



## TRANSPORTATION PLANNING AND TRAFFIC ENGINEERING CONSULTANTS

2690 Lake Forest Road, Suite C  
Post Office Box 5875  
Tahoe City, California 96145  
(530) 583-4053 FAX: (530) 583-5966  
info@lsctahoe.com  
www.lsctrans.com

### TECHNICAL MEMORANDUM

---

To: Alison Cotey, Design Workshop  
From: Sara Hawley, PE, LSC  
Date: May 2, 2017  
RE: Angels Camp Main Street – Existing Traffic Conditions

---

This memo presents a review of current transportation activity and functionality along the Angels Camp Main Street study corridor. Traffic volumes and trends are discussed, along with Level of Service and crash history. Transit services are also discussed, as well as bicycle and pedestrian conditions.

#### CURRENT TRANSPORTATION STUDIES

There are several recent studies that address conditions along all or a portion of the study corridor, as discussed below.

##### State Route 49 Transportation Concept Report

Caltrans' key planning documents for individual roadway facilities are "Transportation Concept Reports" (TCRs), which detail current conditions and planned overall improvements. Caltrans District 10 most recently prepared a TCR for State Route 49 in Calaveras County (as well as Mariposa, Tuolumne and Amador Counties) in July 2013. The Main Street Corridor makes up the majority of Calaveras Segment 3, as discussed in the TCR. Key findings regarding this segment are as follows:

- SR 49 is identified as a minor arterial that is on the interregional road system and on the Surface Transportation Assistance Act (STAA) trucking network.
- Daily traffic volume is identified as 14,700 in 2015, and forecast to increase to 18,800 by 2030 (a 28 percent increase).
- Level Of Service is calculated to be F for both 2015 and 2030 conditions, using the ARTPLAN software package developed by the Florida Department of Transportation.
- The "concept LOS" for the corridor. To achieve this concept LOS, the TCR identifies a "concept facility" of a "four-lane conventional on existing alignment or four-lane expressway on new alignment." The term "concept facility" is defines as the highway

facility that best maintains the concept LOS at the end of the twenty year planning period. The TCR further identifies a “southeast SR-49 Bypass past the fairgrounds” as a planned project, though this is not a programmed project.

### **SR 49/ Vallecito Road Project Study Report – Project Development Support**

The *Project Study Report – Project Development Support to Request Programming for Capital Support in the 2018 STIP on Route 49 Between Post Mile 7.1 and Post Mile 7.3* document (Caltrans, 2014) presents the evaluation of four alternatives for the SR 49/Vallecito Road/Finnegan Lane intersection: a signalized 90-degree intersection, a signalized 75-degree intersection, a four-legged roundabout, and a “no build” alternative. The “build” alternatives would all include replacement of the existing two bridges with a single new bridge. The construction cost estimates ranged from \$11.4 Million to \$15.5 Million.

### **2012 Calaveras County Regional Transportation Plan**

This plan designates the study corridor as a Minor Arterial roadway. LOS was found (using the HIGHPLAN methodology) to be LOS C in the northern and southern portions of the Main Street corridor, and LOS D in the central portion (between Stanislaus Avenue and Bret Harte Drive. The transportation modeling used in the RTP indicated an 11 percent growth in traffic volumes between 2012 and 2035. In the future, LOS is forecast to remain at LOS C between Murphys Grade Road and Stanislaus Avenue, with LOS D in the remainder of the Main Street study corridor. RTP capital improvement projects in the study corridor with identified funding sources consist of the following:

- SR 49 @ Murphys Grade Road – Reconstruct intersection
- SR 4 @ SR 49 South – Reconstruct bridge and intersection
- Main Street SR 49 from SR 4 to SR 4 (2.4 Miles) – Class II bike lanes
- SR 49 in City of Angels – Add pedestrian amenities, rehabilitate old rock walkway and upgrade existing walkway
- SR 49 South – Construct 400 foot long pedestrian way at southerly intersection
- SR 49 in City of Angels – New sidewalks at various gap locations

### **Traffic Impact Analysis for the Mark Twain Medical Center**

This study was completed by KDAAnderson and Associates in September 2015 for a 19,000 square foot medical clinic along Stanislaus Avenue, a few hundred feet southwest of SR 49. The project was found to satisfy a sufficient number of warrants for a traffic signal at SR 49 /Stanislaus Avenue. Subject to Caltrans approval, the project applicant was assigned responsibility to install this signal (with funding provided in part by the applicant and in part by existing impact fees already collected by the City).

## Calaveras County Short Range Transit Plan

The Calaveras Council of Governments recently completed a Short Range Transit Plan (SRTP) study. Several recommendations from this study would have an impact on service operated within the Angels Camp Main Street Corridor. These include the following:

- Revise the routes to create a “spine route” between the Demarest/49 transfer point in Angels Camp and Valley Springs, with service hourly between 7:00 AM and 6:00 PM on weekdays, and every 90 minutes on weekdays 5:30 AM – 7:00 AM and 6:00 PM – 8:00 PM, as well as between 8:00 AM and 6:00 PM on Saturdays.
- Incorporate existing Route 4 segment from Angels Camp to Columbia College as part of Route 1. This would result in no changes in the vehicle service hours, but would change how ridership is counted.
- Implement Dial-a-Ride service in Angels Camp/ADA Paratransit for Route 1 Corridor. This would add 1,004 vehicle service hours starting in FY 2016/17.

The SRTP does not identify new stops or stop amenities in the Main Street Corridor.

## TRANSPORTATION ANALYSIS

The Main Street Corridor is a key link in the local and regional roadway network. On a regional level, it is part of the SR 49 “Golden Chain” connecting California’s historic Gold Rush communities, stretching from Mariposa County on the south to Plumas County on the north. As such, it is a key corridor for visitor travel, as well as for inter-county travel along the west side of the Sierra. Locally, the study corridor is key for north-south travel within Angels Camp, as it is the sole north-south roadway other than circuitous low speed local streets.

Proceeding from south to north along the corridor, key traffic generators consist of the following:

- The historic downtown commercial area (generally between Vallecito Road/Finnegan Lane and Sam’s Way) generates both visitor and resident traffic. This includes the Visitors Center. In particular, special events in this area can generate traffic.
- Utica Park is a modest generator of traffic.
- Between Bragg Street and Mark Twain Road, the Angels Camp City Museum and nearby lodging and restaurant uses are traffic generators.
- The Angels Camp Town Center on the northwest corner of SR 49/Demarest Street is a major retail center for Angels Camp and the surrounding area.

## Existing Transportation Conditions

### Roadways

#### *State Route 49*

The 1.5 miles section of highway between SR 4 and Vallecito Road serves as the “Main Street” through Angels Camp. The majority of SR 49 within Angels Camp is 3 lanes with the exception

of the downtown area, which is 2 lanes with turn pockets at the major intersection. On-street parking is provided for much of the 1.5 miles, except for sections of the roadway in the north.

The pavement width of SR 49 in the corridor varies substantially:

- In the downtown area, total pavement width is as little as approximately 38 feet, with parallel on-street parking. Subtracting 8 feet on either side for parking, there is only approximately 22 feet of total pavement width for all two-way traffic.
- Total pavement width is also approximately 38 feet adjacent to Utica Park, consisting of two 12-foot travel lanes and 7-foot shoulders on either side.
- In the northern portion of the corridor, pavement width varies between approximately 48 and 58 feet. In general, 12-foot travel lanes are provided in each direction along with a 12-foot center turn lane, with the shoulder varying in width. Small segments also have a designated bike lane, or on-street parallel parking.

#### *State Route 4*

SR 4 connects the Bay Area on the west with Calaveras and Alpine Counties on the east. Prior to the summer of 2009 those traveling along SR 4 would travel along the 1.5 miles of SR 49 through Angels Camp between the SR 4 segment to the west (just north of the study corridor) and the SR 4 segment to the east (at the southern end of the study corridor). With the opening of the SR 4 Bypass in the summer of 2009, a continuous SR 4 was provided across the northern portion of Angels Camp, while Vallecito Road was designated as SR 4 Business. This did away with the combined SR 4/49 segment through Angels Camp.

#### *Public Streets and Driveways*

The Angels Camp General Plan identifies the collector streets and local streets along the study corridor. All roads provide one travel lane in each direction, with the exception of Sam's Way and Church Street, which provide one-way westbound travel. Note that not all local roads are necessarily city owned and/or maintained.

#### **Parking**

On-street parking is provided along much of the SR 49 study corridor. Areas where on-street parking is not possible include both sides of the highway near Utica Park as well as the east side of the highway between the City Museum and Stanislaus Avenue (where there is inadequate shoulder width for parking), the sections striped for Class II bicycle lanes, and sections adjacent to properties with head-in parking. In the historical district, individually marked on-street parking spaces exist from Birds Way to Church Street. A parking inventory of on-street parking and individual lots in the Historical District was compiled in the summer of 2010, and it is summarized in the appendix (Table A-1).

#### **Existing Caltrans Daily and Peak-Month Traffic Volumes and 10-Year Trends**

A review of Caltrans historical roadway volumes for State Route 49 through Angels Camp has been compiled for the most available recent ten years (2004-2014). This data can be seen in Table 1. The Annual Average Daily through (AADT) volume, Peak Hour, and Peak Month ADT

were summarized for the four segments in Angels Camp which Caltrans reports. As also shown in Figures 1, 2, and 3, this data indicates the following:

- Highway volumes are highest for the segment of SR 49 just north of the study corridor (between Murphys Grade Road and SR 4), with peak-month average daily traffic volumes of 17,800 compared to 13,800 within the study area.
- For the specific study corridor (Vallecito Road to Murphys Grade Road), traffic volumes peaked in 2006/7, and have declined by 19 percent since then on both an average annual and peak-month daily basis (or a 15-percent decline based on the Caltrans TCR 2015 volume). Over a ten year period, volumes declined by 16 to 17 percent.
- The segment north of the study area between Murphys Grade Road and SR 4 saw only a 3 percent drop in average annual daily traffic and a 2 percent drop in peak-month average daily traffic since 2006/7.
- The fact that peak-month traffic is only 5 percent higher than average annual traffic indicates a more consistent pattern of visitor traffic than in other tourist areas.

While the data indicates about a 10-percent drop in volumes along the study corridor since the opening of the SR 4 Bypass in 2009, the declines in volumes both south of SR 4 Business and north of the SR 4 Bypass are only about 6 percent. The greater reduction in volumes on the study corridor reflects the impact of the Bypass project.

### **Daily Roadway Counts**

Daily roadway counts were conducted as part of this study. The counts occurred from February 25-27 2016, at two locations:

- “Downtown” SR 49 between Hardscrabble Street and Vallecito Road
- “Uptown” SR 49 between Mark Twain Road and Bragg Street

Roadway volumes were collected for 24 hours at 15-minute intervals on each of the count days. The north and southbound travel volumes were collected independently. The three count days (Thursday, Friday, Saturday) were selected to evaluate the different travel patterns typically seen:

- Weekday
- Weekend
- Friday travel

Based on the collected data, the volumes on Friday were the highest on SR 49 as weekend travel occurs. More traffic was observed to have occurred in the “uptown” segment of SR 49 during the course of the count. The total daily traffic volumes can be seen in Figure 4. As shown, Friday counts were highest at both count locations, followed by Thursday and then Saturday. While volumes in the northern portion of the corridor were higher on Thursday and Friday, counts in the southern portion were higher on Saturday. This probably reflects the higher concentration of “local serving” land uses in the northern portion of the study corridor

(such as the schools and medical facilities). Tables and graphs of directional traffic volumes by 15-minute period are presented in the appendix (Table A-2). These indicate relatively high peaks in the typical AM and PM commute periods on Thursday, versus a mid-day longer peak on Saturday. Friday volumes reflect a weekday commute pattern, with an additional influx of visitor traffic in the afternoon (particularly in the southbound direction).

