2023. Around 36 percent collisions got increased in 2023 compare to 2019. The year on year increment in total number of collisions is due to occurrence of PDO collisions only. Figure 2 illustrates the collisions by severity over the five-year period.

Figure 2: Collisions by Severity (Yearly)



In both 2021 and 2022, five fatal collisions were reported. The number of severe injuries got decreased from 2021, while collisions involving visible injuries and complaints of pain showed a consistent pattern. Meanwhile, property damage-only collisions got increased each year consistently and accounted for the largest share of total collisions. Figure 3 illustrates the classification of collisions based on severity.

Figure 3: Collisions by Severity (Cumulative- Five years)



The figure 4 illustrates the collisions based on location according to severity. Of the total collisions, 63 percent occurred at intersections, while 37 percent took place on roadway segments. For injury collisions, around 70 percent collisions occurred at intersections and 30 percent happened on roadway segments.

Figure 4: Collisions based on Location

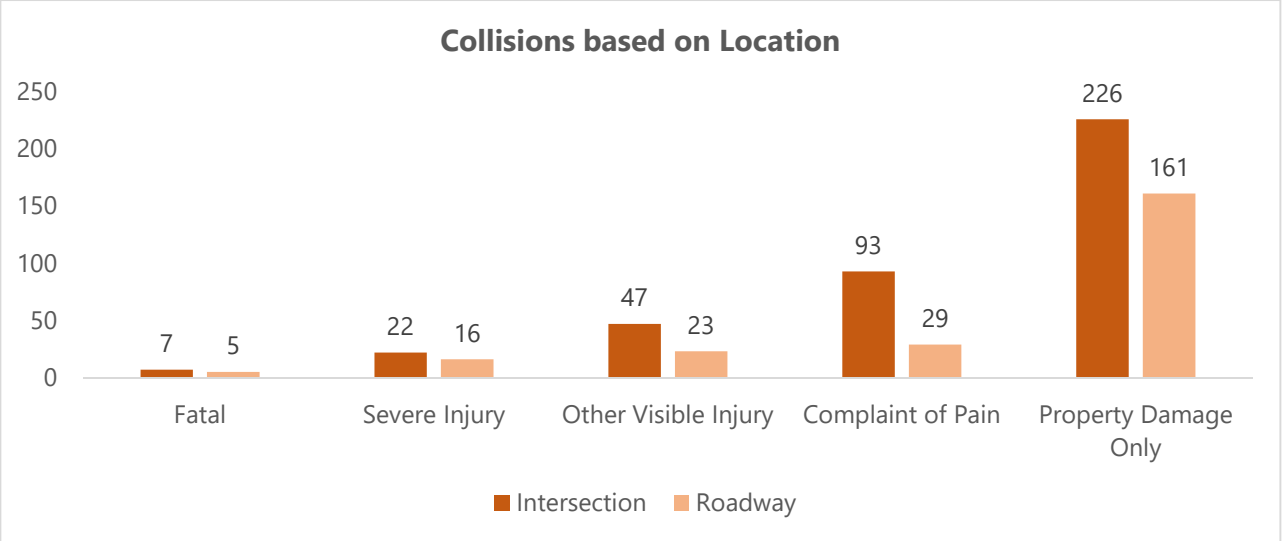


Figure 5 illustrates the injury collisions that occurred between January 1, 2019 and December 31, 2023 in Fresno South-East Development Area.

Figure 5: Injury Collisions (Cumulative- Five Years)

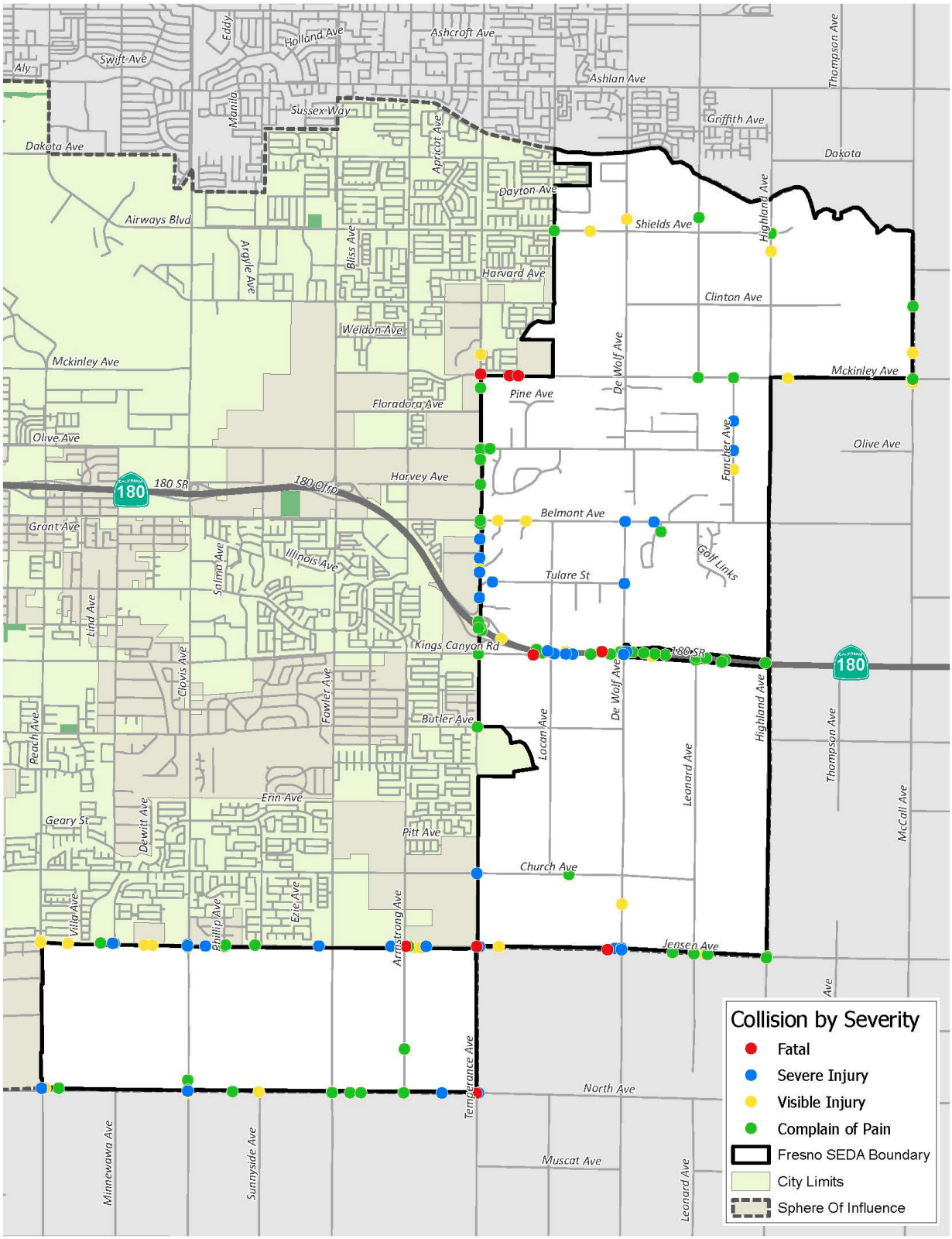


Figure 6 illustrates the killed and severe injury (KSI) collisions that occurred between January 1, 2019 and December 31, 2023 in Fresno South-East Development Area.

