

# NAPA VALLEY TRAVEL BEHAVIOR STUDY UPDATE



## Key Findings

September 5, 2019

# Topics

- Big Data Overview
- Scope Overview
- Key Findings

# Big Data Overview

# New Approach

- Traffic Count Collection
- 3 Types of Mobile Device Data
- Census and CHTS Data



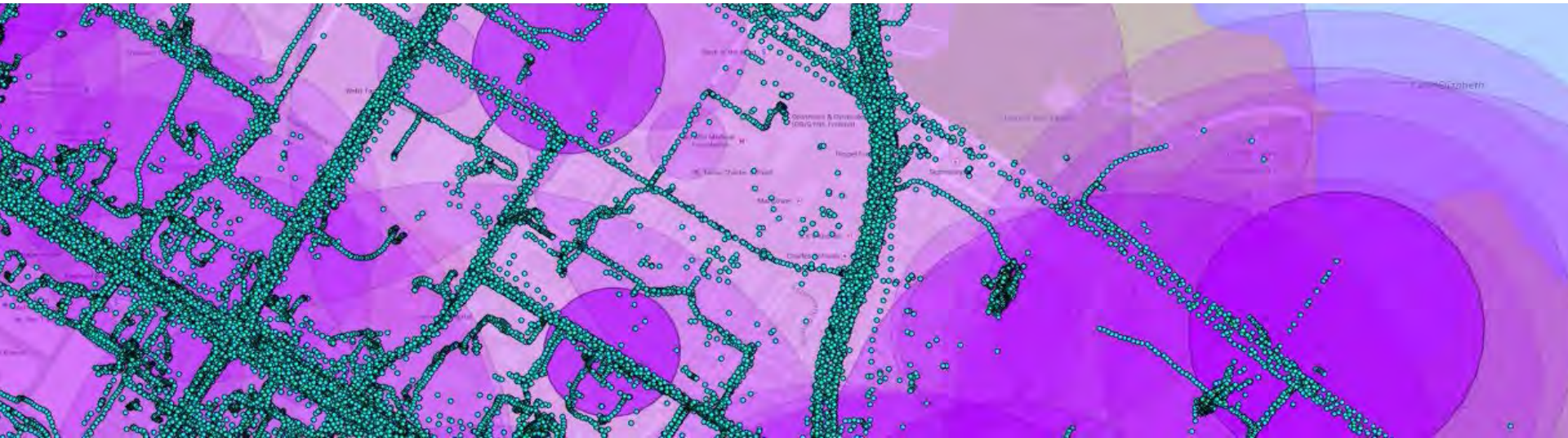
## Location-Based Services Data

Our Location-Based Services data comes from smartphone apps that track devices' locations to provide specific services. These services include weather forecasts, shopping deals, restaurant reviews, and more. We get location data from hundreds of different apps.



# What is Big Data

- Archival location data from mobile devices
- Provides true origin-destination data passively and anonymously



# Big Data Enhancements

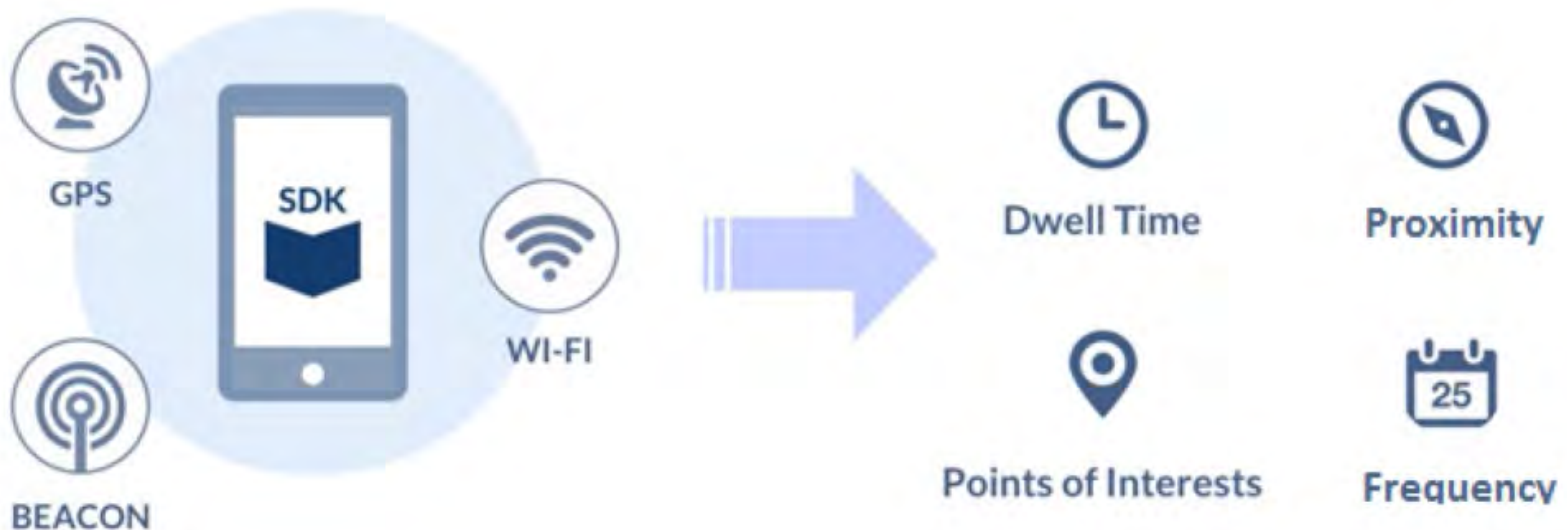
- Increased sample size to around 20% of the US adult population
- Resident, worker, visitor classification
- Trip purpose, home/work location, demographic data based on home location



# Scope Overview

# Mobile Device Data

- Origin and destination analysis
- Home and work analysis
- Roadway segment analysis





# Mobile Device Data

## Primary Data Period

- March 2018 through May 2018 (Spring)

## Two Seasonal Variation Data Periods

- Mid-August 2018 through Mid-November 2018 (Fall)
- June 2018 to Mid-August 2018 (Summer)

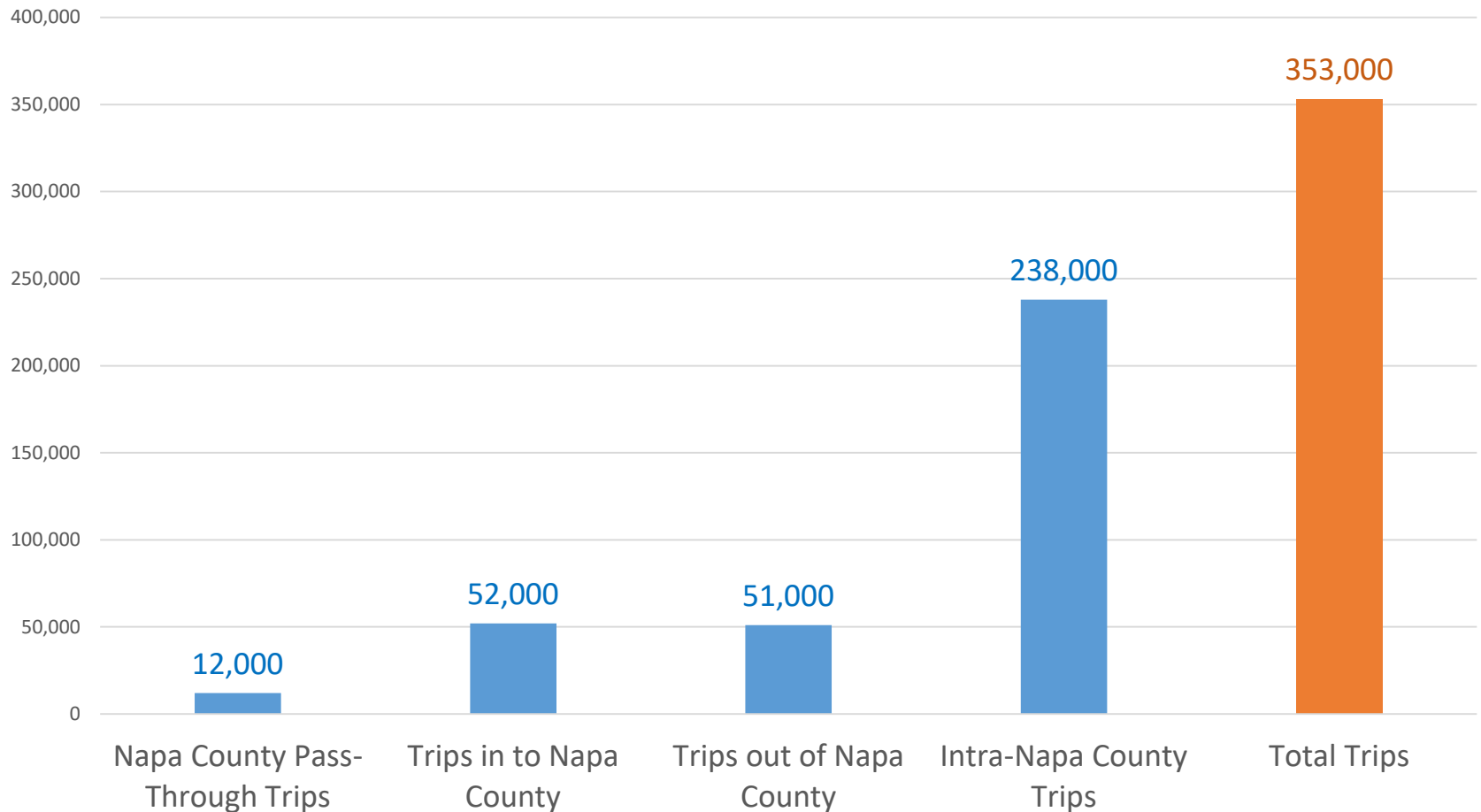
Yearly subscription!!!



