

REINVENTING THE MPO PERFORMANCE MONITORING PROCESS

In the Era of Interactive Data Visualizations

Transportation Systems Performance
Measurement and Data Conference
June 2, 2015 – Denver

Kristen Carnarius, Transportation Planner
Metropolitan Transportation Commission

Public expectations for transparency
have never been higher.



Technology provides us an ability to move beyond paper reports.



VITAL SIGNS



Performance
Monitoring

Data
Visualization

Open Data



VITAL SIGNS



Long-Term
Lens

Hyper-
Localization

100%
Interactive



BayArea Plan

Plan Bay Area established a regional vision for transportation, land use, and housing in the 21st century.



Planners sometimes spend too much time forecasting.



** Not an actual travel demand model.

Vital Signs seeks to track implementation of sustainability objectives in the region.



Vital Signs seeks to track implementation of sustainability objectives in the region.

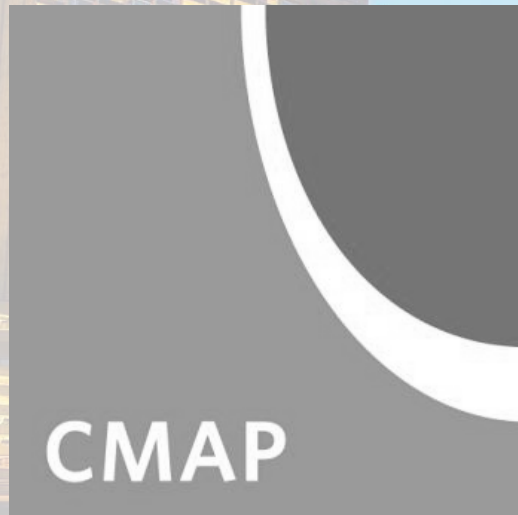


Cutting-edge regions across the globe are leveraging technology.





SANDAG



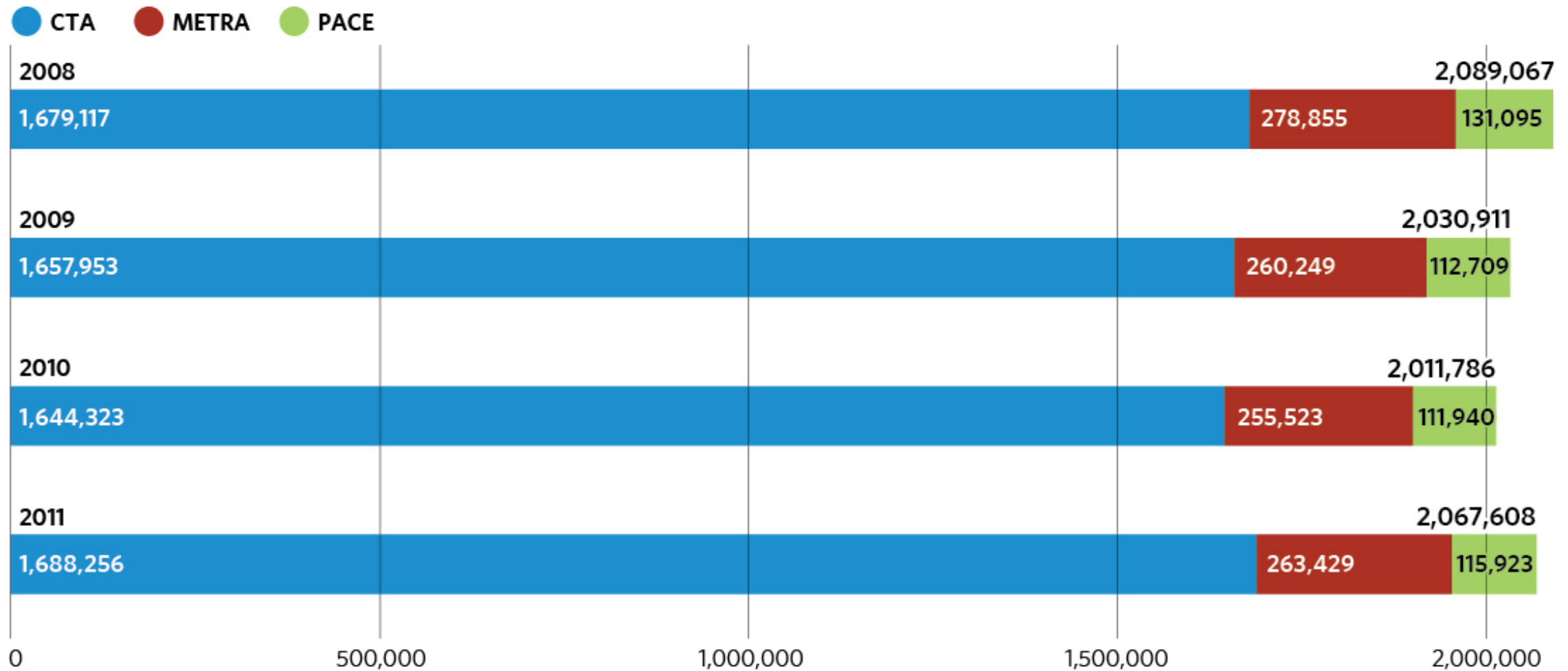
CMAP



**Metro
Pulse**



Passenger transit trips per day, regional total, 2008-11



Note: Does not include paratransit trips.

Source: National Transit Database.



Transport for London

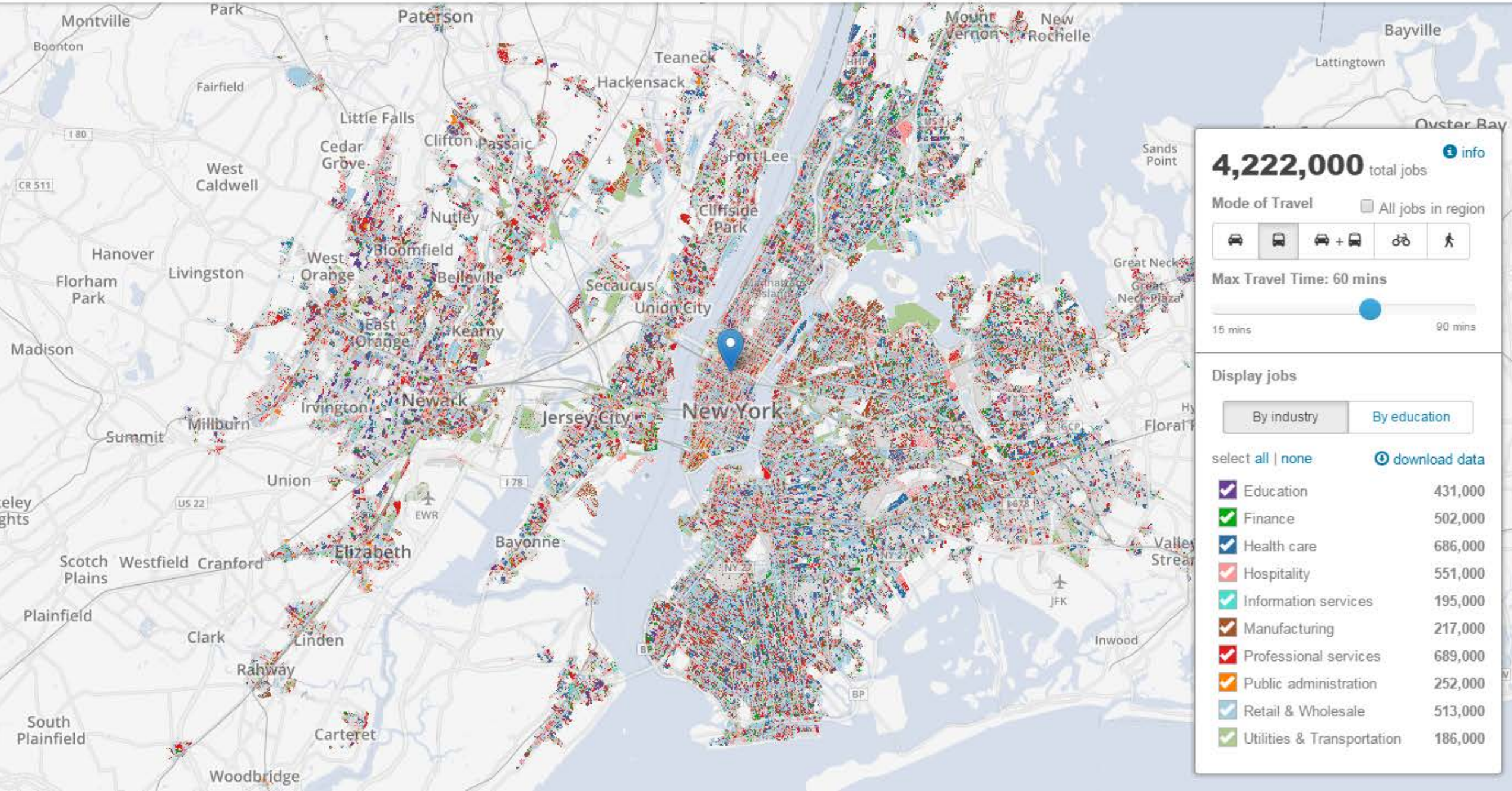
GREATER
LONDON
AUTHORITY



Regional Plan Association

The New York Times





4,222,000 total jobs [info](#)

