ALAMEDA COUNTY TRANSPORTATION COMMISSION

2022 MULTIMODAL MONITORING **SUMMARY REPORT**

April 2023

The Alameda County Transportation Commission (Alameda CTC) monitors roadway performance on a 553-mile Congestion Management Program (CMP) Network of major roads throughout Alameda County. That network includes three major classes of facilities: (1) Freeways, (2) Surface Highways and Principal Arterials, and (3) Major Arterials. Alameda CTC also collects data on the three bay-crossing bridges in Alameda County, tunnels, ramps, and other special segments. Alameda CTC collects both auto and transit speeds in the spring and calculates performance metrics. In the fall, active transportation counts are collected at 150 intersections throughout the county. Those data are analyzed and published as part of the Multimodal Monitoring Report. The findings in this Multimodal Monitoring Report, published biennially, help Alameda CTC better understand how the county's transportation system functions and are used throughout the agency for data-driven decision making.

What's New in 2022?

Alameda CTC has published monitoring reports since 1991 and uses each cycle to further investigate travel demand and the transportation system.

In the 2022 report, Alameda CTC:

- Continued to explore the impact of the COVID-19 pandemic;
- Resumed transit performance monitoring which was suspended in 2020 due to the acute effects of the COVID-19 pandemic and corresponding changes to transit service; and
- Added analysis of peak-period durations.

What's in the Report?

The 2022 Multimodal Monitoring Report has been organized around key findings and changes to the transportation landscape since the COVID-19 pandemic and describes how those changes have affected travel demand across the county (both driving and transit) and in turn influenced congestion throughout the day. The report is organized into three parts:

- Auto Performance
- Transit Performance
- Active Transportation

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EXECUTIVE SUMMARY

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2022 at a Glance

As part of the Congestion Management Program (CMP), Alameda CTC monitors and documents multimodal performance on transportation facilities throughout Alameda County in the spring every two years. This report compares results from the 2022 monitoring cycle to the 2018 cycle, which represents pre-pandemic conditions, and the 2020 cycle, which took place in the fall due to COVID-19 -related disruptions. This monitoring fulfills a legislative requirement and provides a better understanding of how Alameda County's key roadways (freeways, highways, and major arterial roads) perform. This information is used for decision-making throughout the agency to inform future transportation investments.

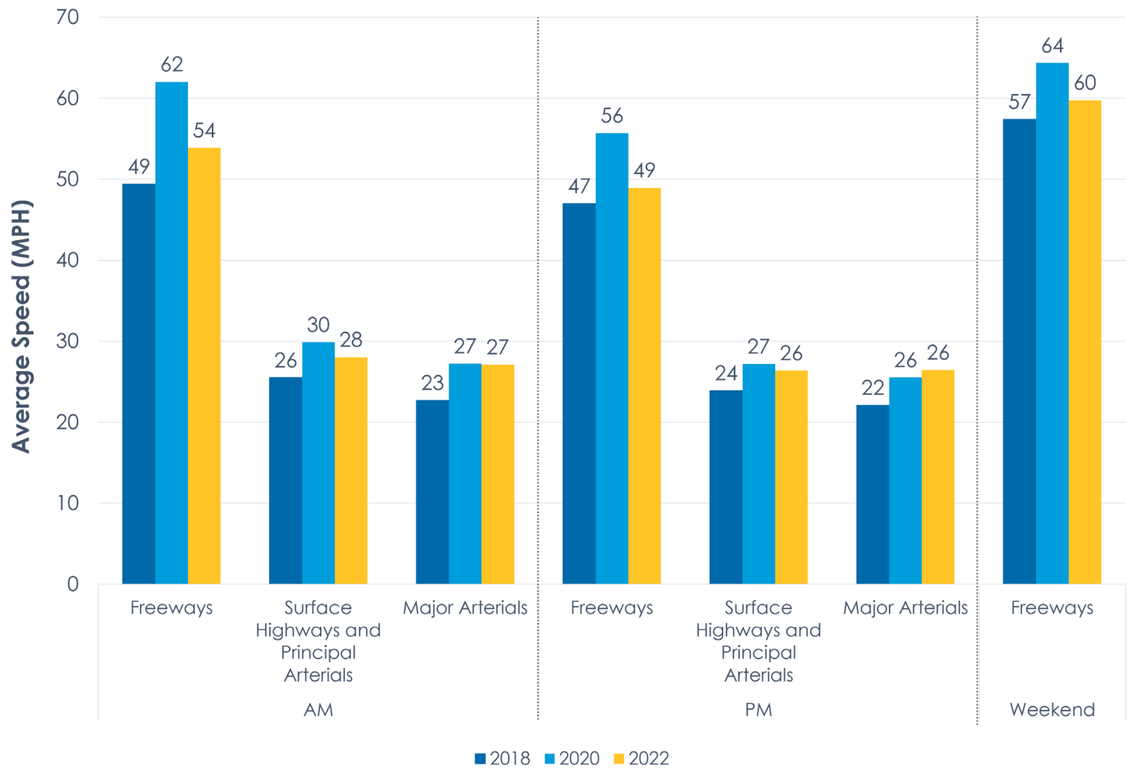
The spring of 2022 saw an uptick in congestion and slower speeds on roads throughout the county as pandemic-related measures were lifted and more typical travel patterns resumed. Compared to the fall 2020 monitoring period, auto travel on freeways increased by 16%, surpassing pre-pandemic travel.[1] However, traffic delay remained 53% lower than before the pandemic.[2] Congestion was worse in the afternoon, with 19% of freeways congested compared to 7% in the morning.

Bus speeds on the CMP network increased 2% from the 2018 cycle. Both major bus operators changed schedules and service frequency in response to the pandemic, limiting conclusions that can be drawn from a comparative analysis. Active Transportation volumes - which measure pedestrian, bicycle and scooter activity primarily in commercial areas - continued to rebound from pandemic lows. In the afternoon peak-period, scooter counts increased to 80% of their 2018 levels, while pedestrian activity increased to 60% of 2018 levels. Although bicycle counts continued to decline slightly in 2022, they remained closest to pre-pandemic levels at just below 90%.

Notable travel trends within Alameda County included:

- Auto congestion peak-periods were shorter and less intense in 2022 than prior to the pandemic.
- Transbay travel via automobile regained nearly all of the traffic volume and congestion as prior to the pandemic. However, other modes of transit including BART, bus, and ferry had lower demand compared to 2018.
- Afternoon freeway congestion was generally more severe in northern and eastern Alameda County, and less severe in the central and southern parts of the county.
- Speeds on major arterials were comparable to mid-pandemic speeds, indicating very little congestion on local roadways.
- Transit speeds were higher in 2022 than in 2018, particularly in urban areas served by AC Transit.
- Observed pedestrian activity went up significantly compared to 2020 – 41% during the afternoon peak-period, 58% during the mid-day, and 168% after school. However, these were still about 40% lower than 2018.
- Bicycle activity remained largely resilient to pandemic forces in 2022. Afternoon peak period bicycle counts dropped 6% for the second monitoring cycle in a row, indicating a slight decline in commute travel.

Average Speeds on CMP Network - 2018 vs. 2020 vs. 2022



BEYOND 2022

As the economy, and life in Alameda County transitions from the most acute effects of the COVID-19 pandemic, Alameda CTC will continue roadway and transit monitoring in the spring of 2024 with active transportation counts later in the year. The 2022 monitoring cycle reflected a transitional period for travel demand and commute patterns in the county which no longer reflected the most extreme effects of the COVID-19 pandemic, but continued to change throughout 2022 as businesses resumed in-office activities.

Alameda CTC will continue to monitor multimodal performance on roadways to better understand these changes as the county continues to recover following the pandemic, especially for signs of more enduring change. The 2024 report will consider opportunities to expand both transit and active transportation data collection and analysis. Findings and analysis from the report will be used to inform future transportation investments.

[1]Total travel refers to Vehicle Miles Traveled (VMT).
[2]Vehicle Hours of Delay, or the time each vehicle spends in traffic on freeways below 35 MPH.

AUTO PERFORMANCE SUMMARY

Source: Alameda County Transportation Commission

CHAPTER ONE

People Drove More in 2022 Than Before the Pandemic

CHAPTER 1 | PEOPLE DROVE MORE IN 2022 THAN BEFORE THE PANDEMIC

Vehicle Miles Traveled (VMT) on Alameda County freeways increased 7% between 2018 and 2022 by the end of the monitoring period, from 22 to 23 million miles per day.[1,2]

- Prior to the COVID-19 pandemic, the average number of miles driven each day on freeways grew about 1% each year[3]
- VMT increased by 16% between January and May, as people started to drive significantly more each day in early 2022

Despite the increase in VMT, Alameda County commuters spent less than half the time in traffic in 2022 than they did in 2018.[4]

- Alameda County drivers experienced 25,000 fewer hours of delay each day (as measured by time spent traveling slower than 35 MPH on freeways). This represented a 53% reduction in delay, from 57,000 vehicle hours of delay (VHD) in May 2018 to 27,000 VHD in May 2022

Alameda County workers who began working from home during the pandemic have been slow to return to daily commuting.

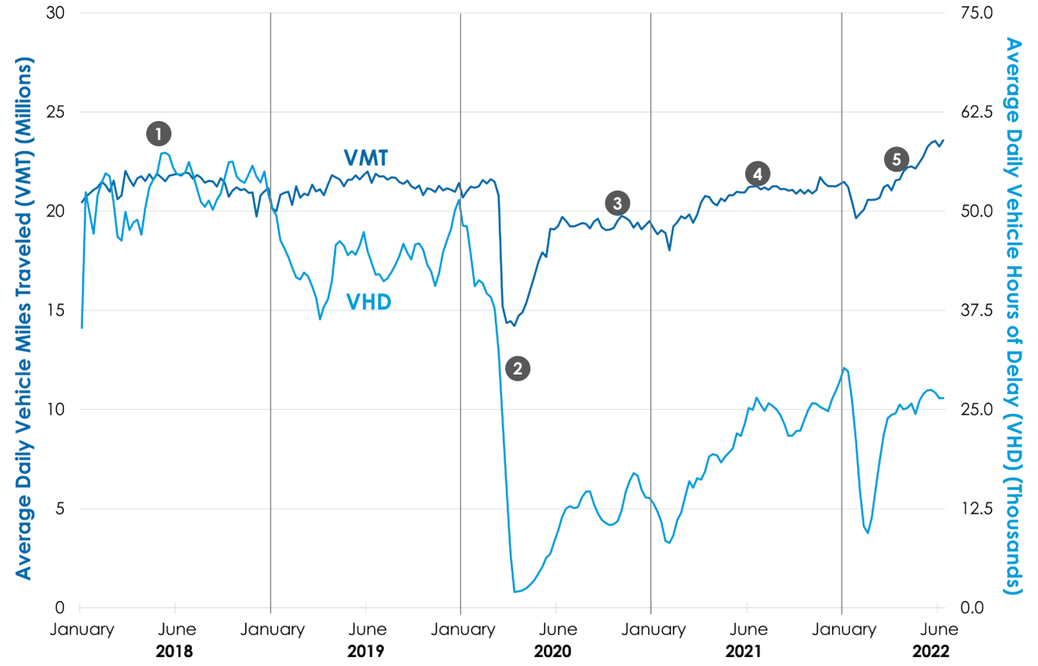
- Prior to the pandemic, more than 40% of workers in Alameda County had the ability to work remotely, but only about 7% regularly did so[5,6]
- Alameda County had one of the highest telecommuting rates in the nation in 2021, with 35% of workers regularly working from home, double the national average of 18%[7,8]
- This translates to an estimated 205,000 fewer workers regularly commuting despite a drop of just 15,000 workers in the workforce overall between May 2018 and May 2022[9]
- A survey by the Bay Area Council Economic Institute (BACEI) indicated 37% of employers in the region reported their workforce was fully remote in January 2022, but this number dropped to 16% by May 2022[10]

THE PANDEMIC RADICALLY CHANGED WHEN, WHY, AND HOW PEOPLE TRAVEL

An increase in remote and hybrid work reduced the number of daily commute trips while increasing the number of other home-based trips, and a sustained decrease in transit ridership has corresponded with more overall vehicle travel. While the long-term effects are still uncertain, it is clear that the pandemic itself has had a sizeable effect on personal trip types, delivery and goods movement, mode choice, and more traditional travel demand factors like increasing vehicle and fuel costs.

