METROPOLITAN
TRANSPORTATION
COMMISSION

Bay Area Metro Center
375 Beale Street, Suite 800
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Agenda Item 5

TO: Policy Advisory Council DATE: September 6, 2017

FR: David Vautin and Stephanie Mak, MTC

RE: Vital Signs: Summer 2017 Update

Policy Advisory Council Agenda Item 5 on Vital Signs Update - Summer 2017 is attached as presented to this month's Planning Committee, which met on September 8, 2017.

MTC staff will be at your September 13 meeting to discuss the Vital Signs Update - Summer 2017.

Attachment

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Agenda Item 5a

Memorandum

TO: Planning Committee DATE: September 1, 2017

FR: Deputy Executive Director, Policy

RE: Vital Signs Update – Summer 2017

The Vital Signs performance monitoring initiative was a key implementation action of the original Plan Bay Area in 2013, allowing residents to track trends for 40 indicators related to transportation, land & people, the economy, and the environment. To date, over 74,000 Bay Area residents – ranging from elected officials and public agency staff to members of the public and policy advocates – have used Vital Signs to learn more about their communities and their region (http://www.vitalsigns.mtc.ca.gov/). Managed by Bay Area Metro (MTC and ABAG), Vital Signs involves close cooperation with other project partners including the Bay Area Air Quality Management District (BAAQMD), the Bay Conservation and Development Commission (BCDC), and the Bay Area Regional Collaborative (BARC).

Over the course of this fiscal year, staff has been managing a comprehensive update of all existing indicators with the latest available data. At your February committee meeting, staff provided an overview of new and updated Land and People, Economy, and Equity indicators. Since this spring, the following indicators have been updated:

- **Transportation:** Commute Mode Choice, Commute Time, Traffic Volumes at Regional Gateways, Time Spent in Congestion, Miles Traveled in Congestion, Travel Time Reliability, Transit Ridership, Transit System Efficiency, Daily Miles Traveled, Street Pavement Condition, Highway Pavement Condition, Bridge Condition
- **Environment:** Particulate Concentrations, Ozone Concentrations, Greenhouse Gas Emissions, Bay Restoration, Vulnerability to Sea Level Rise

Combined, these data releases provide a snapshot of the Bay Area today in relation to key transportation and environmental trends. As always, much more detail can be found on the Vital Signs website, especially for localized performance trends on the county, city, neighborhood, and corridor levels.

Key Findings

1. **Traffic congestion is at record high levels, and jobs-housing imbalances are playing a role in rising commute times.**
   As many Bay Area drivers might have expected, per-commuter delay on Bay Area freeways increased yet again in 2016. One notable shift was that the growth rate for delay slowed compared to 2015 even as regional jobs growth remained strong. Commute times also ticked upwards to record highs of 31 minutes for all travelers and 51 minutes for transit riders. While rising congestion on regional freeways is playing a key role in driving travel times up, that alone does not explain the growth in commute times. Rather, the increasing distance between high-paying job centers and affordable housing is equally to blame for rising travel times.

2. **Unlike prior decades where a shift towards telecommuting powered the decline in auto mode share, public transit has made significant gains since 2010.**
   Since 2010, the share of Bay Area residents choosing to drive to work has declined by nearly 3 percentage points. In contrast to prior decades where telecommuting grew rapidly, the vast majority of this shift is a result of more residents choosing to take public transit – boosting transit mode share to its highest level since the 1970s.

3. **The region has made significant progress in terms of state of good repair, especially for bridges but also for local streets and roads.**
   For the first time in seven years, the pavement condition index (PCI) for local streets in the Bay Area increased by one point to 67, reflecting the benefits of local investments. Even more striking was the region's progress on bridge condition in recent years. Replacement of the east span of the San Francisco-Oakland Bay Bridge led to a notable reduction in the share of structurally-deficient bridge deck area. Once an outlier among major metro areas for having the worst conditions by far, today the region is on par with its peers, a result of performance gains from seismic retrofits and replacements of bridges and overpasses.

4. **The end of the years-long drought has resulted in improved air quality for both particulate matter and ozone.**
   Improved meteorological conditions played a key role in driving down levels of harmful fine particulate matter and ozone in 2016. This trend continues a longstanding downward trajectory for both pollutants, reflecting the impacts of air quality regulations on the state and regional levels. On a more localized level, the worst air quality conditions in 2016 were in Napa (for particulate matter on a peak 24-hour basis) and in Livermore & San Martin (for ozone).

5. **Per-capita greenhouse gas emissions are declining even as the Bay Area economy booms.**
   Thanks primarily to reduced consumption of electricity and natural gas, combined with a much cleaner power mix from major utilities, the Bay Area's greenhouse gas footprint has decreased by six percentage points on a per-capita basis since 2010 – a notable achievement. While greenhouse gas emissions from transportation have been slower to decline, the fact that the region is experiencing an economic boom without significantly increasing its greenhouse gas emissions demonstrates the value of an economy powered by knowledge sector jobs.

6. **Based on new sea level rise forecasts, at least 200,000 Bay Area residents will be at risk of sea level rise impacts by 2050, with Marin and Solano residents particularly at risk.**
   New sea level rise forecasts from BCDC, combined with historical population data for the region, highlight the risks of sea level rise in the decades ahead. Even with a one-foot sea level rise scenario – a middle-of-the-road forecast for 2050 – roughly 200,000 Bay Area residents would be living in communities impacted annually by flooding from rising tides.

Next Steps

Given the completion of this update cycle, the top priorities for Vital Signs in the coming year are as follows:

- Incorporation of short-range transportation performance targets under MAP-21/FAST Act
- Integration of Vital Signs into the next long-range plan to better align performance monitoring with target-setting and scenario analyses

Alix A. Bockelman

Attachment:

- PowerPoint Presentation

AAB:dv

VITAL SIGNS

SUMMER 2017 UPDATE:
TRANSPORTATION + ENVIRONMENT

SEPTEMBER 8, 2017
PRESENTATION TO MTC PLANNING/ABAG ADMINISTRATIVE COMMITTEES

David Vautin, MTC/ABAG Principal Planner
Henry Hilken, BAAQMD Planning Director
Lindy Lowe, BCDC Planning Director

MTC ABAG BAAQMD BCDC BARC

Source: https://www.flickr.com/photos/kitkit201/33692723984/

VITAL SIGNS

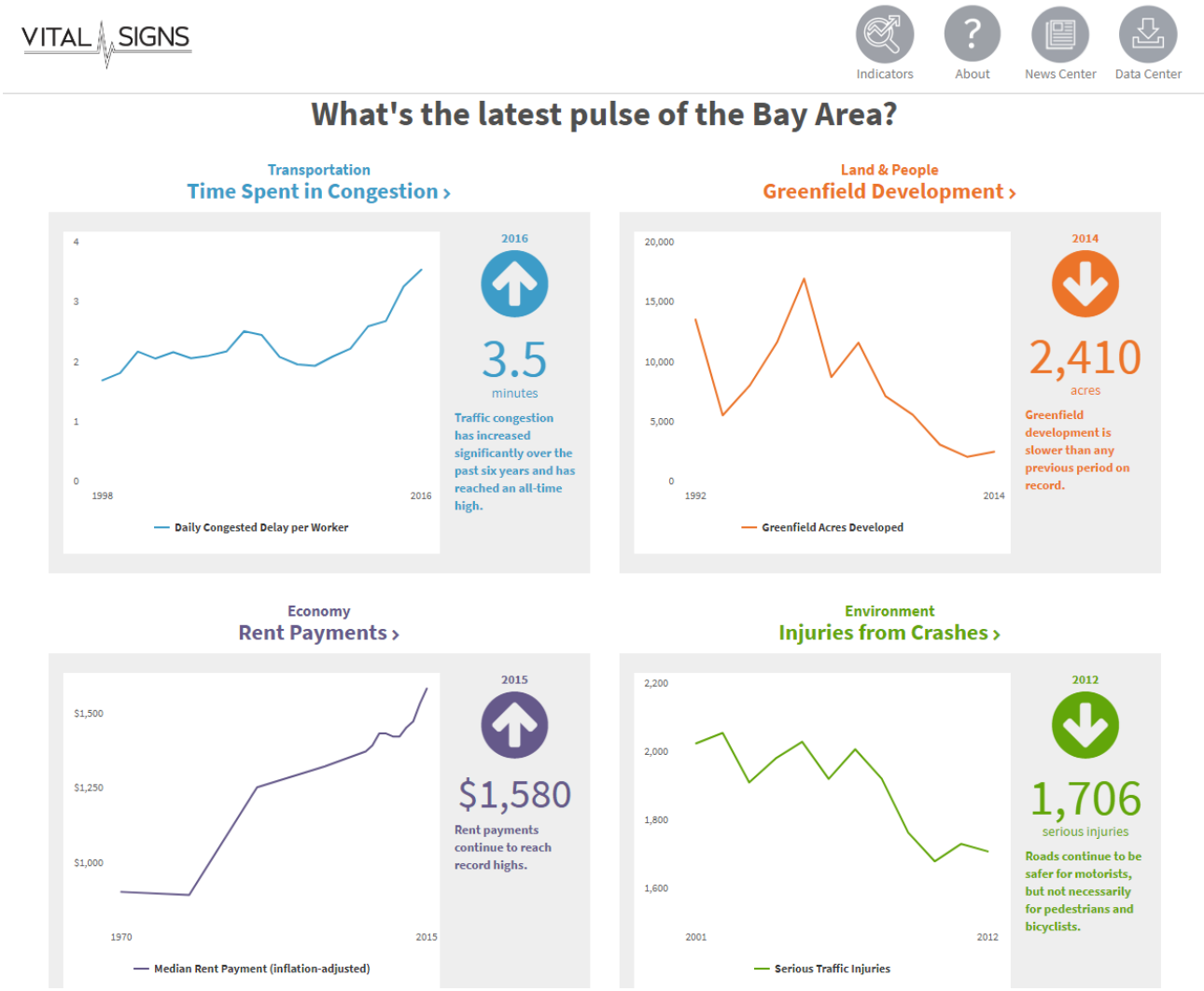
Vital Signs tracks 40 performance indicators to understand if the Bay Area is (or is not) making progress towards key regional goals.

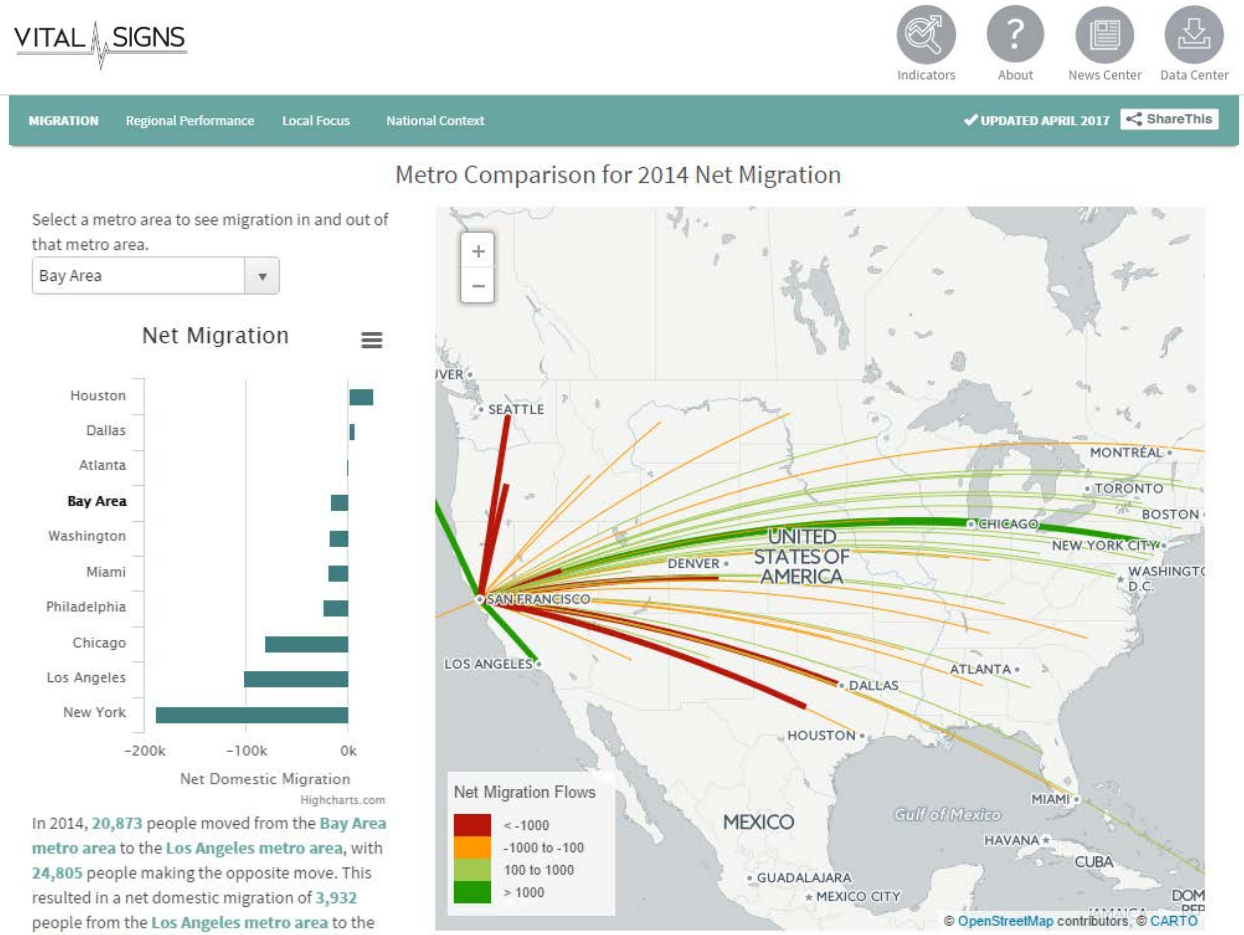
VITAL SIGNS

This summer, 17 indicators – ranging from traffic congestion and transit ridership to air quality and bay restoration – were updated.

