

Westside Circulation Study

July 23rd, 2021



PREPARED BY
FEHR & PEERS

Study Questions

- 1** How have vehicle volumes changed overall on major roads on the westside of San Francisco?
- 2** How did drivers use the Great Highway before it was closed to cars?
- 3** How have drivers changed their travel routes due to car-free Great Highway?
- 4** How did drivers use JFK Drive before it was closed to cars?
- 5** What routes did drivers use to access JFK Drive before it was closed to cars?
- 6** Are there any key congestion hot spots near Golden Gate Park? What operational or infrastructure improvements could alleviate those issues?



Study Scenarios

To study how vehicle travel patterns have changed as a result of car-free Great Highway, data was collected for two time periods: pre-COVID and Winter 2021. Pre-COVID was represented by data from three months in 2019 (September to November), while Winter 2021 consisted of data from January to March 2021.

Data was obtained from StreetLight, a data vendor that aggregates anonymous gps data from cell phones and navigation devices to study travel behavior. For all analysis metrics, data was summarized over each three-month period to create daily averages for weekday and weekend vehicle travel.

In total, four scenarios were analyzed:

- › **Pre-COVID** Weekday
- › **Pre-COVID** Weekend

- › **Winter 2021** Weekday
- › **Winter 2021** Weekday

1 Vehicle Volumes

Methodology

How have vehicle volumes changed overall on roads on the westside of San Francisco? To answer this question, cellular GPS data from StreetLight was used to study total vehicle volumes on major roads for pre-COVID and Winter 2021 conditions. These volumes represent the average daily (24-hour) vehicle volumes for weekdays and weekends within each analysis period.

Findings

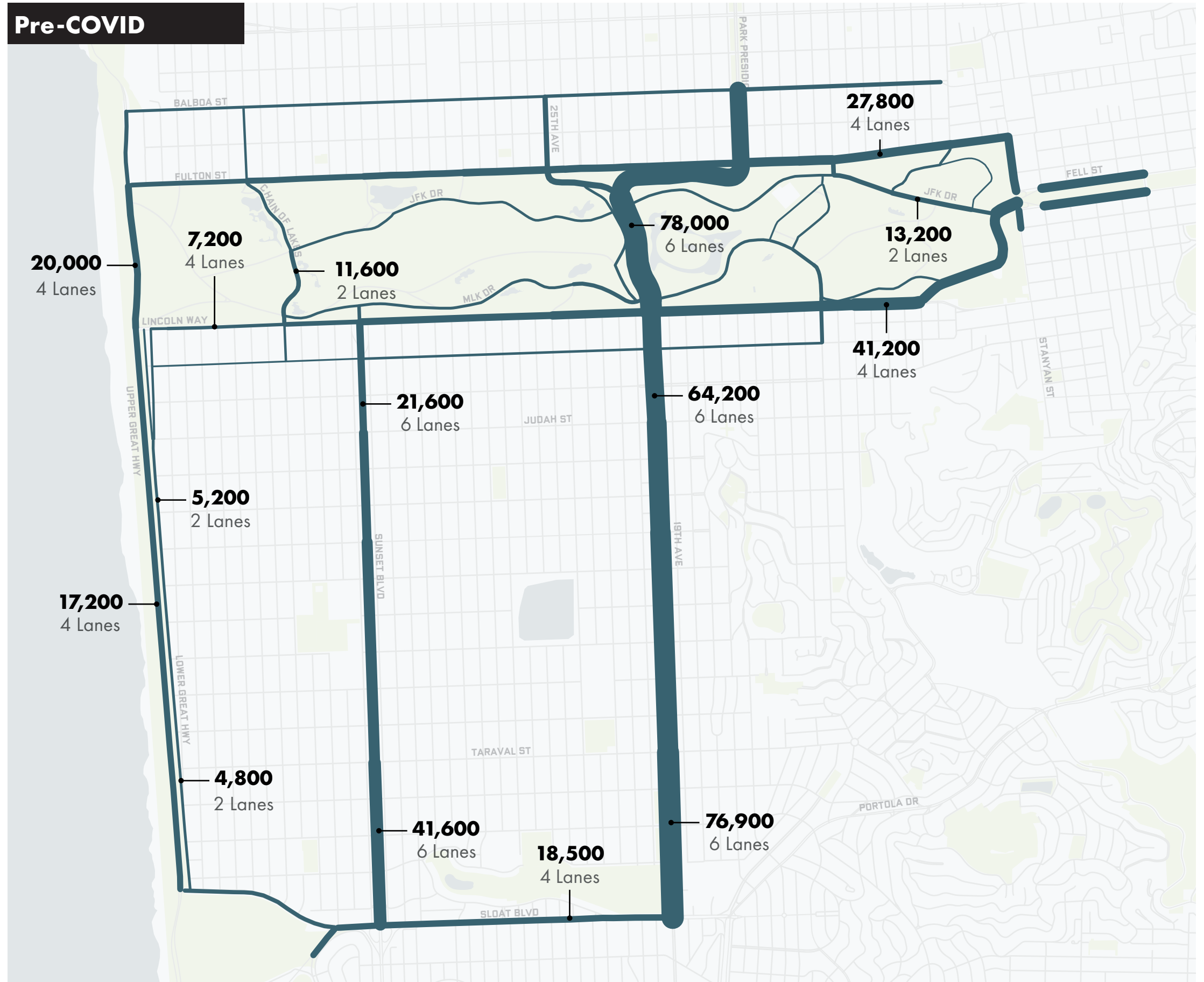
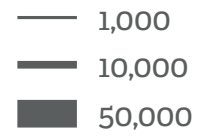
Overall, vehicle volumes decreased significantly on almost all study roads between pre-COVID and Winter 2021. Volumes on major roads like 19th Avenue, Sunset Boulevard, Crossover Drive, and Fulton Street decreased by as much as 20 to 40%. Only Chain of Lakes saw a major increase in vehicle volumes - traffic increased by nearly 20% on weekdays and 10% on weekends.