Mode of Travel All jobs in region

Car Bus Car + Bus Bike Walk

Max Travel Time: 60 mins

15 mins 90 mins

Display jobs

By industry By education

[select all](#) | [none](#) [download data](#)

<input checked="" type="checkbox"/>	Education	431,000
<input checked="" type="checkbox"/>	Finance	502,000
<input checked="" type="checkbox"/>	Health care	686,000
<input checked="" type="checkbox"/>	Hospitality	551,000
<input checked="" type="checkbox"/>	Information services	195,000
<input checked="" type="checkbox"/>	Manufacturing	217,000
<input checked="" type="checkbox"/>	Professional services	689,000
<input checked="" type="checkbox"/>	Public administration	252,000
<input checked="" type="checkbox"/>	Retail & Wholesale	513,000
<input checked="" type="checkbox"/>	Utilities & Transportation	186,000

VITAL SIGNS



Transportation



Land and People



Economy



Environment



Measures



News Center



Data Center

Taking the Pulse of the Bay Area

The San Francisco Bay Area has established an innovative monitoring initiative to track our region's performance – helping us to better understand historical trends, intraregional differences, and competitiveness with other major metropolitan areas. These measurements are our region's Vital Signs – indicators that help us understand where we are succeeding and where we are falling short. Led by the Metropolitan Transportation Commission (MTC), this effort relies upon extensive collaboration with the Association of Bay Area Governments, the Bay Area Air Quality Management District, and the San Francisco Bay Conservation and Development Commission.

VITAL SIGNS



Measures

Now it's your turn to explore our region's Vital Signs! Each of the measure boxes below is associated with one of the four matching-color categories shown above them — transportation, land use, the economy, and the environment.

FILTER BY:



All



Transportation



Land and People



Economy



Environment



Equity



MAP-21



Plan Bay Area

Commute
Mode Choice

Commute
Patterns

Commute
Time

Daily Miles
Traveled

Highway
Pavement
Condition

Miles Traveled
in Congestion

Street
Pavement
Condition

Time Spent in
Congestion

Transit Asset
Condition

Transit
Ridership

Transit
System
Efficiency

Travel Time
Reliability

Greenfield
Development

Housing
Growth

Our Jobs

Our
Population

Components of Vital Signs – Measure Pages



Transportation



Land and People



Economy



Environment



Measures



News Center



Data Center



How are Bay Area workers getting to their jobs?

Commute Mode Choice¹

Definition:

Commute mode choice, also known as commute mode share, refers to the mode of transportation that a commuter uses to travel to work, such as driving alone, biking, carpooling or taking transit.

No matter where you live, commuting can be a challenge. And no matter where you live in the Bay Area, there are different options for how residents choose to get from home to work. Some commuters walk or ride their bikes to work, while others carpool across the Bay Bridge, and still others rely on transit. The choice of how we commute – or commute mode choice – affects everything from traffic congestion to air pollution.

Read More

55%

of workers whose jobs are in San Francisco commute without an automobile (#1 in region)

Components of Vital Signs – National and Regional Charts

Regional Performance

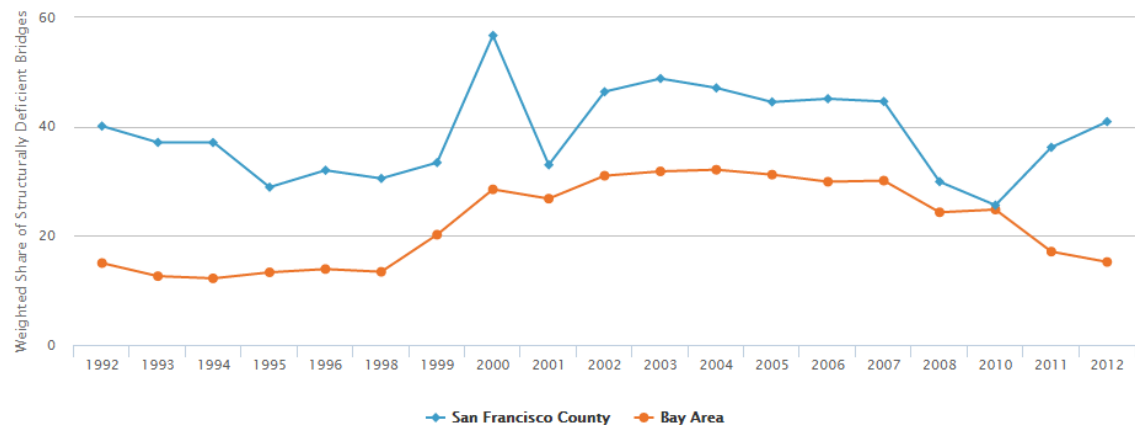
Bay Area bridge conditions have significantly improved over the past decade.

Bay Area bridges and overpasses are in their best shape since 1998, thanks to substantial efforts to improve the seismic and structural safety of these critical facilities. In 2012, the share of bridges flagged as structurally deficient fell by two percentage points – and now stands at just 15 percent.

[Read More](#)

San Francisco

Historical Trend for Bridge Conditions – San Francisco County



Highcharts.com

National Context

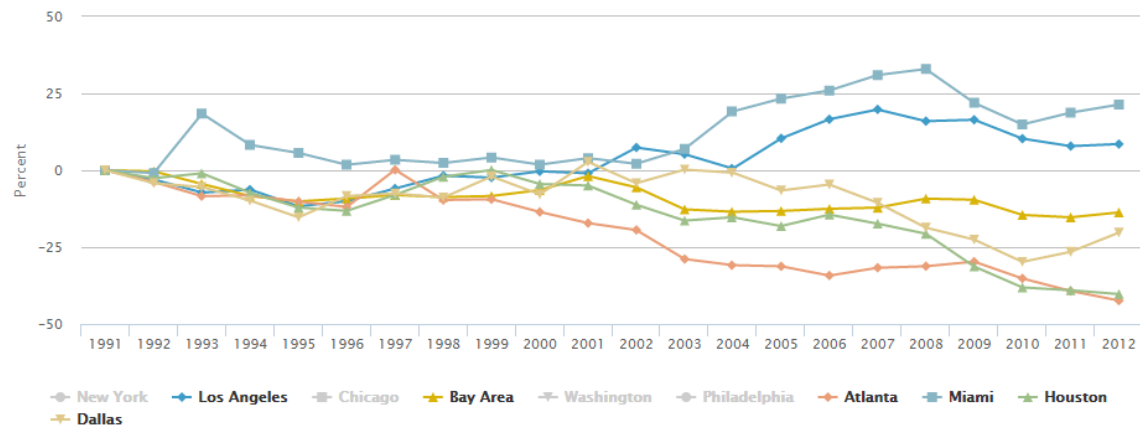
In terms of generating transit ridership, the San Francisco Bay Area is being outpaced by its peers.

While the Bay Area remains one of the nation's most transit-oriented metro areas, New York, Chicago, Philadelphia and Miami have all experienced notable growth in overall and per-capita ridership since 2002. In that same time, the Bay Area has seen declines in both measures – a 3 percent slide in total ridership and a 10 percent decline on a per-capita basis. The only metros with greater declines in ridership than the Bay Area were Houston, Dallas and Atlanta.