### **Existing Intersection Volumes**

LSC conducted AM and PM peak hour intersection turning movement counts at the following locations:

- SR 49 & Vallecito Road/Finnigan Lane
- SR 49 & Birds Way
- SR 49 & Hardscrabble Street/Raspberry Lane
- SR 49 & Pine Street/Church Street
- SR 49 & Sam's Way/Bret Harte Drive
- SR 49 & Stanislaus Avenue
- SR 49 & Mark Twain Road

The intersections were all counted on Thursday February 25, 2016 with the exception of SR 49/Mark Twain Road which was counted Thursday March 3rd, 2016. All intersections were counted between 7:00 and 9:00 AM and 4:00 and 6:00 PM. The intersection of SR 49/Stanislaus Avenue included an extended PM count, from 2:00 to 6:00 PM, in order to capture the peak school-related traffic activity. It was found that the intersections counted along SR 49 had an AM peak hour occur from 7:30 to 8:30, and a PM peak hour between 4:00 and 6:00 PM.

In addition to the intersection turning movements collected by LSC, turning movement volumes for the additional intersection of SR 49/Murphys Grade Road/Demarest Street are provided in the Mark Twain Medical Center Traffic Impact Analysis (KD Anderson 2015). The intersection turning movement volumes are provided in the appendix (Table A-3).

### **Review of Crash Data**

To evaluate vehicle e crashes along the corridor, the State Wide Integrated Traffic Records System (SWITRS) crash data from the last ten years were compiled. Crash data along SR 49 from Vallecito Road to the SR 4 Angels Camp Bypass was collected. Per Caltrans methodology, any crash within 250 feet of SR 49 was included. In total, 162 crashes occurred in the last ten years along the corridor, as shown in Table 2.

Details of the crash data are as follows:

- 125 of the crashes resulted in property damage only. 38 of the crashes resulted in injuries, resulting in 47 individuals injured. No fatalities were recorded to have occurred in the last 10 years.

- Over the whole corridor, the majority of crashes were rear end crashes (57 percent), followed by broadside crashes (12 percent) and sideswipes (10 percent).
- Fully 86 percent of crashes occurred during clear or cloudy conditions, and only 6 percent while it was raining.
- 79 percent of crashes occurred during daylight, 10 percent at night, and 3 percent at dawn/dusk. The fact that all of the reported crashes at night occurred where street lights are in place indicates that there is no need from a traffic safety perspective to increase street lighting along the corridor.
- A map showing the location of injury accidents is presented as Figure 5. The greatest concentration of crashes (35, or approximately 22 percent) occurred at the Murphys Grade Road/Demarest Street intersection. The majority of these accidents (19) were rear end accidents, which is common for a signalized intersection. Of all rear end crashes, almost half (45 out of 93) occurred in the relatively small segment from Murphys Grade Road to Lee Lane.
- A total of two pedestrian crashes and two bicycle crashes occurred over the ten years, which resulted in two injured bicyclists and one injured pedestrian. One of the pedestrian and one of the bicycle crashes occurred at the SR 49/ Murphys Grade Road/Demarest Street intersection.

A crash rate for the study corridor was calculated and compared to County and Statewide averages for similar roadways, as shown in Table 3. A crash rate of 1.74 is higher than the County average of 1.37 and the State average of 1.28. However the majority of these accidents are property damage only. A 0.44 injury crash rate exists for the corridor which is lower than the 0.58 and 0.48 County and State averages, respectively. This suggests that most crashes occur at relatively slow speeds.

As a relatively high proportion of corridor-wide crashes occurred at the SR 49/Murphys Grade/Demarest intersection, the crash rate at this intersection was also reviewed. At intersections, rates are considered in terms of crashes per million vehicle movements entering the intersection. Using the peak-hour count data factored by the Caltrans SR 49 historical volume data, it is estimated that 76.8 Million vehicles entered this intersection from 2005 through 2015. This indicates a total crash rate of 0.46 crashes per million vehicle movements, and a serious (injury or fatality) rate of 0.13 per million vehicle movements. As signalized intersections in rural areas across California average rates of 0.60 for total crashes and 0.19 for serious crashes, this indicates that this intersection has a relatively low crash history when compared to statewide averages.

### **Existing Roadway and Intersection Level of Service**

Level Of Service (LOS) is a qualitative measure of a driver's experience, ranging from LOS A (free-flow conditions with no or little delay) to LOS F (stop-and-go traffic congestion with long delays and traffic queues). The Angels Camp 2020 General Plan identifies a minimum LOS of D at intersections. Caltrans has also indicated LOS D as the minimum for all intersection movements along state highways in Angels Camp.

Table 4 presents the LOS conditions for the study corridor. As shown, the key intersections along the study corridor operate at an acceptable LOS of B or C, with the exception of the following:

- The SR 49/Stanislaus Avenue intersection operates at a marginal LOS of D in the afternoon and PM peak hours, but a deficient LOS of E in the AM peak hour (according to the *Mark Twain Medical Center Traffic Impact Study*). In particular, the eastbound left turn out of Stanislaus Avenue has relatively long delays. This condition of relatively long delays for left-turn movements onto SR 49 at unsignalized intersections is common to the busier unsignalized intersections along the study corridor.
- Caltrans' 2014 *Project Study Report – Project Development Support* document for the SR 49/Vallecito Road project forecasted a deficient LOS F for this intersection in 2015. This is consistent with the 2005 Project Study Report, which indicated an LOS E based on 2004 (pre-Bypass) traffic volumes, and it also forecasted the LOS to degrade to "F" by 2015 due to increasing traffic volumes. No additional details are available regarding the LOS analysis (such as intersection turning-movement volumes or LOS calculations).

Finally, the SR 49 roadway segments currently operate at an acceptable LOS C or D within the study area.

### **Discussion of Existing Parking/Traffic Operational Issues**

Based upon the information presented above, Consultant Team observations of traffic conditions and input from project stakeholders and the public, the following are the key existing traffic operational issues along the corridor:

- In the downtown area, through traffic is impeded as drivers enter and exit the on-street parallel parking spaces.
- The SR 4 / Vallecito Road / Finnegan Lane intersection has long been an intersection of concern. It has non-standard traffic controls, with Stop sign control on the east, south and west approaches, but no control on the north approach. This configuration can result in long delays, consistent with the 2014 Project Study Report-Project Development Support (PSR-PDS) document regarding this intersection (which indicates a poor LOS F in 2015), as well as confusion among visitor drivers. In addition, the geometrics of this intersection do not allow for northbound right turns by large trucks without impinging on other traffic lanes.
- Substandard intersection design (in large part resulting from historic street patterns). In particular, the Bragg Street intersection with SR 49 forms roughly a 20 degree angle, which results in poor driver sight conditions (because of how far a driver exiting Bragg Street must turn their head in order to see vehicles approaching in the northbound lane on SR 49) and makes a northbound right turn or westbound (from Bragg Street) left turn virtually impossible when vehicles are in adjacent lanes.
- Lack of designated truck loading and bus stop locations in the downtown area can result in blocking of through movements or turn movements.



- There is no easy way for visiting drivers to make U-turns to go back to the downtown area. As many visitors choose to stop only after seeing (and often passing) a destination, this can cause congestion and well as loss of potential customers.
- Parking in the downtown area is limited, and difficult for visitors to find. In particular, there is a need for better signage and pedestrian connections to the parking lot on Raspberry Lane.
- There is a lack of parking for large vehicles, such as Recreational Vehicles, in the downtown area.

## Transit

### Existing Transit Service

Calaveras Transit operates a five-route transit system serving Calaveras County, as well as an intercity route connecting San Andreas to Stockton. Connections to Amador Transit in Jackson and Tuolumne County Transit at Columbia College provide further opportunities for regional and intra-regional travel by transit. Ridership is approximately 65,000 to 70,000 one-way passenger trips annually. The routes and stops directly serving the Angels Camp Main Street Corridor are described below.

### Existing Routes and Schedules

All Calaveras Transit routes are operated Monday through Friday, with route deviations available to seniors aged 65 and older and eligible persons with disabilities within  $\frac{3}{4}$ -mile of the regular scheduled route. Flag stops are permitted mid-route between designated bus stops. Routes 1, 4 and 5 all serve the Demarest Transfer Stop located on SR 49 and Demarest at the north end of the project area. Only Route 4 operates within the Angels Camp Main Street corridor. These routes serving Angels Camp are described below.

- *Route 1A/B:* Route 1A operates between Angels Camp (at the Demarest Transfer Stop) and Rancho Calaveras at SR 26 and Garner Place. Route 1B operates from Angels Camp to Burson at SR 12 and Burson Road. The stop in Burson is by request. If there are no requests, the route ends at Daphne Street in Valley Springs. The routes operate between 5:10 AM and 7:00 PM weekdays. The route is interlined with Route 4, meaning that at the Demarest Transfer stop, the Route 1 bus sometimes becomes the Route 4 bus continuing to Columbia College without going out of service, and similarly the Route 4 bus sometimes becomes the Route 1 bus. Nearly half of the system ridership is generated on Route 1.
- *Route 4:* Route 4 operates between Columbia College (south of Angels Camp) and Arnold (west of Angels Camp), also serving Angels Camp and Murphys. The first run departs Angels Camp at 5:30 AM, arriving in Arnold at 6:57 AM, and returns to Angels Camp at 6:57, and on to Columbia College arriving at 7:35 AM. There are three additional round-trip runs between Columbia College and Arnold, departing at 7:55 AM, 11:00 AM, and 2:05 PM. The 5:30 PM departure ends in Angels Camp at 7:35 PM. This route is interlined with Route 1 as mentioned above. This route directly serves the Angels Camp Main Street Corridor. Nearly 40 percent of the system's ridership is generated on this route. When departing the Demarest Transfer Stop for Arnold, this

route travels first southbound on SR 49 through the study corridor and then eastbound on Vallecito Road.

- *Route 5:* Route 5 operates a westbound run from Angels Camp to Copperopolis in the morning (5:55 AM) and evening (6:10 PM), and an eastbound run from Copperopolis to Angels Camp in the morning (6:15 AM) and evening (6:30 PM). The route is approximately 40 minutes one-way. This route serves the Demarest Transfer Stop at the north end of the study area.

Other than routes only serving the Demarest Transfer Center just north of the study corridor, Calaveras Transit provides service along the study corridor (all on Route 4) at the following times:

- **Southbound** – Departing Demarest Transfer Center at 5:30 AM, 7:00 AM, 8:35 AM, 9:55 AM, 11:40 AM, 1:20 PM, 2:55 PM, 4:45 PM and 6:10 PM.
- **Northbound** – Arriving at Demarest Transfer Center at 8:30 AM, 11:35 AM, 2:40 PM, and 6:05 PM.

Overall, the transit system provides a limited opportunity for trips within the study corridor. Particularly in the northbound direction, the limited number of runs per day reduces the utility of this service for short trips. However, Calaveras Transit does provide service connecting the study corridor with other activity centers in the region, allowing residents and guests staying in Angels Camp to use the community as a “base camp” and visit other areas on day trips.

#### Existing Stop Locations

There are only two designated bus stops located on SR 49 within the study area:

- The Calaveras Transit Demarest Transfer Stop located on the west (southbound) side of SR 49 approximately 100 feet north of Demarest Street. This stop includes a tile-roofed, metal-mesh shelter with a bench; a bus stop sign; and a trash/recycling receptacle. The bus uses a right-turn lane to pull out of through traffic.
- The Visitor Center on the west side of Main Street just north of Raspberry Lane. This stop has a bus stop sign and a trash receptacle.

In addition, Calaveras County Transit has a policy of allowing “flag stops” at locations where the driver can safely pull the bus out of the travel lanes and serve a passenger. Passengers on the bus simply ask for a deboarding stop, while passengers waiting along the route will flag down the driver by waving. Calaveras County Transit staff indicates that common locations of flag stop requests along the study corridor are northbound at Raspberry Lane, at the Travelodge, and northbound just south of Murphys Grade Road (between the High School and Chicken Shack).