Study Roads



Weekday Vehicle Volumes

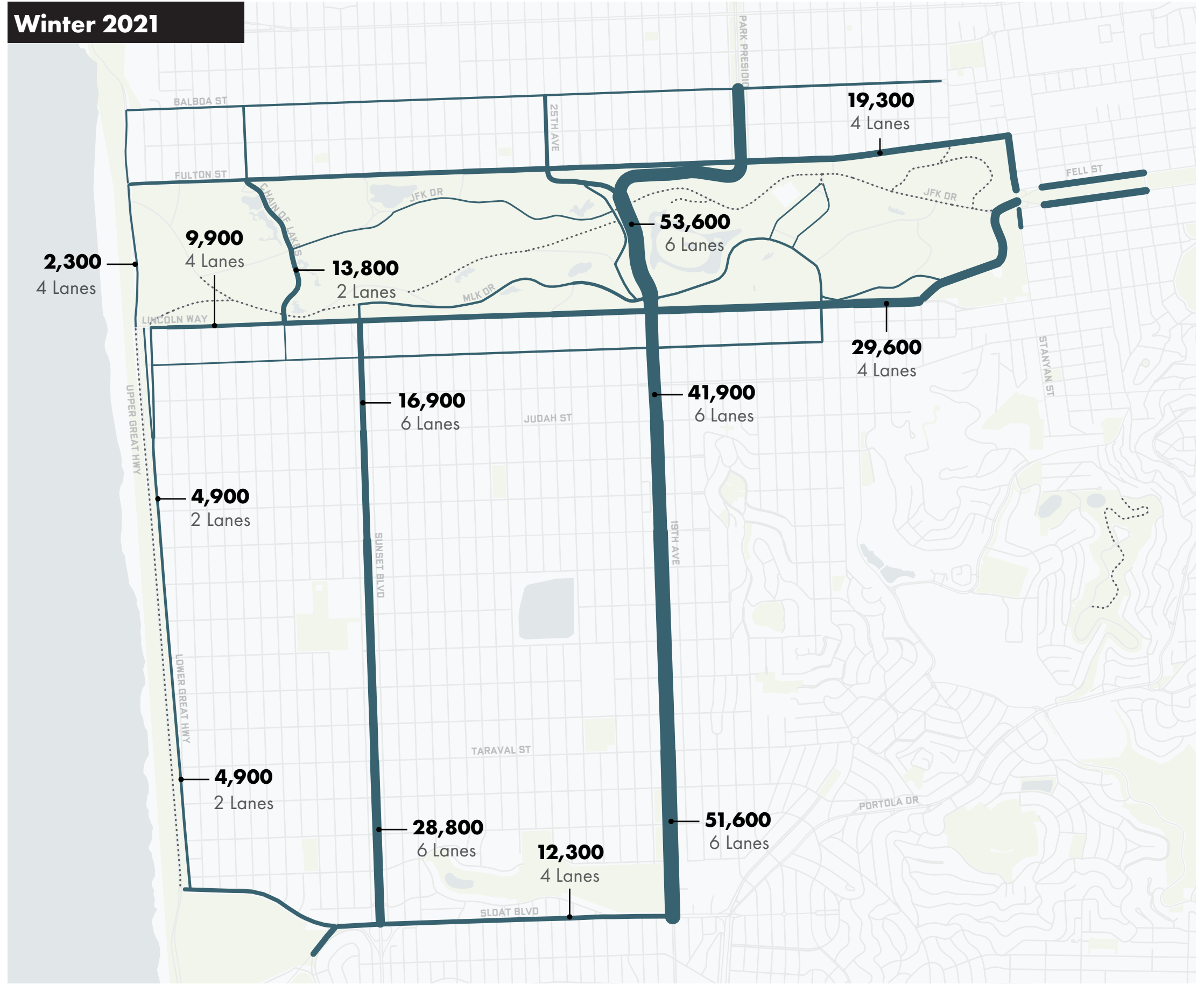
Daily Vehicle Volumes



Weekday Vehicle Volumes

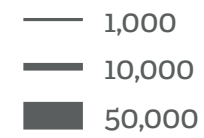
Daily Vehicle Volumes

- 1,000
- 10,000
- 50,000
- Car-Free Roads



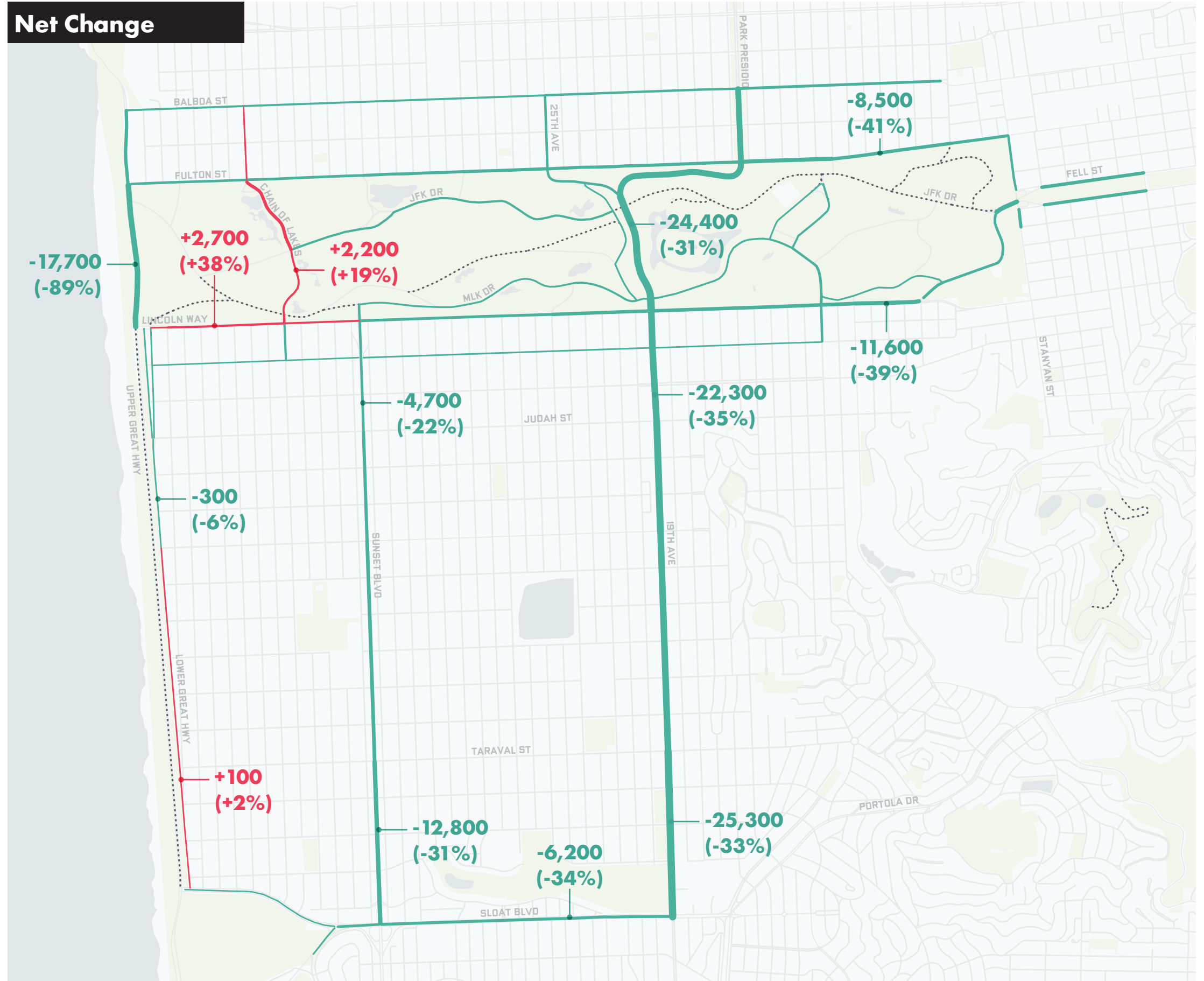
Weekday Vehicle Volumes

Daily Vehicle Volumes



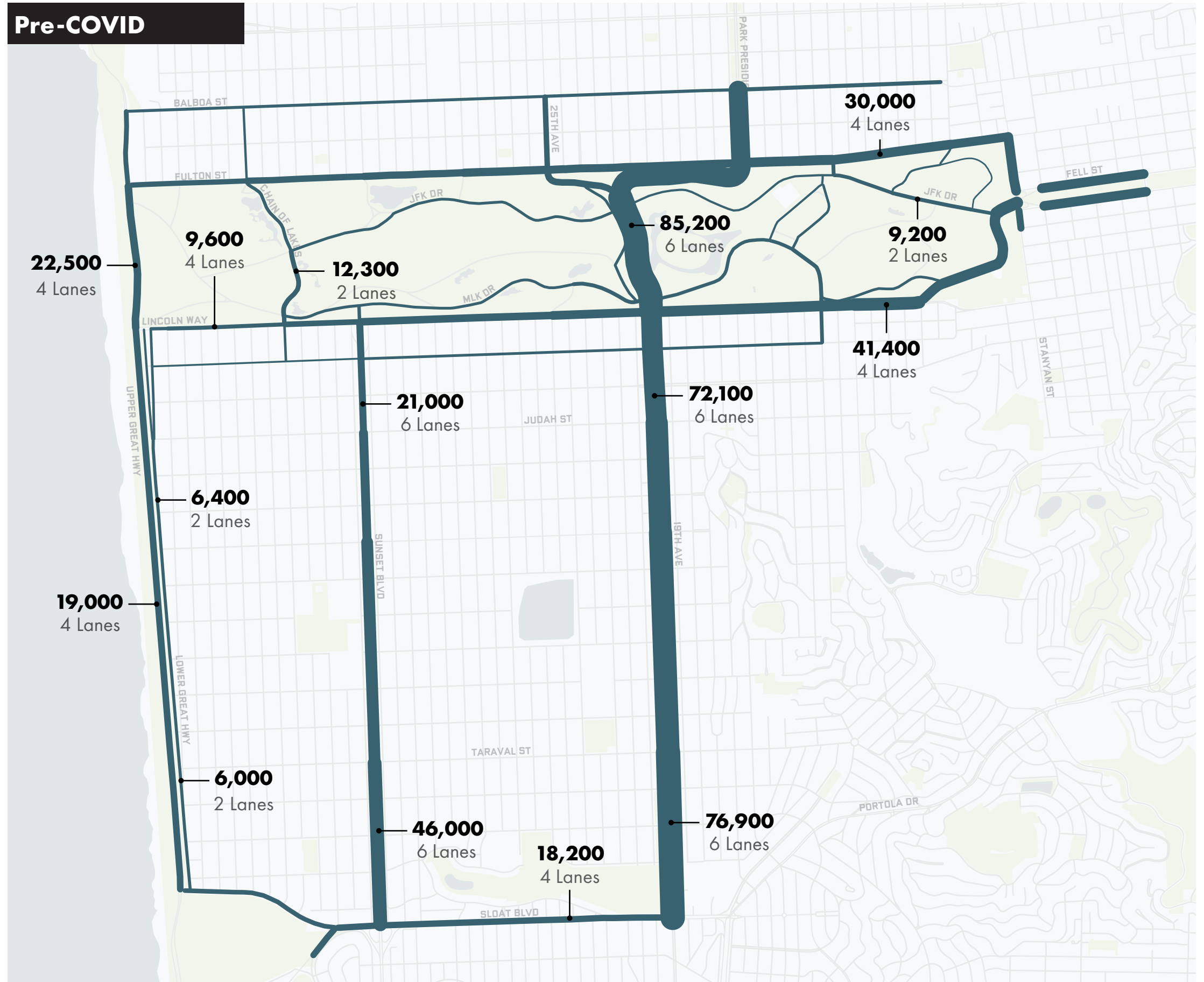
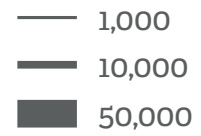
..... Car-Free Roads