Figure 6: Fatal and Severe Injury Collisions (Cumulative- Five Years)

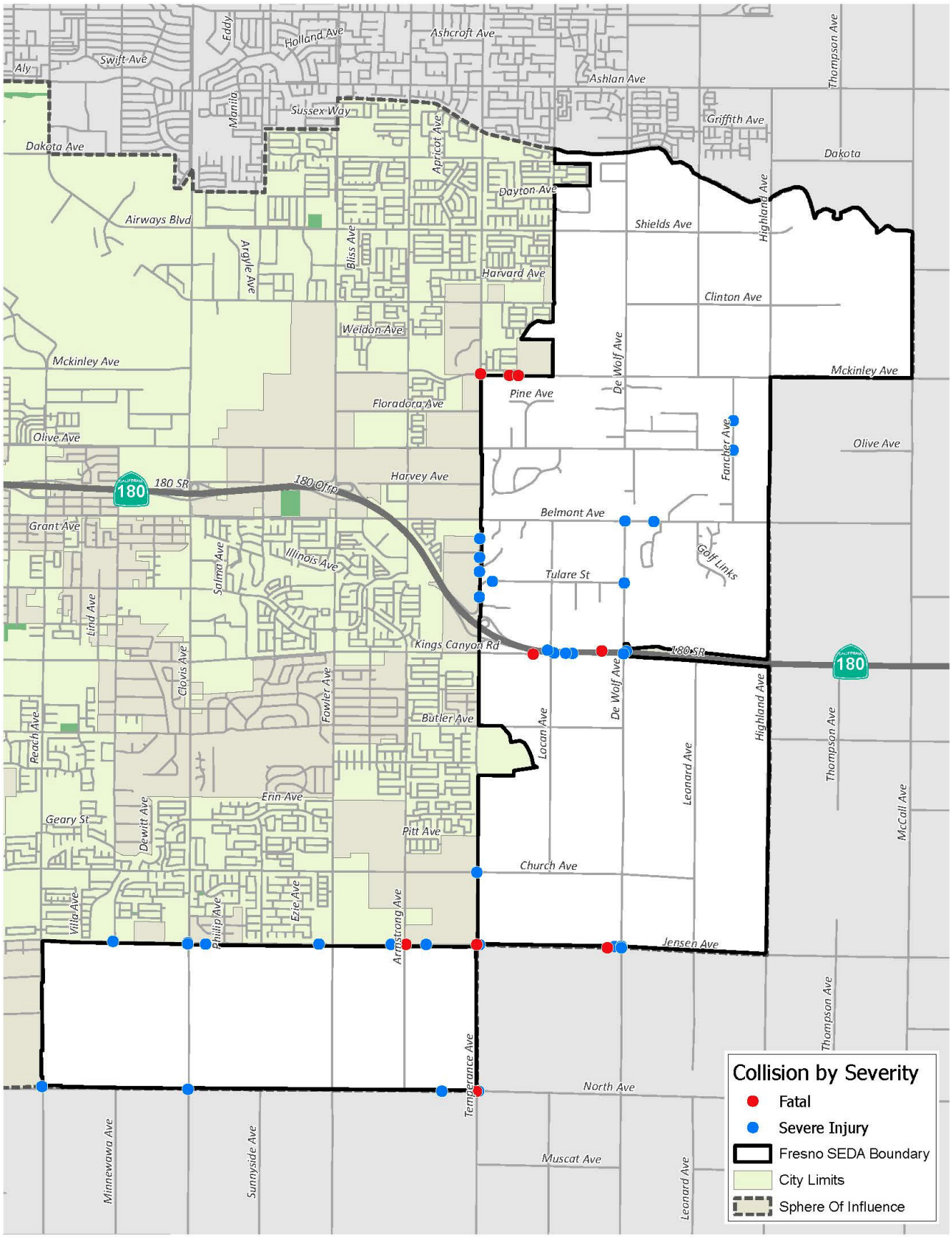
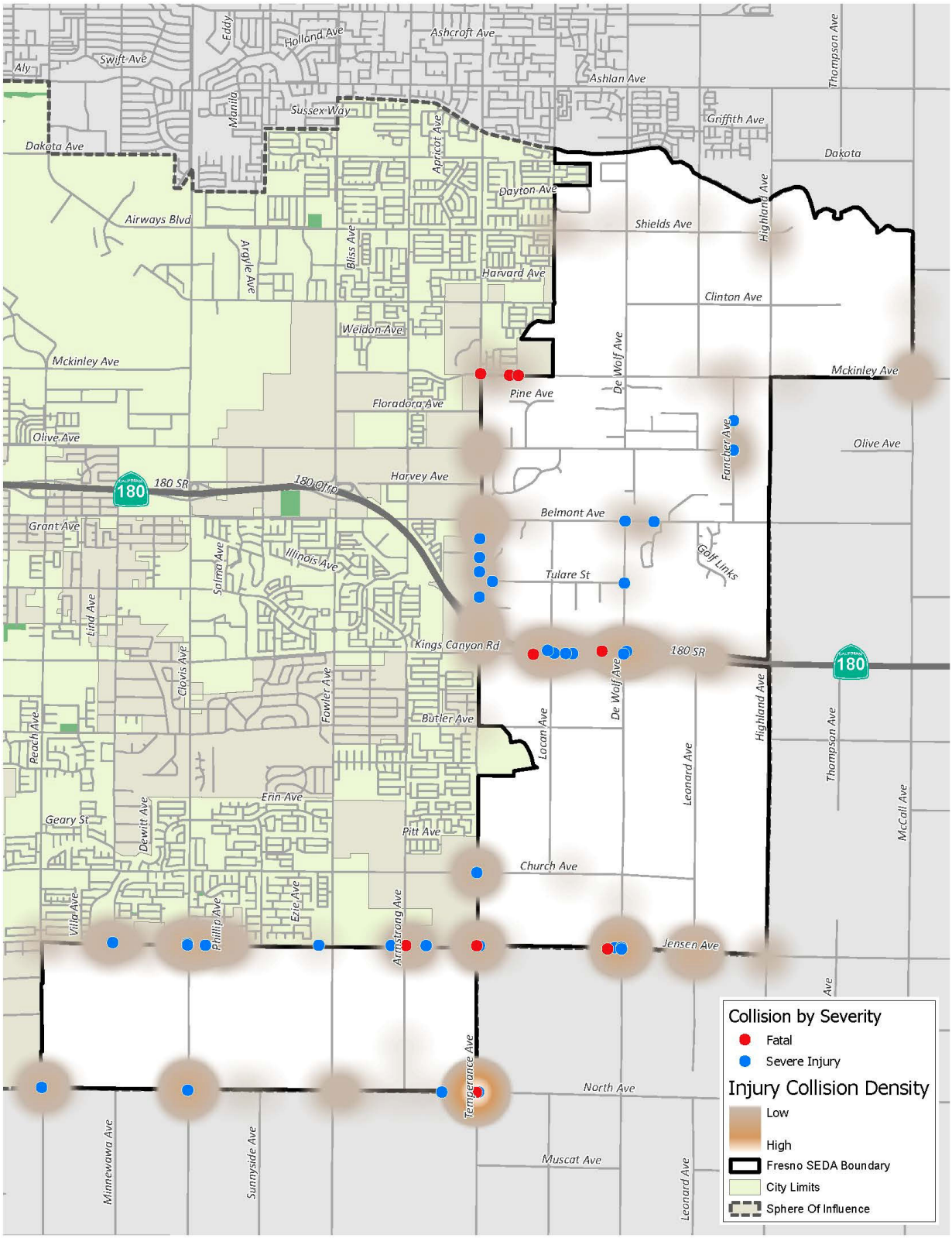