# Key Findings

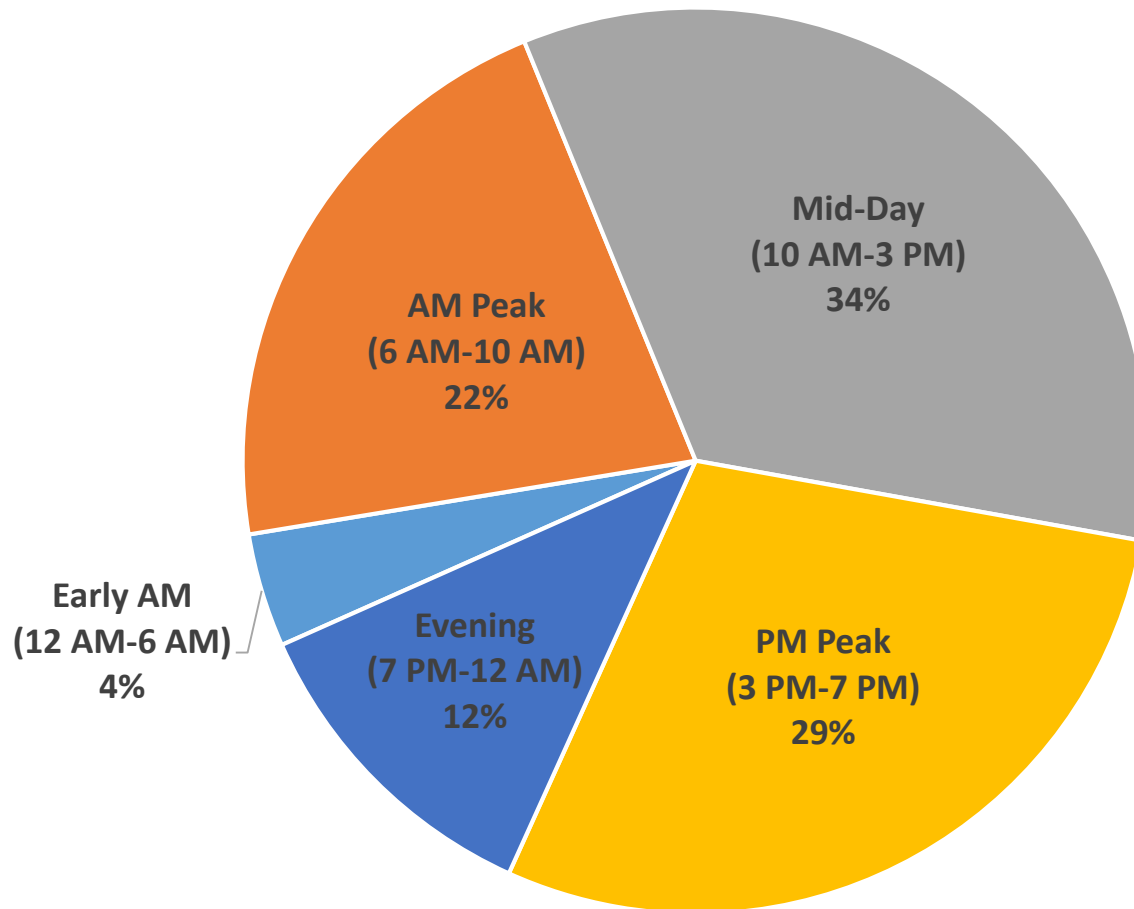
# Napa County Trip Types

What types of trips are occurring within Napa County on a Weekday?



# Peaking Characteristics

Weekday Peaking Characteristics



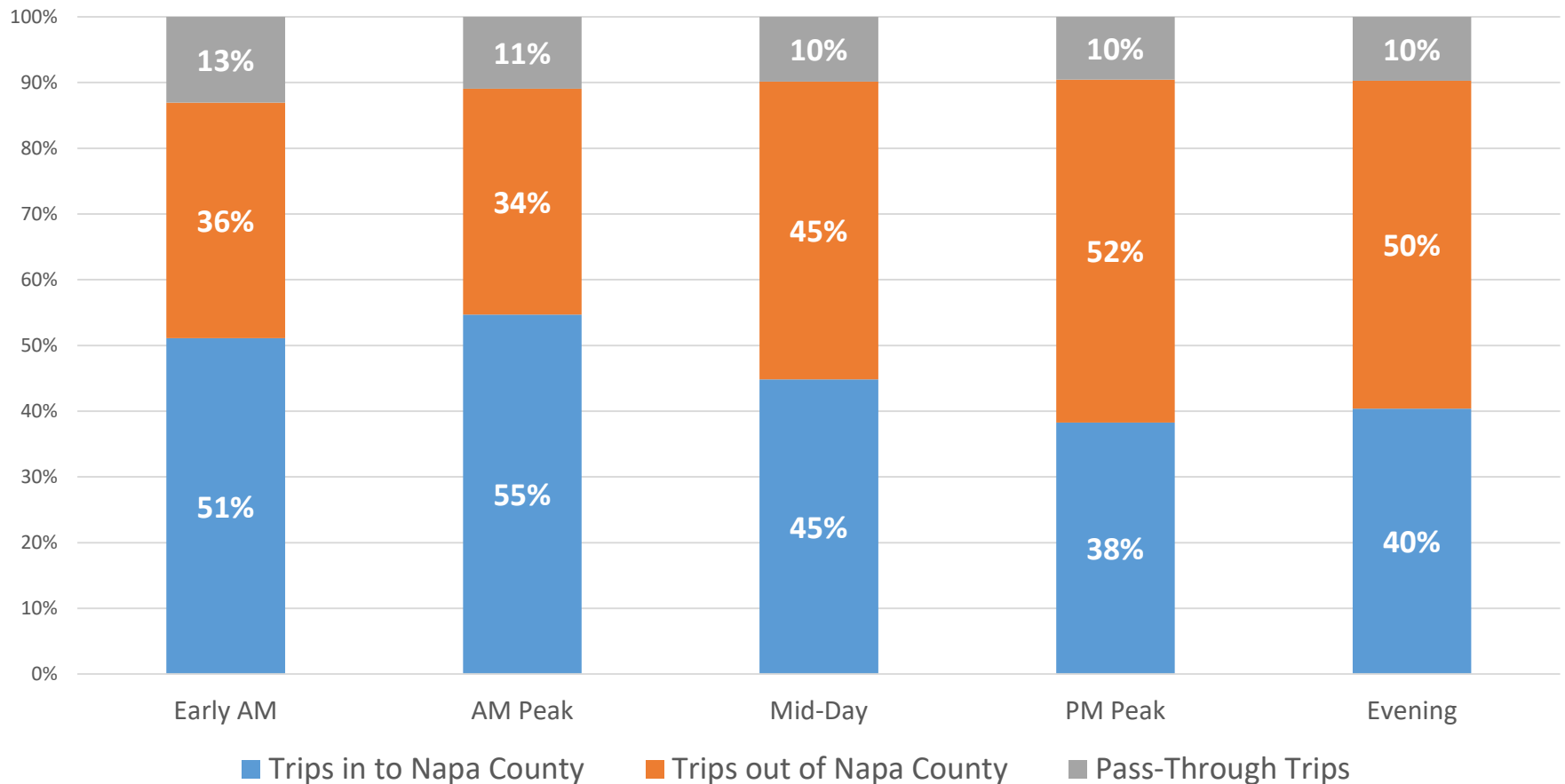
# Inter-County Trip Types

Average Weekday	What types of trips are occurring at Napa County gateways?	
	Total Trips	Napa County Pass-Through Trips
SR 29 at Napa/Solano CL - Northbound	23,000	4%
SR 29 at Napa/Solano CL - Southbound	24,000	6%
SR 12 at Napa/Solano CL - Westbound	24,000	16%
SR 12 at Napa/Solano CL - Eastbound	22,000	16%
SR 29 at Napa/Lake CL - Southbound	4,000	56%
SR 29 at Napa/Lake CL - Northbound	4,000	48%
SR 128 at Napa/Sonoma CL - Eastbound	1,000	22%
SR 128 at Napa/Sonoma CL - Westbound	1,000	26%
SR 12 at Napa/Sonoma CL - Westbound	16,000	29%
SR 12 at Napa/Sonoma CL - Eastbound	15,000	29%
SR 128 at Napa/Solano CL - Westbound	600	17%
SR 128 at Napa/Solano CL - Eastbound	600	11%
SMR at Napa/Sonoma CL - Westbound	400	3%
SMR at Napa/Sonoma CL - Eastbound	300	7%
<b>All Napa County Gateway Trips</b>	<b>124,000</b>	<b>10%</b>



# Inter-County Trip Types

Weekday Inter-County Trips



# Inter-County Trips



**What Types of Inter-County Trips Occur in the Morning?**

**21%**



Trips into  
Napa County

**13%**



Trips out of  
Napa County

**4%**



Napa County Pass-  
Through Trips

# Inter-County Trips



Where are Trips  
Leaving Napa County  
Going in the Morning?

