



**Traffic Impact Analysis
for
15/20 Plaza**

**Prepared for:
Mussa + Associates
40 Soldier Pass Road, Suite 115
Sedona, Arizona 86336**

**Prepared by:
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**Job # 13108
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DRAFT

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A. Physical Roadway Features

1. General Description of Location

The proposed 15/20 Plaza Development is a commercial project located on 0.43 acres located on the northeast corner of State Route 89A and Posse Ground Road in Sedona, Arizona. The project site is identified by the Yavapai County Assessor's Parcel 408-25-038R and is currently undeveloped. See Exhibit 1 for project location.

The proposed project is comprised of a single building which will include:

Medical Office Space	1680 Square Feet
Retail Space	1200 Square Feet
Food/Restaurant Space	1800 Square Feet
Total Space	4680 Square Feet

The project is surrounded by developed properties including:

- Ace Hardware Store – West
- Animal Clinic – North
- Taco Bell/KFC – East
- Arizona Auto Wash – South

The current project proposal calls for two one way access points from Posse Ground Road. No direct access is proposed from State Route 89A. See Exhibit 2 Site Plan.

2. Type of Existing Roadway

The existing roadway configuration within 500 feet of the project includes 6 roadways. State Route 89A (SR 89A) is the major arterial with the remaining 5 roads connected through a “tee” intersection with 89A. Oak Creek Boulevard, Birch Boulevard and Willow Way connect from the south side of SR 89A and Posse Ground Road and Traumeri connect from the north side. All roadway intersections are staggered between north and south streets.

Table 1. Existing Transportation Facilities

Roadway	Classification	Posted Speed (mph)	Sidewalk	Bike Lanes	On-Street Parking
<i>State Route 89A</i>	<i>Major Arterial</i>	35	<i>Yes</i>	<i>Yes</i>	<i>No</i>
<i>Posse Ground Rd.</i>	<i>Minor Collector</i>	25	<i>Yes (partial)</i>	<i>No</i>	<i>Yes</i>
<i>Oak Creek Blvd.</i>	<i>Minor Collector</i>	25	<i>Yes (partial)</i>	<i>No</i>	<i>Yes</i>
<i>Birch Blvd.</i>	<i>Minor Collector</i>	25	<i>No</i>	<i>No</i>	<i>Yes</i>
<i>Willow Way</i>	<i>Minor Collector</i>	25	<i>No</i>	<i>No</i>	<i>Yes</i>
<i>Traumeri Lane</i>	<i>Private Road</i>	<i>Un-posted (15-20)</i>	<i>No</i>	<i>No</i>	<i>Yes</i>

See Exhibit 3 for configuration and location of the existing roadway systems.

3. Existing Roadway Geometrics

Table 2. Existing Roadway Geometrics, Controls & Condition

Roadway	ROW (feet)	Lanes Widths	Road Condition	Traffic Control	Available Stopping Distance	Required Stopping Distance
<i>State Route 89A</i>	<i>130</i>	<i>12</i>	<i>Excellent</i>	<i>No</i>	<i>500'+</i>	<i>250'</i>
<i>Posse Ground Rd.</i>	<i>50</i>	<i>12</i>	<i>Good</i>	<i>No</i>	<i>500'+</i>	<i>155'</i>
<i>Oak Creek Blvd.</i>	<i>50</i>	<i>12</i>	<i>Good</i>	<i>No</i>	<i>500'+</i>	<i>155'</i>
<i>Birch Blvd.</i>	<i>40</i>	<i>12</i>	<i>Good</i>	<i>No</i>	<i>500'+</i>	<i>155'</i>
<i>Willow Way</i>	<i>40</i>	<i>12</i>	<i>Good</i>	<i>No</i>	<i>500'+</i>	<i>155'</i>
<i>Traumeri Lane</i>	<i>None</i>	<i>Varies</i>	<i>Fair/Poor</i>	<i>No</i>	<i>170'</i>	<i>115'</i>

**Centerline spacing between intersections varies from 196 to 310 feet*

4. Existing Type and Condition

See Table 2.

5. Existing Traffic Controls

See Table 2.

6. Available and Required Stopping Distances

See Table 2.

7. Adjacent Intersection and Roadway Access Point

The area near Posse Ground Road has 5 road intersections with SR 89A and 6 commercial driveway entries onto SR 89A. The aerial photographic base in Exhibit 3 illustrates the location of the roadway and driveway entries.

Access onto Posse Ground Road is limited to a full parking lot access at the Animal Clinic immediately adjacent the 15/20 Plaza project site.

8. Data Resources

The following resources were cited or utilized in the preparation of this study:

- Chapter 14.10, Traffic Impact Study, Sedona City Code, 2013
- Soldier Pass Traffic Study - Final, City of Sedona 2005
- Trip Generation Manual, 7th Edition, Institute of Transportation Engineers (ITE)
- Arizona Department of Transportation, Traffic Engineering Policies, Guidelines and Procedures, Section 245, Turn Lane Warrants
- American Association of State Highway and Transportation Officials (AASHTO) Road Design Manual, 2011

B. Traffic Characteristics

1. Existing Annual Average Daily Traffic

See Table 3 for existing average traffic.

2. Existing Vehicle Classifications

Historical existing vehicle classifications were available for the City of Sedona for Posse Ground from SR89A to Pueblo Trail. Cars and smaller two axle trucks were the majority of the traffic comprising 94.8 percent of the overall flow. Heavier 6 tire and 3 axle trucks and buses made up 4.8 percent of the flow and the remainder of flow were comprised of bike traffic. The 2010 classification records for Posse Ground Road are provided in the Appendix.

3. Existing Pedestrian and Bicycle Activity

Existing pedestrian and bicycle activity is prevalent along the sidewalks of SR 89A. Limited information was available on pedestrian activity on Posse Ground Road; however, we anticipate the majority of the flow to be comprised of local residents who occupy the residential neighborhoods to the north. Tourist pedestrian traffic is generally confined to the commercial businesses along SR 89A. Pedestrian traffic is not expected to be a factor in the operation of the intersection with all traffic crossing the street at the stop sign at SR 89A. An hourly average of 32 bikes was recorded as part of the 2010 classification records for Posse Ground Road.

