METROPOLITAN
TRANSPORTATION
COMMISSION

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Memorandum

TO: Policy Advisory Council DATE: December 3, 2014

FR: Dave Vautin, Planning

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. 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 portal for performance monitoring. Maps, graphs, and tables are being developed to supplement the narrative; these data summary elements will be able to be personalized to highlight specific counties, cities, neighborhoods, and transportation facilities of interest. With the data collection and analysis now complete for the initial phase of the project, MTC staff are focusing on the design and development of the aforementioned new performance monitoring website, including the development of interactive charts and maps for each issue area.

MTC is also 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 next 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 early 2015. 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. The key findings from this analysis will be discussed in greater detail as part of the presentation to the working group.

Next Steps

As discussed earlier in this memorandum, the results from the first phase of the Vital Signs initiative are scheduled to be released to the public in early 2015 via a new performance monitoring website. In the coming weeks, MTC staff will continue to seek feedback on the draft transportation results at Partnership working groups, the Regional Advisory Working Group, and the MTC Planning Committee. Staff will also seek feedback from the Policy Advisory Council in early 2015 as the draft results for Phases 1B, 2A, and 2B of the project are compiled and ready for review.

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
    - Cost per transit boarding by system and mode
    - Fare box recovery by system and mode
    - Vehicle miles traveled
    - Per-capita vehicle miles traveled
    - Pavement condition index by jurisdiction, facility type, and segment
    - Share of distressed highway lane-miles by facility type and segment
    - Share of bridge deck area that is structurally deficient by facility type
    - 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, transit proximity, and PDA
    - Housing construction by jurisdiction and place type
    - Greenfield development by jurisdiction and by parcel

- **Phase 2A: Economy** *(slated for release in March 2015; preliminary measures)*
    - 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
    - Retail sales *(alternative: new business starts)*
    - Freight activity in TEUs
    - Freight activity in tons
    - Freight activity in dollars
    - Freight share of total VMT

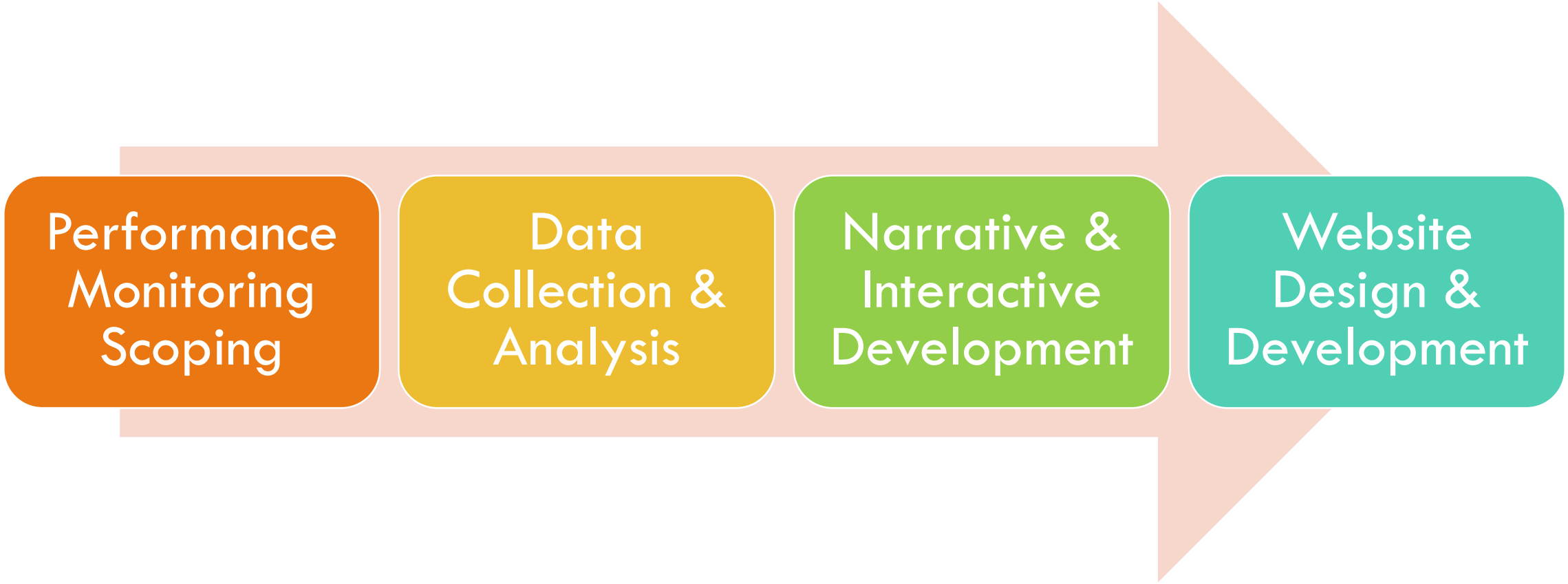
- **Phase 2B: Environment** *(slated for release in June 2015; preliminary measures)*
    - Fine particulate concentrations by sensor location
    - Coarse particulate concentrations by sensor location
    - Share of zero-GHG emission vehicles
    - Total traffic fatalities by mode and location
    - 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

BAY AREA VITAL SIGNS

Phase 1A Results Preview: Transportation

MTC Policy Advisory Council – December 2014

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

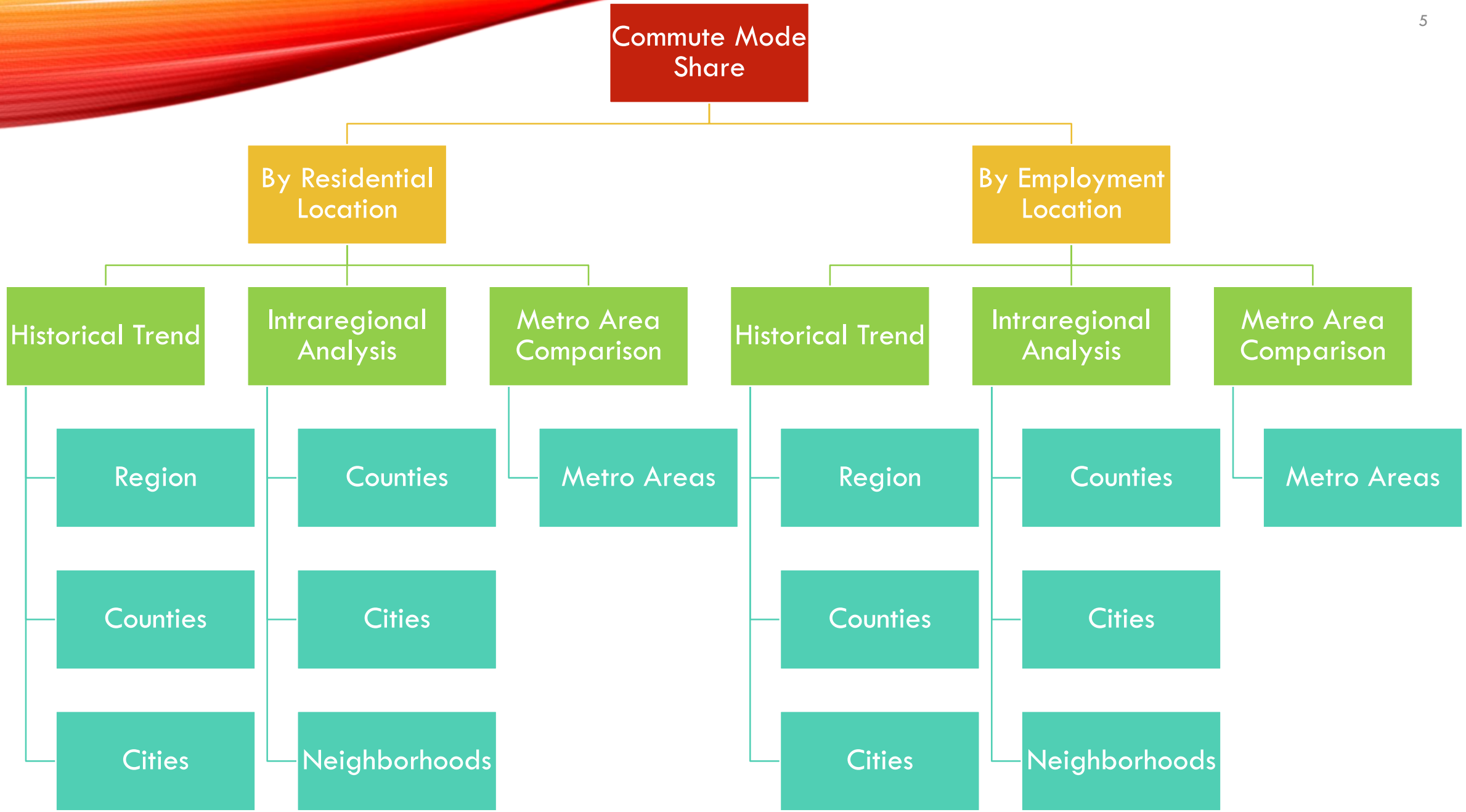
Houston MSA
6.3 million residents

Miami MSA
5.8 million residents

Chicago MSA
9.5 million residents

Philadelphia MSA
6.0 million residents

Atlanta MSA
5.5 million residents


Commute Mode Share
By Residential Location
By Employment Location
Historical Trend
Intraregional Analysis
Metro Area Comparison
Historical Trend
Intraregional Analysis
Metro Area Comparison
Region
Counties
Cities
Counties
Cities
Neighborhoods
Metro Areas
Region
Counties
Cities
Counties
Cities
Neighborhoods
Metro Areas

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 2014-15
- Launch Phase 1A
- Environmental Analysis (Phase 2B)

Spring 2015
- Website & Narrative Development (Phases 2A & 2B)
- Launch Phases 1B, 2A, and 2B