#### Existing Activity by Stop Location and Route

Boarding and alighting activity was measured during onboard surveys conducted in April of 2014 for the *Calaveras County Short Range Transit Plan Update* (Mobility Planners, January 2016). As shown in Table 5, the Transfer Stop at Demarest supports the majority of boarding and alighting activity in the area, even considering some of the boardings and alightings might

be double counted because Route 1 and Route 4 are interlined. The Visitor Center had just four passenger boardings and alightings during the survey period.

### Existing Transit Issues

- Transit service is limited to four trips per day in the northbound direction and eight in the southbound direction. While it is possible to use Calaveras Transit for local trips, this takes careful planning on the part of the passenger and often can require long wait times.
- There are few designated bus stops in the corridor. In particular, there is no designated northbound stop in the downtown area.

### **Bicycle and Pedestrian Conditions**

#### Existing Facilities

A Class 2 (striped) bike lane exists on the east side (northbound) of SR 49 for approximate 500 feet, between Stanislaus Avenue and Lee Lane. The bike lane is identified by a single pavement mark and two pole-mounted signs indicating the beginning and end of the path. The lane continues for another block north (Lee Lane to Murphys Grade Road) in front of the High School, though this section is not designated as a bike lane. On-street parking is allowed on this section of SR 49 and limits the pavement width available for cyclists to use.

Sidewalks for pedestrian use exist along less than half of the study corridor. A continuous sidewalk, on both sides of the road, exists only within the down town blocks between the Vallecito Road and Hardscrabble/Raspberry Street. With the exception of the 400 foot length of roadway in front of Saint Patrick's Catholic Church, all other sidewalks along the study corridor only exist on one side of the street. Though a continuous sidewalk does not exist, wide and unpaved shoulders allow for pedestrian foot paths to form. Pedestrian counts, as indicated in Table 6, show that the highest volume of pedestrian activity occurs in the downtown area.

#### Existing Counts

As part of LSC's intersection turning movement counts, bicycle and pedestrian counts were also conducted. Bicyclists were counted by turning movement, while pedestrians were counted by the number crossing each roadway leg. As shown in Table 6, the intersection of SR 49 and Hardscrabble Street/Raspberry Lane recorded the highest number of pedestrians, with 69 during the PM peak period. The majority of these (47) were crossing Hardscrabble Road along the west side of the highway. Focusing on the pedestrian volumes crossing SR 49, the greatest number in any one hour was also observed at Hardscrabble/Raspberry (21 in the PM peak-hour), followed by 10 at Sam's Way/Bret Harte Drive in the AM peak hour. Of note, the pedestrian volumes at the SR 49/Vallecito Road intersection were low.

Bicycle volumes were observed to be low along this section of SR 49. The intersection of SR 49/Stanislaus Avenue saw the highest number of cyclists: 7 in total between the hours of 2:00 and 6:00 PM. Both bicycle and pedestrian volumes were higher in the PM peak hour than in the AM peak hour.

Existing Pedestrian and Bicycle Issues

- Lack of sidewalks along much of the study corridor, in particular between Pine Street on the south and St. Patrick's Catholic Church on the north as well as the west side of SR 49 between Lee Lane on the south and Demarest Street on the north.
- Lack of bicycle facilities or adequate paved shoulder through the majority of the study corridor. This is a particular impediment to bicycling between Pine Street and St. Patrick's Catholic Church.
- Accessibility barriers in numerous locations, particularly in the downtown area and on the west side of SR 49 south of Demarest Street.

Attachments: Tables 1-6  
Figures 1-5  
Appendix (Tables A-1 through A-3, and SR 49 traffic volume data)

**Table 1: Caltrans Historical Highway Volumes on SR 49 through Angels Camp**

Location	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	10-Year Change		Change After Bypass		
												#	%	#	%	
<b>Annual Average Daily Traffic</b>	South of Vallecito Road	8,100	8,300	8,500	8,500	7,700	7,700	7,700	7,300	7,400	7,400	7,000	-1,100	-14%	400	5%
	Between Vallecito Road and Murphys Grade Road	15,600	15,900	16,100	16,100	14,500	14,500	14,500	13,100	13,100	13,100	13,100	-2,500	-16%	1,400	10%
	Between Murphys Grade Road and SR 4	15,900	16,200	16,400	16,400	14,800	17,700	17,700	15,900	15,900	15,900	15,900	0	0%	1,800	10%
	North of SR 4 (North)	9,400	9,600	9,700	9,700	8,700	8,700	8,700	8,200	8,200	8,200	8,200	-1,200	-13%	500	6%
<b>Peak Hour</b>	South of Vallecito Road	750	770	770	770	700	700	700	660	660	660	660	-90	-12%	40	6%
	Between Vallecito Road and Murphys Grade Road	1,600	1,600	1,600	1,600	1,450	1,450	1,450	1,300	1,300	1,300	1,300	-300	-19%	150	10%
	Between Murphys Grade Road and SR 4	1,750	1,800	1,800	1,800	1,650	1,850	1,850	1,650	1,650	1,650	1,650	-100	-6%	200	11%
	North of SR 4 (North)	1,150	1,150	1,150	1,150	1,050	1,050	1,050	990	990	990	990	-160	-14%	60	6%
<b>Peak Month Average Daily Traffic</b>	South of Vallecito Road	9,700	9,900	9,900	9,900	9,000	9,000	9,000	8,500	8,900	8,900	8,900	-800	-8%	500	6%
	Between Vallecito Road and Murphys Grade Road	16,600	16,900	17,000	17,000	15,300	15,300	15,300	13,800	13,800	13,800	13,800	-2,800	-17%	1,500	10%
	Between Murphys Grade Road and SR 4	17,400	17,700	17,700	18,100	16,000	19,800	19,800	17,800	17,800	17,800	17,800	400	2%	2,000	10%
	North of SR 4 (North)	10,700	10,900	10,900	10,900	9,800	9,800	9,800	9,200	9,200	9,200	9,200	-1,500	-14%	600	6%

Note: SR 4 Bypass opened summer of 2009. Not all locations are necessarily counted every year.

**Table 2: Summary of Angels Camp SR 49 Crash Data by Location**

2005 to 2015 Includes Crashes on Cross Streets Within 250 Feet of SR 49

Intersecting Street	Total Crashes	% Total Crashes	Crashes By Severity				Total Persons Injured	Crashes by Type							Weather		Lighting			
			Property Damage Only	Injury	Fatality	Broadside		Sideswipe	Rear End	Hit Object	Head-On	Auto/Ped	Other	Clear/Cloudy	Raining	Daylight	Dusk/Dawn	Dark- ST LTS	Dark- NO ST LTS	
RT 4 (North)	22	13.6%	19	3	0	4	3	4	13	1	1	0	1	20	2	17	0	5	0	
Between RT 4 and Monte Verde St	1	0.6%	0	1	0	2	0	0	1	0	0	0	0	1	0	1	0	0	0	
Murphys Grade Rd/Demarest St	35	21.6%	25	10	0	10	4	3	19	0	2	2	0	26	4	25	1	4	0	
Between Murphys Grade and Lee	13	8.0%	13	0	0	0	1	1	11	0	0	0	0	13	0	12	0	1	0	
Lee Ln	23	14.2%	19	4	0	4	0	0	15	0	0	0	0	15	0	14	0	1	0	
Between Lee and Stanislaus	1	0.6%	1	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	
Stanislaus Av	16	9.9%	9	7	0	8	4	4	5	1	1	1	0	16	0	14	1	1	0	
Between Stanislaus and Mark Twain	1	0.6%	0	1	0	1	0	0	1	0	0	0	0	1	0	1	0	0	0	
Mark Twain Rd	5	3.1%	4	1	0	0	2	0	2	0	1	0	0	5	0	3	2	0	0	
Between Mark Twain and Bragg	1	0.6%	1	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	
Bragg St	7	4.3%	3	4	0	8	1	1	4	0	0	0	1	7	0	6	1	0	0	
Bret Harte Dr	4	2.5%	4	1	0	1	0	0	5	0	0	0	0	5	0	4	0	1	0	
Sams Wy	4	2.5%	3	1	0	1	0	0	4	0	0	0	0	3	1	3	0	1	0	
Raspberry Ln	4	2.5%	2	2	0	4	0	0	4	0	0	0	0	4	0	4	0	0	0	
Birds Wy	7	4.3%	7	0	0	0	1	3	1	1	0	0	1	7	0	6	0	1	0	
Vallecito Rd (Old Rt 4)	18	11.1%	15	3	0	4	3	1	7	5	1	1	0	15	3	16	0	2	0	
TOTAL	162	100.0%	125	38	0	47	20	17	93	8	6	4	3	140	10	128	5	17	0	
% Total			77%	23%	0%	--	12%	10%	57%	5%	4%	2%	2%	86%	6%	79%	3%	10%	0%	

**Table 3: Comparison of Corridor and Statewide Crash Rates**

	<b>Crashes per Million Vehicle-Miles</b>		
	Total	Injury	Fatal
<b>SR 49 Study Corridor (1)</b>	1.74	0.44	0.00
<b>Calaveras County Average (2)</b>	1.37	0.58	0.01
<b>Statewide Average (2)</b>	1.28	0.48	0.03

Source 1: LSC Transportation Consultants, Inc.  
Source 2: Caltrans, 2009 Collision Data on California State Highways

**Table 4: Existing Level Of Service**

Roadway Element

Intersection Location	Control	AM Peak		Afternoon Peak		PM Peak	
		LOS	Delay	LOS	Delay	LOS	Delay
SR49/Murphys Grade Rd <sup>1</sup>	Signal	16.5	B	17.0	B	16.0	B
SR49/Stanslaus Ave <sup>1</sup>	Stop	<b>39.1</b>	<b>E</b>	27.3	D	25.4	D
SR 49/Mark Twain Rd	Stop	13.4	B	--	--	12.6	B
SR 49/Sam's Way/Bret Harte Dr	Stop	17.5	C	--	--	15.4	C
SR 49/Pine St	Stop	13.8	B	--	--	15.3	C
SR 49/Church St	Stop	0.0	A	--	--	12.2	B
SR 49/Hardscrabble/Rasberry Ln	Stop	14.4	B	--	--	13.3	B
SR 49/Birds Way/Driveway	Stop	15.4	C	--	--	16.7	B
SR 49/Vallecito Rd/Finnigan Ln <sup>2</sup>	Stop	<b>F</b>	<b>NA</b>	--	--	<b>F</b>	<b>NA</b>

Roadway Segments <sup>3</sup>	
SR 49 - Murphy's Grade Road to Stanislaus Avenue	C
SR 49 - Stanislaus Avenue to Mark Twain Road	D
SR 49 - Mark Twain Road to Bret Harte Road	D
SR 49 - Bret Harte Road to Vallecito Road	C

Note - Delay is reported in terms of seconds per vehicle.

Note - **Bold** indicates LOS D standard is exceeded.

Note 1 - Source: KD Anderson. Mark Twain Medical Center Traffic Impact Analysis 2015.

Note 2 - LOS F based on the Caltrans SR 49/Vallecito Rd PSR-PDS 2014. Calculated delays are not available.