Change from Pre-COVID to Winter 2021



Weekend Vehicle Volumes

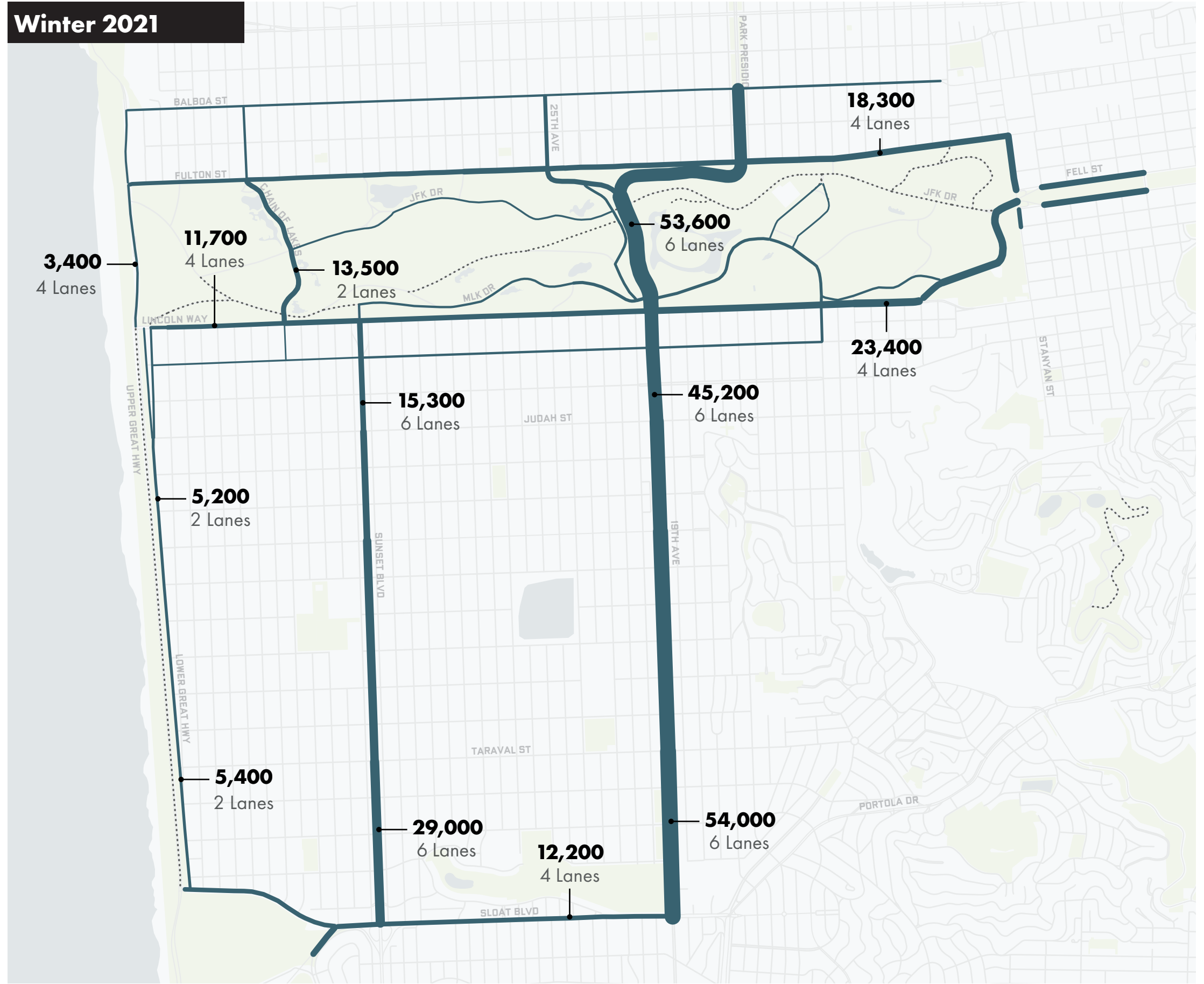
Daily Vehicle Volumes



Weekend Vehicle Volumes

Daily Vehicle Volumes

- 1,000
- 10,000
- 50,000
- Car-Free Roads



Weekend Vehicle Volumes

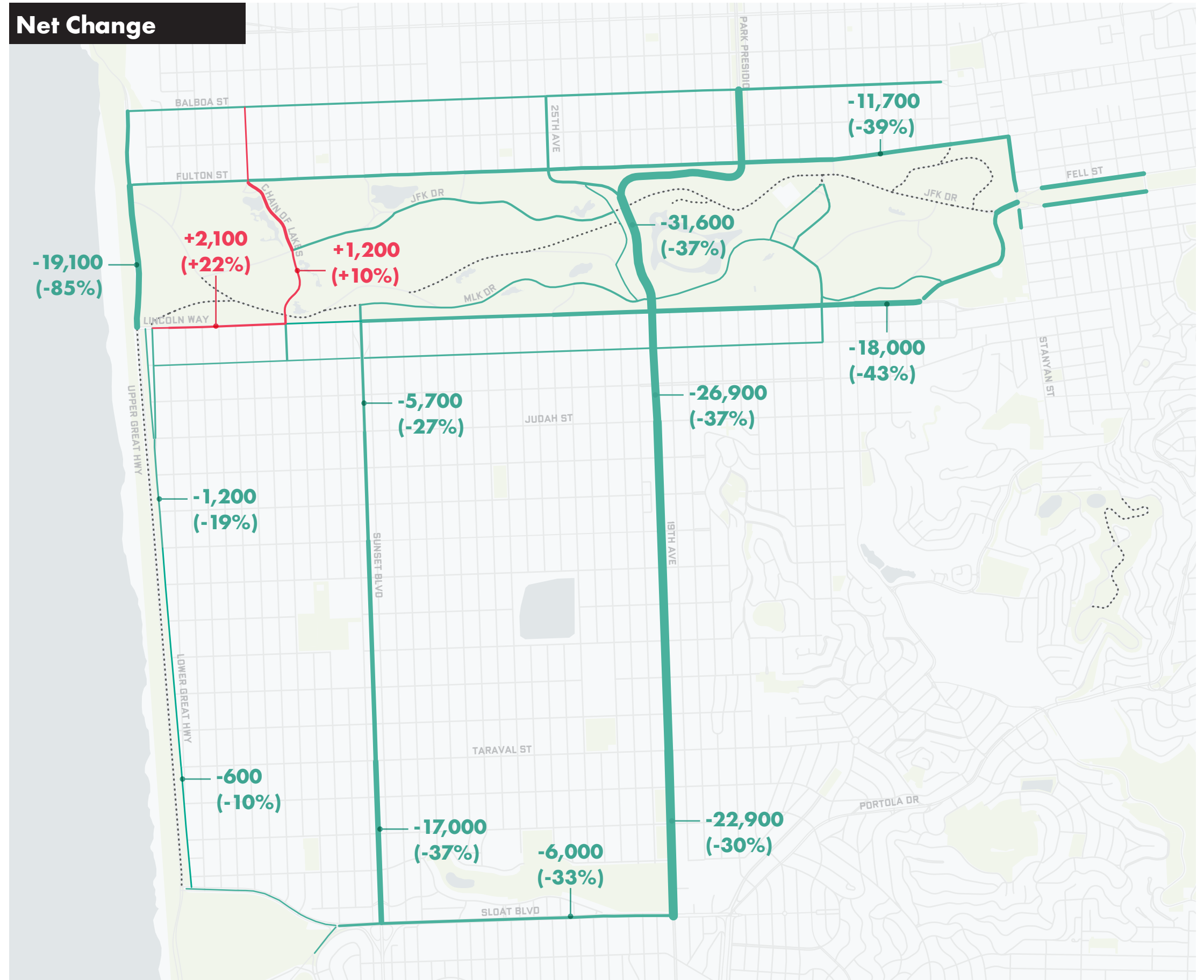
Daily Vehicle Volumes

- 1,000
- 10,000
- 50,000

..... Car-Free Roads

Change from Pre-COVID to Winter 2021

- Increased
- Decreased



2 Drivers & the Great Highway

Origins & Destinations

Methodology

When people drove on the Great Highway, where were they traveling from and where were they going? Anonymous cellular gps data from StreetLight was used to identify the origins and destinations of vehicle trips on the Great Highway. StreetLight data for origins and destinations is aggregated by census block group. This data represents travel in 2019 prior to the onset of the COVID-19 pandemic.

Findings

The Great Highway primarily served as a connection for people driving between the Richmond and southwest San Francisco or northwest San Mateo County. Overall, about 2 of 3 trips started or ended in the Richmond. Travel patterns on weekdays and weekends were largely similar to each other.

Driver Home Locations

Methodology

Where did Great Highway drivers live? Cellular gps data from StreetLight data was used to identify anonymized home locations of Great Highway drivers. StreetLight data for home locations is aggregated by census block group. This represents the home locations of people driving on the Great Highway in 2019 (pre-COVID).

