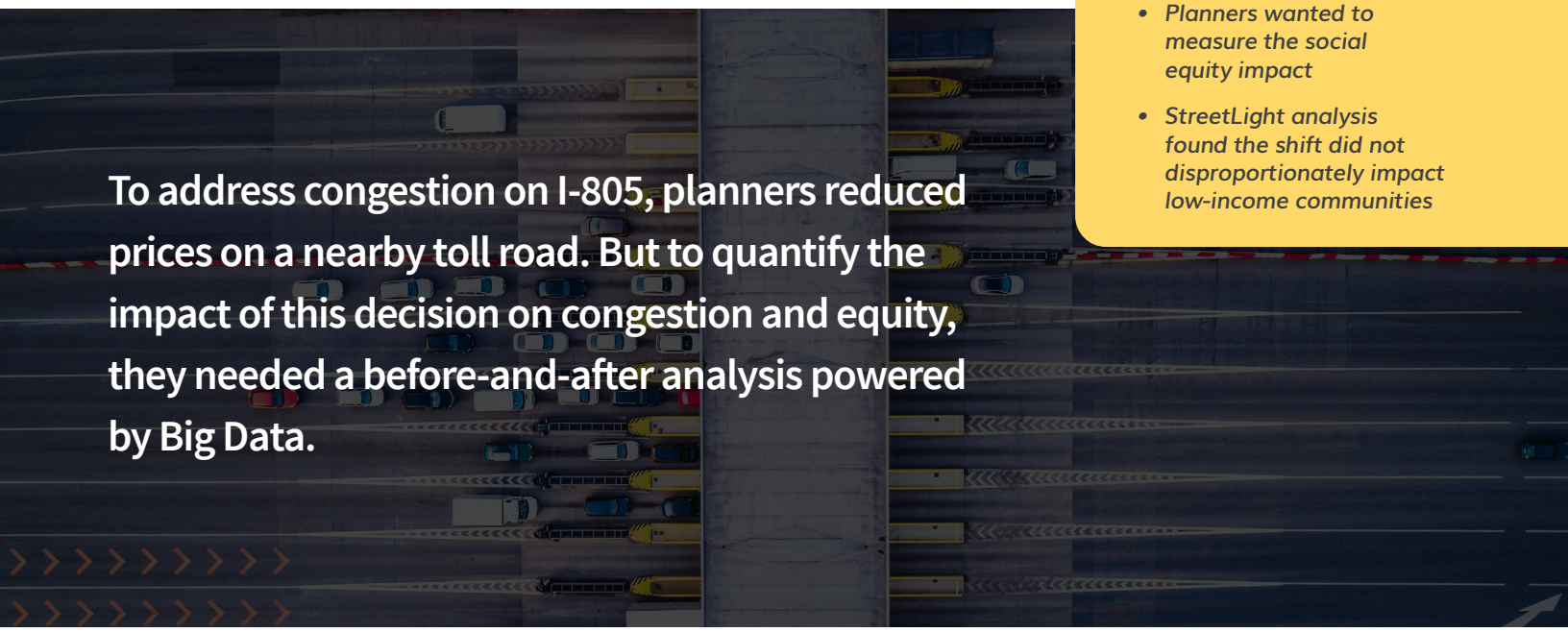
Quantifying the Impact of Toll Road Price Reduction

EXECUTIVE SUMMARY

- *SANDAG altered toll pricing to shift congestion away from a busy road*
- *Planners wanted to measure the social equity impact*
- *StreetLight analysis found the shift did not disproportionately impact low-income communities*



To address congestion on I-805, planners reduced prices on a nearby toll road. But to quantify the impact of this decision on congestion and equity, they needed a before-and-after analysis powered by Big Data.

Mission: Measure Toll's Impact

The San Diego Association of Governments (SANDAG) wanted to attack congestion on I-805. By reducing tolls on nearby SR 125, planners were able to shift traffic from I-805 to the state toll road. But did shifting heavy congestion to a toll road adversely impact low-income populations?

SANDAG wanted answers, but that required collecting demographic information about SR 125's travelers. A long-term survey of this magnitude was impossible to perform on site, on a busy and wide toll road.

A license plate survey could capture addresses, but not income data. A survey would be time consuming, expensive, and they usually yield low participation rates.

Gathering granular driver information for users of this major road would have been impossible without Big Data.