Overall VMT on freeways exceeded pre-pandemic levels during the 2022 monitoring period

Figure 1.1: Alameda County Average Daily VMT & VHD on Freeways



1 — Spring 2018 (CMP Period): 21.5 million Freeway VMT; 51,000 VHD

2 — April 2020 (Shelter-in-Place): 14.8 million Freeway VMT; 2,000 VHD

3 — Fall 2020 (CMP Period): 19.3 million Freeway VMT; 14,000 VHD

4 — June 2021 (California Reopening): 21.2 million Freeway VMT; 26,500 VHD

5 — Spring 2022 (CMP Period): 22.4 million Freeway VMT; 26,000 VHD

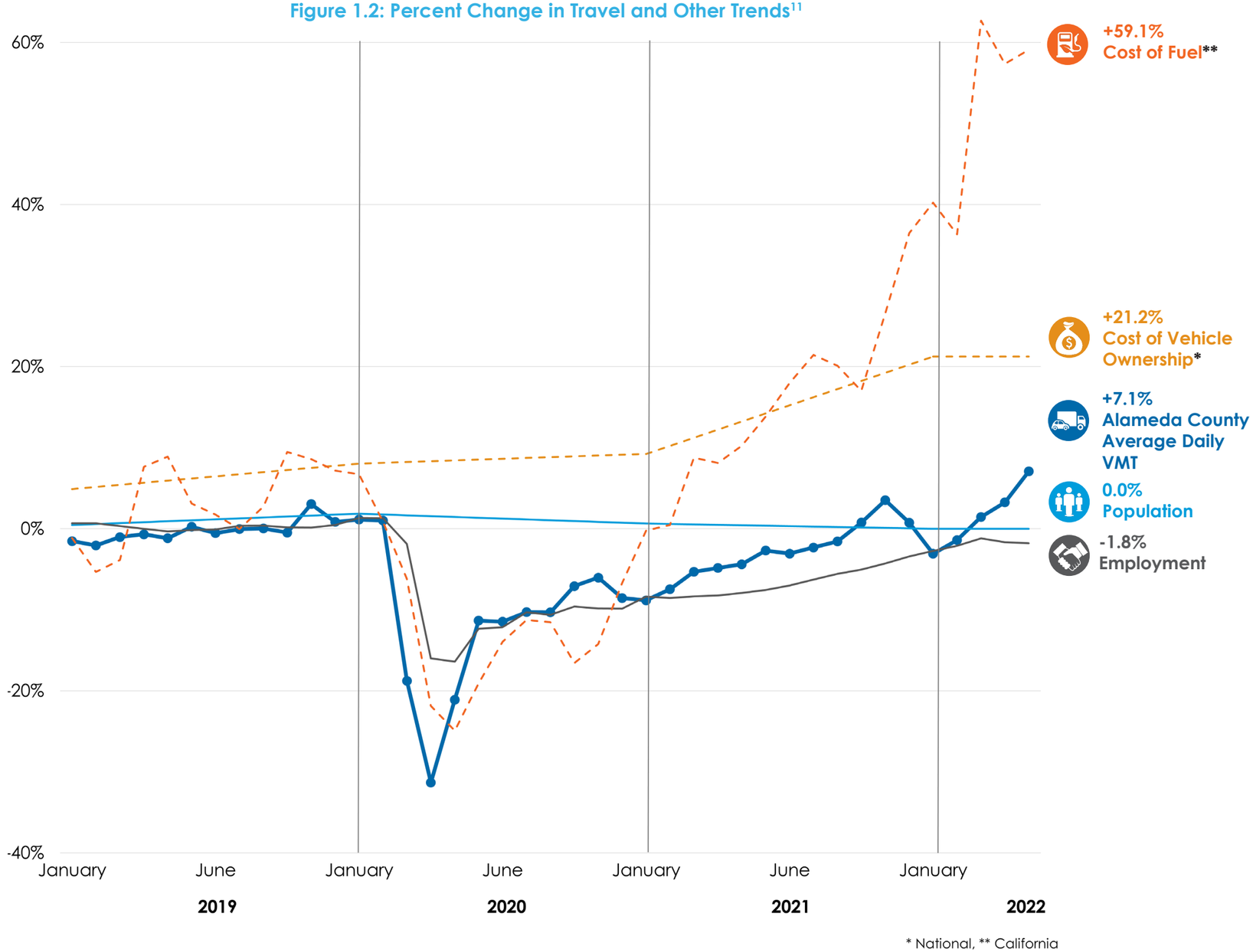
[1]Average Daily VMT in Alameda County between May 2018 and May 2022, PeMS, California Department of Transportation (Caltrans).
[2]VMT increased by 4% when comparing between the entire Spring 2018 to Spring 2022 monitoring period, from 21 to 22 million miles per day.
[3]Average Daily VMT in Alameda County between 2012 and 2019, PeMS, Caltrans.
[4]Average Daily VHD in Alameda County between May 2018 and May 2022, PeMS, Caltrans.
[5]Ability to work from home: evidence from two surveys and implications for the labor market in the COVID-19 pandemic, U.S. Bureau of Labor Statistics.
[6]Commuting Characteristics by Sex, American Community Survey Table S0801, U.S. Census Bureau.
[7]Sic.
[8]Sic.
[9]Local Area Unemployment Statistics, Not Seasonally Adjusted, Alameda County, CA, U.S. Bureau of Labor Statistics.
[10]Return to Work and Transit Employer Survey Results – May 2022 survey, Bay Area Council Economic Institute.

WHAT DRIVES TRAVEL DEMAND NOW?

Prior to the pandemic, regional economic factors like population and job growth had a strong positive relationship with average daily VMT (meaning they generally moved in the same direction) and price factors like the cost of vehicle ownership and fuel had a strong negative relationship (meaning they moved in opposite directions).

However, these factors have not had the same relationship with VMT in 2022. The population did not grow between 2018 and 2022, employment declined by 2%, and gas prices and the cost of vehicle ownership rose significantly (59% and 21% respectively). Prior to the pandemic these shifts would have predicted a decline in VMT. The rapid growth of VMT is thus not explained by economic or price variables.

Figure 1.2: Percent Change in Travel and Other Trends[11]



* National, ** California

[11] Compared to same month in 2018

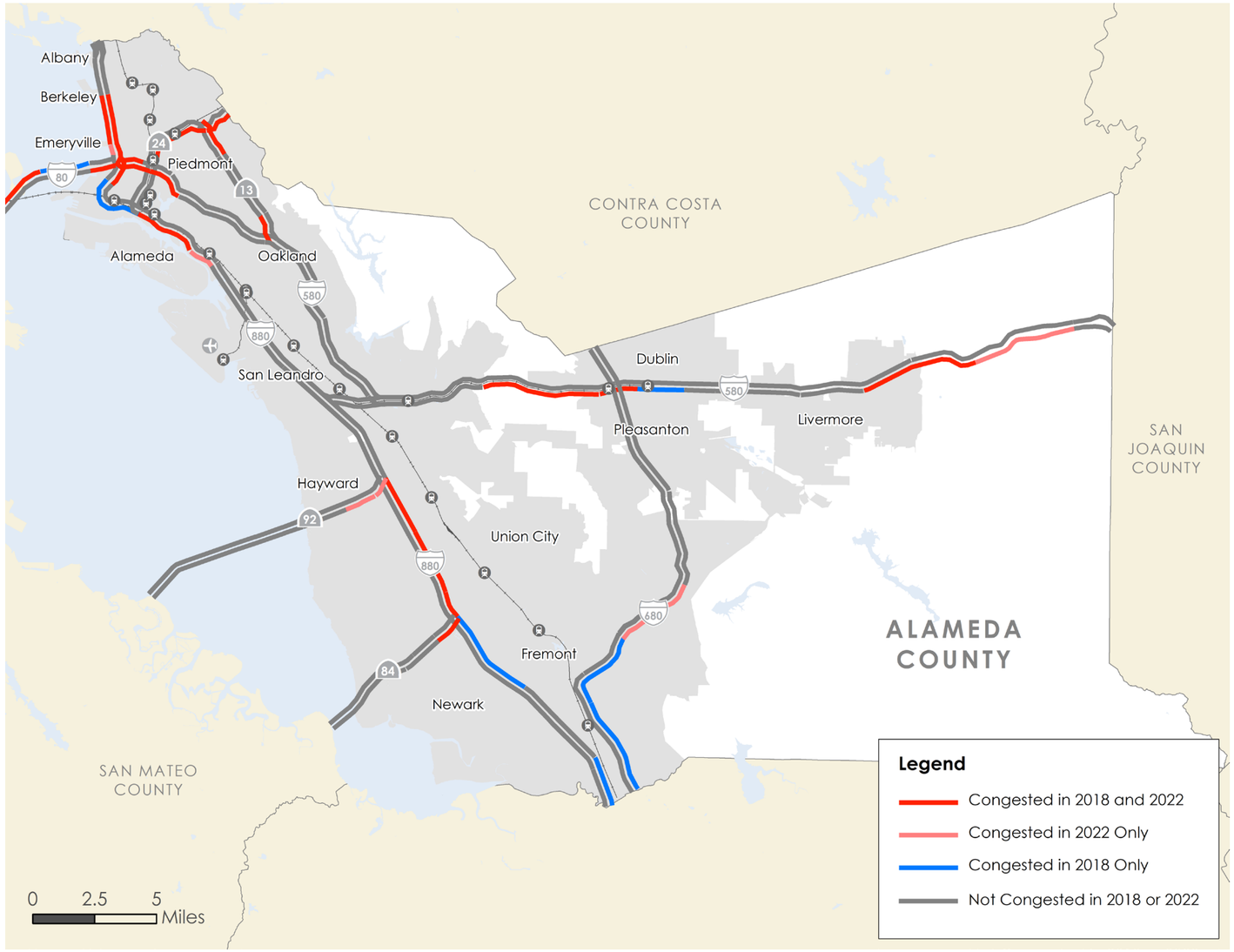
Source: Alameda County Transportation Commission

CHAPTER TWO

Congestion Increased, But Not to Pre-Pandemic Levels

CHAPTER 2 | CONGESTION INCREASED, BUT NOT TO PRE-PANDEMIC LEVELS

Figure 2.1: Afternoon Peak-Period Freeway Congestion (2022 Compared to 2018)



Overall congestion, and afternoon congestion in particular, has increased significantly since 2020, although it has not yet returned to pre-pandemic levels. In 2022, 19% of freeway miles were regularly congested in the afternoon, up from just 7% in 2020 but still slightly below the 22% seen in 2018.

Figure 2.1 shows 2022 freeway congestion relative to pre-pandemic (2018) conditions for the afternoon peak-period.[1] Blue segments show areas where congestion has yet to return, while red indicates freeway segments that were congested in both 2018 and 2022.

Congestion returned primarily to locations that were also congested prior to the pandemic in both the morning and afternoon peak-periods; just five freeway segments were congested in 2022 but not 2018, only two of which had never dropped to LOS F before 2022. This suggests congestion in the county is concentrated at infrastructure bottlenecks such as freeway interchanges and lane reductions, as well as locations where there are few alternative travel options for geographically constrained roadways such as the Altamont Pass (I-580) and the Caldecott Tunnel (SR-24). The segment of I-680 NB approaching State Route (SR) 84 was likely impacted by the active interchange and roadway improvement project occurring in that area during the monitoring period.[2]

Congestion is typically more widespread during the afternoon peak-period. In 2022, 55 miles, or 19% of the network, were congested during the afternoon peak, compared to 21 miles, or 7% of the network, during the morning period. In 2018, a similar but less extreme pattern existed, as 66 miles, or 22% of the network, was congested in the afternoon compared to 48 miles, or 16% of the network, during the morning period.

WHAT IS CONGESTION?

