



Memorandum

TO: Planning Committee

DATE: January 6, 2015

FR: Executive Director

W.I. 1212

RE: Vital Signs Performance Monitoring Initiative

In order to support the implementation of Plan Bay Area, MTC has been working to reboot its work in the area of performance monitoring, building upon the performance measures incorporated in the adopted Plan. This effort, known as the Vital Signs initiative, focuses on tracking regional performance for key transportation, land use, environmental, and economic policy goals. Equity issues are cross-cutting and are therefore included within each of the four performance areas. By measuring performance, Vital Signs seeks to inform policymakers and the public about critical regional trends. This initiative will also support the development of future long-range plans by establishing a clear picture of baseline performance and informing the selection of performance targets.

Overview of Vital Signs

Vital Signs emphasizes aggregation and analysis of on-the-ground performance data, rather than relying on long-range travel and land use forecasting models. By focusing on observed data, it will be possible to identify progress in relation to regional goals on an annual basis. The initiative analyzes each monitoring measure from three distinct perspectives:

- **Historical trajectory:** How do recent trends compare with decades of past regional performance?
- **Intraregional analysis:** What differences exist between counties, cities, and neighborhoods?
- **Metropolitan area comparison:** How is the Bay Area performing compared to other major metro areas across the country?

The complete list of monitoring measures for the Vital Signs initiative is included in **Attachment A**.

Vital Signs' top priority is to provide timely analytical results to inform the general public. Instead of a traditional paper report, Vital Signs will be an online effort based on a new interactive web portal for performance monitoring. Maps, graphs, and tables are being developed to supplement the narrative; users will be able to personalize these data summary elements to highlight specific counties, cities, neighborhoods, and transportation facilities of interest. MTC staff is currently finalizing the Vital Signs performance monitoring website, including interactive charts and maps for each issue area; the website is slated for launch in the coming weeks.

MTC is closely collaborating with the Association of Bay Area Governments (ABAG) on the data aggregation and analysis efforts for the land use and economic monitoring measures. MTC will also be working closely with the Bay Area Air Quality Management District (BAAQMD) and the

San Francisco Bay Conservation and Development Commission (BCDC) on environmental metrics to be released later this year.

Vital Signs is relying upon a rolling release schedule, with performance monitoring results slated to become available in several phases. MTC intends to release a subset of measures every few months beginning with transportation data in the coming weeks. All of the monitoring measures will be available to the public by mid-2015. As the Vital Signs website can be updated on a rolling basis going forward, new and refreshed datasets, as well as additional regional, state, and federal performance measures, can be integrated over the coming years.

Key Findings from Phase 1A of Vital Signs

Phase 1A, which addresses transportation monitoring measures, examined nearly twenty distinct performance monitoring measures. Some of the key findings from this analysis are summarized below and will be discussed in greater detail as part of the presentation to the committee:

- 1) **Regional commute mode shares and commute times have remained remarkably stable over the past few decades.** While there has been a regional decline in carpooling and growth in telecommuting, drive alone and transit mode shares have remained relatively constant over time. Similarly, average regional commute times have not deviated from a narrow range between 25 and 30 minutes. The Bay Area, in fact, has some of the shortest commute times of any major U.S. metropolitan area.
- 2) **Most commuters live and work in the same county, although the counties of Santa Clara and San Francisco do “import” significant numbers of workers.** Furthermore, while affordability is a serious regional issue, only 2% of Bay Area workers actually commute in from outside the region to avoid the high costs of housing or for other reasons. Furthermore, these Central Valley residents tend to work in inland communities such as Livermore or Dublin to minimize commute times.
- 3) **Both traffic congestion and transit demand are highly concentrated in the central Bay Area.** The geographical and topographical constraints of the central Bay Area, combined with limited highway capacity, have resulted in a very concentrated congestion pattern revolving around San Francisco and Oakland which drives the vast majority of “choice” transit ridership in the region.
- 4) **When compared to other metros, the Bay Area has higher-than-average levels of freeway congestion but has the most reliable freeway travel times.** While regional freeways are often heavily congested at peak times, the vast majority of miles traveled on regional freeways remains at a reasonable rate of speed.
- 5) **Conditions of Bay Area bridges and highways have improved measurably over the past decade;** unfortunately, local road pavement conditions have stagnated or become worse over time.
- 6) **While total transit ridership is increasing, per-capita transit use has decreased over time.** While the region does not face as dire a situation as fast-growing Sunbelt metros, the Bay Area is struggling on this front when compared to its East Coast peers over the last several decades.

Next Steps

As discussed earlier in this memorandum, results from the first phase of the Vital Signs initiative are slated to be released to the public in the coming weeks. Staff will return to the Planning

Committee in March with the results from Phases 1B (Land Use) and 2A (Economy); those performance results will be made available to the public this spring.



Steve Heminger

Attachment
SH: DV

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Attachment A: Vital Signs Monitoring Measures

- **Phase 1A: Transportation** (*slated for release in January 2015*)
 - Commute mode share by residential location
 - Commute mode share by employment location
 - Commute time by residential location
 - Commute time by employment location
 - Intraregional and interregional commute flows
 - Interregional traffic patterns at key points of entry
 - Minutes of freeway delay due to significant congestion
 - Share of freeway VMT in significantly congested conditions
 - Freeway buffer time index
 - Transit ridership by system and mode
 - Per-capita transit ridership by system and mode
 - Net cost per transit boarding by system and mode
 - Vehicle miles traveled
 - Per-capita vehicle miles traveled
 - Pavement condition index by jurisdiction and segment
 - Share of distressed highway lane-miles by jurisdiction and segment
 - Share of bridge deck area that is structurally deficient
 - Share of transit assets past their useful life by system and mode

- **Phase 1B: Land Use** (*slated for release in March 2015*)
 - Residential location by jurisdiction, place type, transit proximity, and PDA
 - Employment location by jurisdiction, place type, and transit proximity
 - Housing construction by jurisdiction and place type
 - Greenfield development by jurisdiction and by parcel

- **Phase 2A: Economy** (*slated for release in March 2015*)
 - Jobs by industry
 - Job creation by industry
 - Unemployment rate by industry
 - Household income distribution by residential location
 - Individual income distribution by employment location
 - Workforce participation by age
 - Median housing unit price by jurisdiction and by neighborhood
 - Mean rent by jurisdiction and by neighborhood
 - Share of income expended on housing + transportation
 - Share of income expended on housing
 - Poverty rate by jurisdiction and by neighborhood
 - Concentration of poverty by jurisdiction and by neighborhood
 - Gross regional product
 - Per-capita gross regional product
 - Freight activity in TEUs
 - Freight activity in tons
 - Freight activity in dollars

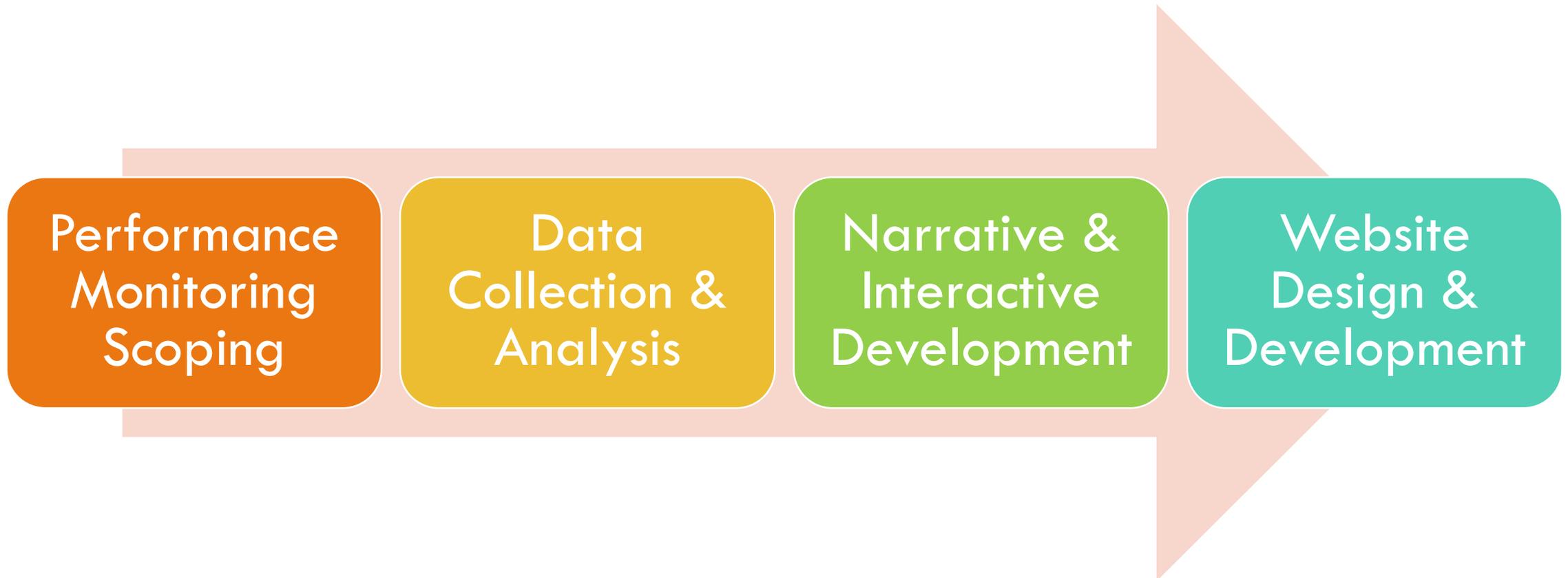
- **Phase 2B: Environment** (*slated for release in June 2015; preliminary measures*)
 - Fine particulate concentrations by sensor location
 - Coarse particulate concentrations by sensor location
 - Gasoline sales (*proxy for greenhouse gas emissions*)
 - Total traffic fatalities by mode and location
 - Per-capita traffic fatalities by mode and location
 - Per-VMT traffic fatalities by mode and location
 - Total serious traffic injuries by mode and location
 - Per-capita serious traffic injuries by mode and location
 - Per-VMT serious traffic injuries by mode and location
 - Housing growth in areas vulnerable to sea level rise
 - Commercial growth in areas vulnerable to sea level rise
 - Bay fill/restoration by jurisdiction

VITAL SIGNS



PHASE 1A RESULTS: TRANSPORTATION
MTC PLANNING COMMITTEE – JANUARY 9, 2015

OVERALL PROCESS FOR VITAL SIGNS



ANALYSES CONDUCTED

1

Historical Trend

2

Regional Context

3

Metro Comparison

METRO COMPARISON



New York MSA
19.9 million residents



Dallas MSA
6.8 million residents



Washington MSA
5.9 million residents



Los Angeles MSA
13.1 million residents



Houston MSA
6.3 million residents



Miami MSA
5.8 million residents



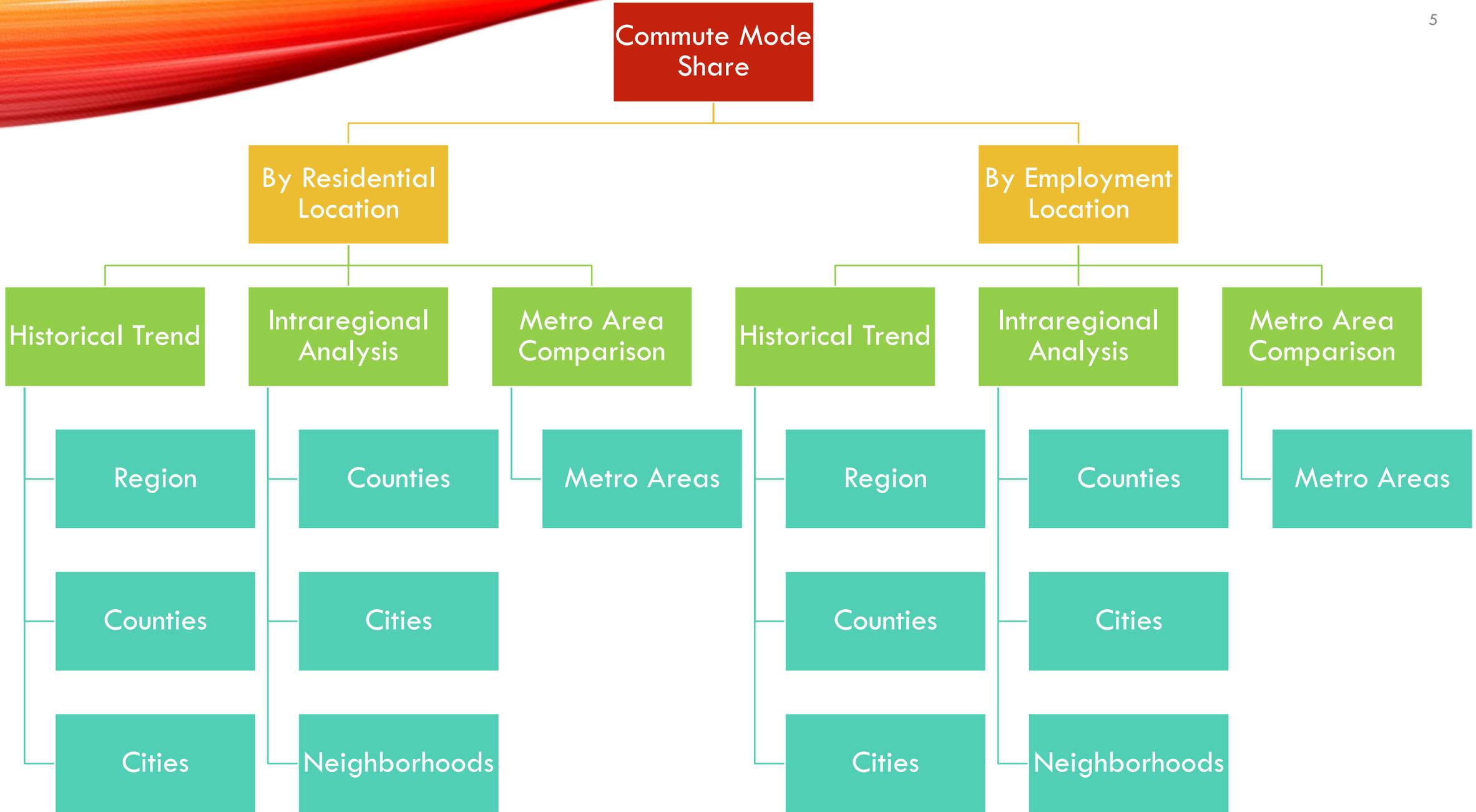
Chicago MSA
9.5 million residents



Philadelphia MSA
6.0 million residents



Atlanta MSA
5.5 million residents



PROJECT SCHEDULE

Spring 2014

- Project Kickoff
- Measure Selection & Scoping

Summer 2014

- Transportation Analysis (Phase 1A)
- Land Use Analysis (Phase 1B)