Findings

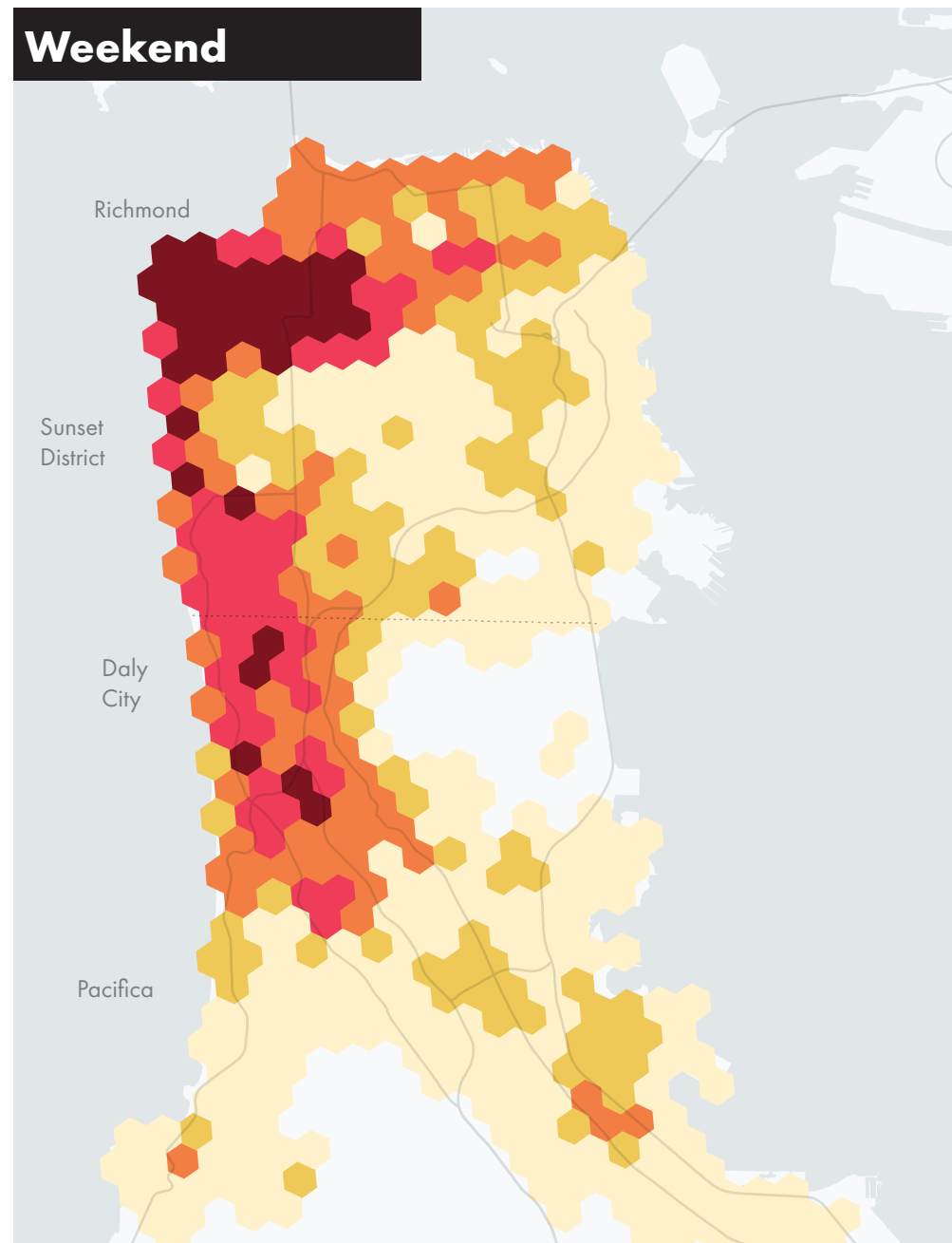
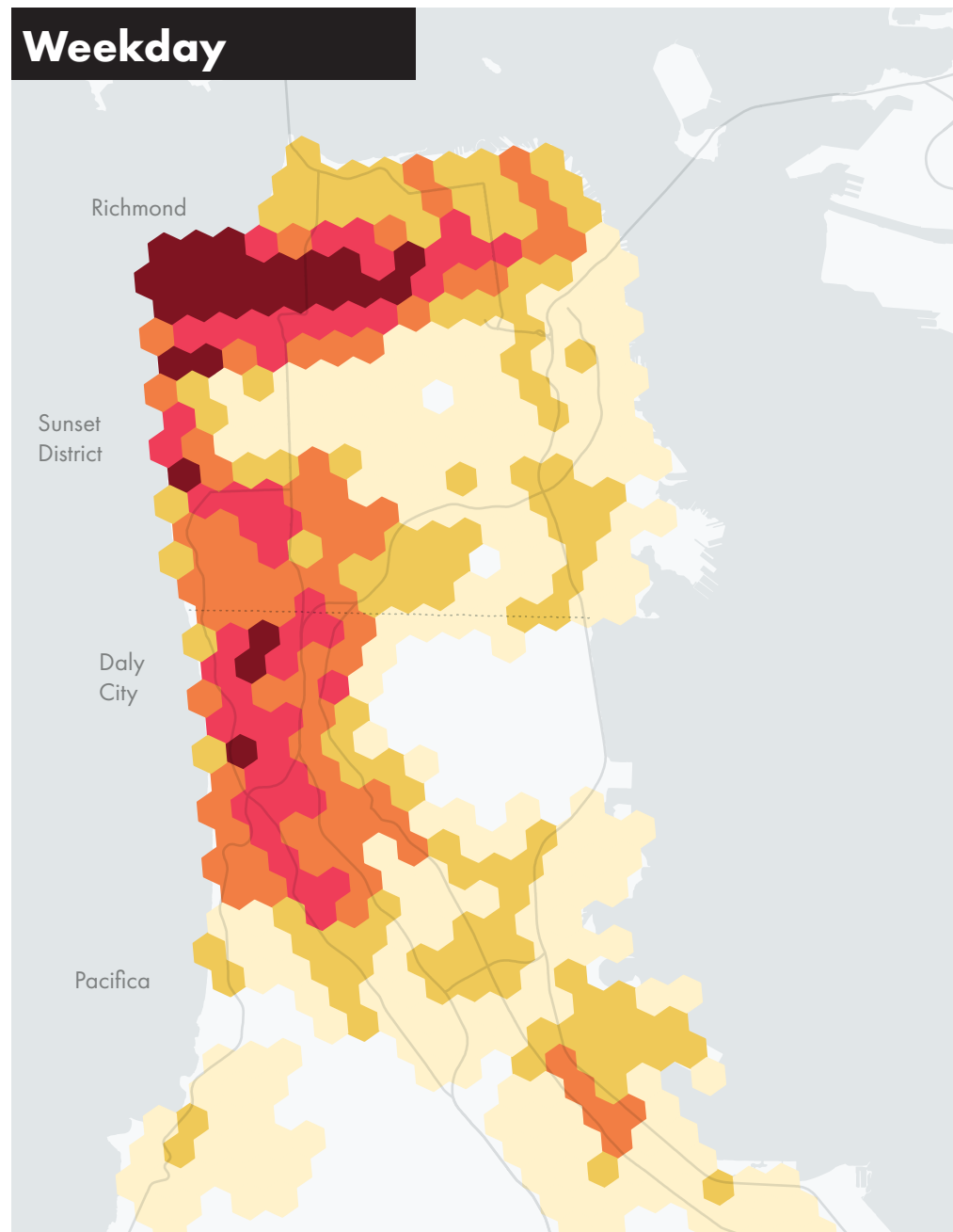
The majority of Great Highway drivers lived in San Francisco or in San Mateo County. On weekdays, about 47% came from San Francisco and 38% from San Mateo County. On the weekends, a larger share of drivers came from other counties in the Bay Area (27% instead of 16% of total drivers). Within San Francisco, the largest share of Great Highway drivers lived in the Richmond (40%), followed by the Outer Sunset (20%).

How Did Drivers Use the Great Highway?

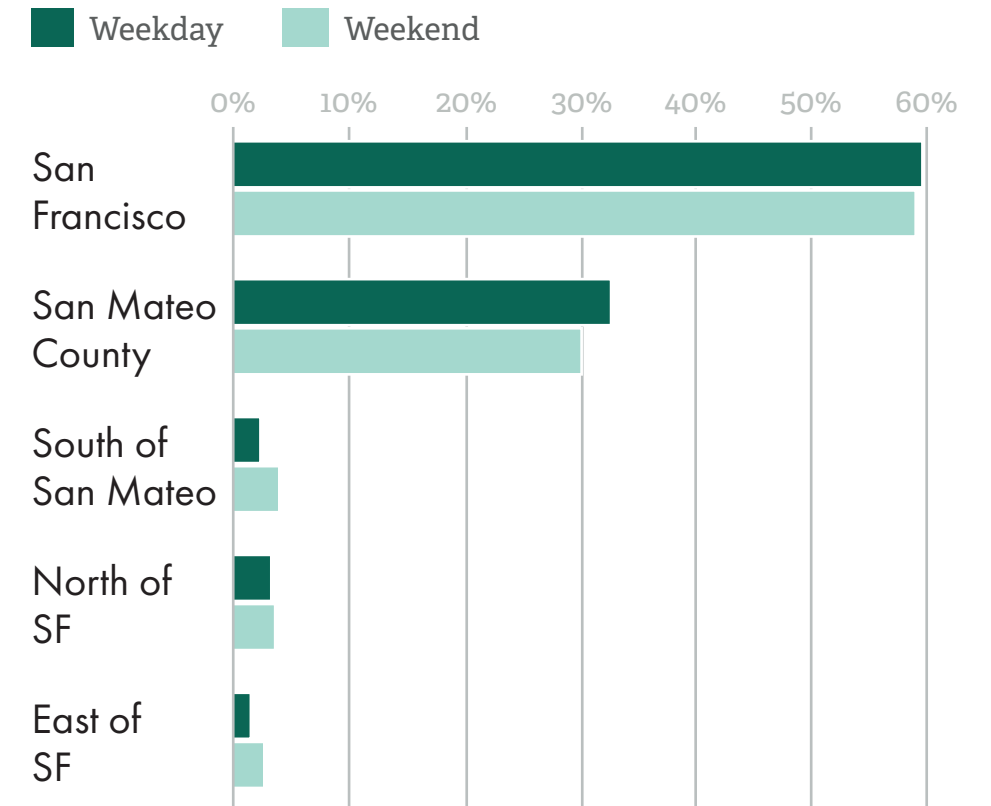
Origins & destinations of Great Highway car trips (pre-COVID)

Daily Car Trips

5 to 25 25 to 50 50 to 100 100 to 200 200+



Origins & Destinations of Car Trips by County or Direction



Pre-COVID, the Great Highway served **17,000 car trips per weekday** & **19,000 per weekend**.