KICKING OFF PARTNER OUTREACH

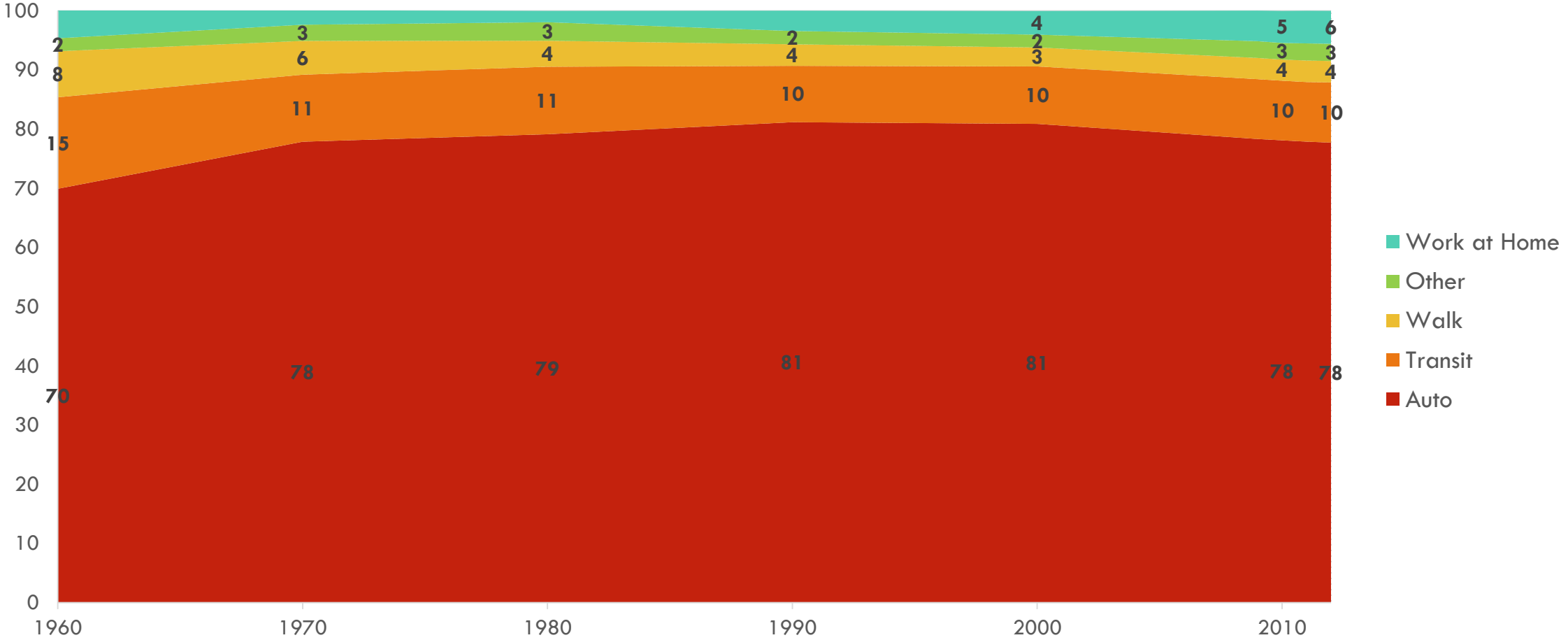
- CMA Planning Directors
- Regional Advisory Working Group
- Local Streets Working Group
- Transit Finance Working Group
- Policy Advisory Council
- Planning Committee