4. Existing Peak Hour Turning Maneuvers

Traffic turning movements and counts were performed for this study on January 7, 2014 for Posse Ground Road, SR 89A eastbound and SR 89A westbound at the intersection. Results, prepared by Field Data Services of Arizona are provided in the Appendix. The West Sedona School confirmed that school was in session during the field counts. Traffic counts and movements are as summarized below:

Table 3. Existing Traffic Activity

<i>Location</i>	<i>Total Weekday Volume</i>	<i>Weekday AM Peak Hour</i>	<i>Weekday PM Peak Hour</i>
<i>Posse Ground Northbound</i>	<i>684</i>	<i>151</i>	<i>94</i>
<i>Posse Ground Southbound</i>	<i>888</i>	<i>187</i>	<i>163</i>
<i>SR 89A East Leg Westbound</i>	<i>12075</i>	<i>1014</i>	<i>1155</i>
<i>SR 89A East Leg Eastbound</i>	<i>12038</i>	<i>1042</i>	<i>1129</i>
<i>SR 89A West Leg Westbound</i>	<i>11847</i>	<i>942</i>	<i>1137</i>
<i>SR 89A West Leg Eastbound</i>	<i>12159</i>	<i>1068</i>	<i>1128</i>

Source: Field Data Services of Arizona, recorded January 7, 2014

The existing live counts for SR 89A were also provided by Mr. John Fought, ADOT on January 7, 2014 were 12,287 westbound and 12,148 eastbound for flow between Airport Road and Soldier Pass Road. The total counts correlate to the field counts taken the same day considering variations which can be expected from multiple street intersections and businesses in this corridor.

Turning movements were derived from the Soldier Pass Traffic Study which documented a split of 20 left hand and 83 right hand turning movements per hour at the intersection (19/81 split). Land use characteristics in the area are similar to 2005 conditions with limited commercial access and majority of area comprised of residential land use. The split would be expected with the availability of signalized intersections at either Soldier Pass Road to the east or Mountain Shadows Drive to the west to more easily complete a left hand turn onto SR 89A. A similar split on the proposed and combined southbound turning movements of Posse Ground Road was used for this study. Data traffic volume data relevant to the Posse Ground Road intersection from the Soldier Pass Traffic Study is provided in the Appendix.

Turning movement calculations for the SR 89A eastbound left and westbound right directions also used ratios derived from the Soldier Pass Traffic Study with 58 left hand and 21 right hand turns (73/27 split). Recorded movements are provided in Table 4.

Table 4. Existing Turning Movements

<i>Turning Movement</i>	<i>Movement Split (%)</i>	<i>Weekday AM Peak Hour</i>
<i>Posse Ground Southbound Right Turn</i>	<i>81</i>	<i>151</i>
<i>Posse Ground Southbound Left Turn</i>	<i>19</i>	<i>36</i>
<i>SR 89A Left Turn North</i>	<i>73</i>	<i>137</i>
<i>SR 89A Right Turn North</i>	<i>27</i>	<i>43</i>
<i>SR 89A Thru Eastbound</i>	<i>100</i>	<i>1068</i>
<i>SR 89A Thru Westbound</i>	<i>100</i>	<i>1014</i>

Source: Soldier Pass Traffic Study

5. Existing Roadway or Intersection Capacity

The existing roadway capacity for Posse Ground Road was developed as part of the Soldier Pass Traffic Study for 2005 and 2025 based on no roadway improvements. Capacity of the southbound movement was reduced from 241 turning movements per hour to 177 turning movements. Left turn movements onto Posse Ground Road reduced from 346 vehicles per hour (vph) to 197 vph in 2025. Capacities of the each through lane on SR 89A were set at 1700 vph.

6. Existing Roadway or Intersection Level of Service

Posse Ground Road intersects SR 89A at the approximate mid-point between two signalized intersections. ADOT has performed prior analysis of SR 89A as part of the Soldier Pass Traffic Study. The southbound peak hour intersection was determined to be operating at a LOS D in 2005. Projections in the Soldier Pass Traffic Study also projected this intersection would be operating at a LOS F. A re-analysis of the highway operating LOS can be extensive due to the number of intersections and activities which access the highway segment, and the current activity provides minimal traffic counts to merit a new analysis. Current traffic count comparisons of the raw field data from the Soldier Pass Traffic Study and the current field counts show nominal changes or reductions in traffic counts and we have estimated the current intersection to be operating at LOS D.

7. Three Years of Historical Accident Data

Three years of traffic accident records were researched by the City of Sedona Police Department. No accidents were recorded at the intersection of Posse Ground Road and SR 89A. Four accidents were recorded at the intersection of Oak Creek Boulevard and SR 89A. Researched records are provided in the Appendix.

8. Existing and Likely Pedestrian and Vehicular Traffic Patterns

Observed pedestrian traffic is dominant along SR 89A as most businesses and shopping opportunities in Sedona are located adjacent the highway. An animal clinic is accessible from Posse Ground Road north of SR 89A. We anticipate the pedestrian traffic associated with pedestrian bringing pets to the clinic will be unlikely. Other pedestrian destinations and generators include residences, elementary school and Municipal Park. Limited pedestrian weekday commuting is anticipated from the school due to the availability of bus transport. The majority of pedestrian traffic on Posse Ground Road is anticipated to be associated with residences located near the site and recreational joggers and walkers. Traffic patterns associated with these individuals will be to and from SR 89A to an interior portion of the subdivisions or the community park.

Existing vehicular traffic patterns appear dominated by school traffic and access to residential neighborhoods. Except for an animal clinic on Posse Ground, no other commercial traffic generators were observed. Traffic movements onto SR 89A are dominated by right hand turns.

C. Speed Characteristics

1. Prevailing 85th Percentile Speed

Posse Ground Road is an uninterrupted, free flowing road from SR89A to Mission Road, a distance of approximately ¼ mile. Traffic operates at mid-block speed at the speed limit of 25 MPH. Based on Chapter 15 of the Highway Capacity Manual 2010, the speed break point will place this road at a LOS A.

