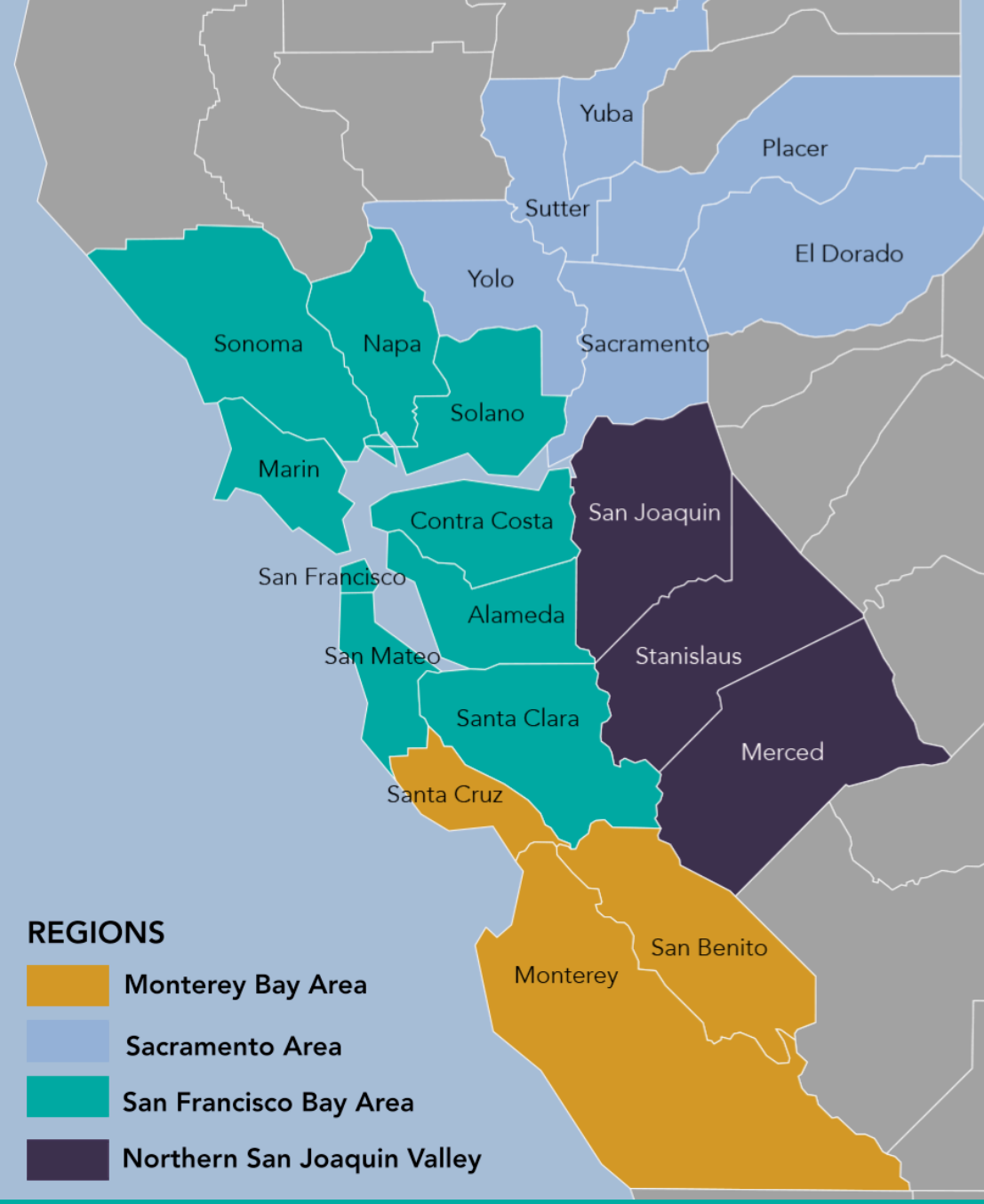
The Northern California Megaregion

November 16, 2016

BAY AREA COUNCIL ECONOMIC INSTITUTE



Megaregion Project Partners

ALAMEDA County Transportation Commission

ACE ALTAMONT CORRIDOR EXPRESS

THE CAMBAY GROUP | INC.

GREATER SACRAMENTO CALIFORNIA

innovation tri-valley leadership group
Danville · Dublin · Livermore · Pleasanton · San Ramon