Phase 1A	Phase 1B	Phases 2A and 2B	
		TBD	TBD
		TBD	TBD
		TBD	TBD
		TBD	TBD

KEY FINDINGS

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.**

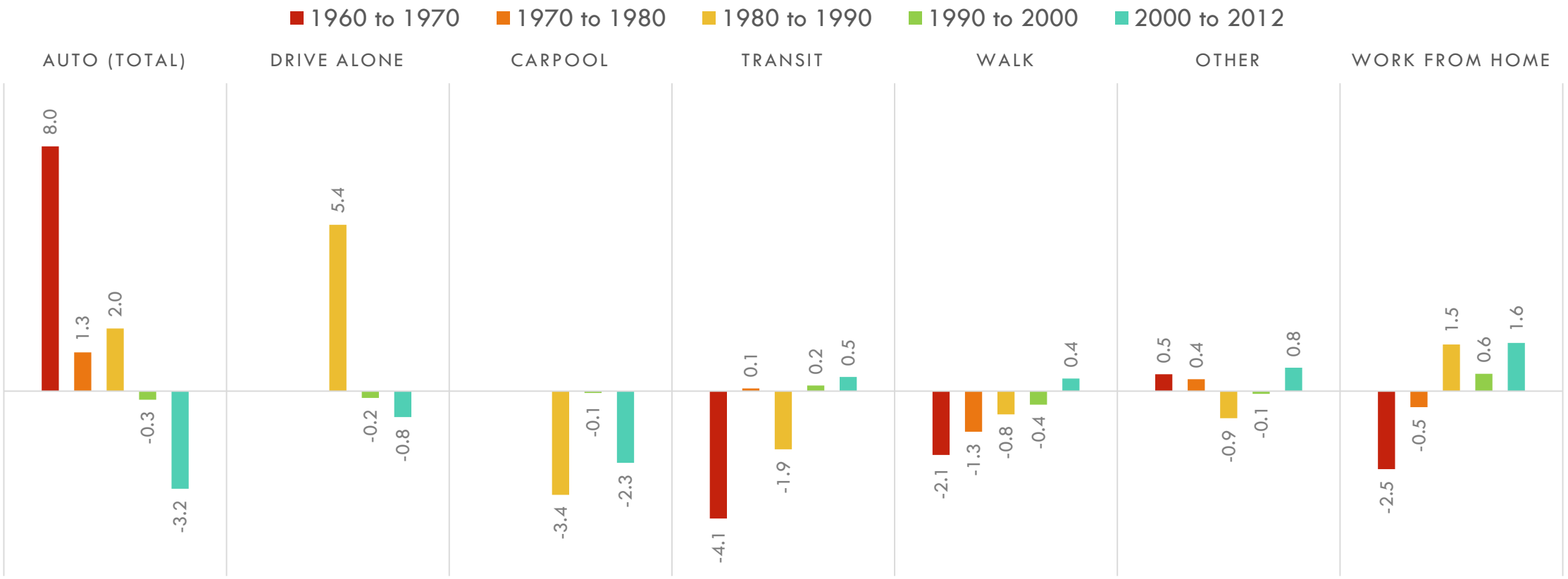
COMMUTE MODE SHARE: HISTORICAL TREND



Source: US Census/American Community Survey

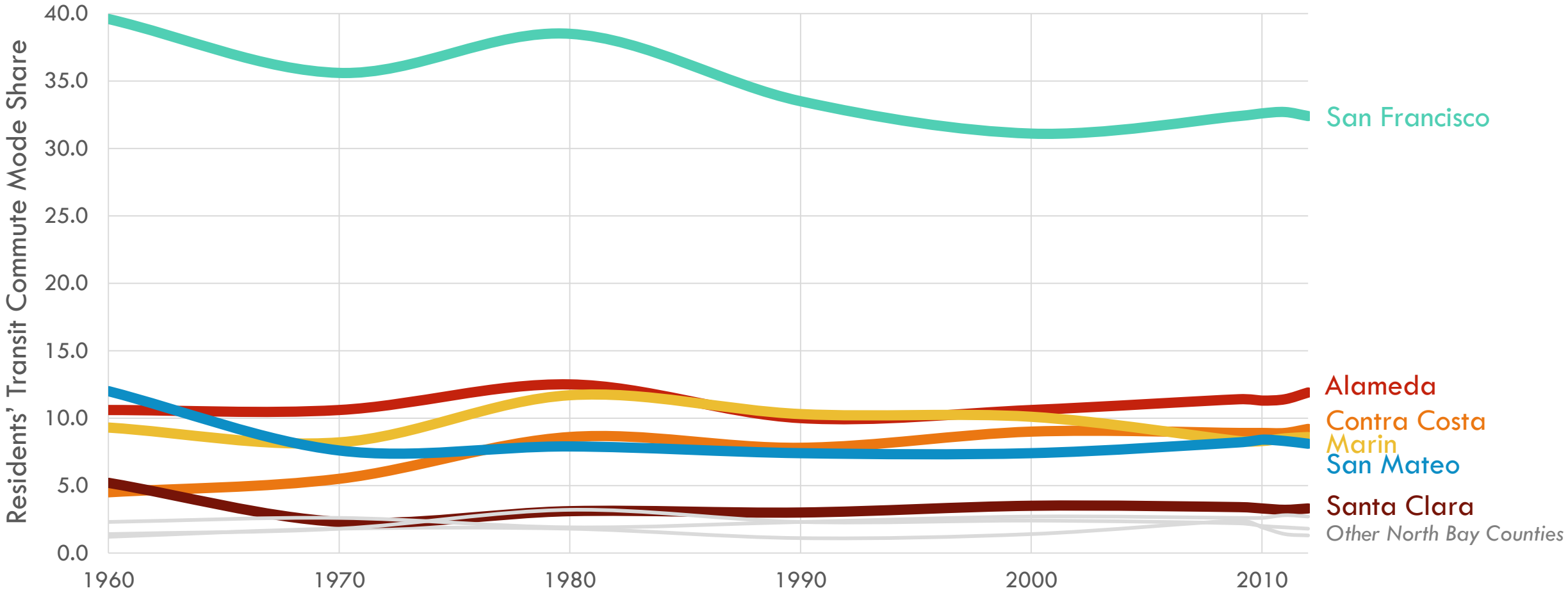
COMMUTE MODE SHARE: HISTORICAL TREND

CHANGES IN MODE SHARES BY DECADE

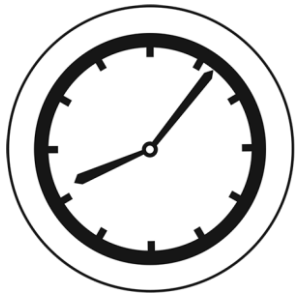


Source: US Census/American Community Survey

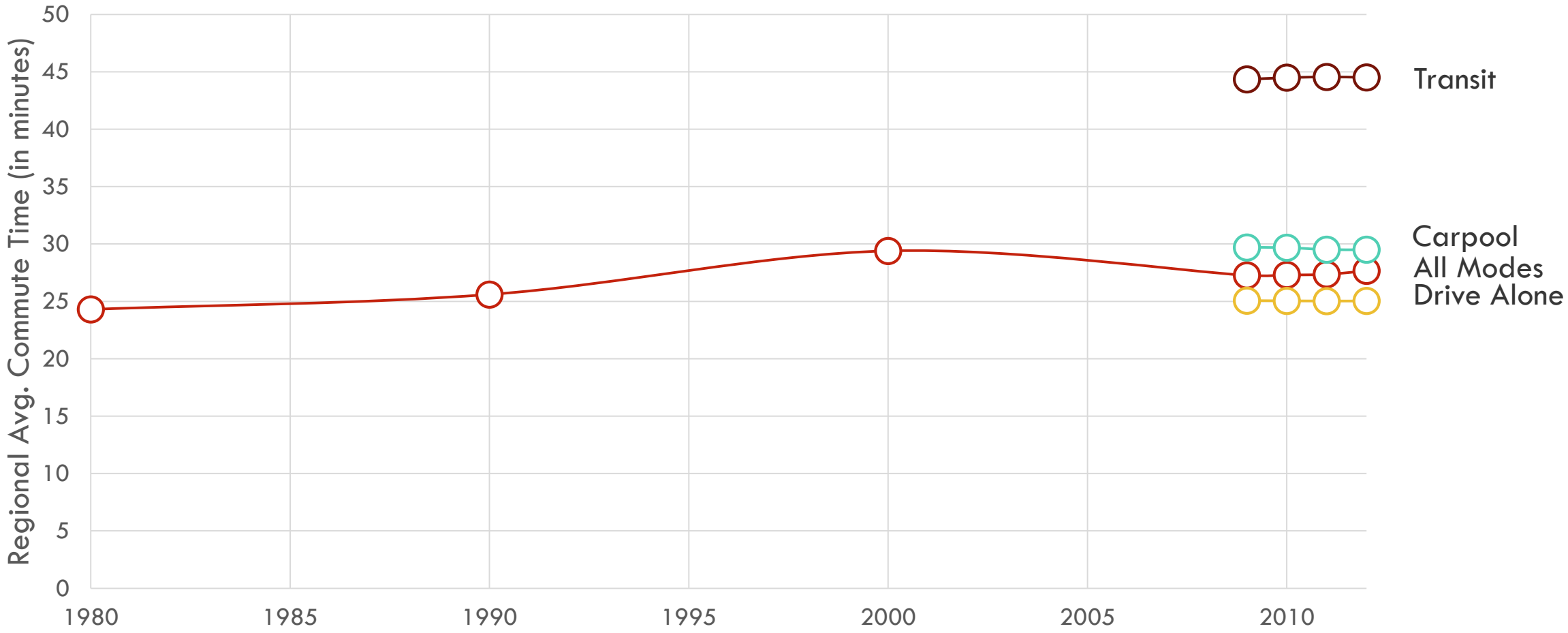
COMMUTE MODE SHARE: REGIONAL CONTEXT



Source: US Census/American Community Survey



COMMUTE TIME: HISTORICAL TREND



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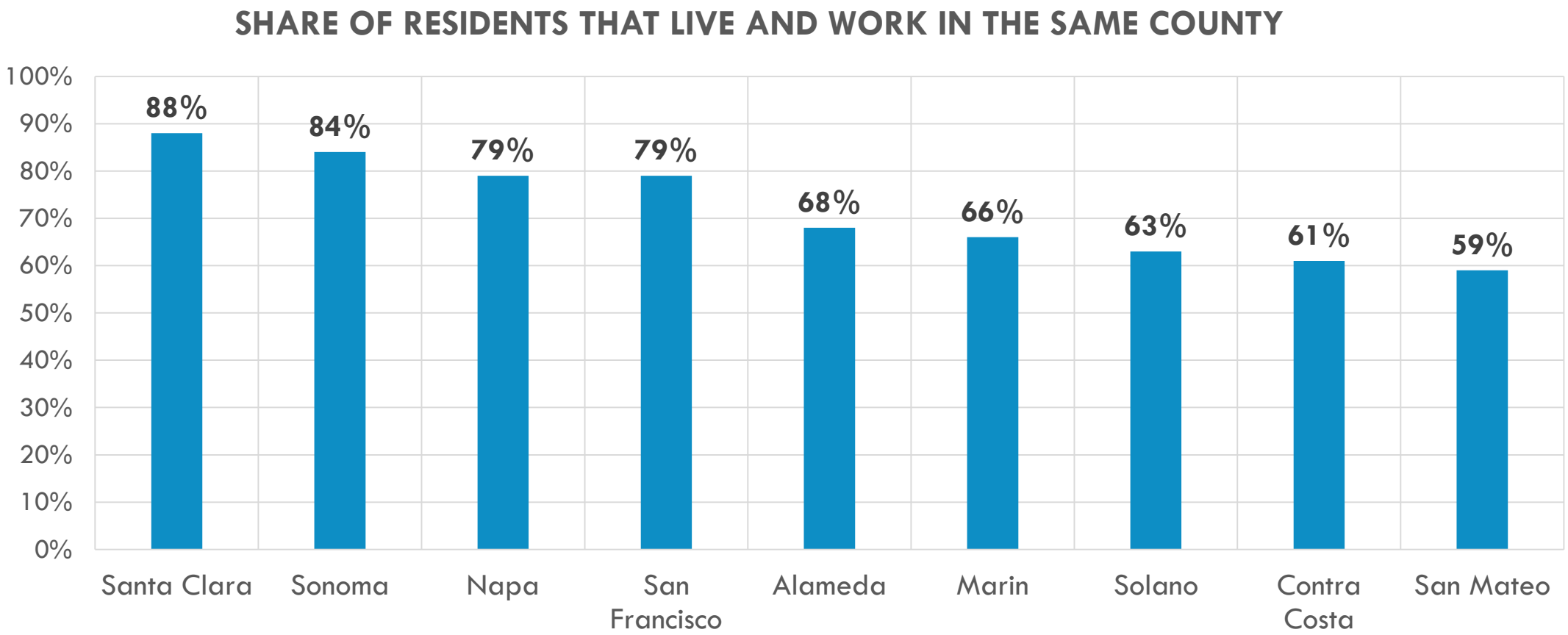
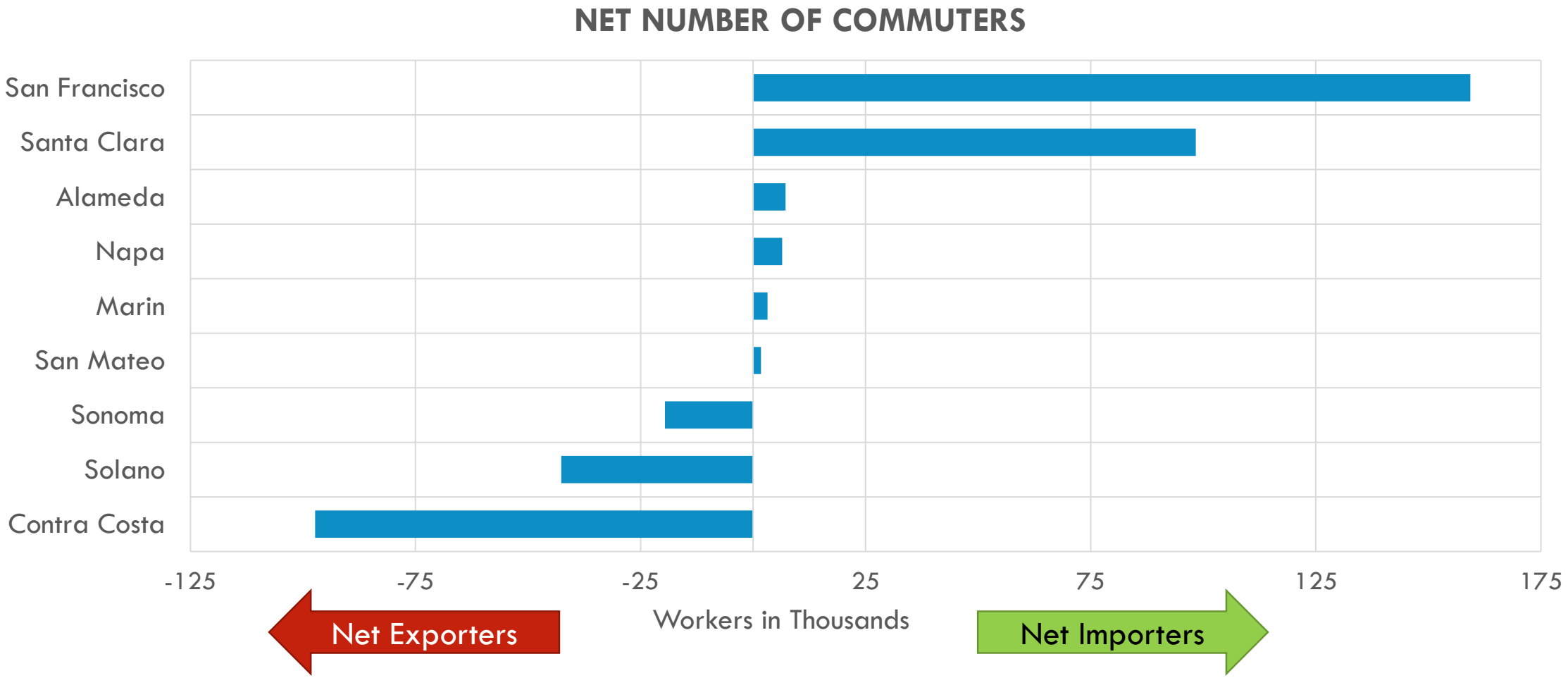
COMMUTE FLOWS: REGIONAL CONTEXT