[Read More](#)

Total Total Percent Change Per Capita Per Capita Percent Change

Metro Comparison for Percent Change Annual Transit Ridership per Capita

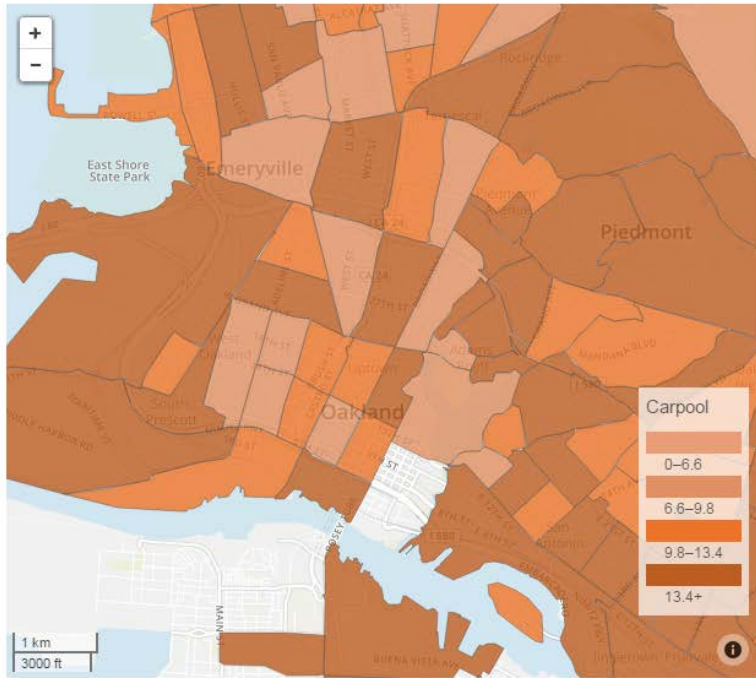


Highcharts.com

Components of Vital Signs – Local Focus Maps

2013 Commute Mode Choice for Counties and Cities

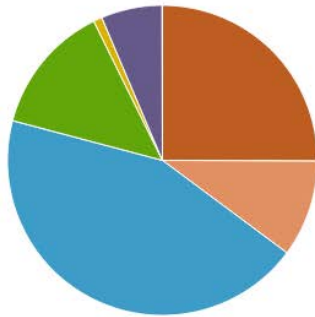
- [Auto](#)
[Carpool](#)
[Transit](#)
[Walking](#)
[Biking](#)
[Other](#)
[Telework](#)
[Home](#)
[Work](#)



Top Cities for Carpool

1. San Pablo: 22.8%
2. Calistoga: 19.6%
3. Pittsburg: 18.9%
4. Hercules: 17.7%
5. Richmond: 17.6%
6. Colma: 17.3%
7. Vallejo: 16.6%
8. Gilroy: 16.4%
9. Antioch: 15.5%
10. Pinole: 15.4%

Tract 6001402900



Local Focus

Pavement conditions vary widely—not only from street to street, but also from city to city.

Pavement in the region’s three largest cities – San Jose, San Francisco, and Oakland – falls squarely into the “fair” range of the PCI scale. This performance level is not unique to the largest jurisdictions; most Bay Area cities have PCIs ranging between 60 and 79 (reflecting fair-to-good conditions). Some suburban communities have seen major improvements in their pavement condition over the last year – in San Mateo County alone, Menlo Park, Woodside and Colma all experienced three-point improvements in PCI in 2013.

[Read More](#)

2013 Pavement Condition Index (PCI)

Segment Details

PCI At Risk

Street: CARROT LANE

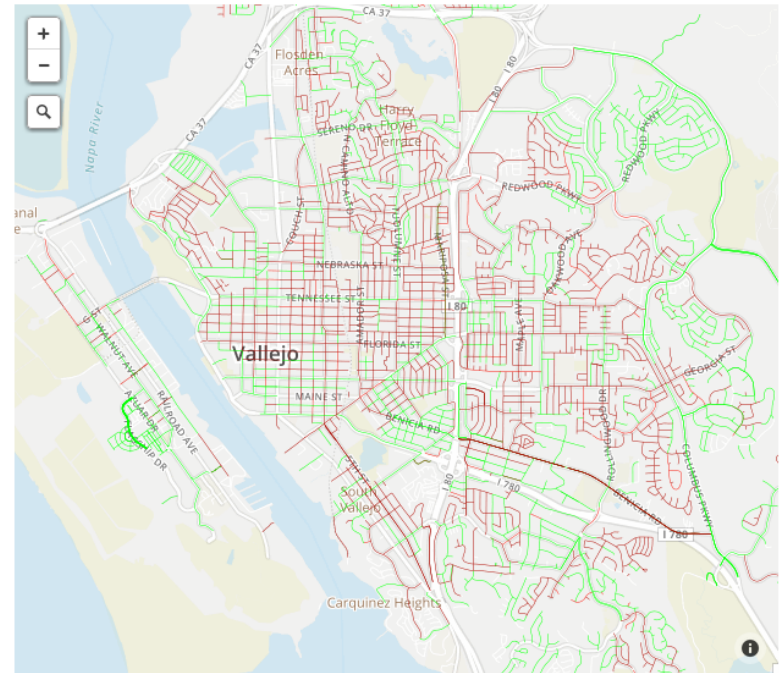
From: Gilcrest Avenue

To: Ridge Avenue

Legend

Condition (PCI range)

- Poor/Failed (0-49)
- At Risk (50-59)
- Good/Fair (60-79)
- Excellent/Very Good (80-100)