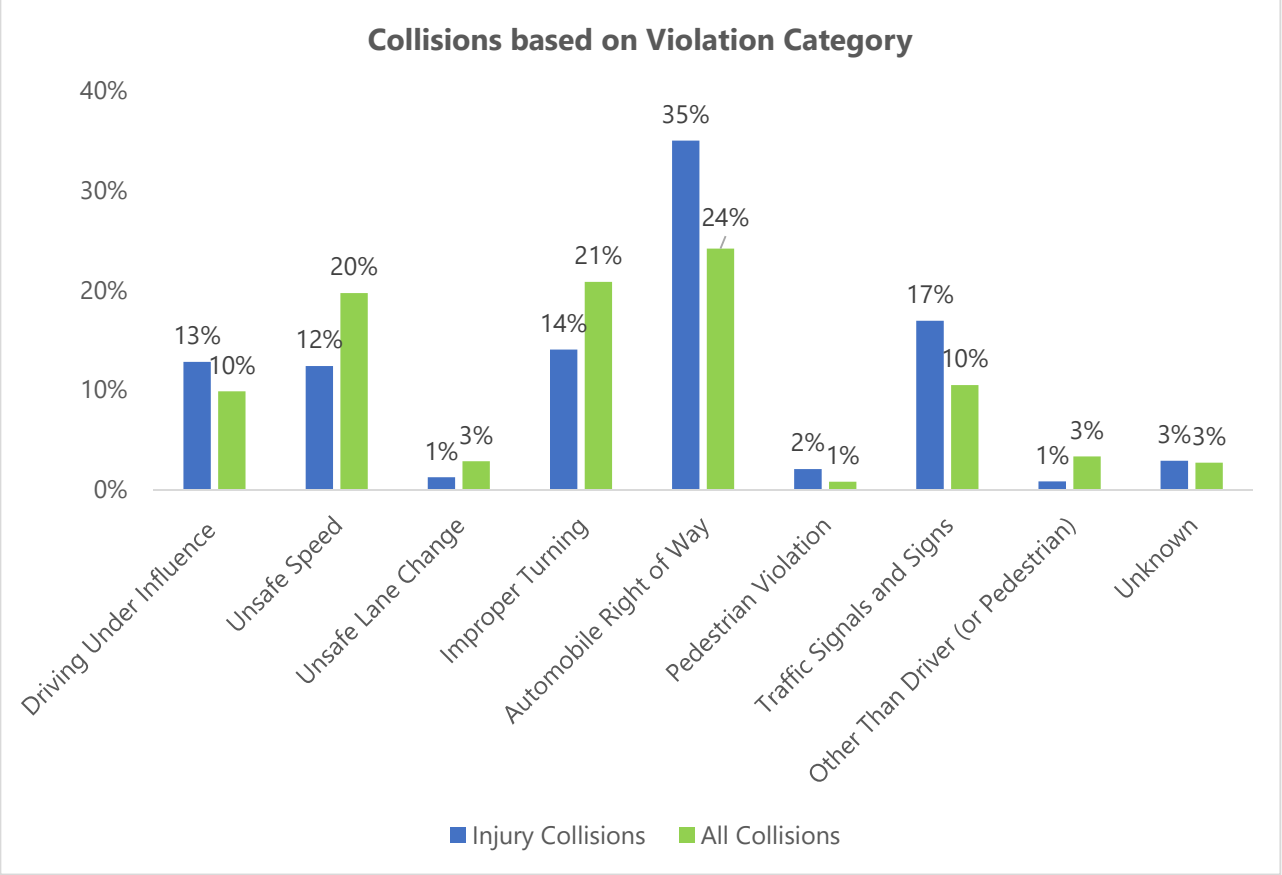
Figure 7 illustrates the heat map according to severity for injury collisions that occurred between January 1, 2019 and December 31, 2023 in Fresno South-East Development Area.

Figure 7: Injury Collision Density Map (Cumulative- Five Years)



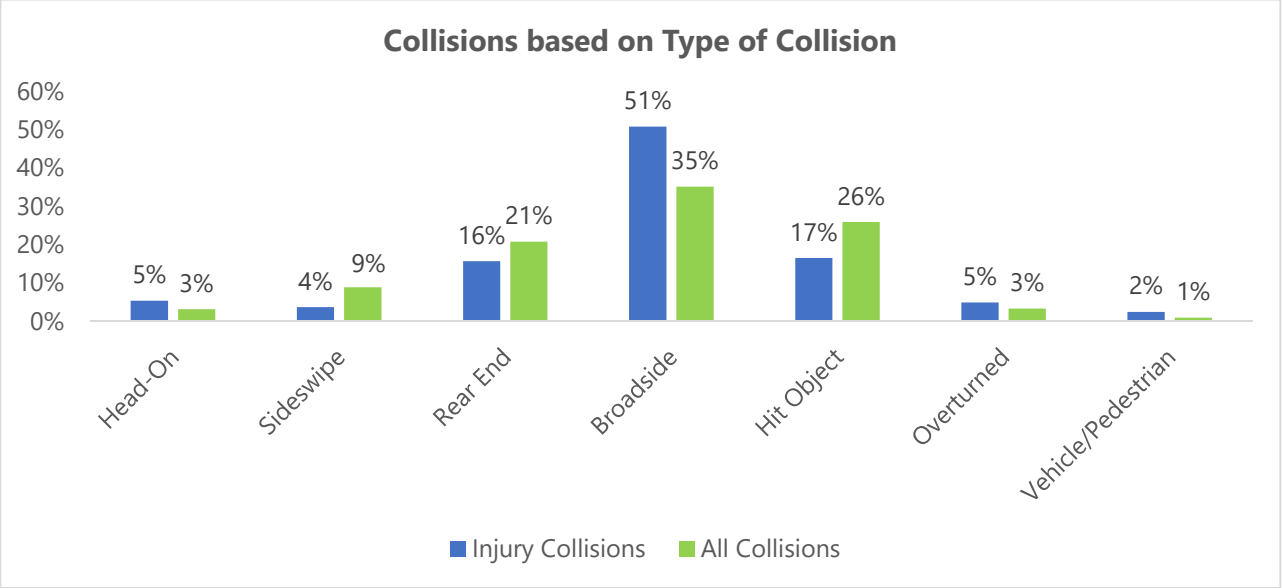
The most violated category responsible for injury collisions is automobile right of way (35%), followed by violation of traffic signals and signs (17%). Also improper turning, driving under influence and unsafe speed are other important violated categories. Figure 8 illustrates the collisions based on top violation category for injury collisions and all collisions.

Figure 8: Collisions based on Violation Category



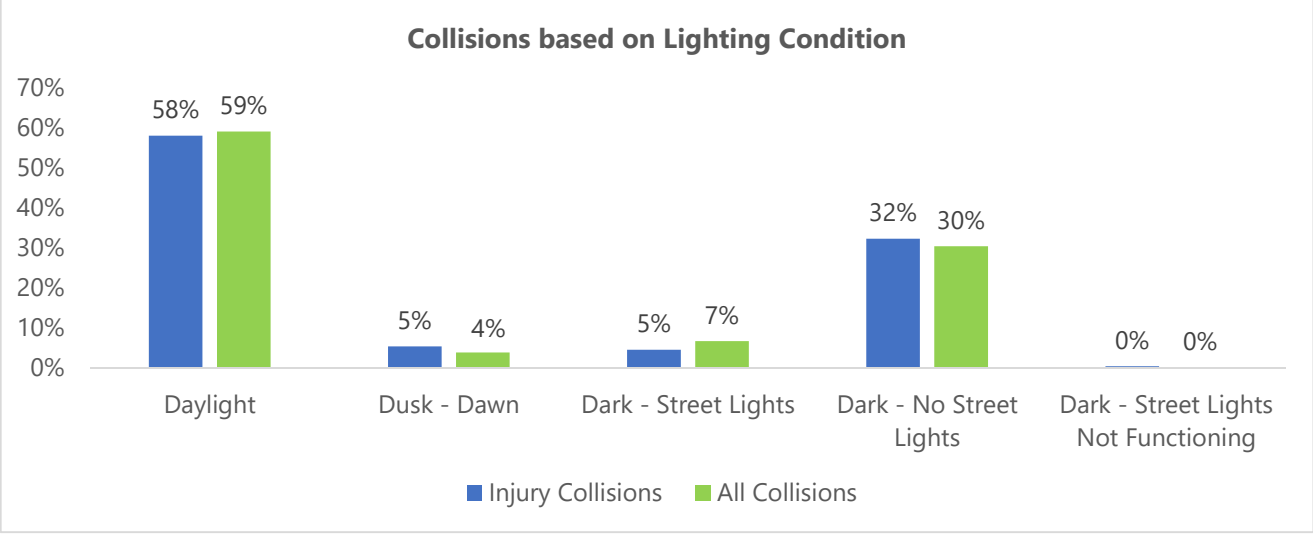
The most common collision type for injury collisions are broadside (51%), hit object (17%) and rear end (16%). Same trends are observed for all collisions with broadside (35%), hit object (26%) and rear end (21%). Collisions due to hit object and rear end for all collisions are comparatively more than injury collisions. Figure 9 illustrates the top collision type for injury collisions and all collisions.