**41%**SOLANO

**29%**SONOMA

**11%**CONTRA COSTA

**5%**ALAMEDA

**4%**SACRAMENTO

**4%**MARIN

**2%**SAN FRANCISCO

**1%**SANTA CLARA

**1%**SAN MATEO

**1%**LAKE



Where are Trips  
Entering Napa County  
Coming From in the Morning?

**55%**SOLANO

**21%**SONOMA

**8%**CONTRA COSTA

**4%**LAKE

**3%**SACRAMENTO

**3%**ALAMEDA

**3%**YOLO

**1%**SAN FRANCISCO

**1%**SAN MATEO

**1%**MARIN

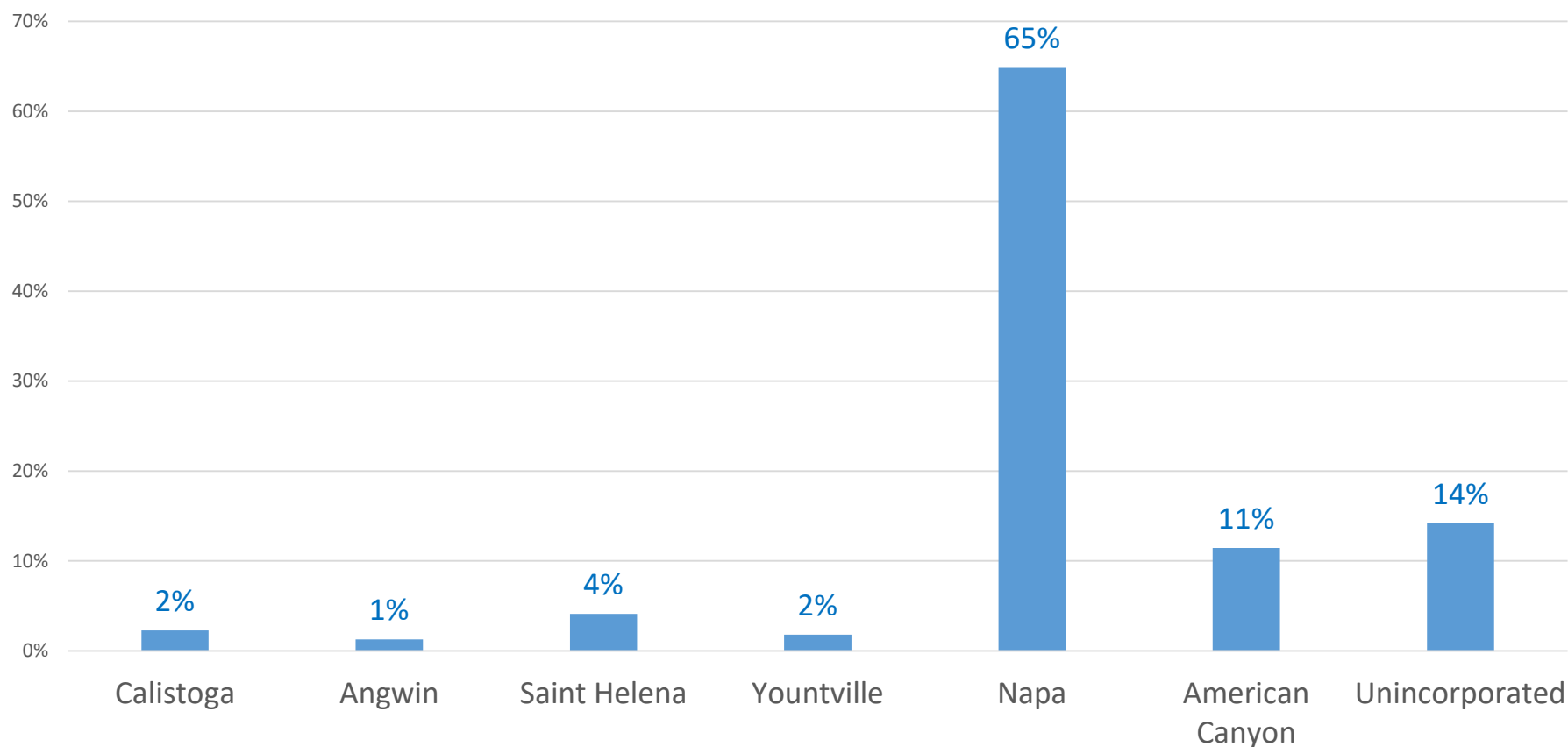
# Top 5 Generators of Inbound Trips

Destination of Trips from Top 5 Generators of Inbound Trips

Average Weekday Jurisdiction	Vallejo		Fairfield		Santa Rosa Area		Vacaville		City of Sonoma	
	Trips	Percent	Trips	Percent	Trips	Percent	Trips	Percent	Trips	Percent
Unincorporated Napa	1,374	10%	1,271	17%	1,350	26%	762	22%	303	16%
Calistoga	16	0%	35	0%	149	3%	9	0%	4	0%
Angwin	48	0%	0	0%	7	0%	0	0%	4	0%
Saint Helena	67	1%	207	3%	189	4%	126	4%	66	3%
Yountville	69	1%	75	1%	26	1%	107	3%	105	5%
City of Napa	5,125	39%	4,384	59%	3,131	60%	2,005	59%	1,290	67%
American Canyon	6,534	49%	1,449	20%	326	6%	412	12%	154	8%
Trips in to Napa County	13,232		7,421		5,178		3,420		1,925	

# Trips by Jurisdiction

Percent of Weekday Trips by Jurisdiction





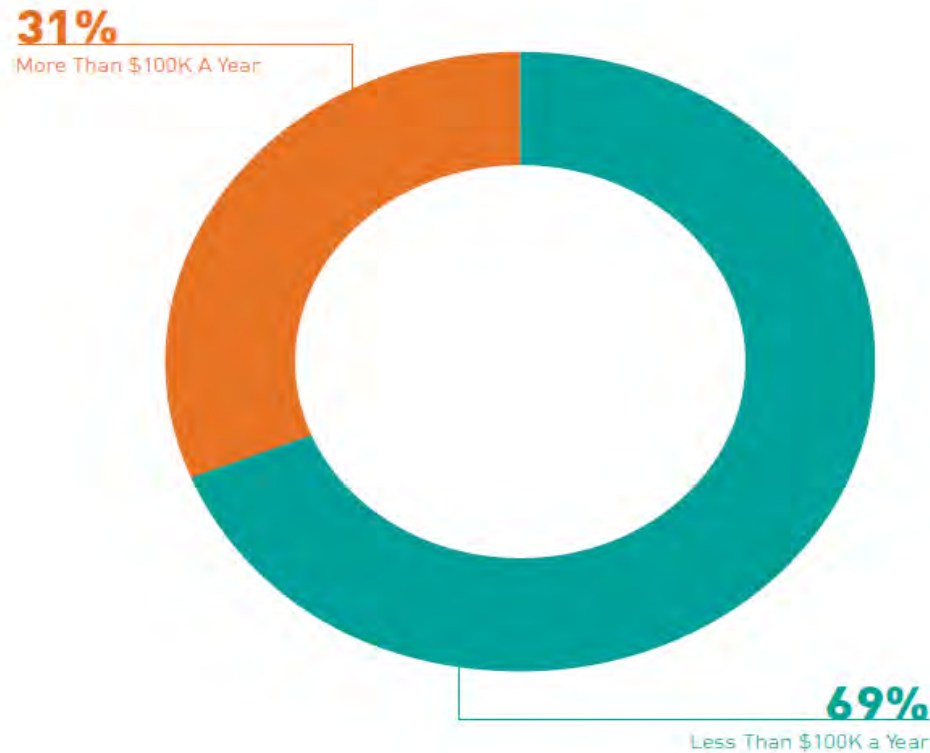
# Top Trip Generators

## Weekday All-Day Largest Trip Generators

#	Selected Trip Generator	Trips	Percent of Countywide Trips
1	Napa Bel Aire Plaza	23,300	7%
2	South Napa Market Place	16,900	5%
3	Downtown Napa	16,000	5%
4	American Canyon Walmart	11,600	3%
5	Napa Town Center	9,500	3%
6	Napa Valley College	7,000	2%
7	Napa Queen Medical	5,000	1%
8	Napa Oxbow	3,800	1%
9	Napa Department of State Hospitals	3,600	1%
10	Napa County Services	2,300	<1%
11	Saint Helena Hospital	2,000	<1%
12	Angwin Pacific Union College	1,600	<1%
13	Yountville VA Hospital	1,100	<1%
14	Napa County Airport	900	<1%