CAPITOL CORRIDOR

METROPOLITAN TRANSPORTATION COMMISSION

SAN JOAQUIN PARTNERSHIP
A Private Non-Profit Economic Development Corporation

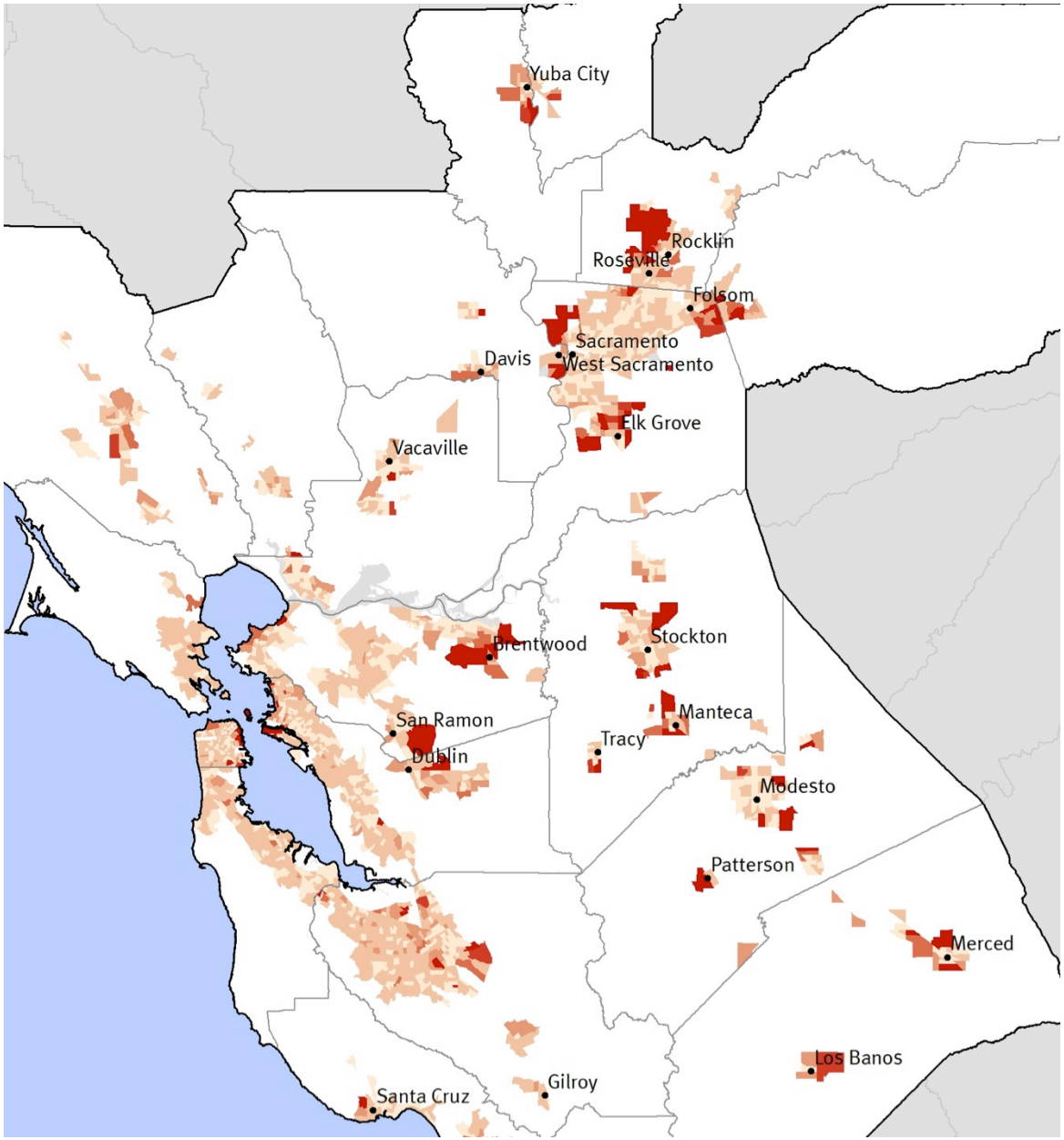
SAN JOAQUIN COUNCIL OF GOVERNMENTS

UCDAVIS UNIVERSITY OF CALIFORNIA

SACOG

UNIVERSITY OF THE PACIFIC

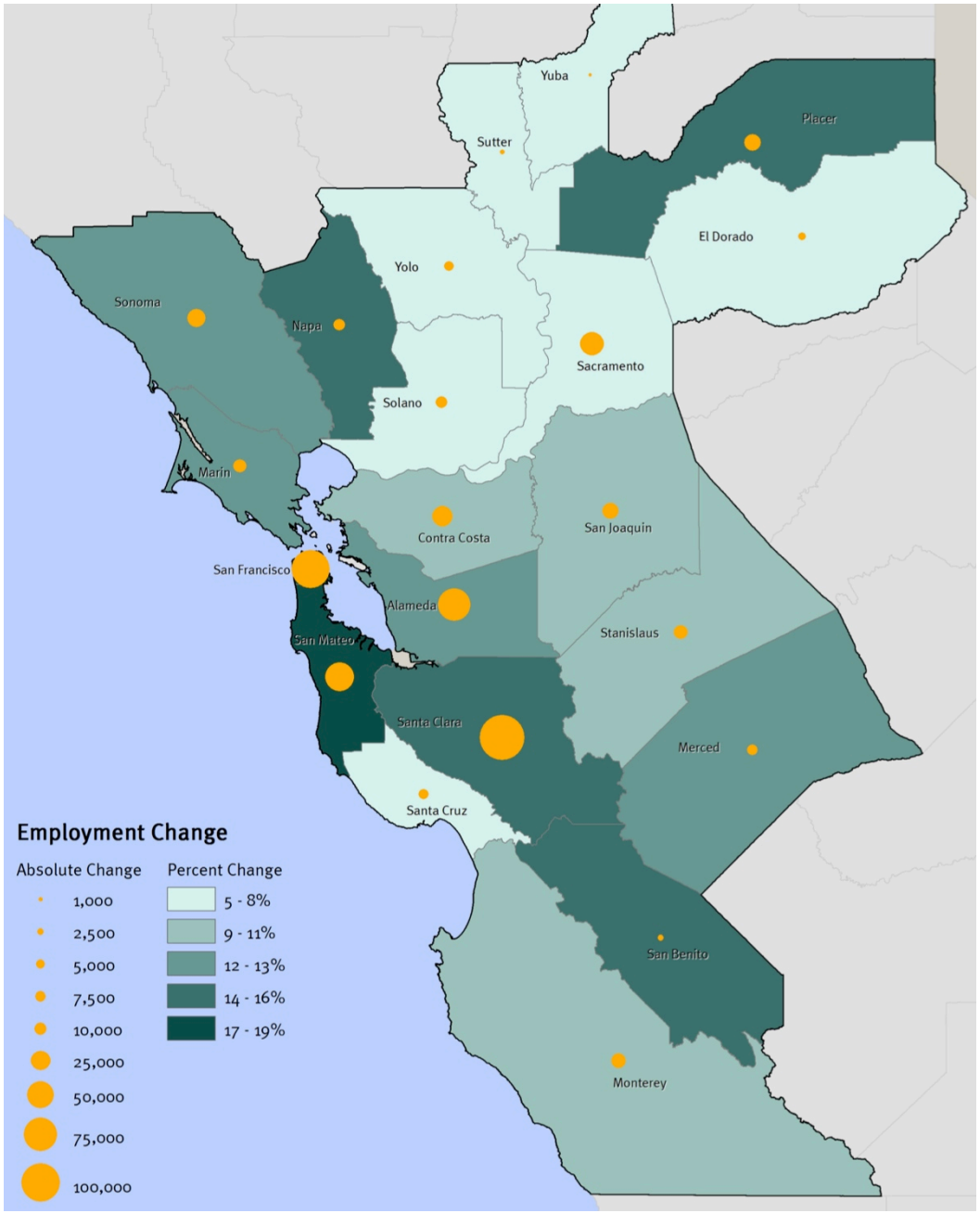
San Joaquin Joint Powers Authority



Population Growth Since 2000 has been Concentrated outside of Bay Area

Twelve of the 16 fastest growing cities in the megaregion are located in the Sacramento region and NSJV:

- Elk Grove
- Yuba City
- Rocklin
- West Sacramento
- Roseville
- Tracy



But Bay Area Leads Job Gains

75% of job growth since '10 in Bay Area

+

Bay Area home prices 3x NSJV

+

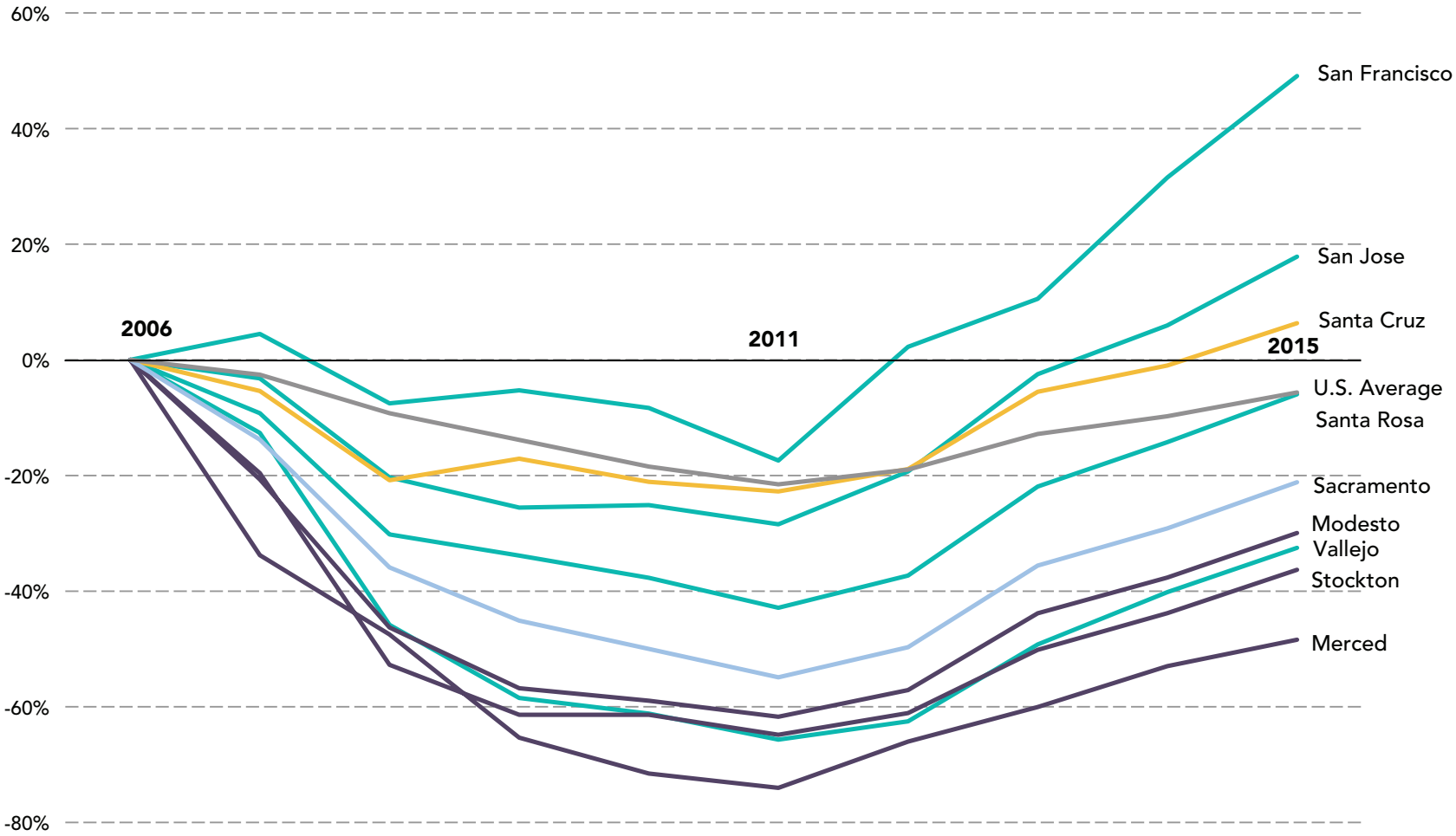
Truck trips converge in Oakland and NSJV

=

Largest % of mega-commutes

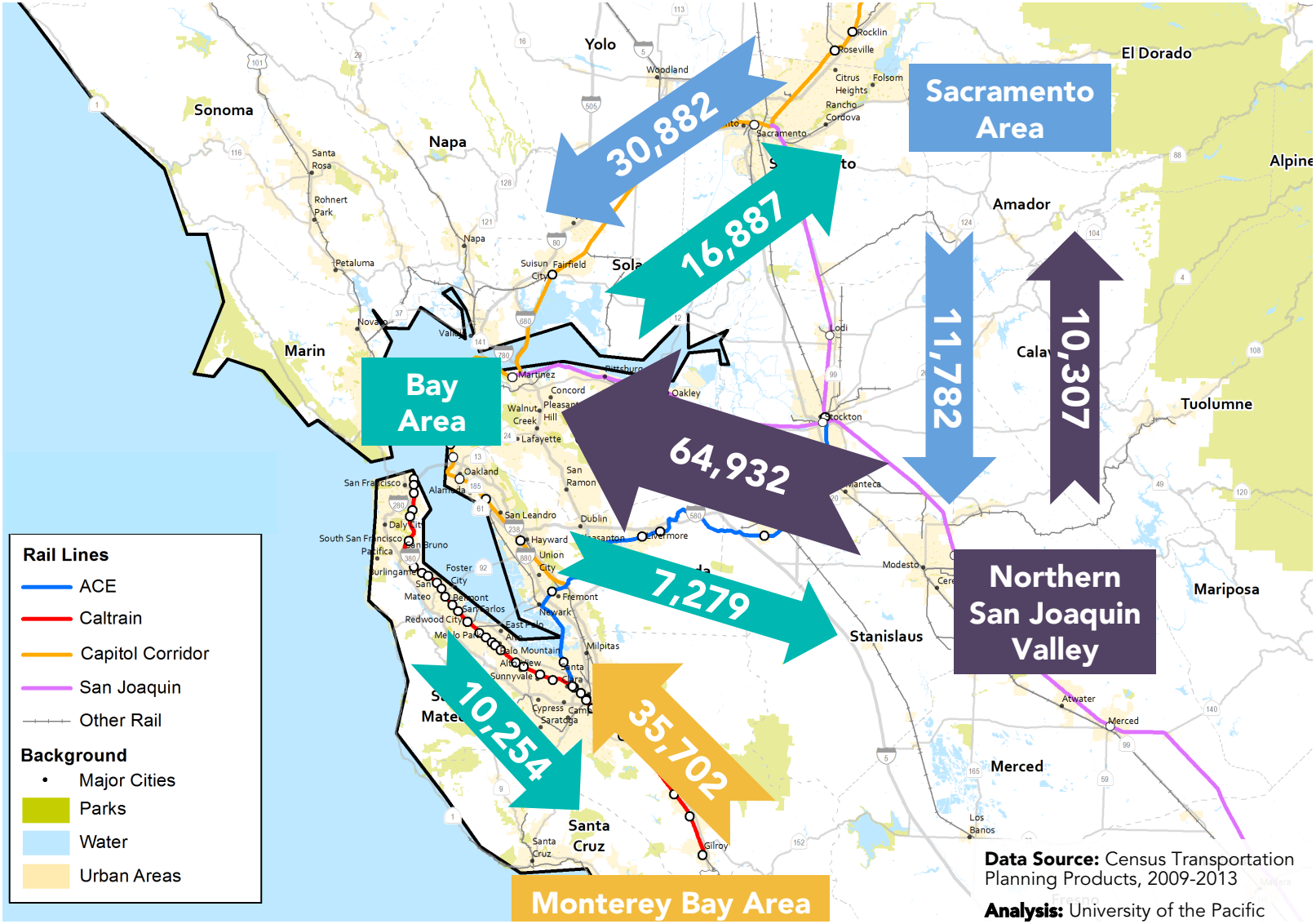
Disparity in Home Prices Drives Migration