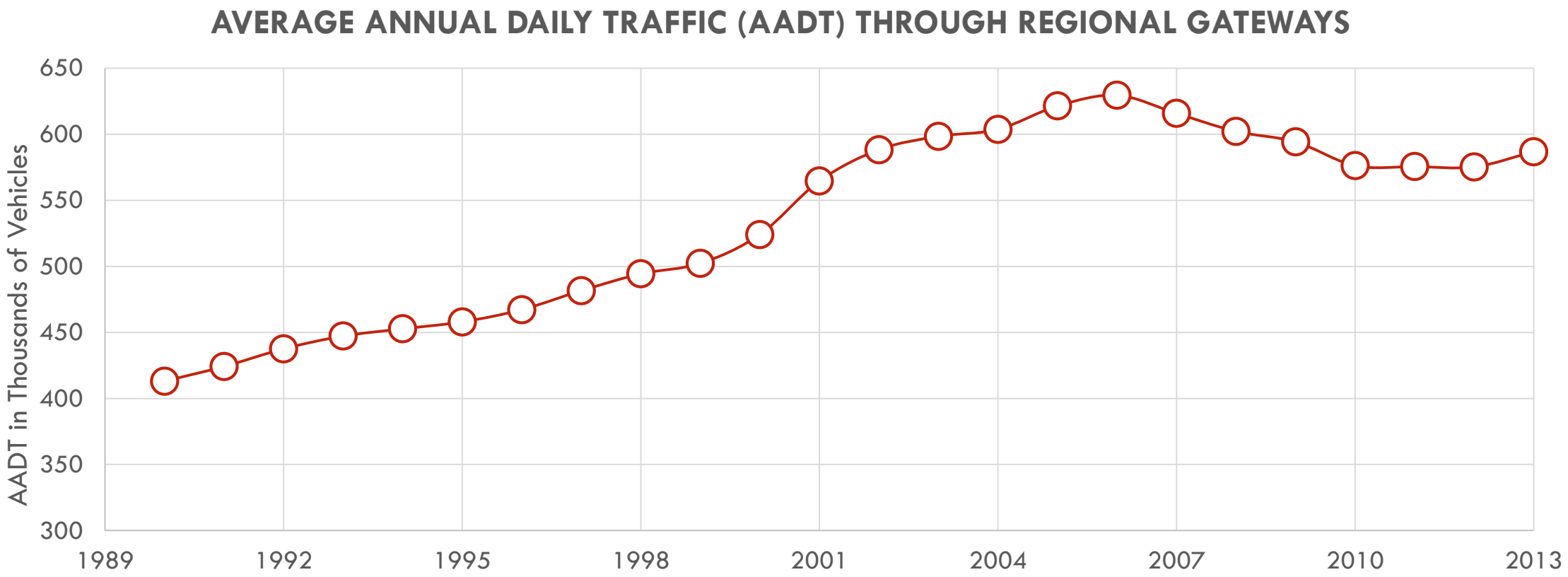
Source: Census Transportation Planning Package, 2006-2010

COMMUTE FLOWS: REGIONAL CONTEXT

Source: Census Transportation Planning Package, 2006-2010



INTERREGIONAL TRAFFIC: HISTORICAL TREND



Source: Caltrans Traffic Census

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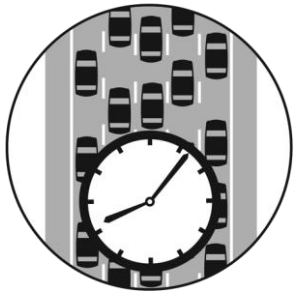
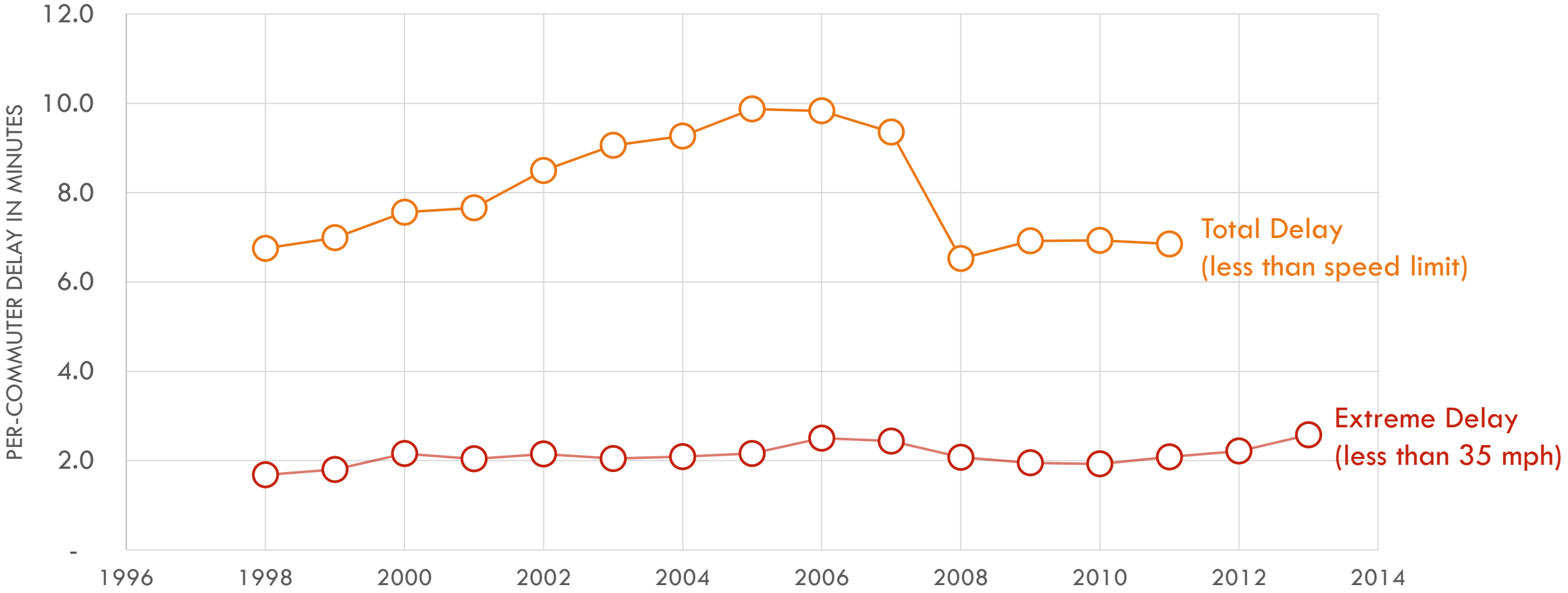
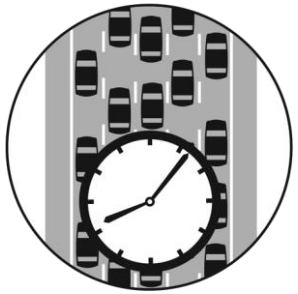