Figure 9: Percentage of Type of Collisions (Comparing All Collisions and Injury Collisions)



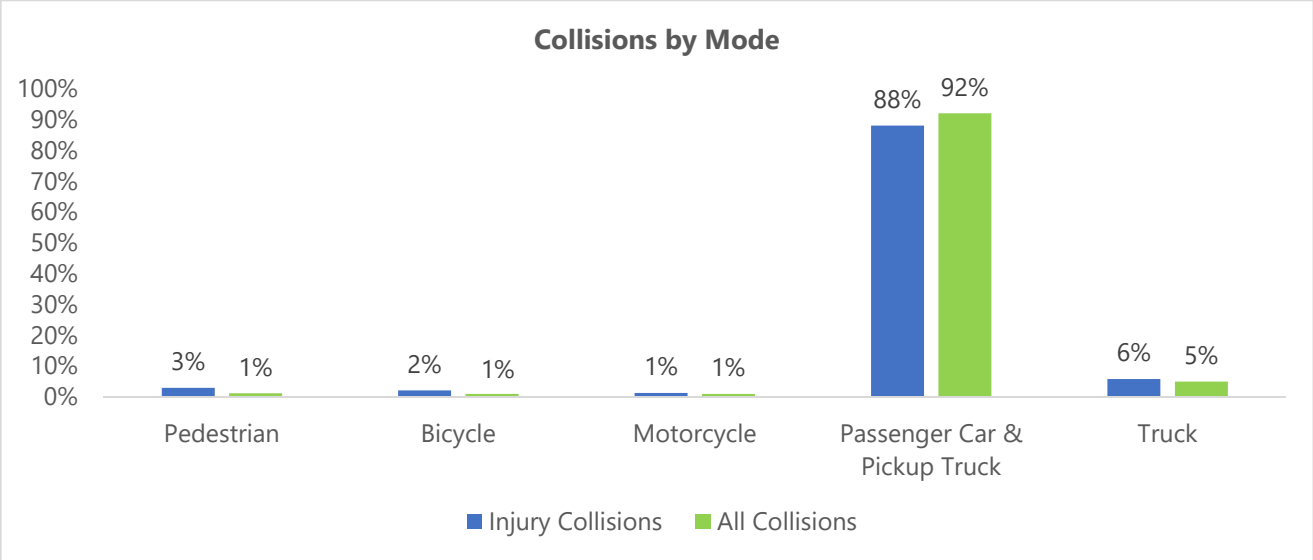
For injury collisions, 57% of collisions occurred in daylight, while 32% of collisions occurred in the dark on streets with no street lights. The similar trend is observed in all collisions also. Figure 10 illustrates the lighting condition for injury collisions and all collisions.

Figure 10: Percentage of Collisions based upon Lighting Conditions



The majority of injury collisions, 88%, involved passenger cars and pickup trucks, while trucks are accounted for 6%. Least number of injury collisions are occurred with motorcycle, pedestrian and bicycle. Figure 11 illustrates the injury collisions and all collisions by mode.

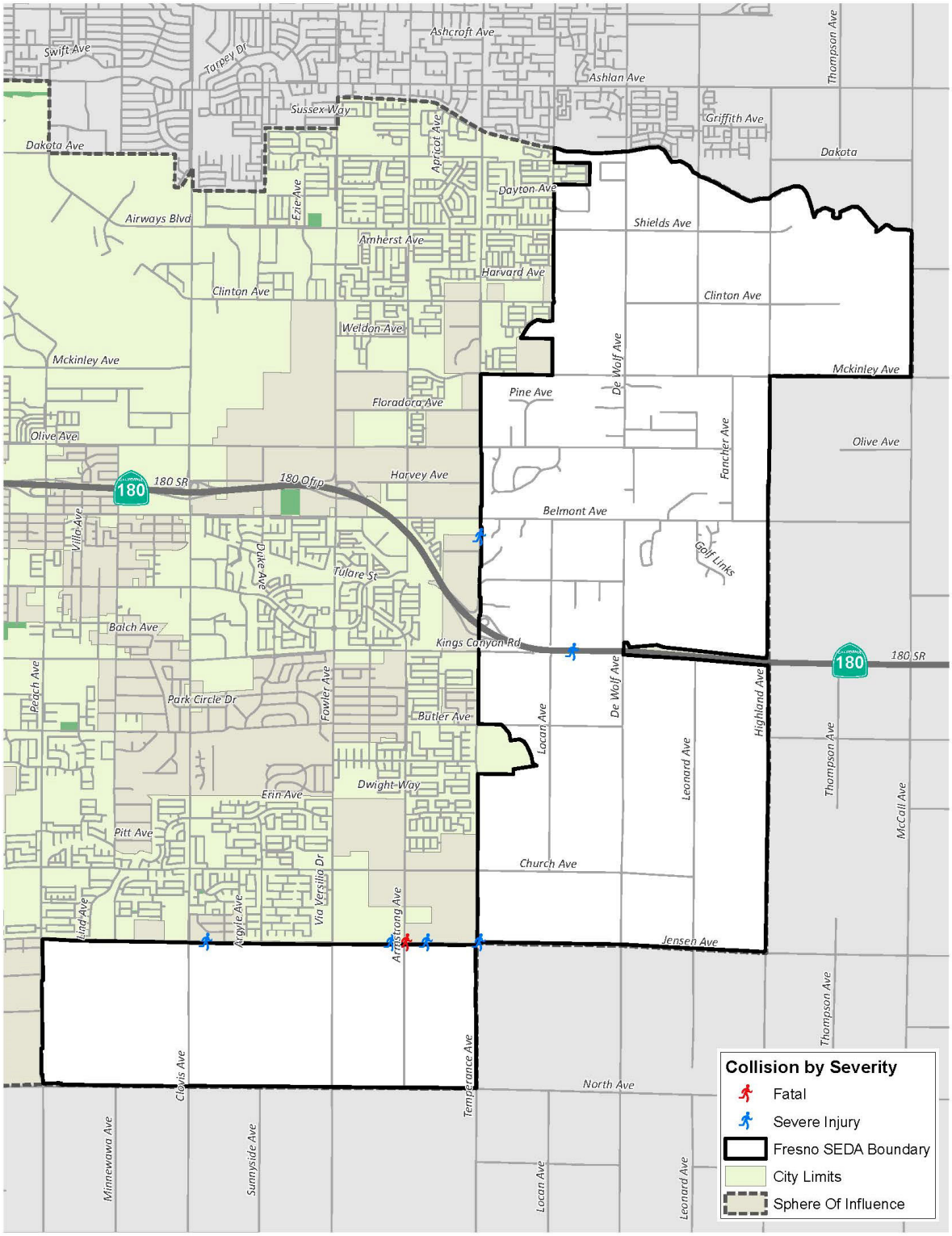
Figure 11: Percentage of Collisions based upon Modes of Commute



Pedestrian Collisions

There were total seven pedestrian collisions, with 6 injury collisions while one is fatal collision. Fatal collision is observed on Jensen Avenue, Figure 12 illustrates the pedestrian collisions that occurred in Fresno South-East Development Area.