VITAL SIGNS

The interactive Vital Signs website allows residents to explore trends on the regional, county, city, and even neighborhood levels.





vitalsigns.mtc.ca.gov

VITAL SIGNS

1

Traffic congestion is at record high levels, but jobs-housing imbalances are also playing a role in rising commute times.

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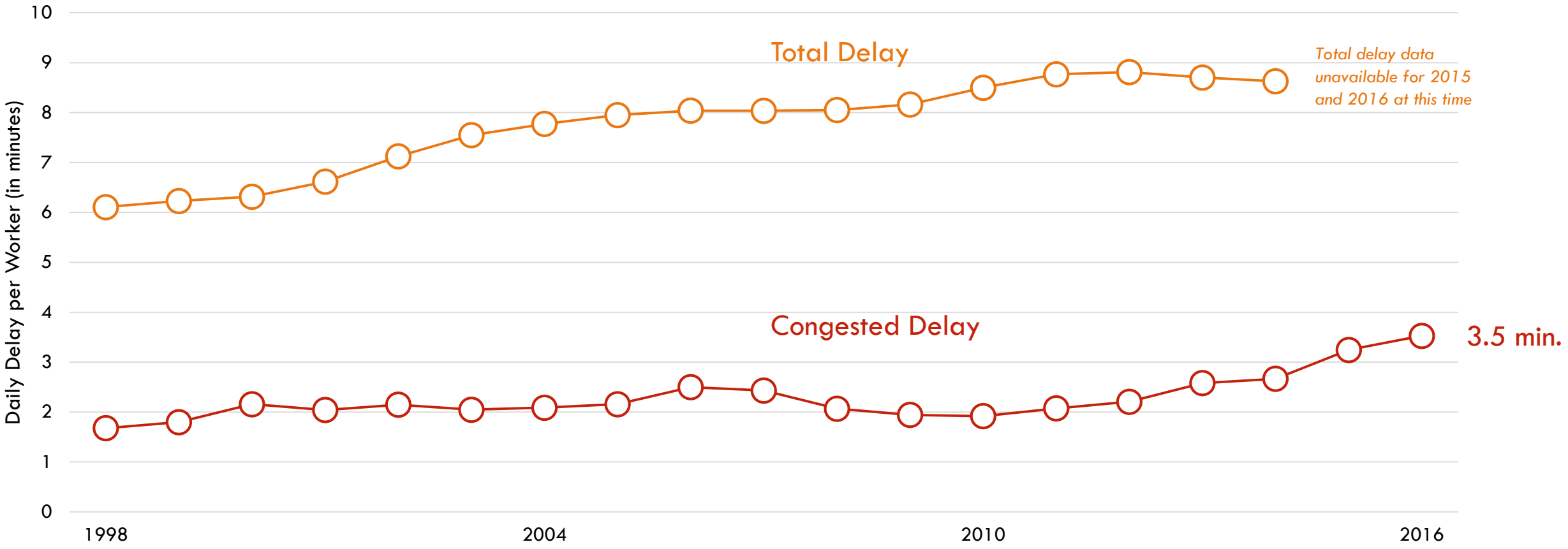
REGIONAL PERFORMANCE

2016 is the fourth year in a row in which congestion hit a record high; still, it only accounts for 3.5 minutes per day.

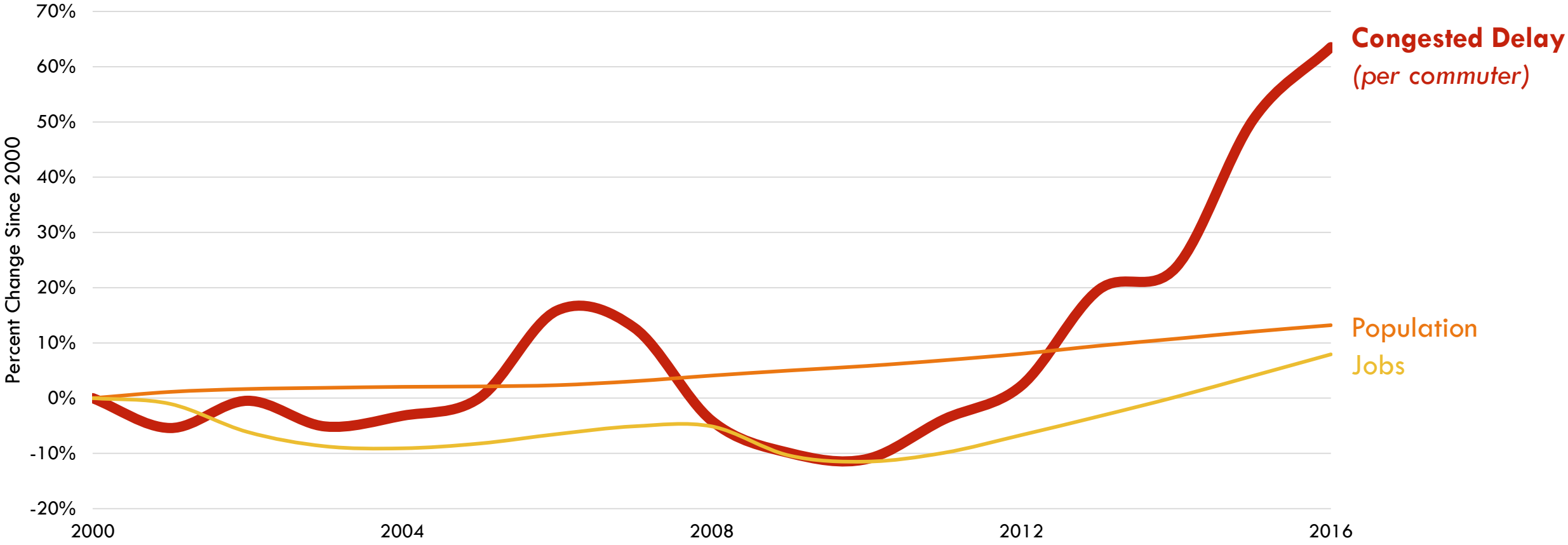


Source: INRIX/MTC Analysis; *note: total delay data unavailable for 2015 and 2016 at this time*

REGIONAL PERFORMANCE

The growth in per-commuter congested delay slowed in 2016 even as job & population growth continued at a steady pace.

CHANGE SINCE 2000 – POPULATION, JOBS AND TIME SPENT IN CONGESTION

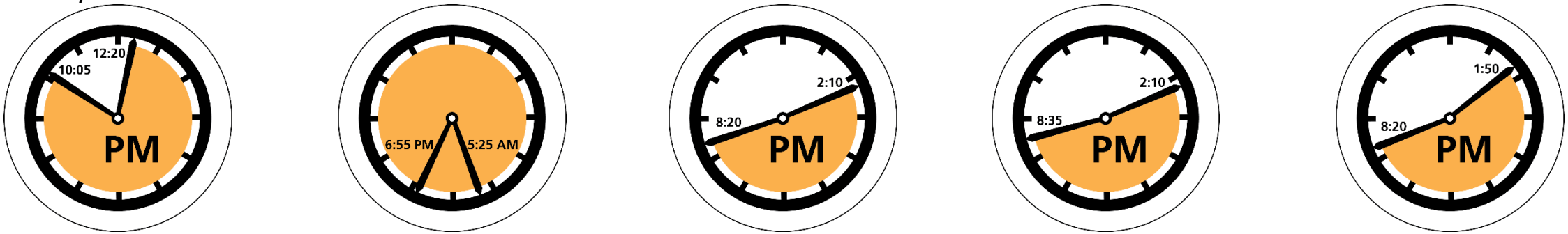


Source: California Employment Development Department; California Department of Finance; INRIX/MTC Analysis

LOCAL FOCUS

Freeway segments in the Bay Bridge corridor remain in the top slots for congestion for yet another year.

#1	#2	#3	#4	#5
NORTH/EASTBOUND	WESTBOUND	SOUTHBOUND	NORTHBOUND	NORTHBOUND
I-280 to Treasure Is. Tunnel	SR-4 to Downtown SF	Mountain View to Downtown San Jose	Mission Blvd/SR-262 to Sunol	Fremont to Hayward
2015 Rank: #1	*2015 Rank:* #2	*2015 Rank:* #3	*2015 Rank:* #6	*2015 Rank:* #8



Source: INRIX/MTC Analysis; *Note: 2015 congested segments data were corrected after being published in Fall 2016; the 2015 rankings are updated to incorporate the corrected figures*

LOCAL FOCUS

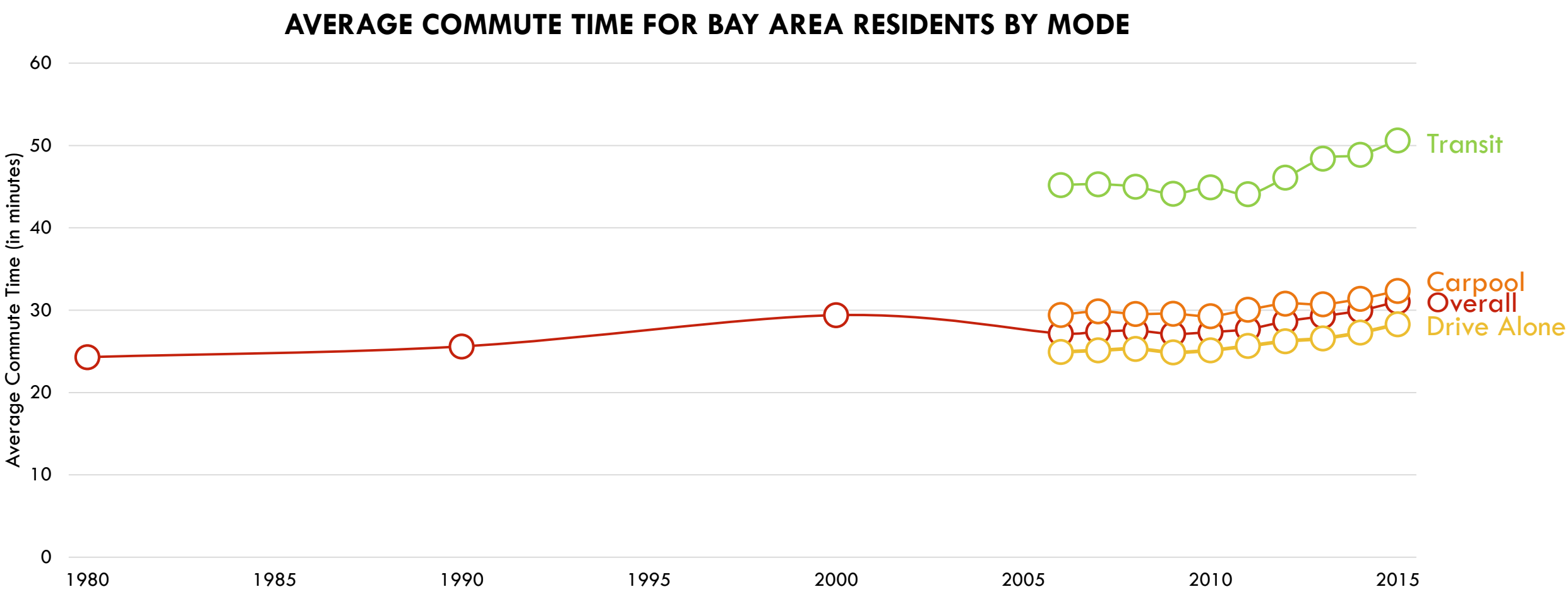
For the first time on record, every segment in the top 10 occurs during the PM peak.