Autumn 2014

- Website and Narrative Development (Phases 1A & 1B)
- Economic Analysis (Phase 2A)

Winter 2015

- Launch Phase 1A
- Environmental Analysis (Phase 2B)

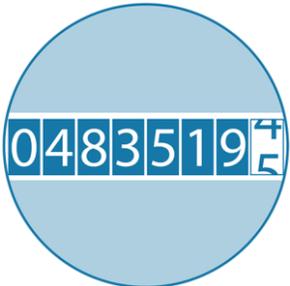
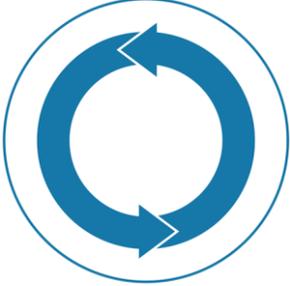
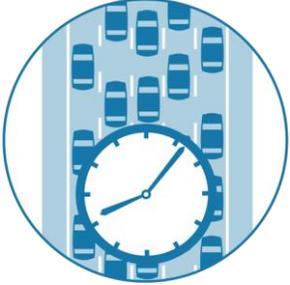
Spring 2015

- Website & Narrative Development (Phases 2A & 2B)
- Launch Phases 1B, 2A, and 2B

OUTREACH TO OUR PARTNERS

- 
- CMA Planning Directors
 - Regional Advisory Working Group
 - Local Streets Working Group
 - Transit Finance Working Group
 - Policy Advisory Council
 - Planning Committee