2013 Time Spent in Congestion along Freeway Segments

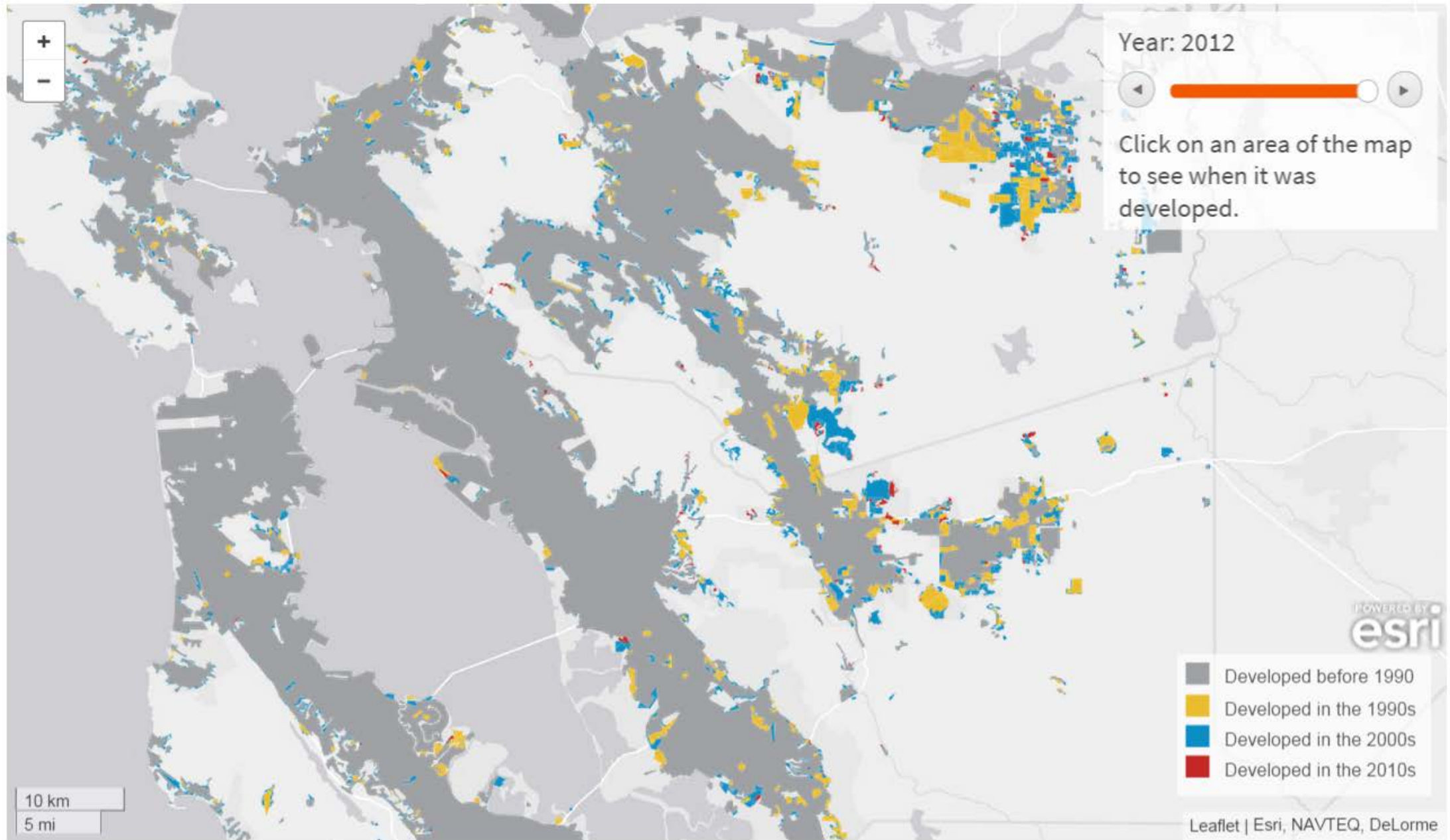


Time 5pm

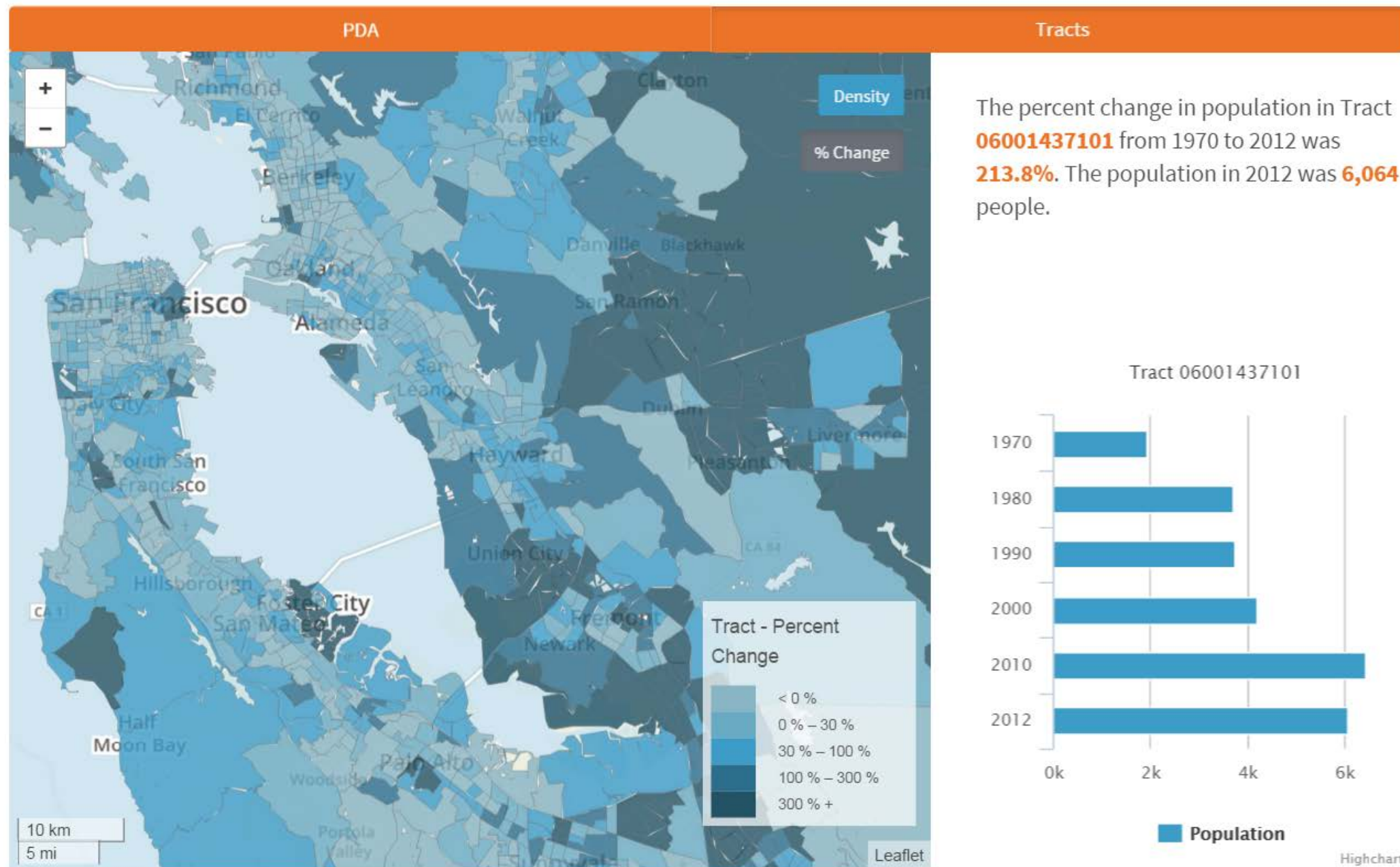


Click on a corridor on the map for more information.

