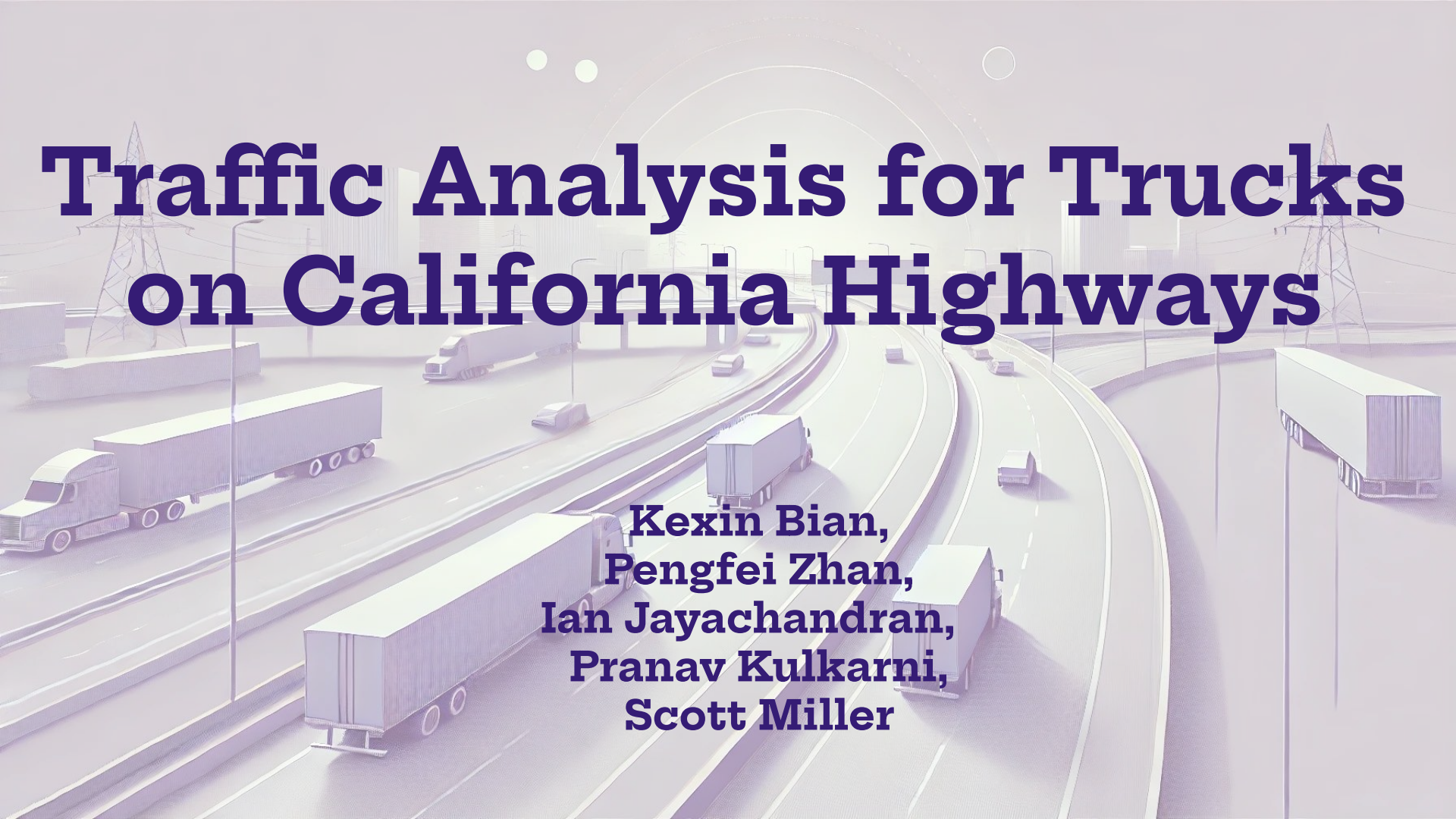
Traffic Analysis for Trucks on California Highways



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Motivation

- Heavy truck traffic → congestion, delays, rising costs. Affects delivery timelines, fuel consumption, environmental pollution.