2. Posted Speed Limits

Posted speed limits are provided for each of the 5 public roadways in Table 1. No posting was observed on Traumeri Lane, a private road.

D. Existing Traffic Controls

1. Passive Controls

The intersections of all 4 public side streets with SR 89A are controlled with stop signs and stop bars. No passive controls were present at the intersection of Traumeri Lane. Traumeri Lane shares its access to SR89A with the west driveway entry of the Ace Hardware Store and intersection is constructed as a driveway entry. Street intersections signs are present at all intersections.

2. Active Controls

No active controls are present at the intersections or approaches.

3. Lighting

No street lighting is provided at the intersections.

4. Crosswalks

No designated crosswalks are marked at the public street intersections. A concrete sidewalk crosses Traumeri Lane which is constructed as a business driveway entry.

5. Bicycle Paths or Lanes

Bike lanes are present on both sides of SR 89A. The remaining side streets and entries do not have designated lanes.

E. Traffic Generator Characteristics

1. Description of Traffic Generator

The 15/20 Plaza Development is comprised of a double building complex which is proposed to accommodate three commercial uses. The Institute of Transportation Engineers (ITE) Trip Generation Rates, 7th Edition, Volume 3, was referenced to determine the trip generator classification and the forecasted average and peak generation from the individual activities. Generator classifications were assigned as follows:

- Medical/Dental (ITE Code 720 Medical-Dental Office Building)
- Retail (ITE Code 814 Special Retail Center)
- Food/Restaurant (ITE Code 932 High Turnover Restaurant)

2. Gross Land Area of Traffic Generator

The 15/20 Plaza development is located on 0.43 acres of land.

3. Square Feet of Commercial Building Space

Medical/Dental Offices will occupy Building No. 1 and comprise 1680 square feet. Retail shop of 1280 square feet and Food/Restaurant use of 1800 square feet will occupy Building No. 2.

4. Number of Commercial Parking Spaces

Total number of commercial parking spaces is 28 which include 2 handicapped spaces.

5. Number of Dwelling Units

No dwelling units are proposed.

6. Total Number of Trips per Day Anticipated

See Table 5

7. Number of Weekday Peak Hour Trips

See Table 5

8. Number of Weekend Peak Hour Trips

See Table 5

Table 5. Proposed Project Traffic Generation

Generator	Time Period	ITE Class (Ref. Page)	Trips Inbound	Trips Outbound	Total Trips
Medical/Dental ITE Class 720 1,680 SF	Avg. Weekday	(pg. 1190)	21.949	21.949	43.898
	AM Peak Hour Weekday	(pg. 1193)	4.03	2.07	6.10
	PM Peak Hour Weekday	(pg. 1194)	2.99	4.49	7.48
	Saturday Peak Hour	(pg. 1196)	3.48	2.62	6.10
	Sunday Peak Hour	(pg. 1197)	1.30	1.30	2.60
Retail ITE Class 814 1,200 SF	Avg. Weekday	(pg. 1338)	26.59	26.59	53.18
	AM Peak Hour Weekday	(pg. 1340)	3.94	4.26	8.20
	PM Peak Hour Weekday	(pg. 1341)	3.37	2.65	6.02
	Saturday Peak Hour	(pg. 1342)	27.23	27.23	54.46
	Sunday Peak Hour	(pg. 1343)	12.26	12.26	24.52
Food/Restaurant ITE Class 932 1,800 SF	Avg. Weekday	(pg. 1723)	114.75	114.75	229.5
	AM Peak Hour Weekday	(pg. 1726)	12.66	11.69	24.35
	PM Peak Hour Weekday	(pg. 1727)	18.61	15.23	33.84
	Saturday Peak Hour	(pg. 1729)	22.68	13.32	36.00
	Sunday Peak Hour	(pg. 1731)	18.28	14.95	33.23
Totals	Avg. Weekday		163.289	163.289	326.578
	AM Peak Hour Weekday		20.63	18.02	38.65
	PM Peak Hour Weekday		24.97	22.37	47.34

9. Anticipated Peak Hour Turning Movements

Anticipated peak hour turning movements from Posse Ground Road are forecasted to have a similar 81 right to 19 left split pattern already existing at this intersection. Traffic will utilize the intersection more for right hand movements and take advantage of the neighboring signalized intersections of Soldier Pass Road and Mountain Shadows Drive to perform left hand movements onto SR 89A. We expect this trend to strengthen as congestion increases on SR 89A, creating great delays in left turn movements.

Turning movement onto Posse Ground Road from SR 89A are expected to more evenly distributed as the commercial uses proposed for the site will serve the Sedona urban environment. The centralized location of the property supports the use of a 50/50 split in the right and left turning movements which approach the new activity from SR 89A.

Peak hour movements at this intersection are anticipated to be highest during weekdays as Posse Ground Road is one of several access roads which lead to West Sedona Elementary School, a major traffic generator in the area. Based on ITE traffic generation rate tables for Elementary School (520), the school can be expected to generate to generate the highest peak hour flow in the morning. The highest vehicular traffic flows recorded in the January 7th field study were during the 7:30 AM to 8:00 AM period which corresponds to the start of school. Combined turning movements for peak hour were anticipated to be highest during the weekday AM period. Right turn movements from SR 89A to Posse Ground are free flowing, enabling this movement to work efficiently at the intersection.

New project traffic movements for peak hour weekday conditions are illustrated on Exhibit 5. Exhibit 6 illustrates the combined movements form both the existing and new project traffic movements.

10. Volume and Direction of Anticipated Pedestrian and Bicycle Traffic

The majority of the pedestrian and bicycle traffic is anticipated to be from SR 89A which has both tourist and local resident traffic. Posse Ground Road has existing limited bike traffic and the new project is anticipated to result in a 13 to 17 percent increase in peak hour movements at the SR 89A intersection. Based on the existing 32 bikes per day recorded for the Posse Ground Road, peak hour increase in bike traffic from the new project is negligible.

Pedestrian traffic is not anticipated to make the new commercial uses a destination point and background pedestrian traffic is anticipated to remain similar to existing conditions. No accidents with pedestrian or bike traffic have been recorded at the intersection in the past three years.