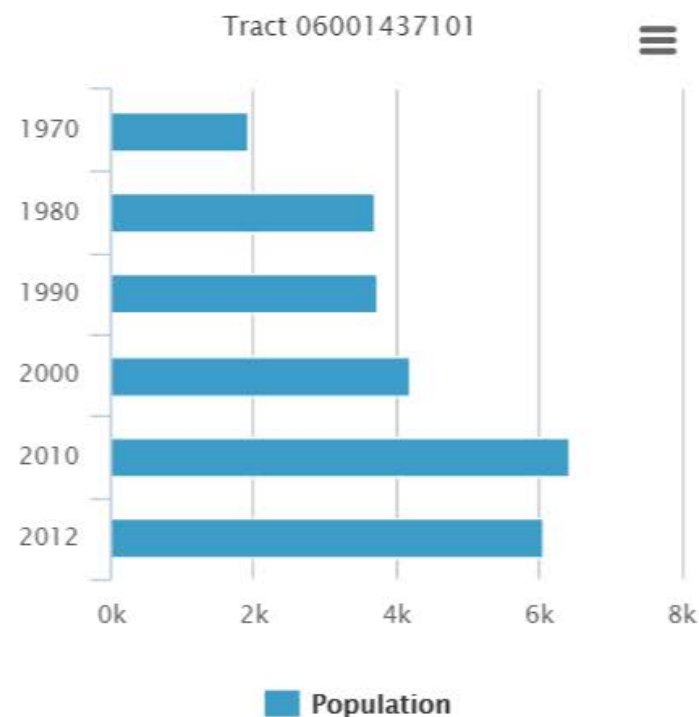
Greenfield Development Since 1990



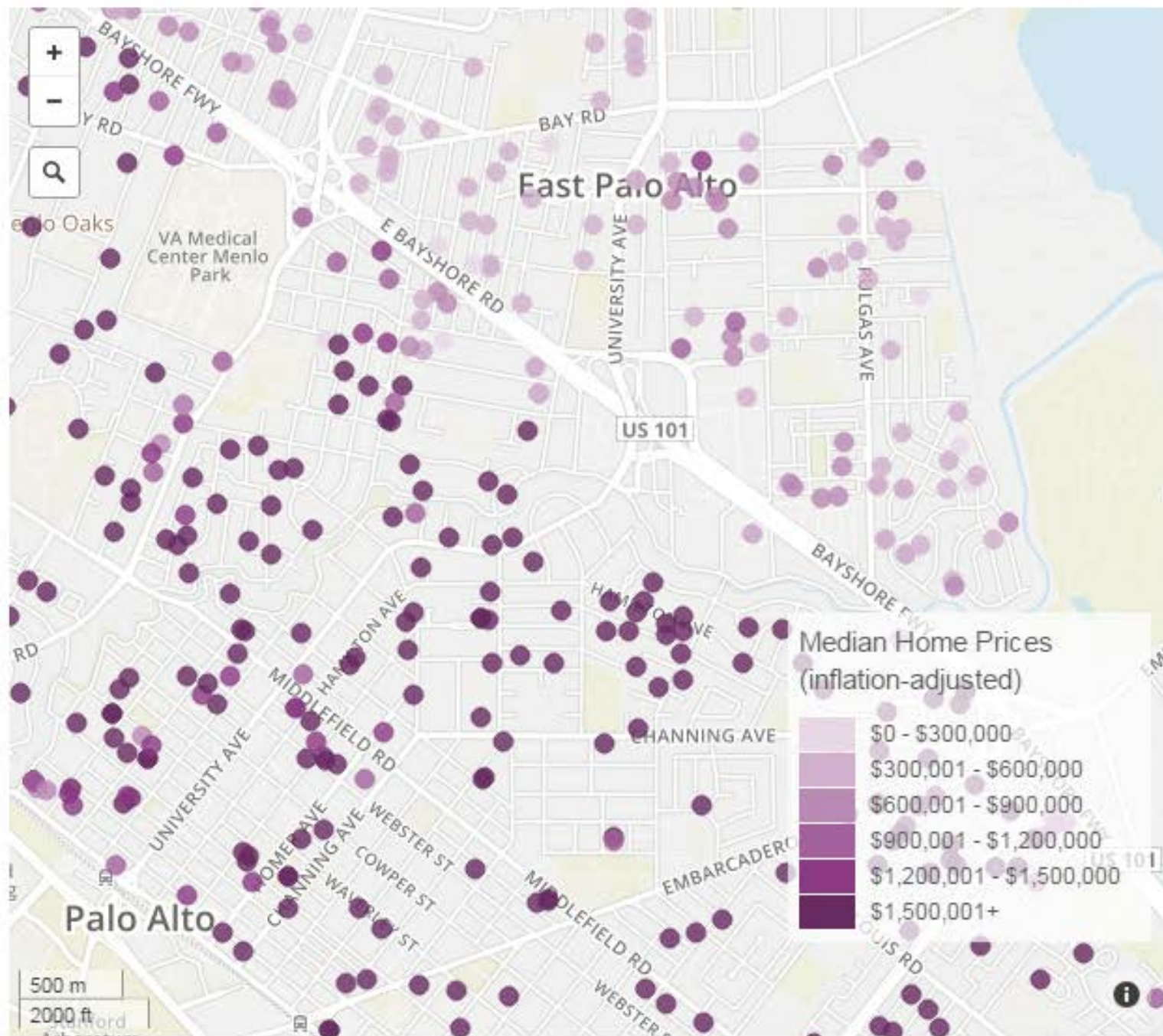
Percent Change Since 1970 for Tracts



The percent change in population in Tract **06001437101** from 1970 to 2012 was **213.8%**. The population in 2012 was **6,064** people.



Home Prices by Year - 2014

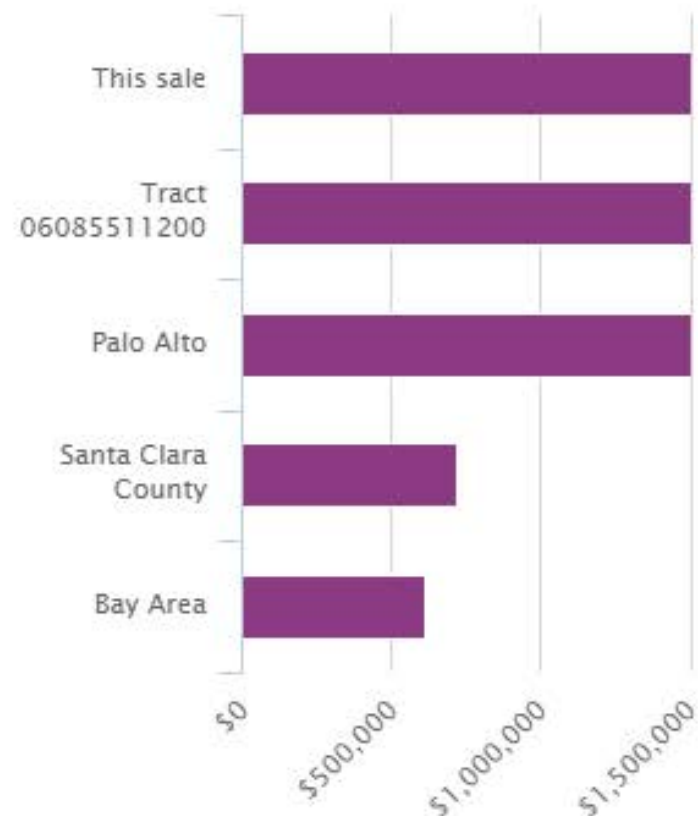


Explore prices by year

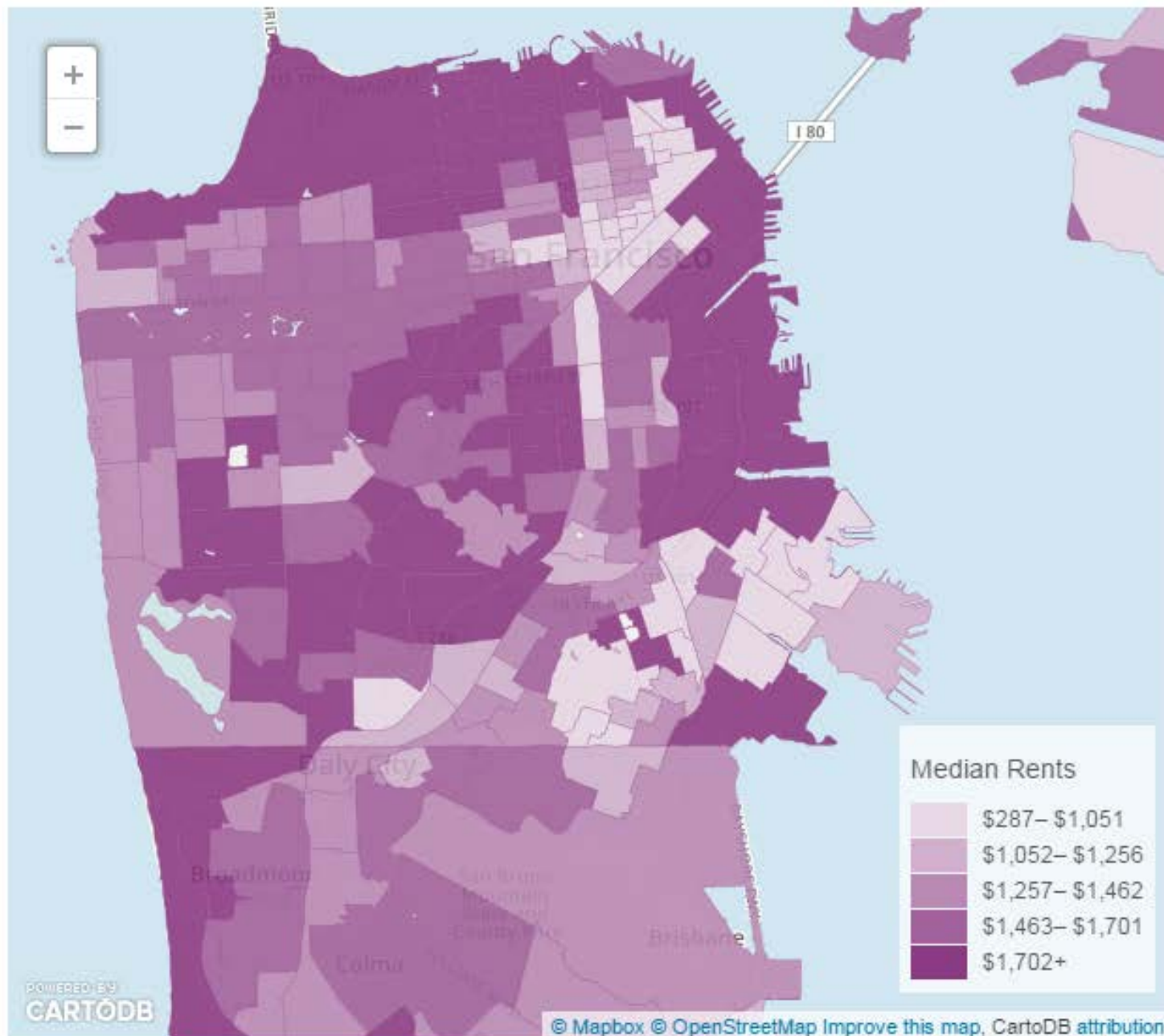


Zoom in to see more details, including individual home sales. Click on a shape on the map for more information.

2014 Median Home Prices



2013 Rents by Neighborhood



The median monthly rent payment of Census Tract **11902** in 2013 was **\$1,317**.

Lowest Rents

1. Woodside: \$874
2. Calistoga: \$961
3. San Pablo: \$980
4. Oakland: \$1,001
5. Rio Vista: \$1,017

Highest Rents

Atherton, Belvedere, Clayton, Cupertino, Danville, Hillsborough, Los Altos Hills, Orinda, Portola Valley, Ross, Tiburon: above \$2,000

Median Monthly Rent



Highcharts.com

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ShareThis

The reality: it's a marathon, not a sprint.