Note 3 - Source: Calaveras 2012 Regional Transportation Plan

Delay in Seconds per Vehicle



**Table 5: Transit Passenger Activity Along Study Corridor**

Bus Stop	Route	Total		Total Activity
		On	Off	
<b>SR 49 &amp; Demarest Transfer Stop</b>	1	25	11	36
	4	31	0	31
	<i>Total</i>	56	11	67
<b>Visitor's Center</b>	4	4	4	8
<b>Between Visitors Center - Douglas Flat</b>	4	2	5	7

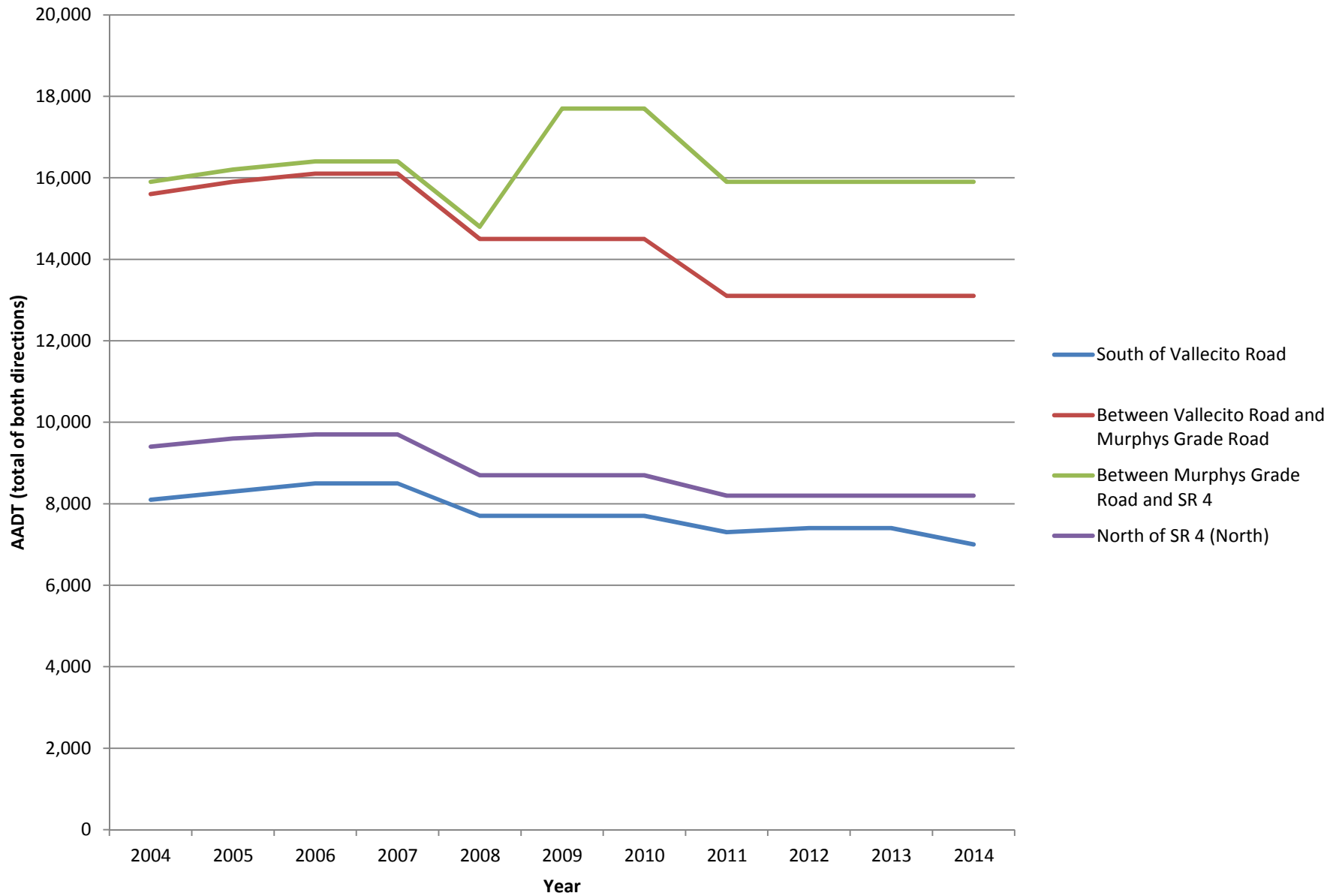
*Source: Calaveras County Short Range Transit Plan, January 2016. Onboard surveys conducted in April, 2014 for a weekday.*

**Table 6: Corridor Intersection Pedestrian and Bicycle Volumes**

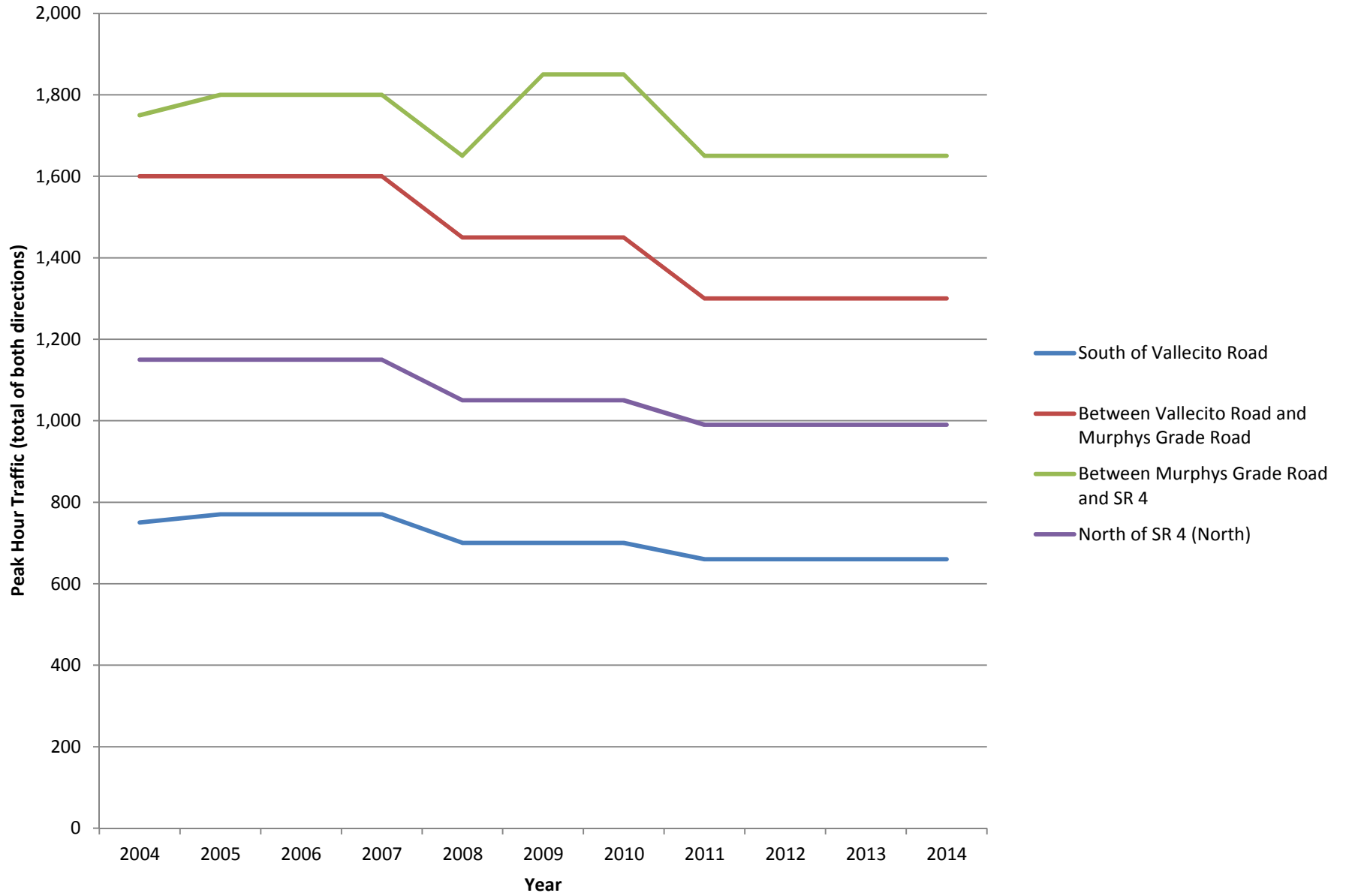
Intersection (LSC/NDS)	Period	Peak Hour	PEDESTRIANS					BICYCLISTS													
			Total Crossing By Approach					Northbound			Southbound			Eastbound			Westbound			Total	
			South	North	West	East	Total	L	Thr	R	L	Thr	R	L	Thr	R	L	Thr	R		
SR-49 & Vallecito Road / Finnigan Lane	AM	7:00 AM	1	0	3	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PM	4:00 PM	2	0	3	0	5	0	0	0	0	0	0	1	0	0	0	0	0	1	2
SR-49 & Birdsway / Driveway	AM	7:30 AM	1	5	1	1	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PM	4:45 PM	0	9	6	1	16	0	2	0	0	0	0	0	0	0	0	0	0	0	2
SR49/Hardscrabble / Raspberry	AM	7:30 AM	0	2	5	5	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PM	4:45 PM	19	2	47	1	69	1	1	0	0	0	0	0	0	0	0	0	0	0	2
SR-49 & Pine Street / Church Street	AM	7:45 AM	2	0	5	6	13	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	PM	4:00 PM	0	0	5	5	10	0	1	0	0	0	0	0	0	0	0	0	0	0	1
SR-49 & Sam's Way / Bret Harte Drive	AM	7:30 AM	1	9	10	8	28	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	PM	4:00 PM	1	1	3	5	10	0	0	1	0	0	0	0	0	0	0	0	0	1	2
SR-49 & Stanislaus Avenue	AM	7:00 AM	0	3	0	6	9	0	2	0	0	0	0	1	0	0	0	0	0	0	3
	PM	4:00 PM	0	5	0	8	13	0	3	0	0	3	1	0	0	0	0	0	0	0	7
SR 49 & Mark Twain Road	AM	8:00 AM	0	0	3	0	3	0	3	0	0	0	0	1	0	0	0	0	0	0	4
	PM	4:15 PM	0	1	6	7	14	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Total All Locations	AM						77														9
	PM						137														17
	Total						214														26