FREEWAY DELAY: HISTORICAL TREND

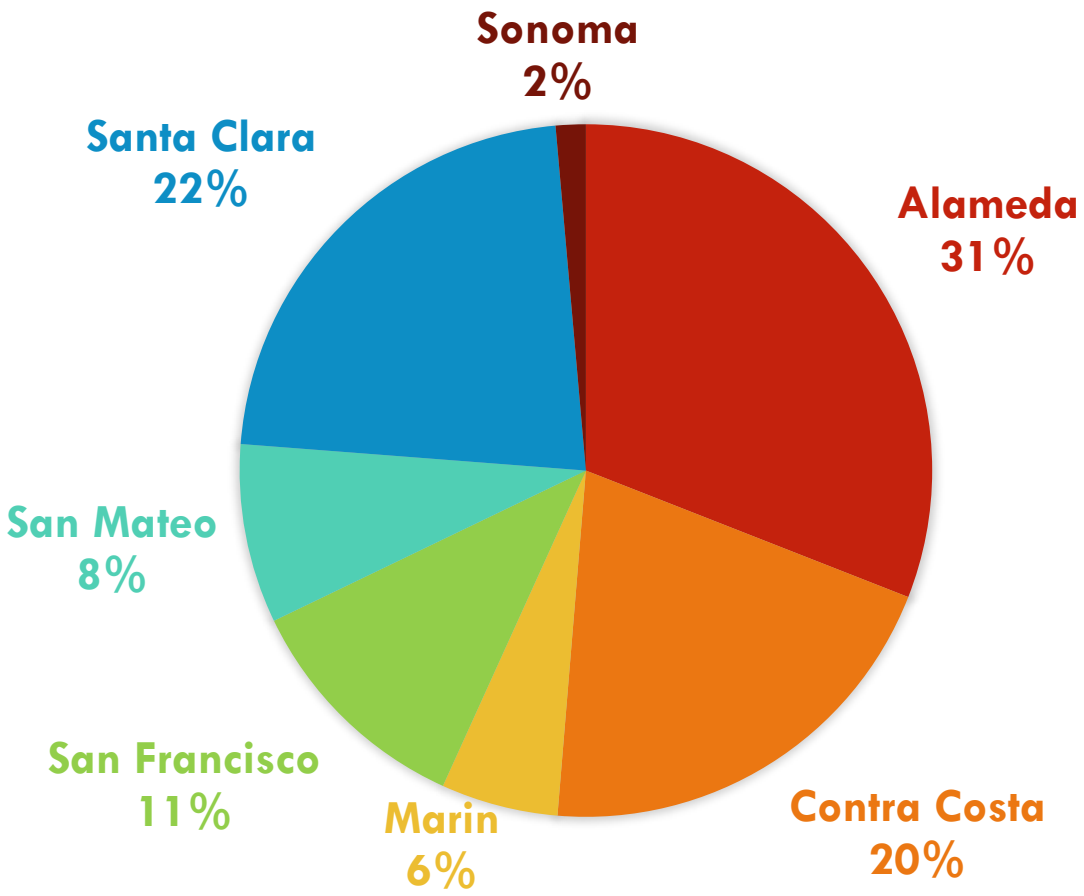


Sources: INRIX/Iteris/MTC, 2013; Texas Transportation Institute, 2011



FREEWAY DELAY: REGIONAL CONTEXT

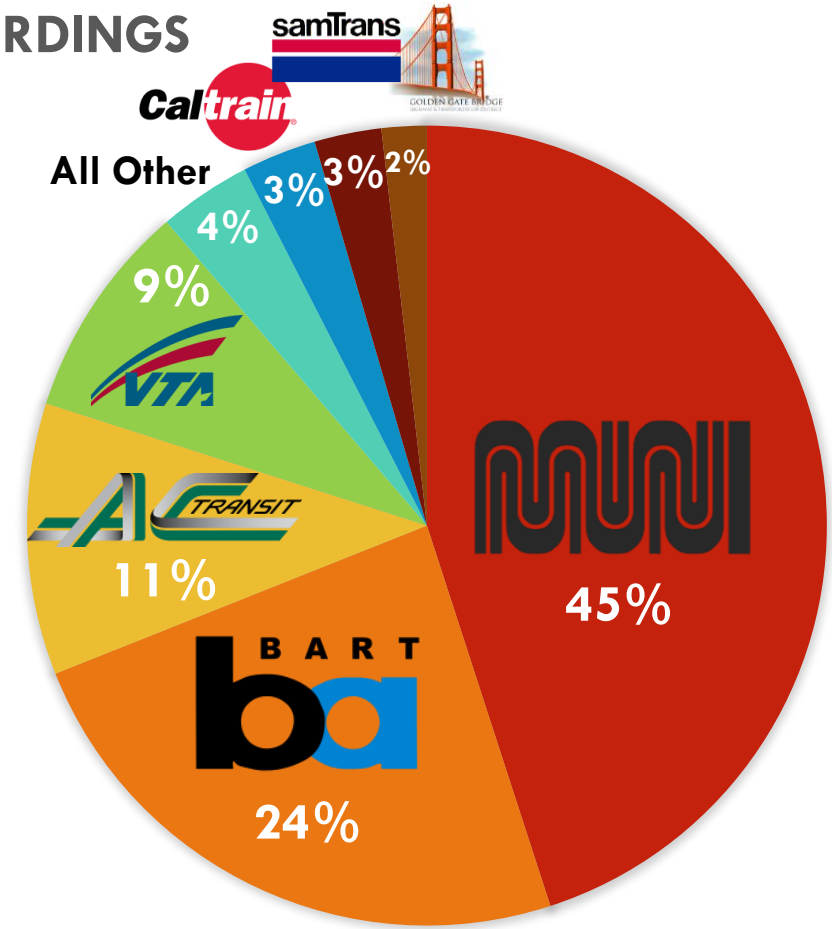
BREAKDOWN OF CONGESTED DELAY BY COUNTY



Source: INRIX/Iteris/MTC, 2013

TRANSIT RIDERSHIP: REGIONAL CONTEXT

SHARE OF DAILY TRANSIT BOARDINGS BY OPERATOR



Source: FTA NTD, 2012

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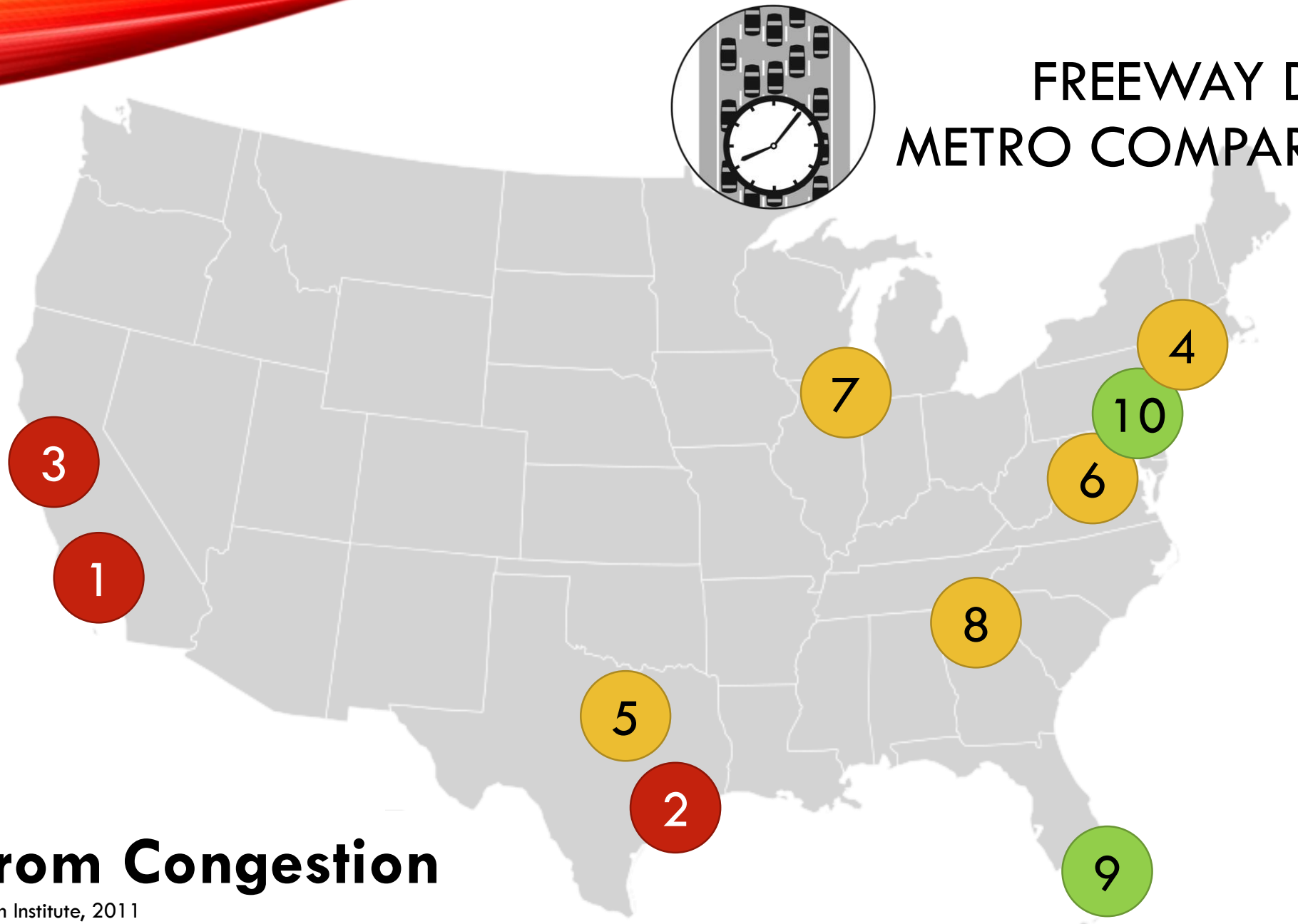
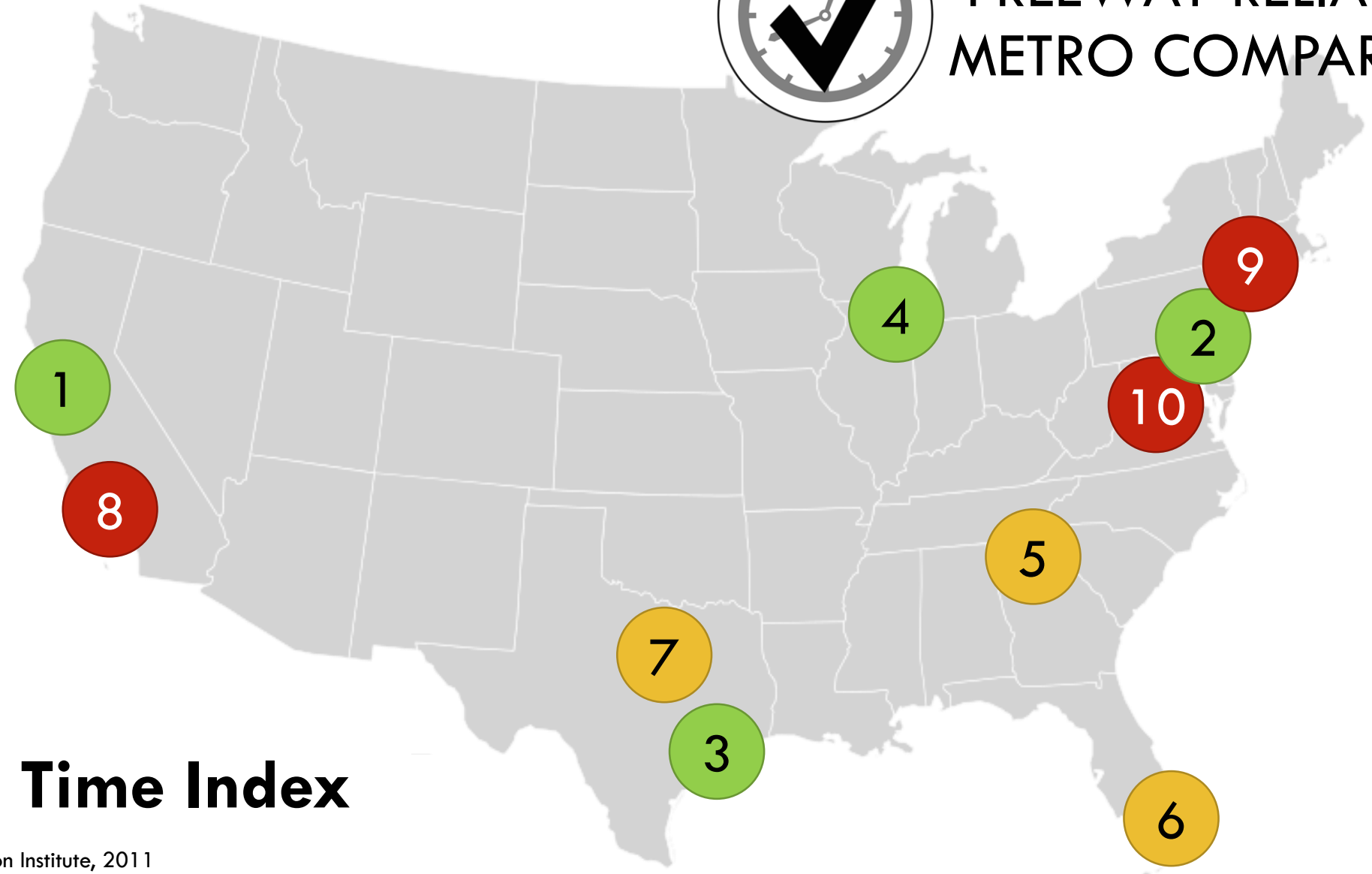
FREEWAY DELAY: METRO COMPARISON