Change in Metro Area Median Home Values Since 2006



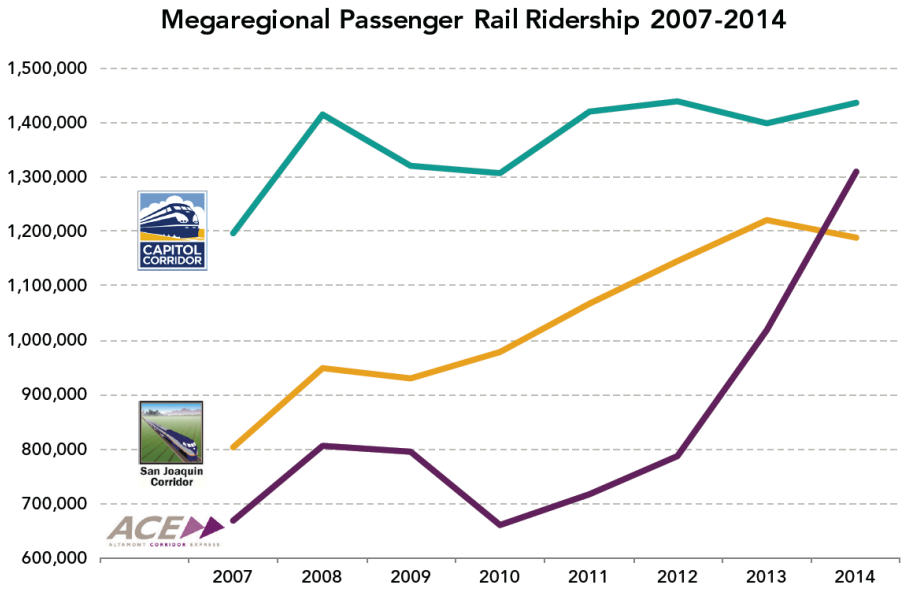
Data Source: Zillow.com
Analysis: Bay Area Council Economic Institute

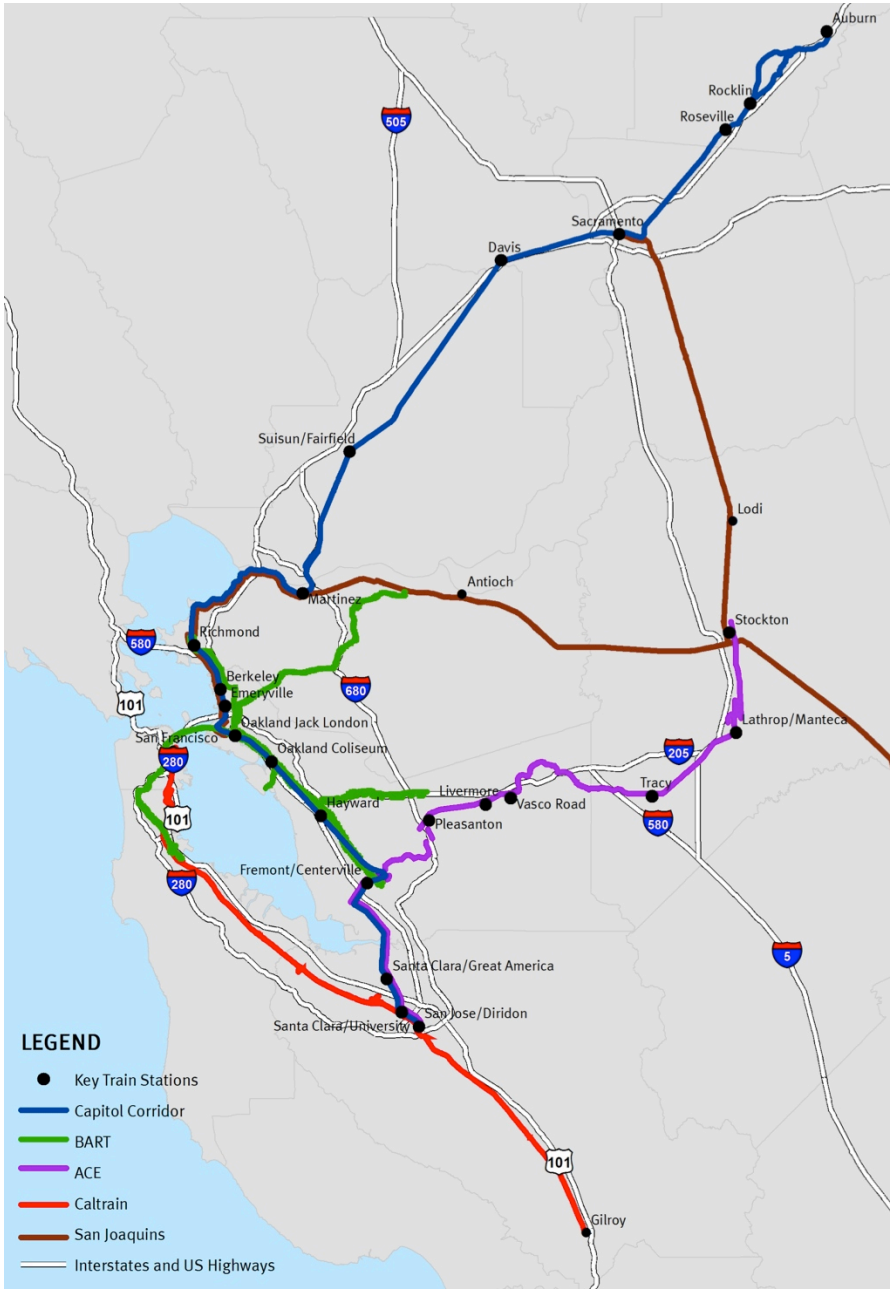
More Commuters Making Megaregional Trips



