

Date: October 24, 2023

Subject: Uptown Parking Alternatives Analysis



## Introduction

The City of Sedona is in the process of reviewing parking growth, limitations, and potential improvements throughout the high traffic area of Uptown. As part of this process seven options have been presented:

1. No new parking
2. New intercept parking lots
3. Surface Lot – Forest Road
4. New Garage – Forest Road
5. New Garage – Municipal Lot
6. Consolidation of Public Lots – Forest Road and Expansion
7. Garage + Consolidation of Public Lots

This memorandum is prepared as supplemental material in order to provide a wholistic analysis of the parking options.

For data collection, Kimley-Horn utilized the City's Streetlight data subscription to determine the existing traffic patterns of Uptown Sedona as they relate to parking alternatives. Streetlight uses cell phone data and connected vehicle data to provide additional traveler and trip characteristics than typical traffic counts would provide. Streetlight can summarize trip length, traveler type (visitor, resident, worker), and origin-destination volumes – all of which were used within this analysis.

Additionally, data such as traffic counts, trip generation and intersection level of service, was used from two recently completed traffic impact analysis': Forest Road Connection and the Forest Road Garage.

## Purpose

The purpose of this technical memorandum is to summarize Streetlight data and document the parking alternatives analysis, which includes:

- Summarizing vehicular traffic patterns in Uptown
- Determining the distribution of trips in Uptown
- Analyzing parking circulation patterns and any effects on traffic in Uptown
- Analyzing pedestrian travel patterns in Uptown

## Overview of Vehicle Traffic

Data collected from Streetlight provided an insight on vehicular traffic attributes and patterns in Uptown Sedona. Sedona is a tourist destination with a frequent high volume of vehicular and pedestrian traffic. A year's worth of data was compared by month split into weekday (Monday-Thursday) and weekend (Friday-Sunday) periods. The data was also divided between trips with an origin or destination in Uptown versus trips that only passed through Uptown. **Figure 1** provides the average daily traffic per month for a weekday identified as an origin-destination trip or a pass-through trip. **Figure 1** also provides the average daily traffic per month for a weekend identified as an origin destination trip or a pass-through trip.

Based on the data, the peak month for traffic during weekdays and weekends is March. Volumes in Uptown during a typical day in March are about 45,000 vehicles per day (vpd). The analysis of data also shows that trips ending and starting in Uptown are generally equivalent to the volume of pass-through traffic in Uptown. Average annual daily traffic in Uptown is approximately 32,000 vpd. March through July experience typical daily traffic higher than average on all days while February, August, September, and October experience typical daily traffic higher than average on weekends only. January, February, and September are the months with the highest volume discrepancy between weekdays and weekends,

**Figure 1** also shows the type of traveler that makes up average daily trips for each month. The majority of trips, approximately 75-80%, to/from Uptown Sedona are made up of visitor trips. 90-95% of trips travelling through Uptown are visitors.