#6	#7	#8	#9	#10
SOUTHBOUND	EASTBOUND	NORTHBOUND	EASTBOUND	EASTBOUND
PM 7:35 – 2:50	PM 7:35 – 2:25	PM 7:30 – 2:45	PM 7:20 – 2:25	PM 8:00 – 3:05
Foothill Expy to Downtown San Jose	West Oakland to North Berkeley	San Ramon to Pleasant Hill	I-580/I-980 to I-680	Martinez to Concord
2015 Rank: #12	*2015 Rank:* #4	*2015 Rank:* #11	*2015 Rank:* #10	*2015 Rank:* #16

Source: INRIX/MTC Analysis; *Note: 2015 congested segments data were corrected after being published in Fall 2016; the 2015 rankings are updated to incorporate the corrected figures*

REGIONAL PERFORMANCE

At 31 minutes, average commute time in the Bay Area hit a record high for the second straight year.

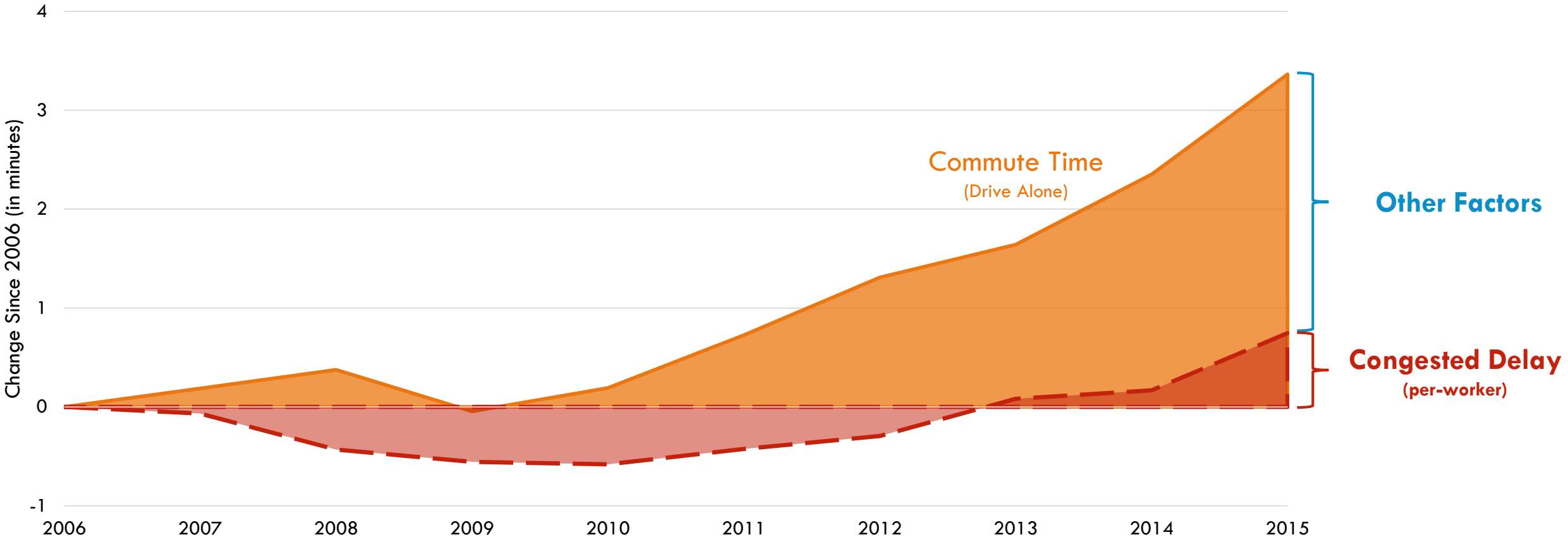


Source: U.S. Census/American Community Survey

REGIONAL PERFORMANCE

Growing commute time is only partly explained by increased congestion – other factors include longer commute distances.

CHANGE SINCE 2006 FOR COMMUTE TIME VS. CONGESTED DELAY



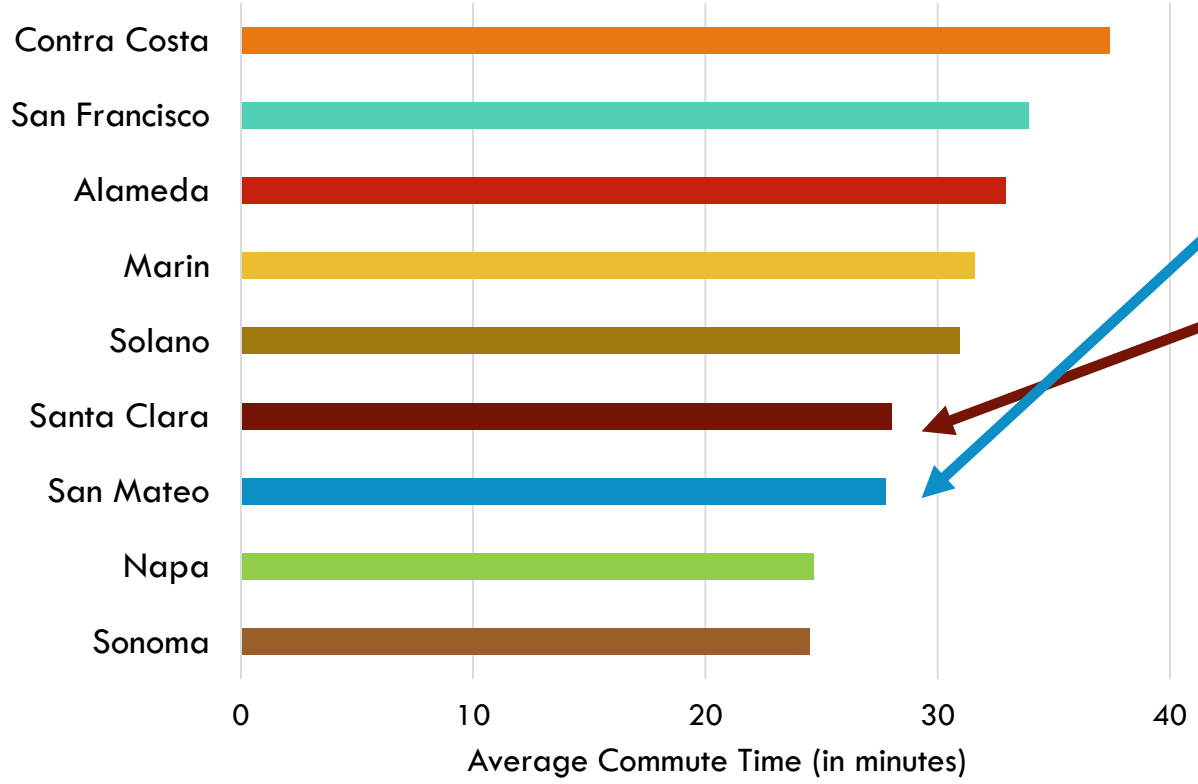
Source: U.S. Census Bureau/American Community Survey; INRIX/MTC Analysis

VITAL SIGNS

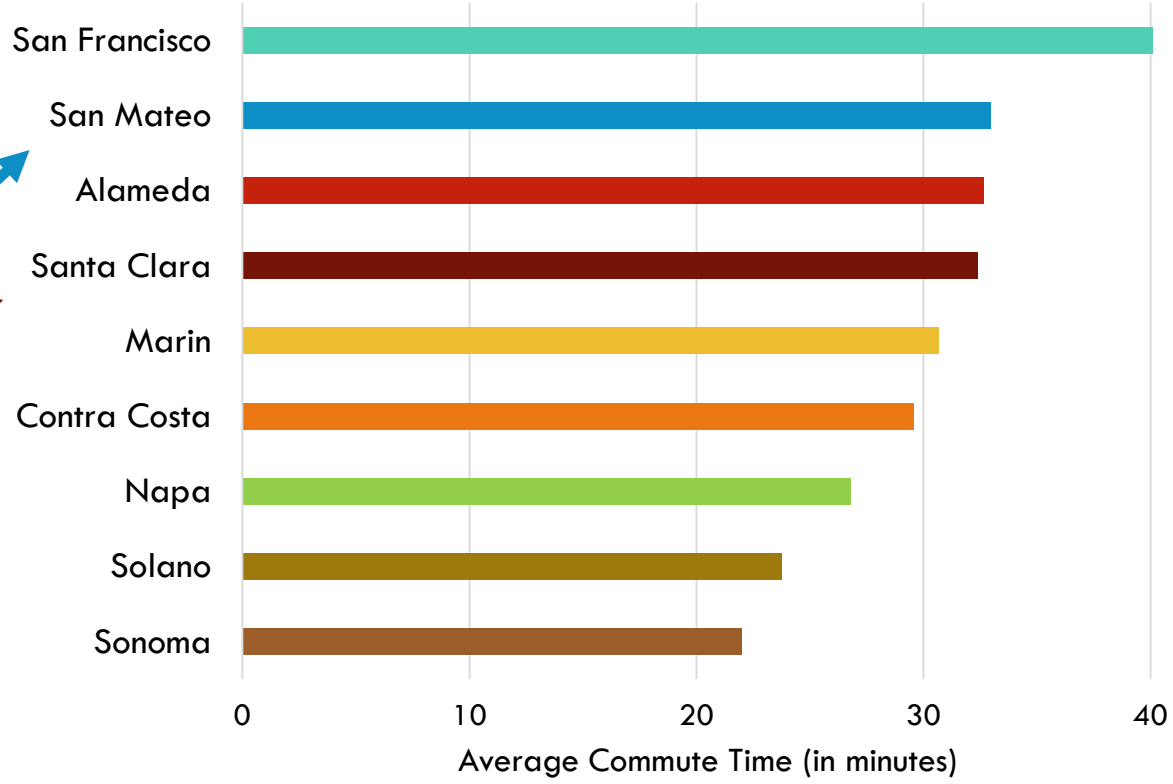
LOCAL FOCUS

Many Silicon Valley workers commute from distant cities on congested highways, resulting in relatively long travel times.

AVERAGE COMMUTE TIME BY COUNTY OF RESIDENCE



AVERAGE COMMUTE TIME BY COUNTY OF EMPLOYMENT



Source: U.S. Census/American Community Survey

VITAL SIGNS

1 Traffic congestion is at record high levels, but jobs-housing imbalances are also playing a role in rising commute times.

2 **Unlike prior decades where a shift to telecommuting powered the decline in auto mode share, public transit has made significant gains since 2010.**

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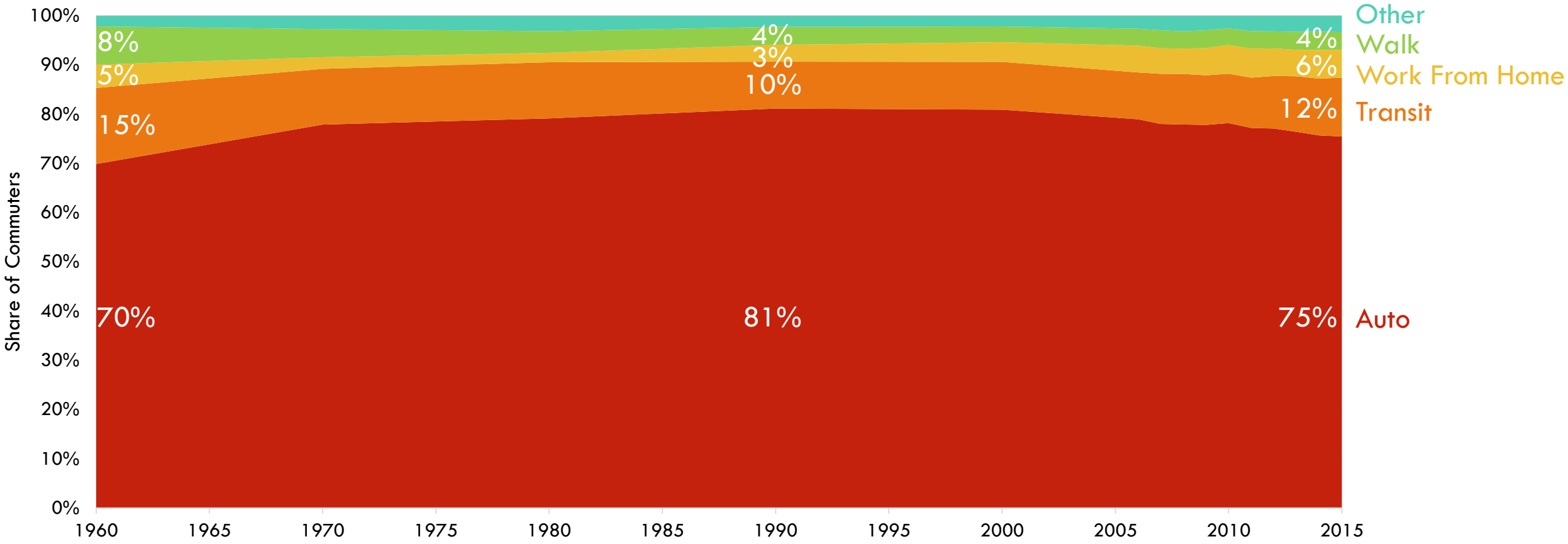
REGIONAL PERFORMANCE