11. Description of Vehicle Classifications Anticipated

Anticipated vehicle classifications are similar to those recorded in 2010. The majority of the additional traffic to the Plaza is anticipated to utilize SR 89A and limited changes are expected in traffic counts further north on Posse Ground Road.

12. Level of Service (LOS of Roadway or Intersection)

The Level of Service at the Posse Ground and SR 89A intersection has been reviewed by the Soldier Pass Traffic Study dated 2005. The Study determined that the intersection was operating with a LOS D. Southbound volumes are anticipated to be double the volumes analyzed in the Soldier Pass Traffic Study and LOS can be expected to degrade to a LOS E or F.

13. Pedestrian Generation and Traffic Patterns

Post project development pedestrian traffic is anticipated to have similar flow patterns to those existing near the project. The commercial uses proposed are anticipated to draw some pedestrian traffic from the SR 89A sidewalk corridor as the project location is

immediately adjacent SR 89A. This pedestrian access is anticipated to also leave through the SR 89A route. Minor increases in pedestrian traffic generation can also be anticipated due to the convenience of having new commercial uses adjacent a residential neighborhood. Pedestrian traffic pattern associated with the residential users will be from the north.

Projected vehicular traffic patterns are also anticipated to be similar to the existing conditions with school traffic dominating the peak hour movements. Access to the 15/20 Plaza is expected to use SR 89A as the primary access to the site. As traffic continues to become more congested on SR 89A, some traffic outbound may eventually divert to side streets to access controlled intersections at Soldier Pass Road or Mountain Shadows Drive.

F. Summary

1. Pertinent Discussion

The Posse Ground Road and SR 89A intersection were part of several preferred alternative discussions presented in the Soldier Pass Traffic Study. These discussions included:

a. Javelina Alternative

The Posse Ground Road and SR 89A was topic of a potential roundabout installation as part of the “Javelina” alternative plan presented in the Soldier Pass Traffic Study. The alternative proposed the installation of three roundabout structures at the intersection of Posse Ground Road, Soldier Pass Road and Airport Road. Since the conclusion of the study, improvements have been to SR 89A including the installation of a new signal at Airport Road, maintaining the Soldier Pass Road signal. The proposed roundabout at Posse Ground was offset to coincide with Birch Boulevard to the south and the KFC driveway on the north. Posse Ground Road would have been realigned to the east as it approached SR 89A. The realignment would have required a significant right of way taking which would have rendered the 15/20 Plaza project site unusable for commercial development.

b. Coyote Alternative

The Coyote Alternative proposed the installation of a new signal at Saddlerock Circle and Airport Road and the removal of the signal at Soldiers Pass Road. The proposal also included the restriction of movements at the intersections to Posse Ground Road and Soldier Pass Road to right-in and right-out turning movements.

c. Jackrabbit Alternative

The Jackrabbit Alternative had no impact on the Posse Ground Road intersection with all of the proposed improvements being considered for the Soldier Pass Road, Airport Road and Saddlerock Road intersections east of Posse Ground Road.

Neither the City of Sedona nor ADOT have any current plans to improve the Posse Ground intersection to a controlled intersection or roundabout. Improvements which have been supported from the Soldier Pass Traffic Study had been limited to the construction of a signalized intersection at Airport Road. The right-in/right-out proposal also received no public support and is not being pursued at this time.

2. Results of Analysis

Results of the traffic analysis indicated the new project will increase total traffic volume and peak hour movements at the Posse Ground Road and SR 89A intersection incrementally. Peak hour AM weekday movements were reviewed as these coincided with the dominant traffic volumes being generated by the Sedona West Elementary

School. Exhibits 4, 5 and 6 illustrate the existing, new and combined traffic volumes and movements for the intersection.

The ADOT Traffic Engineering Policies, Guidelines and Procedures (PGP), Section 245, Turn Lane Warrants was referenced to determine the need for a right turn lane from SR 89A to Posse Ground Road. A minimum peak hour right-turn warrant volume of 18 movements per hour was determined based on 2 thru lanes with an advancing volume of between 1001 and 1100. The existing baseline conditions at the intersection already warrant a right turn lane on SR 89A.

A similar reference to PGP Section 245 was performed for left hand movements. A left turn warrant was determined based on a minimum of 10 peak hour left turn movements. The existing center lane provides for left turn traffic movements from SR 89A to Posse Ground Road and no left lane improvements are proposed.

Right turn movements from Posse Ground Road to SR 89A are project to reach 169 vehicles per hour during peak AM hours. Right hand turning movements will be constrained by vehicles queued for the left hand turn. Left hand turning movements are projected to reach 41 vehicles per hour. The 15/20 Plaza Site Plan illustrates an entry and exit driveway for the project. The exit drive closest to SR 89A is approximately 120 feet from the intersection, enabling up to a maximum of 5 cars to be queued for the left hand turn without obstructing the driveway exit.

3. Recommendations

Recommendations for the Posse Ground Road intersection include installation of a new right hand turn lane on SR 89A. The right hand turn warrant is already met with the existing traffic volume and is recommended whether the 15/20 Plaza occurs or not.

The right hand turn lane would extend from the existing termination in front of the KFC driveway and be extended to the Posse Ground Road. Adequate right-of-way (ROW) is available for the extension; however, utilities and utility cabinets on the north side of the ROW will require relocation. The estimated length of the extension is 140 feet. Existing taper and approach distances would be utilized in front of the KFC drive-in. The right turn extension would include a bicycle lane to aligning with those east and west of the Posse Ground Road intersection.

An additional proposed improvement is the widening of Posse Ground Road for a dedicated left hand turn lane on the approach to SR 89A. The lane length is proposed at 100 feet to enable exiting vehicles from the 15/20 Plaza to execute a left hand turn onto Posse Ground Road without conflict with the proposed Posse Ground turn lane queue. Additional ROW will be required on the west side of the Posse Ground Road to enable the addition of the lane.