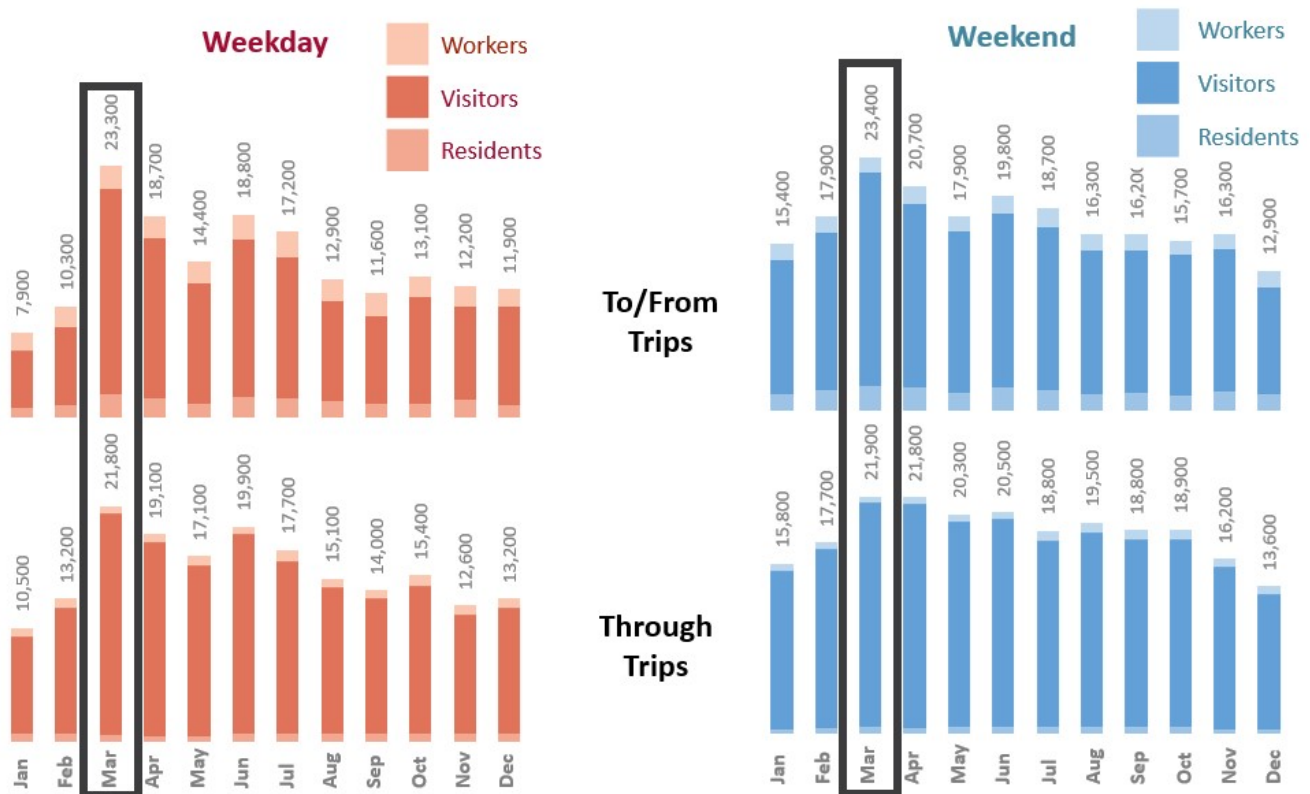


Figure 1 – Vehicle Trips in Uptown Summary

## Vehicular Traffic in Uptown

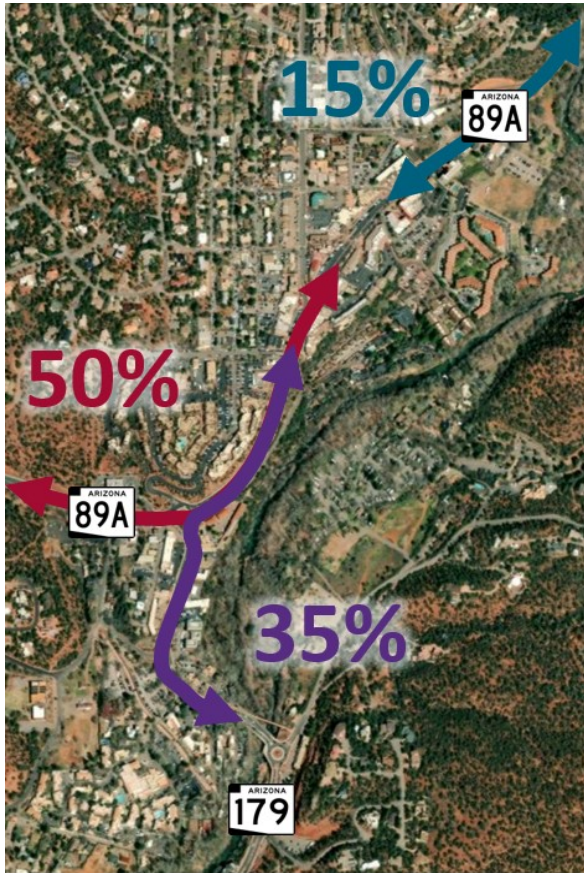


Figure 2 – Vehicle Trip Distribution

Trips by roadway segment were pulled from Streetlight data to determine the proportion of trips travelling north or south on State Route (SR) 179 into or out of Uptown, as well as east-west on SR 89A or north-south on SR 89A. As shown in **Figure 2**, 85% of trips are from the southwest, 50% on SR 89A and 35% on SR 179. The remaining 15% are travelling to/from the north on SR 89A.