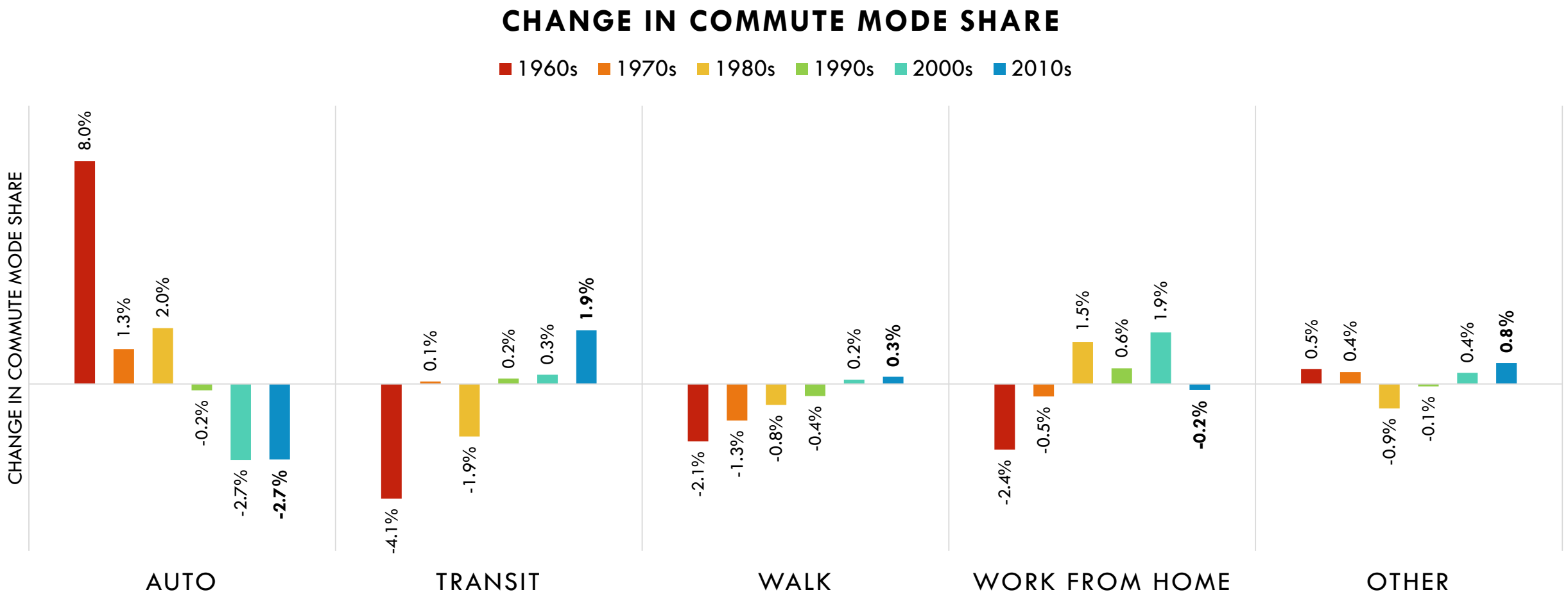
While six percentage points lower than 1990 levels, 75 percent of Bay Area residents still drive to work.



Source: U.S. Census/American Community Survey

REGIONAL PERFORMANCE

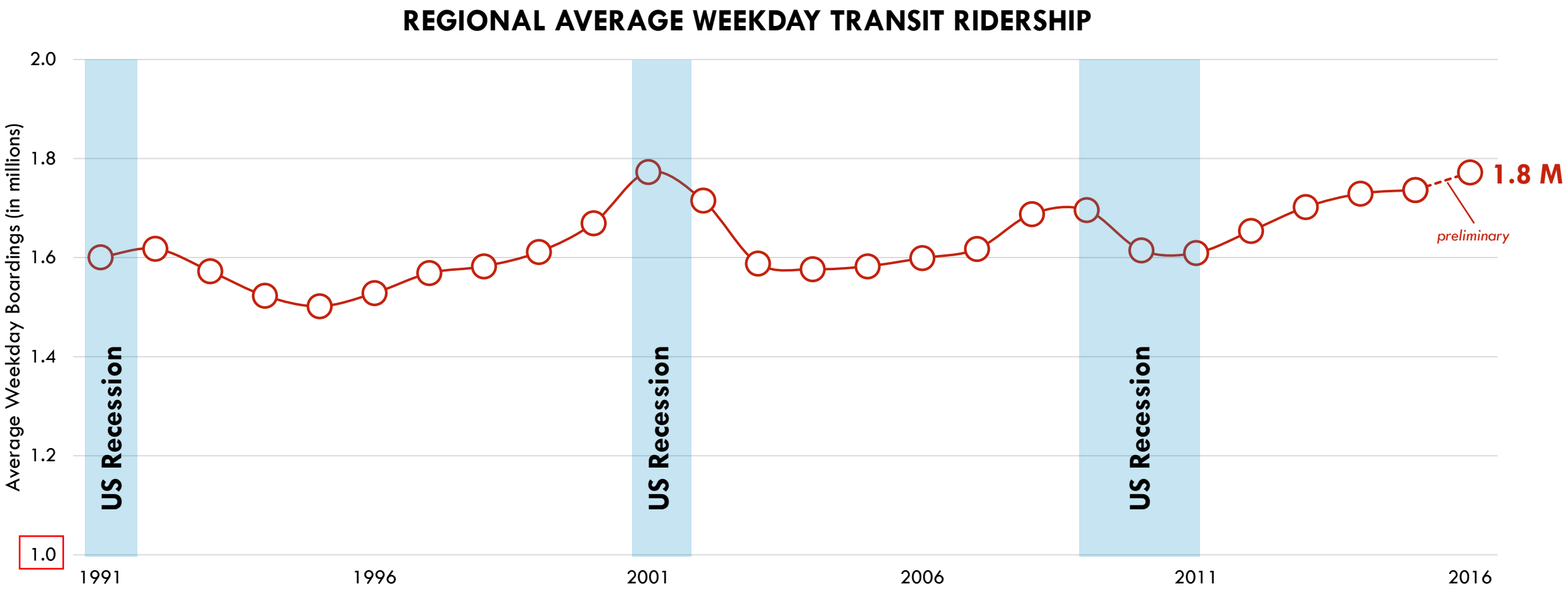
Declining auto mode share since 2010 is a result of rising transit use, even as telecommuting growth has stalled.



Source: U.S. Census/American Community Survey

REGIONAL PERFORMANCE

Bay Area weekday transit boardings increased slightly in 2016, marking the fifth straight year of ridership growth.

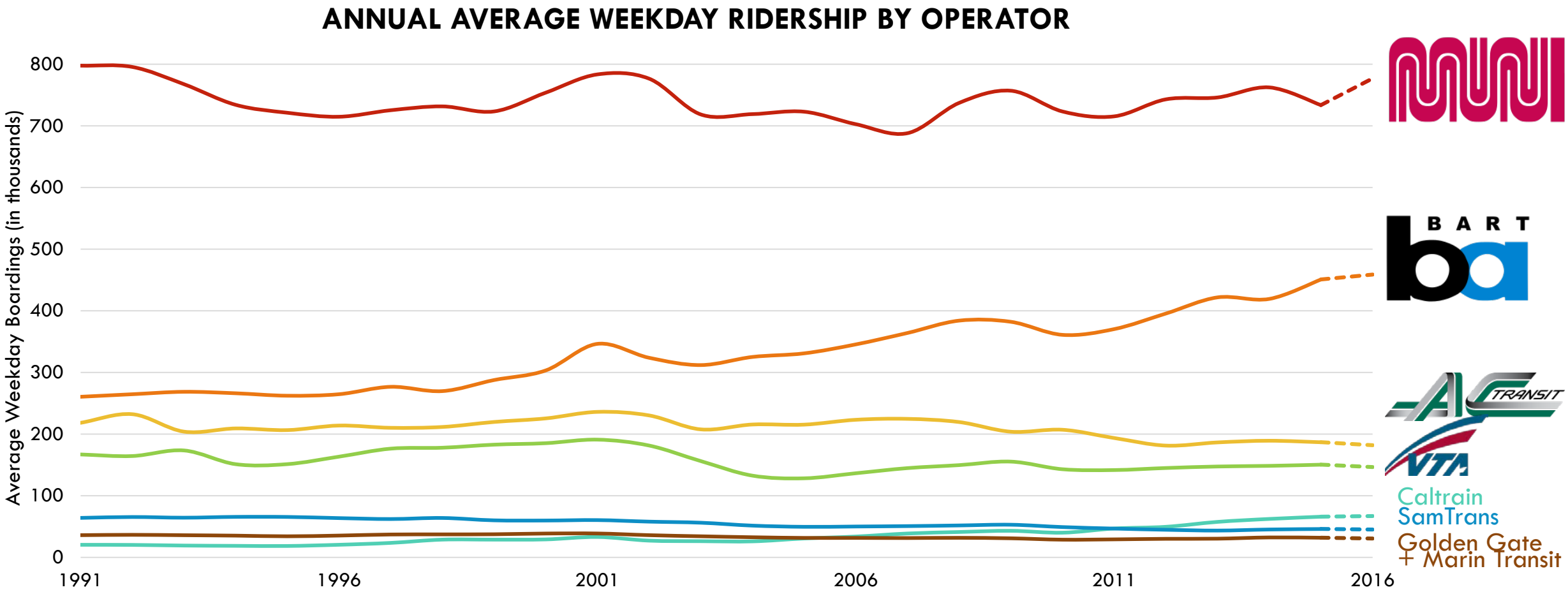


Note: Estimated average weekday boardings is annual boardings divided by 300 (standard MTC factor)

Source: FTA NTD Annual Database, 2015; FTA NTD Monthly Adjusted Data *(preliminary)*, 2016

LOCAL FOCUS

Muni saw a notable uptick in ridership in 2016, in contrast to many other regional transit operators.



Note: Estimated average weekday boardings is annual boardings divided by 300 (standard MTC factor)

Source: FTA NTD Annual Database, 2015; FTA NTD Monthly Adjusted Data *(preliminary)*, 2016

VITAL SIGNS

1. Traffic congestion is at record high levels, but jobs-housing imbalances are also playing a role in rising commute times.

