Were Tourists and Pass-Through Commuters Causing Congestion?

EXECUTIVE SUMMARY

- *Robust data analysis revealed key congestion insights in hours.*
- *Commuters created more congestion than tourists or pass-through traffic.*
- *Planners earned support for transit investments, affordable housing.*

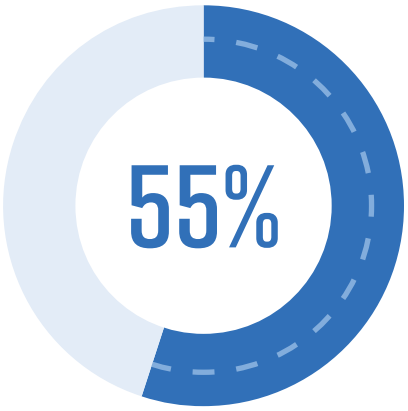
Were growing numbers of tourists and pass-through tech workers clogging up Napa Valley's crowded roadways? Area residents believed they were, and wanted solutions in the county transportation plan.

Mission: What Was Creating the Congestion?

As part of building a transportation plan, officials had gathered feedback from residents complaining about congestion from visiting tourists and pass-through commuters. But perception isn't always reality. Planners needed accurate information about what share of trips in the area were internal to Napa, inbound or outbound, or cutting through Napa on the way somewhere else.

This type of study (called "internal-external" or II/EE) requires a widespread origin-destination (O-D) analysis, which traditionally would have comprised a combination of license plate surveys for pass-through trips, plus roadside, mail, and telephone surveys for travelers in the region. These methods are expensive and time-consuming, and yield small sample sizes.

Overall, traditional information gathering techniques would have been overwhelmingly resource-intensive, only to reveal a small sliver of the full answer.



of trips begin and end in Napa county

Analysis: Big Data Tells Complete O-D Story

Partnering with transportation consultants Fehr & Peers, using the StreetLight InSight® platform, Napa turned to Big Data. StreetLight InSight captured extensive O-D information for Napa and all of the targeted surrounding counties.

The analysis collected a robust sample size to populate three key analyses:

1. Transportation Analysis Zone (TAZ) origin-destination matrix: How many trips from each TAZ end in another?
2. Select link O-D and II/EE matrix: For each road segment crossing the Napa County border, what percent of trips are internal-to-external, external-to-internal, or pass through? What is each TAZ origin or destination?
3. Select link for routing: For trips using a particular road segment, how many end up at another road segment later in the trip?

The analysis included additional trip data granularity by daypart and day of week. The final analysis was completed in just over an hour.

TRADITIONAL O-D

- License plate surveys
- Roadside, mail, phone surveys
- Survey tallying
- Small sample sizes
- Report takes months

BIG DATA O-D

- **GPS/LBS data**
- **Robust data set**
- **Report ready in hours**

> **"StreetLight helped us answer questions that are too costly and time consuming to analyze with traditional methods."**
>
> KEVIN JOHNSON, Fehr & Peers

TRIP PURPOSE	Avg Mon-Thu Trips	Friday Trips	Saturday Trips
Total	345,346	362,253	159,541
Internalized	26,369	25,223	8,647
Home-Based Work	60,393	62,932	10,618
Home-Based Other	57,867	58,163	16,015
Non Home-Based	49,803	53,261	6,399
Winery	47,811	56,639	50,273
Imported Trip	66,194	67,963	34,995
Exported Trip	36,909	38,072	32,593
Total Winery Trips (including work trips)	52,070	61,333	54,883
Winery Trips from Winery Regression Analysis	52,245	62,217	54,713
Difference	-175	-883	170
External Trips (including pass-through)	125,490	128,431	88,046
External Trips from Vehicle Classification Counts	—	126,736	—
Difference	—	1,695	—

StreetLight's detailed analysis drilled down to origins and destinations by trip purpose to identify traffic sources.

Results: Facts Reshape Public Opinion

Surprisingly, the analysis revealed that commuters working in Napa were the top cause of traffic. Tourists and pass-through trips from neighboring counties were less significant. Key findings included:

- 55% of trips were internal to Napa County
- Only 9% of inter-county trips passed through Napa without stopping
- Fridays were the busiest, driven in large part by commercial vehicles at 5% of total traffic that day.

Subsequent surveys of Napa's major employers discovered that 97% of respondents used personal vehicles to commute to work more than half the time, but 43% would use public transportation if expanded and convenient.

Napa's planners immediately optimized bus routes for workers. And although some residents pushed for light rail, the data proved that there was not enough demand for that sizeable investment.

Planners also secured resources for affordable housing for Napa workers. And they were able to reuse the data for other economic and financial planning applications, saving the county additional time and resources.