Project Schedule

Spring 2014

- Project Kickoff
- Measure Selection & Scoping

Summer 2014

- Transportation Analysis
- Land & People Analysis

Autumn 2014

- Economic Analysis
- Website and Narrative Development - Kickoff

Winter 2015

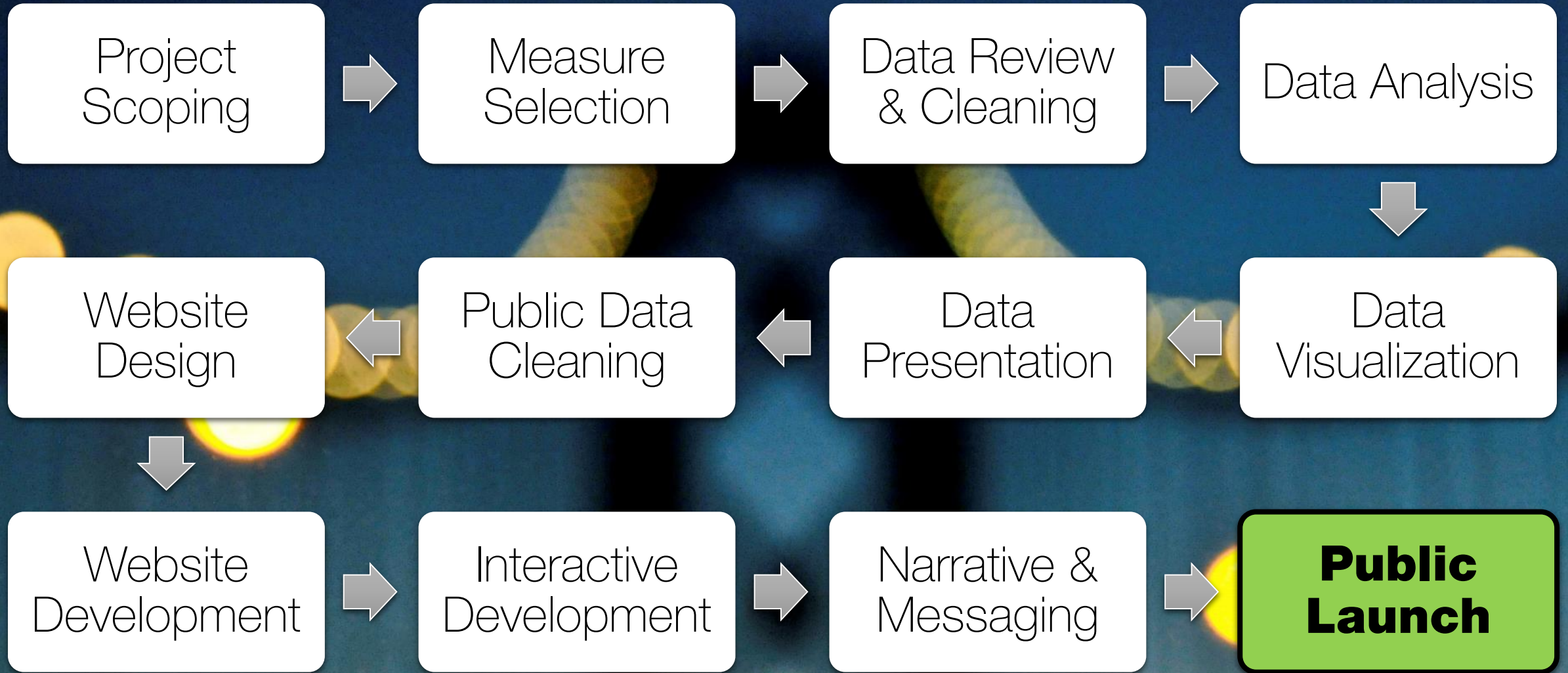
- **Transportation Launch**
- Environmental Analysis

Spring 2015

- **Land & People Launch**
- **Economy Launch**

Summer 2015

- Website and Narrative Development - Complete
- **Environment Launch**



The biggest hurdle: data silos and institutional barriers.



Project
Manager →

Another major hurdle: acknowledging shortcomings.



- Ongoing and worsening affordability challenges
- Stagnant modal shares and VMT
- Reduced reliance on public transport
- Lack of housing production in most communities



esri



OpenStreetMap



CARTO^{DB}

Geospatial on the cloud



MapBox

 **HIGHCHARTS**

BAY AREA COMMUTES

EVEN IF IT'S LONG, YOU CAN RELY ON IT

Our drive-times place first for predictability among major U.S. metro areas, and new study also finds that we spend slightly less time behind the wheel



STAFF ARCHIVES

Most predictable a.m. commutes

- From I-680 to Highway 4
- From I-280 to Highway 101
- From Highway 17 to 101

Most unpredictable a.m. commutes

- From Highway 4 to I-680
- From I-580 to Highway 4
- From Hwy. 85 to I-280/I-680

MORE COMPLETE LIST, PAGE A8



How do we rank in predictability?

The Bay Area, with a Buffer Time Index of 0.41, is the most predictable in the nation. Next up:
2. Philadelphia 0.46 4. Chicago 0.53
3. Houston 0.49 5. Atlanta 0.60
SEE THE ENTIRE TOP TEN, PAGE A8

By Gary Richards

grichard@mercurynews.com
In the predawn darkness, traffic is already at a crawl on Interstate 580 through Livermore, on Highway 101 approaching Mountain View and before the toll plaza on the Bay Bridge, where a single fender bender can mean long delays for thousands of drivers.

Bay Area commuting can be torture, at levels not felt in more than a decade.

But a new study suggests that the region's road warriors have one advantage over the rest of the country: Freeway commute times here are more predictable than in any other major U.S. metro area.

"Yes, we have plenty of congestion," said John Goodwin of the Metropolitan Transportation Commission, "but it's congestion we can count on."

It's what transportation experts call a "reliable commute." If your commute stinks today, it likely will stink tomorrow. If it's a breeze on Monday and Tuesday, you'll typically have no problem Wednesday, Thursday and Friday. Either way, you'll know exactly when you have to leave your house to get to work each day on time.

Of the 10 regions in the study,

See **COMMUTE**, Page 8

ONLINE EXTRA

For more on Bay Area commuting, go to www.mercurynews.com/traffic.

BUSINESS

Tesoro refinery idled after strike

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WEATHER	page 10
Partly cloudy	
High: 75, Low: 43-49	

DAMPENING THE DROUGHT

Finally, a vital dose of relief

'Pineapple Express' could bring up to 3 inches of rain to thirsty cities in Bay Area

By Paul Rogers

progers@mercurynews.com

Who bikes to work?

23% Increase in bike commuting from 2009 to 2013



Who works where they live?

88% Share of Santa Clara County residents who work there (No. 1 in region)

Who uses public transit to commute?

32% Share of San Franciscans who use public transit (No. 1 in region)



How long do our commutes take?

28:00 Average commute in the Bay Area

Source: Metropolitan Transportation Commission

After the driest January in recorded history, the Bay Area is back in the rain business.

Meteorologists are reporting that conditions in the Pacific are generating what appears to be a strong "Pineapple Express" storm that is expected to hit Northern California starting Thursday evening, bringing steady rain through the weekend to the drought-stressed Golden State.

Although conditions could still change, the storm is expected to bring between 1 and 3 inches of rain to the Bay Area, with the heaviest amounts in the Santa Cruz Mountains and other high elevations, and up to 5 inches in North Bay communities like Sonoma County by Monday morning.

"This is the first big storm since December," said Austin Cross, a meteorologist with the National Weather Service in Monterey. "One storm

See **STORM**, Page 8

WHERE THE RAIN MAY FALL

Forecast precipitation, in inches



Source: Plymouth State University, SAN JOSE NEWS GROUP

1 to 3"

Rain predicted for the Bay Area

10"

Rain predicted for Redding and other cities in far Northern California

8,000

Predicted snow levels, in feet, measuring the storm will leave rain, not snow, on much of the Sierra

San Francisco Chronicle

From among the brutal commutes, a new king of gridlock is crowned

By Michael Cabanatuan

The Bay Area's economy is booming, and with it comes a rise in gridlock and the time drivers spend stuck in traffic. That's a familiar theme. But the worst commute around — that's changing.