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3. **The region has made significant progress in terms of state of good repair, especially for bridges but also for local streets and roads.**

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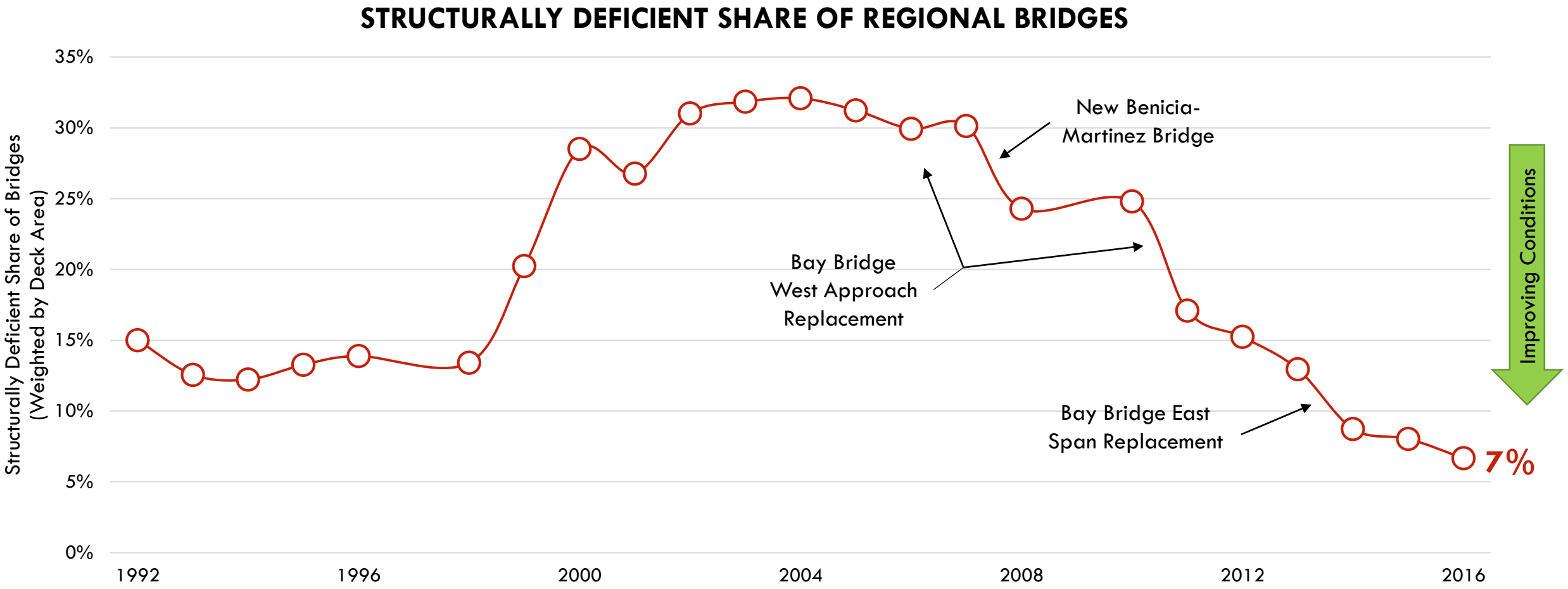
REGIONAL PERFORMANCE

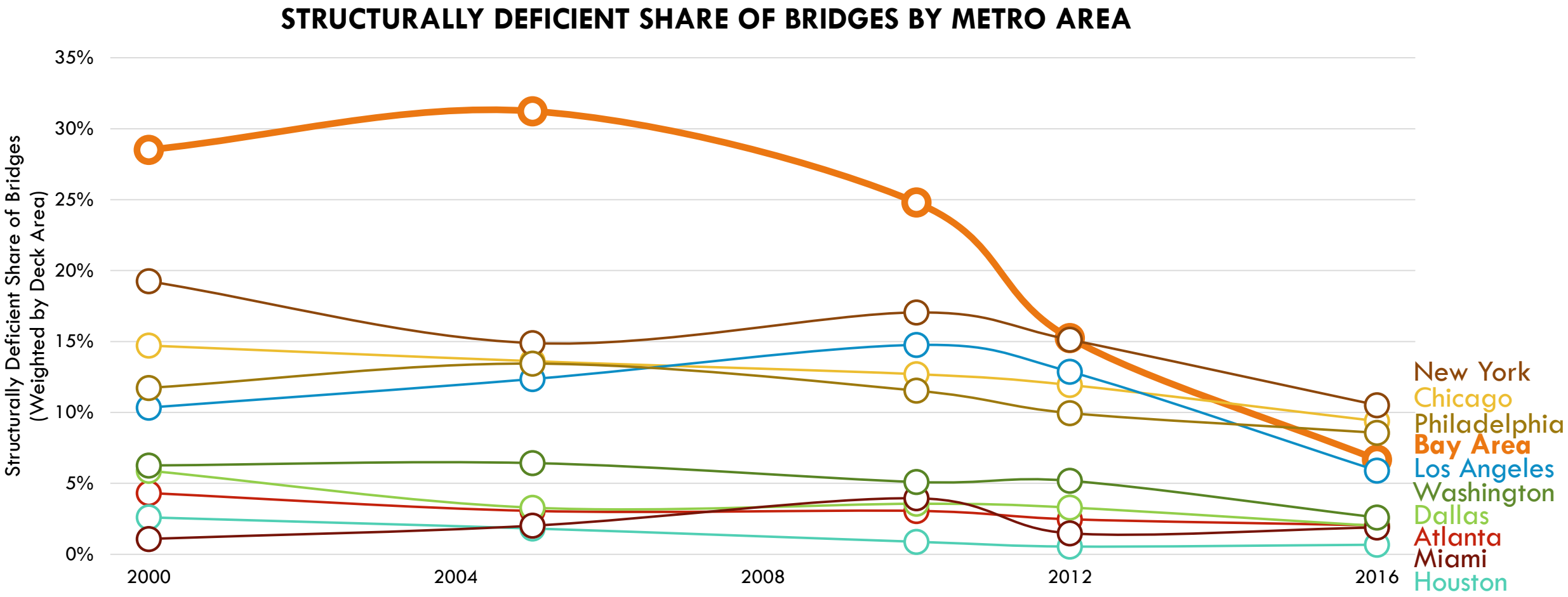
Investments in bridge replacement and rehabilitation are paying off – 2016 was the best year on record.



Source: FHWA National Bridge Inventory; *Note: measure weighted by deck area*

National Context

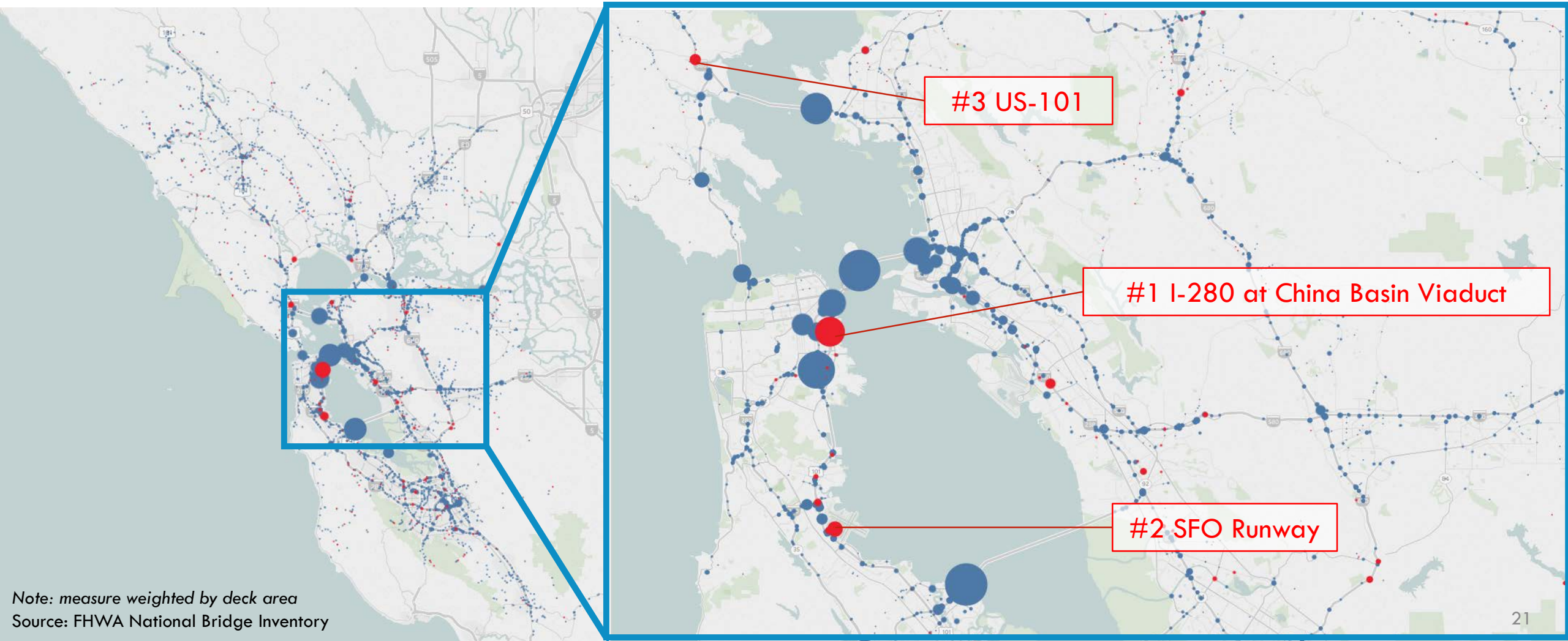
The Bay Area has made the greatest progress in bridge maintenance of any major metro area.



Source: FHWA National Bridge Inventory; *Note: measure weighted by deck area*

LOCAL FOCUS

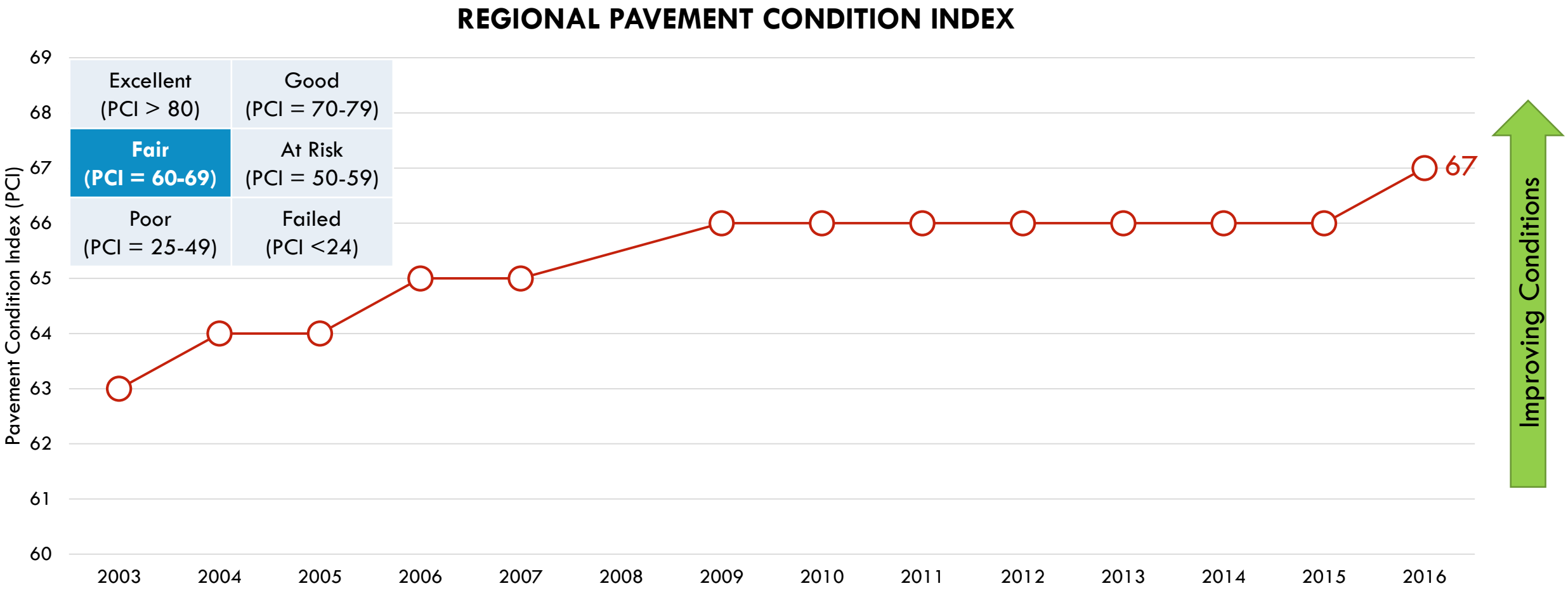
The largest structurally-deficient bridge remaining in the region is the China Basin Viaduct serving Interstate 280.



Note: measure weighted by deck area
Source: FHWA National Bridge Inventory

REGIONAL PERFORMANCE

The regional pavement condition index (PCI) ticked upward to 67 in 2016, after remaining flat at 66 for seven years.



Source: MTC StreetSaver, 2016; *note: relies on 3-year moving average (official MTC PCI metric)*

Key Findings – Summer 2017

VITAL SIGNS

1. Traffic congestion is at record high levels, but jobs-housing imbalances are also playing a role in rising commute times.

2. Unlike prior decades where a shift to telecommuting powered the decline in auto mode share, public transit has made significant gains since 2010.

3. The region has made significant progress in terms of state of good repair, especially for bridges but also for local streets and roads.