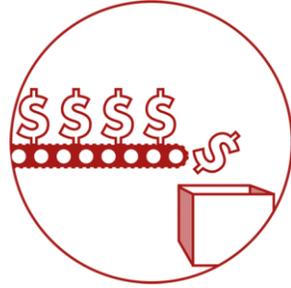
PHASE 1A: TRANSPORTATION



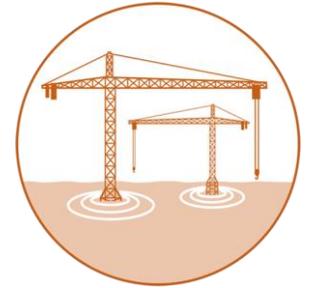
PHASE 1B: LAND USE



PHASE 2A: ECONOMY



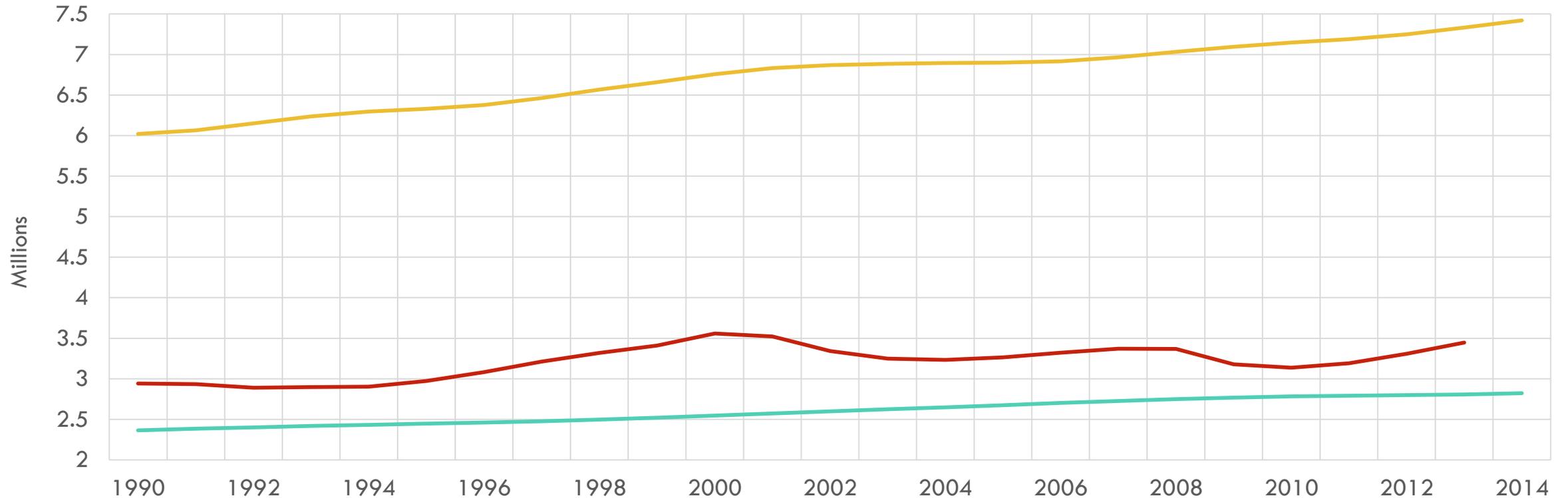
PHASE 2B: ENVIRONMENT⁹



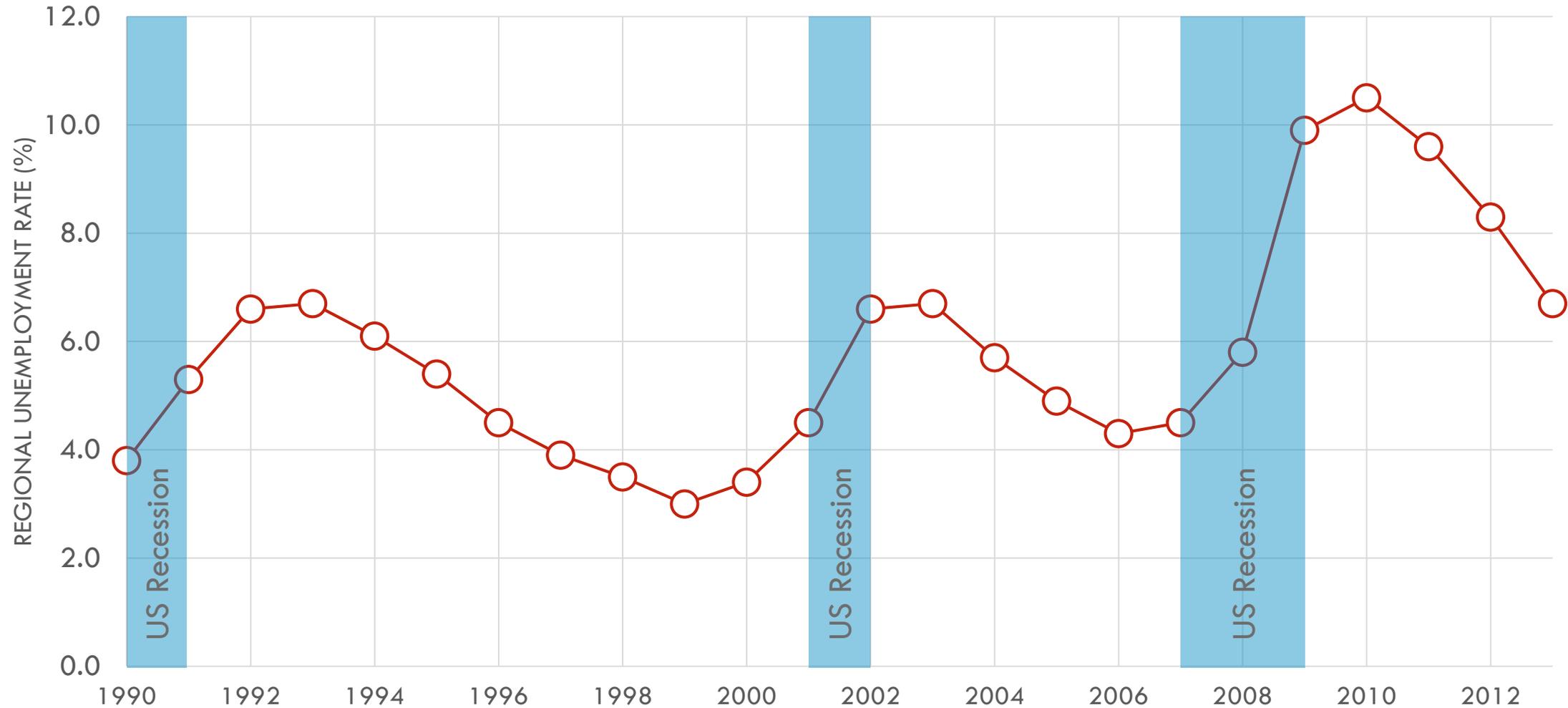
BRIEF OVERVIEW OF OVERARCHING TRENDS: JOBS, POPULATION, AND HOUSING

REGIONAL DEMOGRAPHICS

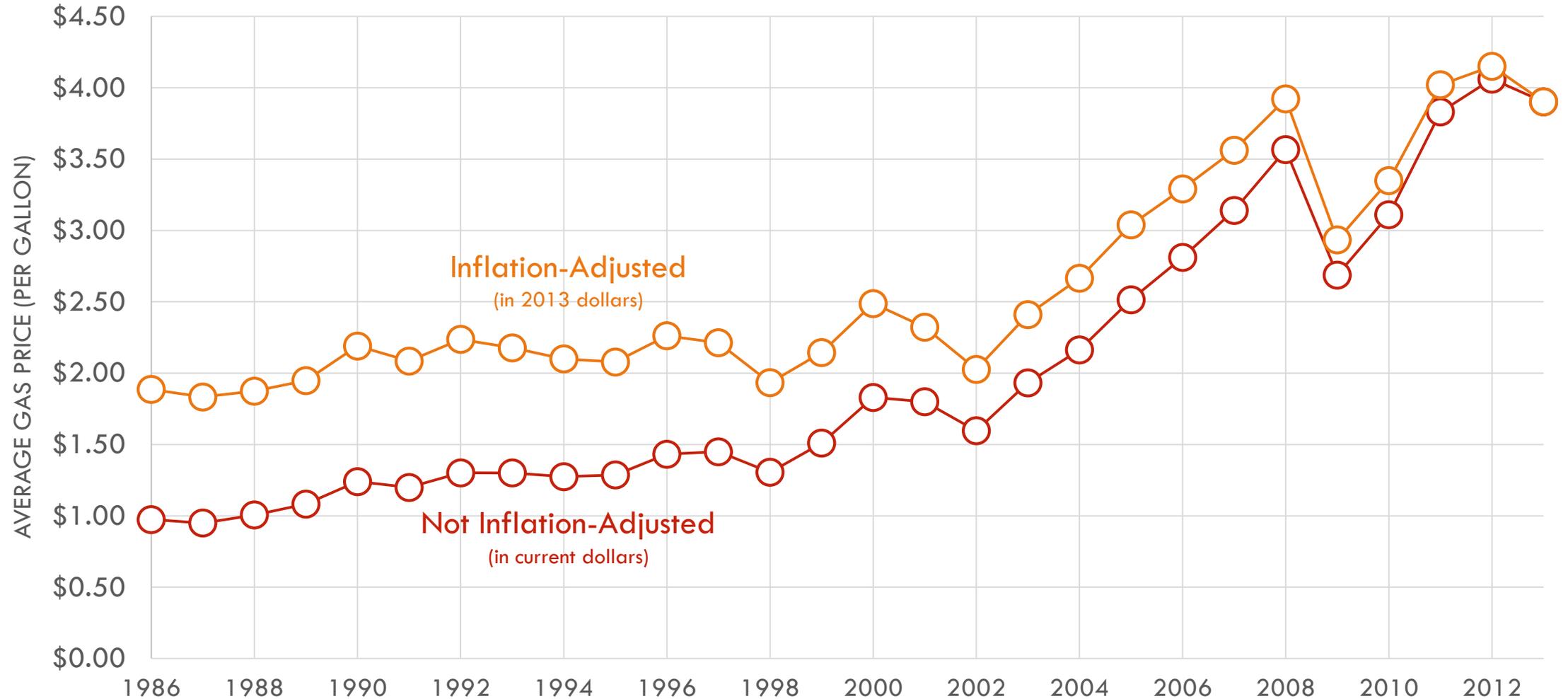
— Jobs — Population — Housing Units



BRIEF OVERVIEW OF OVERARCHING TRENDS: UNEMPLOYMENT RATE



BRIEF OVERVIEW OF OVERARCHING TRENDS: GAS PRICES

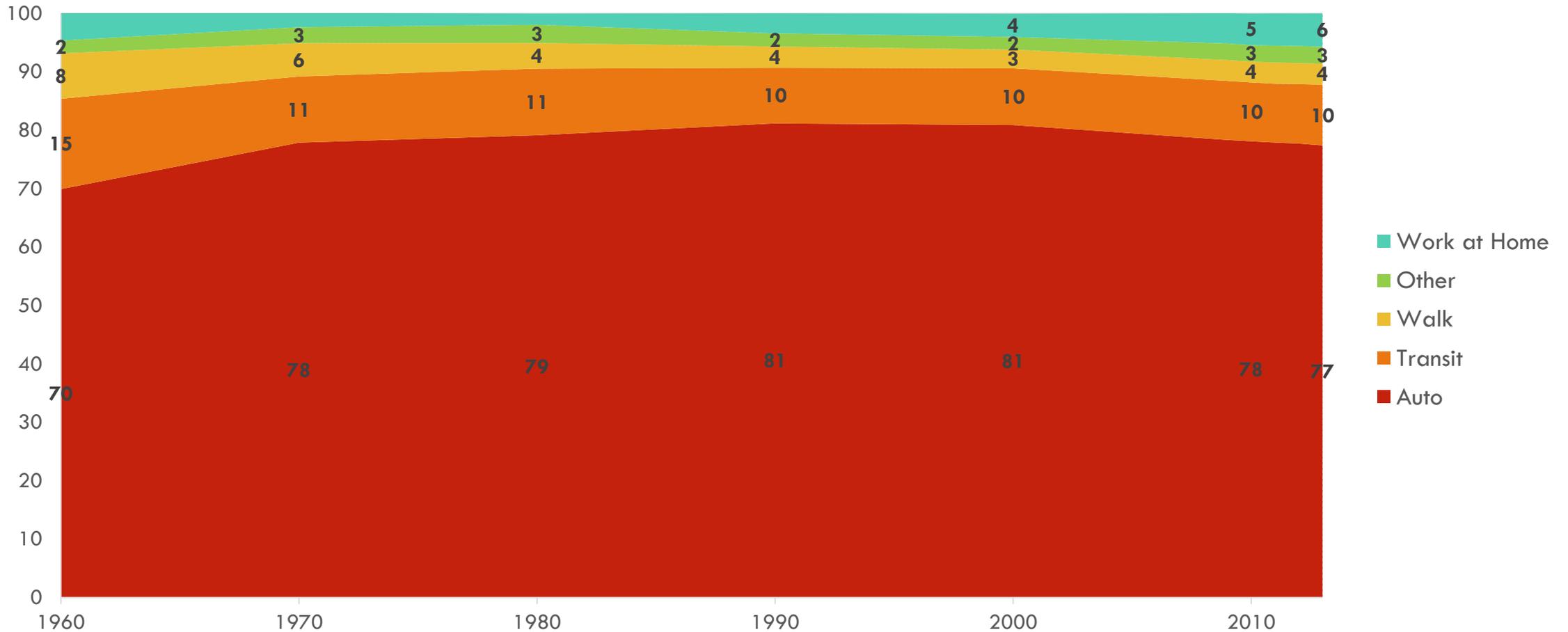


KEY FINDINGS ¹³

1. Regional commute **mode shares and commute times have remained remarkably stable** over the past few decades.
2. Most commuters live and work in the same county, although the **counties of Santa Clara and San Francisco do “import” significant numbers of workers.**
3. Both **traffic congestion and transit demand are highly concentrated** in the central Bay Area.
4. When compared to other metros, the Bay Area has higher-than-average levels of freeway congestion but has the most reliable freeway travel times – in other words, **we are “reliably congested”.**
5. Conditions of Bay Area bridges and highways have measurably improved; unfortunately, **local road pavement conditions have stagnated** over the same time period.
6. While total regional transit ridership is increasing, **per capita transit use has decreased over time.**



COMMUTE MODE SHARE: HISTORICAL TREND



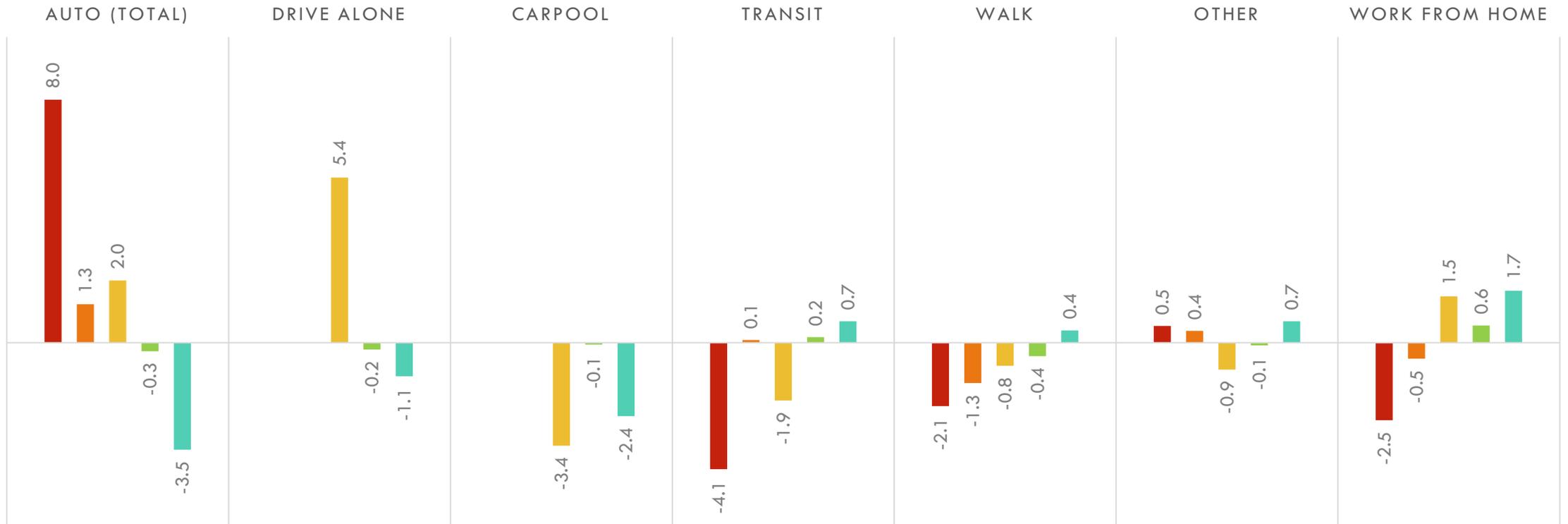
Source: US Census/American Community Survey