The City is currently pursuing an extension of Forest Road that would connect west of the SR 179 intersection, alleviating some of that traffic within the “Y” roundabout at the intersection of SR 89A and SR 179. If parking is developed or expanded at the south or west end of Uptown it would capture a higher percentage of vehicular traffic as that is where most trips are originating from. Parking further north in Uptown only captures 15% of traffic that has not already traveled through Uptown.

As stated in the previous section, visitor trips start and end in Uptown and 90-95% of the pass-through trips. Of the 32,000 average annual vpd within Uptown Sedona approximately 26,000 vehicles are visitors.

As shown on **Figure 3**, about 13% of the trips are from areas 50-100+ miles away. As this data is only into and out of Uptown, it is assumed that a portion of the 47% of trips travelling from less than 5 miles away are visitors whose original trip was much further but are staying in Sedona outside of Uptown.

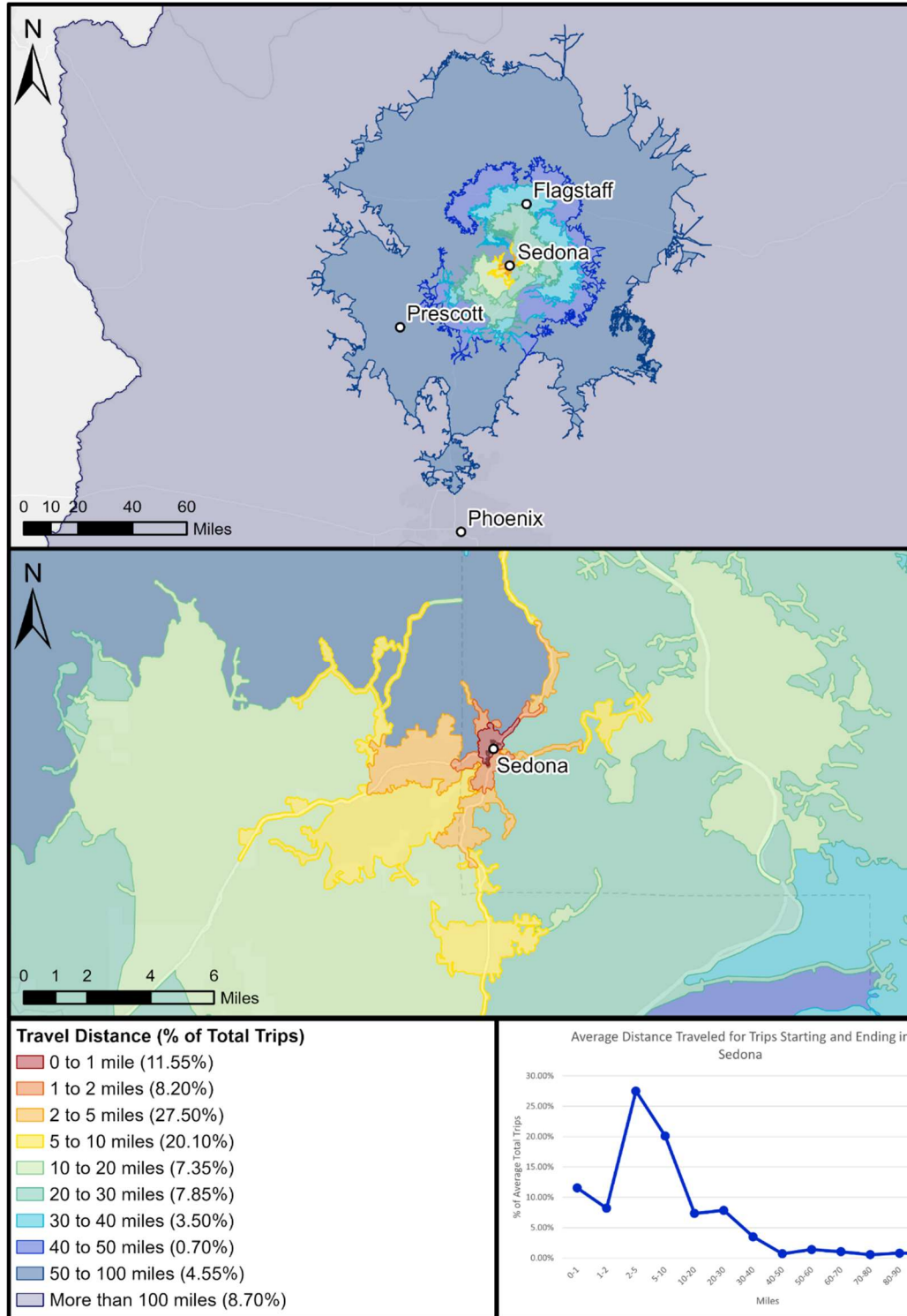


Figure 3 – Visitor Trip Distance



## Parking Circulation Patterns

Individual parking lots were configured as zones in Streetlight to analyze peak times hourly and determine how many trips were ending in the lots and how many trips were passing through. For this analysis three specific lots were chosen to analyze:

1. **Chipotle** – the large lot that serves Chipotle and other business south of Forest Road
2. **Tlaquepaque** – Tlaquepaque on the south end of the study area on SR 179
3. **Muni** – Municipal Lot 5 towards the north end of the study area