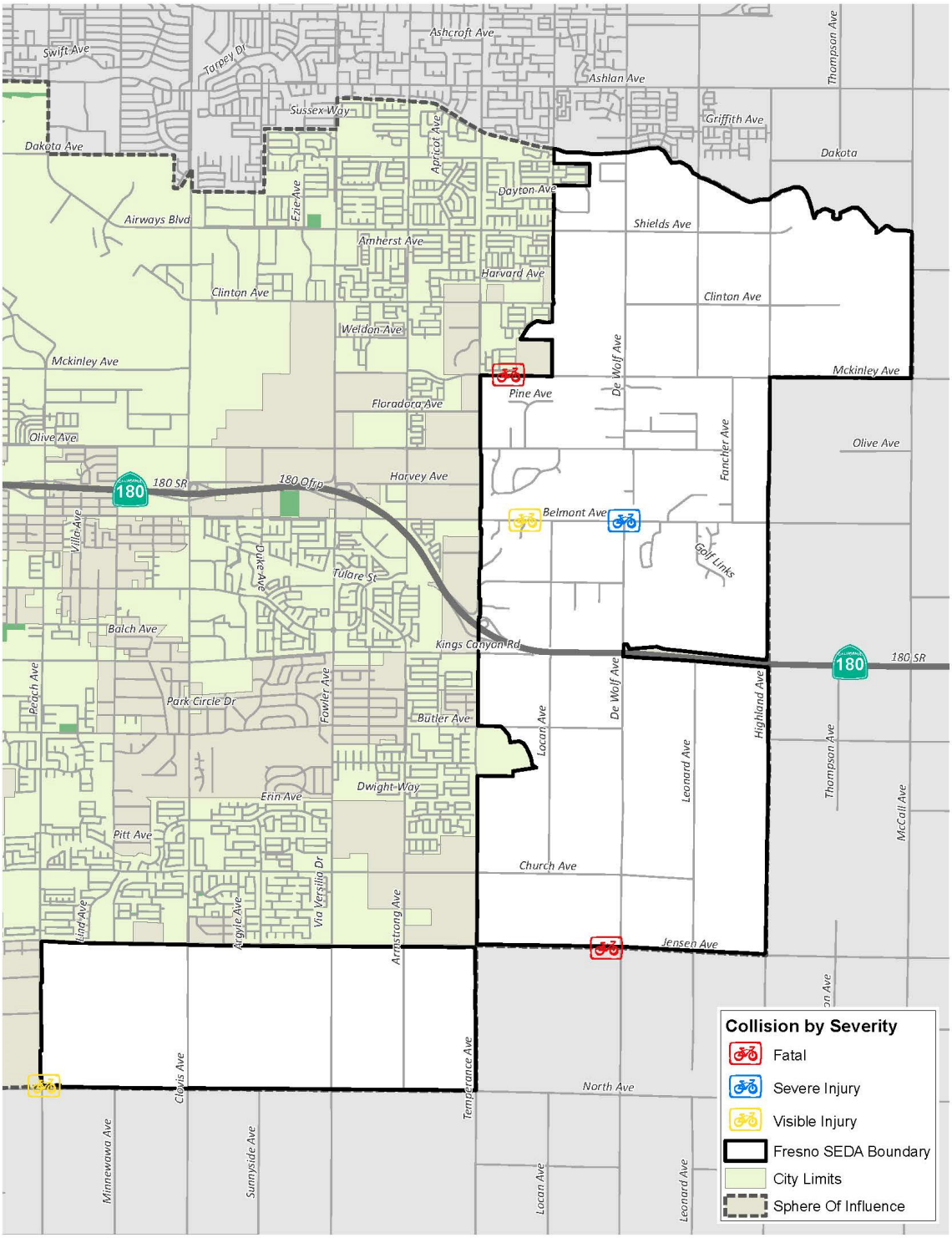
Figure 12: Pedestrian Collisions



Bicycle Collisions

There are total of six bicycle collisions, two fatal, one severe injury, two visible injuries, and one property damage-only. Figure 13 illustrates the bicycle injury collisions that occurred in Fresno South-East Development Area.

Figure 13: Bicycle Collisions



Note: The property damage collision is not demarcated as there was no specific location identified but falls within he SEDA project limits.

Appendix B: Queue Analysis Worksheets

Intersection: 1: N Clovis Ave & EB Off Ramp

Movement	EB	EB	EB	EB	NB	NB	NB	NB	B32	B32	B32	SB
Directions Served	L	LT	R	R	T	T	T	TR	T	T	T	L
Maximum Queue (ft)	159	520	730	706	288	287	269	259	349	364	359	387
Average Queue (ft)	6	74	450	427	265	257	257	203	325	331	330	386
95th Queue (ft)	79	350	717	685	276	287	279	246	345	350	346	389
Link Distance (ft)		1539	1539		190	190	190	190	310	310	310	
Upstream Blk Time (%)					67	62	61	25	60	89	82	
Queuing Penalty (veh)					0	0	0	0	0	0	0	
Storage Bay Dist (ft)	255			885								310
Storage Blk Time (%)		1	0									90
Queuing Penalty (veh)		0	1									612

Intersection: 1: N Clovis Ave & EB Off Ramp

Movement	SB	SB	SB	SB
Directions Served	L	T	T	T
Maximum Queue (ft)	465	573	491	344
Average Queue (ft)	464	537	215	199
95th Queue (ft)	467	569	385	297
Link Distance (ft)		520	520	520
Upstream Blk Time (%)		69	0	
Queuing Penalty (veh)		587	1	
Storage Bay Dist (ft)	310			
Storage Blk Time (%)	98	0		
Queuing Penalty (veh)	671	1		

Intersection: 2: N Clovis Ave & WB Ramps

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	T	T	TR	T	T	T
Maximum Queue (ft)	620	1436	139	89	112	1324	1318	1306
Average Queue (ft)	377	1131	14	34	27	1189	1166	1062
95th Queue (ft)	853	1738	79	73	79	1557	1555	1605
Link Distance (ft)		1424	520	520	520	1274	1274	1274
Upstream Blk Time (%)		39				73	34	13
Queuing Penalty (veh)		0				0	0	0
Storage Bay Dist (ft)	440							
Storage Blk Time (%)		77						
Queuing Penalty (veh)		48						

Intersection: 3: N Fowler Ave & EB Ramps

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	R	T	T	R	L	L	T	T
Maximum Queue (ft)	10	136	124	311	385	229	125	129	110	115
Average Queue (ft)	1	71	50	146	171	22	40	68	32	37
95th Queue (ft)	9	111	91	254	305	103	95	113	79	95
Link Distance (ft)	1566	1566		632	632			442	442	442
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)			235			180	85			
Storage Blk Time (%)					6		0	5		
Queuing Penalty (veh)					2		0	5		

Intersection: 4: N Fowler Ave & WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	T	T	T
Maximum Queue (ft)	29	225	256	199	153	116
Average Queue (ft)	10	100	116	38	78	45
95th Queue (ft)	31	177	230	129	135	93
Link Distance (ft)		1418	442	442	495	495
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	650					
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: N Temperance Ave & EB Ramps

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	R	T	T	T	T	T	T
Maximum Queue (ft)	36	143	128	160	139	193	227	223	201
Average Queue (ft)	5	79	59	73	36	94	97	93	97
95th Queue (ft)	23	124	112	130	97	167	189	193	173
Link Distance (ft)	1702	1702		524	524	524	558	558	558
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			680						
Storage Blk Time (%)							3		
Queuing Penalty (veh)							0		

Intersection: 6: N Temperance Ave & WB Ramps

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	T	T	TR	T	T	T
Maximum Queue (ft)	102	120	148	122	93	197	197	159
Average Queue (ft)	39	73	80	53	19	117	105	66
95th Queue (ft)	82	112	137	108	61	171	168	129
Link Distance (ft)		1652	558	558	558	382	382	382
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	400							
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 7: De Wolf Ave & SR-180

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	L	TR	L
Maximum Queue (ft)	788	1814	1802	739	132	436	434	37	53	106	122	215
Average Queue (ft)	47	1235	1221	76	46	219	230	4	7	37	44	212
95th Queue (ft)	372	2287	2250	482	98	379	386	21	31	79	102	227
Link Distance (ft)		2403	2403			2522	2522				1324	
Upstream Blk Time (%)		3	3									
Queuing Penalty (veh)		0	0									
Storage Bay Dist (ft)	725			700	690			690	360	360		135
Storage Blk Time (%)		39	40									73
Queuing Penalty (veh)		2	8									160