- Data-driven approach to optimize routes using CalTrans data.
  - Long-term traffic trends (AADT).
  - Truck-specific data.
  - Peak-hour congestion patterns.

- Lower costs, faster deliveries for logistics companies.

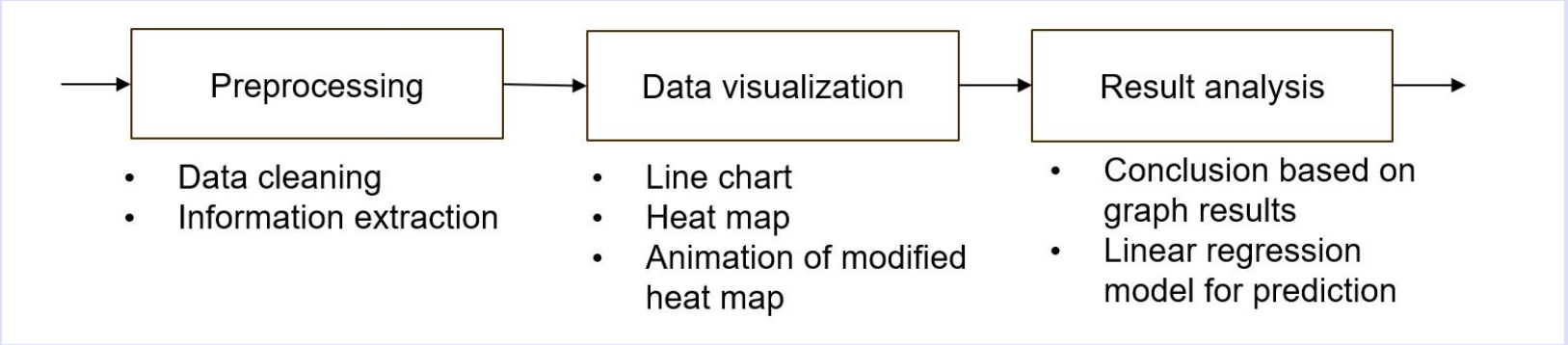
  Better infrastructure planning for California.

Overview of Dataset Used

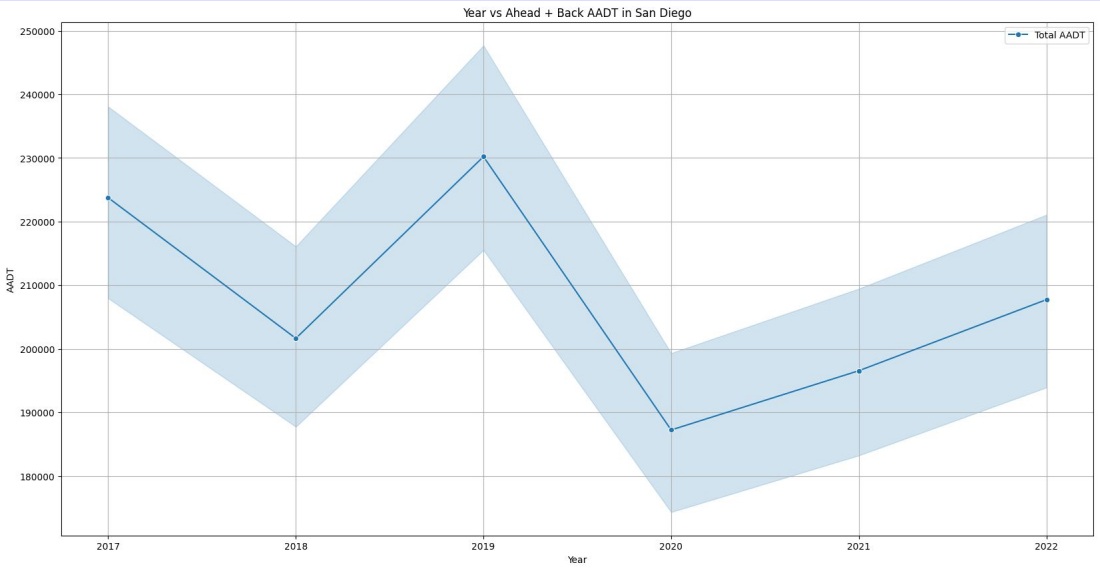
- **Source**
  - California Department of Transportation (CalTrans) Traffic Census Program
  - Website: [CalTrans Traffic Census]
- **Main Dataset Components:**
  - **Annual Average Daily Traffic (AADT)**
  - **Truck Traffic Data**
  - **Peak Hour Data**