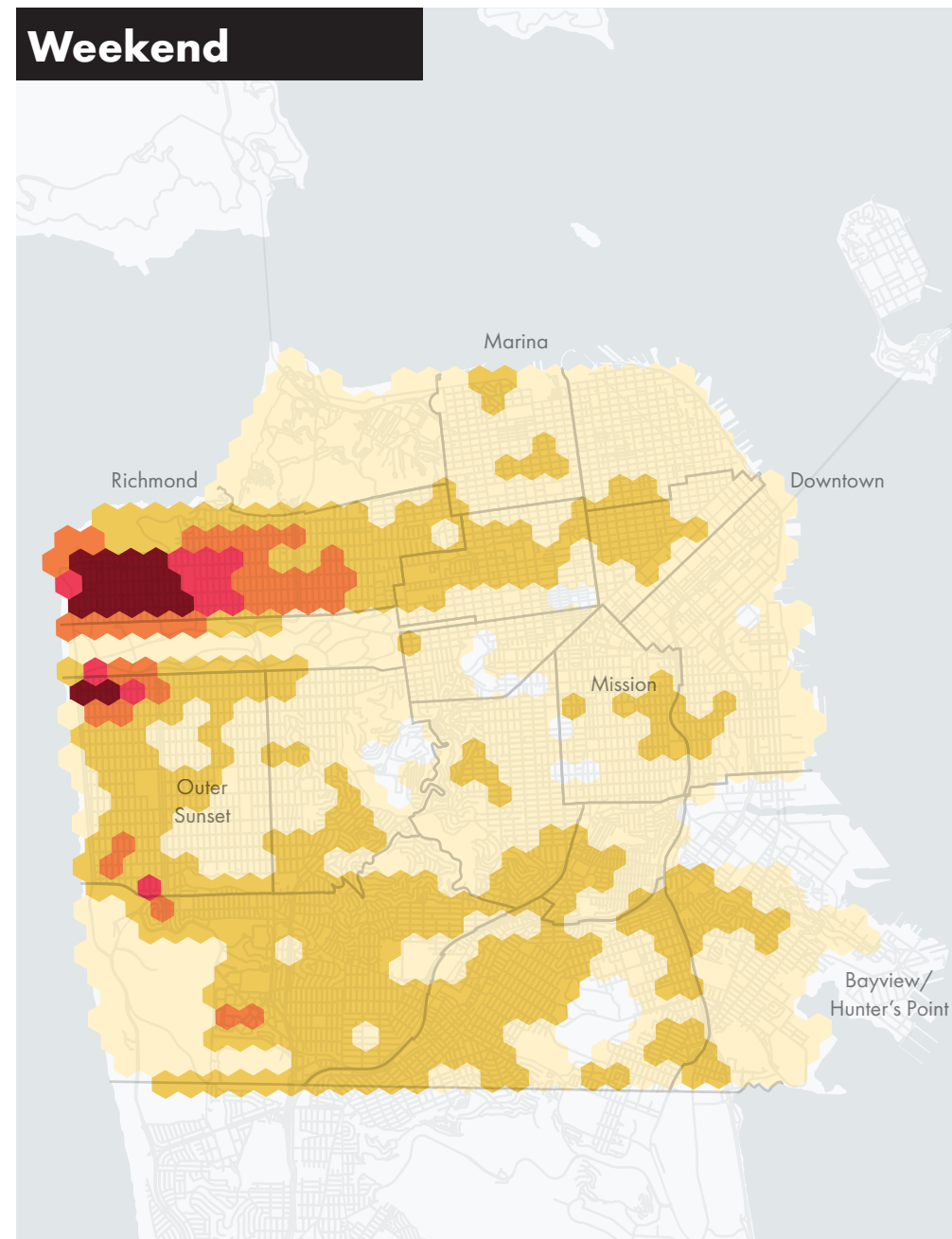
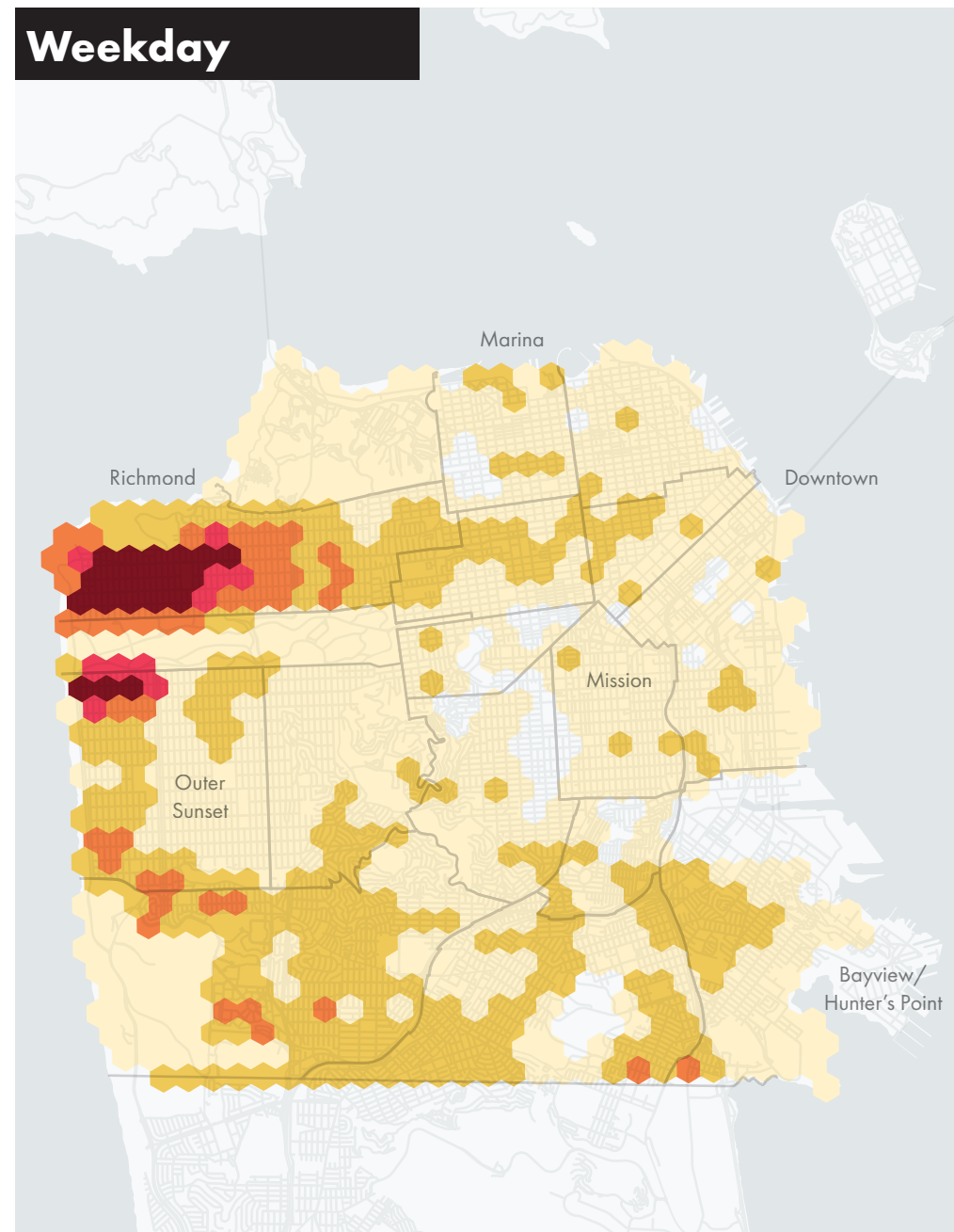
On average, **2 of 3** trips started or ended **in the Richmond**.

Where Did Great Highway Drivers Live?

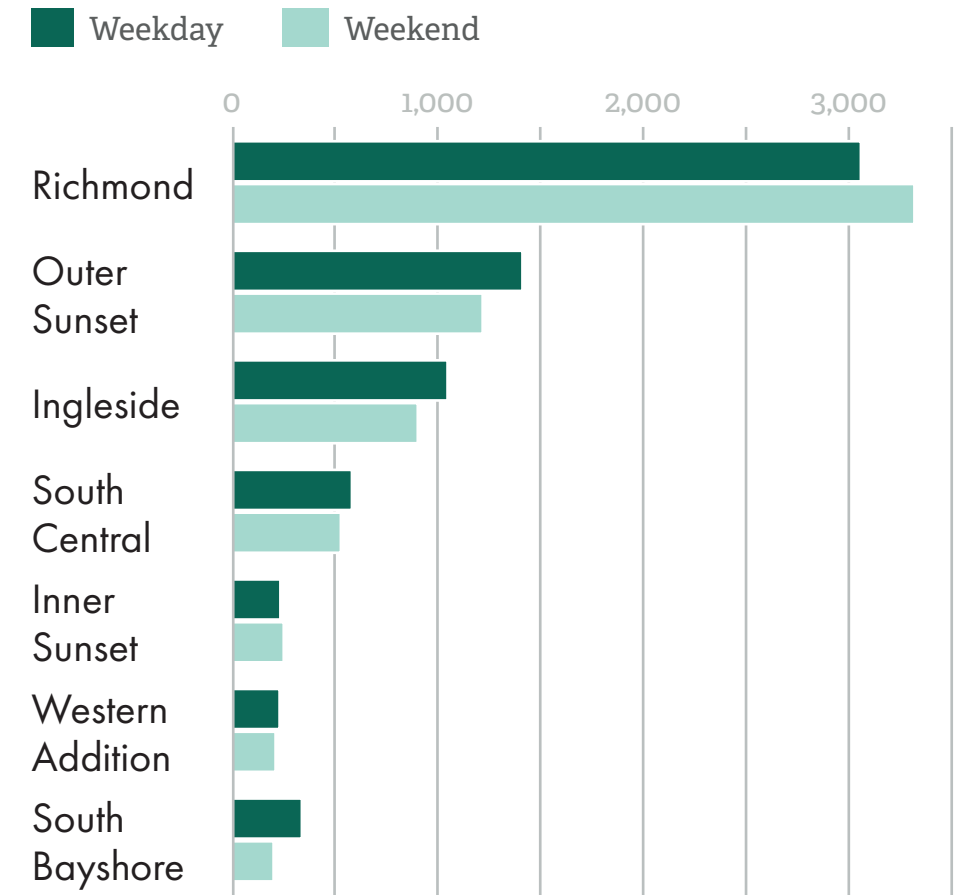
Home locations of San Francisco Great Highway drivers (pre-COVID)

San Francisco Residents

1 to 5 5 to 20 20 to 50 50 to 75 75+



Great Highway Driver Home Locations by Neighborhood



Pre-COVID, the Great Highway served **7,800 San Francisco residents** per day & **2 of 5** lived in the **Richmond**.