Source: LSC Transportation Consultants, Inc. for Corridor Study

**Figure 1: Historical Annual Average Daily Traffic in Angels Camp**



**Figure 2: Historical Peak Hour Traffic in Angels Camp**



**Figure 3: Historical Peak Month Average Daily Traffic in Angels Camp**

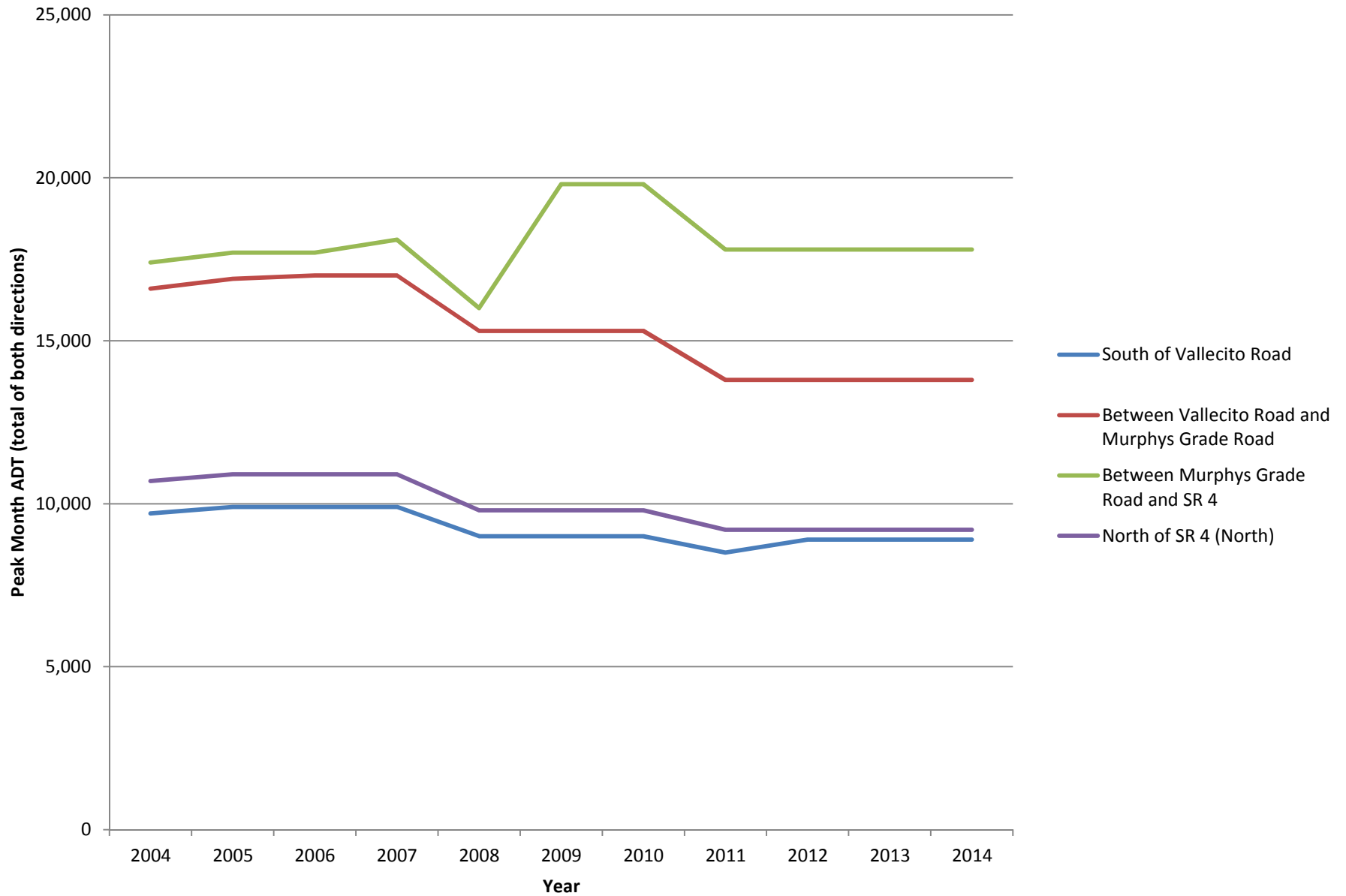


Figure 4: SR 49 Daily Traffic Volumes

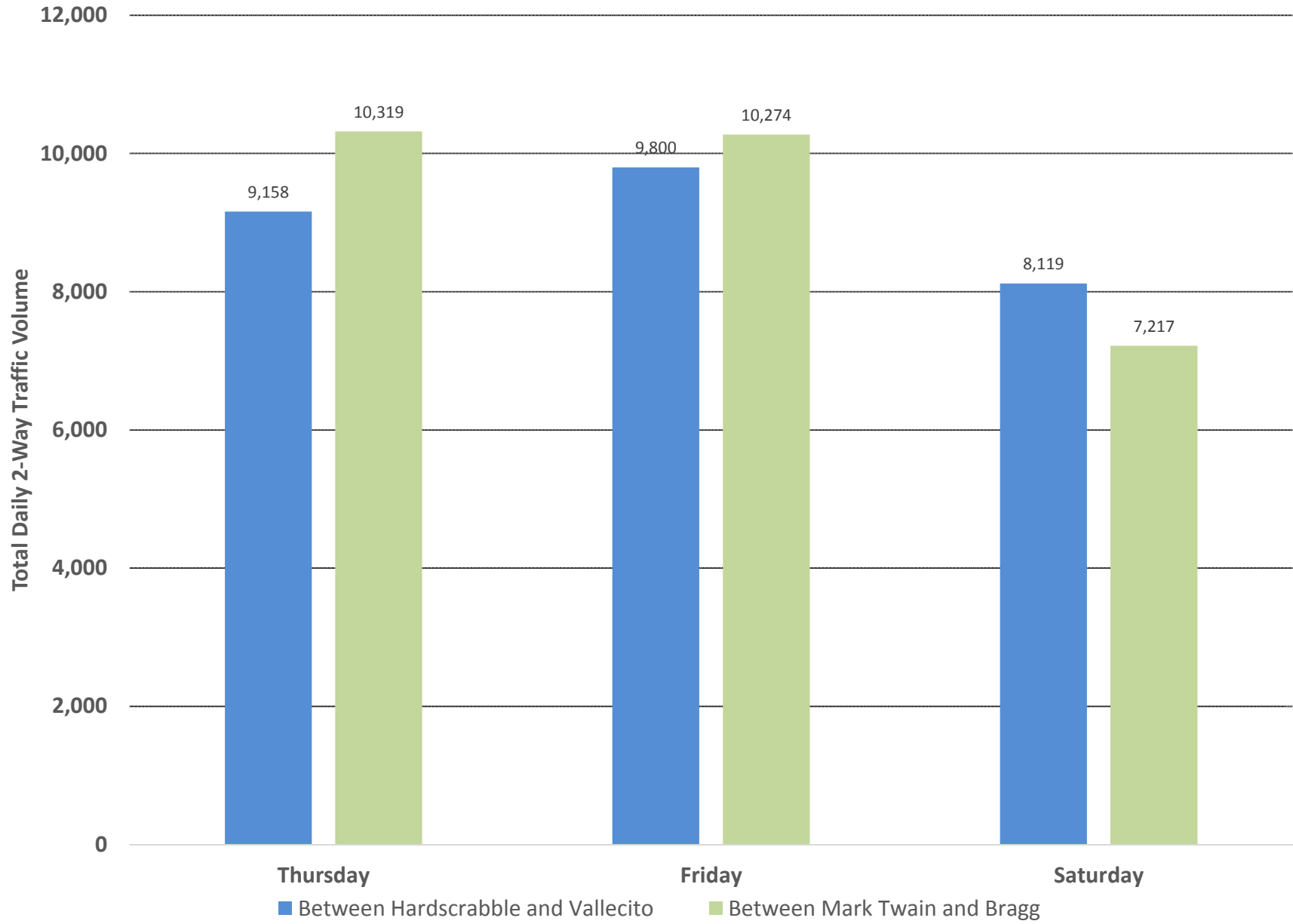
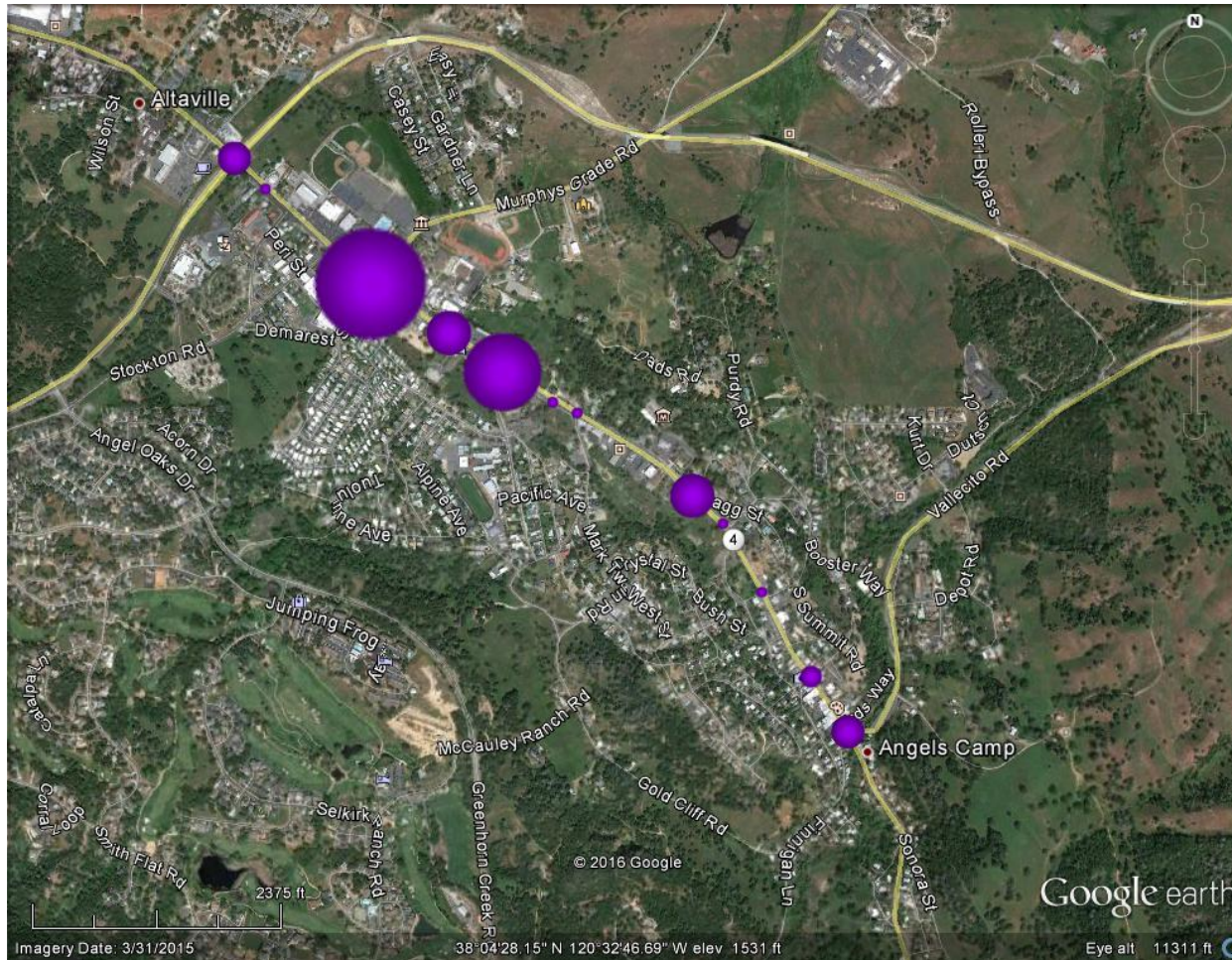


Figure 5

Location of Injury Collisions – 2005 Through 2015



**Table A-1: Parking within Angels Camp Historical District**

<b>Parking Lot</b>	<b>Total # of Spaces</b>
Raspberry Parking Lot	62
Parking for Utica Park	37
Parking Lot Behind Suzie's	22
Parking Lot near Orphan Annies	26
Parking Lot near Fire House	19
Parking Lot near Visitor Center	34
<b><i>Total Lot Parking</i></b>	<b>200</b>
<b>On Street Parking</b>	<b>46</b>
<b>Private Stalls</b>	
Valero	8
Forty Niner Suburau	10
Napa Auto Parts	6
Wilmshurst Car Lot	10
Vintage	6
<b><i>Total Private Stalls</i></b>	<b>40</b>
<b><i>Total Parking In Historical District</i></b>	<b>286</b>