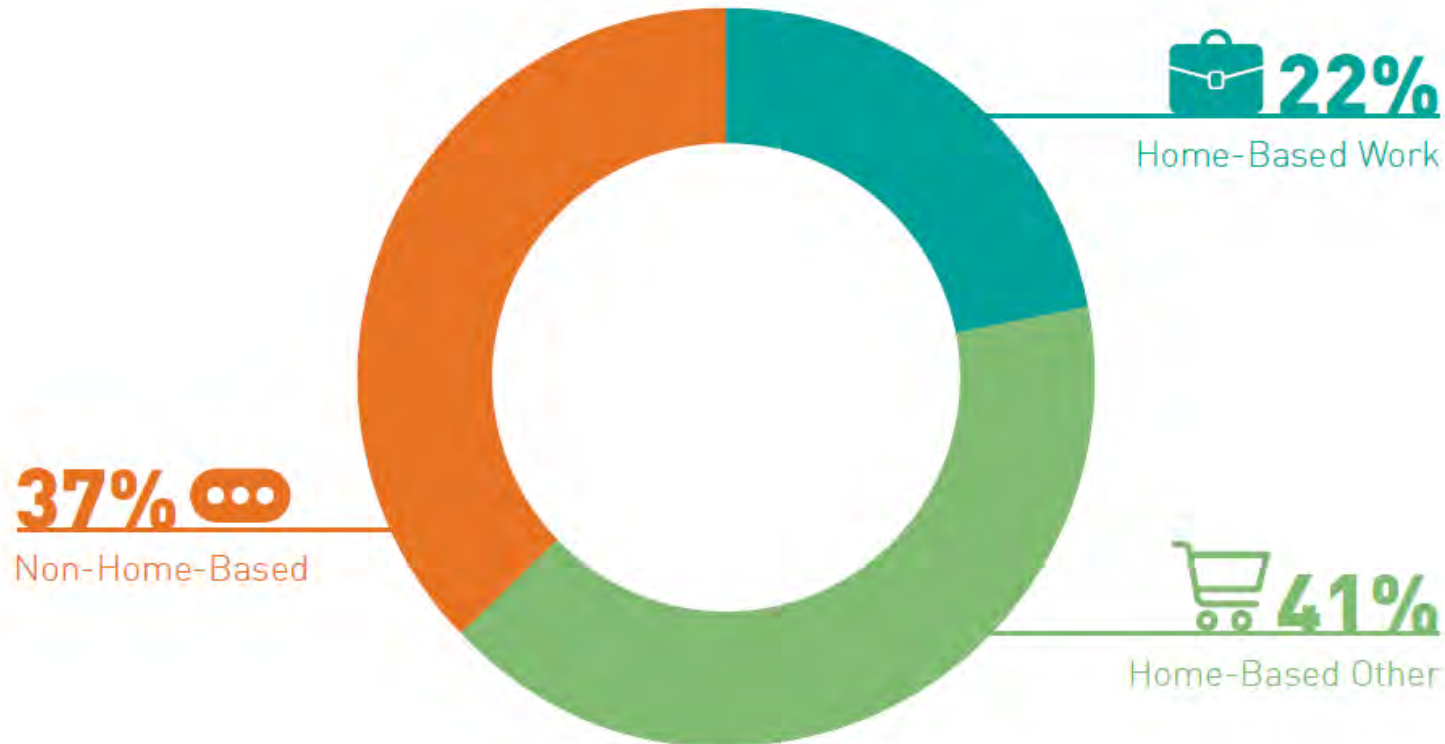
# Trip Demographic Information

## Percent of Weekday Trips by Average Household Income



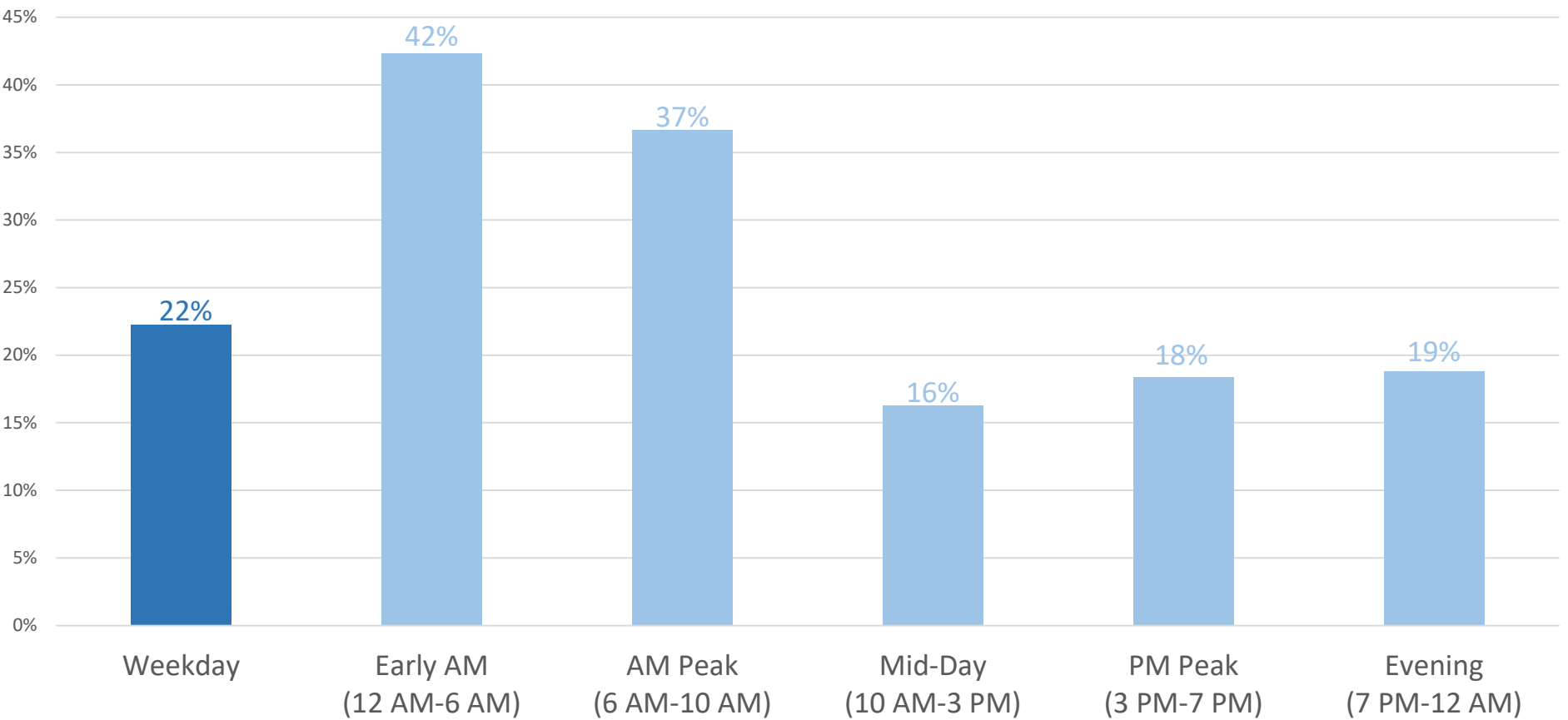
# Trip Purpose Information

## Average Weekday Trip Purpose



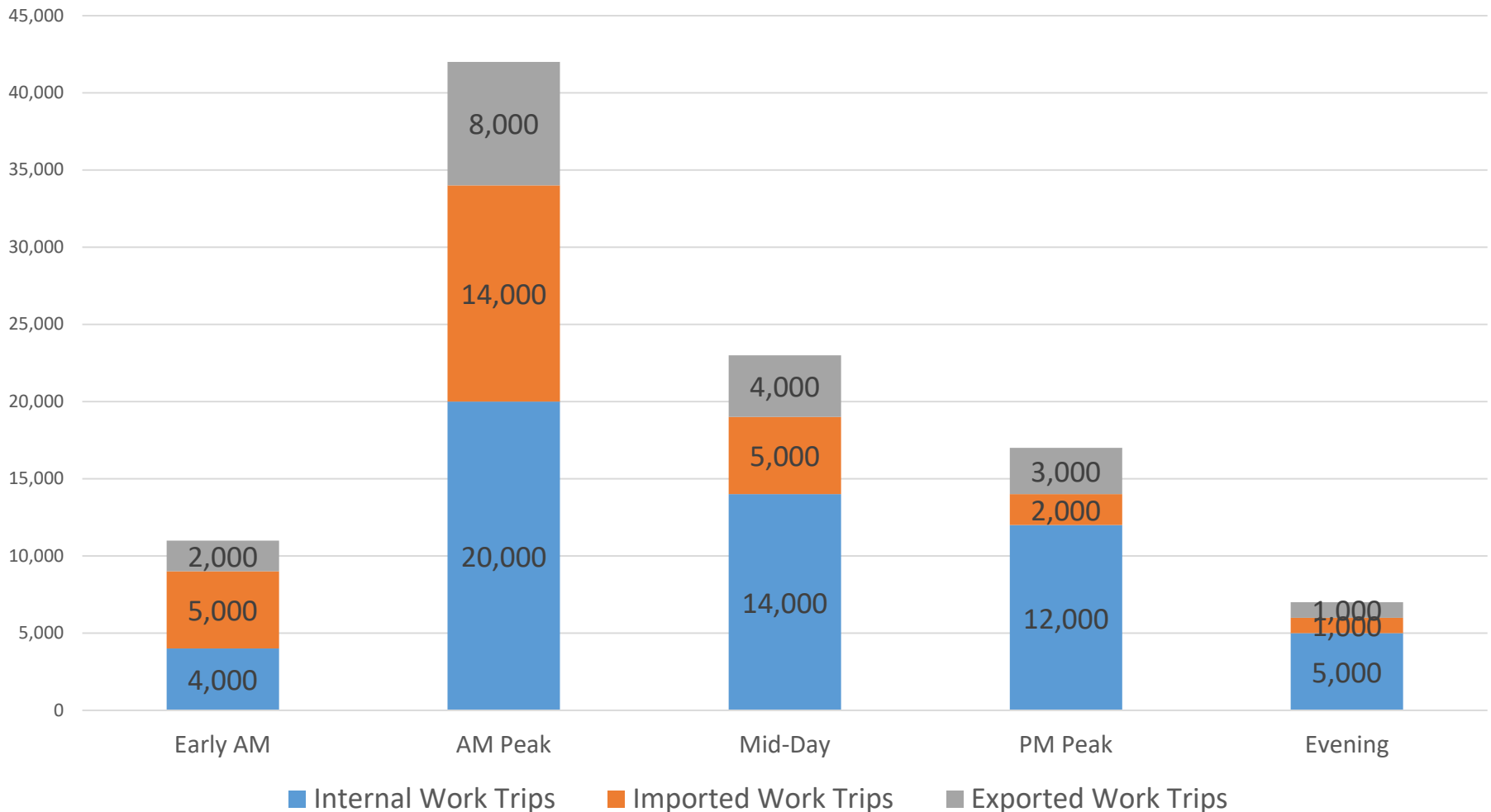