Delay from Congestion

Source: Texas Transportation Institute, 2011

FREEWAY RELIABILITY: METRO COMPARISON



Buffer Time Index

Source: Texas Transportation Institute, 2011

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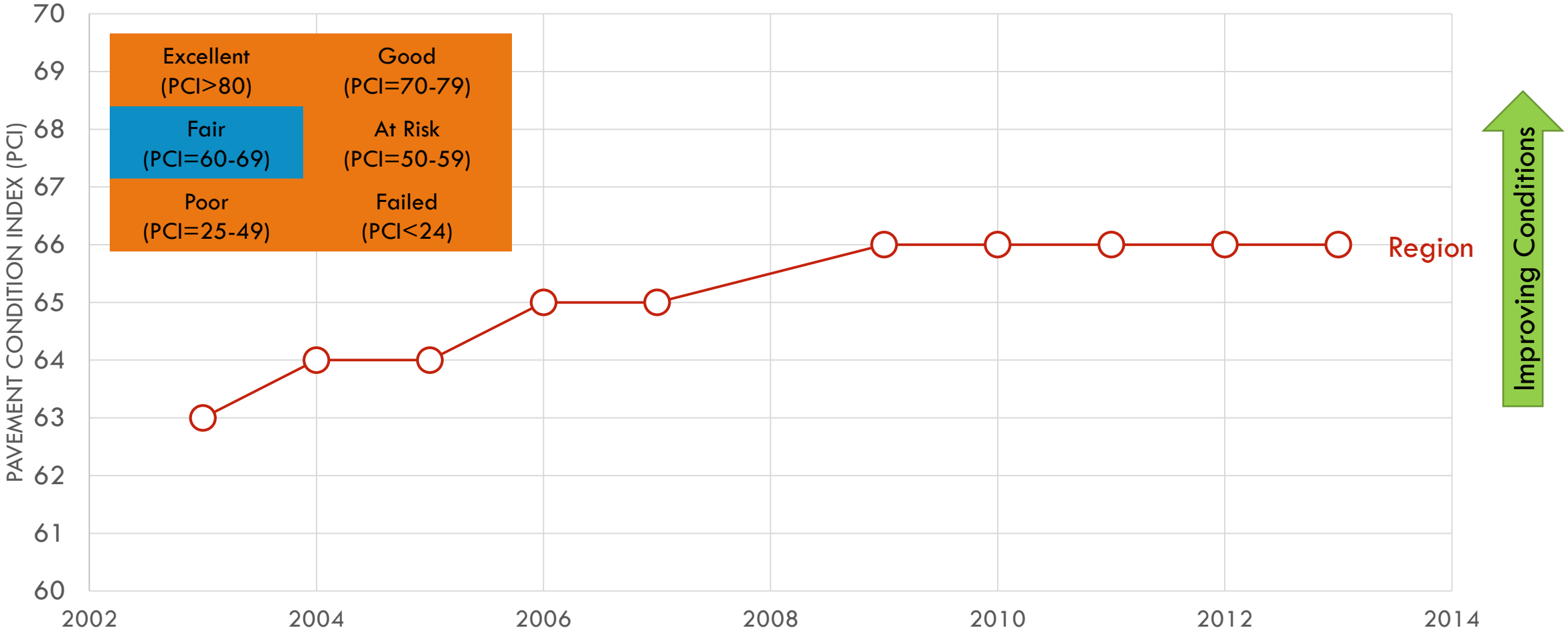
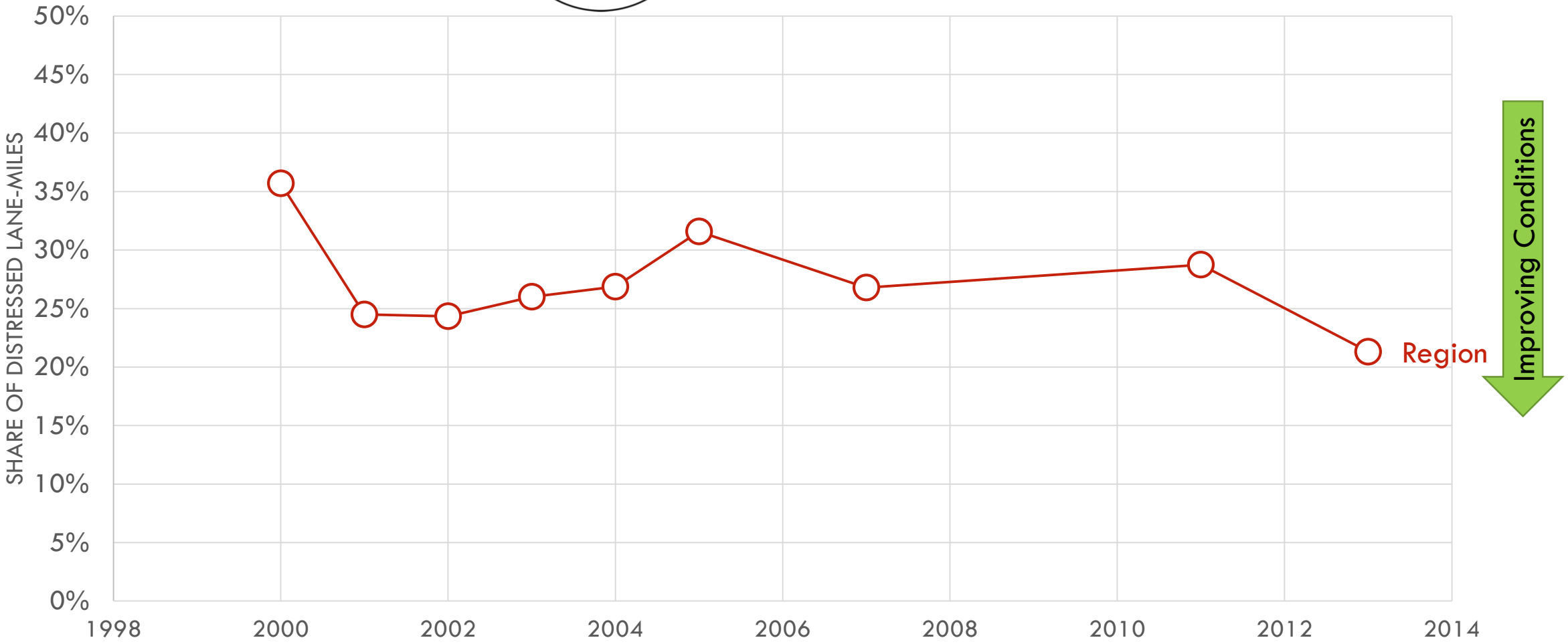
LOCAL STREET MAINTENANCE: HISTORICAL TREND