Source: City of Angels, July 2010



**Table A-2: SR 49 Roadway Volumes - Between Hardscrabble and Vallecito**

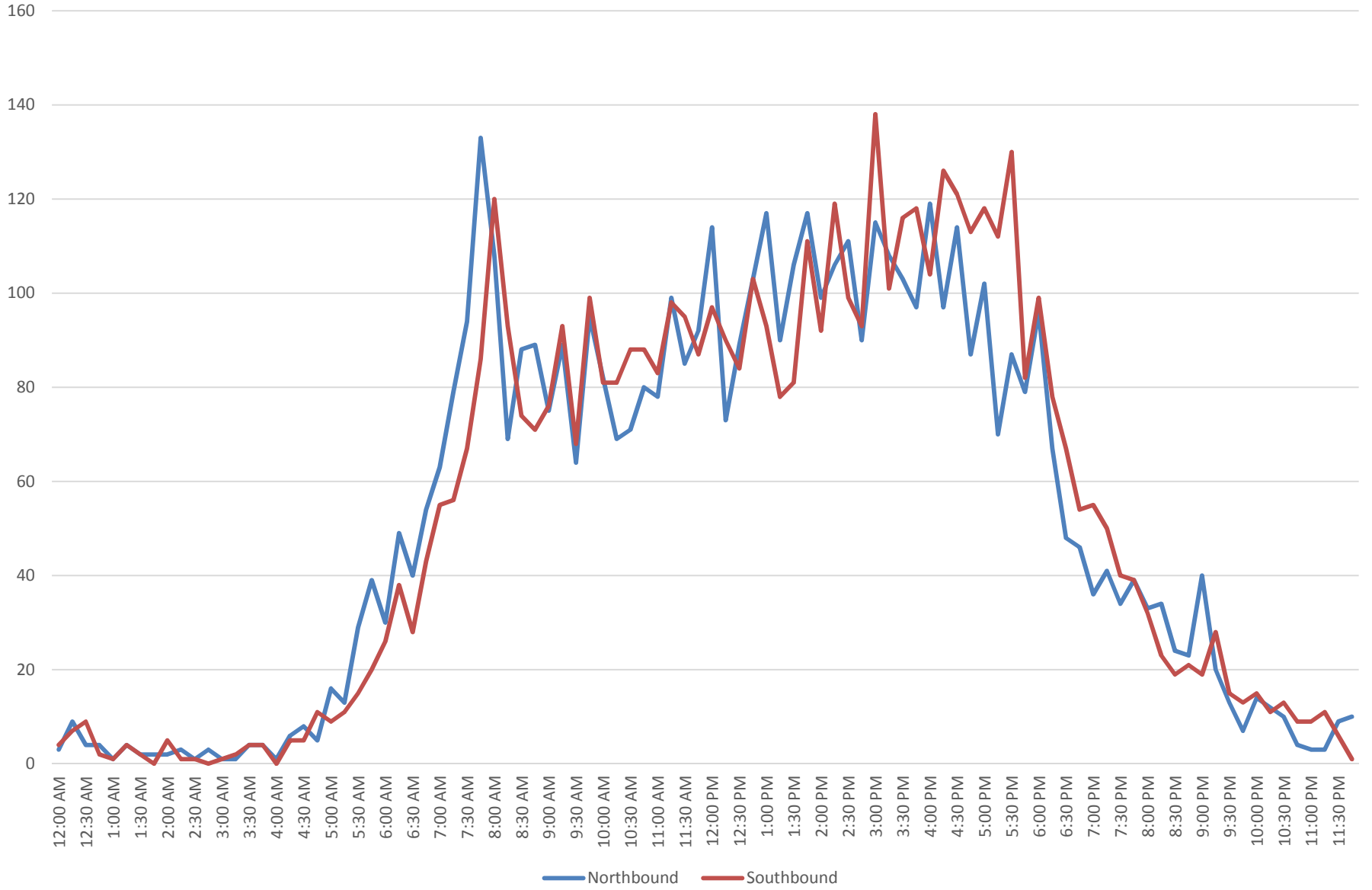
Time	AM						PM						
	Thursday 2/25/2016		Friday 2/26/2016		Saturday 2/27/2016		Thursday 2/25/2016		Friday 2/26/2016		Saturday 2/27/2016		
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	
12:00 AM	2	4	8	5	8	12	12:00 PM	82	76	82	77	60	91
12:15 AM	6	5	4	2	5	4	12:15 PM	73	81	82	89	66	105
12:30 AM	1	2	2	4	3	4	12:30 PM	80	68	106	90	88	85
12:45 AM	3	2	3	6	6	6	12:45 PM	110	86	98	92	63	95
1:00 AM	1	0	1	4	7	4	1:00 PM	75	79	91	131	70	95
1:15 AM	6	5	1	0	7	1	1:15 PM	103	65	86	123	78	81
1:30 AM	2	2	2	1	6	3	1:30 PM	92	68	88	108	78	91
1:45 AM	1	0	3	4	1	4	1:45 PM	97	106	71	89	74	90
2:00 AM	3	4	2	2	0	1	2:00 PM	102	96	91	86	93	79
2:15 AM	2	2	0	2	9	0	2:15 PM	85	94	100	87	80	92
2:30 AM	1	1	1	1	0	0	2:30 PM	88	88	105	96	89	83
2:45 AM	3	0	1	0	3	1	2:45 PM	89	86	100	94	75	87
3:00 AM	0	1	4	0	2	3	3:00 PM	110	114	82	113	95	98
3:15 AM	1	2	6	3	4	1	3:15 PM	85	87	99	136	98	102
3:30 AM	5	3	1	7	3	2	3:30 PM	100	95	104	94	116	84
3:45 AM	3	4	3	2	1	2	3:45 PM	94	102	94	110	110	73
4:00 AM	2	1	4	5	1	0	4:00 PM	92	88	108	101	82	83
4:15 AM	10	7	5	11	7	3	4:15 PM	105	110	83	101	95	75
4:30 AM	5	6	8	7	10	4	4:30 PM	94	113	97	104	74	68
4:45 AM	8	12	8	14	9	3	4:45 PM	70	102	87	110	73	78
5:00 AM	14	8	15	2	5	5	5:00 PM	96	96	96	98	90	60
5:15 AM	11	10	14	9	12	3	5:15 PM	69	111	88	106	84	80
5:30 AM	28	16	34	16	22	11	5:30 PM	77	107	73	100	61	87
5:45 AM	29	21	33	15	18	9	5:45 PM	79	85	75	81	52	102
6:00 AM	43	25	38	38	26	13	6:00 PM	65	88	58	111	63	58
6:15 AM	28	39	42	37	25	21	6:15 PM	59	61	68	78	57	54
6:30 AM	51	25	26	44	20	26	6:30 PM	52	66	47	79	40	53
6:45 AM	50	45	42	32	20	35	6:45 PM	39	43	62	55	57	45
7:00 AM	64	56	70	52	22	42	7:00 PM	33	47	44	44	53	43
7:15 AM	74	60	84	68	29	30	7:15 PM	35	45	45	52	27	33
7:30 AM	81	65	80	62	24	43	7:30 PM	26	28	41	50	32	42
7:45 AM	111	77	111	87	45	40	7:45 PM	45	30	34	38	27	28
8:00 AM	85	116	106	82	39	29	8:00 PM	24	29	24	30	26	24
8:15 AM	61	90	62	81	45	30	8:15 PM	29	18	32	22	21	32
8:30 AM	83	60	93	74	41	57	8:30 PM	21	22	30	29	25	25
8:45 AM	64	64	78	71	60	61	8:45 PM	35	22	44	36	27	24
9:00 AM	66	69	85	55	57	68	9:00 PM	24	14	33	26	33	31
9:15 AM	83	81	70	60	54	80	9:15 PM	15	22	26	28	28	19
9:30 AM	80	60	89	51	60	67	9:30 PM	10	13	19	17	30	10
9:45 AM	71	92	79	78	77	58	9:45 PM	8	17	17	21	14	13
10:00 AM	75	75	75	63	76	77	10:00 PM	12	10	17	14	24	13
10:15 AM	66	73	66	70	64	77	10:15 PM	12	10	15	13	21	12
10:30 AM	60	80	57	83	68	78	10:30 PM	6	11	10	14	7	13
10:45 AM	65	83	76	92	87	79	10:45 PM	1	8	14	11	13	12
11:00 AM	70	61	87	69	59	88	11:00 PM	3	9	14	10	17	8
11:15 AM	89	80	98	88	86	74	11:15 PM	5	9	4	8	14	8
11:30 AM	83	85	85	85	76	91	11:30 PM	8	3	5	13	8	8
11:45 AM	93	84	87	90	79	82	11:45 PM	6	4	6	7	10	9
	<b>Total</b>						4563	4595	4844	4956	4006	4113	
	<b>2-way</b>						<b>9158</b>	<b>9800</b>	<b>8119</b>				

**Table A-3: SR 49 Roadway Volumes -- Between Mark Twain and Bragg**

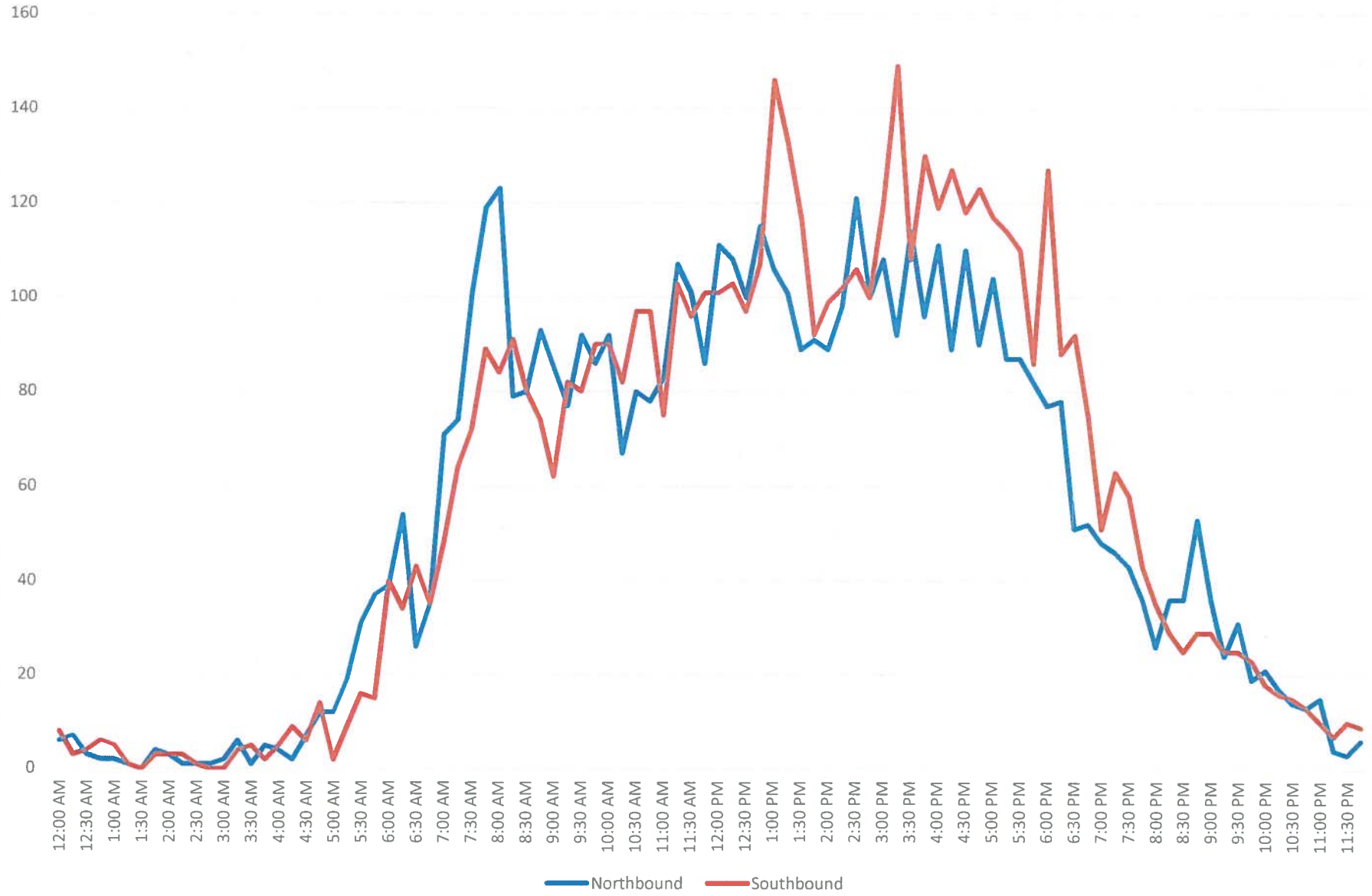
Time	AM						PM					
	Thursday		Friday		Saturday		Thursday		Friday		Saturday	
	2/25/2016		2/26/2016		2/27/2016		2/25/2016		2/26/2016		2/27/2016	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	3	4	6	8	9	11	12:00 PM	114	97	111	101	61
12:15 AM	9	7	7	3	5	4	12:15 PM	73	90	108	103	68
12:30 AM	4	9	3	4	3	4	12:30 PM	89	84	100	97	82
12:45 AM	4	2	2	6	4	5	12:45 PM	103	103	115	107	77
1:00 AM	1	1	2	5	10	3	1:00 PM	117	93	106	146	70
1:15 AM	4	4	1	1	8	3	1:15 PM	90	78	101	133	62
1:30 AM	2	2	0	0	5	2	1:30 PM	106	81	89	117	92
1:45 AM	2	0	4	3	2	3	1:45 PM	117	111	91	92	88
2:00 AM	2	5	3	3	0	1	2:00 PM	99	92	89	99	88
2:15 AM	3	1	1	3	4	1	2:15 PM	106	119	98	102	103
2:30 AM	1	1	1	1	3	0	2:30 PM	111	99	121	106	92
2:45 AM	3	0	1	0	4	1	2:45 PM	90	93	100	100	87
3:00 AM	1	1	2	0	4	2	3:00 PM	115	138	108	120	95
3:15 AM	1	2	6	4	4	1	3:15 PM	108	101	92	149	100
3:30 AM	4	4	1	5	2	3	3:30 PM	103	116	114	108	110
3:45 AM	4	4	5	2	3	2	3:45 PM	97	118	96	130	102
4:00 AM	1	0	4	5	2	0	4:00 PM	119	104	111	119	99
4:15 AM	6	5	2	9	6	3	4:15 PM	97	126	89	127	96
4:30 AM	8	5	7	6	8	4	4:30 PM	114	121	110	118	68
4:45 AM	5	11	12	14	8	2	4:45 PM	87	113	90	123	80
5:00 AM	16	9	12	2	7	6	5:00 PM	102	118	104	117	75
5:15 AM	13	11	19	9	15	3	5:15 PM	70	112	87	114	97
5:30 AM	29	15	31	16	13	10	5:30 PM	87	130	87	110	64
5:45 AM	39	20	37	15	29	16	5:45 PM	79	82	82	86	67
6:00 AM	30	26	39	40	30	14	6:00 PM	96	99	77	127	68
6:15 AM	49	38	54	34	29	21	6:15 PM	67	78	78	88	67
6:30 AM	40	28	26	43	24	29	6:30 PM	48	67	51	92	41
6:45 AM	54	43	35	35	16	34	6:45 PM	46	54	52	75	49
7:00 AM	63	55	71	48	27	37	7:00 PM	36	55	48	51	55
7:15 AM	79	56	74	64	25	33	7:15 PM	41	50	46	63	31
7:30 AM	94	67	101	72	32	38	7:30 PM	34	40	43	58	31
7:45 AM	133	86	119	89	37	44	7:45 PM	39	39	36	43	30
8:00 AM	108	120	123	84	54	35	8:00 PM	33	32	26	35	27
8:15 AM	69	93	79	91	44	34	8:15 PM	34	23	36	29	35
8:30 AM	88	74	80	80	45	52	8:30 PM	24	19	36	25	24
8:45 AM	89	71	93	74	68	66	8:45 PM	23	21	53	29	38
9:00 AM	75	76	85	62	59	77	9:00 PM	40	19	36	29	36
9:15 AM	89	93	77	82	58	81	9:15 PM	20	28	24	25	39
9:30 AM	64	68	92	80	68	69	9:30 PM	13	15	31	25	34
9:45 AM	95	99	86	90	83	75	9:45 PM	7	13	19	23	18
10:00 AM	82	81	92	90	92	84	10:00 PM	14	15	21	18	22
10:15 AM	69	81	67	82	54	81	10:15 PM	12	11	17	16	23
10:30 AM	71	88	80	97	92	80	10:30 PM	10	13	14	15	10
10:45 AM	80	88	78	97	79	86	10:45 PM	4	9	13	13	16
11:00 AM	78	83	83	75	69	97	11:00 PM	3	9	15	10	14
11:15 AM	99	98	107	103	89	82	11:15 PM	3	11	4	7	20
11:30 AM	85	95	101	96	98	102	11:30 PM	9	6	3	10	7
11:45 AM	92	87	86	101	88	94	11:45 PM	10	1	6	9	5
	<b>Total</b>		4976		5343		5117		5157		4298	
	<b>2-way</b>		<b>10319</b>		<b>10274</b>		<b>7217</b>					