# Work-Related Trips

Percent of Total Trips by Time Period



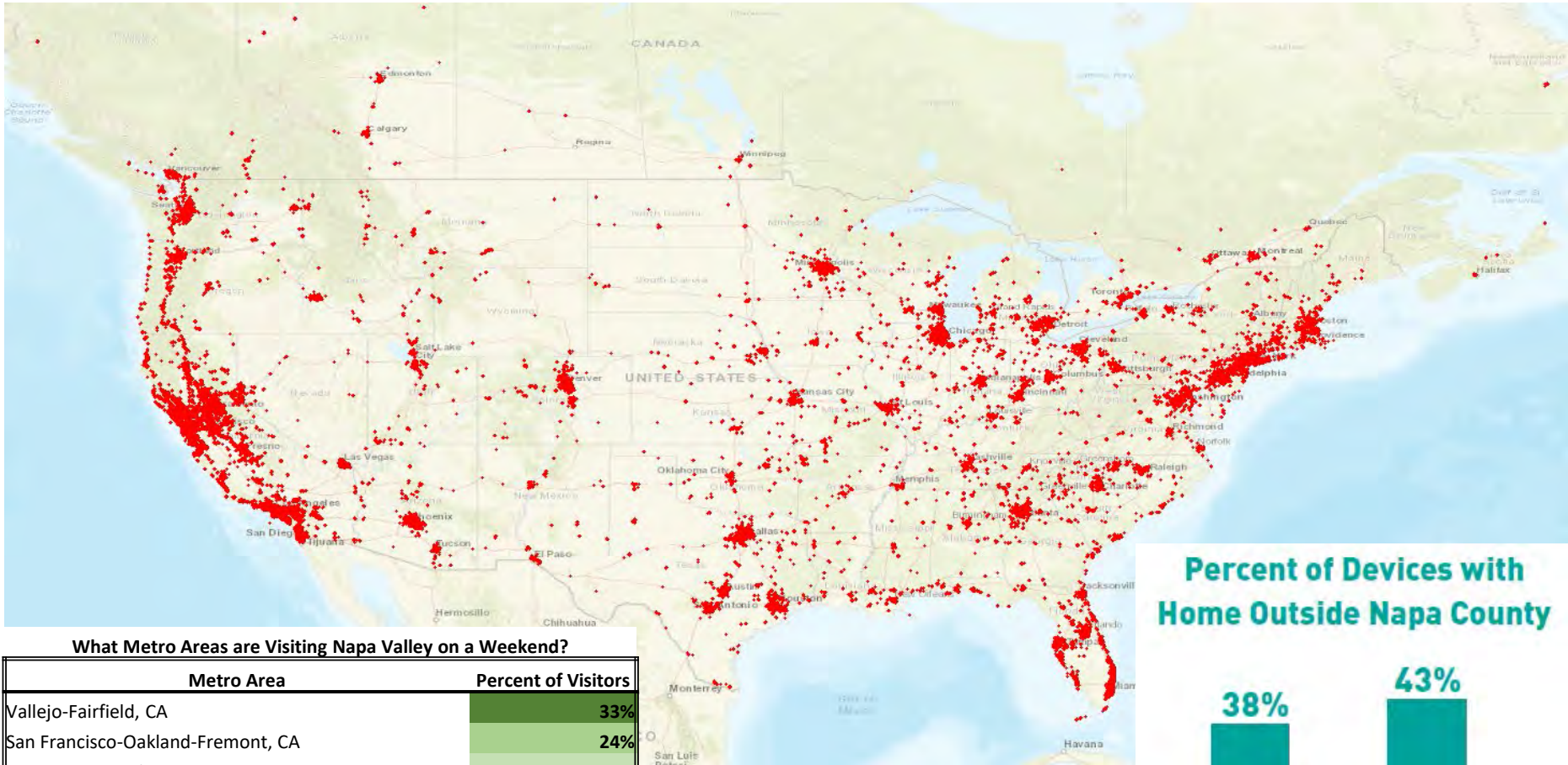
# Imported and Exported Workers

Weekday Work Trip Types





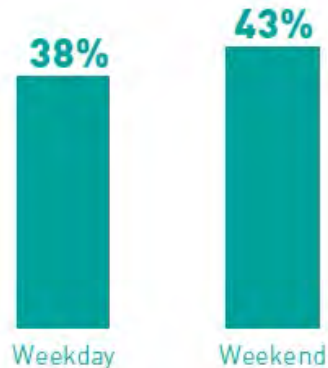
# Visitor Trips



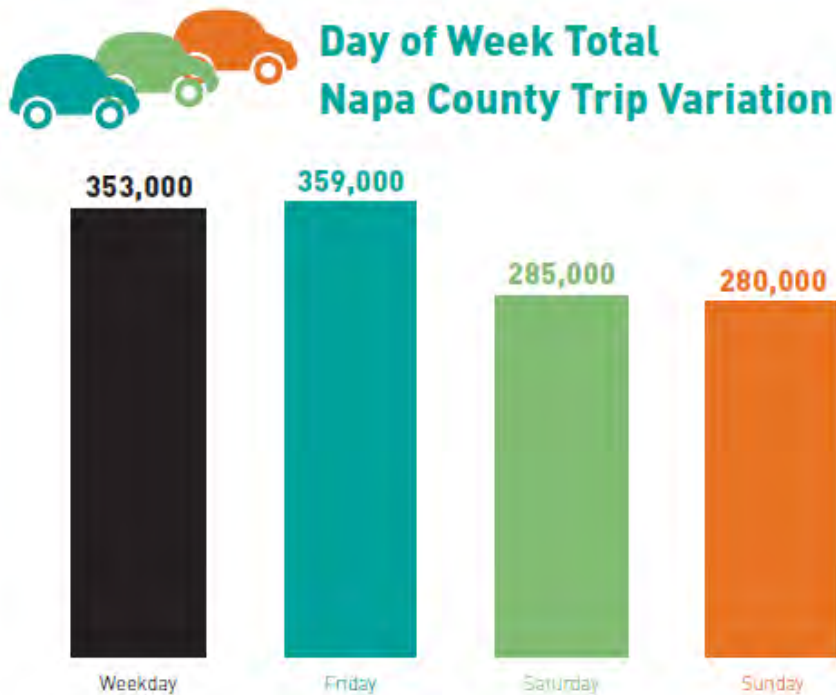
What Metro Areas are Visiting Napa Valley on a Weekend?