COMMUTE MODE SHARE: HISTORICAL TREND

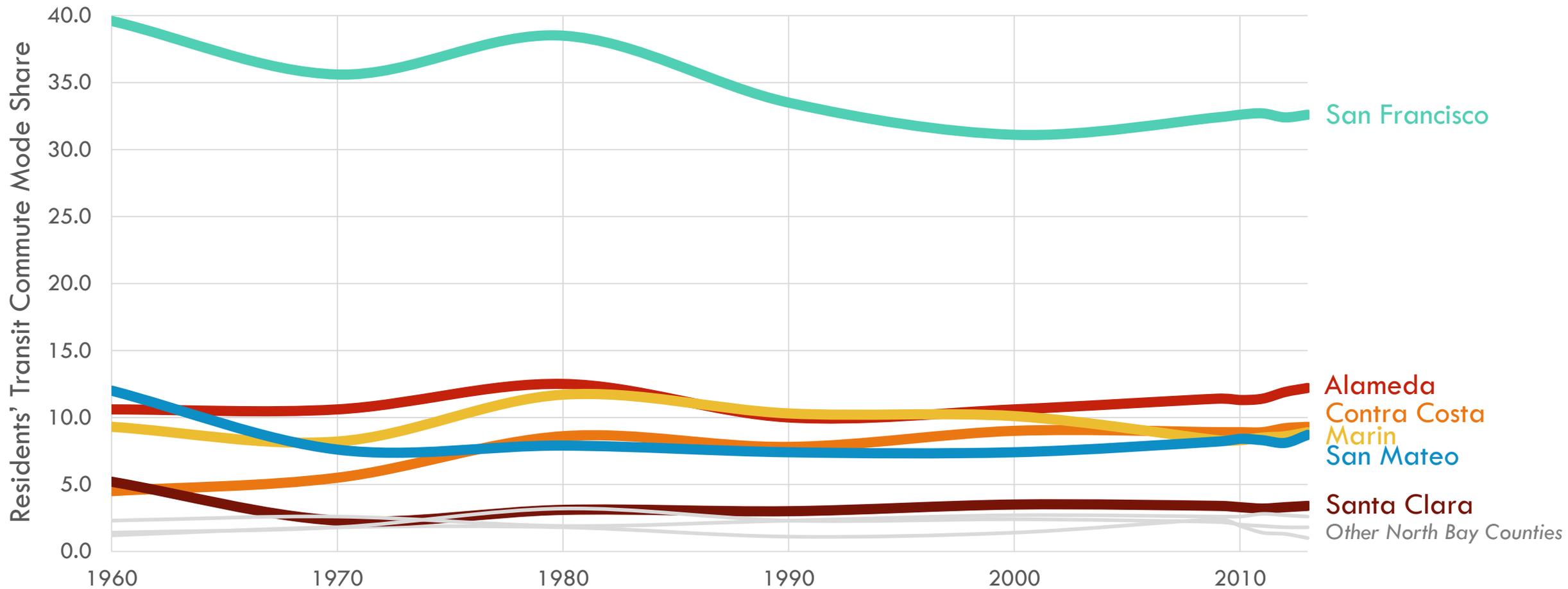
CHANGES IN MODE SHARES BY DECADE

■ 1960 to 1970 ■ 1970 to 1980 ■ 1980 to 1990 ■ 1990 to 2000 ■ 2000 to 2013

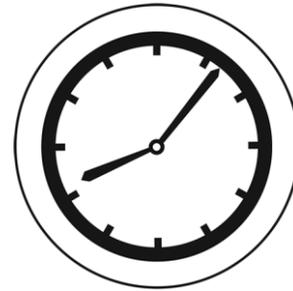




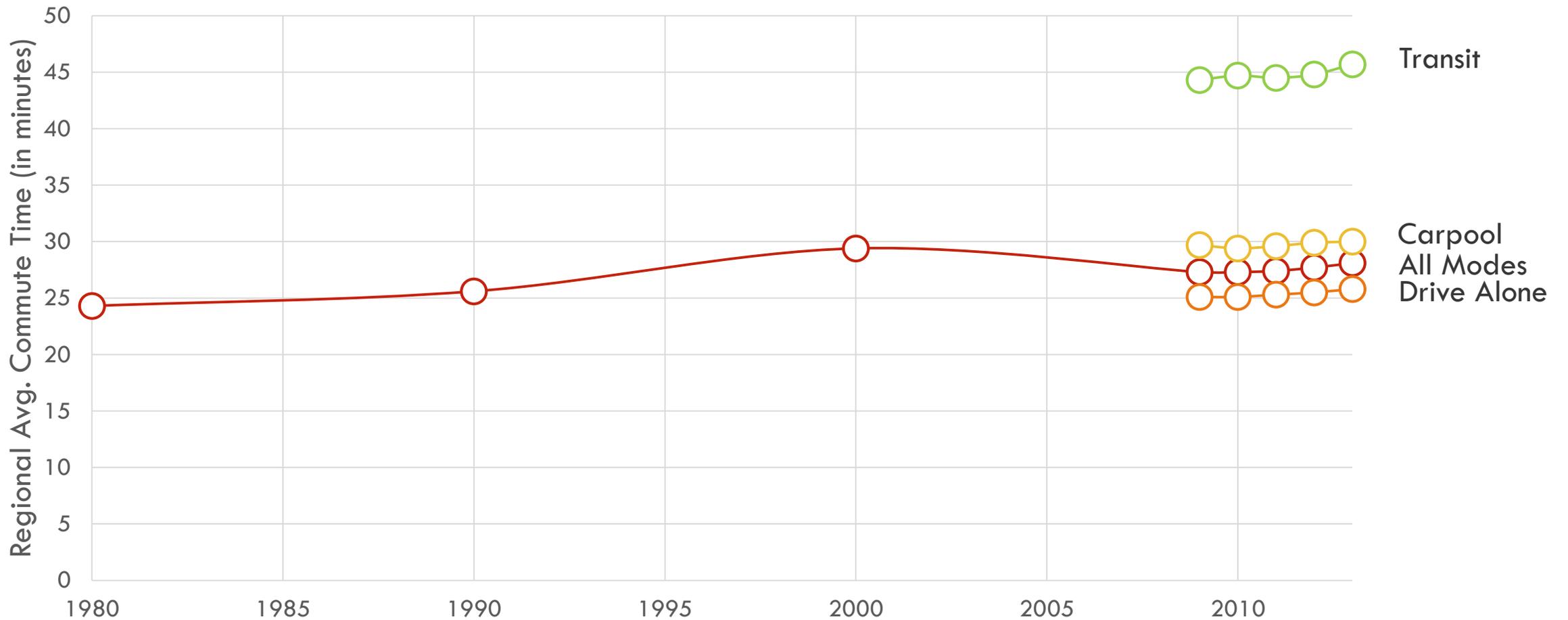
COMMUTE MODE SHARE: REGIONAL CONTEXT



Source: US Census/American Community Survey

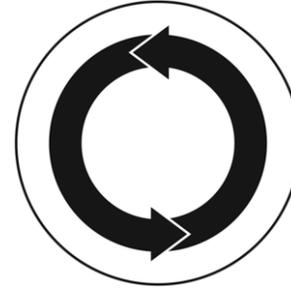


COMMUTE TIME: HISTORICAL TREND



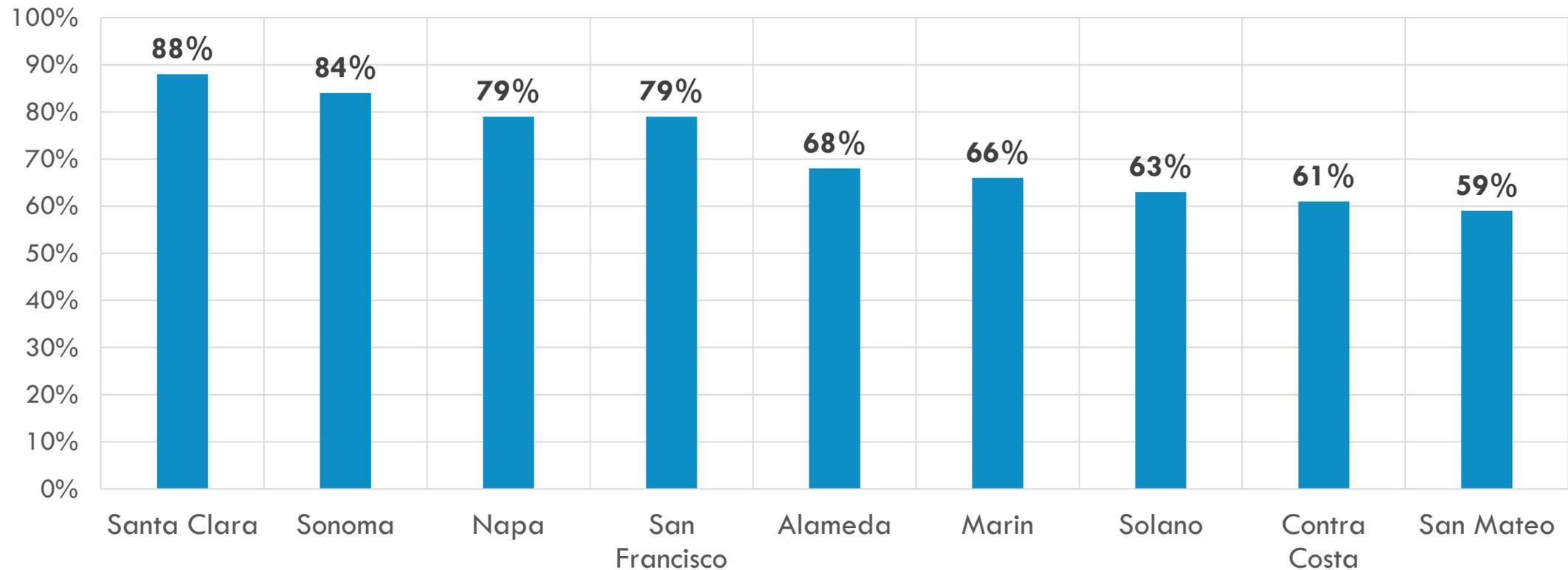
KEY FINDINGS ¹⁸

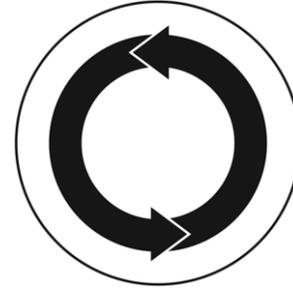
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COMMUTE FLOWS: REGIONAL CONTEXT

SHARE OF RESIDENTS THAT LIVE AND WORK IN THE SAME COUNTY

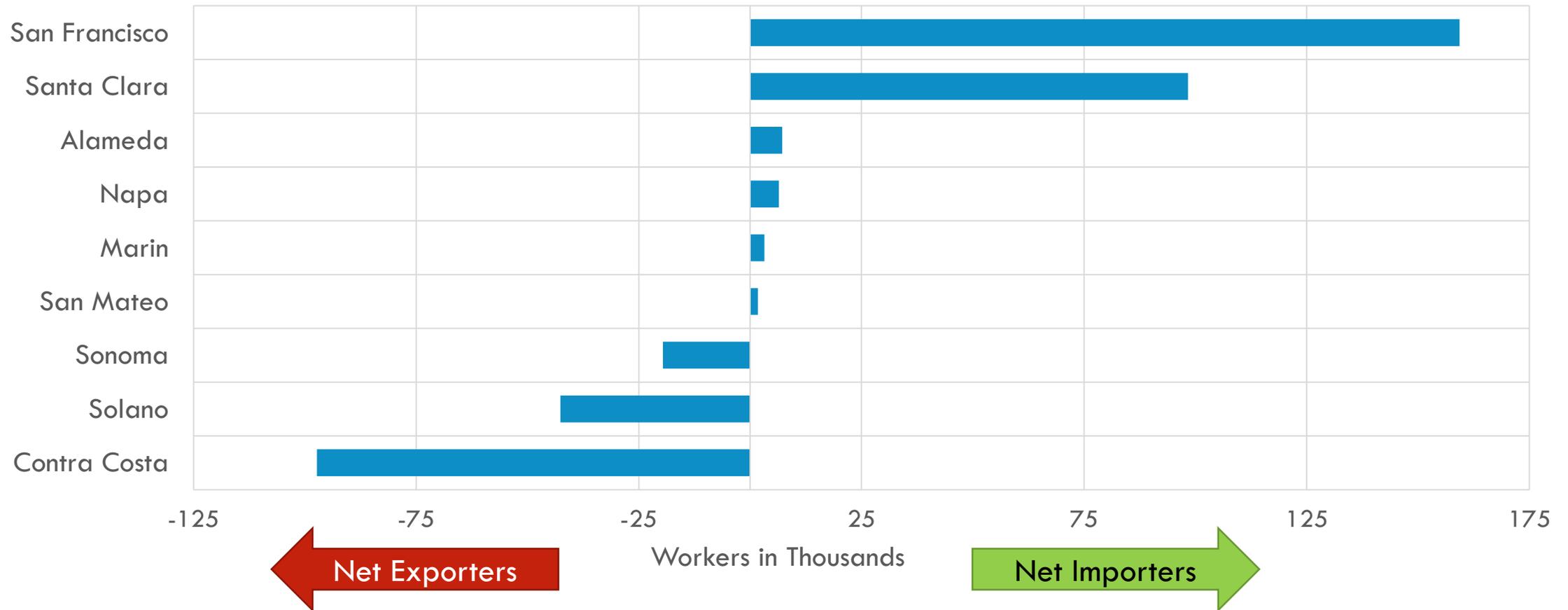




COMMUTE FLOWS: REGIONAL CONTEXT

Source: Census Transportation Planning Package, 2006-2010

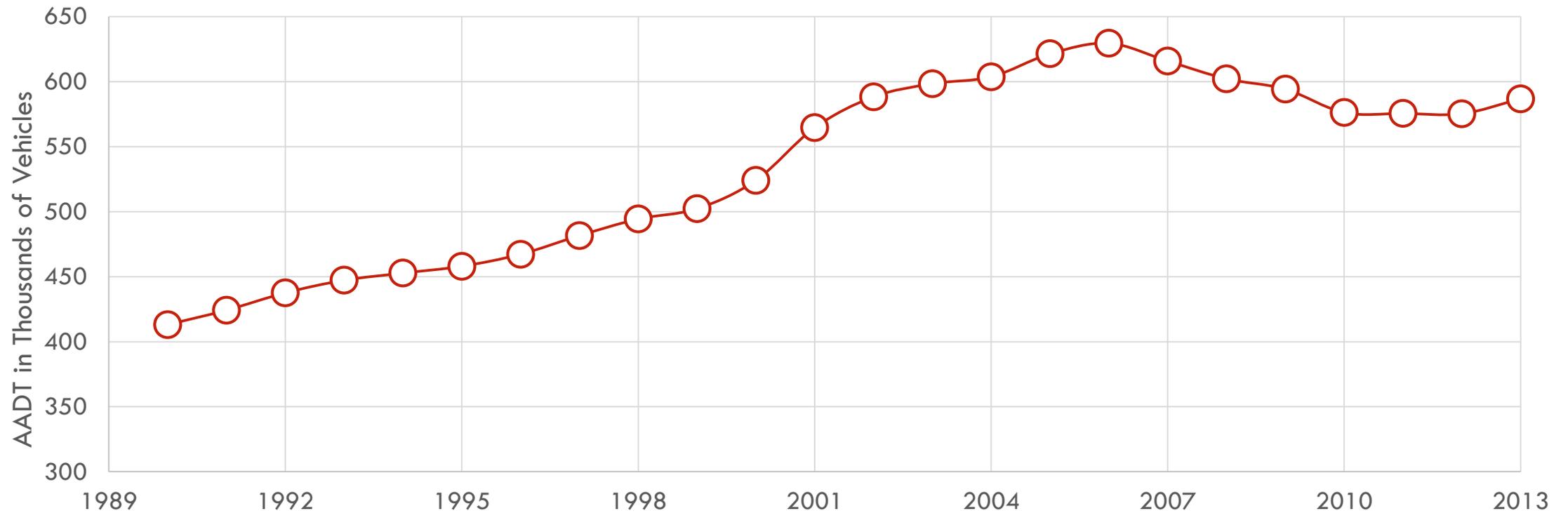
NET NUMBER OF COMMUTERS





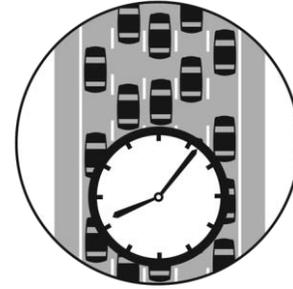
INTERREGIONAL TRAFFIC: HISTORICAL TREND

AVERAGE ANNUAL DAILY TRAFFIC (AADT) THROUGH REGIONAL GATEWAYS

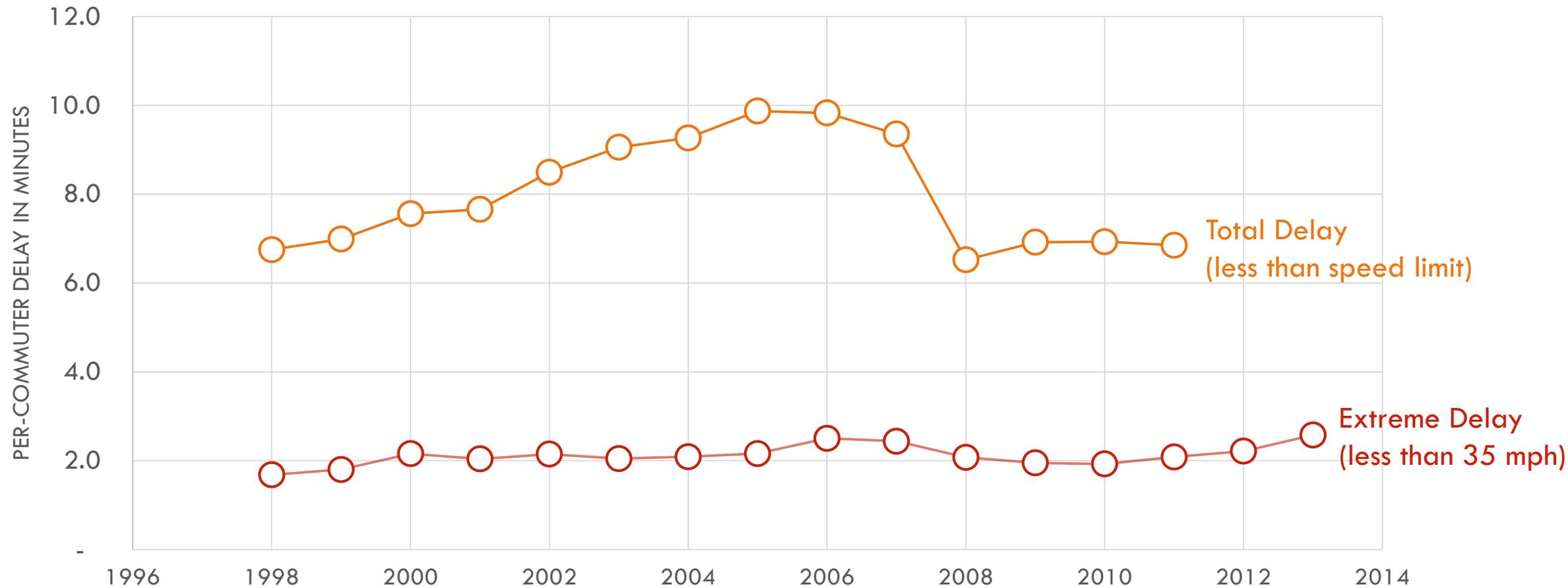


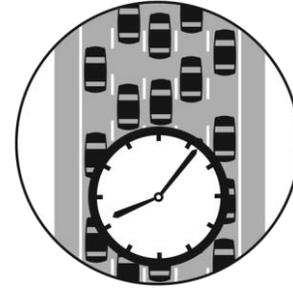
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FREEWAY DELAY: HISTORICAL TREND