4. **The end of the years-long drought has resulted in improved air quality for both particulate matter and ozone.**

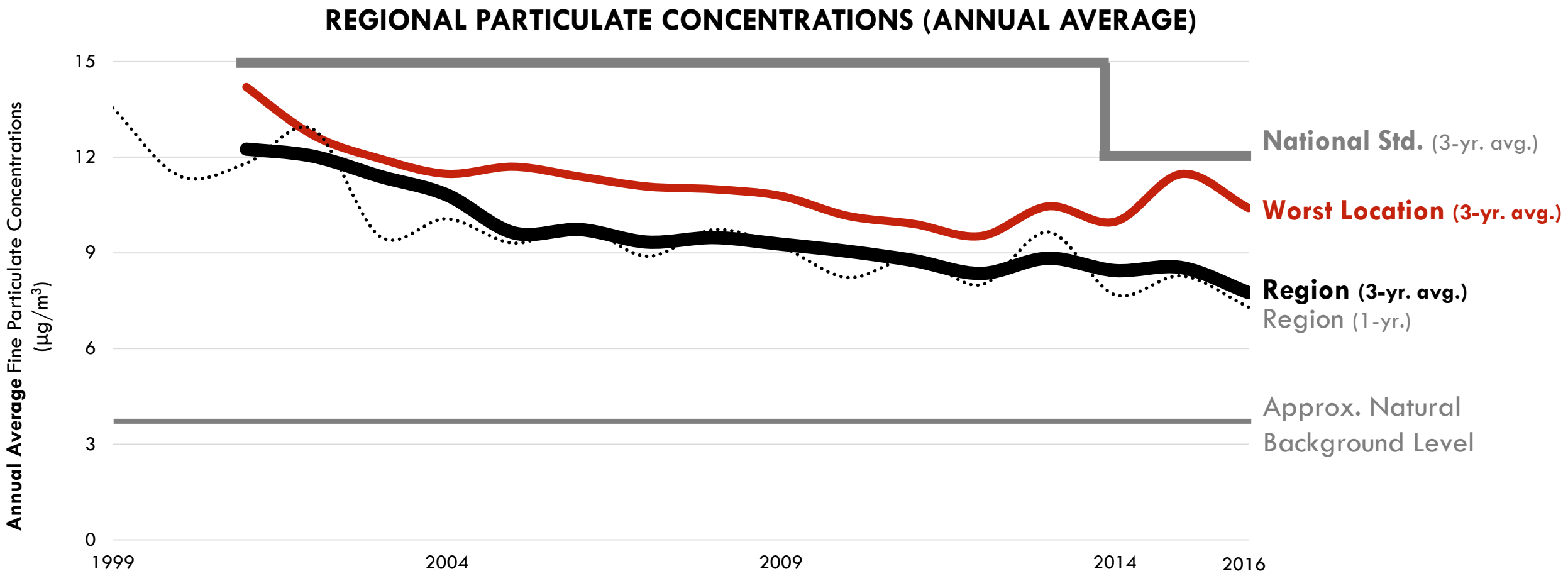
5.

6.

PM2.5

REGIONAL PERFORMANCE

Fine particulate levels in the Bay Area declined for both the entire region and at the worst sensor location in 2016.



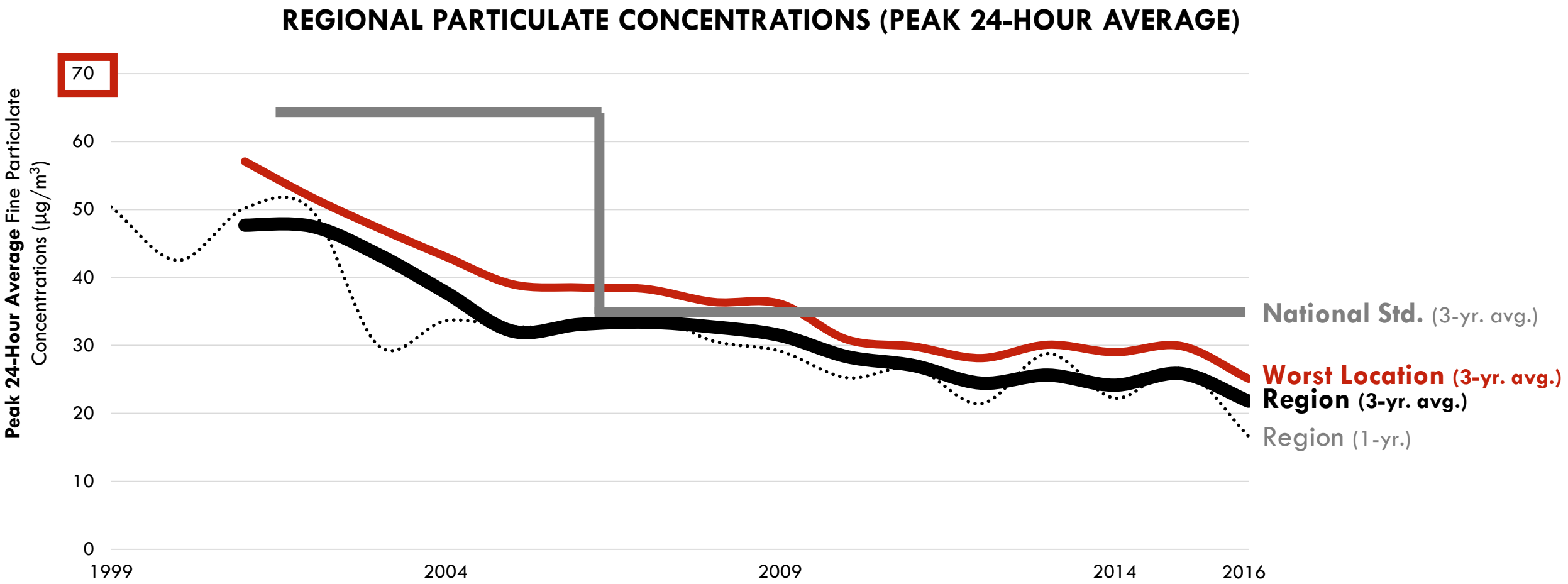
Source: BAAQMD Air Quality Sensors, 2016

Note: regional data measures average concentration of 8 longstanding sensors with iterated 2-way ANOVA for interpolation

PM2.5

REGIONAL PERFORMANCE

Ever since 2010, the Bay Area no longer exceeds 98th percentile day particulate standards.



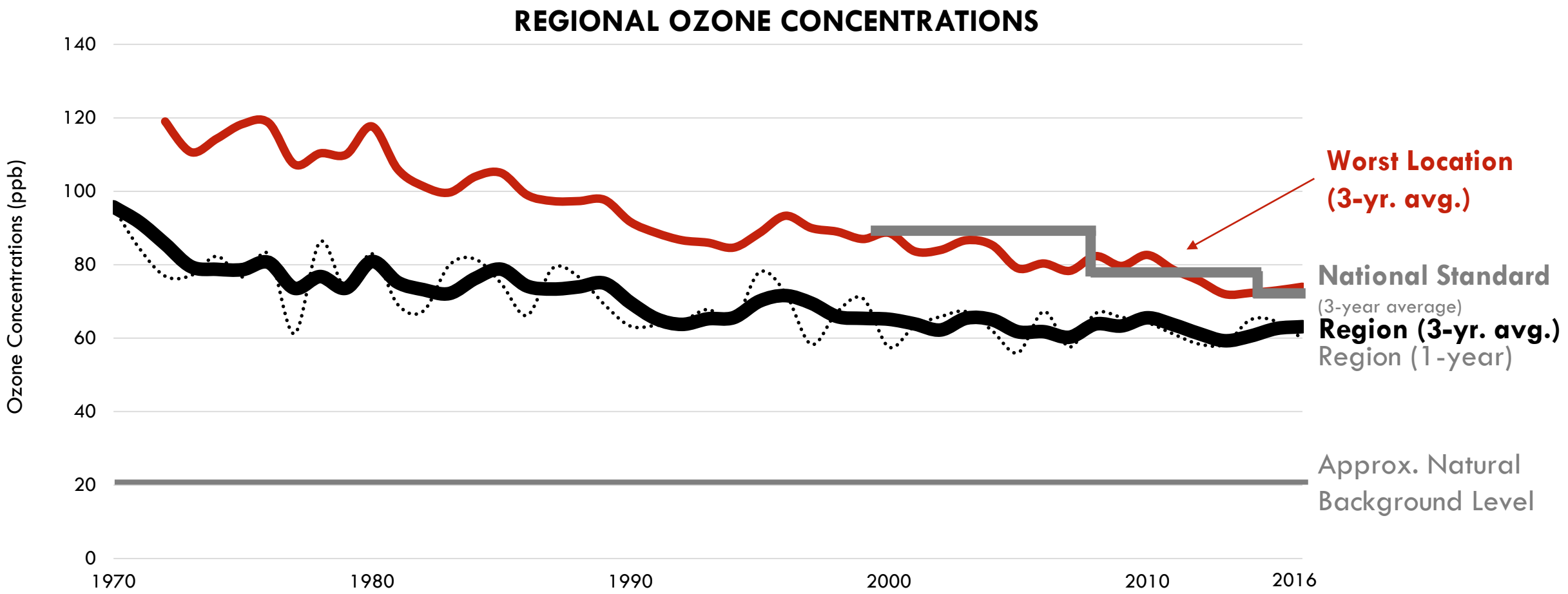
Source: BAAQMD Air Quality Sensors, 2016

Note: regional data measures average concentration of 8 longstanding sensors

O_3

REGIONAL PERFORMANCE

Ozone levels have declined significantly since the 1970s, but concentrations have increased between 2013 and 2016.



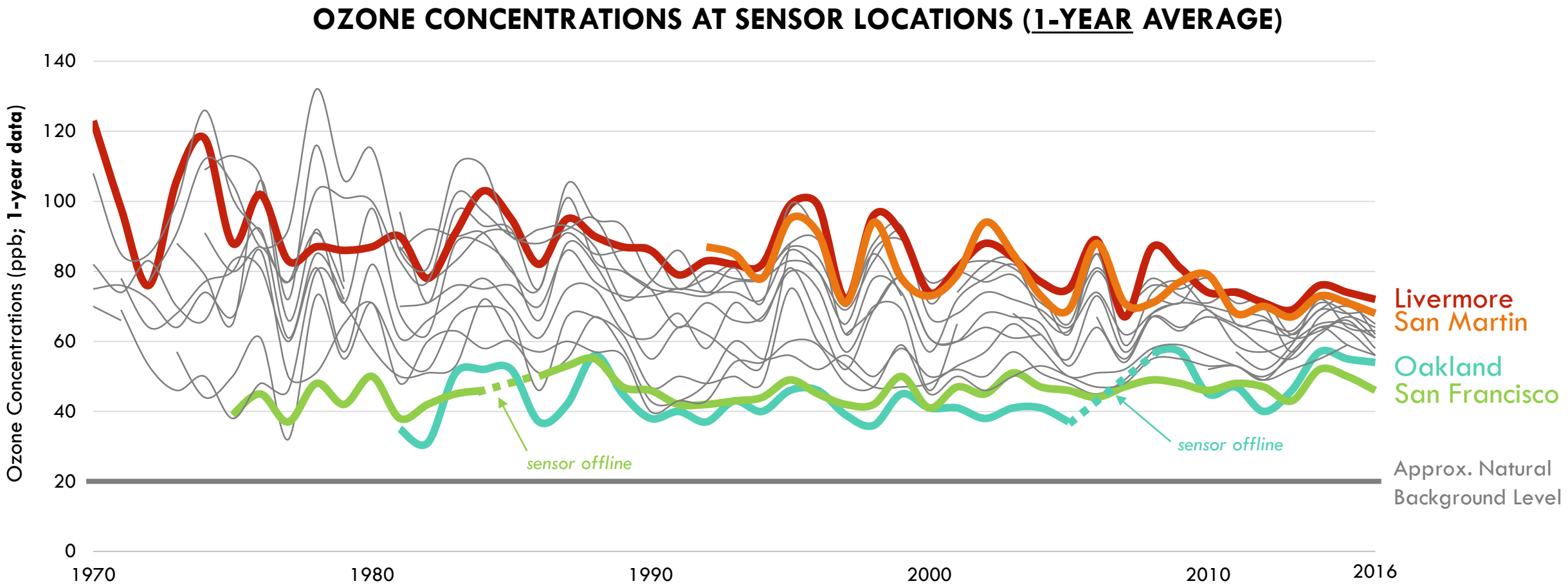
Source: BAAQMD Air Quality Sensors, 2016

Note: all measures reflect 8-hour peak concentration on 4th worst day of the year

O_3

LOCAL FOCUS

Oakland and San Francisco have consistently had below-average ozone levels since the 1970s.



Source: BAAQMD Air Quality Sensors, 2016

Notes: all sensors reflect 8-hour peak concentration on 4th worst day of the year; minor sensor relocations are considered successors to the same sensor in graph above

VITAL SIGNS

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4. The end of the years-long drought has resulted in improved air quality for both particulate matter and ozone.