Methodology for Data Analysis and Visualization

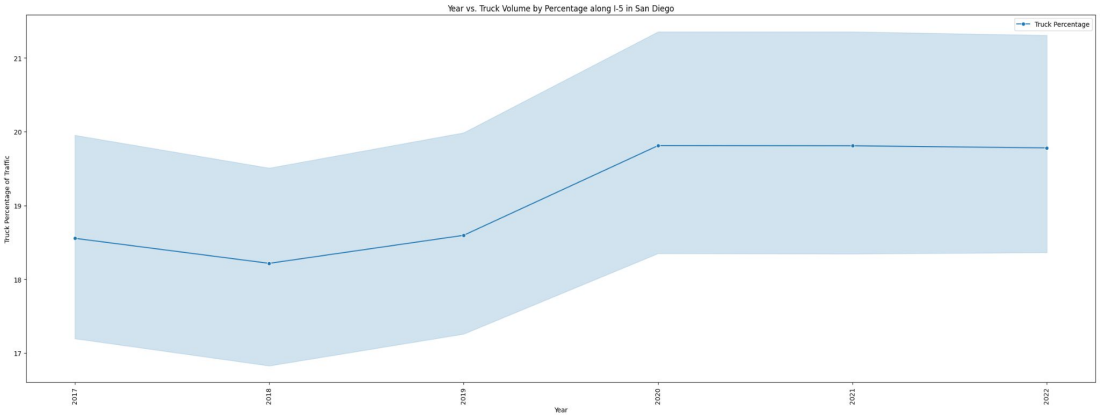
1. Data processing
   a. I-5, I-8, I-10, I-15, I-40, and I-80
2. Data visualization and general trends
3. Linear Regression model and Traffic prediction