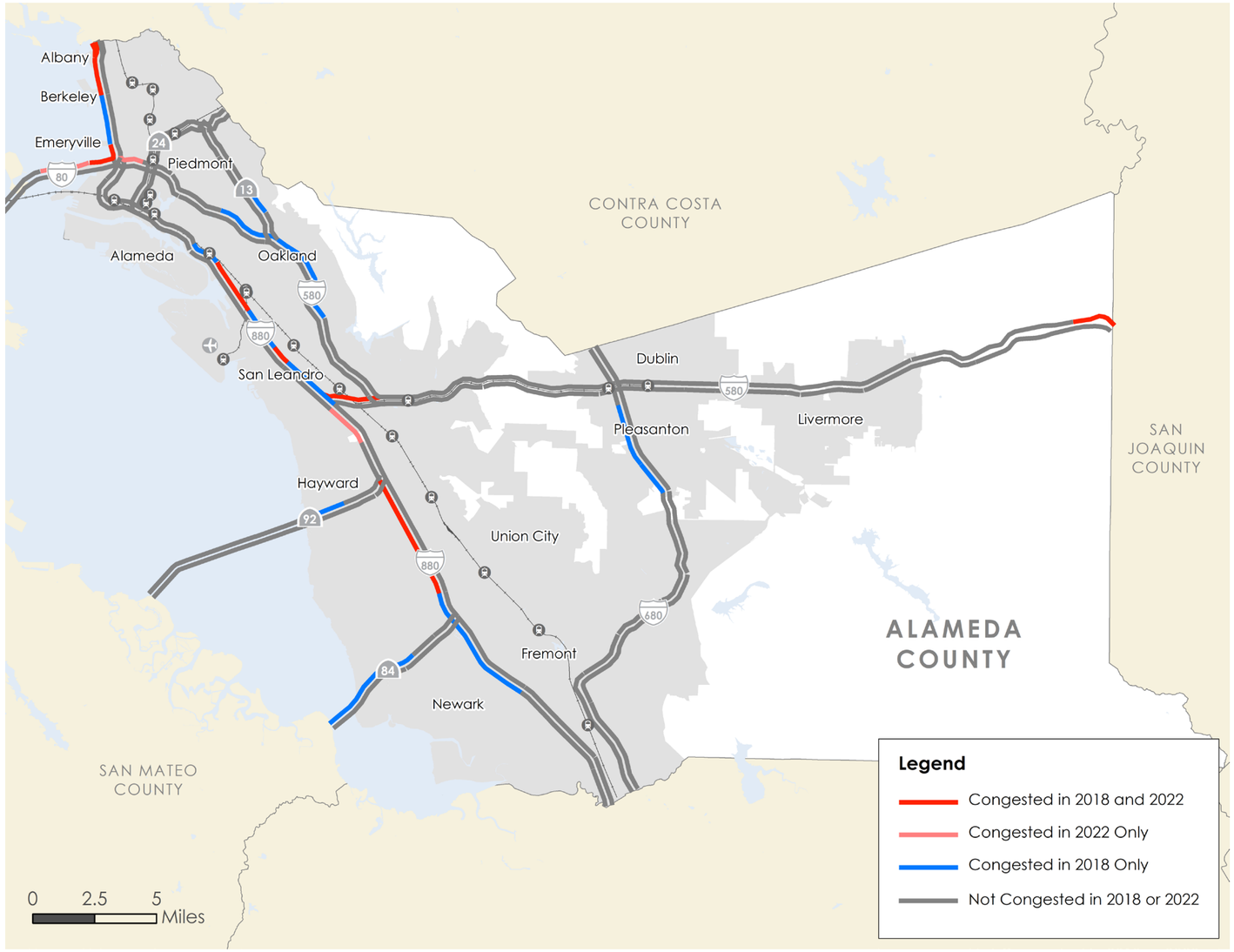
Congestion occurs when travel demand approaches and exceeds a road's capacity for vehicles. As the road reaches capacity, traffic becomes more stop-and-go, speeds drop quickly, and trips take longer to complete.

Congestion can appear and spread quickly to surrounding roads, since each additional vehicle on a congested road causes exponentially more delay.

This report defines freeway segments as congested if average speeds during the spring monitoring period dropped below 30 mph (Level of Service (LOS F) – consistent with the methodology defined in the latest Congestion Management Program.

[1] General Purpose (GP) lanes only
[2] State Route 84/I-680 Interchange Improvements project, Alameda County Transportation Commission and Caltrans.

Figure 2.2: Morning Peak-Period Freeway Congestion (2022 Compared to 2018)



Freeways were less congested during the morning peak-period: 21 miles (7% of the network) were congested in 2022.

Figure 2.2 shows 2022 freeway congestion relative to pre-pandemic (2018) conditions for the morning peak-period.[3] The congestion patterns observed in 2022 indicate a less intense morning peak-period than compared to the afternoon peak-period, with less congestion returning overall compared to 2018. The freeway network was significantly less congested in 2022 than it was prior to the pandemic when 48 miles (or 16%) of the network was congested.

The number of congested miles during the morning peak-period was lower than the corresponding afternoon peak-period in both 2018 and 2022. Travel during the morning peak-period is more sensitive to single-destination work commutes and school trips, versus the more diverse set of trip types during the afternoon commute, which includes leaving work at different times and trip-chaining activities like running errands, going to dinner, and shopping.[4,5] This difference in trip behavior and type could explain why congestion in the morning is not as widespread as in the afternoon.

WEEKEND CONGESTION HAS RETURNED

While weekday congestion has yet to fully return, weekend congestion returned to pre-pandemic levels in Spring 2022. Weekend congestion is typically less widespread than weekday congestion, due in part to more dispersed travel patterns than those seen midweek. However, weekend congestion has returned to previously congested locations and appeared on new stretches near the Bay Bridge, leading to a 1% increase in freeway congestion, or 3 additional miles, from 2018 to 2022. Congestion on weekends has also fully returned to ramps and other constrained segments where there is limited capacity.

[3]General Purpose (GP) lanes only
[4]Morning vs. Evening Commute? Morning Wins, Crosstown LA
[5]Driving Home Does Take Longer than Driving to Work in L.A., University of Southern California News

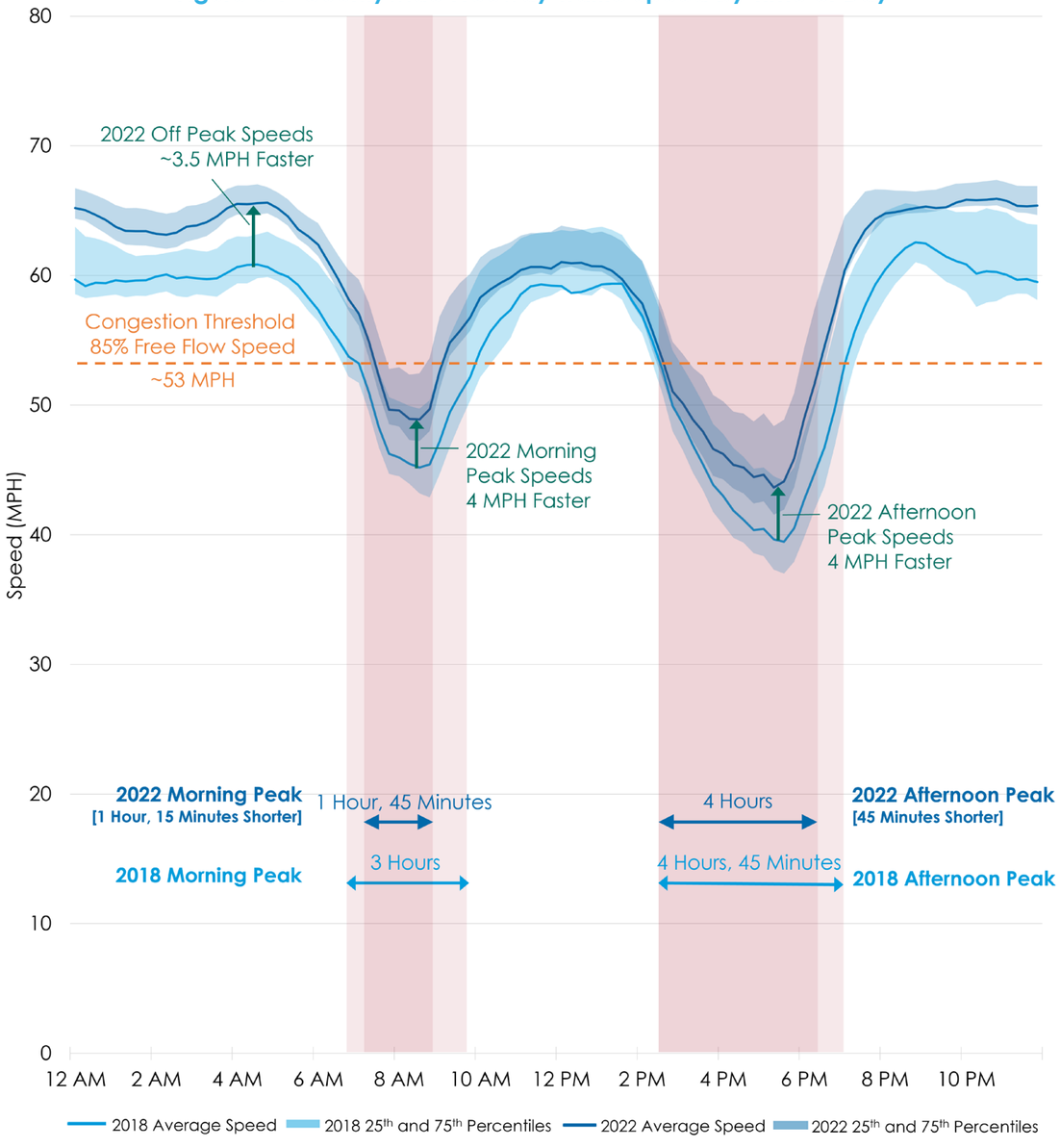
Source: Alameda County Transportation Commission

CHAPTER THREE

Peak Periods are Shorter and Less Congested

CHAPTER 3 | PEAK PERIODS ARE SHORTER AND LESS CONGESTED

Figure 3.1: Countywide Freeway Traffic Speed by Time of Day[1]



[1]Average overall Alameda County freeway speeds on Tuesdays to Thursdays for March-May 2018 and March-May 2022, INRIX.

With congestion still below pre-pandemic levels, countywide freeway speeds averaged 4 miles per hour (MPH) faster over the course of a typical spring day in 2022 than in 2018.
Figure 3.1 shows how faster speeds persisted during both peak and off-peak periods and contributed to shorter and less severe peak periods of congestion compared to pre-pandemic conditions.

2022 afternoon peak period congestion was worse than the morning peak period.
The afternoon peak was more than two hours longer in duration (more than double the amount of time) and traveled 5 MPH slower than the morning peak period (44 MPH and 49 MPH, respectively).

2022 peak periods were shorter and less intense than pre-pandemic. In 2022, the morning peak-period of congestion was an hour and 15 minutes shorter than in 2018.
Not only did morning congestion begin 30 minutes later and end 45 minutes earlier, traffic traveled roughly 4 MPH faster at its slowest point than it did pre-pandemic. In 2022, congestion began at the same time as in 2018, but ended 45 minutes earlier and traveled just over 4 MPH faster at the low point than in 2018.

Off-Peak periods were faster too.
Higher freeway speeds persisted during off-peak hours as well, averaging over 3 MPH higher between 1 and 3 AM in 2022 than in 2018. Off-peak hours typically see stable free-flow conditions as they are not impacted by traffic volumes or congestion.

WHAT ARE PEAK PERIODS?

A peak period reflects any window of time when traffic delays and congestion are at their worst over the course of a day. To support analyses of congestion over time, conditions are typically monitored during standardized peak periods such as the morning and afternoon commute rush. Elsewhere in this report, peak periods are defined as the standard windows of 7-9 AM and 4-6 PM.

However, congestion can spill outside of these pre-determined hours. Given the significant changes in travel patterns throughout the pandemic, this chapter assessed changes in congestion using minimum speed to characterize the intensity of congestion, and a threshold to determine when conditions had deteriorated to characterize changes in peak period duration.

This chapter defines peak conditions as periods when speeds dropped below 85% of a roadway's free flow speed. Countywide, free flow freeway speeds averaged 63 MPH in 2022, meaning the 85% peak period threshold was 53 MPH.

Although the increase in telecommuting could have presumably facilitated peak spreading, peak spreading did not occur on Alameda County freeways in spring 2022.
As shown in Figure 3.1, congestion on most freeways occurred at similar times of day and to roughly proportional degrees as it did in 2018. While both morning and afternoon congestion were less severe (i.e. 4 MPH faster) at their peaks compared to 2018, they were much shorter in duration (by 75 and 45 minutes respectively). The lack of peak spreading supports the finding that congestion is not as intense and has not yet returned to pre-pandemic conditions in 2022. Congestion primarily returned to corridors and areas with infrastructure bottlenecks and geographic constraints, as discussed in Chapter 2.

Where Is Congestion Worst?

Many freeway corridors in Alameda County followed the countywide trend of less intense and shorter congestion periods along with higher minimum speeds during the peak periods. However, corridors that are geographically constrained, such as SR-24 through the Caldecott Tunnel, were as congested in 2022 as they were prior to the pandemic. Figures 3.3 and 3.5 illustrate these differing trends for the peak directions along the SR-24 freeway between I-580 and the Caldecott Tunnel connecting to Contra Costa County, and the I-580 corridor between I-238 and the MacArthur Maze.

Congestion patterns on SR-24 reflected the geographically constrained nature of the Caldecott Tunnel. Afternoon eastbound travel demand on SR-24 exceeded capacity in 2022 just as it did in 2018. While the morning peak did see some increased speeds compared to 2018, the afternoon peak showed almost exactly the same degree of congestion as seen in 2018. The very low speeds in the eastbound direction of SR-24 during the afternoon peak in both 2018 and 2022 indicate a facility at capacity, returning much closer to pre-pandemic freeway conditions in stark contrast to reduced congestion along other freeways such as I-880.