Metro Area	Percent of Visitors
Vallejo-Fairfield, CA	33%
San Francisco-Oakland-Fremont, CA	24%
Santa Rosa-Petaluma, CA	11%
Sacramento--Arden-Arcade--Roseville, CA	8%
Los Angeles-Long Beach-Santa Ana, CA	3%
San Jose-Sunnyvale-Santa Clara, CA	3%
Clearlake, CA	2%
Stockton, CA	1.5%
New York-Northern New Jersey-Long Island, NY-NJ-PA	1.0%
San Diego-Carlsbad-San Marcos, CA	0.9%

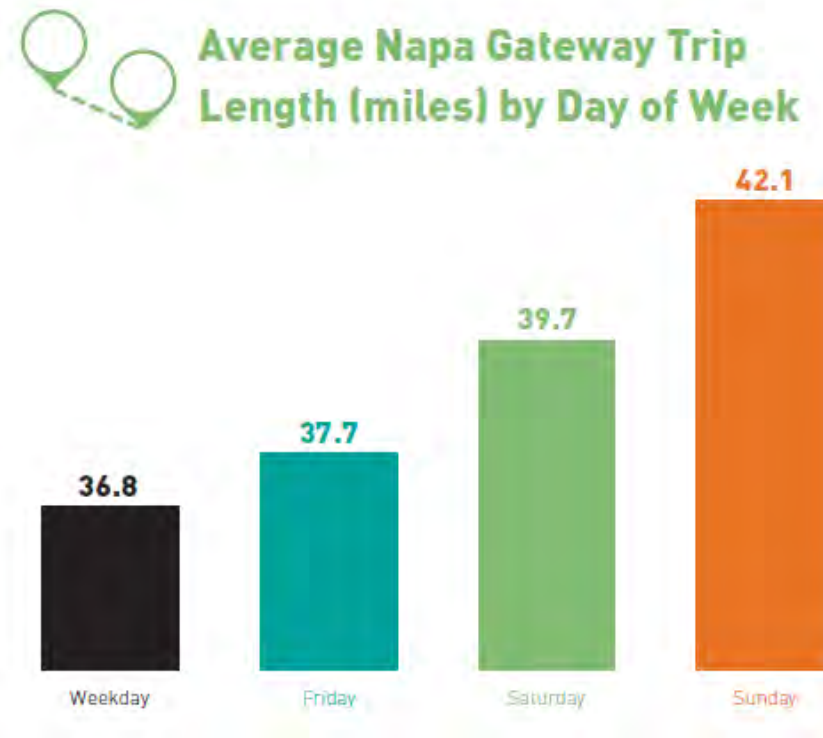
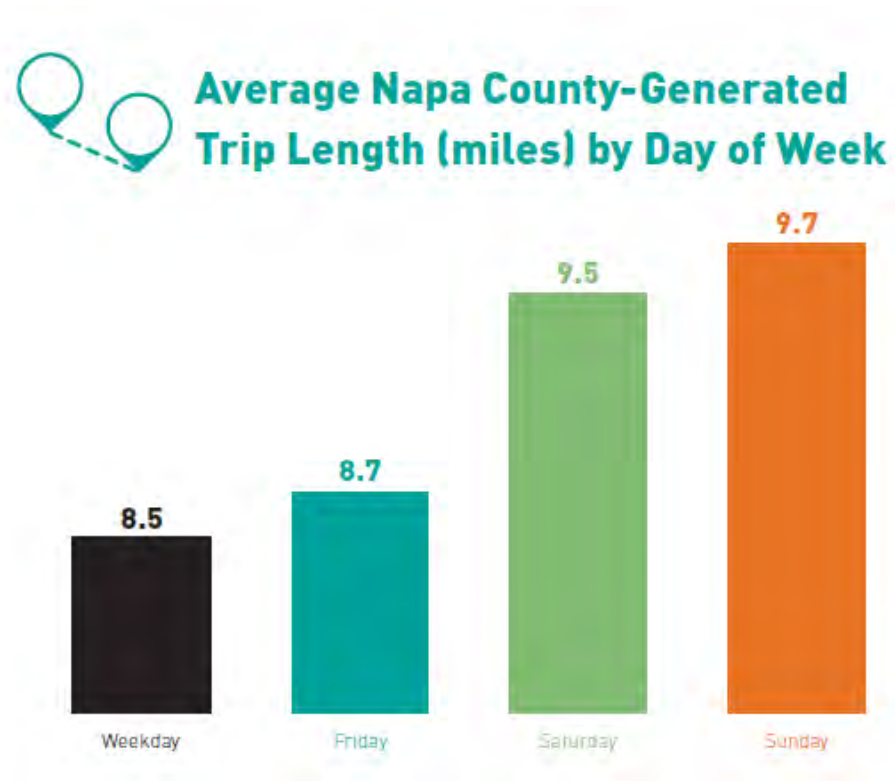
Percent of Devices with Home Outside Napa County



# Day of Week Variation



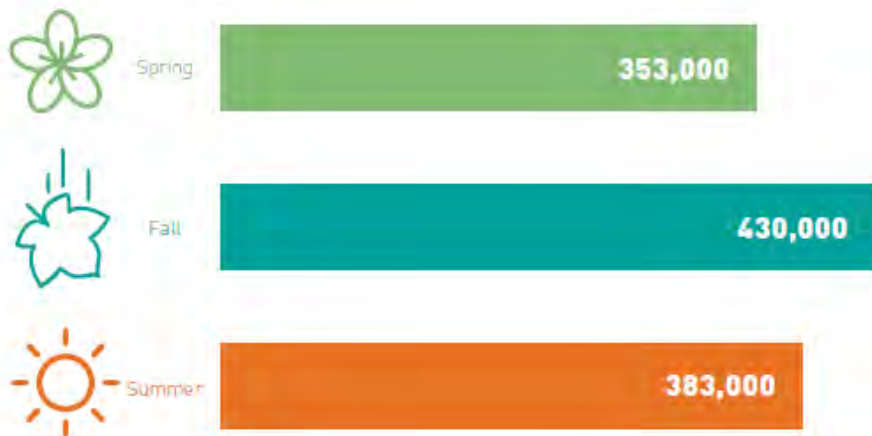
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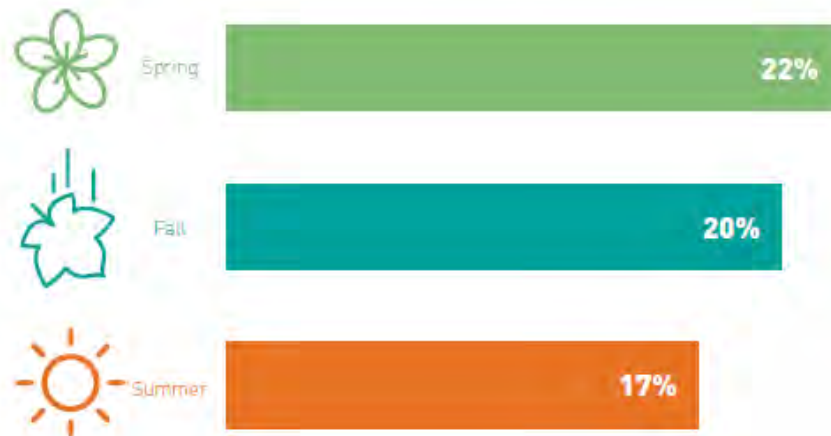
# Seasonal Variation



## Seasonal Total Napa County Trip Variation



## Work-Related Trips by Season



# Seasonal Variation

## Average Napa County-Generated Trip Length (miles) by Season



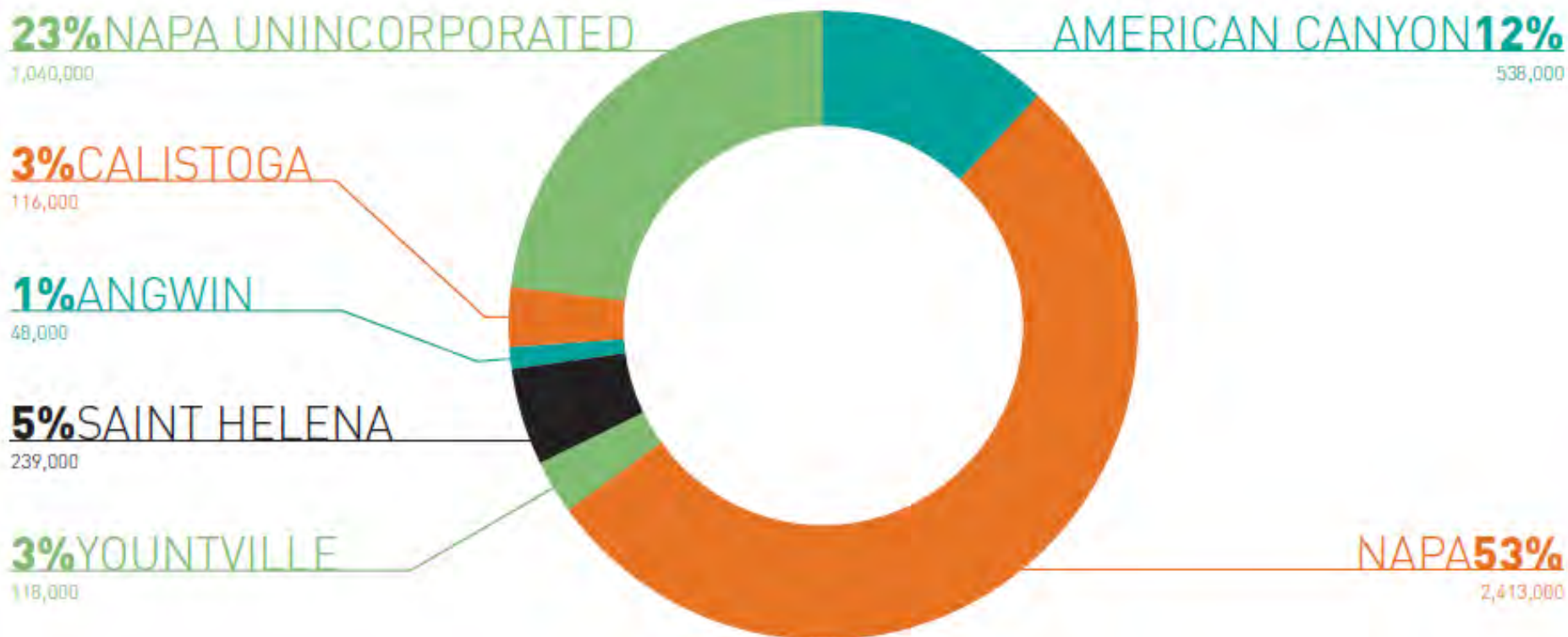
## Average Napa Gateway Trip Length (miles) by Season