Appendix A

Exhibits

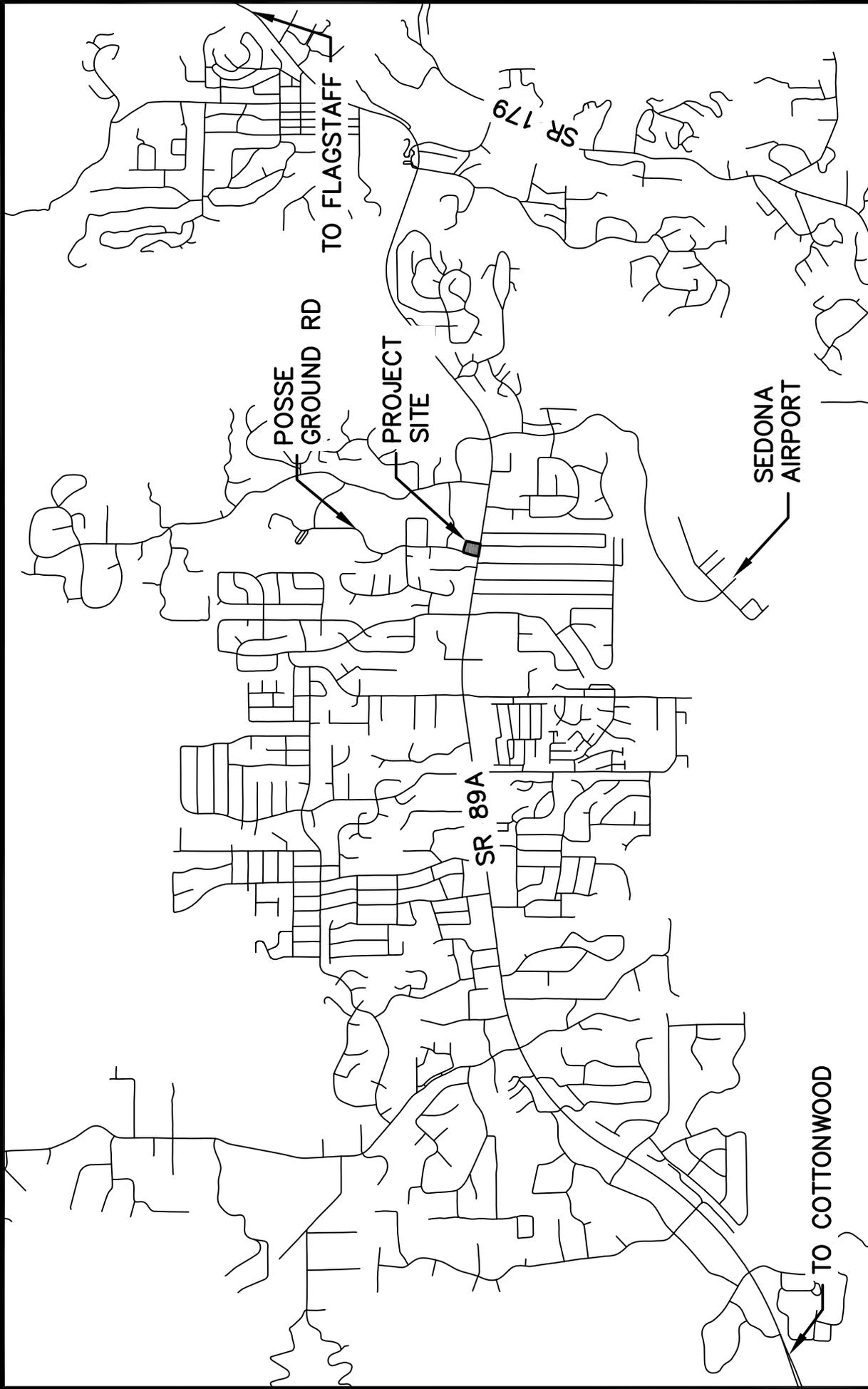
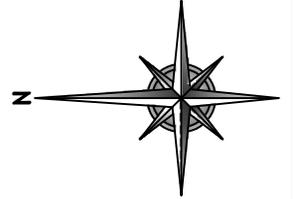


EXHIBIT 1
 TRAFFIC IMPACT ANALYSIS
 15/20 PLAZA



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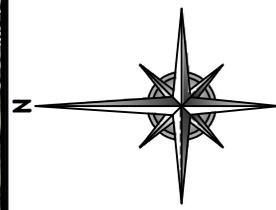
DATE: 1/23/2014

BY: T.J.L

PAGE: 1 OF 1



EXHIBIT 3
ROADWAY LOCATIONS
15/20 PLAZA



SCALE: 1" = 100'

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PREPARED FOR: MUSSA AND ASSOCIATES	GBE JOB #: 13108 DATE: 1/21/2014	BY: T.J.L PAGE: 1 OF 1
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Exhibit 4
Existing Background Traffic Movements



Exhibit 5
Site Generated Traffic Movements



Exhibit 6
Total Traffic Movements

Appendix B Traffic Classification

Traffic Counts

Description 1 : Posse Ground Road
 Description 2 : Pueblo Trail
 Description 3 : City of Sedona

Site: SEGID1335
 Thursday, 3/25/2010 1:00 PM -
 Thursday, 4/1/2010 1:00 PM

Classification Grand Totals

Interval Start	Total	Bike	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	Hourly Averages							
							Near lane flow							
							3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi
12:00 AM	0.4	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 AM	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 AM	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 AM	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 AM	1.6	0.0	1.3	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 AM	1.3	0.0	1.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 AM	4.3	0.0	2.6	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 AM	18.1	0.0	12.4	4.9	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 AM	83.7	0.1	56.3	24.9	0.4	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 AM	26.4	0.1	18.1	5.7	0.0	2.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 AM	28.1	0.1	18.6	7.3	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 AM	31.0	0.1	22.4	7.0	0.0	1.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12:00 PM	28.9	0.1	21.0	6.0	0.1	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 PM	26.4	0.1	18.1	6.1	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 PM	49.1	0.1	35.7	10.1	0.9	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 PM	51.1	0.7	36.7	11.1	0.9	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 PM	47.4	0.1	34.3	10.9	0.1	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 PM	43.7	0.3	34.0	7.9	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 PM	43.9	0.4	32.0	10.3	0.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 PM	21.3	0.0	16.7	4.1	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 PM	6.7	0.0	5.1	1.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 PM	5.3	0.0	3.0	2.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 PM	1.4	0.0	1.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 PM	1.3	0.0	1.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Average	522.3	2.6	372.7	122.3	2.6	21.3	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Study Grand Totals

