

Busting Congestion in Lafayette, CA

EXECUTIVE SUMMARY

- Surveys and sensors didn't explain congestion sources
- City needed trip Origin-Destination data for detailed analysis
- StreetLight's O-D with Middle Filter analysis revealed trip volumes on specific routes



The Bay Area city of Lafayette, California wanted to discover the root causes of existing congestion and forecast future conditions.

Mission: Capture Congestion Sources

Lafayette had previously measured congestion using surveys and traffic counters, but these data sets did not explain why traffic congestion was occurring. The raw counts did not reveal trip origins and destinations, and the regional travel demand model was too broad for analyzing specific roadways.

Engineering firm Arup helped the city of Lafayette identify the different groups that could potentially be causing the downtown area congestion. They decided to focus on public transit-bound commuters driving to the Lafayette BART station, drivers accessing State Route 24 (SR24), students getting dropped off at nearby schools, and shoppers heading to downtown retail stores.

We chose StreetLight Data for this project because their Travel Metrics deliver important origin/destination insights that are not easily captured through traditional data collection methods."

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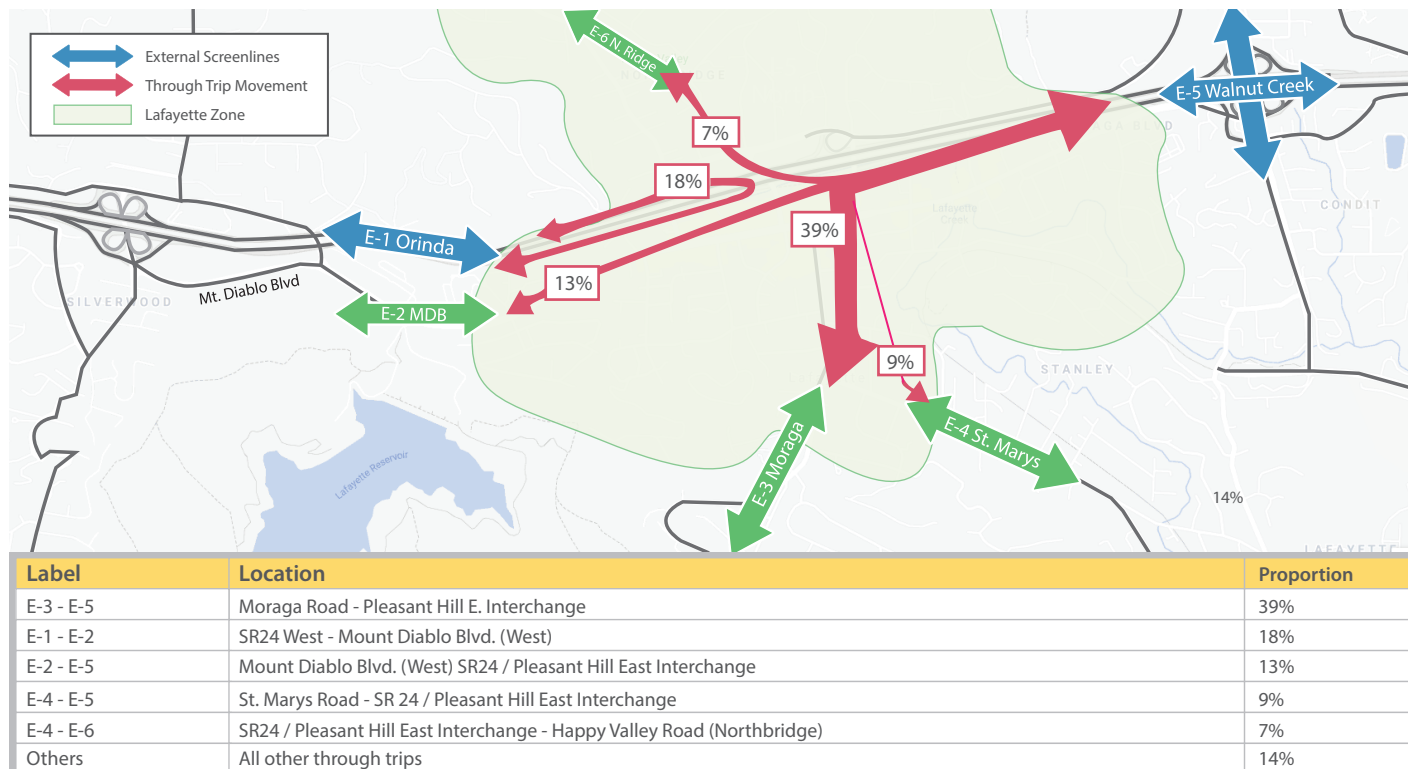


Figure 1: Relative Share of Through Trip Routes

Analysis: See Trip Volumes and Routes

Working from their prior understanding of the downtown corridor's traffic flows and the groups most likely to impact congestion, Arup defined the analysis zones and the specific trip types to study:

- External-External trips, or “through trips,” which pass through Lafayette without stopping
- External-Internal trips, or “incoming trips,” which originate outside of and end within Lafayette zones
- Internal-External trips, or “outgoing trips,” which originate within but end outside of Lafayette zones
- Internal-Internal trips, or “local trips,” which originate and end inside of Lafayette.

StreetLight InSight® Origin-Destination with Middle Filter showed the relative volume of each trip type through the downtown corridor as a percentage of the total trips, as well as the relative volume of each trip type along specific routes.

Results: Target SR24 for Congestion Improvement

Detailed findings included:

- Nearly 30% of trips in the downtown area were External-External “through trips.”
- About 39% of those External-External Trips used Moraga Road, and 60% of those trips using Moraga Road proceeded to either SR24 West or to Mount Diablo Boulevard.
- Over 70% of incoming trips with destinations in downtown Lafayette’s retail zones travel on SR24 from origins outside of Lafayette.

These observations, backed up by data collected through surveys and traffic counts, helped identify the most significant factor for resolving congestion: the connections to SR24 ramps on Moraga Road, Mount Diablo Boulevard, and 1st Street.

With a full understanding of trip origins and destinations during peak congestion times, the city could clearly communicate travel patterns and calibrate their travel traffic simulation models for analyzing future conditions.