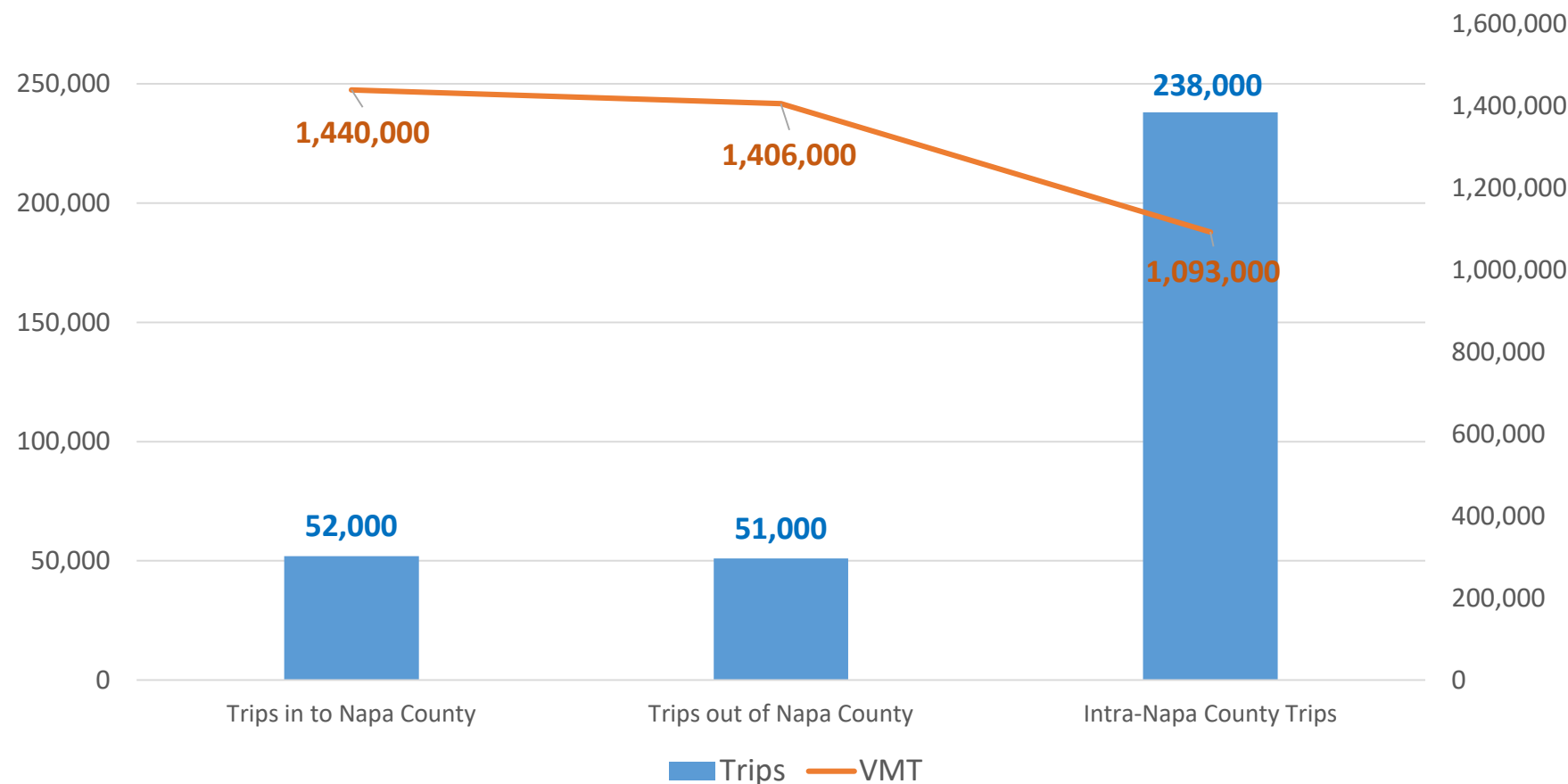
# Vehicle Miles Travelled

Total Weekday VMT by Jurisdiction



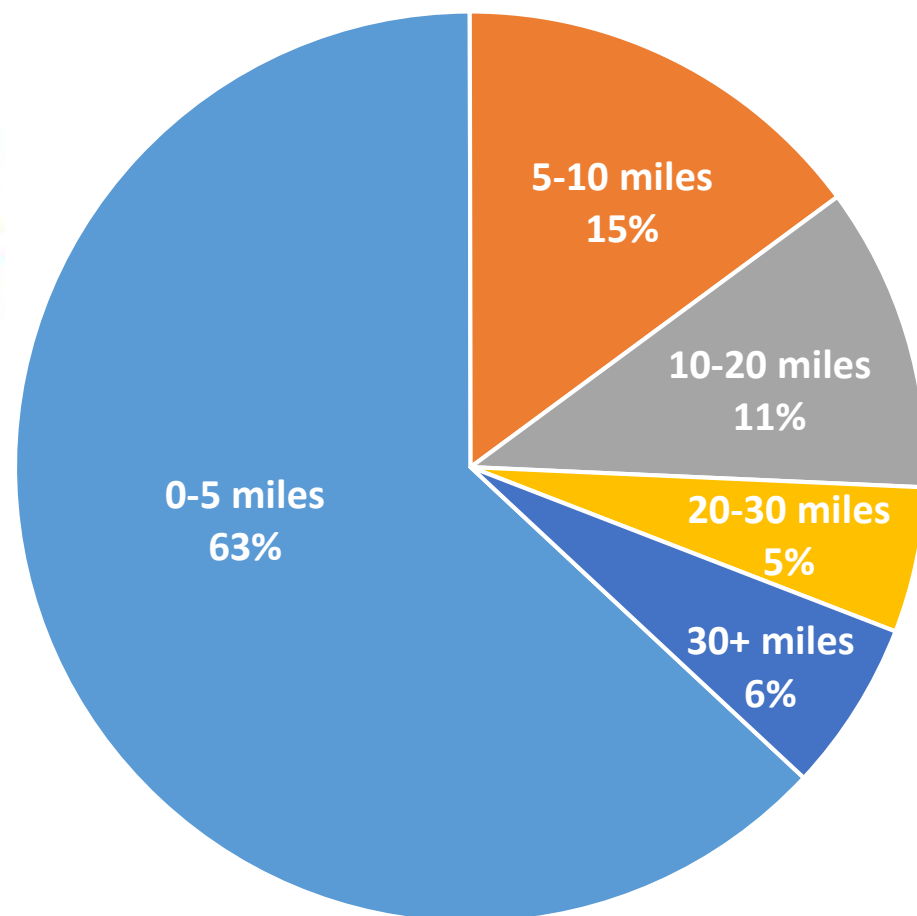
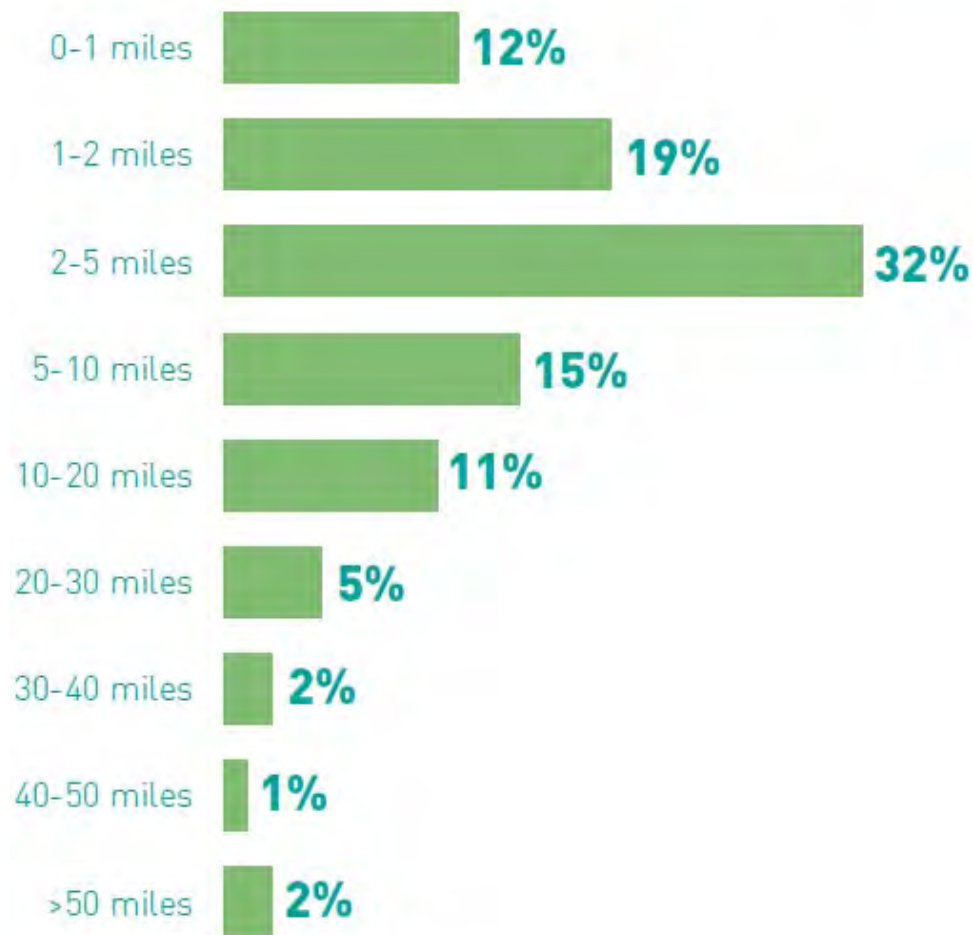
# Vehicle Miles Travelled