	Total	Bike	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi
Near lane flow	3656	18	2609	856	18	149	6	0	0	0	0	0	0	0
		0.5 %	71.4 %	23.4 %	0.5 %	4.1 %	0.2 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %

Classification Grand Totals

Hourly Averages

Far lane flow

Interval Start	Total	Bike	Cars & Trailers	2 Axle Long	Buses	2 Axle Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi
12:00 AM	0.4	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 AM	0.6	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 AM	0.6	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 AM	0.6	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 AM	1.0	0.0	0.7	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 AM	2.3	0.0	1.3	0.0	0.0	0.4	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 AM	16.6	0.4	10.0	4.6	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 AM	32.3	0.0	23.0	8.3	0.0	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 AM	86.7	0.3	57.3	25.7	0.9	2.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
9:00 AM	22.6	0.1	16.6	4.3	0.1	1.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 AM	20.4	0.0	15.4	3.4	0.0	1.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 AM	29.3	0.1	22.0	4.6	0.0	2.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12:00 PM	32.4	0.4	24.6	5.0	0.3	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 PM	27.7	0.1	19.7	6.1	0.1	1.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 PM	42.6	0.0	33.1	8.3	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 PM	47.6	0.0	34.3	10.9	0.1	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 PM	43.7	0.1	32.6	9.1	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 PM	47.1	0.1	35.3	10.3	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 PM	30.3	0.1	24.6	4.9	0.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 PM	13.3	0.0	11.1	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 PM	6.0	0.0	5.3	0.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 PM	3.9	0.0	3.1	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 PM	3.6	0.0	3.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 PM	0.9	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Average	512.3	2.0	375.9	109.6	1.7	21.4	1.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0

Study Grand Totals

Far lane flow	Total	Bike	Cars & Trailers	2 Axle Long	Buses	2 Axle Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi
Far lane flow	3586	14 0.4 %	2631 73.4 %	767 21.4 %	12 0.3 %	150 4.2 %	11 0.3 %	1 0.0 %	0 0.0 %	0 0.0 %	0 0.0 %	0 0.0 %	0 0.0 %	0 0.0 %

Classification Grand Totals

Interval Start	Total	Bike	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	Hourly Averages Combined									
							3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi		
12:00 AM	0.9	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 AM	0.9	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 AM	0.7	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 AM	0.9	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 AM	2.6	0.0	2.0	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 AM	3.6	0.0	2.4	0.0	0.0	0.4	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 AM	20.9	0.4	12.6	6.3	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 AM	50.4	0.0	35.4	13.1	0.0	1.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 AM	170.4	0.4	113.6	50.6	1.3	4.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 AM	49.0	0.3	34.7	10.0	0.1	3.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 AM	48.6	0.1	34.0	10.7	0.0	3.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 AM	60.3	0.3	44.4	11.6	0.0	3.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12:00 PM	61.3	0.6	45.6	11.0	0.4	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 PM	54.1	0.3	37.9	12.3	0.1	3.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 PM	91.7	0.1	68.9	18.4	0.9	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 PM	98.7	0.7	71.0	22.0	1.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 PM	91.1	0.3	66.9	20.0	0.1	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 PM	90.9	0.4	69.3	18.1	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 PM	74.1	0.6	56.6	15.1	0.3	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 PM	34.6	0.0	27.9	6.3	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 PM	12.7	0.0	10.4	1.9	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 PM	9.1	0.0	6.1	2.9	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 PM	5.0	0.0	4.1	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 PM	2.1	0.0	1.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Average	1034.6	4.6	748.6	231.9	4.3	42.7	2.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Study Grand Totals

	Total	Bike	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi
Combined	7242	32	5240	1623	30	299	17	1	0	0	0	0	0	0
		0.4 %	72.4 %	22.4 %	0.4 %	4.1 %	0.2 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
Near lane flow	3656	18	2609	856	18	149	6	0	0	0	0	0	0	0
		0.5 %	71.4 %	23.4 %	0.5 %	4.1 %	0.2 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
Far lane flow	3586	14	2631	767	12	150	11	1	0	0	0	0	0	0
		0.4 %	73.4 %	21.4 %	0.3 %	4.2 %	0.3 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %

Appendix C Traffic Counts

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Tuesday, January 07, 2014

City: Sedona

Project #: 14-1008-001

Location: Posse Ground Rd. north of SR-89A

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB
00:00	0	0			12:00	11	9		
00:15	0	0			12:15	6	8		
00:30	0	0			12:30	7	16		
00:45	0	0	0	0	12:45	8	32	4	37
01:00	0	0			13:00	9	5		
01:15	0	0			13:15	12	19		
01:30	0	0			13:30	11	8		
01:45	0	0	0	0	13:45	5	37	4	36
02:00	0	0			14:00	13	19		
02:15	0	0			14:15	15	13		
02:30	0	0			14:30	19	13		
02:45	0	0	0	0	14:45	22	69	47	92
03:00	0	0			15:00	27	49		
03:15	0	0			15:15	26	26		
03:30	0	1			15:30	14	41		
03:45	0	0	0	1	15:45	21	88	28	144
04:00	0	0			16:00	20	17		
04:15	0	0			16:15	11	15		
04:30	0	0			16:30	17	20		
04:45	0	0	1	1	16:45	14	62	11	63
05:00	1	0			17:00	9	23		
05:15	0	1			17:15	8	9		
05:30	0	1			17:30	14	14		
05:45	0	1	0	2	17:45	9	40	24	70
06:00	3	1			18:00	13	15		
06:15	0	3			18:15	11	8		
06:30	5	3			18:30	4	21		
06:45	5	13	1	8	18:45	7	35	3	47
07:00	17	21			19:00	5	4		
07:15	7	8			19:15	1	3		
07:30	33	14			19:30	3	0		
07:45	51	108	52	95	19:45	1	10	1	8
08:00	49	66			20:00	1	2		
08:15	18	49			20:15	1	1		
08:30	17	20			20:30	4	1		
08:45	5	89	23	158	20:45	1	7	2	6
09:00	4	4			21:00	0	1		
09:15	6	7			21:15	1	8		
09:30	10	6			21:30	0	1		
09:45	4	24	8	25	21:45	2	3	1	11
10:00	6	8			22:00	0	0		
10:15	6	11			22:15	1	0		
10:30	10	9			22:30	0	0		
10:45	12	34	10	38	22:45	0	1	0	0
11:00	11	17			23:00	0	0		
11:15	5	12			23:15	1	0		
11:30	6	7			23:30	0	0		
11:45	8	30	10	46	23:45	0	1	0	0