Figure 3.2: Location of SR-24 Example Segment

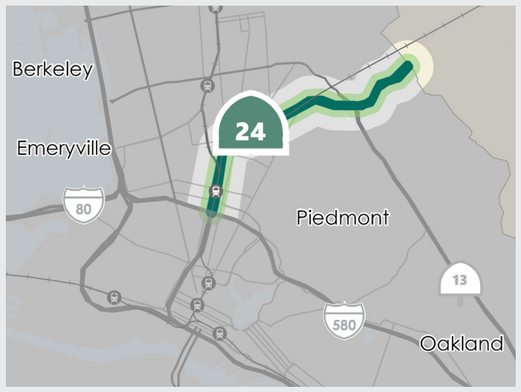
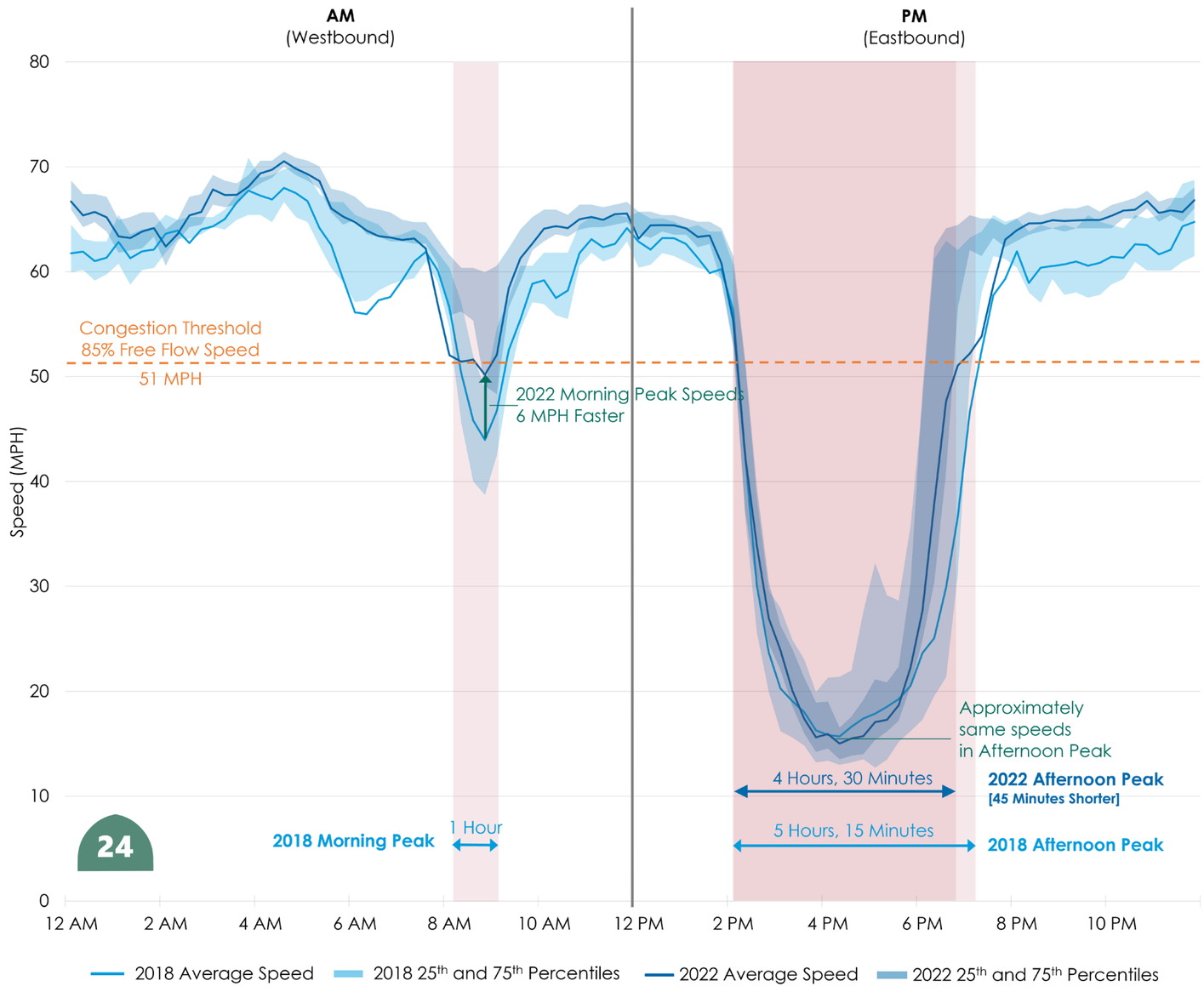


Figure 3.3: SR-24 Average Speed by Time of Day (I-580 to County Line)[2]



[2]Average SR-24 (between I-580 and the Caldecott Tunnel) freeway speeds on Tuesdays to Thursdays for March-May 2018 and March-May 2022, INRIX.

I-580 congestion reflected the general trend that peaks were shorter in duration and reduced in intensity in terms of minimum speeds observed. Along I-580, the morning and afternoon peak periods had later peak period start times, earlier end times, and a shorter net peak period duration. While minimum speeds during the AM peak period were significantly faster in 2022, PM speeds were roughly the same as in 2018, reflecting the overall trend of more widespread congestion in the afternoon. Despite more congested afternoons, peak period conditions lasted for an hour less in 2022 compared to 2018 in both the morning and afternoon. The I-580 corridor has multiple parallel routes available, a contrast to the geographically constrained SR-24 freeway facility.

Figure 3.4: Location of I-580 Example Segment

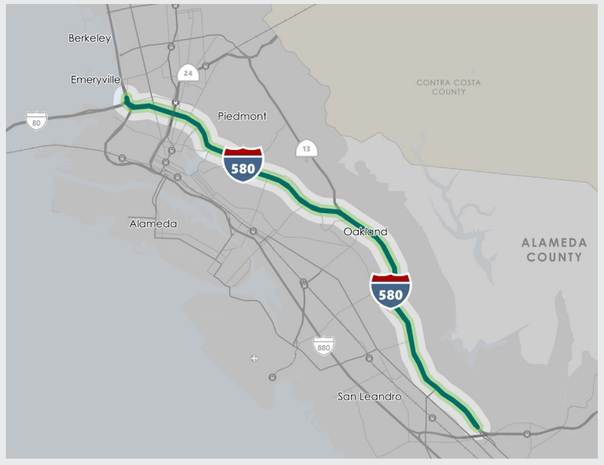
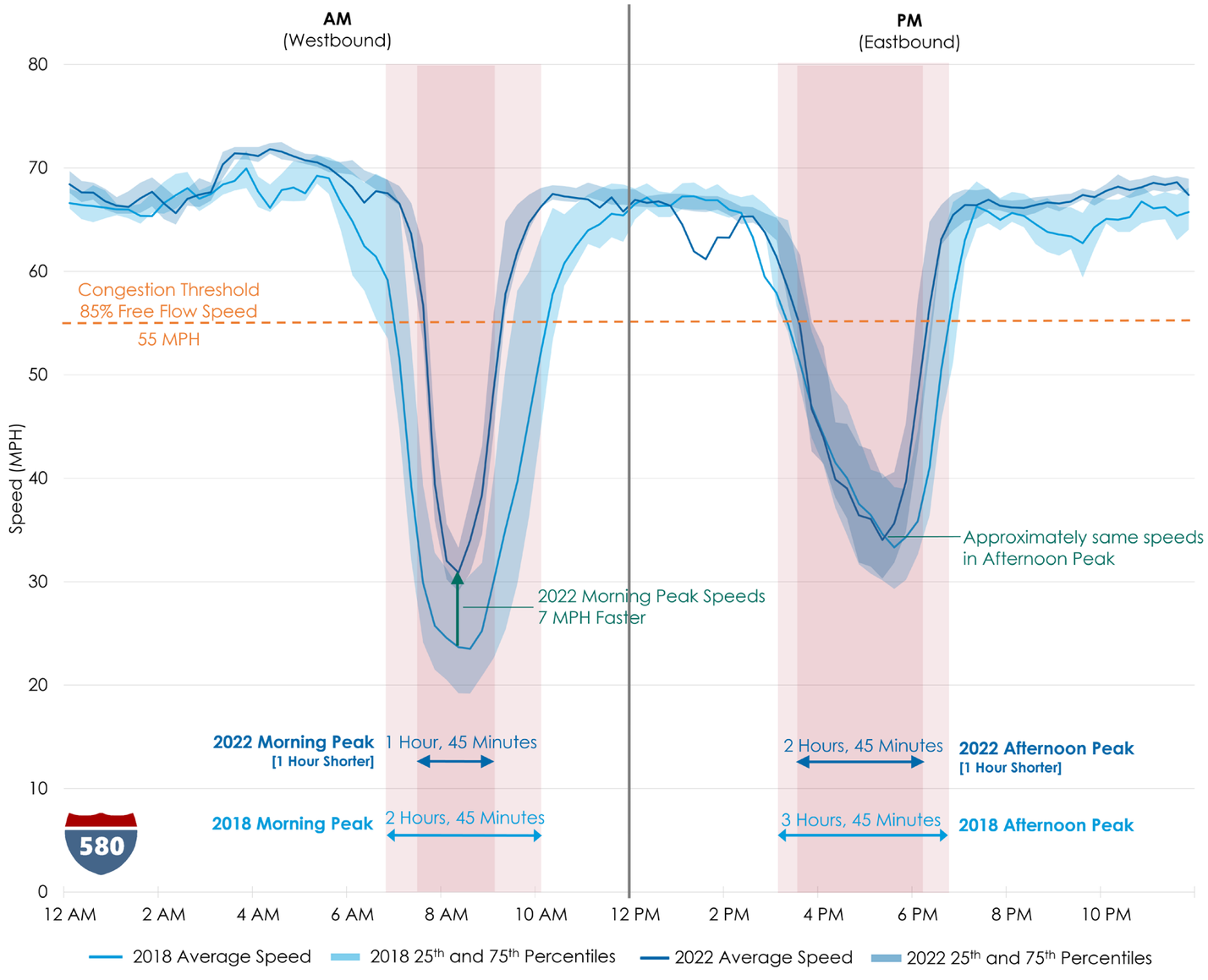


Figure 3.5: I-580 Average Speed by Time of Day (I-80 to SR-238)[3]



[3]Average I-580 (between I-238 and the MacArthur Maze) freeway speeds on Tuesdays to Thursdays for March-May 2018 and March-May 2022, INRIX.

Source: Alameda County Transportation Commission

CHAPTER FOUR

Congestion Returned Unevenly Across the County

CHAPTER 4 | CONGESTION RETURNED UNEVENLY ACROSS THE COUNTY

As of Spring 2022, congestion was still slow to return to southern Alameda County freeways, where speeds remained closer to 2020 levels than pre-pandemic (2018) conditions.

Although average freeway speeds slowed and congestion increased from 2020 for Alameda County as a whole, traffic patterns returned unevenly across the county as of spring 2022. This was especially true during the morning peak-period, which is more commute-centric than the afternoon peak-period. As shown in Figure 4.1, in 2022 the average speed on roads in southern Alameda County remained about 7 MPH faster than in 2018 (increasing from 51 MPH to 58 MPH during the morning peak-period), compared to just 2 to 5 MPH faster on roadways elsewhere in the county. At least part of this difference may be due to southern Alameda County's connection to job centers on the Peninsula, which have seen particularly high rates of remote work during the pandemic.

This trend was similar, though not as drastic, in the afternoon peak period as shown in Figure 4.2. In 2022, average speeds on freeways in southern Alameda County were 5 MPH faster than in 2018 (increasing from 45 MPH to 50 MPH in 2022). Freeway speeds in northern Alameda County were 2 MPH faster, while afternoon congestion had fully returned to central and eastern county roadways.[1] It is not yet clear if these variations across the county will persist, especially given that return to office policies in the Bay Area are still evolving.