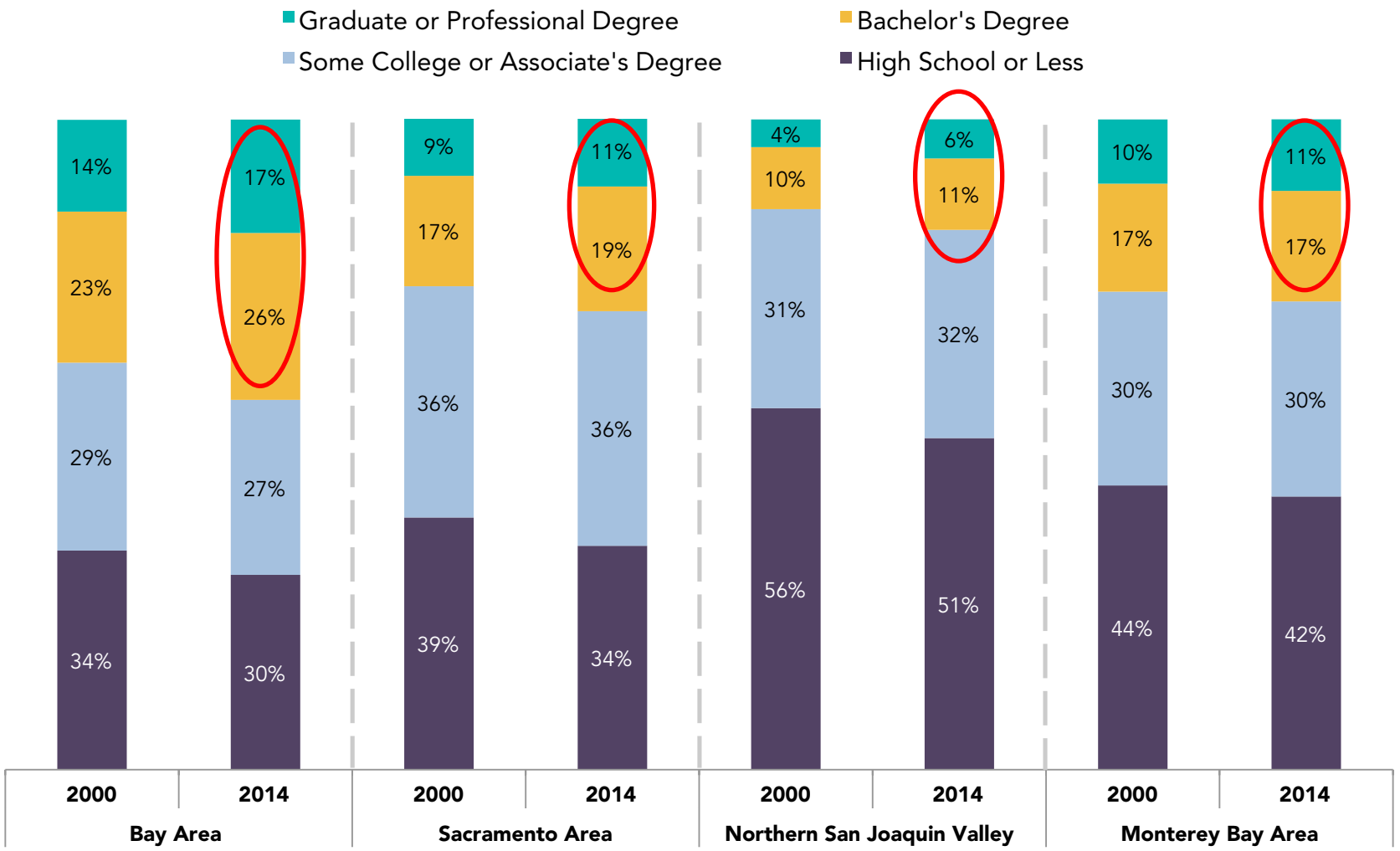
Rail Lines Have Limited Options to Serve More Riders

- Altamont Corridor Express (ACE)
- Amtrak Capitol Corridor
- Amtrak San Joaquins





Educational Attainment Remains a Barrier



Note: Included population includes those 25 years old and older
Data Source: U.S. Census Bureau, 2014 five-year American Community Survey, and 2000 Decennial Census
Analysis: Bay Area Council Economic Institute

Expanding Economic Prosperity in the Megaregion

1. Make substantial investments in career technical education
2. Re-envision economic development to tackle problems that cross county lines
3. Institute geographically-targeted tax credits for R&D and VC investments
4. Create more industry and academia partnerships at universities and laboratories