The Chipotle lot was chosen as it is often congested and experiences high turnover throughout the day. It’s anticipated to be a good example of smaller commercial lots serving specific commercial hubs. Tlaquepaque was chosen both because of its location on the south end of the study area but also because it is anticipated to represent a well-known lot with limited parking – similar to many of the public lots further north in the study area. The Municipal lot was selected because it is at the northern end of Uptown and is anticipated to have lower turnover than either the Chipotle or Tlaquepaque lots.

**Table 1** summarizes the pass-through volumes for the peak hour in each of the analysis lots as well as the trip end volumes. Streetlight classifies a trip end as a trip that enters the zone and then stops moving for at least five minutes. A pass-through trip is classified as a vehicle that enters the zone but does not stop moving or only stops for less than five minutes. For this analysis (*March 2023 data*) it is assumed that trip end volumes are vehicles that are able to enter the lot and park while pass-through trips are circulating cars that do not park.

**Table 1 – Peak Hour Parking Lot Pass-Through and Trip End**

	Lot	Inventory	Peak Pass-Through Hour	Pass-Through Volume	Trip End Volumes	Ratio of Pass Through/ Trip End
All Days	Chipotle	187	1-2 pm	288	81	<b>3.56</b>
	Tlaquepaque	110	12-1 pm	114	54	<b>2.11</b>
	Muni	138	1-2 pm	48	44	<b>1.09</b>
Weekend	Chipotle	187	12-1 pm	277	73	<b>3.79</b>
	Tlaquepaque	110	1-2 pm	167	58	<b>2.88</b>
	Muni	138	12-1 pm	35	58	<b>0.60</b>

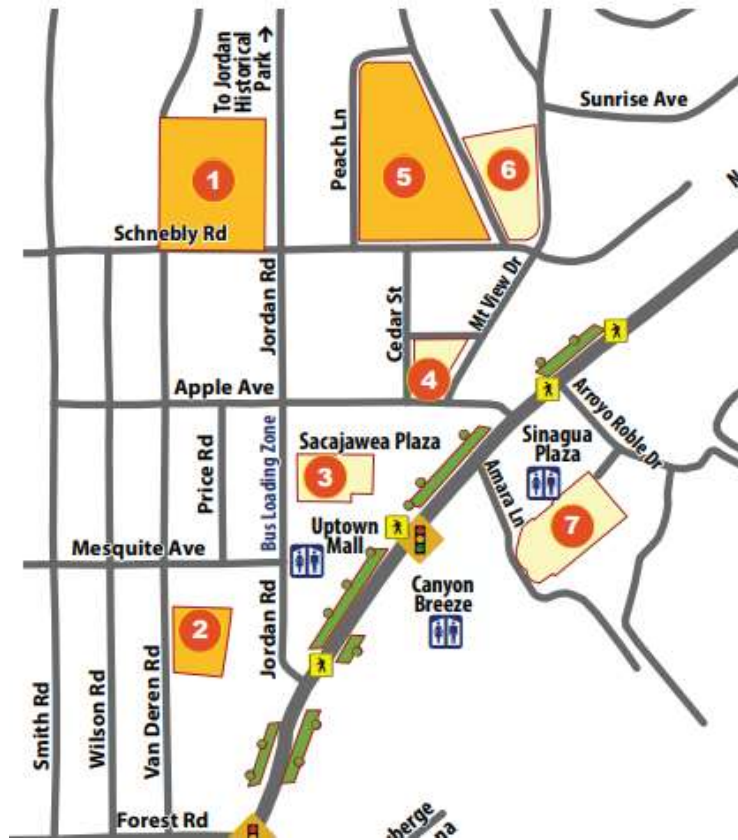
All peak hours of the three chosen lots are between 12pm-2pm which matches the results of the parking occupancy data collection. The Chipotle lot has over 3.5 times more trips passing through than parking in the peak hour both on all days and weekend only. Tlaquepaque has between 2-3 times more trips passing through than parking in the peak hour. The Municipal Lot has half as many trips circulating on the weekends during a peak hour and 100% of trips parking that are circulating during the peak hour during the week.