Figure 4.1: Changes in Speeds from 2018 to 2022 (Morning Peak-Period)

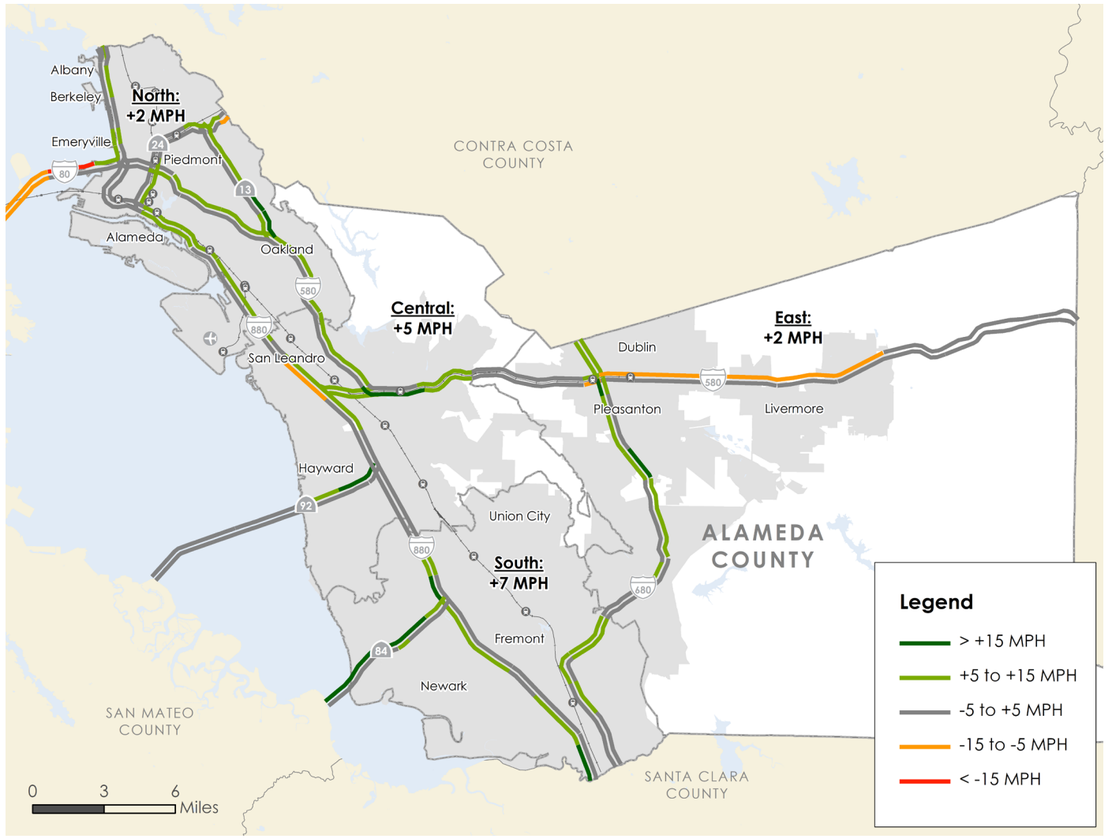
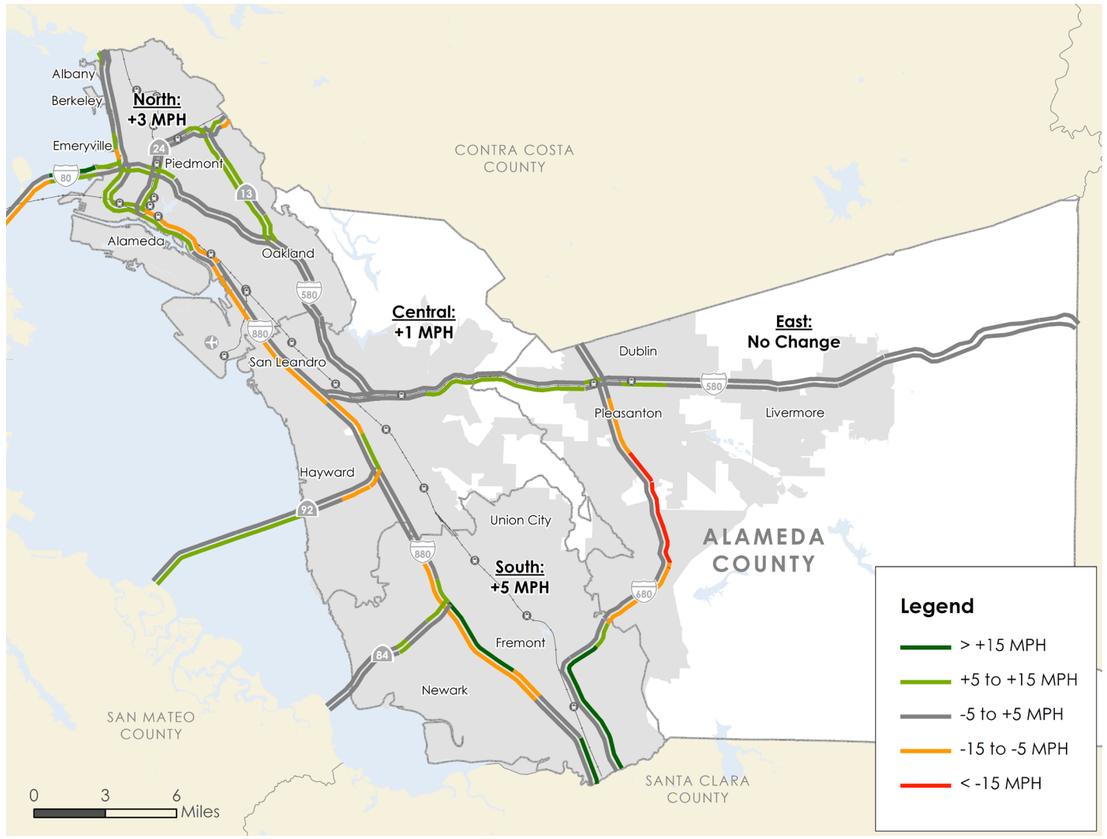


Figure 4.2: Changes in Speeds from 2018 to 2022 (Afternoon Peak-Period)



[1] General Purpose (GP) lanes only

Source: Alameda County Transportation Commission

CHAPTER FIVE

Arterial Speeds Higher than Pre-Pandemic Levels

CHAPTER 5 | ARTERIAL SPEEDS HIGHER THAN PRE-PANDEMIC LEVELS

Average speeds on arterials and major roads were about 10-15% faster in 2022 during both the morning and afternoon peak-periods, compared to before the pandemic (2018), as shown in Figure 5.1. Average speeds on most roads in 2022 remained elevated over pre-pandemic levels even as they dropped slightly (1-6%) from their peak early in the pandemic (2020). Although travel on major roadways is not as slow as it was before the pandemic, the roadway network exhibited similar characteristics between 2018 and 2022:

Mornings were faster

Average speeds, on all arterials, were 1-2 MPH faster in the morning peak-period than during the afternoon peak-period.

Highways and Principal Arterials were Faster

Surface highways and principal arterials, which are designed to carry large auto volumes, ran about 2-3 MPH faster than other major arterials during the morning peak, and 1-2 MPH faster in the afternoon.

Traffic traveled faster on most arterials in 2022 than in 2018, as shown in Figure 5.2.[1] While differences of just a few miles per hour may seem small, the impact of speed changes on safety and congestion are non-linear in that even slight shifts can have outsized effects on travel times and safety. Only about 20% of surface highways and major arterials and 10% of other arterials were slower in 2022 compared to 2018. Many of these roads, which include Niles Canyon Road (SR-84), Crow Canyon Road, Vasco Road, and the Posey/ Webster Tubes, are geographically constrained with no or few nearby alternatives, unlike most arterials which are well-connected with the rest of the transportation network. Congestion on SR-84 east of I-680 was due in part to impacts related to the active interchange and roadway improvement project occurring in that area during the monitoring period.[2]

Figure 5.1: Average Speed on Arterials

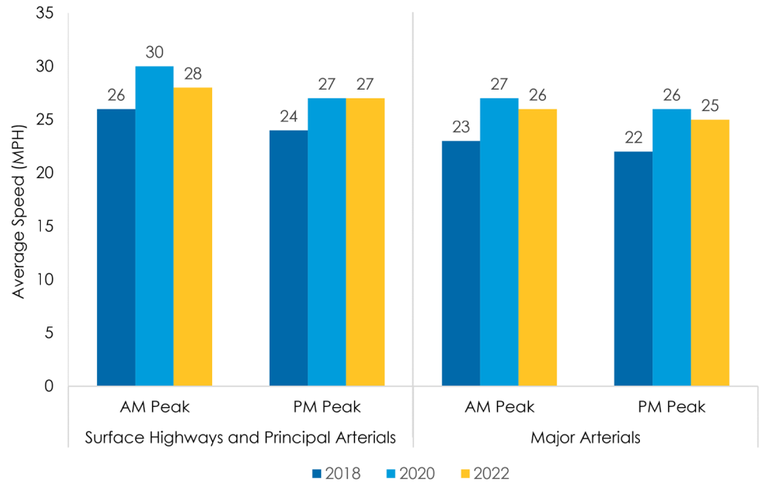
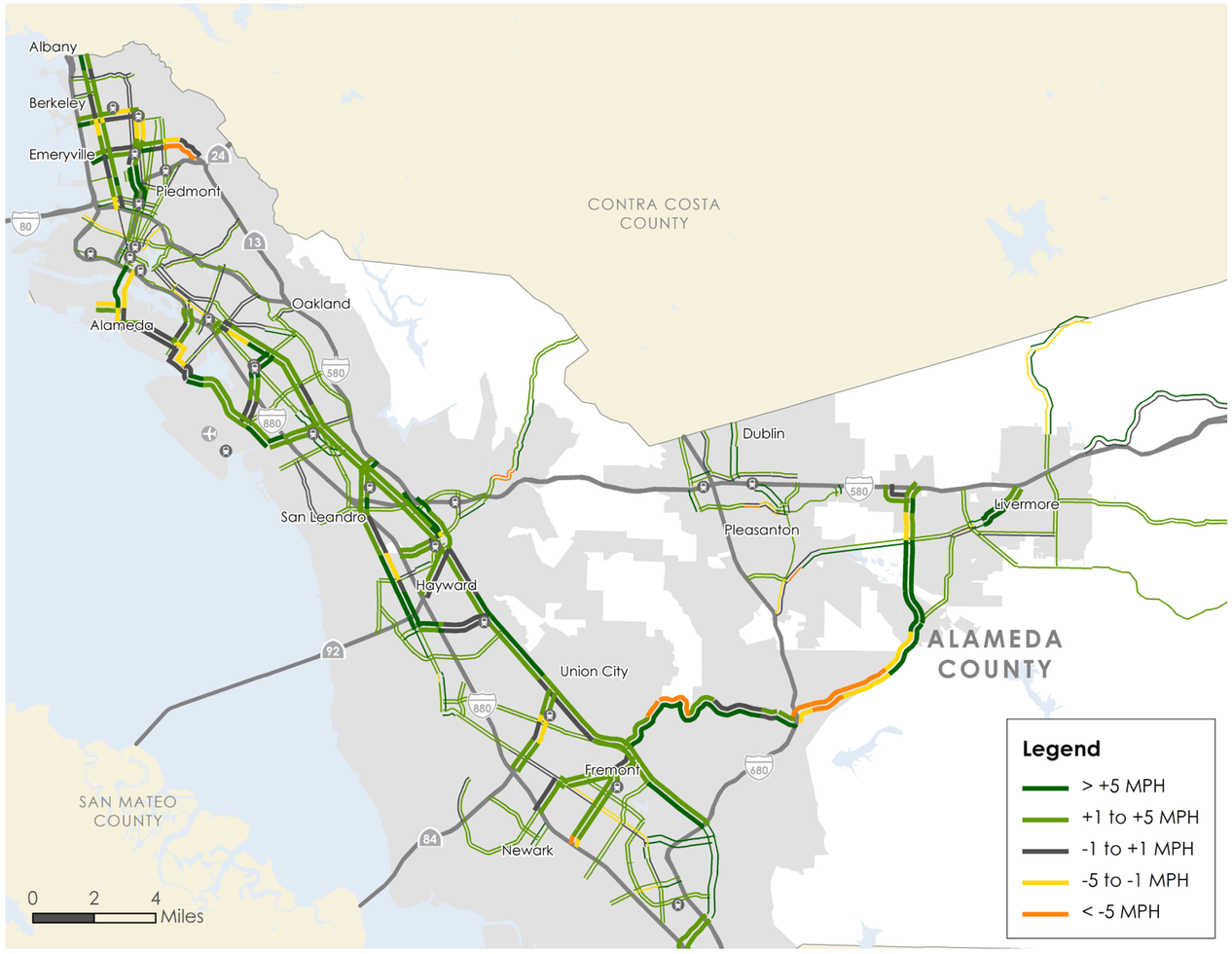