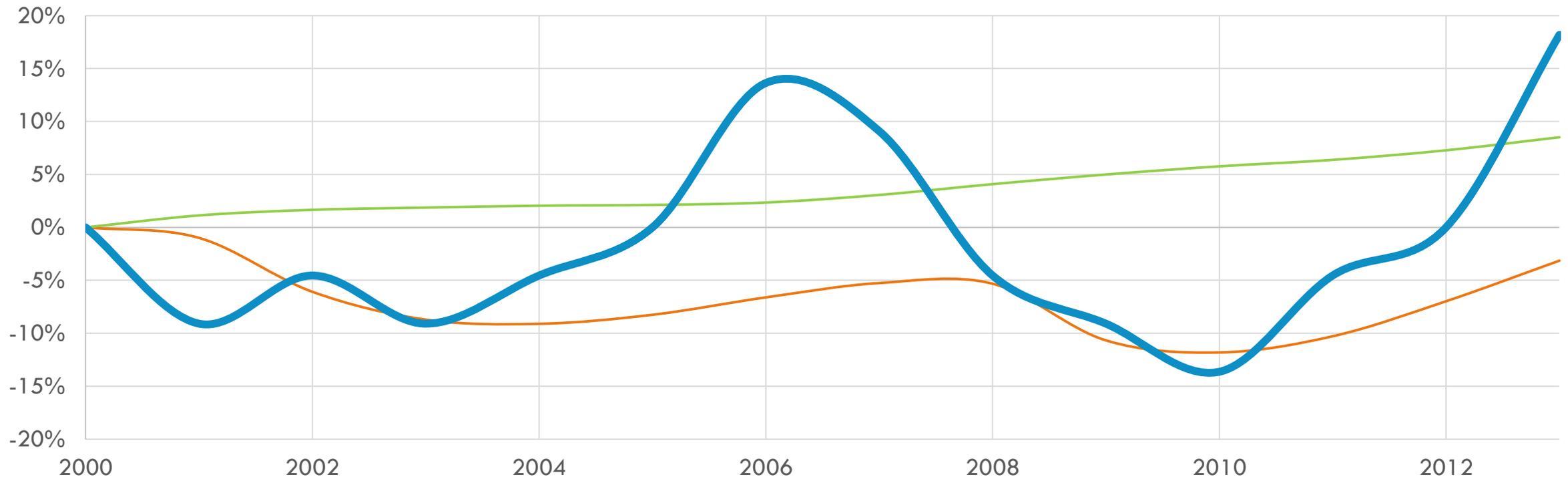




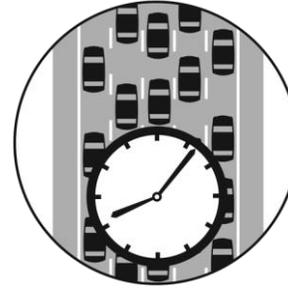
FREEWAY DELAY: HISTORICAL TREND

% CHANGE SINCE 2000

— Jobs — Population — Congested Delay

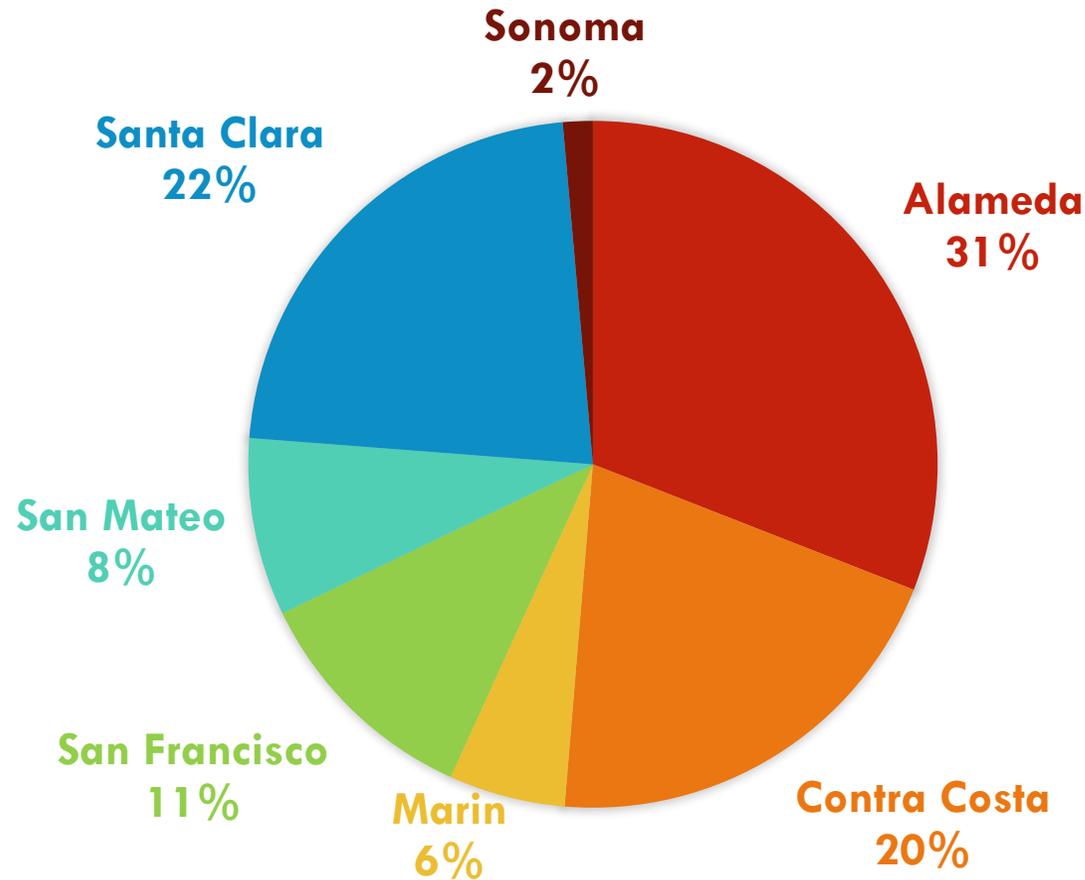


Sources: California Employment Development Department; California Department of Finance; INRIX/Iteris/MTC, 2013