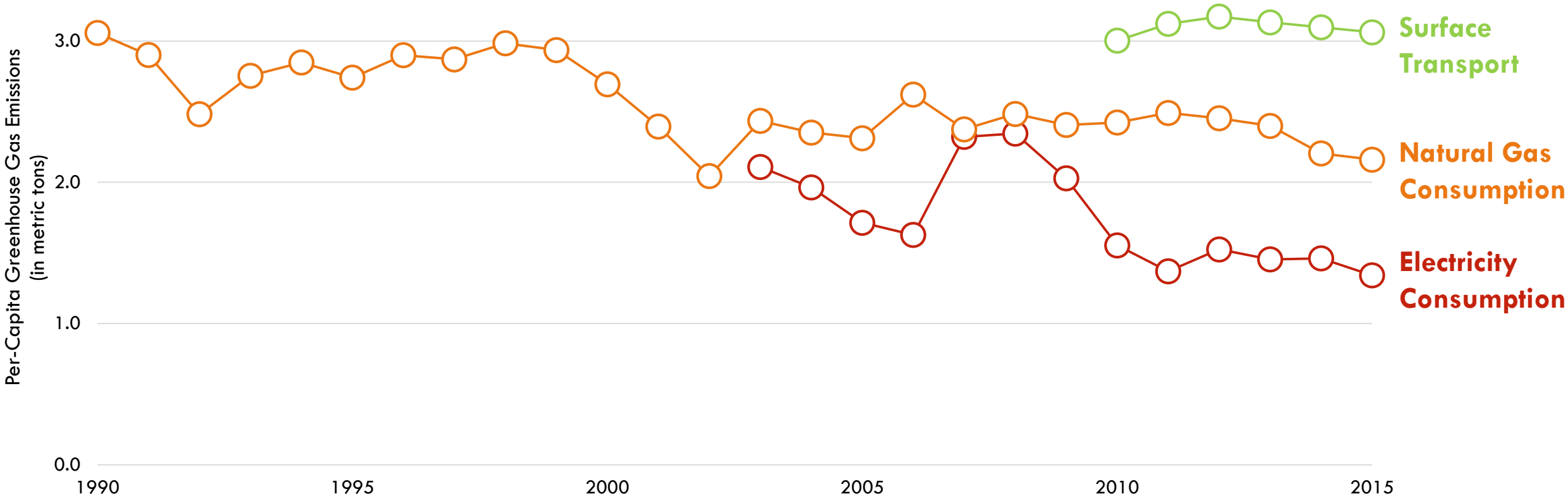
5. **Per-capita greenhouse gas emissions are declining even as the Bay Area economy booms.**

6.

REGIONAL PERFORMANCE

On a per-capita basis, all three primary sources of greenhouse gas emissions have declined in recent years.

REGIONAL PER-CAPITA GREENHOUSE GAS EMISSIONS FROM PRIMARY SOURCES

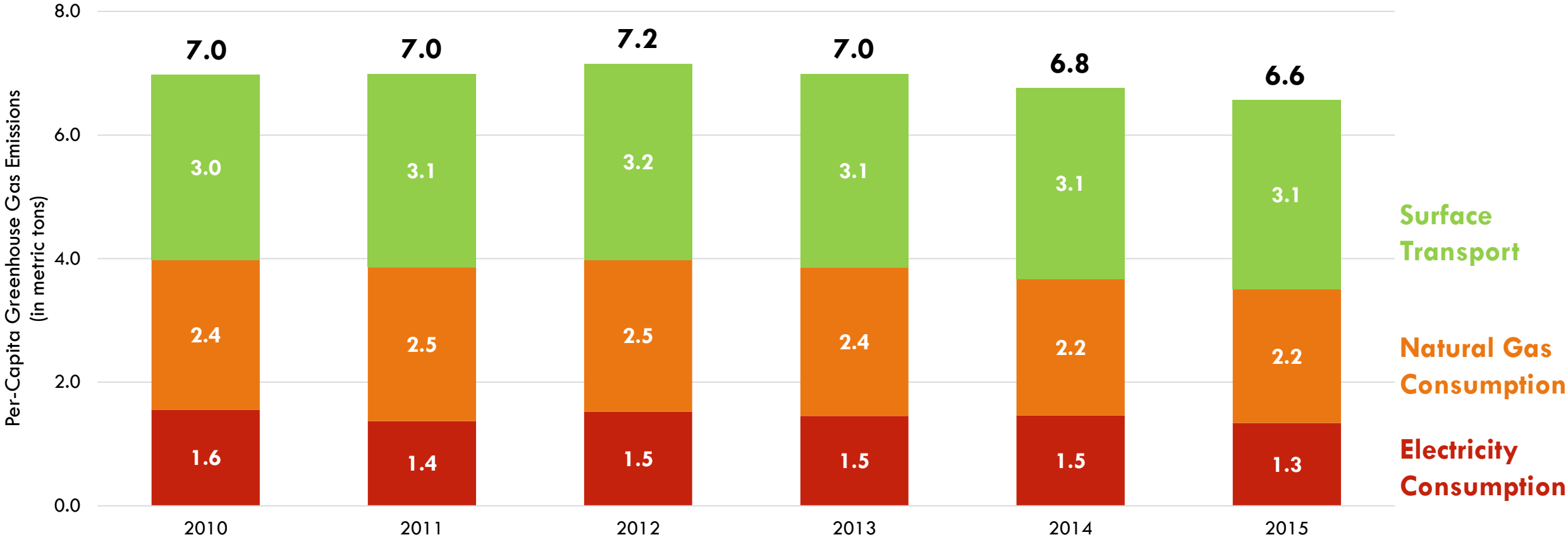


Source: California Energy Commission, 2015; Energy Information Administration, 2015; Pacific Gas & Electric, 2015; *note: CCA emissions, if any, are not captured in this analysis*

Regional Performance

Surface transportation remains the primary source of GHG emissions, declining at a slower rate than other sectors.

REGIONAL PER-CAPITA GREENHOUSE GAS EMISSIONS FROM PRIMARY SOURCES

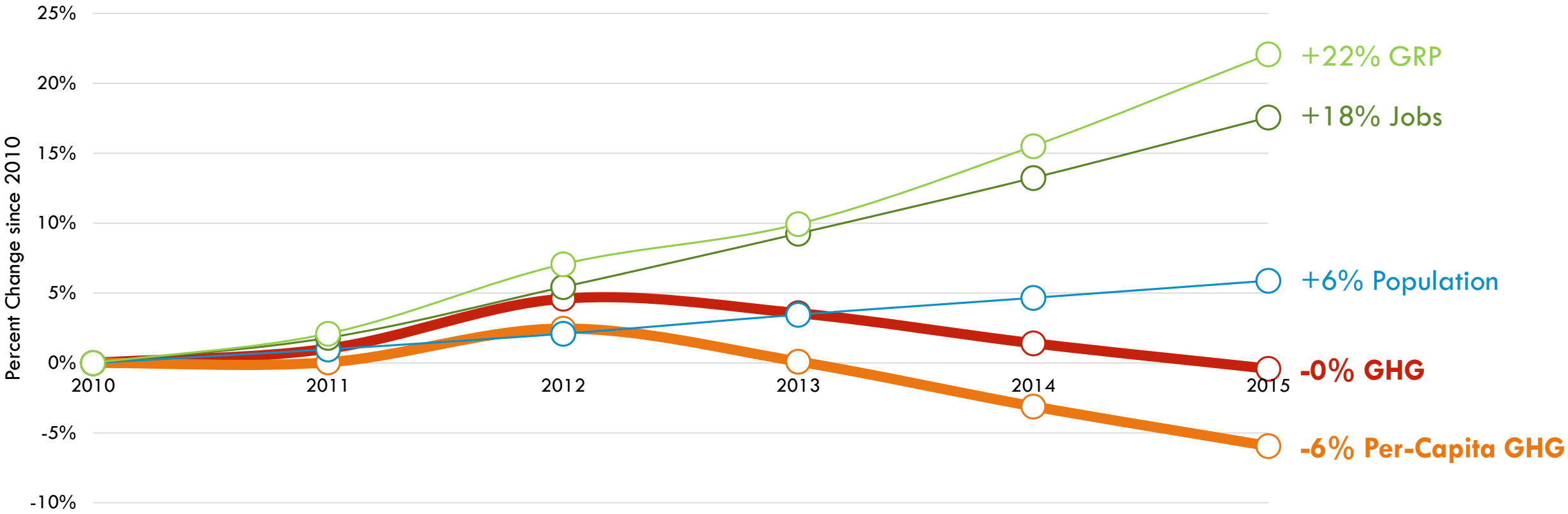


Source: California Energy Commission, 2015; Energy Information Administration, 2015; Pacific Gas & Electric, 2015; *note: CCA emissions, if any, are not captured in this analysis*

REGIONAL PERFORMANCE

Since 2012, the Bay Area has seen significant economic growth even as emissions have declined.

CHANGE SINCE 2010 – GREENHOUSE GAS EMISSIONS FROM PRIMARY SOURCES, POPULATION, JOBS AND GROSS REGIONAL PRODUCT



Source: California Energy Commission, 2015; Energy Information Administration, 2015; Pacific Gas & Electric, 2015; *note: CCA emissions, if any, are not captured in this analysis*

Key Findings – Summer 2017

VITAL SIGNS

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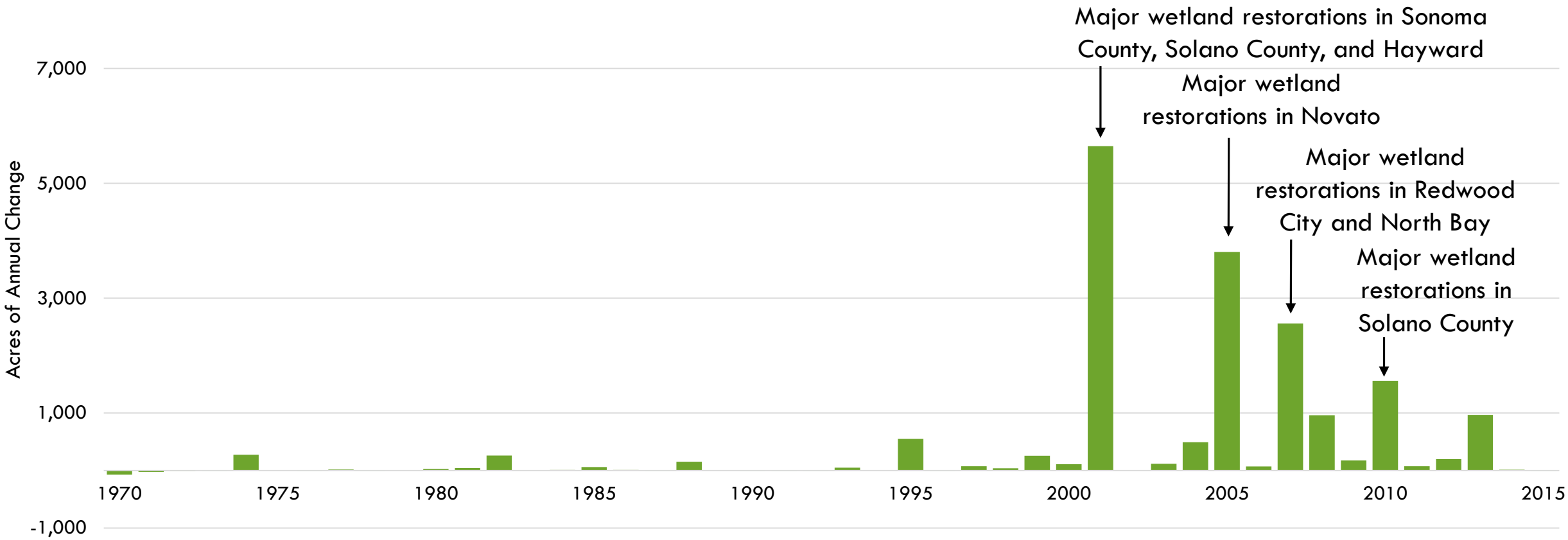
4. The end of the years-long drought has resulted in improved air quality for both particulate matter and ozone.