# SR 49 Uptown 15-Minute Traffic Volumes

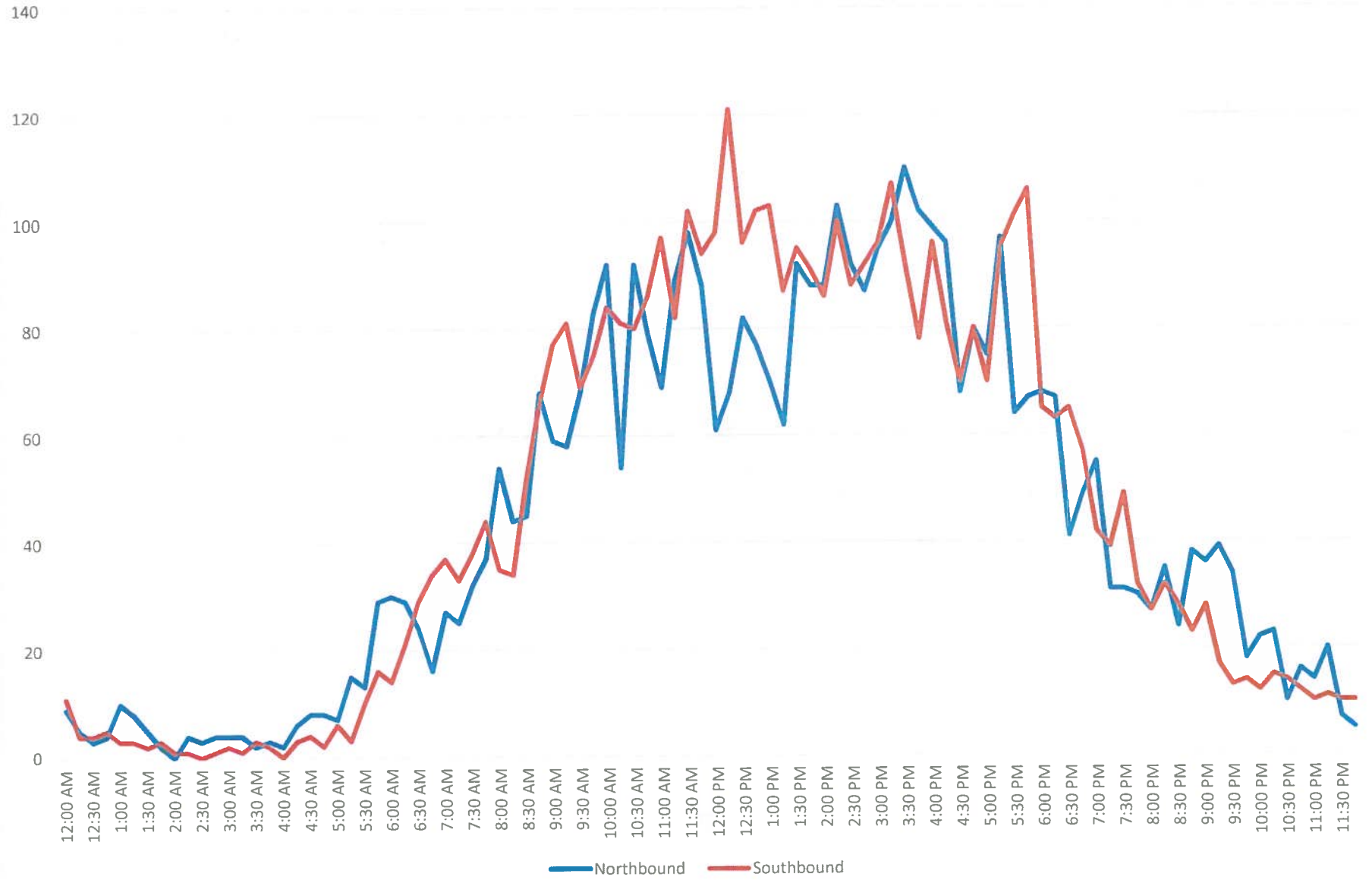
## Thursday



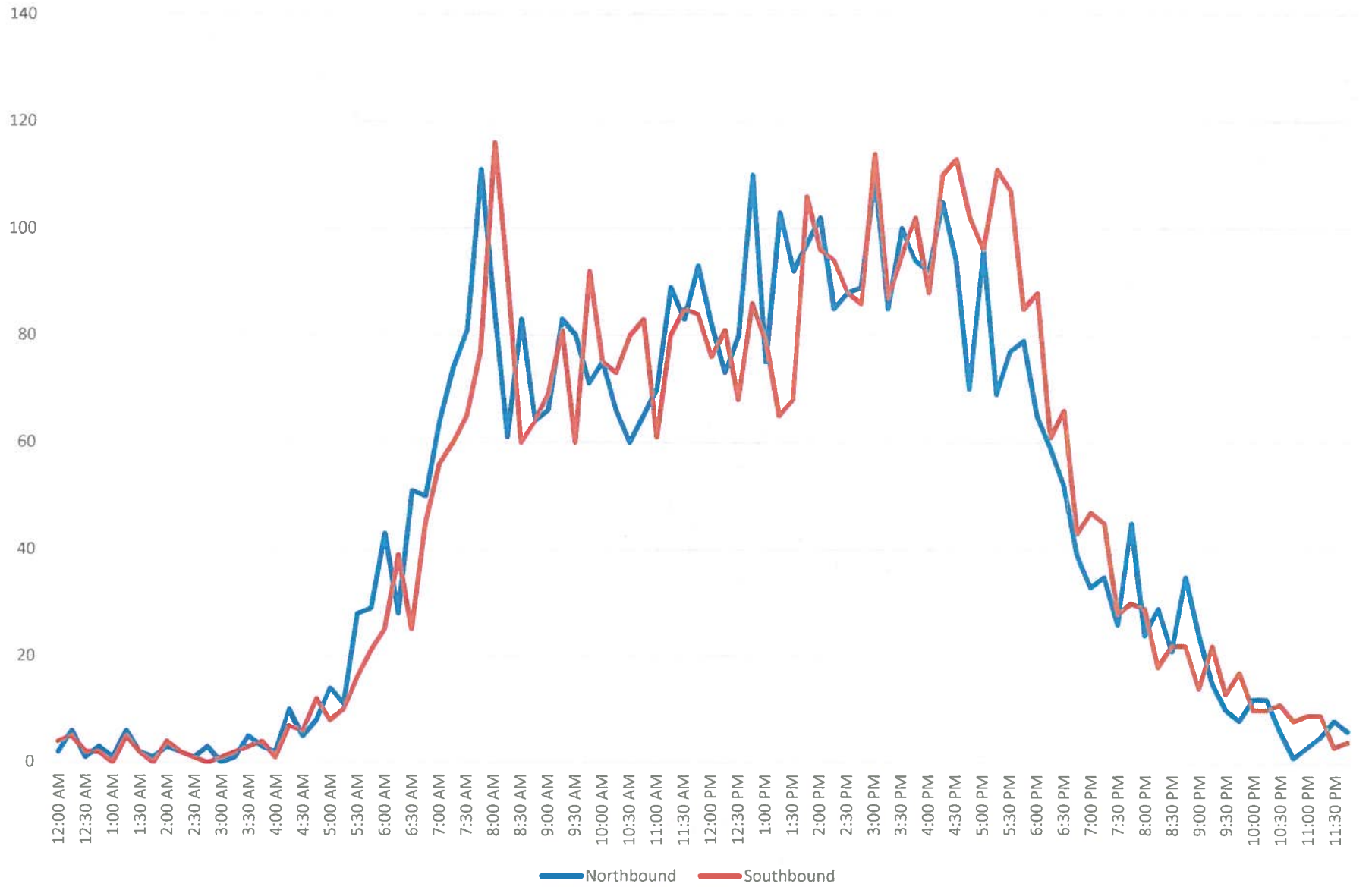
# SR 49 Uptown 15-Minute Traffic Volumes Friday