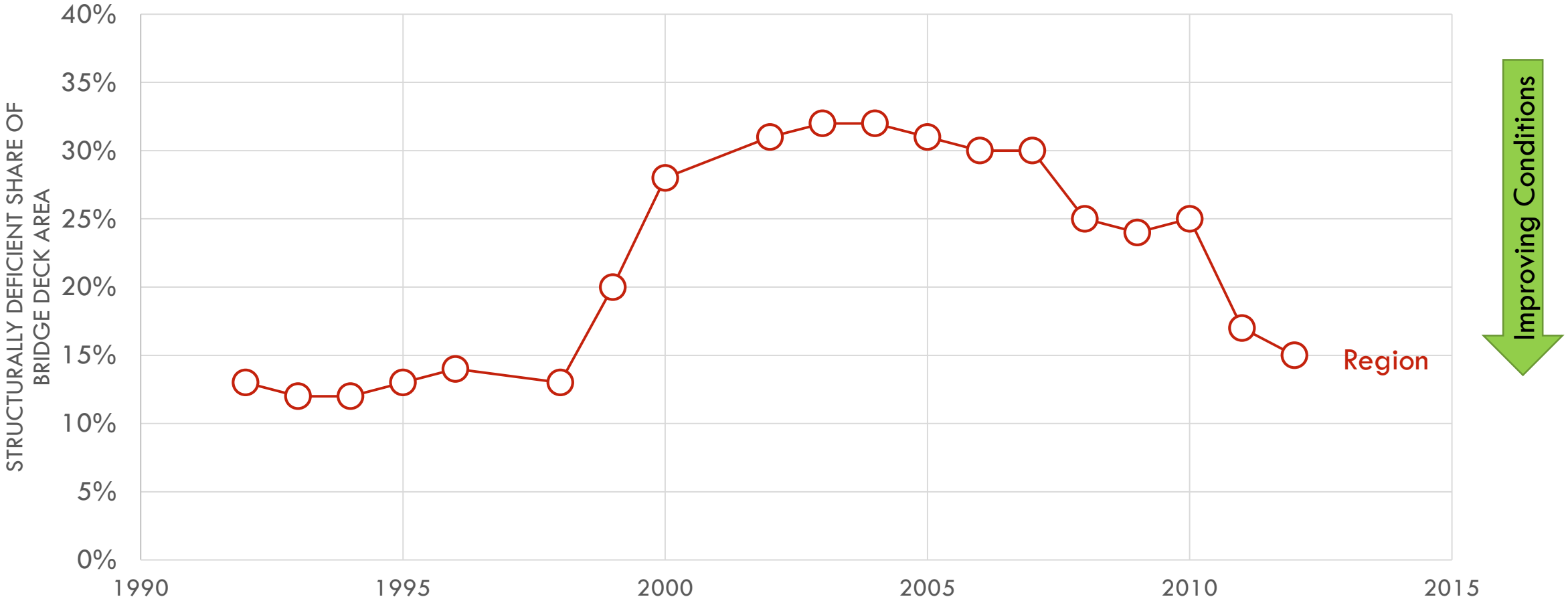
Source: MTC StreetSaver, 2013

STATE HIGHWAY MAINTENANCE: HISTORICAL TREND



Source: Caltrans State of the Pavement

BRIDGE MAINTENANCE: HISTORICAL TREND



Source: FHWA National Bridge Inventory

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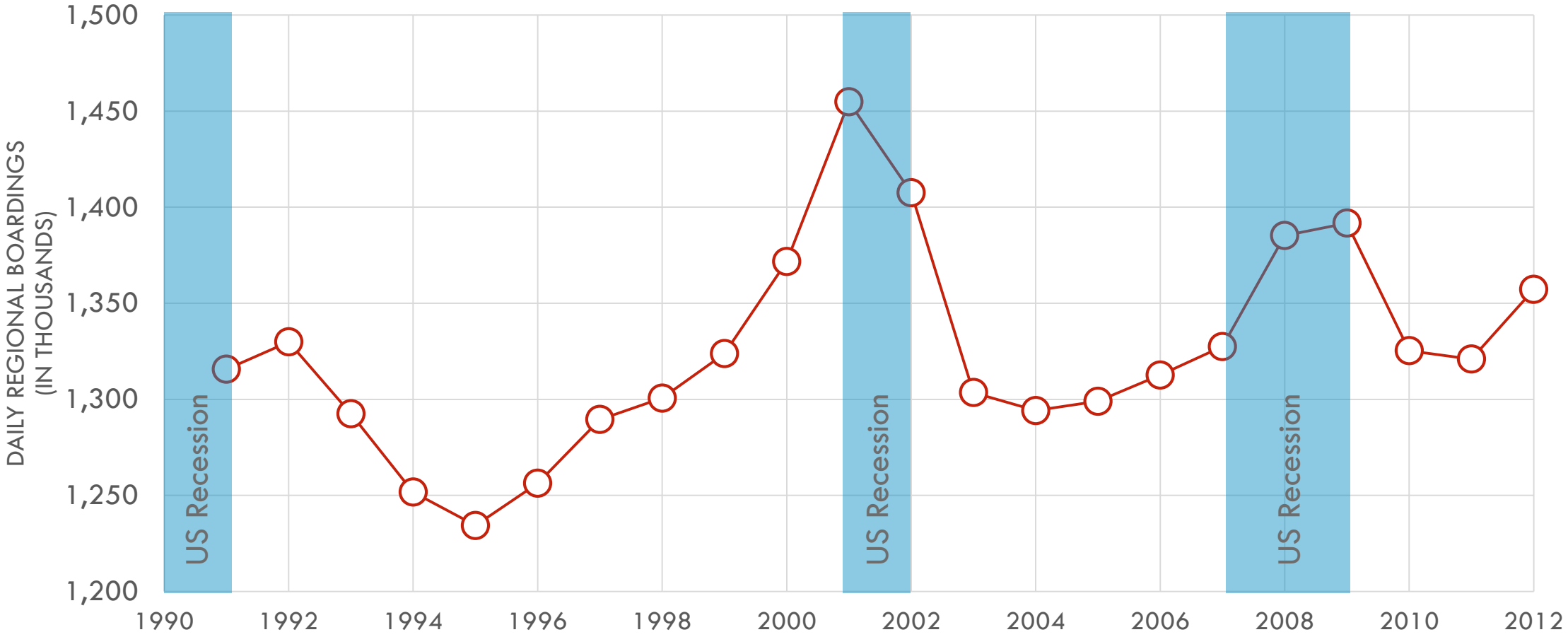
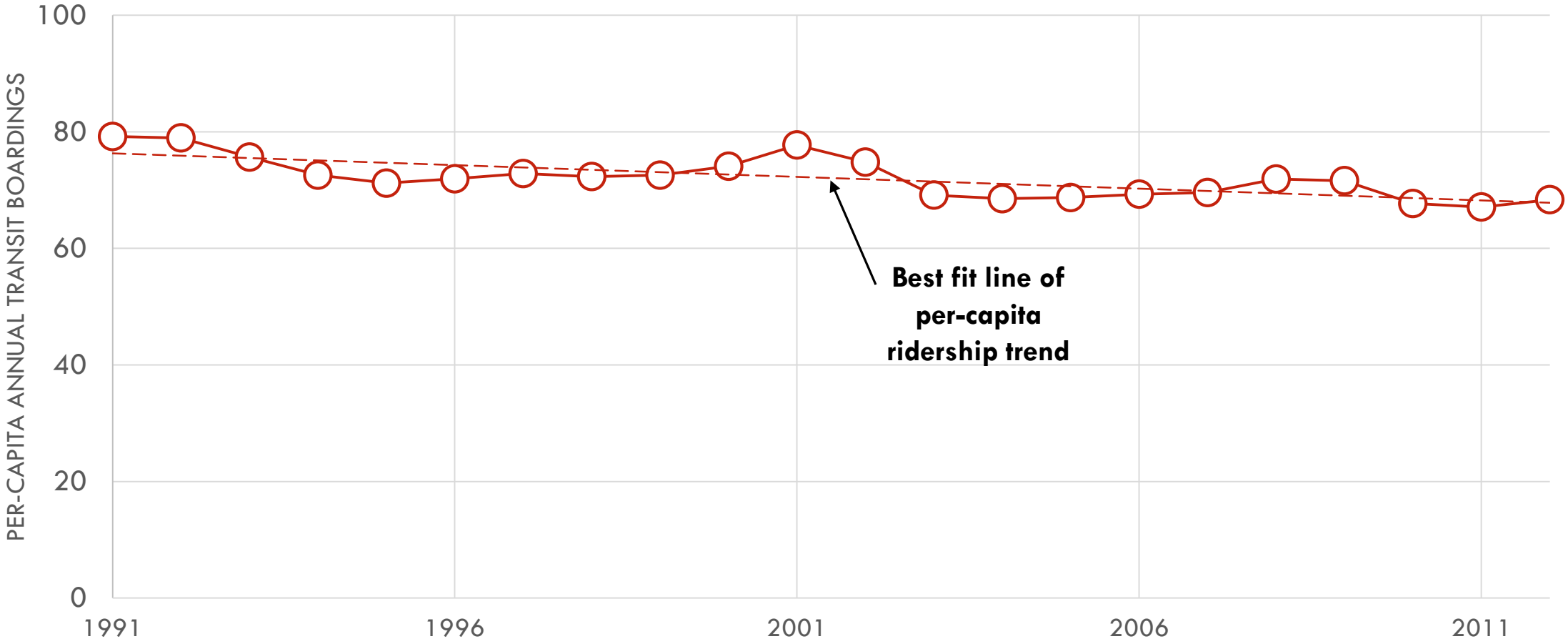
TRANSIT RIDERSHIP: HISTORICAL TREND