5. Per-capita greenhouse gas emissions are declining even as the Bay Area economy booms.

6. **Based on new sea level rise forecasts, at least 200,000 Bay Area residents will be at risk of impacts by 2050, especially in Marin and Solano counties.**

REGIONAL PERFORMANCE

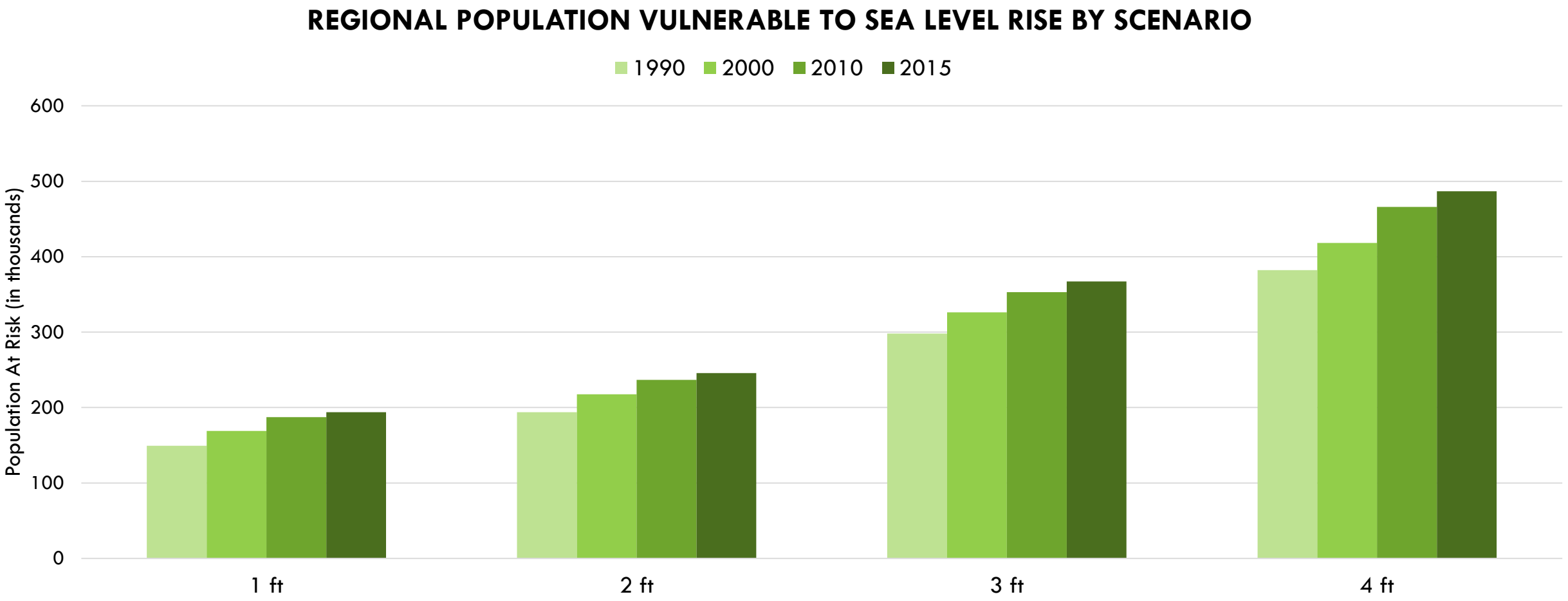
18,500 acres have been added to the Bay since 1969, in part due to major wetland restoration projects since 2000.



Source: BCDC Annual Report, 2015

Regional Performance

The number of people living in areas at risk from sea level rise in the Bay Area has grown over time.

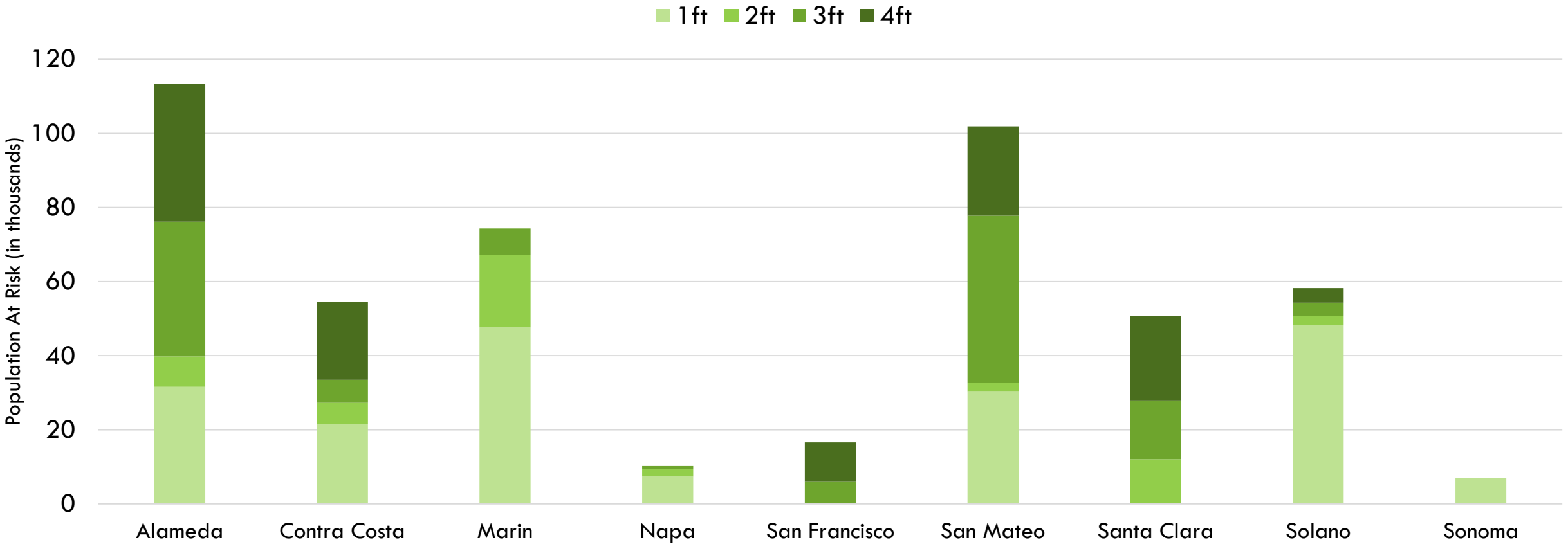


Sources: NOAA; BCDC; U.S. Census Bureau

VITAL SIGNS

LOCAL FOCUS

Counties face varying levels of threat from sea level rise depending on the proximity of neighborhoods to the Bay.

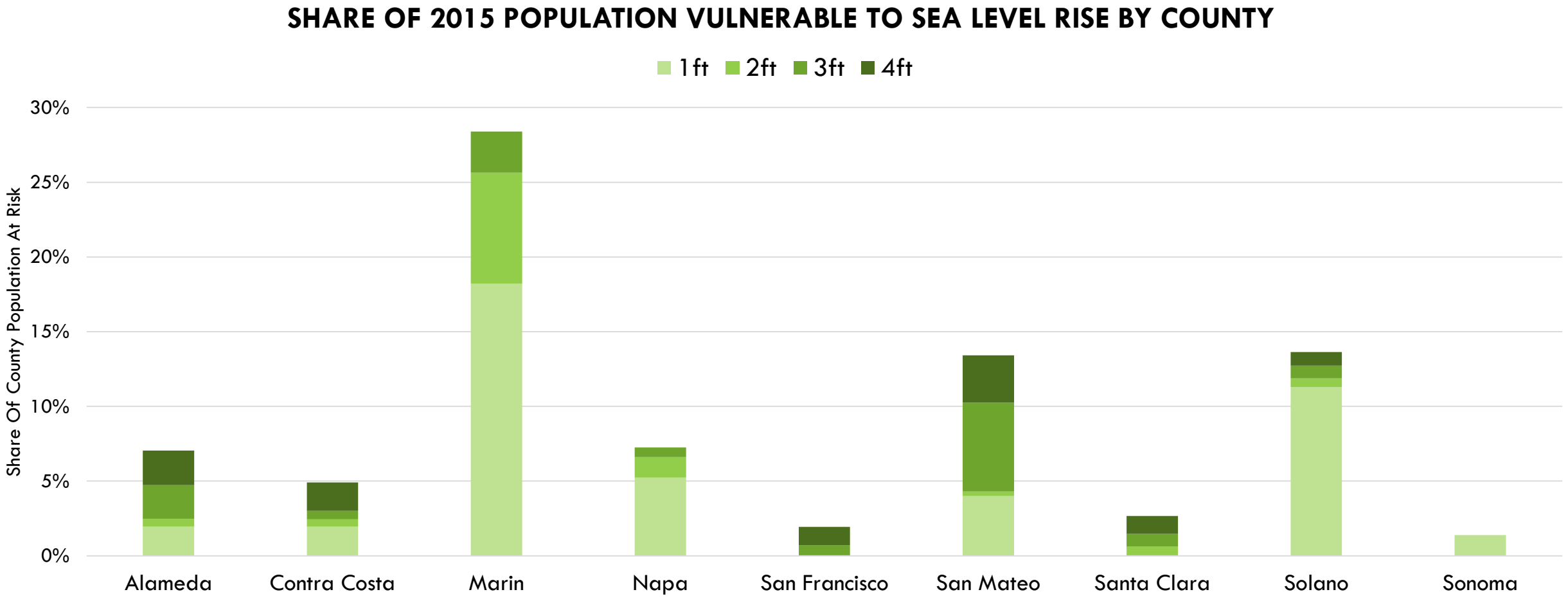


Sources: NOAA; BCDC; U.S. Census Bureau

VITAL SIGNS

LOCAL FOCUS

Marin County faces the most disproportionate amount of risk due to its large share of neighborhoods close to the Bay.



Sources: NOAA; BCDC; U.S. Census Bureau

VITAL SIGNS

LOCAL FOCUS

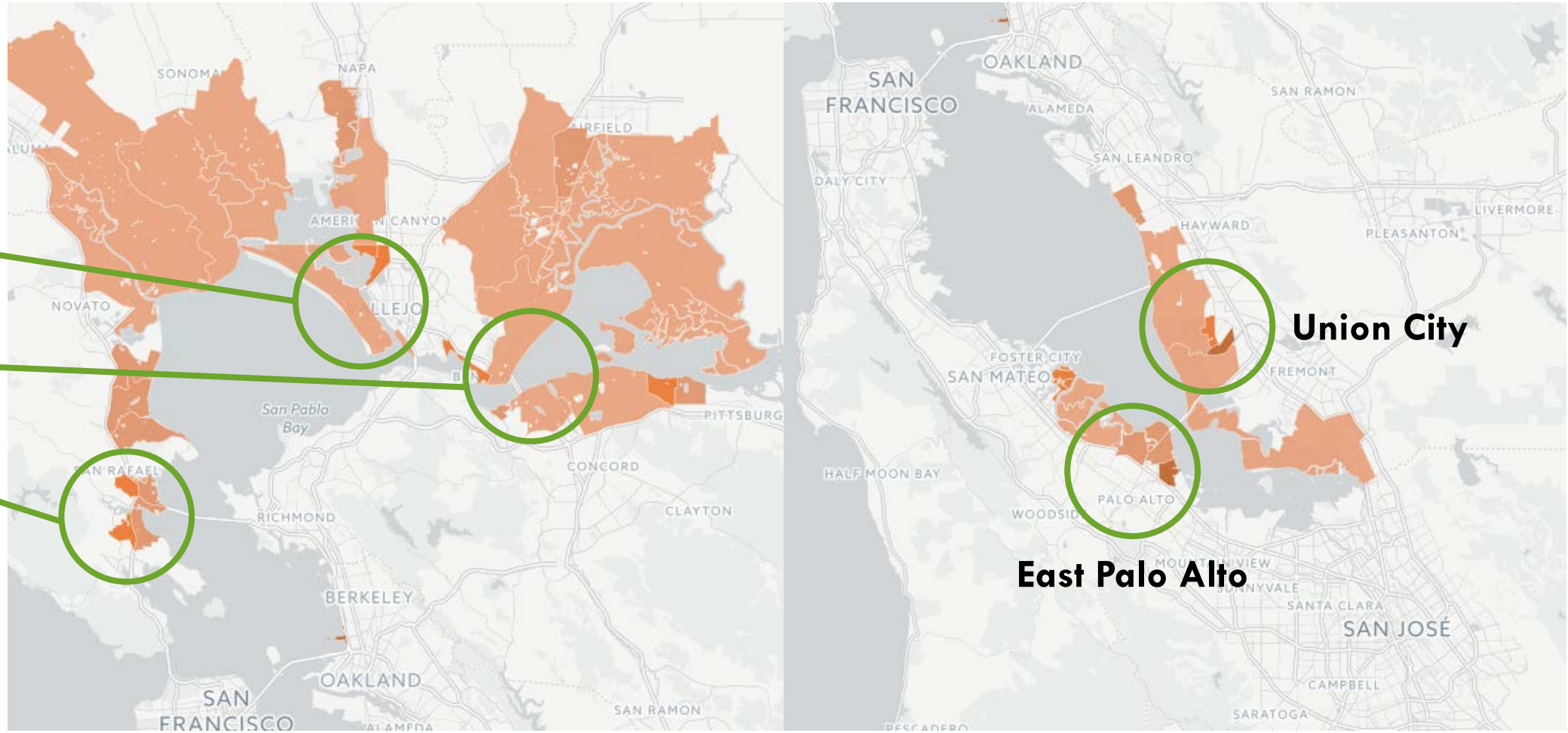
Even under a one-foot sea level rise scenario, several communities would experience significant adverse impacts.

Vallejo

Benicia & Martinez

San Rafael

At Risk with 1-Foot SLR



Sources: NOAA; BCDC; U.S. Census Bureau

VITAL SIGNS

What's Next?

Late Summer 2017 – Transportation/Environment Releases

2018 and Beyond – Incorporate Federal Targets

Integrate with 2021 Plan Framework

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