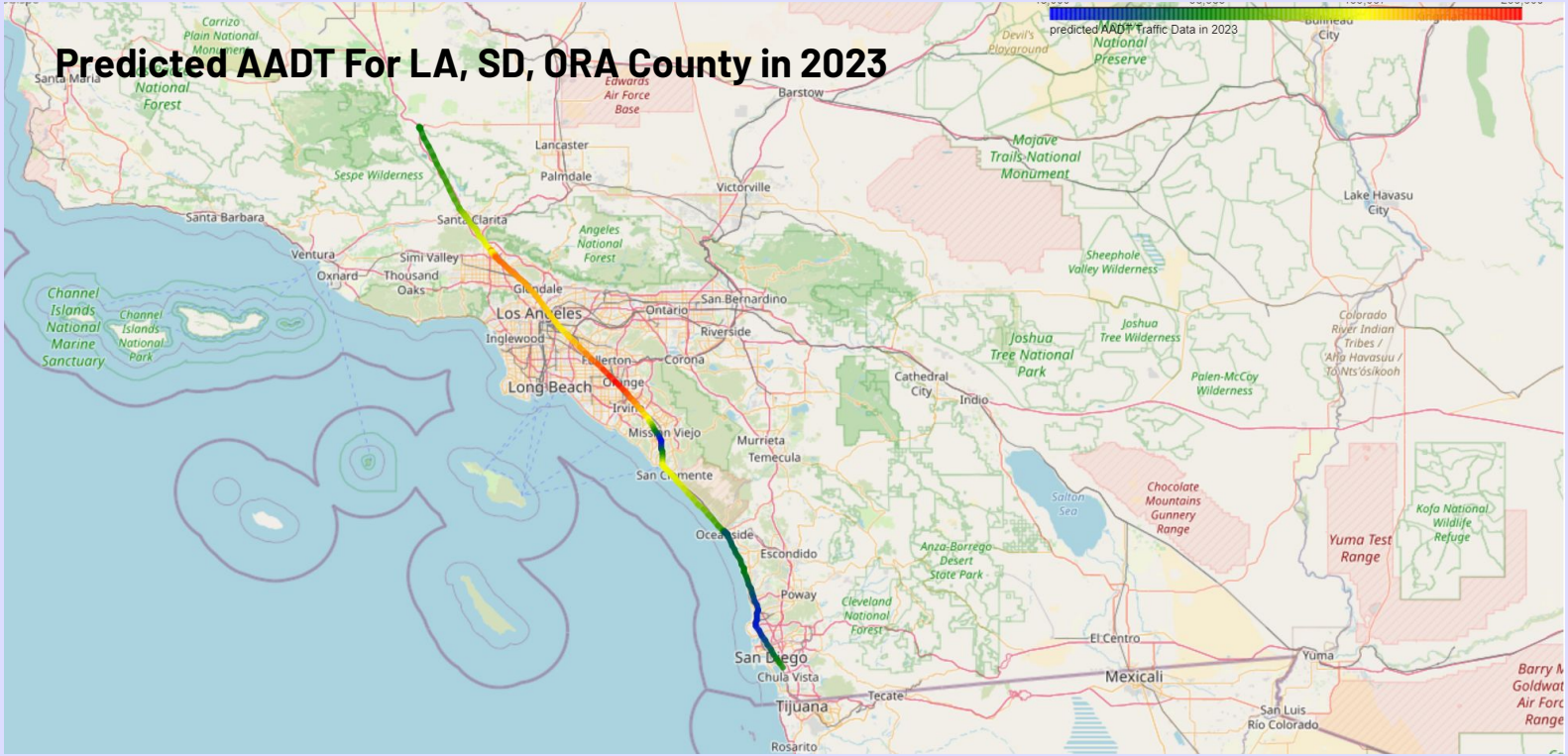
Graph 1:
and I-80



General trend of decreased traffic volume likely due to Covid-19

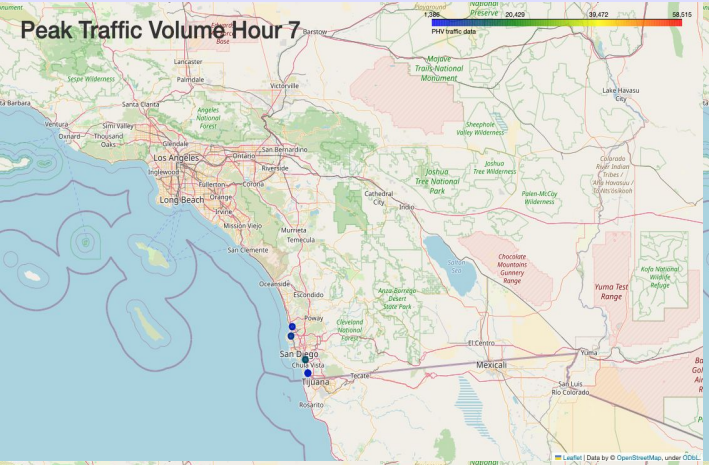


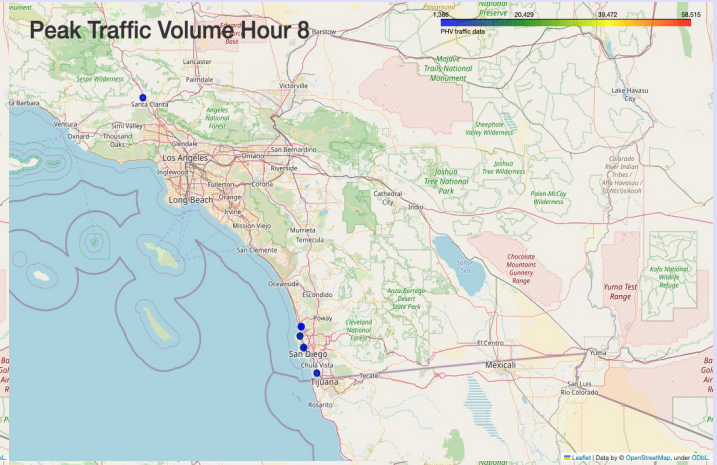
There is not a similar trend when it comes to truck traffic