Figure 5.2: 2018 to 2022 Arterial Speed Change – Afternoon Peak-Period



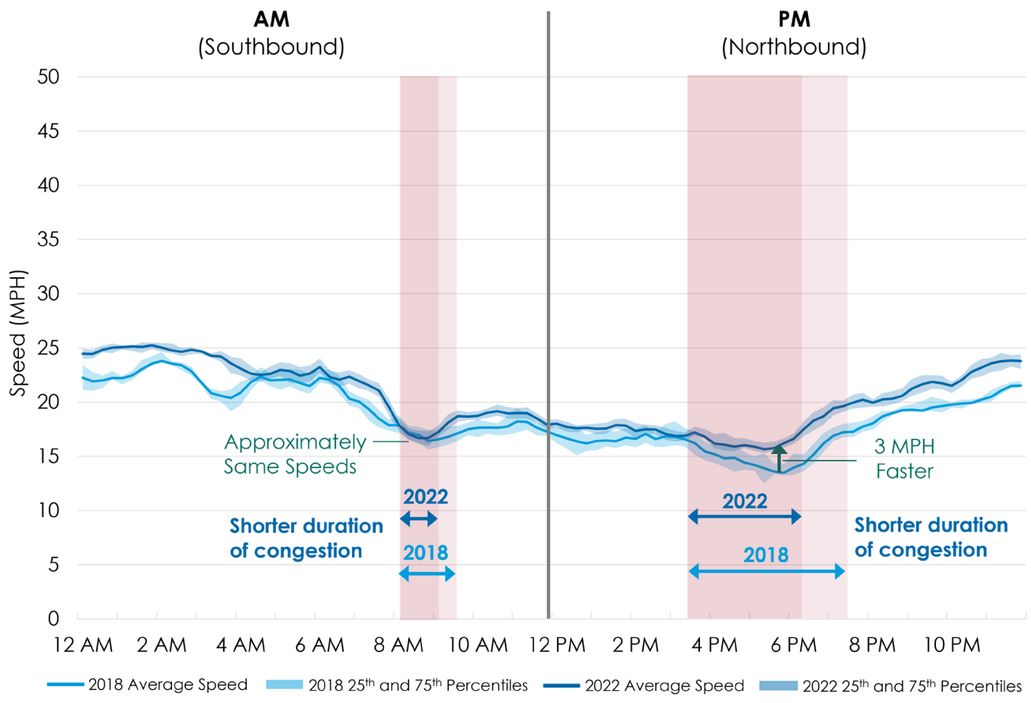
[1] About 80% of surface highways and principal arterials experienced higher speeds in 2022, with average speeds increasing by 2-3 MPH. Similarly, about 90% of other arterials had higher speeds in 2022, with average speeds increasing by 3 MPH.
[2] State Route 84/I-680 Interchange Improvements project, Alameda County Transportation Commission and Caltrans.

CHAPTER 5 | ARTERIAL SPEEDS HIGHER THAN PRE-PANDEMIC LEVELS

Urban Arterial Corridors - Slower and less variable speeds

Speeds were slower and less variable on urban arterial corridors such as San Pablo Avenue compared to suburban arterial corridors. Although speeds between 2018 and 2022 did not fluctuate significantly, they dropped daily during morning and afternoon peak-periods similar to freeways and suburban arterial corridors. Speeds on the San Pablo Avenue corridor dropped by an average of 34% from free-flow during morning and afternoon peak-periods in 2022.[3] For comparison, speeds declined 55% from free-flow during peak-periods on the I-80 freeway corridor, which runs parallel to San Pablo Avenue less than one mile to the west.

Figure 5.3: Average Speed by Time of Day – San Pablo Ave

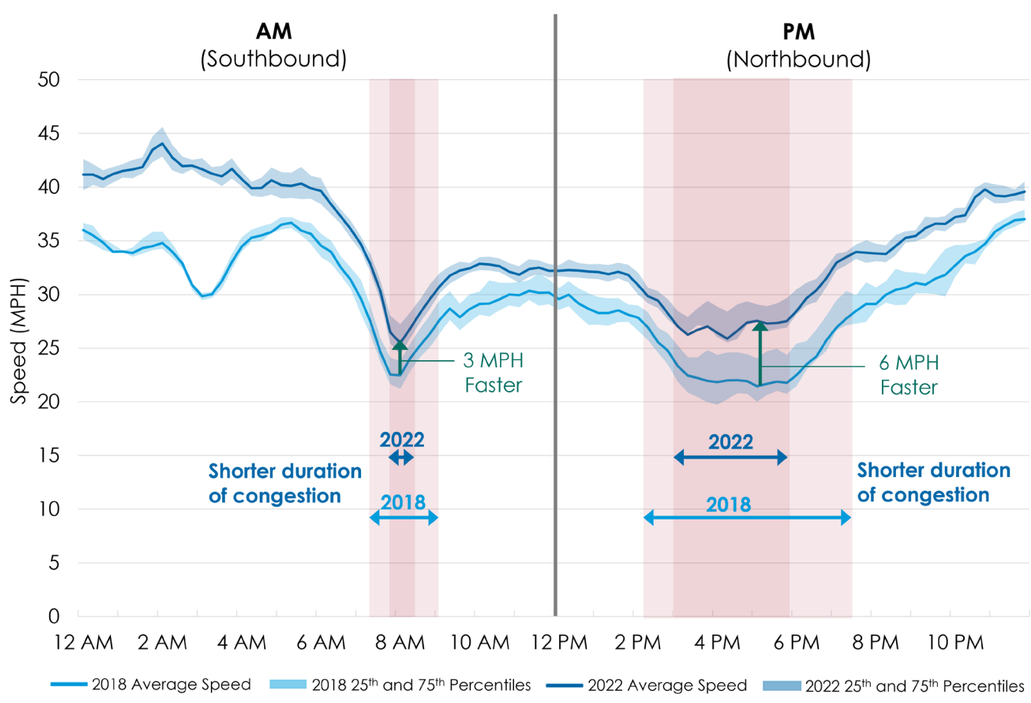


Segment Limits: San Pablo Ave between Downtown Oakland and Central Ave/County Line

Suburban Arterial Corridors – Faster and more variable speeds

Speeds were faster and more variable, with more distinct periods of congestion, on suburban arterial corridors such as Mission Boulevard. Speeds on the Mission Boulevard corridor dropped by about 37% from free-flow during peak-periods in 2022.[4] The I-880 freeway corridor, which runs parallel to Mission Boulevard, 2-3 miles to the west, declined 48% during the same period. As with freeways, average speeds on the Mission Boulevard corridor were higher in 2022 than in 2018 during all times of day, including off-peak.

Figure 5.4: Average Speed by Time of Day – Mission Blvd



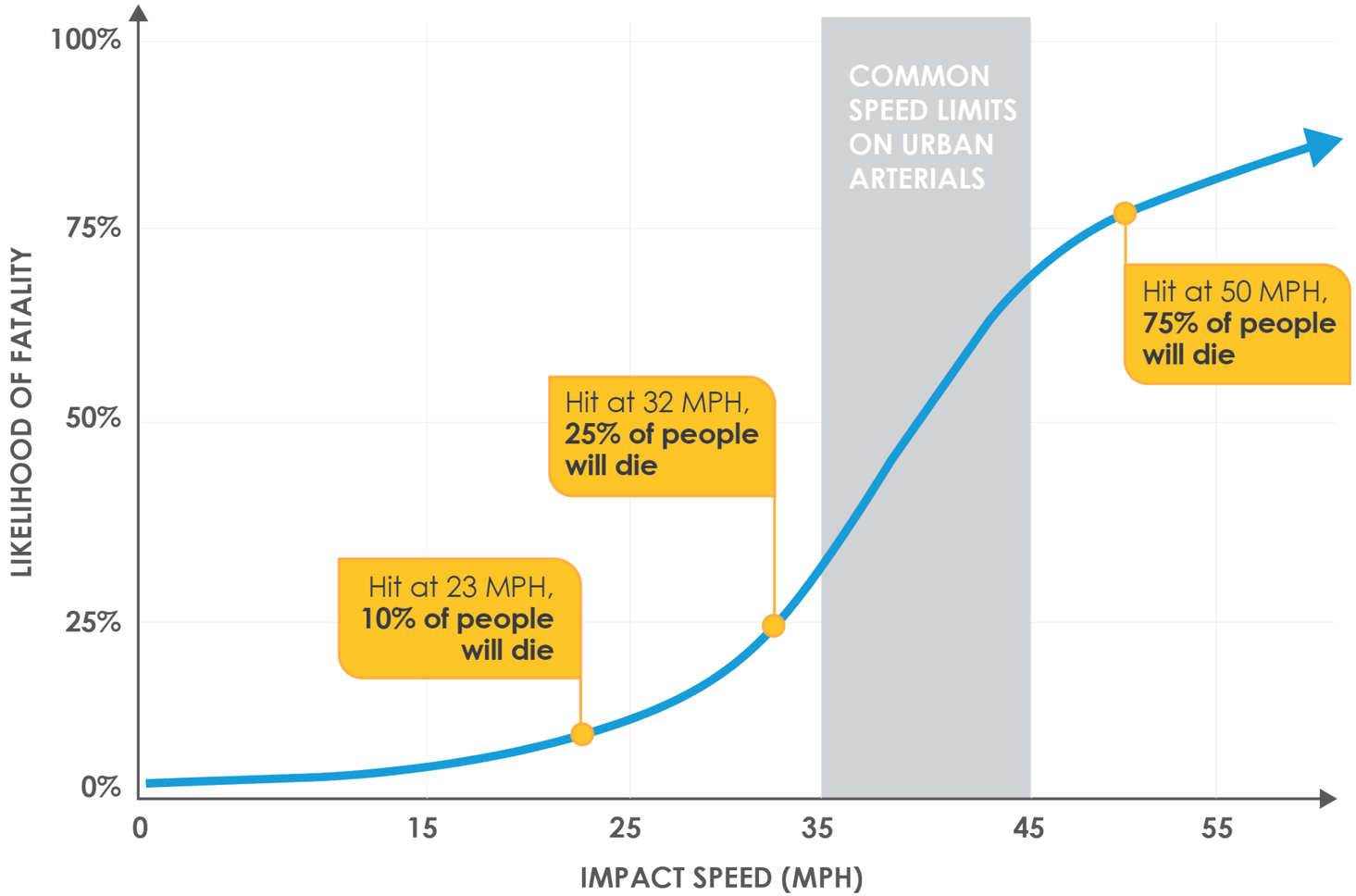
Segment Limits: Mission Blvd between I-680 and SR-92

[3]Average speeds on the San Pablo Avenue Corridor between downtown Oakland and Central Avenue declined from free-flow 25 MPH to 17 MPH during the morning peak-period and 16 MPH during the afternoon peak-period on Tuesdays to Thursdays for March-May 2018 and March-May 2022. Data sourced from INRIX.

[4]Average speeds on the Mission Boulevard Corridor between I-680 and SR-92 declined from free-flow 41 MPH to 26 MPH during both the morning and afternoon peak-periods on Tuesdays to Thursdays for March-May 2018 and March-May 2022. Data sourced from INRIX.

CHAPTER 5 | ARTERIAL SPEEDS HIGHER THAN PRE-PANDEMIC LEVELS

Small changes in speed can significantly impact safety outcomes: A reduction of just 1 MPH can decrease fatal crashes by 17%.[5]



SPEED AND SAFETY

- **# 1 Cause of Collisions Countywide:** Unsafe speed accounted for almost 30% of all collisions[6]
- **Peak-Period Speeds on Freeways:** Increased from 49 MPH in 2018 to 52 MPH in 2022
- **Peak-Period Speeds on Highways & Principal Arterials:** Increased from 25 MPH in 2018 to 27 MPH in 2022
- **Peak-Period Speeds on Other Arterials:** Increased from 22 MPH in 2018 to 26 MPH in 2022
- There were an average of 7,300 total collisions per year in Alameda County between 2012 and 2021[7]
- Statewide, Alameda County had the third highest share of senior pedestrians involved in collisions, and sixth highest share of young bicyclists and all pedestrians[8]

[5]Speed Kills, National Association of City Transportation Officials.
[6]Alameda County Countywide Collision Summary, Transportation Injury Mapping System, UC Berkeley.
[7]Sic.
[8]OTS Crash Rankings Results, California Office of Traffic Safety.