Note: Fewer than 200 Great Highway drivers resided in each of the neighborhoods not depicted on the graph above.

3 Trip Diversions & the Great Highway

Methodology

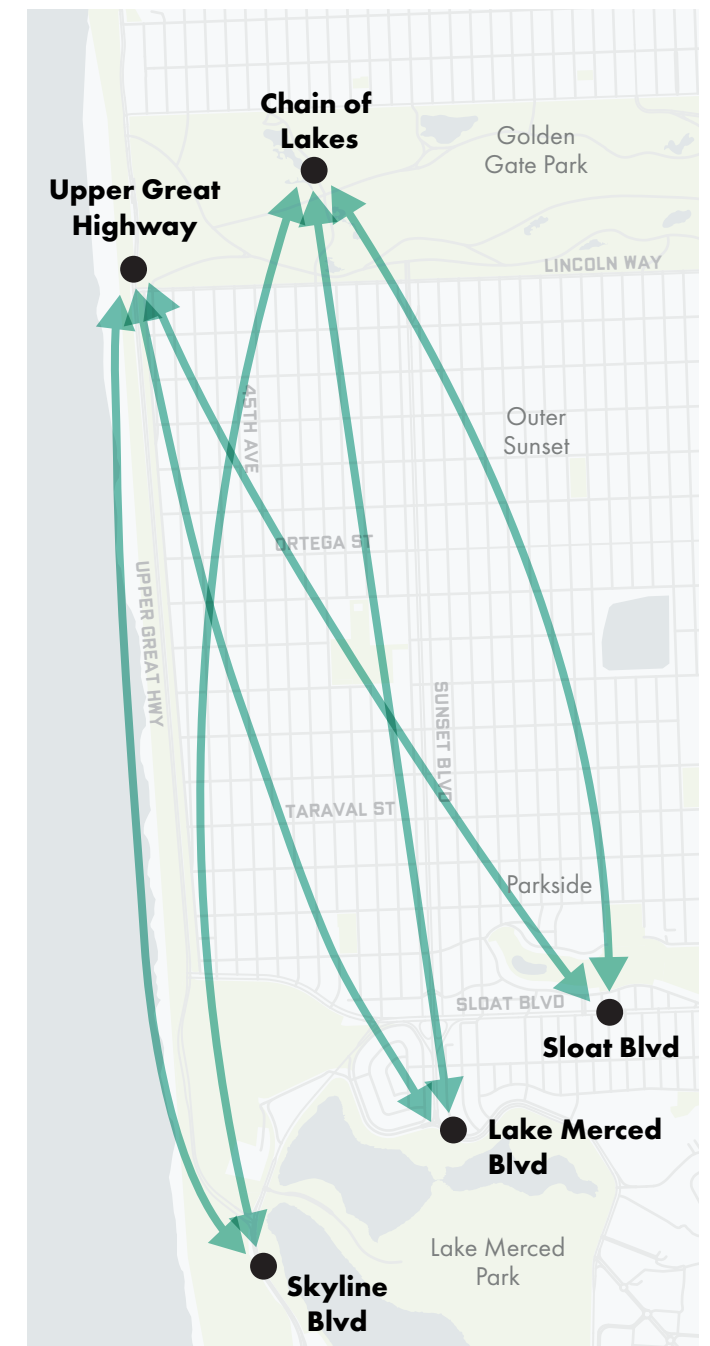
How have drivers changed their travel routes due to car-free Great Highway? The origin-destination analysis revealed that the Great Highway was most commonly used to drive between the Richmond and areas south of the Sunset. To determine how travel routes have changed between those areas, key roads were identified that provide north-south connections on the westside of San Francisco. These included roads used to access the Great Highway and roads that connect alternative north-south routes through the Outer Sunset.

Cellular data from StreetLight was used to determine travel routes between these key roads. The roads depicted in the map on the right served as northern and southern “gates”, and travel routes were analyzed for trips that passed through a northern and a southern gate. This analysis was conducted for two time periods: pre-COVID and Winter 2021. Overall, travel between the northern and southern gates represents about 70% of trips on the Great Highway pre-COVID.

Findings

Overall, for both weekday and weekend, the Great Highway closure caused some trips to shift onto Chain of Lakes, Lincoln Way, Sunset Boulevard, and Skyline Boulevard. There were limited or no trip diversions to residential streets in the Outer Sunset. However, with the exception of Chain of Lakes and the western section of Lincoln Way, despite the effect of diversions from the Great Highway closure, total traffic volumes on major roads like Sunset decreased between pre-COVID and Winter 2021.

Trip Diversion Analysis Gates



Weekday Trip Diversions & the Great Highway Closure

Vehicle volumes on north-south routes between roads primarily connected by the Great Highway

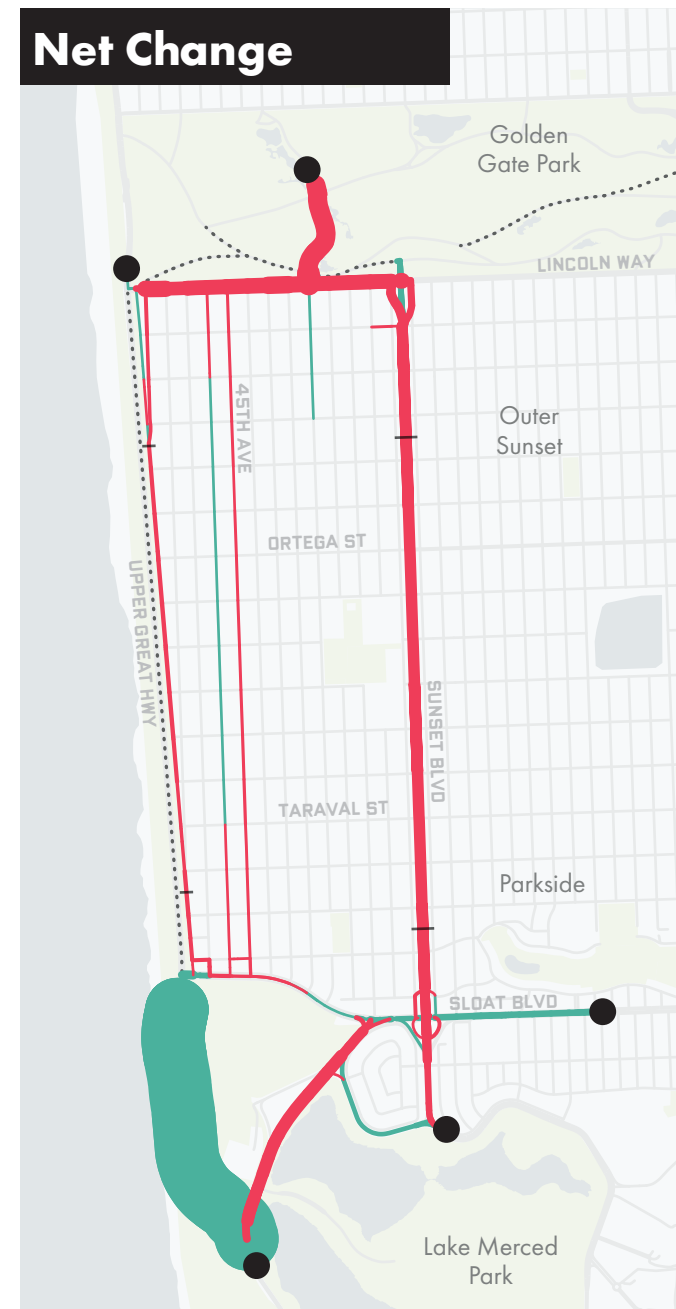
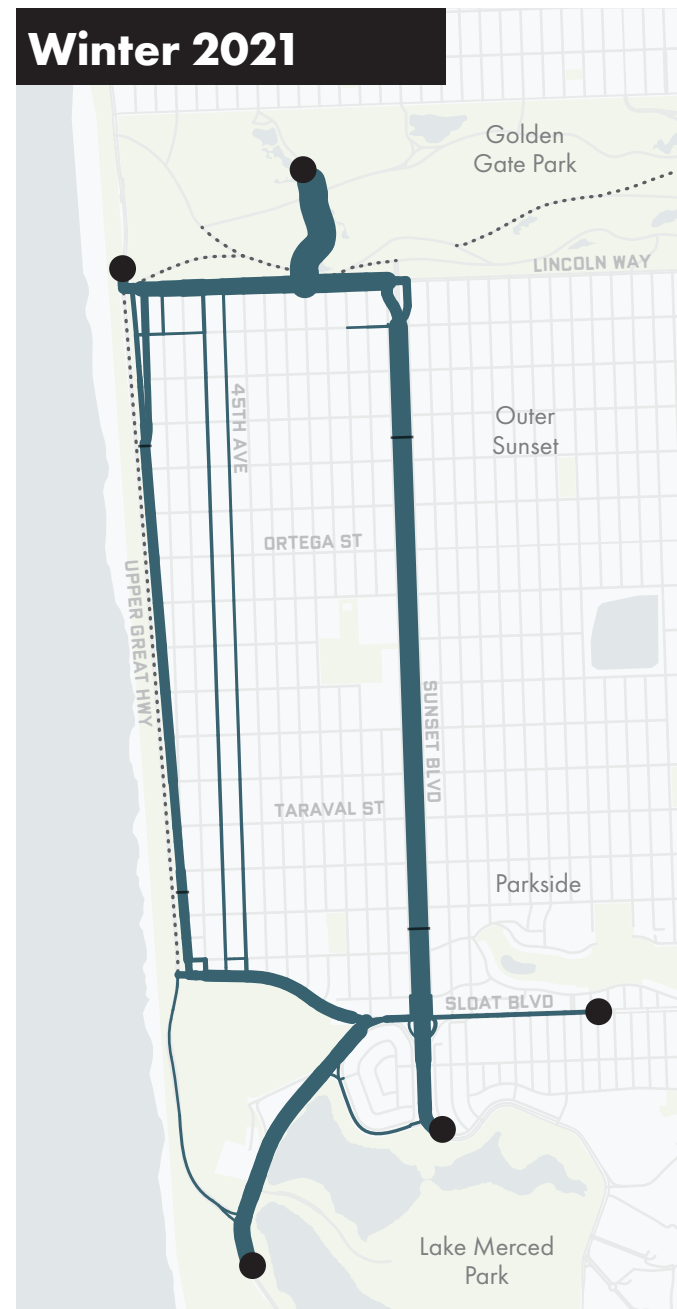
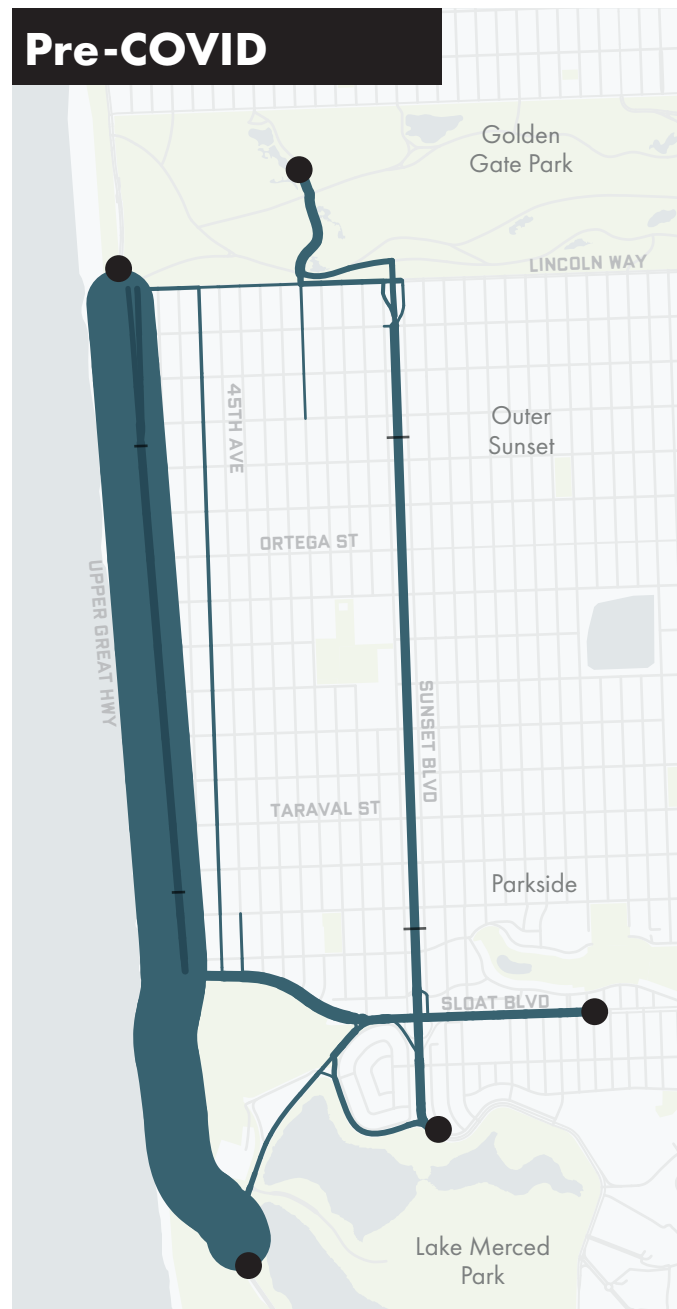
Daily Vehicle Volumes