> **"Measuring the social equity impact of transportation decisions is what our Traveler Demographics Metric was designed for."**
>
> LAURA SCHEWEL
> StreetLight

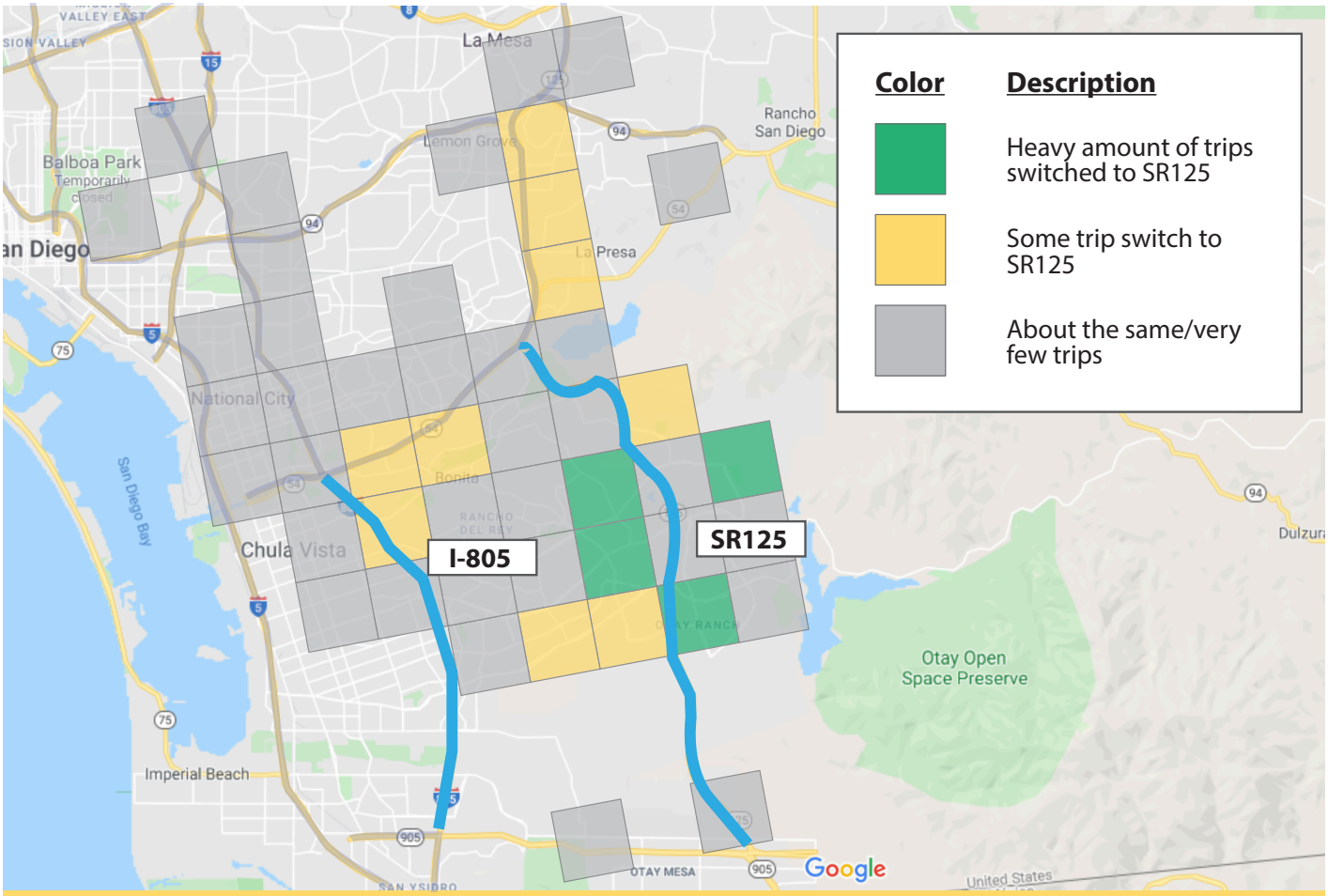


Figure 1: Share of Trips that Shifted to SR 125 in San Diego

Analysis: Before-and-After Demographics

SANDAG worked with engineering firm Fehr & Peers to gather the data needed and analyze results. Analysts traveled "back in time" using StreetLight InSight® to compare traffic on both routes before and after the toll pricing change.

StreetLight was able to compare traffic volume and speed for specific routes, days, and times of day. Analysts were then able to use StreetLight's Traveler Demographics Metric to overlay data, such as income and race, for drivers using both roads before and after the toll change.

StreetLight's platform also separates traffic by vehicle type, so analysts were able to study personal vehicle travel compared to medium- and heavy-duty trucks.

Results: Equitable Traffic Shift

The study confirmed that commuter traffic had indeed shifted from I-805 to the tollway, particularly during morning peak travel time.

Analysts were also able to see that truck traffic did not shift to SR 125. This highlighted a group of travelers that SANDAG could target with future education campaigns.

The demographic metrics determined that all income groups were equally impacted by the traffic shift. Further analysis found that the income distribution of drivers who switched to the toll road was about the same as the overall San Diego population. This secondary finding confirmed the social equity analysis.