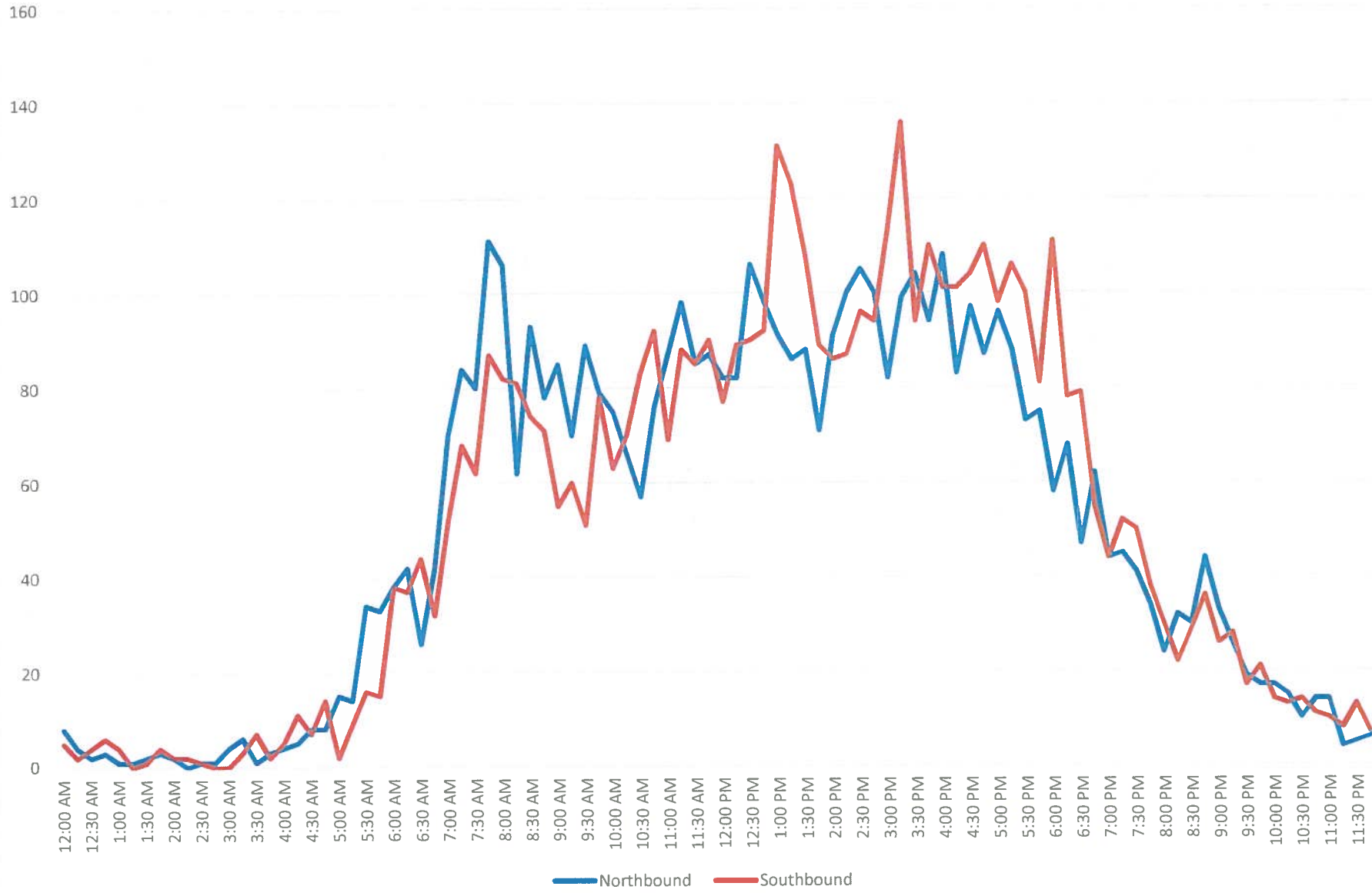
# SR 49 Uptown 15-Minute Traffic Volumes Saturday



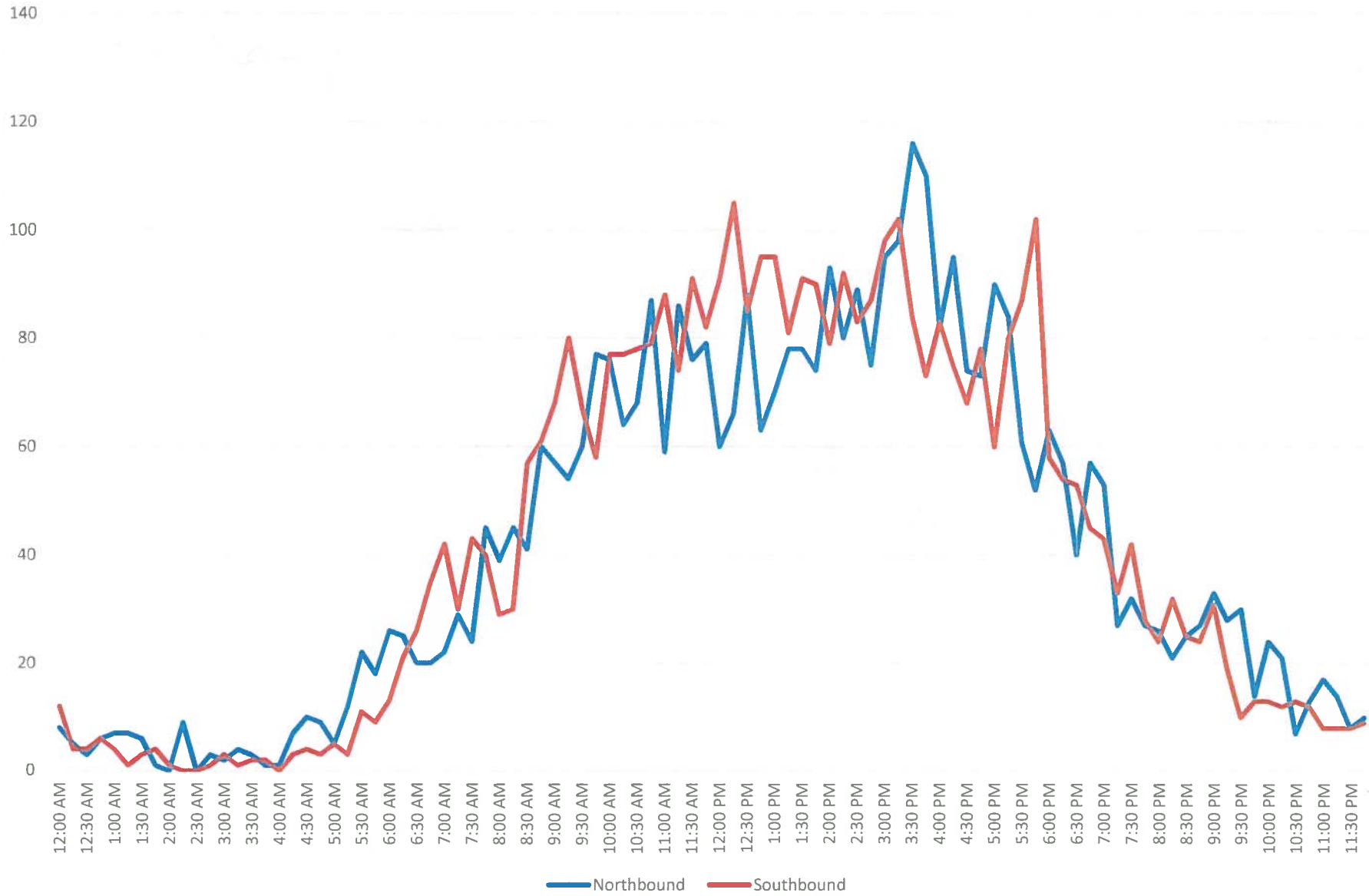
SR 49 Downtown 15-Minute Traffic Volumes  
Thursday



# SR 49 Downtown 15-Minute Traffic Volumes Friday



### SR 49 Downtown 15-Minute Traffic Volumes Saturday





**Table A-4: Corridor Intersection Traffic Turning Movement Volumes**

Intersection (LSC/NDS)	Source	Period	Peak Hour Starting	Northbound			Southbound			Eastbound			Westbound			Total
				L	Thr	R	L	Thr	R	L	Thr	R	L	Thr	R	
SR-49 & Vallecito Road/Finnigan Lane	1	AM	7:30 AM	1	243	30	69	241	5	13	2	9	40	2	93	748
	1	PM	4:00 PM	3	250	26	102	292	13	13	6	6	30	5	79	825
SR-49 & Birdsway/Driveway	1	AM	7:30 AM	4	341	2	5	316	5	3	0	1	1	0	4	682
	1	PM	4:15 PM	0	340	4	11	403	0	7	0	3	1	0	10	779
SR49 / Hardscrabble / Raspberry	1	AM	7:30 AM	7	336	0	3	323	2	4	0	8	3	1	3	690
	1	PM	4:15 PM	8	343	3	7	399	20	5	0	16	3	0	6	810
SR-49 & Pine Street/Church Street	1	AM	7:30 AM	1	349	0	0	322	3	10	0	6	0	0	0	691
	1	PM	4:00 PM	7	375	0	0	421	5	13	0	7	1	0	3	832
SR-49 & Sam's Way/Bret Harte Drive	1	AM	7:30 AM	3	345	6	3	321	7	3	0	0	3	0	9	700
	1	PM	4:00 PM	3	385	5	2	433	8	2	0	3	2	1	3	847
SR-49 & Stanislaus Avenue	1	AM	7:30 AM	56	370	1	2	310	226	142	0	46	0	0	2	1155
	1	PM	4:30 PM	18	405	3	6	482	81	71	0	23	1	0	7	1097
SR 49 & Mark Twain Road	1	AM	7:30 AM	23	383	1	0	358	25	49	1	47	0	0	0	887
	1	PM	4:00 PM	16	405	0	0	413	47	34	0	14	0	0	0	929
SR 49 / Demarest St / Murphys Grade Rd	2	AM	7-9 am	30	373	89	113	380	16	24	12	42	84	13	130	1306
	2	Mid	2-4 PM	83	471	79	104	461	21	55	36	62	78	17	174	1641
	2	PM	4-6 PM	73	431	48	113	496	28	51	38	88	49	21	121	1557

Source: (1) LSC Transportation Consultants, Inc., (2) KAnderson for Mark Twain Medical Center Traffic Impact Study, 2015.

Note 1: SR 49 considered north/south approaches at all intersections.

**Table A-4: Corridor Intersection Traffic Turning Movement Volumes**

Intersection (LSC/NDS)	Source	Period	Peak Hour Starting	Northbound			Southbound			Eastbound			Westbound			Total
				L	Thr	R	L	Thr	R	L	Thr	R	L	Thr	R	
SR-49 & Vallecito Road/Finnigan Lane	1	AM	7:30 AM	1	243	30	69	241	5	13	2	9	40	2	93	748
	1	PM	4:00 PM	3	250	26	102	292	13	13	6	6	30	5	79	825
SR-49 & Birdsway/Driveway	1	AM	7:30 AM	4	341	2	5	316	5	3	0	1	1	0	4	682
	1	PM	4:15 PM	0	340	4	11	403	0	7	0	3	1	0	10	779
SR49 / Hardscrabble / Raspberry	1	AM	7:30 AM	7	336	0	3	323	2	4	0	8	3	1	3	690
	1	PM	4:15 PM	8	343	3	7	399	20	5	0	16	3	0	6	810
SR-49 & Pine Street/Church Street	1	AM	7:30 AM	1	349	0	0	322	3	10	0	6	0	0	0	691
	1	PM	4:00 PM	7	375	0	0	421	5	13	0	7	1	0	3	832
SR-49 & Sam's Way/Bret Harte Drive	1	AM	7:30 AM	3	345	6	3	321	7	3	0	0	3	0	9	700
	1	PM	4:00 PM	3	385	5	2	433	8	2	0	3	2	1	3	847
SR-49 & Stanislaus Avenue	1	AM	7:30 AM	56	370	1	2	310	226	142	0	46	0	0	2	1155
	1	PM	4:30 PM	18	405	3	6	482	81	71	0	23	1	0	7	1097
SR 49 & Mark Twain Road	1	AM	7:30 AM	23	383	1	0	358	25	49	1	47	0	0	0	887
	1	PM	4:00 PM	16	405	0	0	413	47	34	0	14	0	0	0	929
SR 49 / Demarest St / Murphys Grade Rd	2	AM	7-9 am	30	373	89	113	380	16	24	12	42	84	13	130	1306
	2	Mid	2-4 PM	83	471	79	104	461	21	55	36	62	78	17	174	1641
	2	PM	4-6 PM	73	431	48	113	496	28	51	38	88	49	21	121	1557

Source: (1) LSC Transportation Consultants, Inc., (2) KAnderson for Mark Twain Medical Center Traffic Impact Study, 2015.

Note 1: SR 49 considered north/south approaches at all intersections.