Total Vol. 299 374 **673** 385 514 **899**

GPS Coordinates:

	Daily Totals				Combined
	NB	SB	EB	WB	
AM	684	888			1572
PM	42.8%	57.2%			57.2%

Split %	44.4%	55.6%	42.8%	42.8%	57.2%	57.2%
Peak Hour	07:30	07:45	07:30	14:30	14:45	14:45
Volume	151	187	332	94	163	252
P.H.F.	0.74	0.71	0.72	0.87	0.83	0.83

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Tuesday, January 07, 2014

City: Sedona

Project #: 14-1008-002

Location: SR-89A east of Posse Ground Rd.

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
00:00			4	5	12:00			256	241			
00:15			6	8	12:15			254	258			
00:30			5	6	12:30			253	252			
00:45			5	20	7	26	46	239	1002	244	995	1997
01:00			12	12	13:00			288	260			
01:15			2	4	13:15			295	257			
01:30			3	6	13:30			277	272			
01:45			3	20	5	27	47	269	1129	276	1065	2194
02:00			2	5	14:00			259	280			
02:15			2	2	14:15			273	276			
02:30			1	4	14:30			245	315			
02:45			5	10	1	12	22	266	1043	284	1155	2198
03:00			2	1	15:00			267	262			
03:15			1	4	15:15			264	279			
03:30			5	3	15:30			246	298			
03:45			3	11	4	12	23	251	1028	271	1110	2138
04:00			2	1	16:00			259	297			
04:15			6	4	16:15			246	269			
04:30			6	2	16:30			258	257			
04:45			13	27	9	16	43	263	1026	279	1102	2128
05:00			10	6	17:00			250	243			
05:15			16	9	17:15			257	234			
05:30			33	9	17:30			200	223			
05:45			32	91	15	39	130	185	892	200	900	1792
06:00			33	29	18:00			152	201			
06:15			55	22	18:15			140	149			
06:30			76	41	18:30			130	149			
06:45			73	237	53	145	382	105	527	132	631	1158
07:00			86	67	19:00			75	107			
07:15			121	130	19:15			70	88			
07:30			210	178	19:30			84	96			
07:45			198	615	157	532	1147	85	314	82	373	687
08:00			191	134	20:00			65	66			
08:15			188	166	20:15			70	61			
08:30			176	193	20:30			58	59			
08:45			199	754	166	659	1413	63	256	69	255	511
09:00			180	176	21:00			84	69			
09:15			213	188	21:15			47	61			
09:30			248	212	21:30			43	56			
09:45			215	856	204	780	1636	32	206	58	244	450
10:00			202	211	22:00			20	37			
10:15			236	230	22:15			14	30			
10:30			237	233	22:30			21	30			
10:45			226	901	223	897	1798	16	71	23	120	191
11:00			211	201	23:00			5	17			
11:15			235	224	23:15			8	9			
11:30			285	263	23:30			6	10			
11:45			247	978	252	940	1918	5	24	4	40	64

Total Vol. 4520 4085 **8605** 7518 7990 **15508**

GPS Coordinates:

	Daily Totals					
	NB	SB	EB	WB	Combined	
			12038	12075	24113	
	AM		PM			
Split %	52.5%	47.5%	35.7%	48.5%	51.5%	64.3%
Peak Hour	11:30	11:30	11:30	13:00	14:00	14:00
Volume	1042	1014	2056	1129	1155	2198
P.H.F.	0.91	0.96	0.94	0.96	0.92	0.98

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Tuesday, January 07, 2014

City: Sedona

Project #: 14-1008-003

Location: SR-89A west of Posse Ground Rd.

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
00:00			4	7	12:00			263	232			
00:15			5	5	12:15			271	239			
00:30			6	5	12:30			264	261			
00:45			5	20	9	26	46	250	1048	227	959	2007
01:00			12	9	13:00			286	236			
01:15			3	3	13:15			300	249			
01:30			2	5	13:30			277	261			
01:45			4	21	4	21	42	265	1128	253	999	2127
02:00			2	4	14:00			257	262			
02:15			2	1	14:15			285	282			
02:30			1	3	14:30			243	294			
02:45			5	10	1	9	19	275	1060	288	1126	2186
03:00			2	2	15:00			276	262			
03:15			1	4	15:15			261	293			
03:30			4	2	15:30			259	282			
03:45			3	10	4	12	22	257	1053	260	1097	2150
04:00			2	1	16:00			265	274			
04:15			5	5	16:15			239	229			
04:30			6	3	16:30			271	247			
04:45			14	27	7	16	43	258	1033	258	1008	2041
05:00			10	7	17:00			245	223			
05:15			13	8	17:15			258	215			
05:30			33	17	17:30			204	206			
05:45			32	88	25	57	145	188	895	188	832	1727
06:00			33	37	18:00			153	196			
06:15			52	33	18:15			152	145			
06:30			77	47	18:30			124	150			
06:45			73	235	59	176	411	110	539	129	620	1159
07:00			89	92	19:00			76	114			
07:15			117	140	19:15			71	100			
07:30			210	183	19:30			83	102			
07:45			201	617	191	606	1223	88	318	82	398	716
08:00			199	192	20:00			64	85			
08:15			184	182	20:15			73	72			
08:30			176	185	20:30			59	78			
08:45			205	764	160	719	1483	61	257	85	320	577
09:00			181	157	21:00			87	77			
09:15			204	159	21:15			50	77			
09:30			253	182	21:30			41	69			
09:45			215	853	182	680	1533	32	210	61	284	494
10:00			206	189	22:00			21	57			
10:15			228	200	22:15			14	55			
10:30			236	207	22:30			21	48			
10:45			234	904	200	796	1700	17	73	48	208	281
11:00			203	191	23:00			5	40			
11:15			235	187	23:15			8	12			
11:30			287	227	23:30			6	6			
11:45			247	972	210	815	1787	5	24	5	63	87