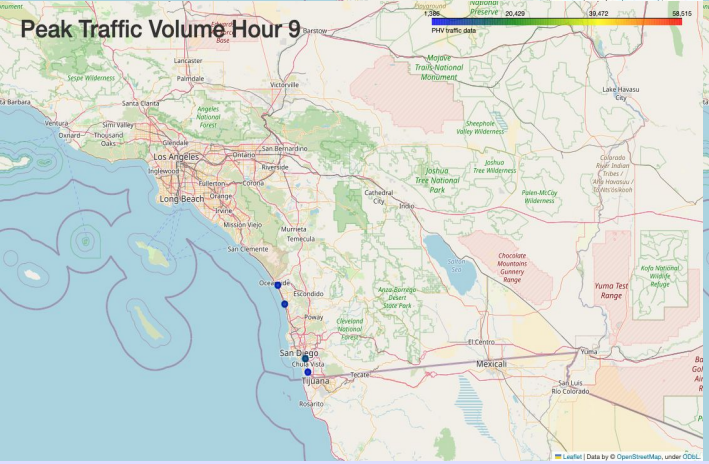


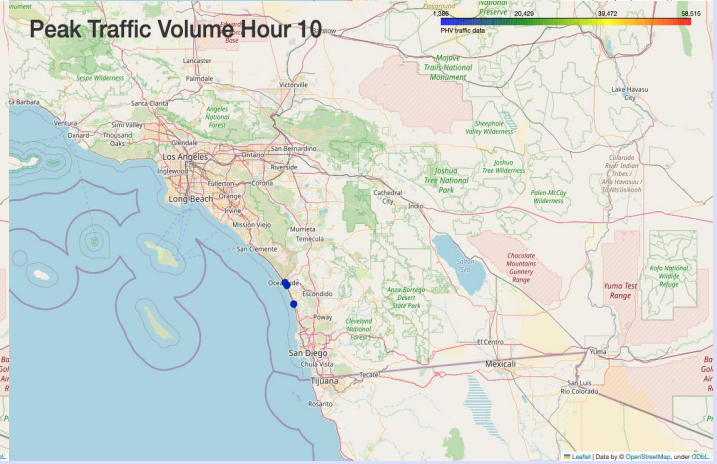
Highest traffic Volumes in the LA area

Limited conclusions based on the nature of the data

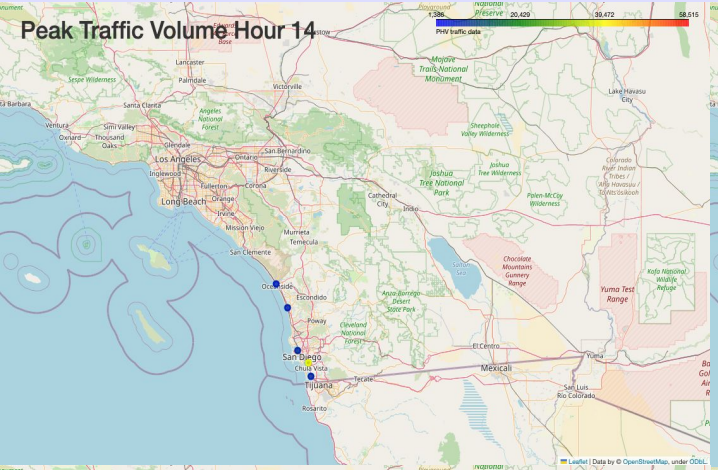


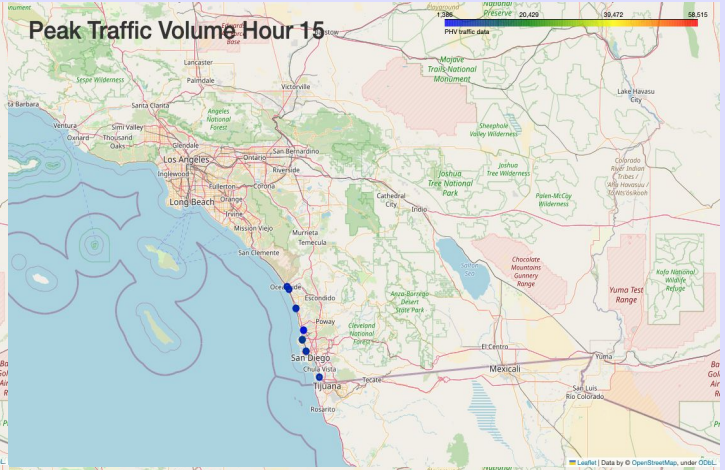


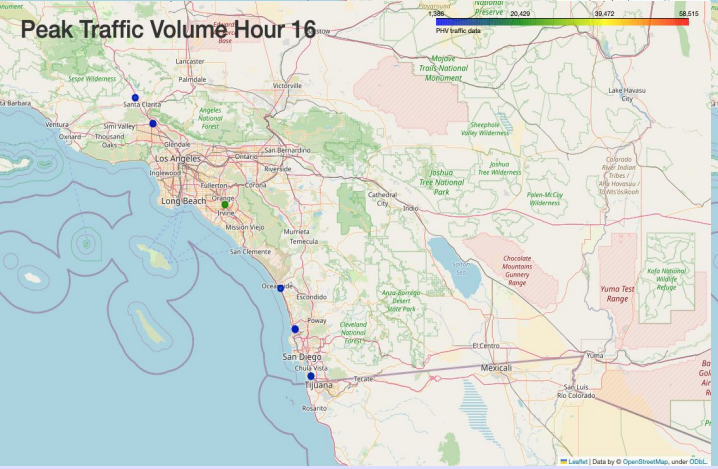