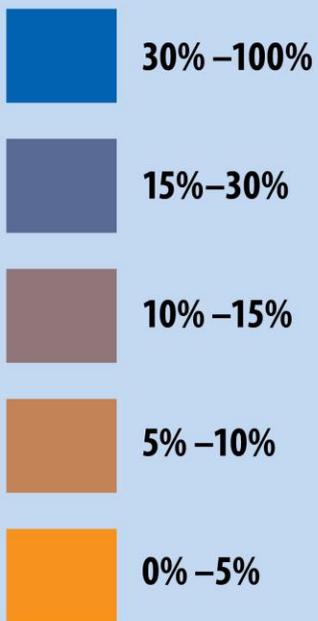
FREEWAY DELAY: REGIONAL CONTEXT

BREAKDOWN OF CONGESTED DELAY BY COUNTY





Non-Auto Commuters



San Francisco

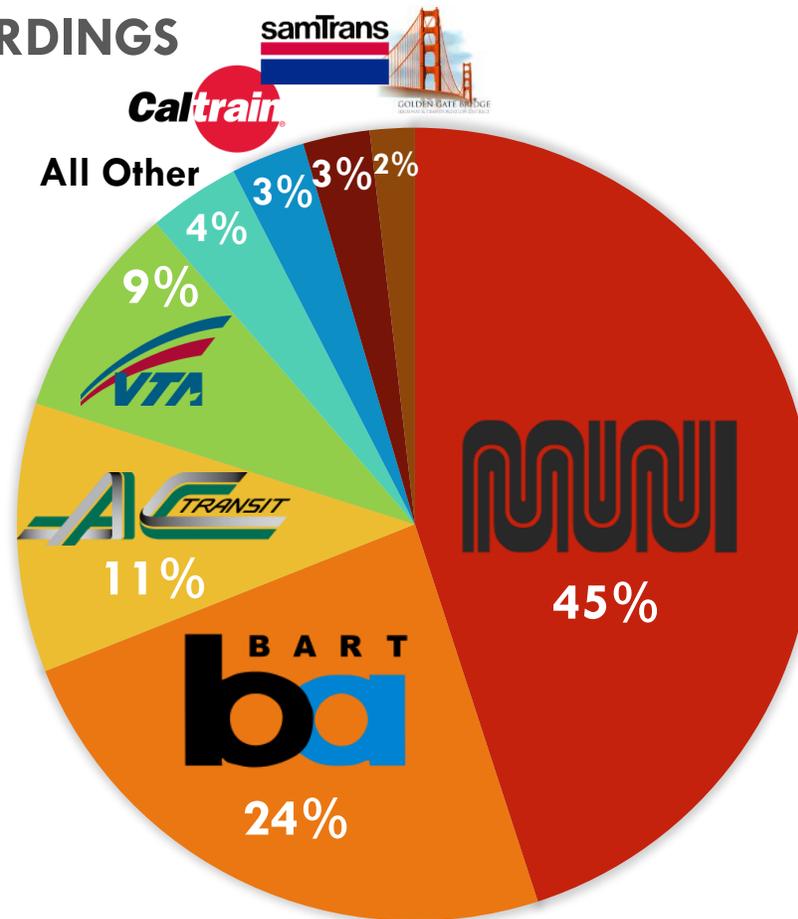
Oakland

San Jose



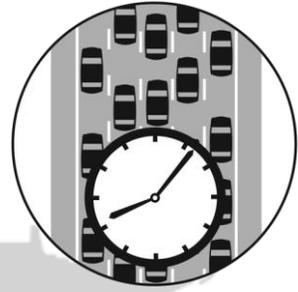
TRANSIT RIDERSHIP: REGIONAL CONTEXT

SHARE OF DAILY TRANSIT BOARDINGS BY OPERATOR

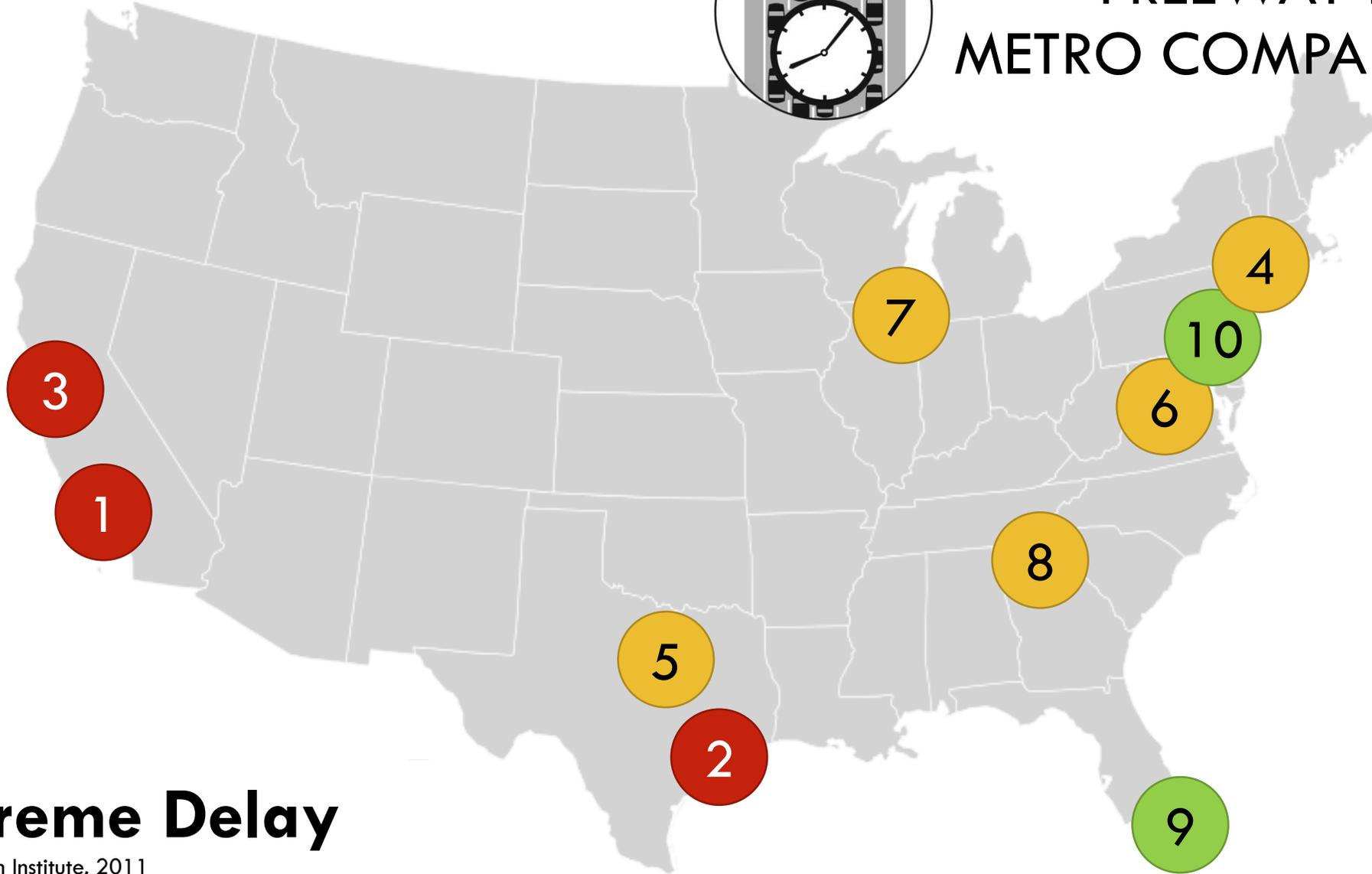


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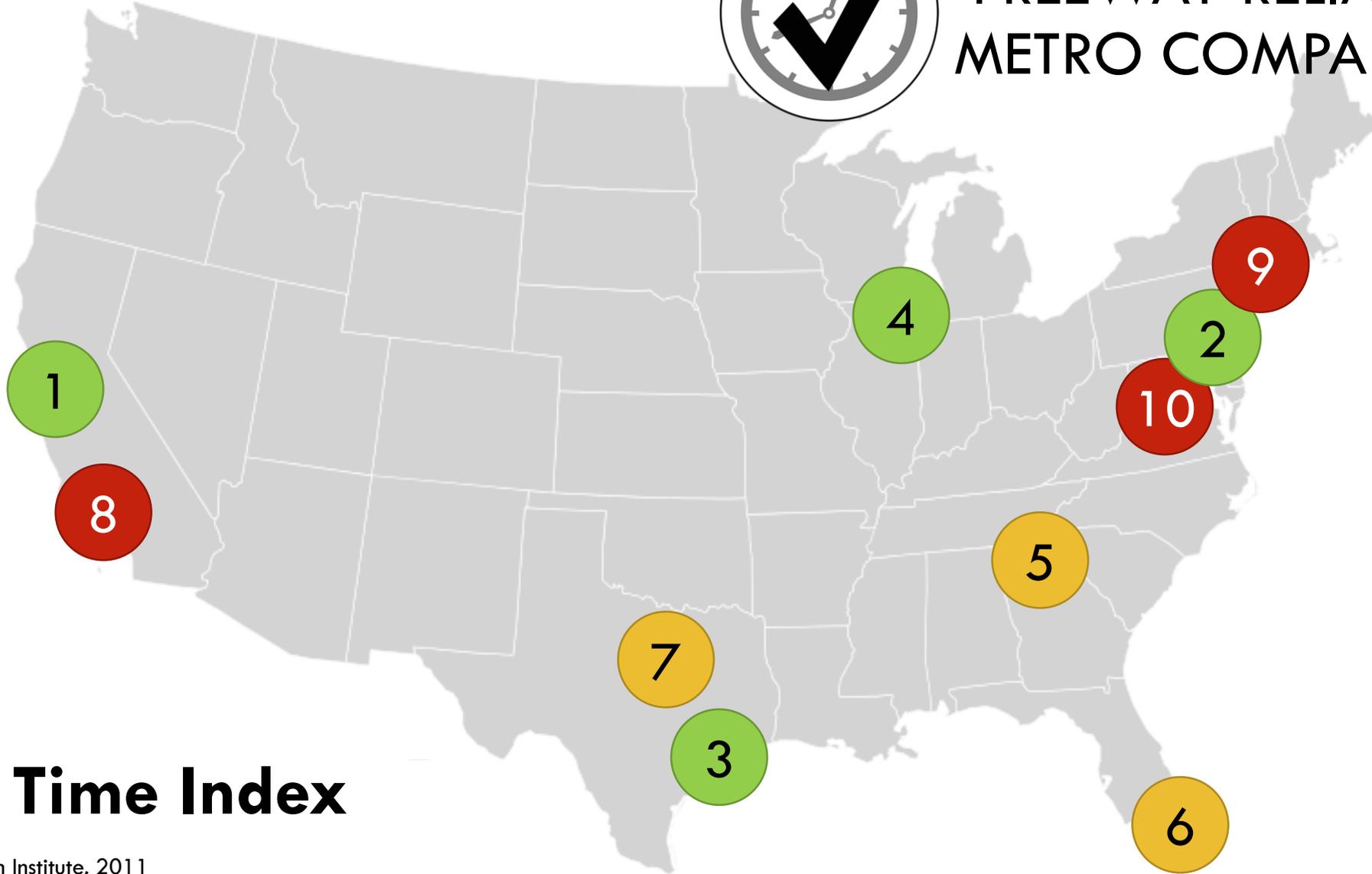
FREEWAY DELAY: METRO COMPARISON



Extreme Delay



FREEWAY RELIABILITY: METRO COMPARISON



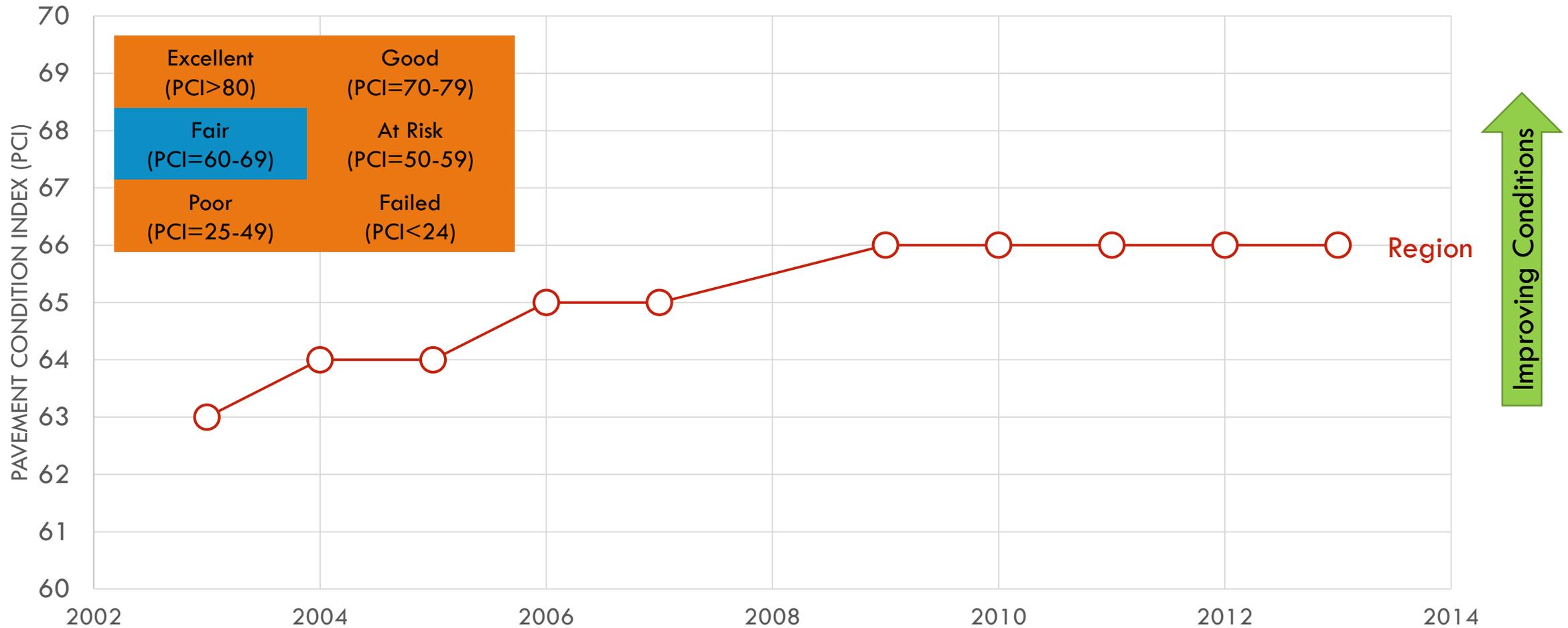
Buffer Time Index

KEY FINDINGS ³¹

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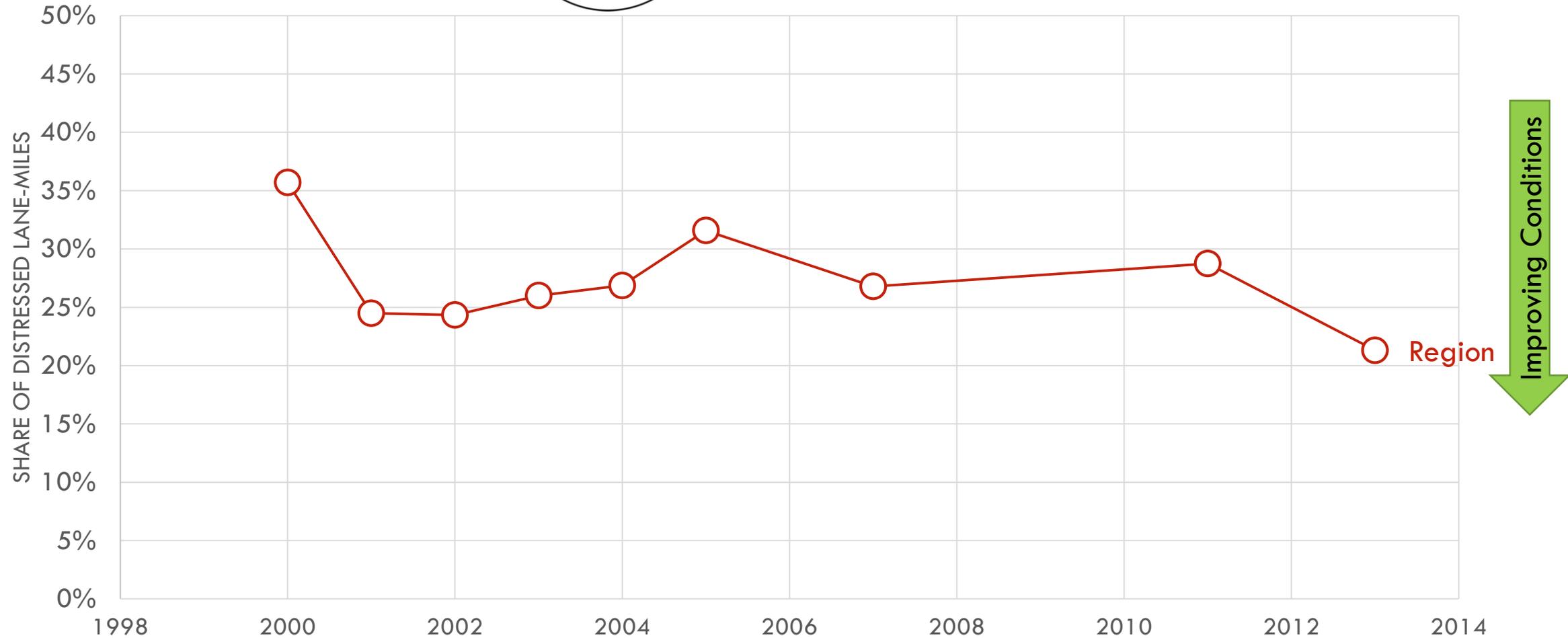