Total Vol. 4521 3933 **8454** 7638 7914 **15552**

GPS Coordinates:

Daily Totals

NB	SB	EB	WB	Combined
		12159	11847	24006

AM

PM

Split %	53.5%	46.5%	35.2%	49.1%	50.9%	64.8%
Peak Hour	11:30	11:45	11:45	13:00	14:30	14:15
Volume	1068	942	1987	1128	1137	2205
P.H.F.	0.93	0.90	0.95	0.94	0.97	0.97

Appendix D

Soldier Pass Traffic Study

HCM Unsignalized Intersection Capacity Analysis Seasonally Adjusted 2005 Existing Volumes
 4: SR 89A & Posse Ground Timing Plan: PM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↕↕	↕↕		↕	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	58	1458	1472	19	18	78
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	58	1535	1600	21	20	83
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					(W) TL	
Median storage (veh)					1	
Upstream signal (ft)			1255			
pX, platoon unblocked	0.80				0.80	0.80
vC, conflicting volume	1521				2518	810
vC1, stage 1 conf vol					1610	
vC2, stage 2 conf vol					908	
vCu, unblocked vol	1526				2647	514
IC, single (s)	4.1				6.8	6.0
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
pD queue free %	83				78	80
cM capacity (veh/h)	318				89	405
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	58	792	792	1087	554	102
Volume Left	58	0	0	0	0	20
Volume Right	0	0	0	0	21	83
cSH	346	1700	1700	1700	1700	241
Volume to Capacity	0.17	0.47	0.47	0.63	0.33	0.42
Queue Length 95th (ft)	15	0	0	0	0	49
Control Delay (s)	17.5	0.0	0.0	0.0	0.0	20.4
Lane LOS	C					D
Approach Delay (s)	0.6			0.0		30.1
Approach LOS						C
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			56.4%		iCU Level of Service	B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
4: SR 89A & Passo Ground

No Build 2025
Timing Plan: PM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	70	1690	1710	30	20	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	1637	1658	33	22	58
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					TWLT	
Median storage (veh)					1	
Upstream signal (ft)			1256			
pX, platoon unblocked	0.59				0.50	0.59
vC, conflicting volume	1691				2548	946
vC1, stage 1 conf vol					1875	
vC2, stage 2 conf vol					1071	
vCu, unblocked vol	1815				3696	210
tC, single (s)	4.1				6.8	8.9
tC, 2 stage (s)					3.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	61				53	79
cM capacity (veh/h)	197				43	169
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	76	918	918	1239	652	120
Volume Left	76	0	0	0	0	22
Volume Right	0	0	0	0	33	98
cSH	197	1700	1700	1700	1700	177
Volume to Capacity	0.39	0.54	0.54	0.73	0.38	0.68
Queue length 95th (ft)	42	0	0	0	0	100
Control Delay (s)	34.4	0.0	0.0	0.0	0.0	59.8
Lane LOS	D					F
Approach Delay (s)	1.4			0.0		59.8
Approach LOS						F
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization			68.8%		ICU Level of Service	C
Analysis Period (min)			15			

```

*****
*
* 13:2108          09A and Posse Ground          17
*
*****
*
* E (m)  5.48  7.92  5.48  7.92      * TIME PERIOD  min  50
* L1 (m) 10.00 10.00 10.00 10.00     * TIME SLOW  min  15
* V (m)  3.66  7.32  3.66  7.32     * RESULTS PERIOD min 15 75
* RAD (m) 20.00 20.00 20.00 20.00    * TIME COST  $/hr 15.00
* PHI (d) 15.00 15.00 15.00 15.00    * FLOW PERIOD  min 15 75
* DIA (m) 40.00 40.00 40.00 40.00    * FLOW TYPE  veh/veh  VEH
* GRAD SEP  0  0  0  0                * FLOW PEEK  min/cg/pm  PM
*
*****
* LES NAME *PCU *FLOWS (1st exit 2nd etc...)*FLOF*CL* FLOW RATIO *FLOW TIME*
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* SB POSSE *1.02* 95  5  25  0      *1.00*50*0.75 1.125 0.75*15 45 75
* BR 99A   *1.02* 50 1840  0  0      *1.00*50*0.75 1.125 0.75*15 45 75
* ND BIRCH *1.02* 30  5  30  0      *1.00*50*0.75 1.125 0.75*15 45 75
* WL 99A   *1.02* 30 1750  30 30     *1.00*50*0.75 1.125 0.75*15 45 75
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*
* FLOW  veh  115  1010  65  1870      *
* CAPAC  veh  448  2260  985  2245      * ANDEL S  10.9
* AVE DELAY  mins  0.35  0.15  0.21  0.20      * L C S  B
* MAX DELAY  mins  0.60  0.26  0.37  0.36      * VEH HRS  11.7
* AVE Q.U.M.P  veh  1  5  0  6      * COST $ 175.7
* MAX QUEUE  veh  1  7  0  10
*
*****

```

Appendix E Traffic Accident History

Traffic Accidents for SR 89A

2011 - 2012 - 2013

Accident Number	Accident Type	Accident Date and Time	Accident Address Street Name	Accident Address Cross Street Name	Accident Manner Of Collision	Accident Total Injuries	Accident Total Units
20112319:	Non-Injury	2011/05/28 00:59:00:	89A	OAK CREEK	Single Vehicle	0	1
20113026:	Non-Injury	2011/07/03 10:21:00:	89A	OAK CREEK	Left Turn	0	2
20121709:	Injury	2012/03/27 15:48:00:	89A	OAK CREEK	Left Turn	1	2
20123631:	Injury	2012/06/25 10:00:00:	89A	OAK CREEK	Sideswipe (Same Direction)	1	2

: 4

1/9/2014 12:58:06 PM