— 100 — 1,000 — 10,000

..... Car-Free Roads

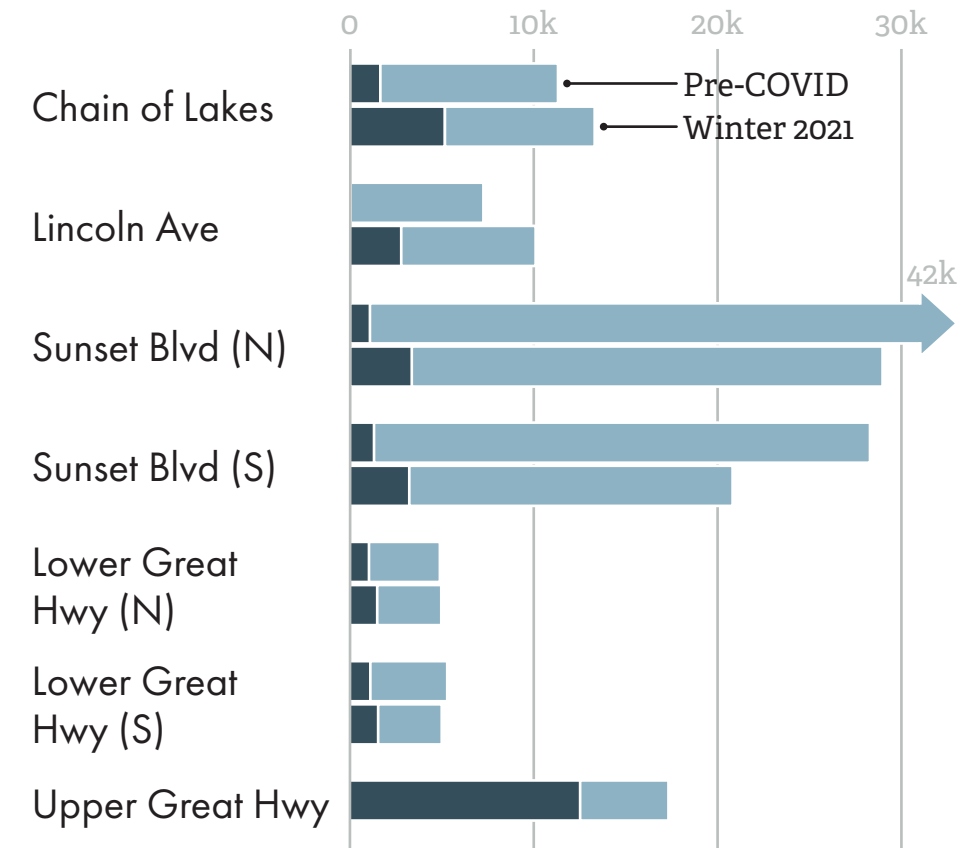
Diverted Trips Between Gates

■ Increased ■ Decreased



Change in Daily Vehicle Volumes on Key Corridors

■ Key North-South Trips ■ Total Volumes



Note: "Key North-South Trips" refers to trips that travel between a northern and southern gate (depicted as circles on the maps). "Total Volumes" refers to the overall vehicle volumes or total traffic on these key corridors from all trips.

Northern and southern volumes for Sunset & Lower Great Highway are pulled from the screenlines indicated on the maps.

Weekend Trip Diversions & the Great Highway Closure

Vehicle volumes on north-south routes between roads primarily connected by the Great Highway