Intersection: 7: De Wolf Ave & SR-180

Movement	SB	SB	B36
Directions Served	T	R	T
Maximum Queue (ft)	690	226	556
Average Queue (ft)	656	8	474
95th Queue (ft)	711	119	699
Link Distance (ft)	586		513
Upstream Blk Time (%)	74		62
Queuing Penalty (veh)	0		0
Storage Bay Dist (ft)		450	
Storage Blk Time (%)	26		
Queuing Penalty (veh)	88		

Intersection: 8: N Highland Ave & SR-180

Movement	EB	WB	NB	NB	SB	SB	B37
Directions Served	L	L	L	TR	L	TR	T
Maximum Queue (ft)	35	22	372	524	151	445	433
Average Queue (ft)	6	2	232	218	57	347	191
95th Queue (ft)	24	11	427	523	144	592	480
Link Distance (ft)				851		374	426
Upstream Blk Time (%)						68	15
Queuing Penalty (veh)						0	0
Storage Bay Dist (ft)	965	550	295		80		
Storage Blk Time (%)			42	17	31	76	
Queuing Penalty (veh)			7	5	11	13	

Intersection: 9: N McCall AVe & SR-180

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	541	1046	1087	640	810	4633	4636	755	420	1480	435	1582
Average Queue (ft)	66	699	715	413	363	4598	4599	262	419	1450	320	1548
95th Queue (ft)	315	1026	1066	821	983	4650	4623	839	423	1465	599	1566
Link Distance (ft)		2509	2509			4575	4575			1431		1528
Upstream Blk Time (%)						95	95			96		97
Queuing Penalty (veh)						0	0			0		0
Storage Bay Dist (ft)	555			510	550			630	220		385	
Storage Blk Time (%)		26	33			63	64		87	2	0	85
Queuing Penalty (veh)		11	176			77	47		164	12	0	140

Intersection: 34: Bend

Movement	NB	NB
Directions Served	T	
Maximum Queue (ft)	130	100
Average Queue (ft)	9	4
95th Queue (ft)	105	73
Link Distance (ft)	495	495
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 38: Dummy & SR-180

Movement	EB	EB	NB
Directions Served	T	TR	LR
Maximum Queue (ft)	45	66	308
Average Queue (ft)	3	4	292
95th Queue (ft)	23	29	308
Link Distance (ft)	2522	2522	282
Upstream Blk Time (%)			100
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 40: Dummy & SR-180

Movement	EB	EB	WB	WB	NB
Directions Served	T	TR	LT	T	LR
Maximum Queue (ft)	8	20	1181	1143	362
Average Queue (ft)	0	1	627	525	331
95th Queue (ft)	4	9	1550	1516	349
Link Distance (ft)	2522	2522	2509	2509	310
Upstream Blk Time (%)			0	0	100
Queuing Penalty (veh)			8	8	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 2866

Intersection: 1: N Clovis Ave & EB Off Ramp

Movement	EB	EB	EB	EB	NB	NB	NB	NB	B32	B32	B32	SB
Directions Served	L	LT	R	R	T	T	T	TR	T	T	T	L
Maximum Queue (ft)	369	1589	1591	985	289	301	269	256	345	364	363	387
Average Queue (ft)	85	1561	1562	985	264	254	256	206	325	331	328	386
95th Queue (ft)	335	1581	1582	989	275	292	272	247	338	351	344	392
Link Distance (ft)		1539	1539		190	190	190	190	310	310	310	
Upstream Blk Time (%)		91	56		71	63	65	29	57	90	84	
Queuing Penalty (veh)		0	0		0	0	0	0	0	0	0	
Storage Bay Dist (ft)	255			885								310
Storage Blk Time (%)		22	63	60								84
Queuing Penalty (veh)		4	643	613								461

Intersection: 1: N Clovis Ave & EB Off Ramp

Movement	SB	SB	SB	SB
Directions Served	L	T	T	T
Maximum Queue (ft)	465	566	408	412
Average Queue (ft)	464	539	237	260
95th Queue (ft)	466	555	382	399
Link Distance (ft)		520	520	520
Upstream Blk Time (%)		55	0	0
Queuing Penalty (veh)		420	0	0
Storage Bay Dist (ft)	310			
Storage Blk Time (%)	95	0		
Queuing Penalty (veh)	520	1		

Intersection: 2: N Clovis Ave & WB Ramps

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	T	T	TR	T	T	T
Maximum Queue (ft)	78	183	100	113	94	1323	1293	1192
Average Queue (ft)	30	83	16	18	14	1287	1177	842
95th Queue (ft)	66	139	58	62	55	1347	1459	1253
Link Distance (ft)		1424	520	520	520	1274	1274	1274
Upstream Blk Time (%)						93	3	0
Queuing Penalty (veh)						0	0	0
Storage Bay Dist (ft)	440							
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 3: N Fowler Ave & EB Ramps

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	R	T	T	R	L	L	T	T
Maximum Queue (ft)	33	241	246	344	297	49	158	196	112	121
Average Queue (ft)	2	132	122	206	159	11	78	105	38	48
95th Queue (ft)	15	207	205	305	264	35	141	165	84	98
Link Distance (ft)	1566	1566		632	632			442	442	442
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)			235			180	85			
Storage Blk Time (%)		0	0		2		5	20		
Queuing Penalty (veh)		1	1		1		8	29		

Intersection: 4: N Fowler Ave & WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	T	T	T
Maximum Queue (ft)	38	97	291	232	123	82
Average Queue (ft)	10	43	85	33	43	24
95th Queue (ft)	33	80	221	135	95	65
Link Distance (ft)		1418	442	442	495	495
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	650					
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: N Temperance Ave & EB Ramps

Movement	EB	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	R	T	T	T	T	T	T
Maximum Queue (ft)	11	40	190	164	313	297	262	220	204	174
Average Queue (ft)	0	5	107	93	188	147	121	125	104	78
95th Queue (ft)	4	25	162	155	287	265	215	197	179	139
Link Distance (ft)		1702	1702		524	524	524	558	558	558
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	440			680						
Storage Blk Time (%)								6		
Queuing Penalty (veh)								0		

Intersection: 6: N Temperance Ave & WB Ramps

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	T	T	TR	T	T	T
Maximum Queue (ft)	56	108	215	214	183	131	127	74
Average Queue (ft)	17	55	72	72	53	79	54	18
95th Queue (ft)	46	90	180	182	145	119	101	51
Link Distance (ft)		1652	558	558	558	382	382	382
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	400							
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 7: De Wolf Ave & SR-180

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	L	TR	L
Maximum Queue (ft)	411	933	927	14	84	242	235	48	27	52	134	114
Average Queue (ft)	22	480	478	2	28	118	132	18	3	15	47	55
95th Queue (ft)	212	990	987	10	67	201	212	40	16	41	101	104
Link Distance (ft)		2403	2403			2522	2522				1324	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	725			700	690			690	360	360		135
Storage Blk Time (%)		8	8									0
Queuing Penalty (veh)		1	1									0

Intersection: 7: De Wolf Ave & SR-180

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	118	26
Average Queue (ft)	42	6
95th Queue (ft)	91	22
Link Distance (ft)	586	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		450
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 8: N Highland Ave & SR-180

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	L	T	L	TR	L	TR
Maximum Queue (ft)	26	21	10	132	91	34	59
Average Queue (ft)	5	2	0	45	24	9	14
95th Queue (ft)	19	11	5	115	67	31	43
Link Distance (ft)			2522		851		374
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	965	550		295		80	
Storage Blk Time (%)							0
Queuing Penalty (veh)							0

Intersection: 9: N McCall AVe & SR-180

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	126	315	332	91	50	190	205	70	243	203	81	129
Average Queue (ft)	51	145	162	35	9	109	123	16	117	87	26	51
95th Queue (ft)	100	264	282	65	31	175	191	47	194	160	64	107
Link Distance (ft)		2509	2509			4575	4575			1431		1528
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	555			510	550			630	220		385	
Storage Blk Time (%)									1			
Queuing Penalty (veh)									1			

Intersection: 34: Bend

Movement	NB	NB
Directions Served	T	
Maximum Queue (ft)	94	114
Average Queue (ft)	7	4
95th Queue (ft)	45	76
Link Distance (ft)	495	495
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 35: Bend