LOCAL STREET MAINTENANCE: HISTORICAL TREND



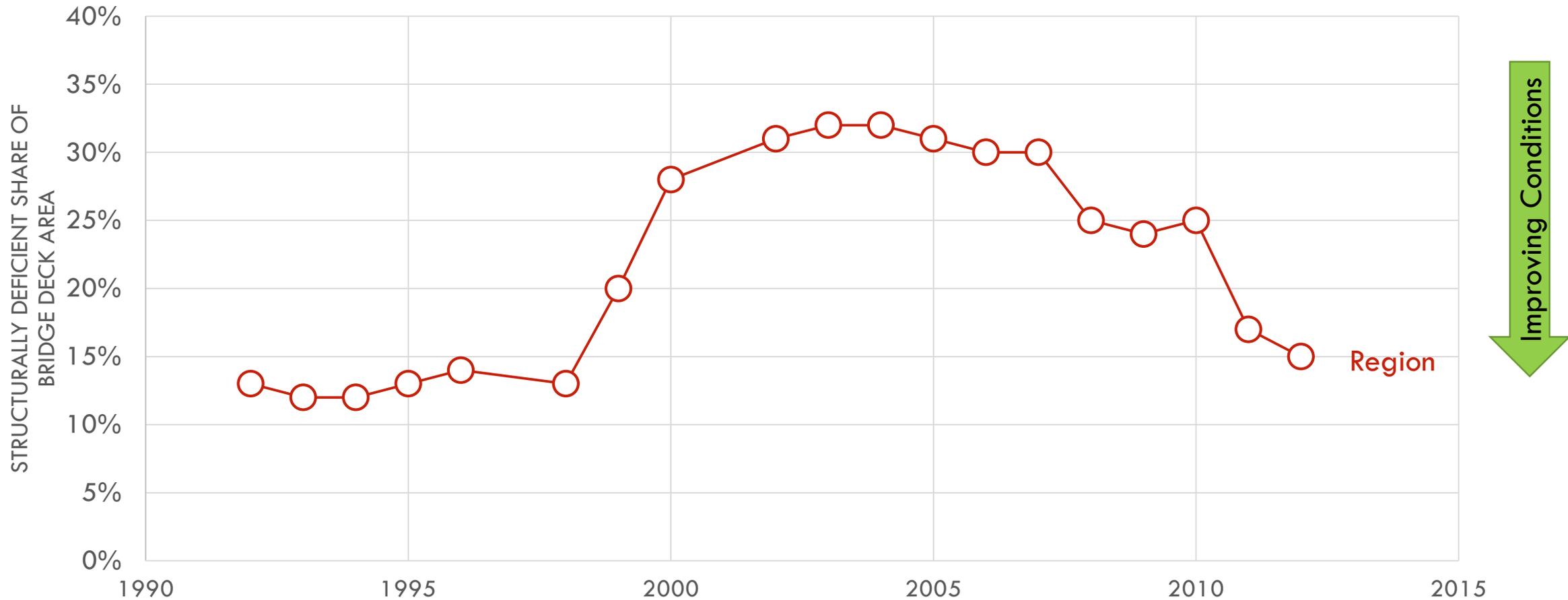


STATE HIGHWAY MAINTENANCE: HISTORICAL TREND





BRIDGE MAINTENANCE: HISTORICAL TREND



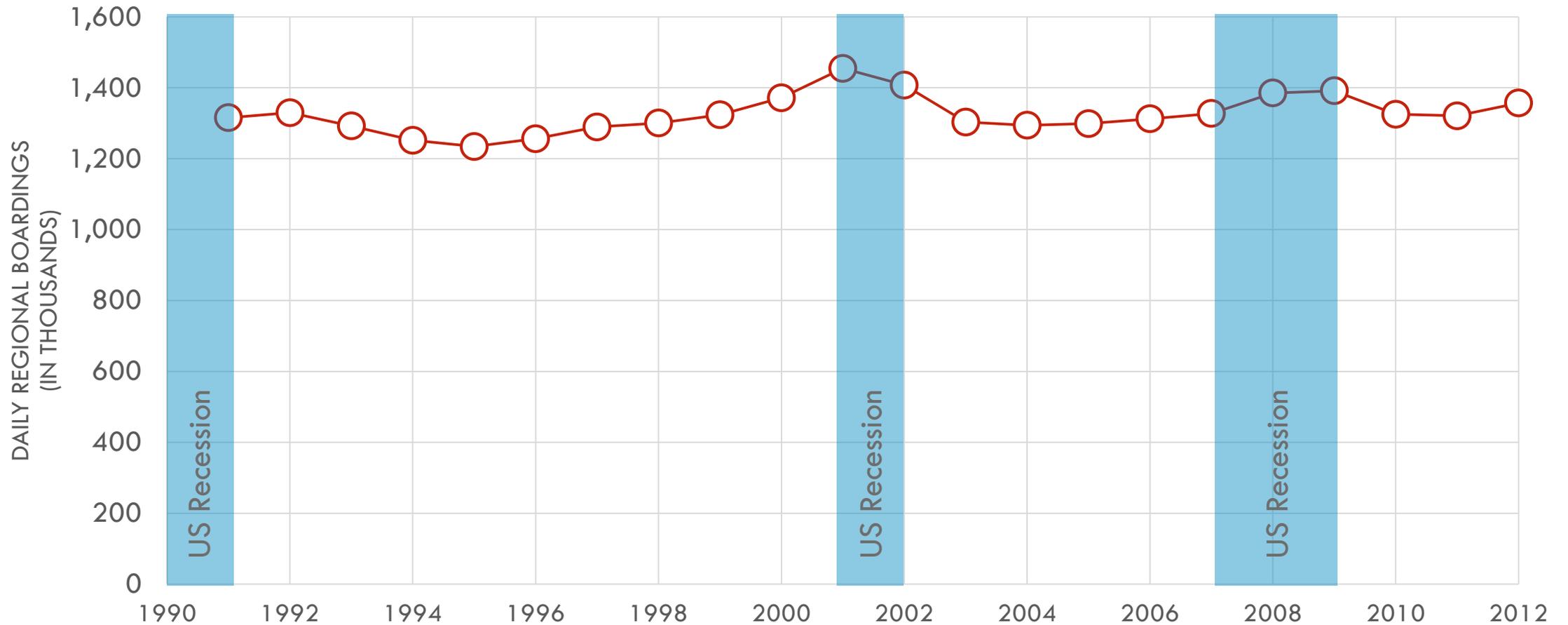
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Total Boardings



TRANSIT RIDERSHIP: HISTORICAL TREND

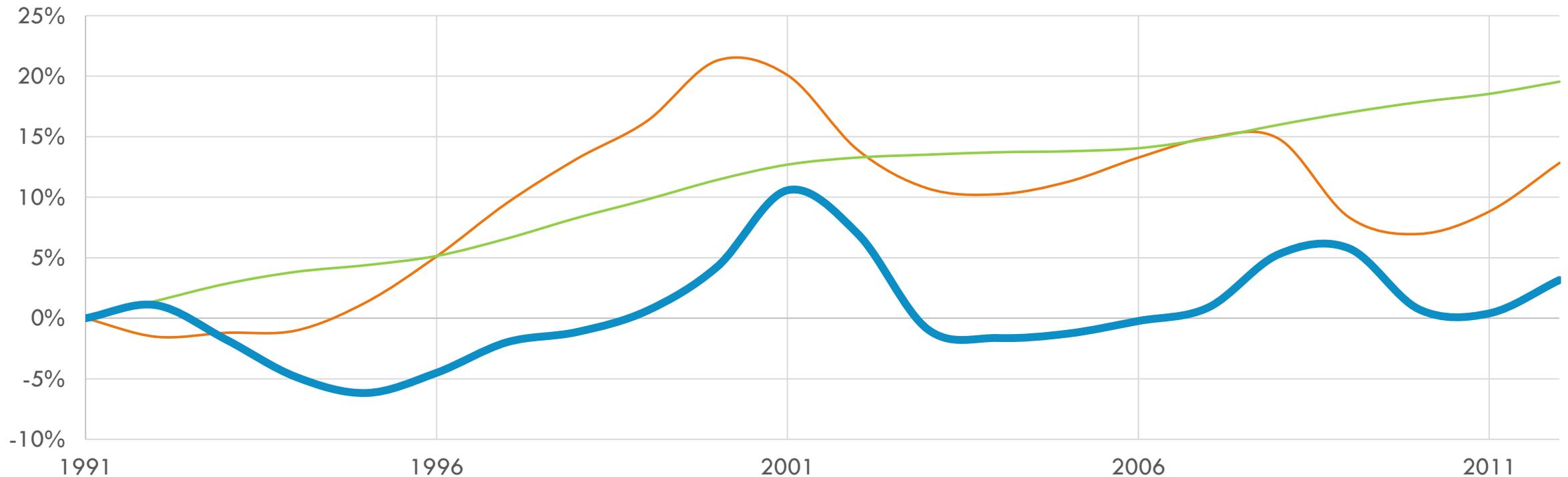




TRANSIT RIDERSHIP: HISTORICAL TREND

% CHANGE SINCE 1991

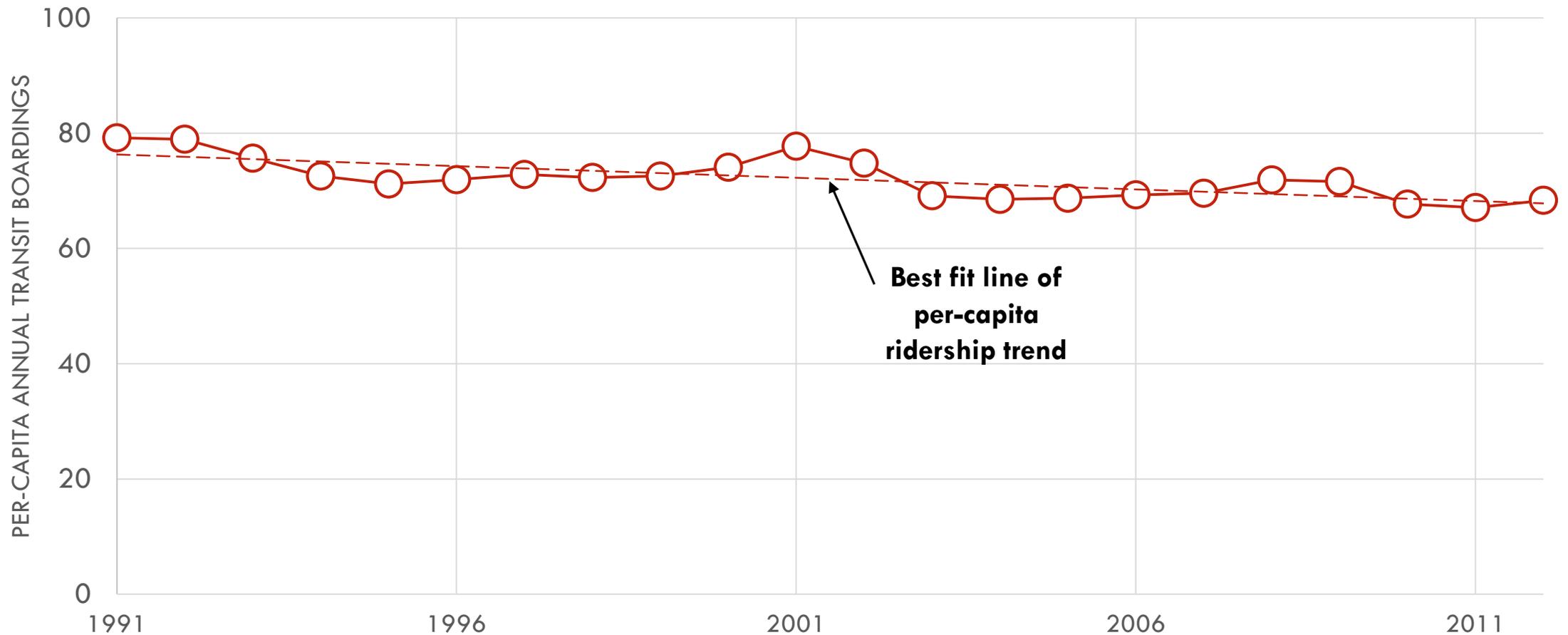
— Jobs — Population — Total Transit Boardings