## Application of Data

The low end 1:1 ratio of pass-through trips for the Municipal lot was averaged across all days to determine the number of vehicles circulating due to lack of available parking. The Chipotle lot results were deemed too high based on high turnover in this lot and because the lot contains access points to other parking locations. The Tlaquepaque lot turnover may be more likely to occur during extreme peak occupancy however is not used for this analysis.

To calculate vehicles parking in the peak hour we took the trip end volume and compared that to the inventory of the lot. On average, 40% of the lot inventory becomes available during a peak hour (*trip end volumes/inventory when the lot is full*). With an overall public lot inventory of 978 spaces and total parking inventory of 2,761 spaces it is estimated that 390 vehicles are parking in public spaces and 1,100 vehicles are parking through Uptown overall in a given peak hour. Using the 1:1 ratio of pass-through trips yields a total of 1,100 vehicles circulating in Uptown until a parking space is found.

Data shows there is an overabundance of vehicle traffic circulating Uptown seeking parking. Based on the occupancy study, the peak parking period that requires additional circulation to find a space is anticipated to last between 11am and 4pm – a five-hour window. This leads to 1950 vpd recirculating vehicles from public lots and 5,500 vpd overall. More specifically, there are 507 public spaces in Sedona Public Lots 1 thru 7 (Figure to right).



Applying the same methodology, this equates to approximately 1000 vpd, circulating on local roads to find a parking space during peak periods.

**Table 2** summarizes the Maricopa County Department of Transportation (MCDOT) Level of Service (LOS) thresholds for various roadway facilities based on vehicles per day. Removing 1,000 or more vehicles from a local road would improve LOS by almost two levels, whereas adding this additional circulating traffic to a collector road (such as Jordan Road or the future Forest Road Connection), would not degrade the LOS by the same magnitude.

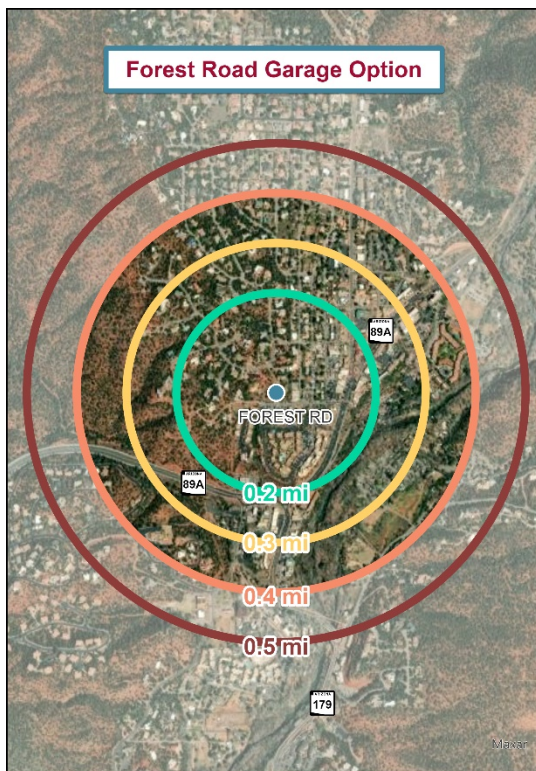
**Table 2 – MCDOT Segment Level of Service**

Functional Class	Lanes	Median	LOS B	LOS C	LOS D	LOS E
Major Collector	2	Undivided	7,400	10,200	12,800	13,400
Major Collector	3	Undivided	12,100	18,300	20,800	21,900
Local	2	Undivided	1,500	2,000	2,600	2,700

