Supporting Document #1

Public Data Sources and Search Parameters

San Mateo County 101 Express Lanes Initial Performance Evaluation Study

March 2026

1 Purpose

This memorandum documents the publicly available data sources, access procedures, and filtering parameters used in the San Mateo County 101 Express Lanes Initial Performance Evaluation Study, available on the 101 Express Lanes website under "Documents." The intent is to provide sufficient detail for external stakeholders to access the same datasets and replicate the analytical approach.

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2 Traffic Flow Analysis (Speed, Volume, and VHT)

2.1 Data Source

Traffic performance data were obtained from the Caltrans Performance Measurement System (PeMS), a publicly accessible database maintained by the California Department of Transportation (Caltrans).

2.2 Dataset Access

To access the data:

1. Navigate to the PeMS website and log in. If you do not have an account, create one before proceeding.
2. Under the **"Tools"** sidebar, select **"Data Clearinghouse"**
3. Apply the following selections:
    - **Data Type:** Station Hour

- **District:** District 4 (San Francisco Bay Area)

4. Click **“Submit”**

2.3 Time Period Selection

Data collected for two periods to support before-and-after comparisons:

- **Pre-Implementation Period:** April – September 2018
- **Post-Implementation Period:** April – September 2024

Within the calendar interface, select any month in the specified ranges to download the corresponding datasets according to the following section.

2.4 File Selection

Within the “Available Files” section:

- Download all files with filenames ending in:
  - **04 through 09** (April through September)

2.5 Field Specification

Within the “Field Specification” section:

- Retain default field names (column headers), including:
  - Timestamp
  - Station
  - Total Flow
  - Avg Speed
  - Etc.

These headers are not included in the generated reports and must be added to enable analysis.

2.6 Data Filtering Parameters

After downloading reports, the data must be filtered according to the following before analysis.

2.6.1 Time-of-Day Filtering

- **AM Peak Period:** 6:00 – 9:00
- **PM Peak Period:** 15:00 – 18:00

These periods reflect typical commute conditions and align with standard performance evaluation practices.

2.6.2 Station Selection

Data were filtered to include only the following PeMS station IDs, selected based on their relevance to the US-101 corridor in San Mateo County and consistent availability in the Before and After study periods:

Express Lane Stations	General Purpose Lane Stations
400859	404534
400388	400388
401927	401835
401835	405679
401910	401834
401914	401832
400753	405859
400527	400527
400817	400381
401336	400441
413195	401336
400010	413195
400473	400010

400473	

Note: Station selection is based on the corridor segmentation methodology described in the Study.

2.6.3 Lane Designation

When parsing data in the generated report, please note:

- **Lane 1** corresponds to the **Express Lane (EL)**
- **All other lanes** correspond to **General Purpose (GP) lanes**

2.7 Replication Notes

To replicate the traffic analysis:

1. Download data for both 2018 and 2024 using the parameters above
2. Apply consistent time-of-day and station filters across both reports
3. Separate EL and GP lanes based on lane number
4. Aggregate and analyze metrics (e.g., speed, flow, VHT) consistently across both periods

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3 Safety Analysis

3.1 Data Source

Crash data were obtained from the UC Berkeley Transportation Injury Mapping System (TIMS), which provides public access to California's Statewide Integrated Traffic Records System (SWITRS).

3.2 Dataset Access

To access the data:

1. Navigate to the TIMS website and log in
2. Select:

- **Analysis & Visualizations → SWITRS Query & Map**

3. Input the query parameters listed in the section below
4. Click **"Show Result"**
5. From the results toolbar, select **"Download Raw Data"**
6. Under **Choose Data File Type**, select:
   - **Crashes**
7. Click **Download**

3.2.1 Query Parameters

The following filters were applied within the SWITRS Query & Map tool:

- **Date Range:**
  - **Pre-Implementation Period:** January 1, 2016 – December 31, 2018
  - **Post-Implementation Period:** January 1, 2023 – December 31, 2023
- **County:** San Mateo
- **Route Type:** State Route
- **Route Number:** 101
- **Direction:** All

3.3 Geospatial Filtering

After download, additional filtering was applied using geographic coordinates to isolate the project corridor:

- **Latitude (Point_X column):** 37.446922 – 37.636009
- **Longitude (Point_Y column):** 122.171731 – 122.403547

This step ensures that only incidents occurring within the defined US-101 corridor segment are included.

3.4 Replication Notes

To replicate the incident analysis:

1. Download SWITRS crash data using the parameters above
2. Apply geographic filters using Point_X and Point_Y fields
3. Aggregate crashes by relevant dimensions (e.g., severity, time period, location)

3.5 Data Considerations

The study team utilized a **supplemental dataset obtained directly from the California Highway Patrol (CHP)** for final analysis. As a result, **publicly available TIMS/SWITRS data may produce slightly different crash counts** due to differences in data completeness or post-processing.

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4 Trip and Occupancy Data

Aggregated trip and occupancy data, compiled in compliance with California Streets and Highways Code §31490, are available on the 101 Express Lanes website under "Documents."