Movement	NB
Directions Served	T
Maximum Queue (ft)	4
Average Queue (ft)	0
95th Queue (ft)	3
Link Distance (ft)	382
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 38: Dummy & SR-180

Movement	EB	EB	WB	NB
Directions Served	T	TR	LT	LR
Maximum Queue (ft)	12	10	4	320
Average Queue (ft)	1	0	0	257
95th Queue (ft)	7	7	3	379
Link Distance (ft)	2522	2522	2579	282
Upstream Blk Time (%)				61
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 40: Dummy & SR-180

Movement	EB	EB	WB	WB
Directions Served	T	TR	LT	T
Maximum Queue (ft)	18	26	249	216
Average Queue (ft)	1	3	105	53
95th Queue (ft)	9	15	195	165
Link Distance (ft)	2522	2522	2509	2509
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 2706

Intersection: 1: N Clovis Ave & EB Off Ramp

Movement	EB	EB	EB	EB	NB	NB	NB	NB	B32	B32	B32	SB
Directions Served	L	LT	R	R	T	T	T	TR	T	T	T	L
Maximum Queue (ft)	18	83	313	280	292	273	274	255	339	359	362	174
Average Queue (ft)	1	16	177	160	263	249	256	204	323	329	330	83
95th Queue (ft)	9	55	261	245	274	290	276	246	349	343	348	154
Link Distance (ft)		1539	1539		190	190	190	190	310	310	310	
Upstream Blk Time (%)					67	54	61	27	49	91	84	
Queuing Penalty (veh)					0	0	0	0	0	0	0	
Storage Bay Dist (ft)	255			885								310
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 1: N Clovis Ave & EB Off Ramp

Movement	SB	SB	SB	SB
Directions Served	L	T	T	T
Maximum Queue (ft)	278	458	487	464
Average Queue (ft)	113	233	275	277
95th Queue (ft)	208	388	429	409
Link Distance (ft)		520	520	520
Upstream Blk Time (%)		0	0	0
Queuing Penalty (veh)		0	1	1
Storage Bay Dist (ft)	310			
Storage Blk Time (%)		2		
Queuing Penalty (veh)		4		

Intersection: 2: N Clovis Ave & WB Ramps

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	T	T	TR	R	T	T	T
Maximum Queue (ft)	620	1470	315	327	333	58	547	519	365
Average Queue (ft)	604	1272	178	186	177	2	305	266	180
95th Queue (ft)	687	1789	348	351	349	43	463	429	341
Link Distance (ft)		1424	520	520	520	520	1274	1274	1274
Upstream Blk Time (%)		35							
Queuing Penalty (veh)		0							
Storage Bay Dist (ft)	440								
Storage Blk Time (%)	44	40							
Queuing Penalty (veh)	382	311							

Intersection: 3: N Fowler Ave & EB Ramps

Movement	EB	EB	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LT	R	R	T	T	R	L	L	T	T
Maximum Queue (ft)	6	31	143	144	644	684	230	91	112	100	122
Average Queue (ft)	0	2	75	54	505	615	75	15	50	36	46
95th Queue (ft)	5	18	118	102	811	791	244	50	88	84	100
Link Distance (ft)		1566	1566		632	632			442	442	442
Upstream Blk Time (%)					1	57					
Queuing Penalty (veh)					0	0					
Storage Bay Dist (ft)	400			235			180	85			
Storage Blk Time (%)						54	0	0	1		
Queuing Penalty (veh)						17	0	0	1		

Intersection: 4: N Fowler Ave & WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	T	T	T
Maximum Queue (ft)	98	140	222	190	107	108
Average Queue (ft)	43	65	102	28	56	43
95th Queue (ft)	78	112	196	109	97	91
Link Distance (ft)		1418	442	442	495	495
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	650					
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: N Temperance Ave & EB Ramps

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	R	T	T	T	L	T	T	T
Maximum Queue (ft)	31	118	113	203	176	205	63	203	197	185
Average Queue (ft)	7	57	40	109	71	96	5	87	83	80
95th Queue (ft)	27	95	78	174	140	176	34	176	179	159
Link Distance (ft)	1702	1702		524	524	524		558	558	558
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)			680				125			
Storage Blk Time (%)								2		
Queuing Penalty (veh)								0		

Intersection: 6: N Temperance Ave & WB Ramps

Movement	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	T	T	TR	T	T	T
Maximum Queue (ft)	51	77	188	227	209	173	211	212	164
Average Queue (ft)	15	40	97	117	102	60	123	109	66
95th Queue (ft)	42	69	159	212	191	141	185	178	132
Link Distance (ft)		1652		558	558	558	382	382	382
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	400		840						
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 7: De Wolf Ave & SR-180

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	L	T	TR
Maximum Queue (ft)	798	1457	1453	920	198	442	445	55	422	485	1375	1343
Average Queue (ft)	218	1004	1003	406	100	273	287	18	416	483	1343	1094
95th Queue (ft)	806	1667	1668	1110	178	419	424	43	442	489	1360	1855
Link Distance (ft)		2391	2391			2513	2513				1324	1324
Upstream Blk Time (%)											97	19
Queuing Penalty (veh)											0	0
Storage Bay Dist (ft)	725			700	690			690	360	360		
Storage Blk Time (%)		36	38						71	88		
Queuing Penalty (veh)		23	83						91	113		

Intersection: 7: De Wolf Ave & SR-180

Movement	SB	SB	SB	SB	B36	B36
Directions Served	L	T	T	R	T	T
Maximum Queue (ft)	215	682	655	346	559	533
Average Queue (ft)	213	659	281	14	527	414
95th Queue (ft)	218	669	620	149	582	643
Link Distance (ft)		586	586		513	513
Upstream Blk Time (%)		92	5		95	8
Queuing Penalty (veh)		0	0		0	0
Storage Bay Dist (ft)	135			450		
Storage Blk Time (%)	85	37	12			
Queuing Penalty (veh)	250	161	1			

Intersection: 8: N Highland Ave & SR-180

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	B37
Directions Served	L	R	L	T	T	L	TR	L	TR	T
Maximum Queue (ft)	92	3	22	24	40	390	879	155	464	452
Average Queue (ft)	29	0	4	1	1	382	859	28	440	431
95th Queue (ft)	73	2	17	12	16	396	875	111	455	448
Link Distance (ft)				2522	2522		851		374	426
Upstream Blk Time (%)							100		100	100
Queuing Penalty (veh)							0		0	0
Storage Bay Dist (ft)	965	630	550			295		80		
Storage Blk Time (%)						100	15	8	100	
Queuing Penalty (veh)						262	71	28	116	

Intersection: 9: N McCall AVe & SR-180

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	204	475	481	190	810	4627	4631	755	420	1476	435	1575
Average Queue (ft)	110	310	322	86	197	4297	4296	581	387	1451	329	1547
95th Queue (ft)	185	461	468	159	737	5324	5322	1069	515	1467	602	1563
Link Distance (ft)		2509	2509			4575	4575			1431		1528
Upstream Blk Time (%)						68	73			80		97
Queuing Penalty (veh)						0	0			0		0
Storage Bay Dist (ft)	555			510	550			630	220		385	
Storage Blk Time (%)			0			66	66		35	76		84
Queuing Penalty (veh)			0			28	152		215	260		252

Intersection: 32: Bend

Movement	SB
Directions Served	T
Maximum Queue (ft)	19
Average Queue (ft)	1
95th Queue (ft)	10
Link Distance (ft)	190
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 34: Bend

Movement	NB	NB
Directions Served	T	
Maximum Queue (ft)	63	19
Average Queue (ft)	2	1
95th Queue (ft)	29	14
Link Distance (ft)	495	495
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 35: Bend

Movement	NB
Directions Served	T
Maximum Queue (ft)	11
Average Queue (ft)	0
95th Queue (ft)	8
Link Distance (ft)	382
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 38: Dummy & SR-180