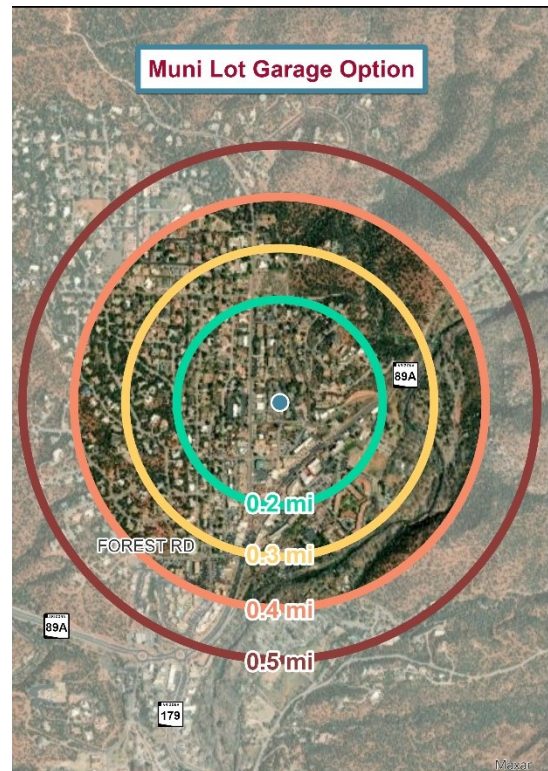
## Pedestrian Travel Patterns

By using the lots within Uptown as zones, Streetlight can determine how far the pedestrian trips to and from that lot are. **Figure 4** shows that the average pedestrian in Uptown is willing to walk 1,500 -2,000 feet (0.3-0.4 miles) to their ultimate destination. This supports that consolidation of parking within Uptown is a viable solution.

**Figure 5** and **Figure 6** show the locations of two potential locations for consolidation and/or a parking garage as part of the options evaluated and how far typical Sedona visitors are willing to walk from each location. The Forest Road garage would capture a larger portion of Uptown within a 0.4-mile buffer, though the Municipal Lot to the north also covers more than half of Uptown.