Total Weekday VMT by Trip Type



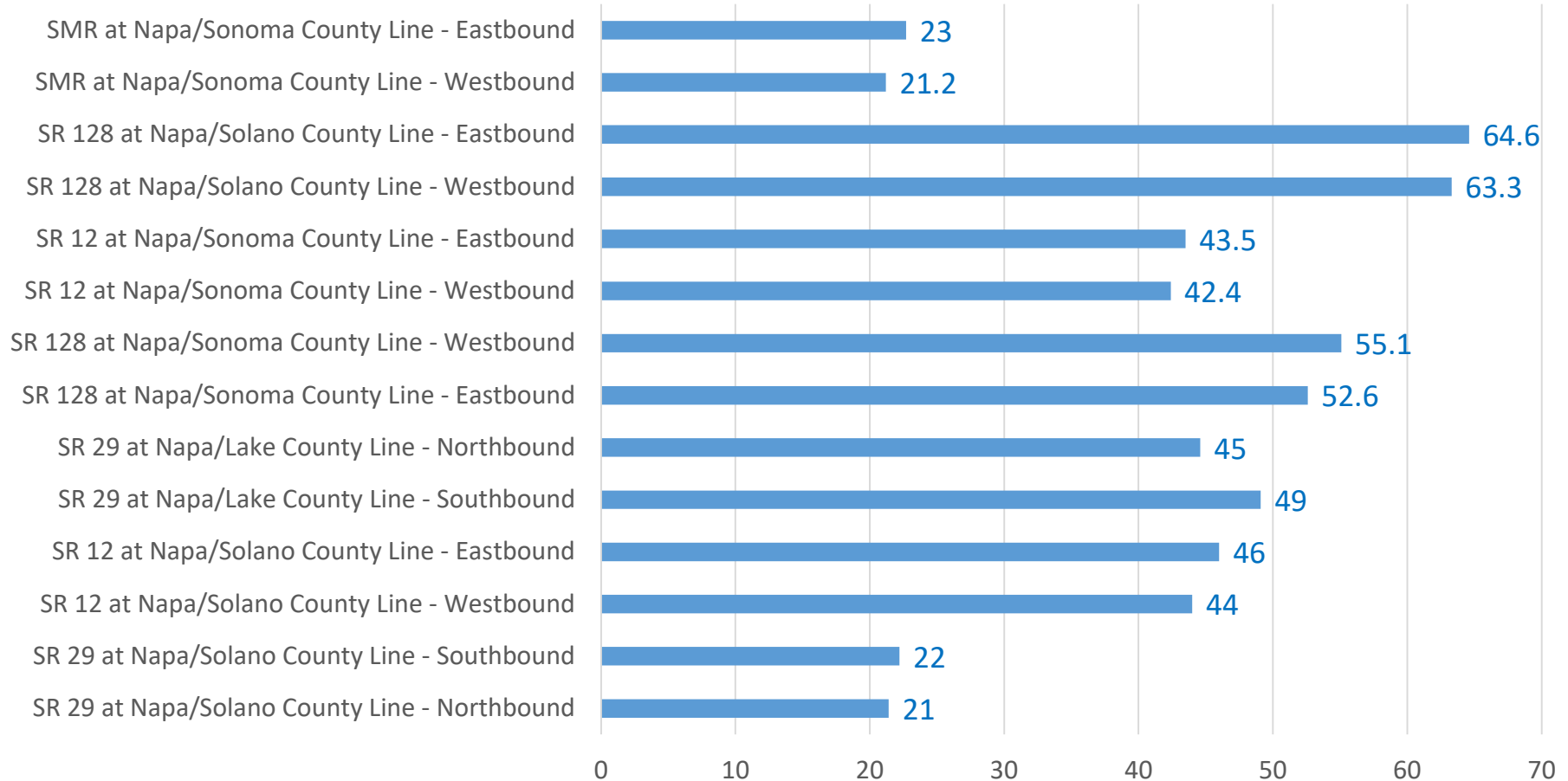
# Trip Length Distribution

## Average Weekday Trip Length Distribution



# Gateway Trip Lengths

Napa County Gateway Average Trip Length (miles)



# City-to-City Travel Patterns

Weekday City-to-City Trips	Calistoga	Angwin	St Helena	Yountville	Napa	American Canyon	Unincorp orated	Gateway	Total
Calistoga	3,500	100	600	0	300	100	1,400	700	6,600
Angwin	100	2,300	600	0	200	0	400	100	3,600
St Helena	600	500	4,500	200	1,600	100	2,800	1,600	11,800
Yountville	0	0	200	1,500	1,800	100	1,000	600	5,200
Napa	300	200	1,500	1,900	139,000	3,700	13,800	27,100	187,600
American Canyon	100	0	100	100	3,600	15,900	1,200	12,200	33,100
Unincorporated	1,400	300	2,800	900	12,800	1,600	12,600	8,800	41,000
Gateway	700	100	1,600	800	27,300	12,000	9,800	11,900	64,200
Total	6,600	3,600	11,900	5,400	186,500	33,400	43,000	62,900	353,300

# City-to-City Travel Patterns

Weekday City-to-City Trips	Calistoga	Angwin	St Helena	Yountville	Napa	American Canyon	Unincorp orated	Gateway	Total
Calistoga	1%	0%	0%	0%	0%	0%	0%	0%	2%
Angwin	0%	1%	0%	0%	0%	0%	0%	0%	1%
St Helena	0%	0%	1%	0%	0%	0%	1%	0%	3%
Yountville	0%	0%	0%	0%	1%	0%	0%	0%	1%
Napa	0%	0%	0%	1%	39%	1%	4%	8%	53%
American Canyon	0%	0%	0%	0%	1%	5%	0%	3%	9%
Unincorporated	0%	0%	1%	0%	4%	0%	4%	2%	12%
Gateway	0%	0%	0%	0%	8%	3%	3%	3%	18%
Total	2%	1%	3%	2%	53%	9%	12%	18%	100%

# Pass-Through Travel Patterns

Weekday Pass-Through Trips	Lake	Sonoma	Marin	Solano	Yolo	Sacramento	Alameda	Contra Costa	San Francisco	San Mateo	Santa Clara	Total
Lake	5	939	16	66	0	0	43	77	124	10	15	1,295
Sonoma	837	157	16	2,484	260	610	111	206	18	13	44	4,756
Marin	23	2	2	64	0	19	4	5	1	0	0	120
Solano	50	2,986	20	723	4	30	32	74	27	4	0	3,950
Yolo	0	231	10	19	5	6	0	6	0	0	0	277
Sacramento	22	579	3	20	4	11	4	1	9	1	2	656
Alameda	30	54	0	20	3	2	17	18	4	2	3	153
Contra Costa	69	303	0	39	0	0	8	26	3	3	0	451
San Francisco	36	21	2	48	4	11	2	9	15	7	0	155
San Mateo	4	10	0	15	0	6	4	1	4	2	3	49
Santa Clara	10	6	0	7	4	0	1	0	0	0	0	28
<b>Total</b>	<b>1,086</b>	<b>5,288</b>	<b>69</b>	<b>3,505</b>	<b>284</b>	<b>695</b>	<b>226</b>	<b>423</b>	<b>205</b>	<b>42</b>	<b>67</b>	<b>11,890</b>

# Pass-Through Travel Patterns

Weekday Pass-Through Trips	Lake	Sonoma	Marin	Solano	Yolo	Sacramento	Alameda	Contra Costa	San Francisco	San Mateo	Santa Clara	Total
Lake	0%	8%	0%	1%	0%	0%	0%	1%	1%	0%	0%	11%
Sonoma	7%	1%	0%	21%	2%	5%	1%	2%	0%	0%	0%	40%
Marin	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%
Solano	0%	25%	0%	6%	0%	0%	0%	1%	0%	0%	0%	33%
Yolo	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%
Sacramento	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%
Alameda	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Contra Costa	1%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%
San Francisco	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
San Mateo	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Santa Clara	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<b>Total</b>	<b>9%</b>	<b>44%</b>	<b>1%</b>	<b>29%</b>	<b>2%</b>	<b>6%</b>	<b>2%</b>	<b>4%</b>	<b>2%</b>	<b>0%</b>	<b>1%</b>	<b>100%</b>



# Questions