TRANSIT PERFORMANCE SUMMARY

Source: Alameda County Transportation Commission

CHAPTER SIX

Average Transit Speeds Remained Stable

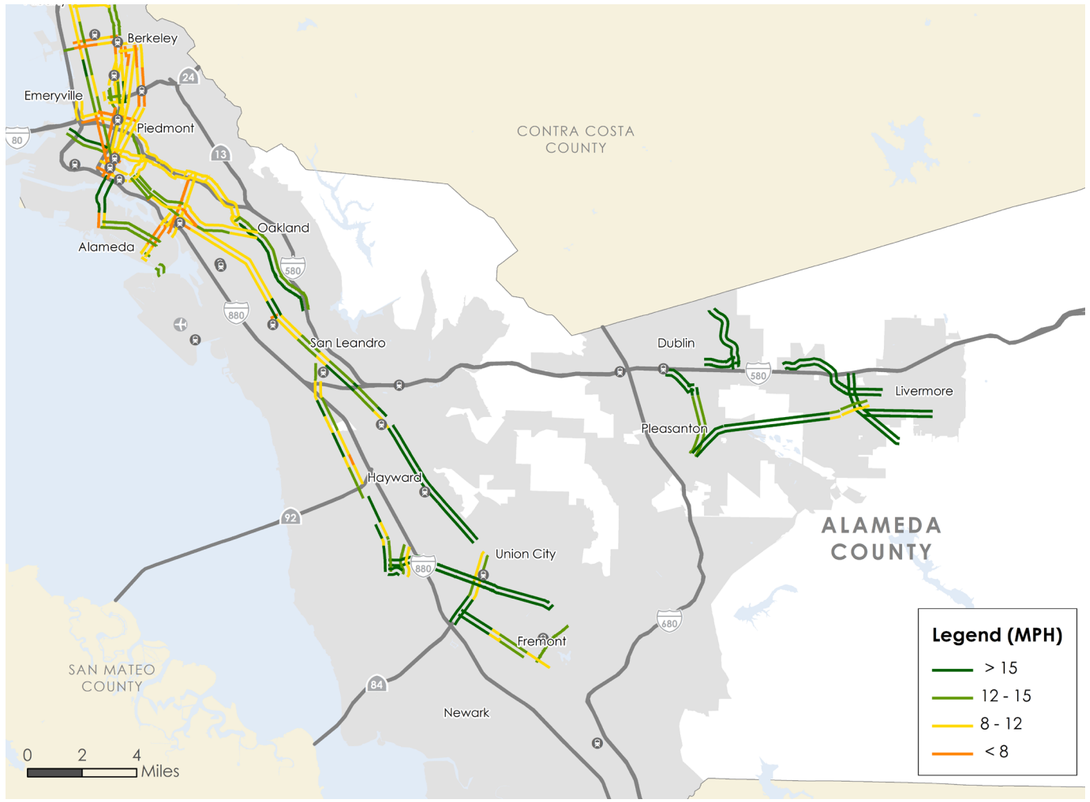
CHAPTER 6 | AVERAGE TRANSIT SPEEDS REMAINED STABLE

Transit Performance Monitoring

In order to understand how transit service performed on the county's network of major roads, Alameda CTC began monitoring bus speeds on the same auto monitoring network in 2018. Two agencies operate major bus corridors or trunk routes on the 146-mile transit monitoring network: Alameda-Contra Costa Transit District (AC Transit), which serves northern, central, and southern Alameda County, and Livermore-Amador Valley Transit Authority (LAVTA), which serves eastern Alameda County.

Transit service levels and ridership were still in a state of transition during the 2022 monitoring cycle, however Alameda CTC resumed transit performance monitoring after suspending it in 2020. Bus speeds on most transit routes are strongly affected by auto traffic, and consequently findings from the 2022 transit analysis mirror many of the auto findings discussed in earlier chapters.

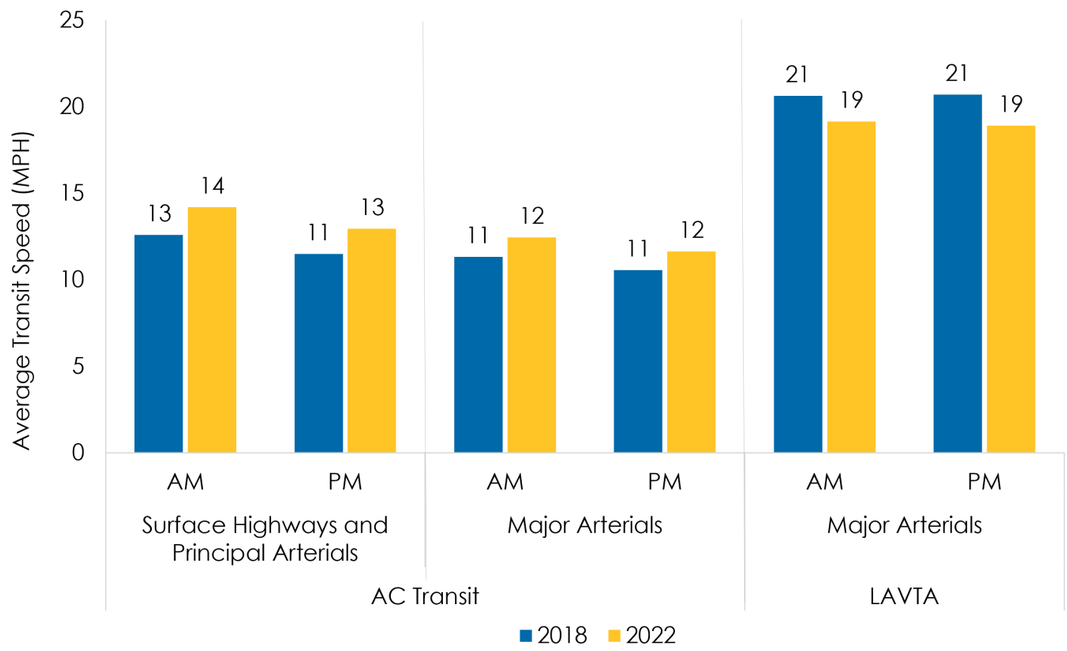
Figure 6.1: 2022 Average Transit Speeds – Afternoon Peak-Period



2022 TRANSIT SPEED TRENDS

- Average peak period bus speeds across both service providers were up by 1.4% in 2022, compared to pre-pandemic.[1]
  - AC Transit speeds increased by 11% between 2018 to 2022, from 11 to 13 MPH.
  - LAVTA speeds dropped 8%, from 21 to 19 MPH, during the same time period possibly due to pandemic-related changes to LAVTA's service plan.[2]
- Average transit speeds on surface highways and principal arterials were almost identical to speeds on smaller arterials in both 2018 and 2022, just 1 MPH faster.
- As shown in Figure 6.2, LAVTA speeds were comparatively higher than AC Transit mainly due to the fact that LAVTA monitoring routes operate on a less-congested suburban network.[3]
- Average transit speeds were 5% and 6% higher in the morning than in the afternoon in 2018 and 2022, respectively.
- Countywide, transit speeds were relatively consistent between peak periods and off-peak hours in both the morning and afternoon.

Figure 6.2: Average Transit Speed



[1]Average bus speeds include time spent at bus stops and traffic signals.
[2]During the Spring monitoring period, AC Transit had returned to roughly 80% of pre-pandemic service levels, and LAVTA had resumed full service for supplemental school-focused routes but had yet to restore all mainline routes.
[3]While both operators run on surface highways/principal arterials and major arterials, LAVTA performance summarized here only reflects routes that run on major arterials.

Source: Alameda County Transportation Commission

CHAPTER SEVEN

Transit Speeds Mirrored Auto Speed Trends

CHAPTER 7 | TRANSIT SPEEDS MIRRORED AUTO SPEED TRENDS

The relative speed and travel time of transit (as compared to auto travel) is one of the primary factors that influences a passenger's decision on whether to take transit. The transit-to-auto speed ratio quantifies this comparison, with values above one indicating segments where bus speeds, which include dwell time at stops, are faster than auto speeds, and vice versa for scores under 1. There is no precise threshold for when travelers switch between modes, however transit is often considered a more viable choice when the trip doesn't take more than 50% more time than driving, or the transit-to-auto speed ratio is 0.65 or above.[1] While a low ratio may point to the need for transit improvements, it does not necessarily reflect poor service; underlying travel patterns can skew the ratio, and high-performing routes may have longer dwell times due to high ridership. Although riders may be willing to take transit even when it takes longer than driving because of other benefits, investments that improve transit's convenience relative to driving can even further incentivize mode shift.

Countywide, transit speeds remained roughly competitive with auto travel speeds in 2022 as the average transit-to-auto speed ratios for both AC Transit and LAVTA were between 0.63 and 0.65. Changes in the transit-to-auto speed ratio over time, shown in Figure 7.1, were largely impacted by the underlying increase in auto speeds between 2018 and 2022. AC Transit's transit-to-auto speed ratio remained close to pre-pandemic levels, as their average bus speeds also increased from 2018. However, the slight drop in LAVTA's average bus speeds paired with an increase in auto speeds led their average transit-to-auto speed ratio to drop by about 0.1 during both the morning and afternoon peak-period. Figure 7.2 shows how transit speeds were fairly competitive across the county, with no clear hot spots showing significantly better or worse relative transit performance.

Figure 7.1: Average Transit-to-Auto Speed Ratio

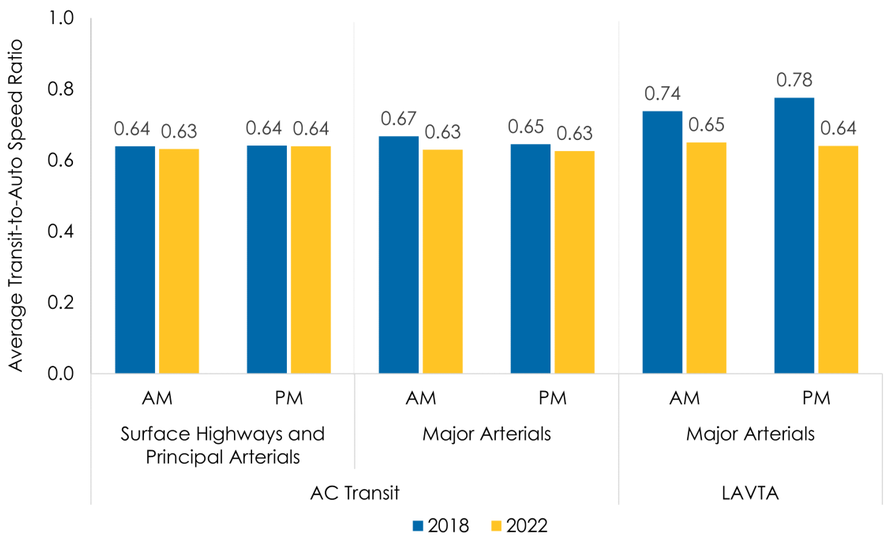
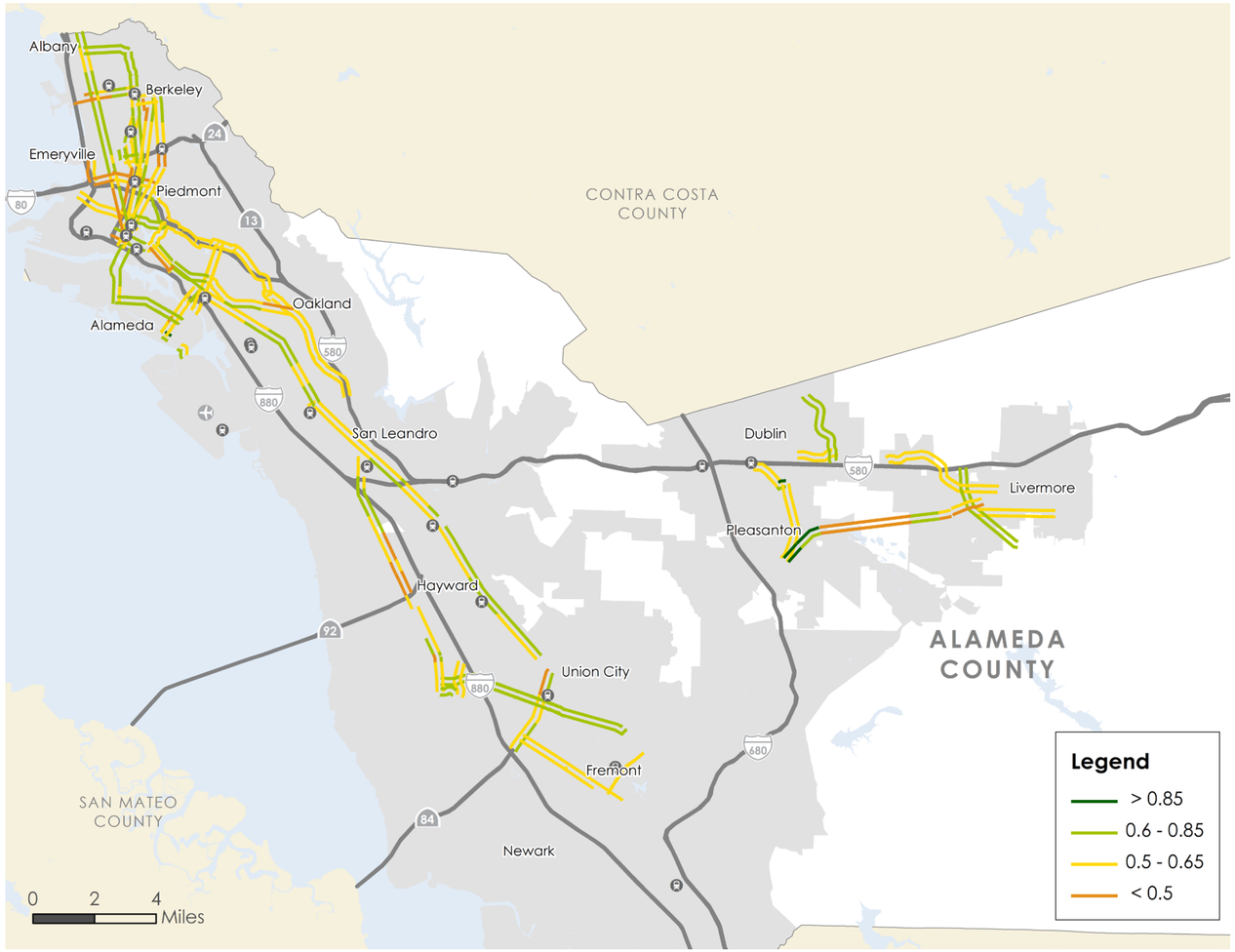


Figure 7.2: Transit-to-Auto Speed Ratio – Afternoon Peak-Period



[1] Transit Capacity and Quality of Service Manual, Third Edition, Transportation Research Board, Washington, D.C., 2013.