Investing in Megaregional Transportation Infrastructure

1. Improve and expand service on Capitol Corridor, ACE, and San Joaquins

2. Prioritize connectivity in State Rail Plan

3. Coordinate advocacy for dedicated sources of infrastructure finance

4. Support investments that limit the environmental impacts of goods movement

Capitol Corridor Vision Implementation Plan
VIP Adoption: VIP Final Report

CCJPA | November 2016

CCJPA's Vision Plan Trilogy *

Adopted
November 2014

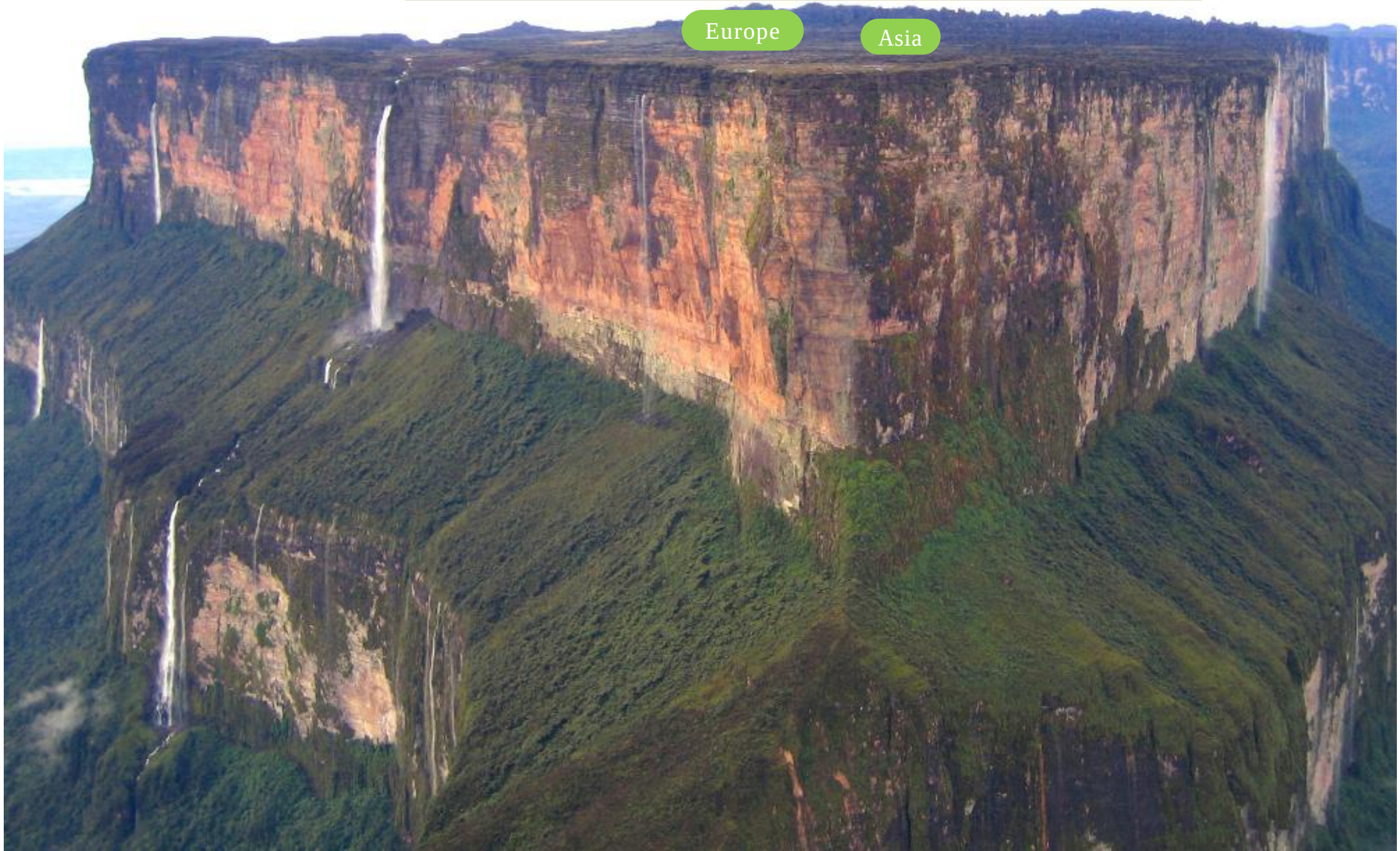
Adoption planned
November 2016

Commence early
2017

* Any future movie rights will be the property of CCJPA


1990's:
Prop 116/108
SR3T Ph 1
2006

Electrified, very frequent passenger rail service plateau



We can stay in the valley, or climb up to a new plateau…

Vision Plan Update

- Bought the guidebook

Vision Implementation Plan

- Picking the route today

Vision Communication Plan

- Planning the expedition

Today's Agenda: Reviewing/Previewing the Steps in the Vision Process

- **Step 1:** Purpose of the Vision – *We should change the direction of the Capitol Corridor – and here's why.*
- **Step 2:** Vision Direction – *OK then, what should the Capitol Corridor of the future look like?*
- **Step 3:** The Vision Process
  - **Step 3a: 2014 Vision Plan Update** – *Confirm that we should proceed with an updated Vision, then …*
  - **Step 3b: Vision Implementation Plan (VIP)** – *Confirm that a specific Vision is achievable, and …* YOU ARE HERE
  - **Step 3c: Vision Communications Plan (VCP)** – *Confirm that we should pursue the specific Vision.*
- **Step 4:** Proceed with first phase of Vision