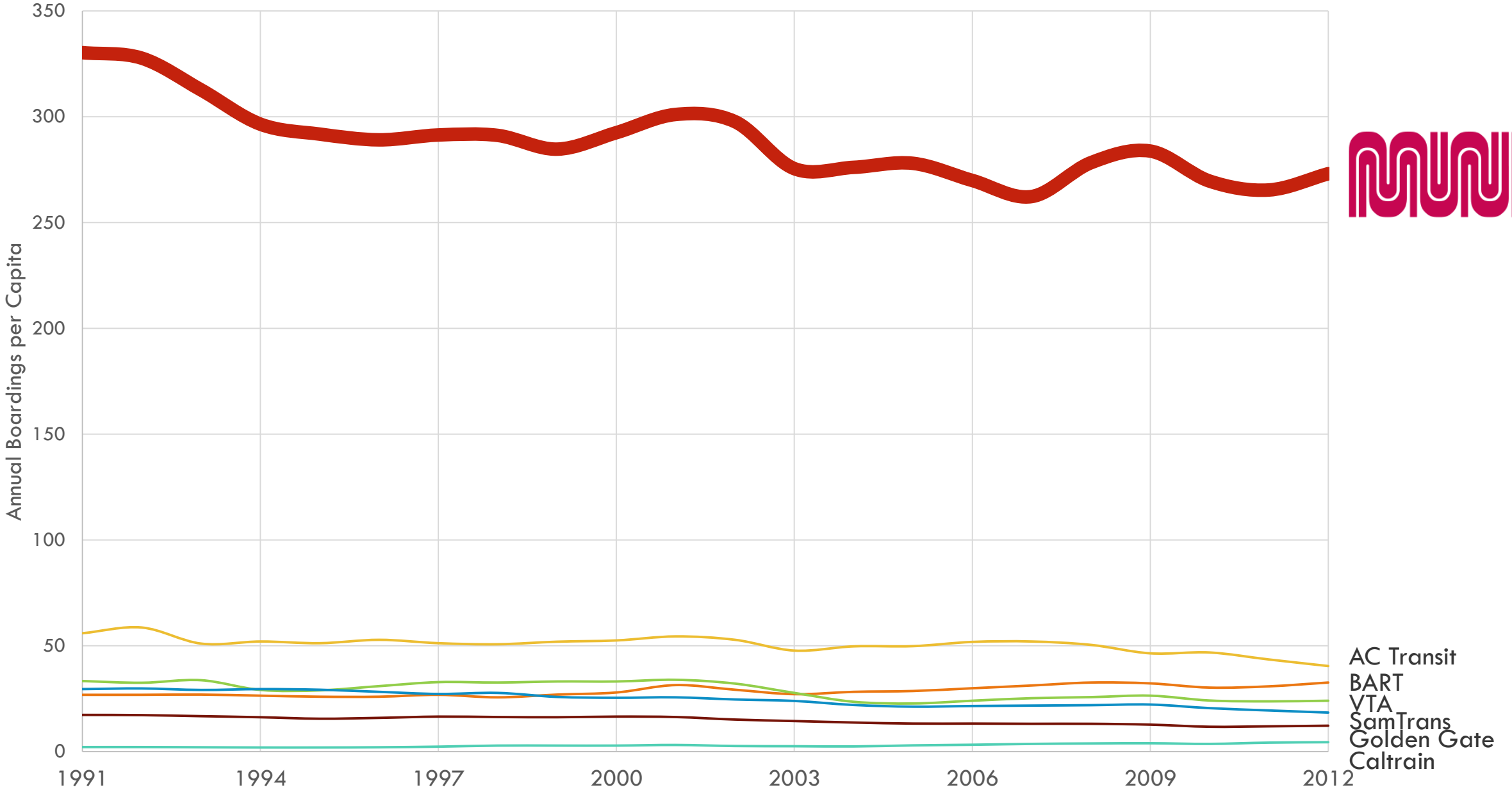
Source: FTA NTD, 2012

TRANSIT RIDERSHIP: HISTORICAL TREND



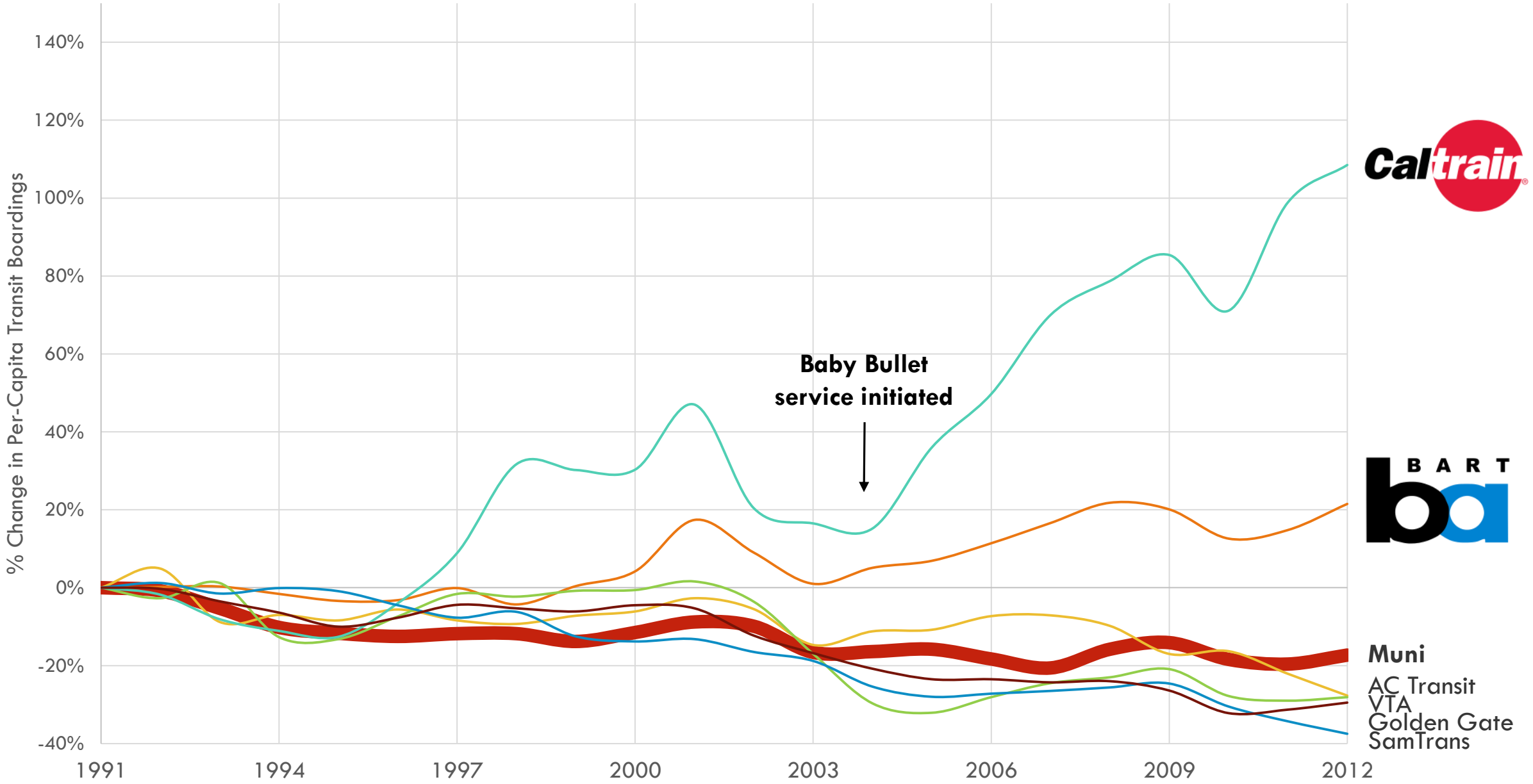
Source: FTA NTD, 2012

PER-CAPITA TRANSIT BOARDINGS BY OPERATOR



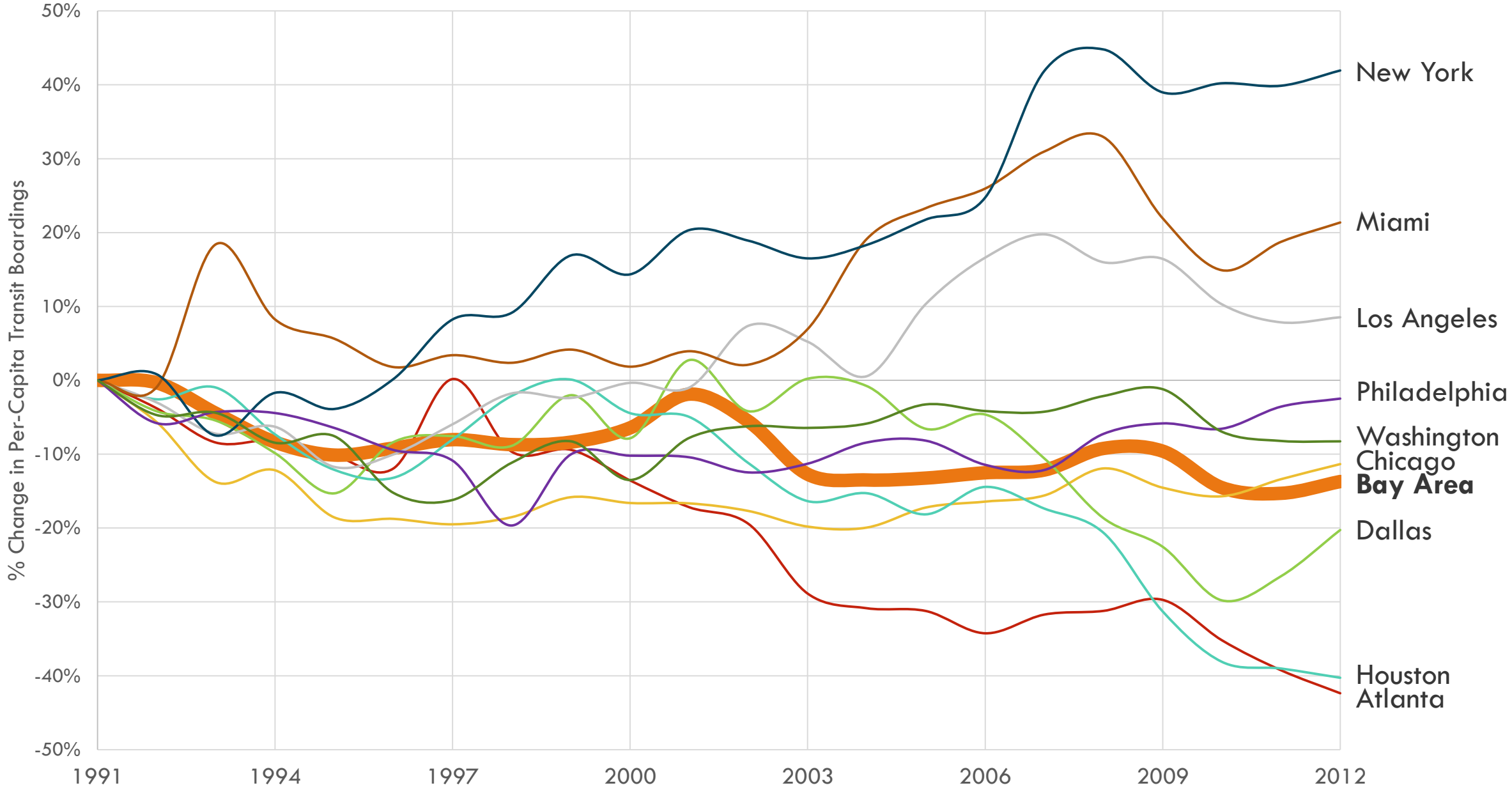
Source: FTA NTD, 2012

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



Source: FTA NTD, 2012

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



Source: FTA NTD, 2012

BAY AREA
VITAL SIGNS
WEBSITE LAUNCH:
WINTER 2014-15

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_Mountains2.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
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