The king of the region's terrible commutes is now the evening drive out of San Francisco across the Bay Bridge. East-bound traffic on Interstate 80

► **Hellish commutes:** Drivers share their tales of woe trying to get between work and home. **A8**

creeps from Highway 101, then crawls in fits and starts across the bridge's west span to east of the Yerba Buena Island tunnel.

That tortuous stretch supplants a longtime champion. Since Caltrans started keeping records in 1981, the morning commute westbound on I-80

from Hercules to the Bay Bridge toll plaza had held the top spot for all but one year — 1998 — when Interstate 680 over the Sunol Grade captured the dubious honor.

"Same bridge-but different direction and different time of day," said Amy Rein Worth, chairwoman of the Bay Area Metropolitan Transportation Commission, which compiled the new rankings based on

Traffic continues on A8



Michael Macor / The Chronicle

Traffic on eastbound Interstate 80 leaves San Francisco for the Bay Bridge, the newly crowned king of painful commutes.

San Jose Mercury News

TRAFFIC CONGESTION UP 65 PERCENT

Economy on rise — and so is risk of gridlock

Biggest blockage is I-80 out of San Francisco in the afternoon commute

By Denis Cuff

dcuff@bayareanewsgroup.com

OAKLAND — The Bay Area freeway commute is moving at its slowest pace in over a decade, as an economy that has shifted into overdrive leaves drivers idling on gridlocked roads.

In its first congestion report card in five years, the Bay Area's transportation planning agency said that average congestion — defined as traffic moving 35 mph or less — increased 65 percent in the Bay Area from 2009 to 2013.

To address the growing problem, transportation leaders are calling for more carpool and toll lanes, improved public transit and more commuters shifting work times.

"It's good news and bad news," said

Amy Worth, the Metropolitan Transportation Commission chairwoman and also an Orinda councilwoman. "The good news is more people are finding work; the bad news is it's taking them longer to get there."

Overall congestion in 2013 was the worst in 15 years. Congestion figures for 2014 are not available yet. But officials said it's all but certain gridlock

See **TRAFFIC**, Page 10

WORST OF THE WORST

See the full list on Page 10

- 1 Eastbound Interstate 80 out of San Francisco** in the afternoon. Congestion that used to start at 3 p.m. on weekdays is now starting closer to 1:30 p.m.
- 2 Interstate 880 in southern Alameda County**, a popular morning gateway to Silicon Valley.
- 3 Southbound Highway 101** between Fair Oaks Avenue and 18th Street during the afternoon commute.

ANALYSIS

Obama unrelenting in quest to reassert Progressive ideals

By David Lightman

MLightman@mercurynews.com

WASHINGTON — President Barack Obama wants the era of big government back. Unleashed from elections, entering the final two years of his presidency and wrestling with

LOOKING TO THE FUTURE

Valley innovations drive 30-year vision on transportation in U.S.

By Matt O'Brien

mobrien@mercurynews.com

Riding to the Googleplex in a driverless car, U.S. Secretary of Transportation Anthony Foxx unveiled on Monday a 30-year vision for what American transportation might look like in the coming decades.





Cathy Chea @urbangeekbot

New BayAreaVitalSigns tool from @MTCBATA visualizes/tracks transpo performance data! **Your turn SoCal!** #opendata vitalsigns.mtc.ca.gov



CA High-Speed Rail @CaHSRA

Data, lots of data, the most data. @MTCBATA unveiled their Vital Signs site and it's awesome. #BayArea #SF #transit vitalsigns.mtc.ca.gov



TransForm @TransForm_Alert

We are nerding out on @MTCBATA's new **Vital Signs website**: bit.ly/1x91RVY



TransitWiki @TransitWiki

Awesome new #data tool out of @MTCBATA. vitalsigns.mtc.ca.gov **Enjoy,** #transponerds!



Melanie Curry @currymel

New Vital Signs website from MTC is **fun for all data nerds** la.streetsblog.org/2015/02/06/new... via @streetsblogla

Each milestone is a chance to reflect on lessons learned.



Each milestone is a chance to reflect on lessons learned.



- Definitely a marathon, even if you have to sprint once in a while
- Recognize the need to manage expectations
- Tracking progress and gathering data is a winner across the political spectrum
- Critical to be engaging on otherwise wonky topics
- Need to understand how the media will respond to this type of initiative