**Figure 5 – Pedestrian Distance from Forest Garage**



**Figure 6 – Pedestrian Distance from Muni Garage**

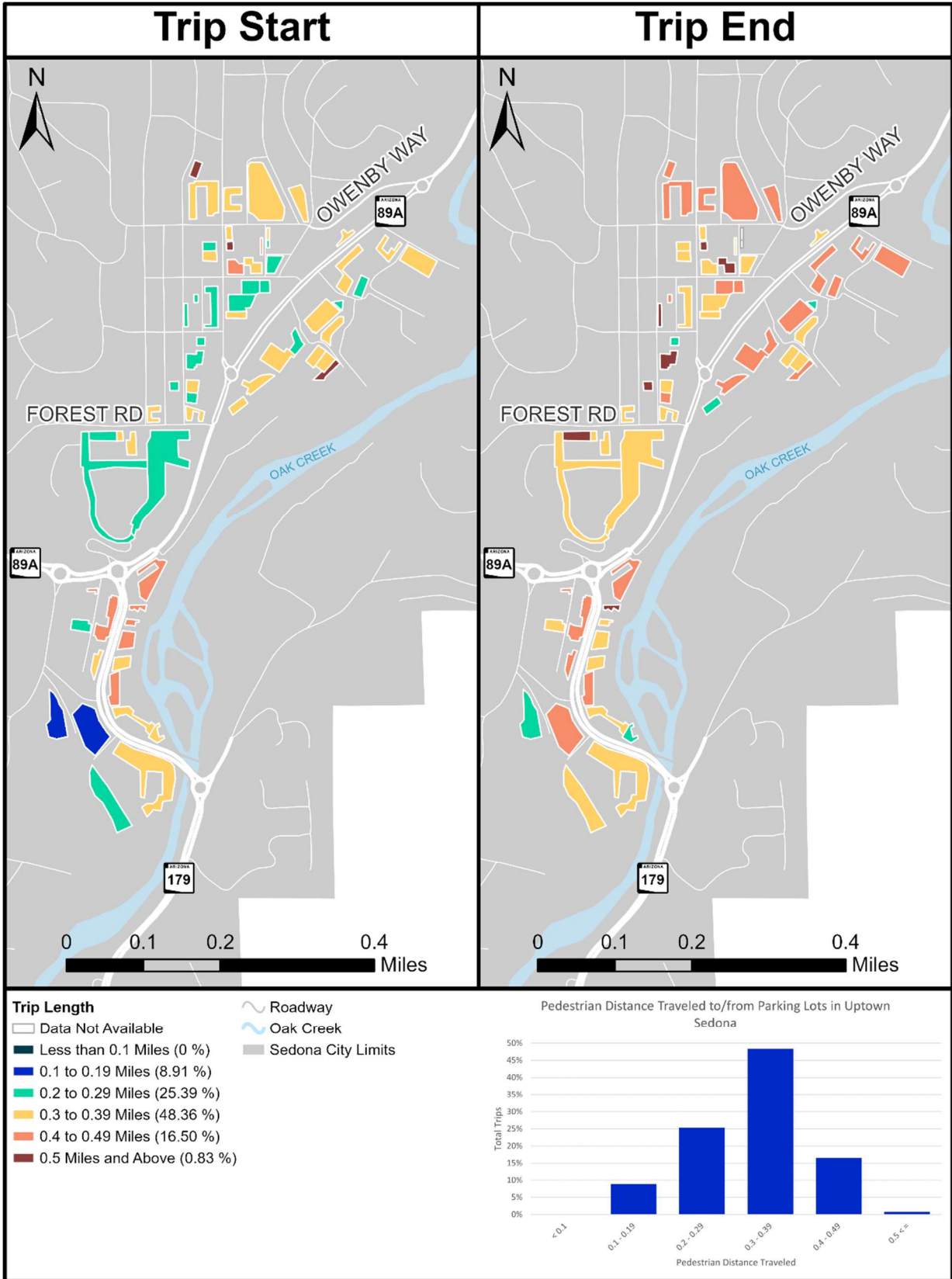


Figure 4 – Pedestrian Trip Distance



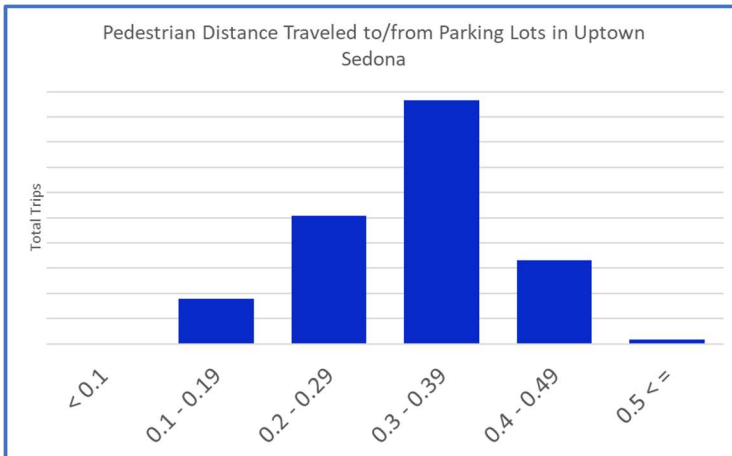


Figure 5 – Pedestrian Distance Traveled

## Summary

This technical memorandum documents the traffic analysis findings for Uptown Sedona. These findings are summarized below:

- Uptown Sedona experiences 32,000 vpd annual average with a peak in March of 45,000 vpd.
- Approximately 50% trips into Uptown are pass through.
- Of these vehicle trips 75%-80% of trips to and from Uptown are visitors.
- 50% of trips to and from Sedona are from the west on SR 89A, 35% of trips are from the south on SR 179, and the remaining 15% are from the north on 89A.
- 13% of all trips are 50-100+ miles away.
- Circulating vehicles unable to find parking is estimated to contribute 5,500 additional vpd on adjacent roadways.
- Pedestrian trip attributes indicate that within Uptown the average pedestrian is willing to walk between 0.3 and 0.4 miles (1,500-2,000 feet) from their parked car to their destination.

## Conclusion

- Parking consolidation, preferably adjacent to a collector road, would alleviate traffic congestion on local and other Uptown roadways.
- The location of the parking consolidation should be placed on the southwest end of Uptown due to 85% of the trips originating from the west and south.
- Consolidated lots should be located within 0.4 miles of the end destination to improve walkability and bikeability in the Uptown area.