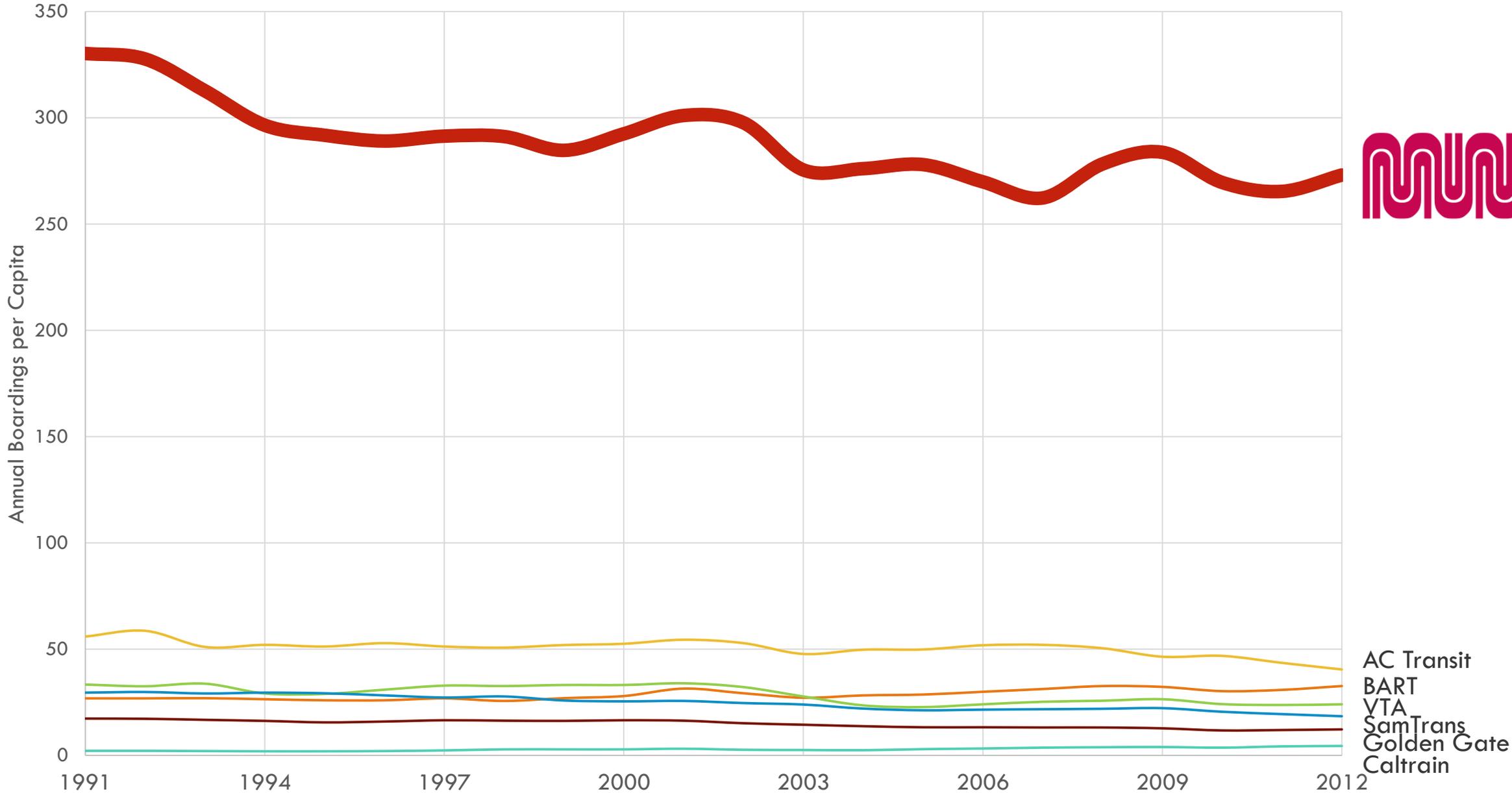
Per-Capita Boardings



TRANSIT RIDERSHIP: HISTORICAL TREND



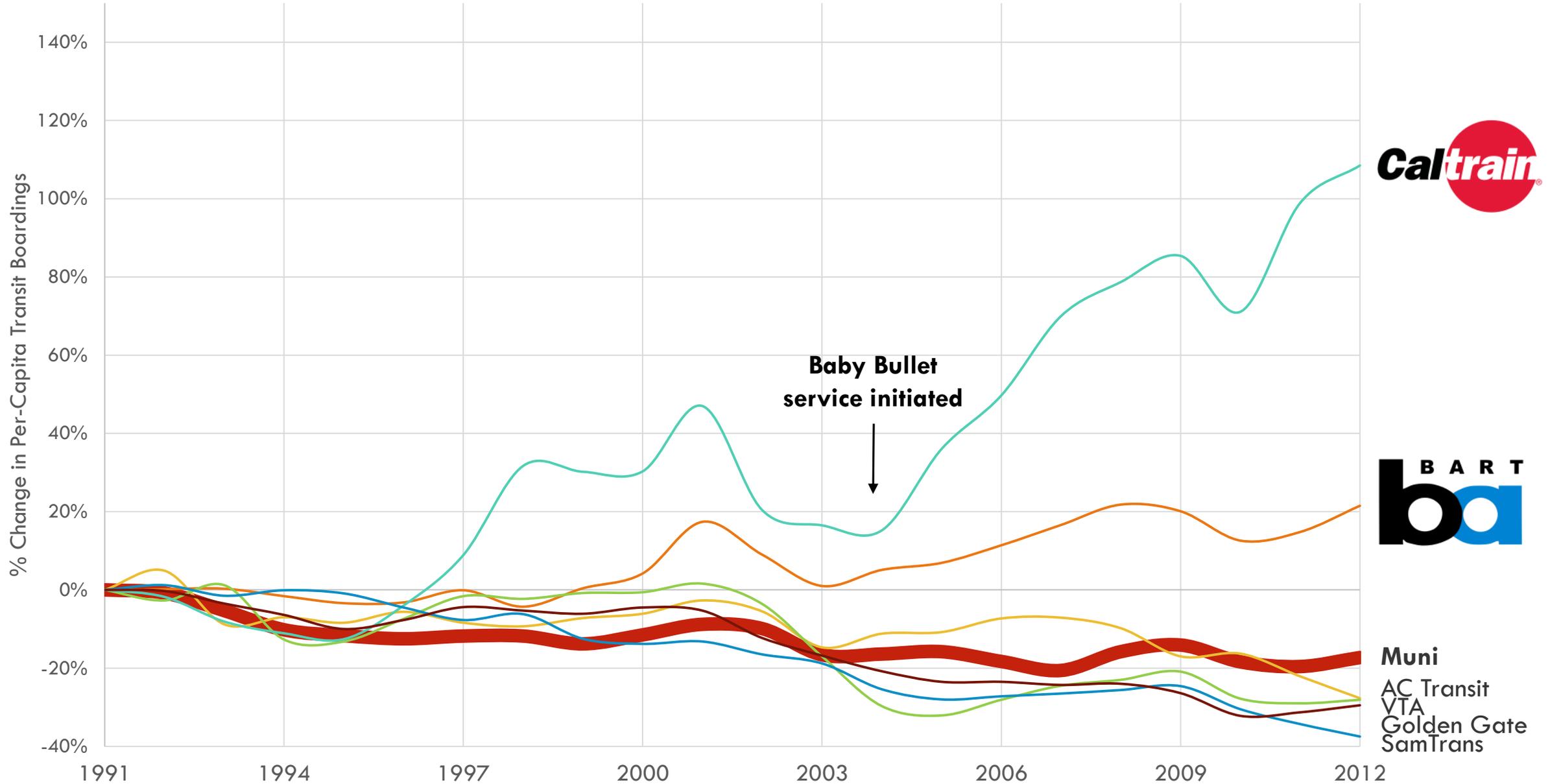
PER-CAPITA TRANSIT BOARDINGS BY OPERATOR



AC Transit
BART
VTA
SamTrans
Golden Gate
Caltrain

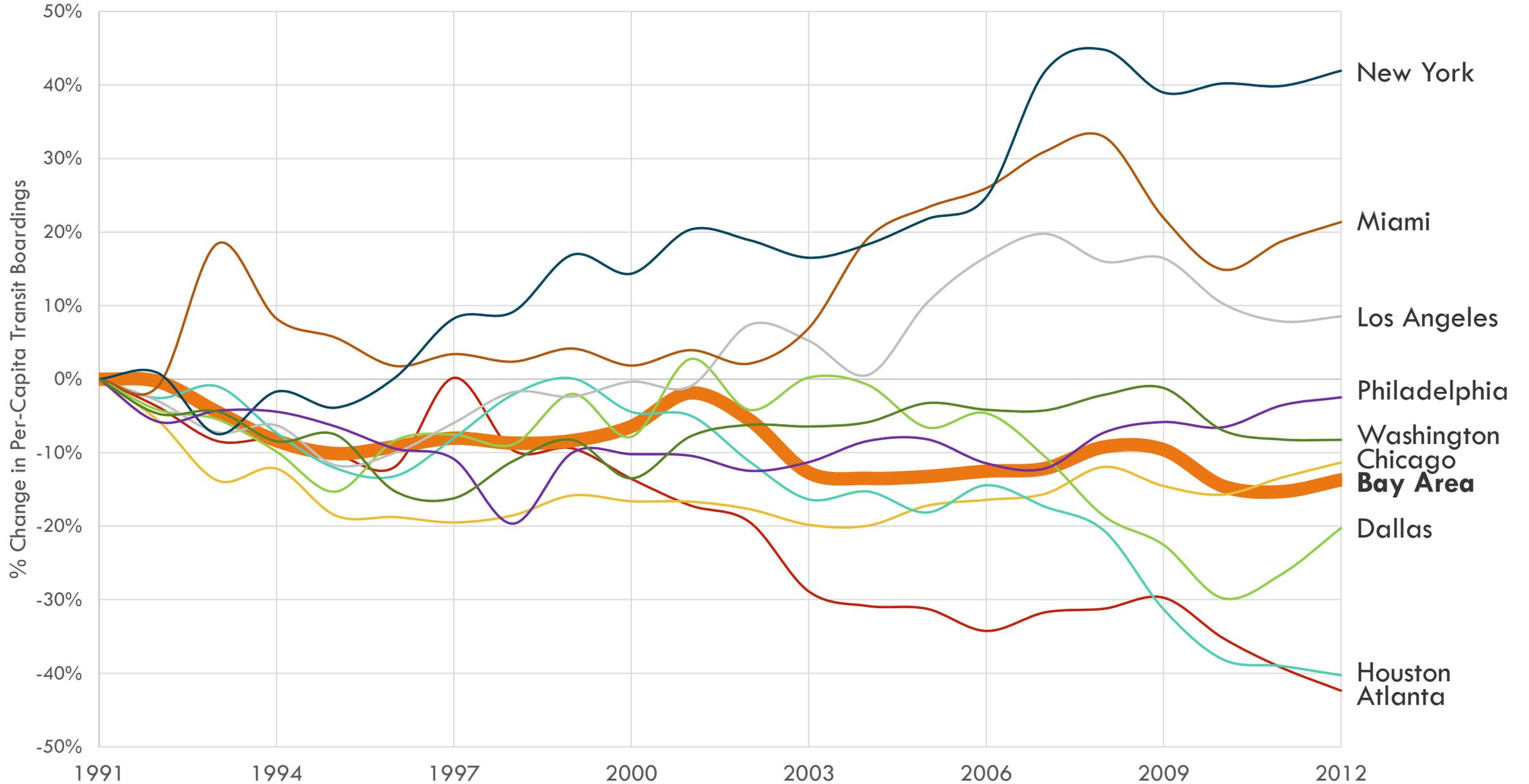
Source: FTA NTD, 2012

% CHANGE IN PER-CAPITA TRANSIT BOARDINGS BY OPERATOR SINCE 1991



Muni
AC Transit
VTA
Golden Gate
SamTrans

% CHANGE IN **PER-CAPITA** TRANSIT BOARDINGS BY METRO AREA SINCE 1991



BETA WEBSITE DEMO

VITAL SIGNS



WEBSITE LAUNCH:
WINTER 2015

VITAL  SIGNS



REFERENCES AND IMAGE SOURCES

- Slide 1 – Title Slide
 - <https://www.flickr.com/photos/davidyuweb/13370127374>
- Slide 4 – Metro Area Photographs
 - http://en.wikipedia.org/wiki/List_of_United_States_cities_by_population#mediaviewer/File:LA_Skyline_Mountains_2.jpg
 - http://en.wikipedia.org/wiki/Philadelphia-Camden-Wilmington,_PA-NJ-DE-MD_Metropolitan_Statistical_Area#mediaviewer/File:Philly_skyline.jpg
 - http://en.wikipedia.org/wiki/Dallas-Fort_Worth-Arlington,_TX_Metropolitan_Statistical_Area#mediaviewer/File:Downtown_Dallas_from_the_Trinity_River.jpg
 - http://upload.wikimedia.org/wikipedia/commons/d/d2/US_Navy_030926-F-2828D-307_Aerial_view_of_the_Washington_Monument.jpg
 - http://en.wikipedia.org/wiki/Chicago-Naperville-Elgin,_IL-IN-WI_Metropolitan_Statistical_Area#mediaviewer/File:Chicago_aerial_view.jpg
 - http://en.wikipedia.org/wiki/Houston-The_Woodlands-Sugar_Land,_TX_Metropolitan_Statistical_Area#mediaviewer/File:Panoramic_Houston_skyline.jpg
 - <https://flic.kr/p/iiA7ek>
 - <https://flic.kr/p/97GuBa>
 - <https://flic.kr/p/nrWltK>
- Slide 39 – Website Demo
 - <http://www.flickr.com/photos/tq2cute/4407502443/sizes/o>