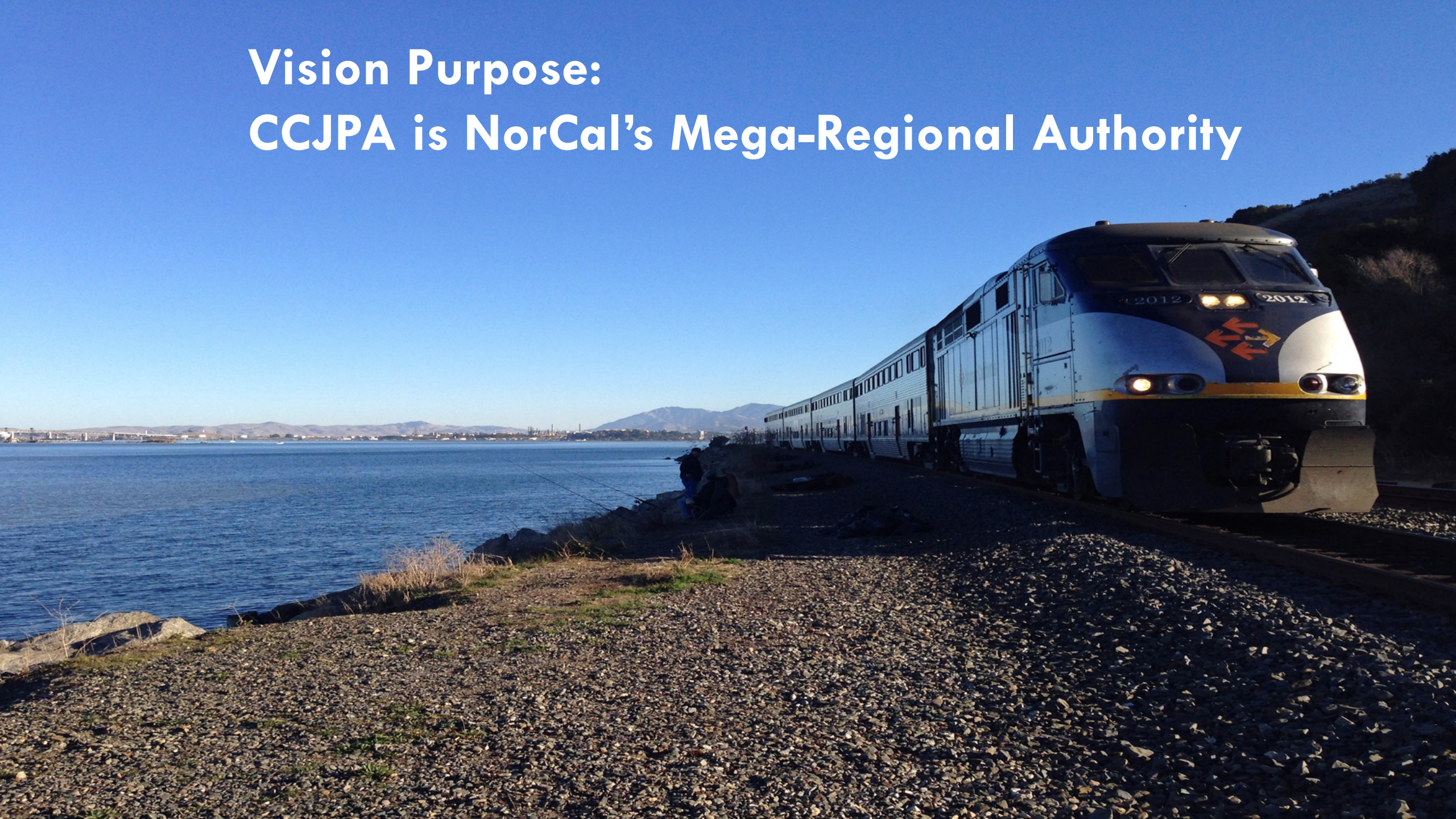
Today's Agenda: Advancing the Vision

- *What will we be asking you to advance at the end of the VIP?*
  - A tentative phased capital improvement plan
  - A related service plan
  - A work plan for the VCP
- *What will be the next steps (in the VCP)?*
  - Making the business case (cost-benefit/return on investment)
  - Making the case to partners and the public
- *What will be the next steps toward the Vision?*
  - Seeking approval/funding for initial projects (San Jose-to-Oakland), pursuing UPRR negotiations, meeting initial funding needs, and initiating the environmental documentation process.

The VIP Now and In the Future

- *The VIP:*
  - Is an engineering feasibility analysis based on a series of packaged improvements that cost-effectively achieve the objectives of the Vision Plan Update adopted by the CCJPA Board in 2014
  - Final report developed to aid understanding complex topics
  - Is a flexible approach that can be adjusted in the future
  - Should be updated every decade, at a minimum, and work in conjunction with State Rail Plan updates

Vision Purpose:
CCJPA is NorCal's Mega-Regional Authority



Why Update the Vision?

- Before 2014, last updated in 2005
- 2005 Vision achieved incremental change
- Changes between 2005 and 2014:
  - Funding – little progress toward 2005 recommendations, even though relatively modest
  - Ridership – generally growing steadily despite no new services added; shows market potential
  - Awareness – increasing recognition of Capitol Corridor role in "megaregional" economy
  - Urgency – growing concern about climate change, sea level rise
  - Ambition – Bay Area Regional Rail Plan adopted in 2007, HSR approved in 2008, cap and trade enacted in 2012, CalSTA created in 2013, Plan Bay Area and SACOG SCS adopted in 2013, 2016

Why Update the Vision?

- As the megaregion continues to grow, economic opportunity, environmental sustainability, and quality of life will all be threatened if transportation infrastructure does not keep pace
- The Capitol Corridor is now an established feature of the Northern California transportation network, and can be a viable alternative to widening of I-80 and 880
- By promoting a feasible, fiscally responsible, and responsive plan existing and future policy makers can exercise leadership to overcome these threats and create future opportunities

Vision Direction:
Inspiration, Models, and Examples

What Should Replace the Previous Vision?

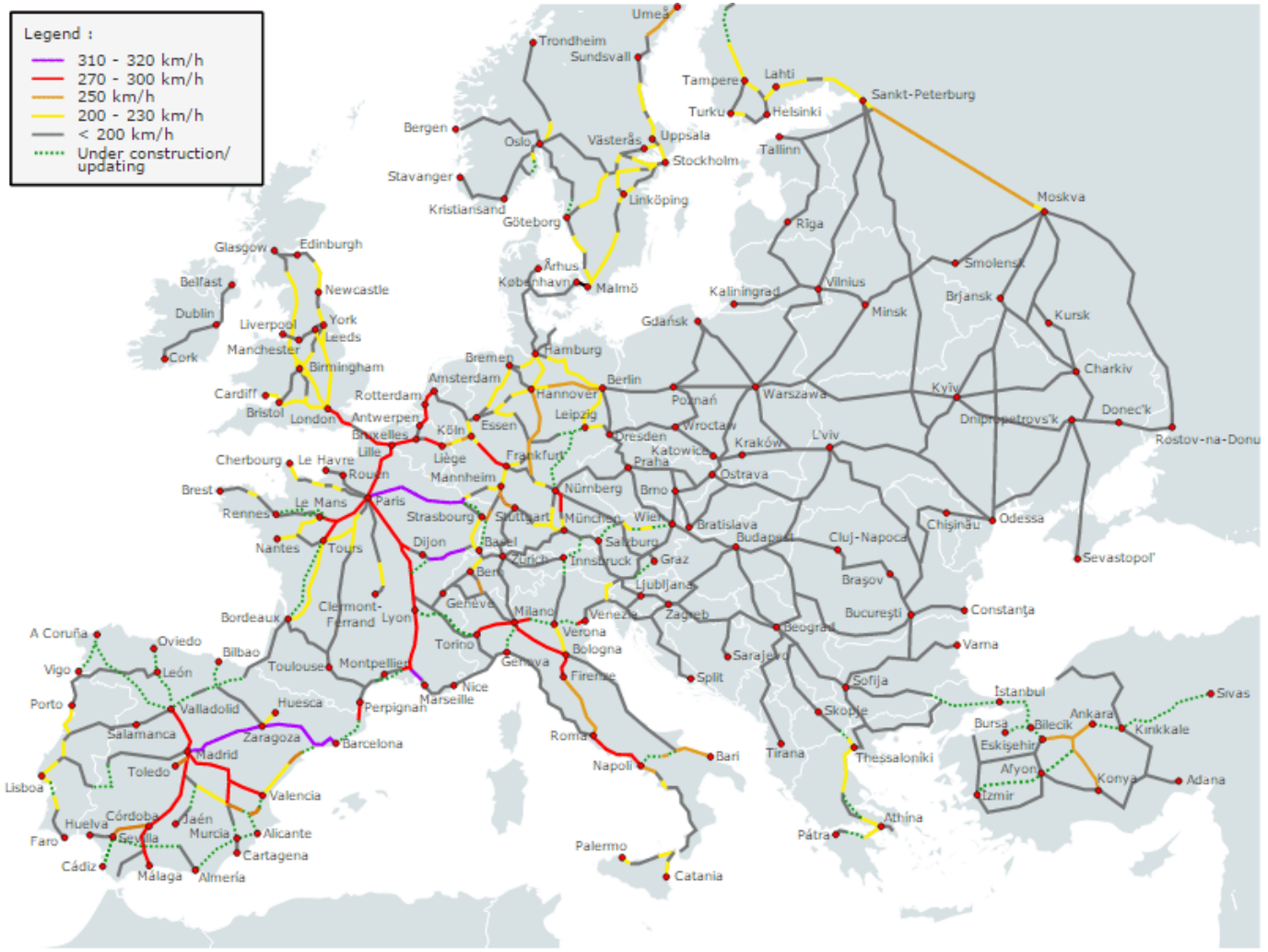
- What kind of railroad is the Capitol Corridor?
  - Intercity, connecting major cities along I-80/880 corridor
  - Relatively high speed service with limited station stops
  - Tracks shared with freight traffic
  - Stations in urban centers, suburban areas, smaller city centers
  - All-day service, with additional peak service
  - Multiple connections to other rail networks
  - Potential connections to high-speed rail at two points

What Should Replace the Previous Vision?