Kristen Carnarius

kcarnarius@mtc.ca.gov

Metropolitan Transportation Commission

VITAL SIGNS

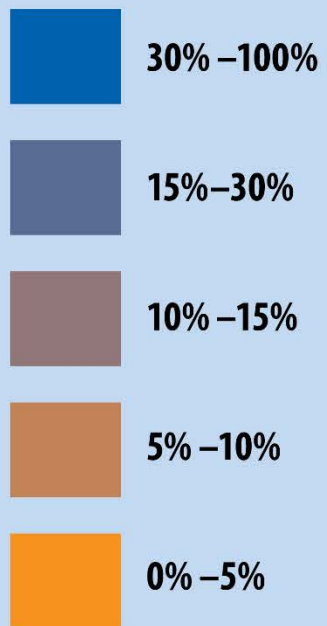


vitalsigns.mtc.ca.gov





Non-Auto Commuters







San Francisco

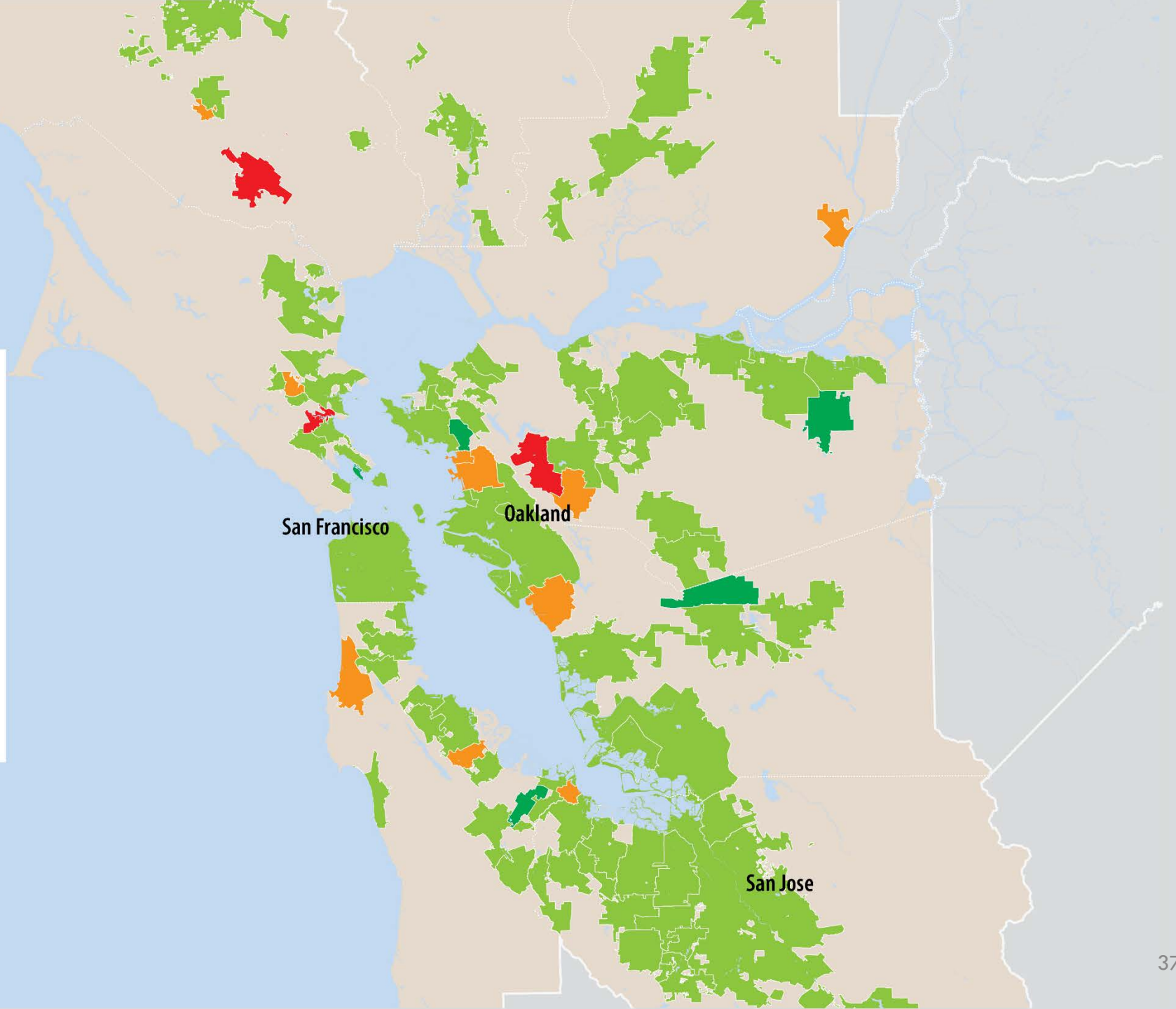
Oakland

San Jose

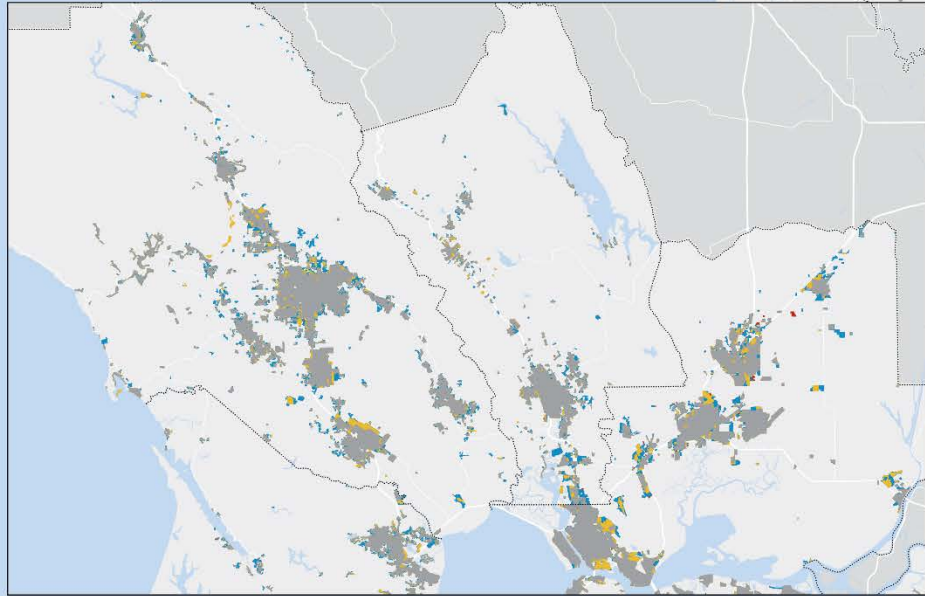


Pavement Condition

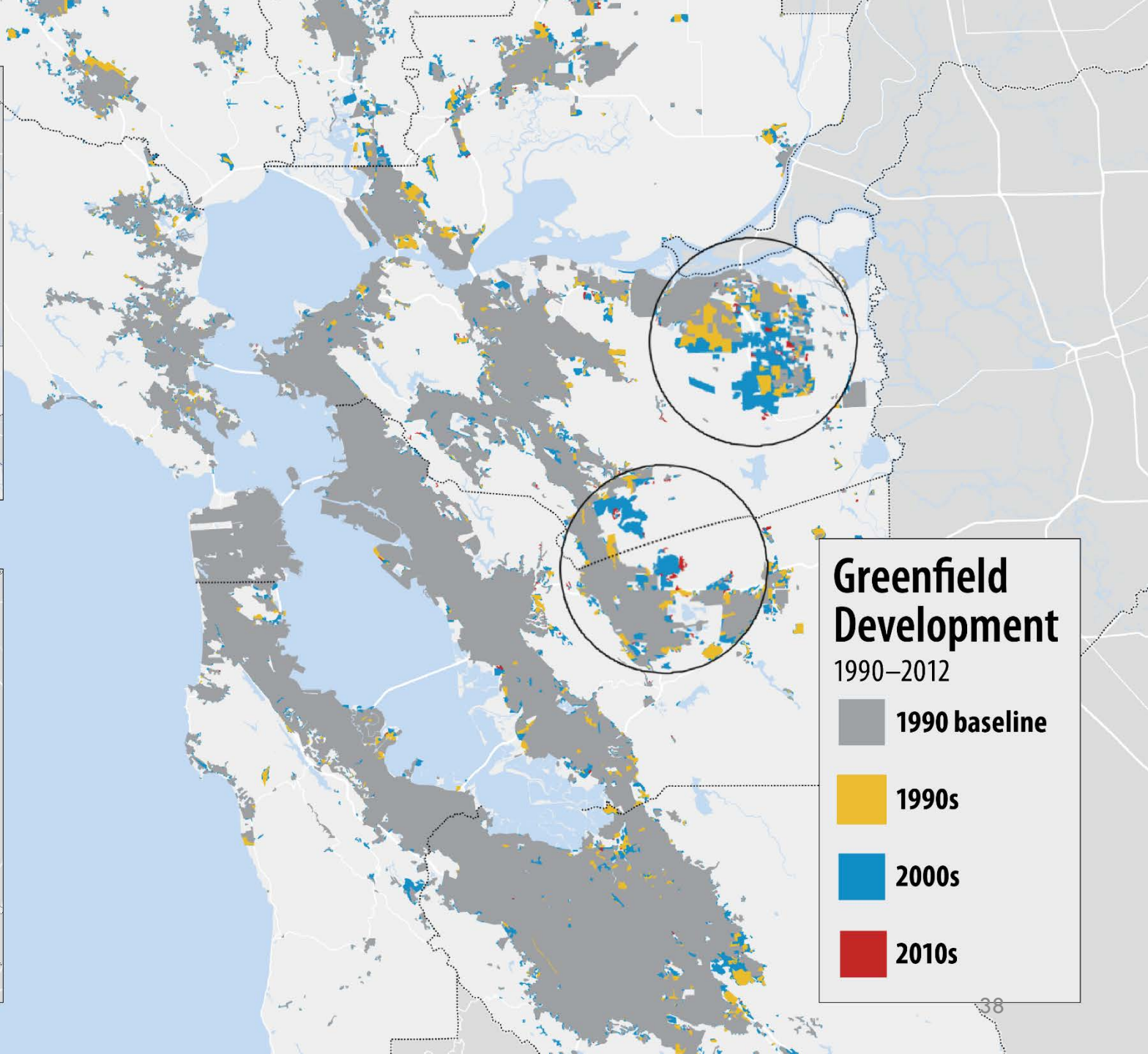
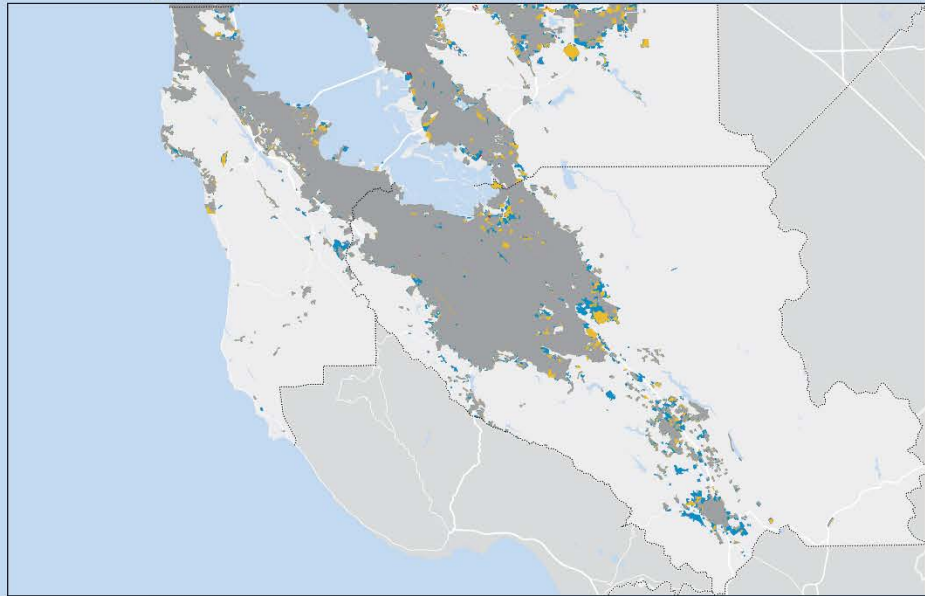
-  Excellent or Very Good (PCI 80–89)
-  Good or Fair (PCI 60–79)
-  At Risk (PCI 50–59)
-  Poor or Failed (PCI ≤ 49)



North Bay



South Bay



Greenfield Development
1990–2012

- 1990 baseline
- 1990s
- 2000s
- 2010s