Movement	EB	EB	NB
Directions Served	T	TR	LR
Maximum Queue (ft)	20	36	322
Average Queue (ft)	2	2	296
95th Queue (ft)	11	16	312
Link Distance (ft)	2513	2513	282
Upstream Blk Time (%)			100
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 40: Dummy & SR-180

Movement	EB	EB	WB	WB	NB
Directions Served	T	TR	LT	T	LR
Maximum Queue (ft)	7	10	685	634	361
Average Queue (ft)	0	0	358	293	332
95th Queue (ft)	5	5	599	564	353
Link Distance (ft)	2522	2522	2509	2509	310
Upstream Blk Time (%)					99
Queuing Penalty (veh)					0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 2826

Intersection: 1: N Clovis Ave & EB Off Ramp

Movement	EB	EB	EB	EB	NB	NB	NB	NB	B32	B32	B32	SB
Directions Served	L	LT	R	R	T	T	T	TR	T	T	T	L
Maximum Queue (ft)	370	1586	1589	985	290	278	267	268	345	364	357	387
Average Queue (ft)	110	1539	1546	982	263	241	236	242	295	329	332	386
95th Queue (ft)	375	1738	1706	1016	276	286	279	279	357	348	351	391
Link Distance (ft)		1539	1539		190	190	190	190	310	310	310	
Upstream Blk Time (%)		82	53		66	48	50	57	15	69	88	
Queuing Penalty (veh)		0	0		0	0	0	0	0	0	0	
Storage Bay Dist (ft)	255			885								310
Storage Blk Time (%)		18	59	56								83
Queuing Penalty (veh)		4	557	527								376

Intersection: 1: N Clovis Ave & EB Off Ramp

Movement	SB	SB	SB	SB
Directions Served	L	T	T	T
Maximum Queue (ft)	465	560	400	398
Average Queue (ft)	464	536	215	236
95th Queue (ft)	464	553	358	377
Link Distance (ft)		520	520	520
Upstream Blk Time (%)		53		
Queuing Penalty (veh)		352		
Storage Bay Dist (ft)	310			
Storage Blk Time (%)	96	0		
Queuing Penalty (veh)	433	0		

Intersection: 2: N Clovis Ave & WB Ramps

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	T	T	TR	T	T	T
Maximum Queue (ft)	102	168	112	112	104	1321	1298	1216
Average Queue (ft)	42	71	22	22	16	1258	1130	773
95th Queue (ft)	86	124	71	67	63	1471	1507	1303
Link Distance (ft)		1424	520	520	520	1274	1274	1274
Upstream Blk Time (%)						85	4	0
Queuing Penalty (veh)						0	0	0
Storage Bay Dist (ft)	440							
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 3: N Fowler Ave & EB Ramps

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	R	T	T	R	L	L	T	T
Maximum Queue (ft)	43	248	256	475	419	153	107	123	91	116
Average Queue (ft)	2	154	151	284	232	23	30	60	37	46
95th Queue (ft)	20	232	237	431	373	97	74	102	78	93
Link Distance (ft)	1566	1566		632	632			442	442	442
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)			235			180	85			
Storage Blk Time (%)		0	0		9		0	4		
Queuing Penalty (veh)		2	2		4		0	3		

Intersection: 4: N Fowler Ave & WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	T	T	T
Maximum Queue (ft)	46	78	336	297	87	69
Average Queue (ft)	12	36	127	64	36	19
95th Queue (ft)	36	61	278	199	79	53
Link Distance (ft)		1418	442	442	495	495
Upstream Blk Time (%)			0	0		
Queuing Penalty (veh)			0	0		
Storage Bay Dist (ft)	650					
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: N Temperance Ave & EB Ramps

Movement	EB	EB	EB	EB	NB	NB	SB	SB	SB	SB
Directions Served	L	LT	R	R	T	TR	L	T	T	T
Maximum Queue (ft)	585	1716	1741	795	573	573	185	339	348	320
Average Queue (ft)	177	1193	1335	762	542	547	127	197	184	163
95th Queue (ft)	604	2046	2019	946	555	567	209	317	311	280
Link Distance (ft)		1702	1702		524	524		558	558	558
Upstream Blk Time (%)		26	28		97	87				
Queuing Penalty (veh)		0	0		0	0				
Storage Bay Dist (ft)	440			680			125			
Storage Blk Time (%)		37	87	83			13	14		
Queuing Penalty (veh)		4	466	446			96	26		

Intersection: 6: N Temperance Ave & WB Ramps

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	T	T	TR	T	T	T
Maximum Queue (ft)	47	69	294	223	187	202	204	164
Average Queue (ft)	13	36	171	109	54	117	91	54
95th Queue (ft)	41	63	278	197	120	183	165	116
Link Distance (ft)		1652	558	558	558	382	382	382
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	400							
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 7: De Wolf Ave & SR-180

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	L	T	TR
Maximum Queue (ft)	772	1030	1012	766	255	412	426	54	209	248	239	251
Average Queue (ft)	294	651	645	182	124	234	250	15	136	163	159	161
95th Queue (ft)	663	1039	1039	681	209	374	389	39	210	233	234	241
Link Distance (ft)		2391	2391			2513	2513				1324	1324
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	725			700	690			690	360	360		
Storage Blk Time (%)		13	15									
Queuing Penalty (veh)		28	41									

Intersection: 7: De Wolf Ave & SR-180

Movement	SB	SB	SB	SB	B36	B36
Directions Served	L	T	T	R	T	T
Maximum Queue (ft)	215	680	496	30	556	516
Average Queue (ft)	212	658	144	5	498	296
95th Queue (ft)	219	676	423	20	650	576
Link Distance (ft)		586	586		513	513
Upstream Blk Time (%)		91	0		78	1
Queuing Penalty (veh)		0	0		0	0
Storage Bay Dist (ft)	135			450		
Storage Blk Time (%)	87	4	0			
Queuing Penalty (veh)	100	13	0			

Intersection: 8: N Highland Ave & SR-180

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	B37
Directions Served	L	R	L	T	T	L	TR	L	TR	T
Maximum Queue (ft)	205	23	150	8	20	390	884	155	453	454
Average Queue (ft)	73	2	55	0	1	192	854	35	440	433
95th Queue (ft)	150	11	118	4	9	456	897	128	451	449
Link Distance (ft)				2522	2522		851		374	426
Upstream Blk Time (%)							98		100	99
Queuing Penalty (veh)							0		0	0
Storage Bay Dist (ft)	965	630	550			295		80		
Storage Blk Time (%)						15	89	5	100	
Queuing Penalty (veh)						29	73	8	33	

Intersection: 9: N McCall AVe & SR-180

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	248	421	424	121	55	387	409	129	420	1482	435	1227
Average Queue (ft)	107	225	242	42	11	256	277	42	332	1275	272	636
95th Queue (ft)	194	385	396	90	37	372	398	88	550	1847	520	1319
Link Distance (ft)		2509	2509			4575	4575			1431		1528
Upstream Blk Time (%)										62		4
Queuing Penalty (veh)										0		0
Storage Bay Dist (ft)	555			510	550			630	220		385	
Storage Blk Time (%)									8	77	0	40
Queuing Penalty (veh)									38	149	0	70

Intersection: 34: Bend

Movement	NB	NB
Directions Served	T	
Maximum Queue (ft)	201	29
Average Queue (ft)	24	1
95th Queue (ft)	115	16
Link Distance (ft)	495	495
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 38: Dummy & SR-180

Movement	EB	EB	NB
Directions Served	T	TR	LR
Maximum Queue (ft)	31	66	298
Average Queue (ft)	1	4	213
95th Queue (ft)	17	47	347
Link Distance (ft)	2513	2513	282
Upstream Blk Time (%)			30
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 40: Dummy & SR-180

Movement	EB	EB	WB	WB
Directions Served	T	TR	LT	T
Maximum Queue (ft)	23	18	302	284
Average Queue (ft)	1	1	115	68
95th Queue (ft)	11	9	243	222
Link Distance (ft)	2522	2522	2509	2509
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 3881