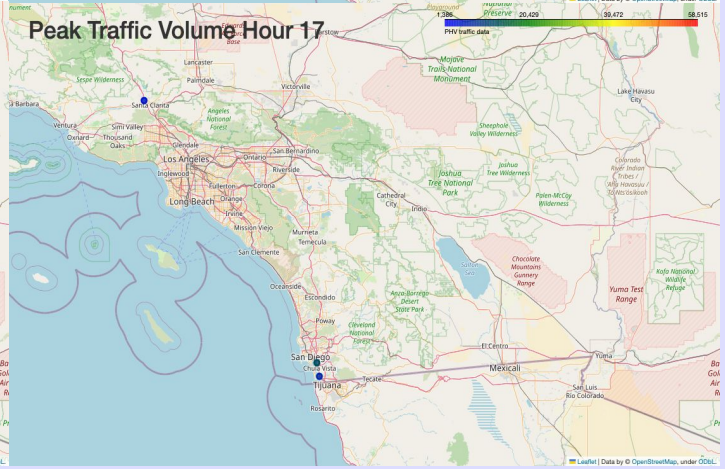


Peak Hourly Data for the Morning shows a more significant morning rush in San Diego County



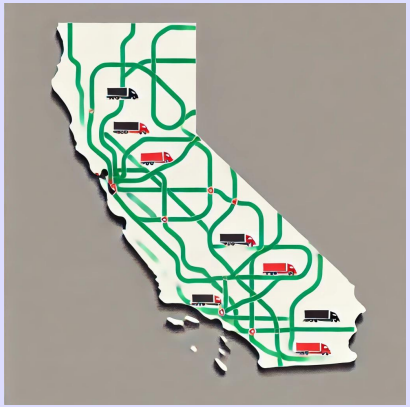






Similarly in the afternoon a lot of the peak traffic congestion is in the SD area

Conclusion



THANK YOU

Q&A