Source: Alameda County Transportation Commission

CHAPTER EIGHT

Transit Recovery was Slow on Transbay Corridor

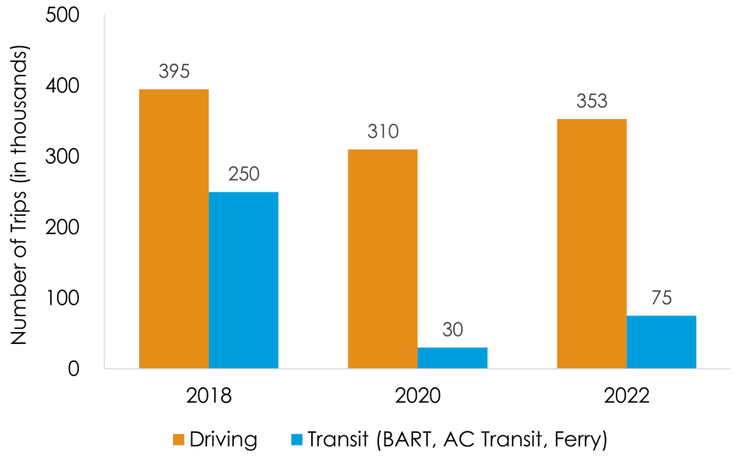
CHAPTER 8 | TRANSIT RECOVERY WAS SLOW ON TRANSBAY CORRIDOR

The Transbay Corridor that connects Oakland and San Francisco carries more trips by car, bus, BART, and ferry than any other corridor in the Bay Area — and has historically been one of the most congested freeway corridors in the region.[1]

In 2022, the corridor carried 427,700 total trips, 216,700 (or 34%) fewer than in 2018.[2] This significant reduction came almost exclusively at the expense of transit.

While transbay auto trips dropped just 21% between 2018 and fall 2020, and have since returned to 89% of pre-pandemic levels, transbay transit trips declined by 88% initially and have recovered to just 30%. Transbay BART, AC Transit, and WETA were at 29%, 36%, and 59% of pre-pandemic ridership respectively in 2022. As a result, transit accounted for 18% of daily transbay trips in 2022, compared to 39% pre-pandemic. Although still significantly lower than pre-pandemic levels, transit regained more transbay ridership in 2022 relative to 2020 lows (153%) than auto volumes (which increased 14% over the same period).

Figure 8.1: Average Daily Transbay Trips by Mode



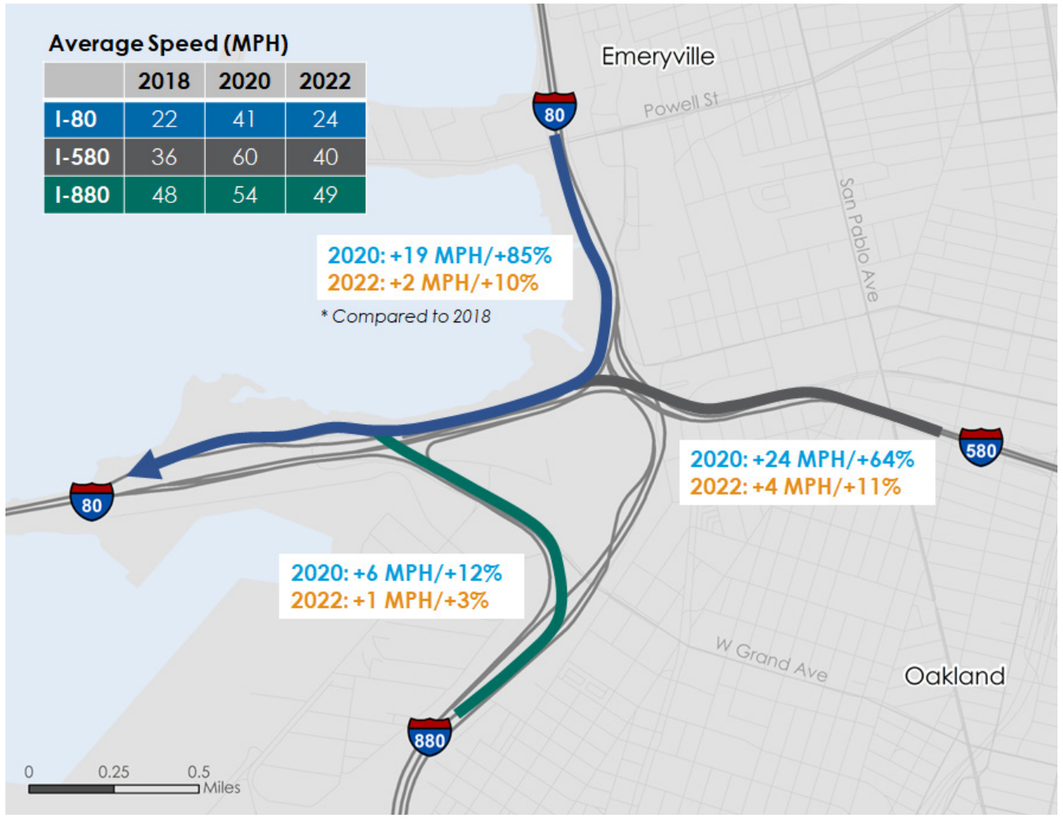
IN 2022:

Total trips through the Transbay Corridor were down 34% from pre-pandemic highs.

Transit accounted for 18% of daily transbay trips, compared to 39% pre-pandemic.

82% of trips were made by car, 16% by BART, 1% by bus, and less than 1% by ferry.

Figure 8.2: Morning Peak-Period Speeds on Freeways Approaching Bay Bridge



Increasing auto volumes on the Bay Bridge have coincided with returning congestion, as freeway speeds approaching the San Francisco-Oakland Bay Bridge (Bay Bridge) toll plaza have dropped to near pre-pandemic levels.

During the pandemic, morning peak-period speeds increased by roughly 20 MPH in 2020 as traffic volumes dropped, but have returned to within 2 and 4 MPH of pre-pandemic levels on I-80 and I-580 respectively. As congestion on the Bay Bridge and its eastern approaches increases, it is possible that travelers will increasingly be incentivized to return to transit to avoid peak-period delays.

[1] I-80 was ranked #1 in the list of most congested freeway segments in the San Francisco Bay Area (2017), Metropolitan Transportation Commission.
[2] Auto trips were calculated using westbound toll volumes only. The same daily traffic volumes were assumed for the eastbound direction. Toll data was provided by Bay Area Toll Authority, Metropolitan Transportation Commission. AC Transit, BART, and WETA ridership data was provided by each respective agency.

ACTIVE TRANSPORTATION SUMMARY

Source: Alameda County Transportation Commission

CHAPTER NINE

Active Transportation Patterns Still Evolving

CHAPTER 9 | ACTIVE TRANSPORTATION PATTERNS STILL EVOLVING

Since 2010, Alameda CTC has conducted biennial manual bicycle, pedestrian, and scooter counts at 150 intersections throughout Alameda County to measure active transportation activity and better understand emerging trends.[1] Each location is surveyed once per monitoring cycle during a midweek afternoon peak-period (4-6 PM) between September and October. Additionally, some locations have data collected midday (12-2 PM) or after school (2-4 PM).

Active Transportation counts – which are largely collected in commercial areas – continued to rebound in 2022 from pandemic lows, with slight variations between modes. Some of these changes over time and differences by mode may be attributable to pandemic-related changes in travel patterns (such as decreased activity in employment and commercial centers, or the return of in-person activities in 2021).

Bicycle: Bicycle volumes did not drop sharply in 2020, in stark contrast to most other modes of travel. However, 2022 bicycle counts during the afternoon peak continued a slow yet steady decline, falling an additional 6% from 2020. Both midday and after school counts remained stable — as they have throughout the pandemic.

Pedestrian: Pedestrian volumes in 2022 rebounded significantly from 2020 – up 41% in the afternoon peak-period, 58% in the midday, and 168% after school.[2] However, they remained well below the pre-pandemic levels – down 39% in the afternoon peak-period, 40% midday, and 44% after school.

Scooter: Similar to pedestrian counts, scooter volumes also rebounded in 2022, though not quite to pre-pandemic levels. In the afternoon peak, scooter volumes were up 131% from 2020, but still 18% lower than in 2018. However, scooter activity was more evenly distributed across the county in 2022. In 2018, almost 90% of observed scooter counts were concentrated in Oakland. This fell to just 34% in 2022 as more jurisdictions had approved permits for commercial scooter operations, and scooter volumes increased in cities such as Fremont and Berkeley.

Data on bicyclist travel behaviors, such as helmet use, riding on sidewalks, and wrong-way travel was also collected alongside bicycle counts.

Helmet Use: In 2022, helmet use increased significantly, from around two-thirds between 2018 and 2020 to more than 80% in 2022. Wearing a bike helmet reduces the risk of a serious head injury by nearly 70% and of a fatal head injury by 65%.[3]

Sidewalk Riding and Wrong-way Travel: Sidewalk riding and wrong-way travel are often indicative of areas that have insufficient bike infrastructure but strong demand for cycling. Bikers may feel cut off from their destinations or unsafe using existing infrastructure, whether because there is no bike-specific infrastructure or existing bike facilities are low-quality. For the last three monitoring cycles, around 1 in 5 of all cyclists counted used the sidewalk, and 1 in 10 cyclists rode wrong way throughout the county. Despite small fluctuations between years, there has not been a strong change in the prevalence of either behavior.

[1]One intersection at 38th St/13th Ave/Park Blvd in Oakland was not surveyed due to construction during the 2022 count window.
[2]Many schools were closed for in-person instruction during the 2020 count window.
[3] Bicycle Safety, The American Academy of Orthopedic Surgeons (AAOS).

Figure 9.1: Countywide Bicyclist and Pedestrian Counts Over Time (Afternoon Peak-Period)

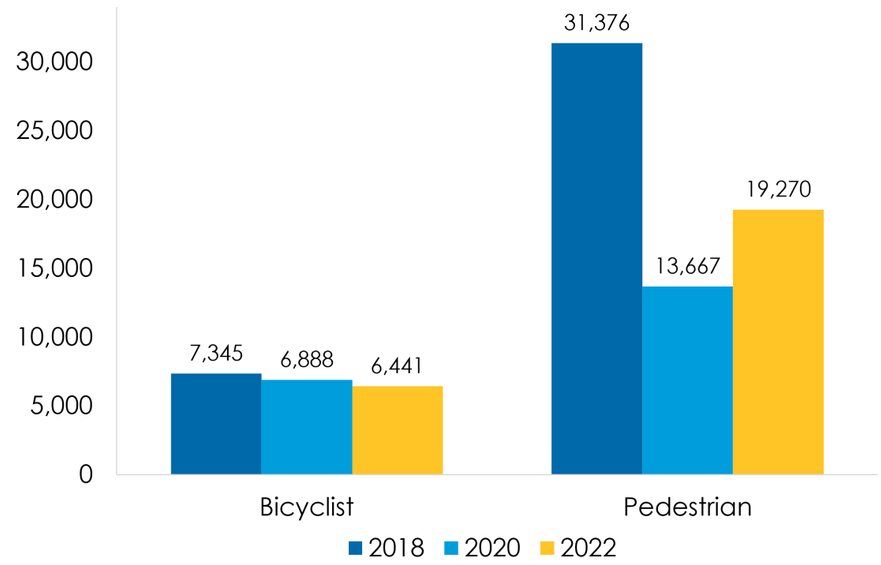


Figure 9.2: Bicyclist Travel Behaviors Over Time (Afternoon Peak-Period)