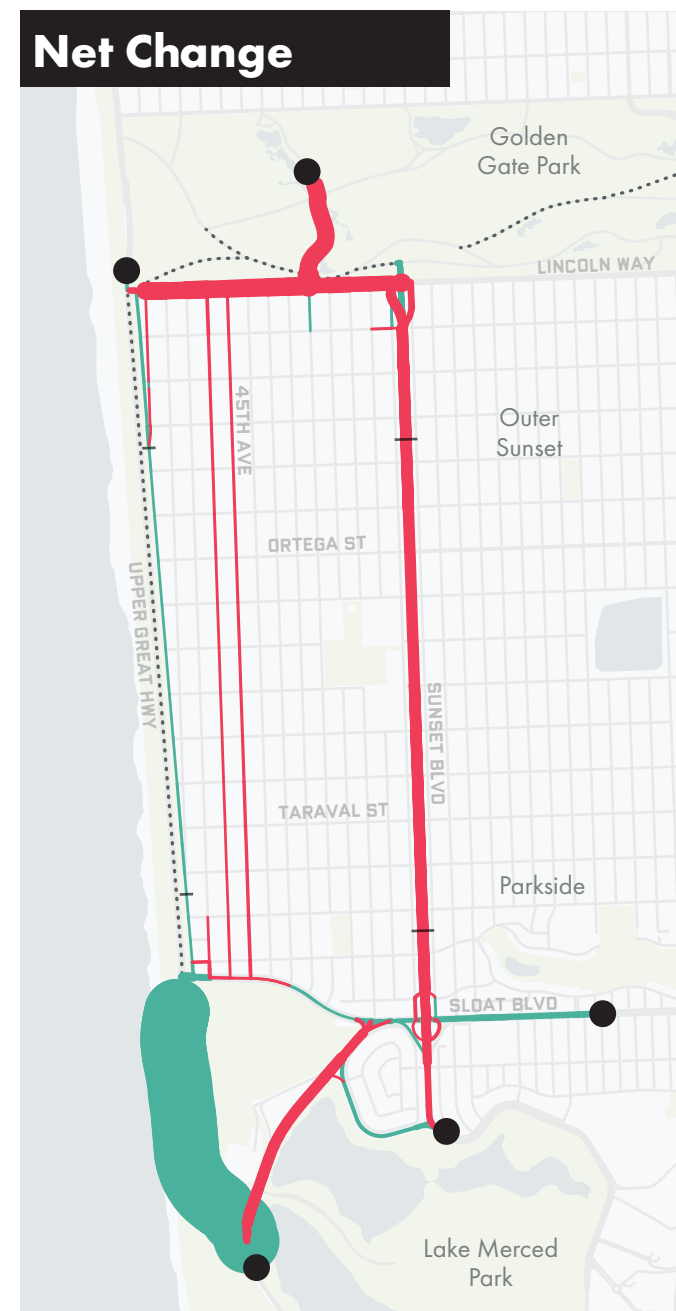
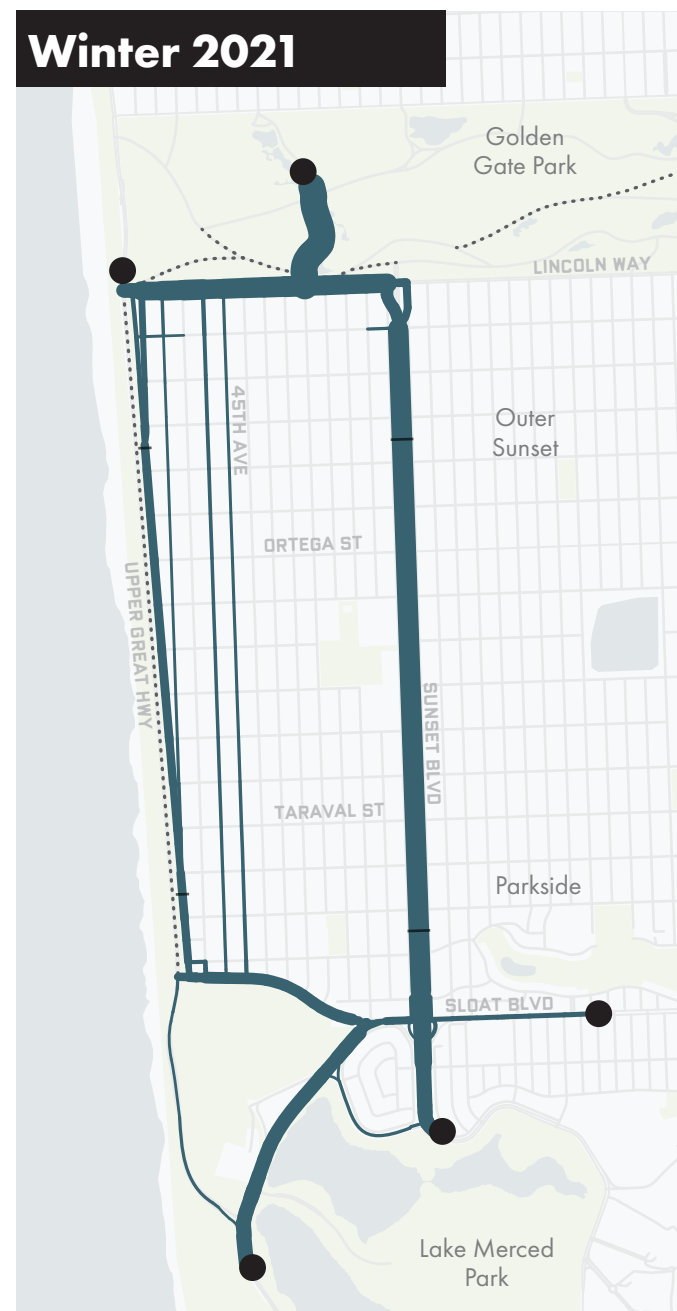
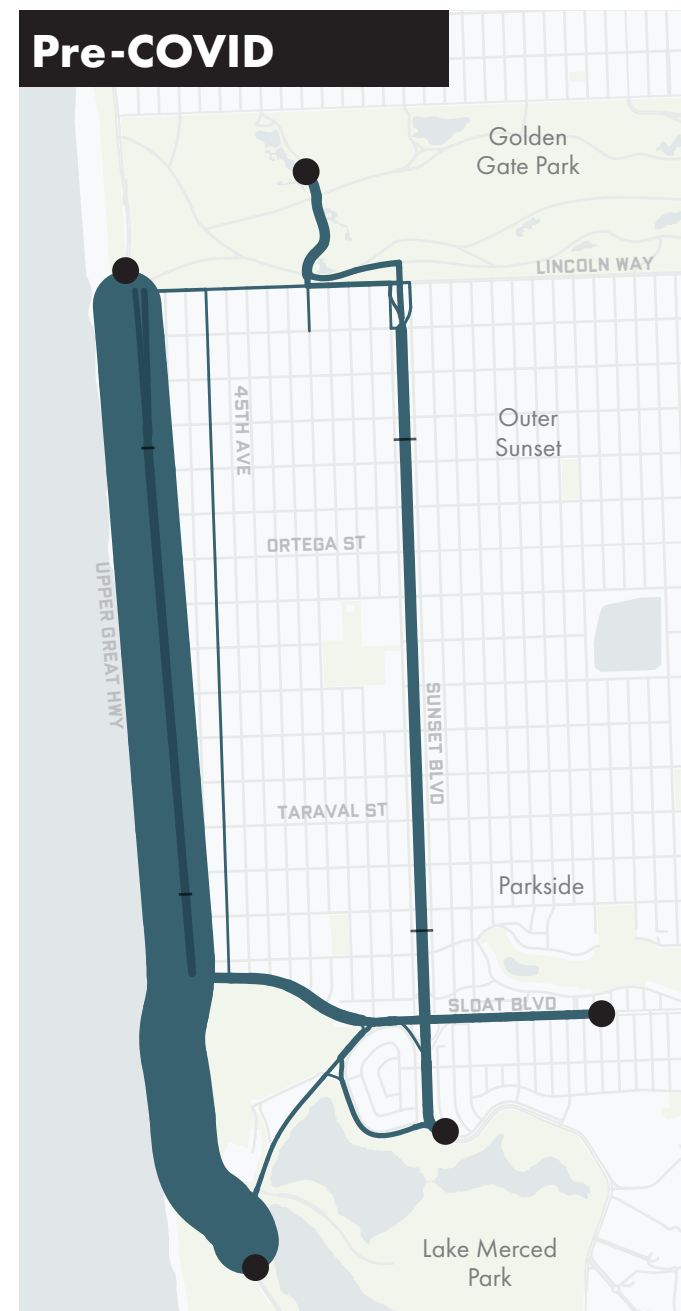
Daily Vehicle Volumes

— 100 — 1,000 — 10,000

..... Car-Free Roads

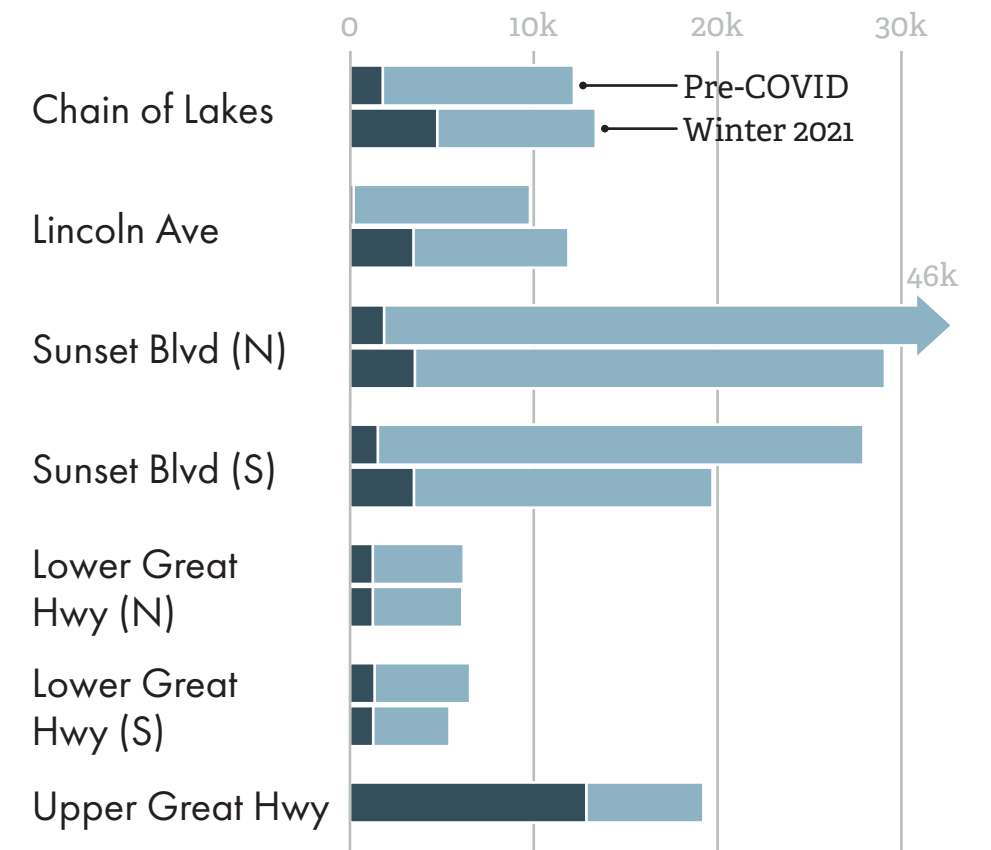
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