- What is worldwide standard for this kind of railroad?
  - Higher-speed service with limited station stops
  - Passenger service has priority over freight traffic
  - Train stations serve as intermodal hubs in urban, suburban and smaller city centers
  - Local and express service based on passenger travel demand, not negotiations with freight railorads.
  - Integrated “timed” connections to regions passenger rail network
  - Connects (cross platform) directly with high-speed rail network

What Should Replace the Previous Vision?

- In Western Europe and East Asia, similar corridors are often HSR, with top speeds of 300 km/hr (185 mph) or more
- But HSR curves and grades require massive investment
- True HSR in Capitol Corridor unlikely given current State priorities



What Should Replace the Previous Vision?

- But can be "2nd tier" link in statewide network, like Regional-Express in Central Europe or Main Lines in UK
- Semi-high speed (European peers 125 mph, Acela 150 mph, Midwest Amtrak lines 110 mph) would require less new ROW

Munich-Nuremberg Regional-Express by Sese Ingolstadt

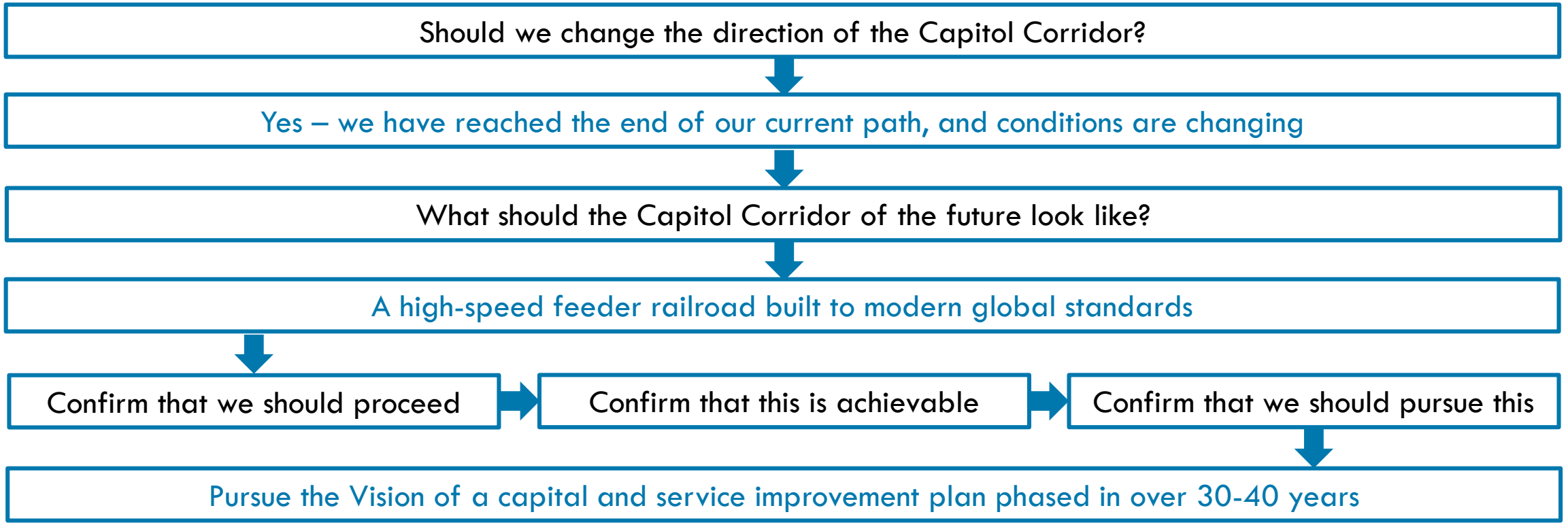
2014 Vision Plan Update Objectives

- Seamless integration: Enhanced connectivity to BART, Caltrain, VTA, RT, ACE, future HSR
- Modern, international railroad standards: Dedicated right-of-way, level boarding, electrification
- Incremental speed upgrades: Meet FRA requirements for 90, 110, 125 mph top speeds where feasible
- Customer service: more frequent and reliable, quieter and cleaner, “clockface” headways and pulses
- Protect against sea-level rise

Acela by John H. Gray

Vision Process:
What Is Possible, Worthy, & Reasonable?

Steps in the Vision Process



The Vision Process

- Phase 1 – 2014 Vision Plan Update
  - Concepts screening/alternatives development +
  - Preliminary service planning =
  - Ability to conduct preliminary ridership projection

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- Phase 2 – Vision Implementation Plan (VIP)
  - Conceptual cost and engineering analysis >
  - Recommend alternative selection >
  - Implementation/prioritization strategy, including next steps
  - (Also: refined service planning, initial assessment of funding options)

The Vision Process

- Phase 1 – 2014 Vision Plan Update
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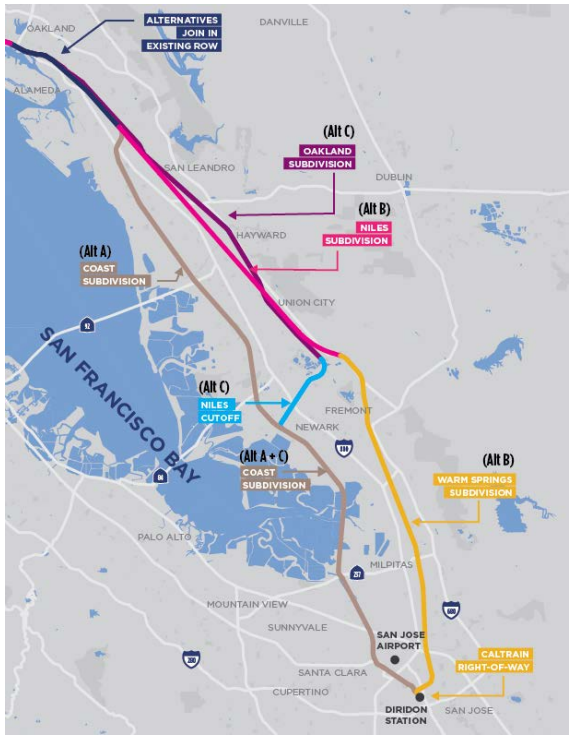
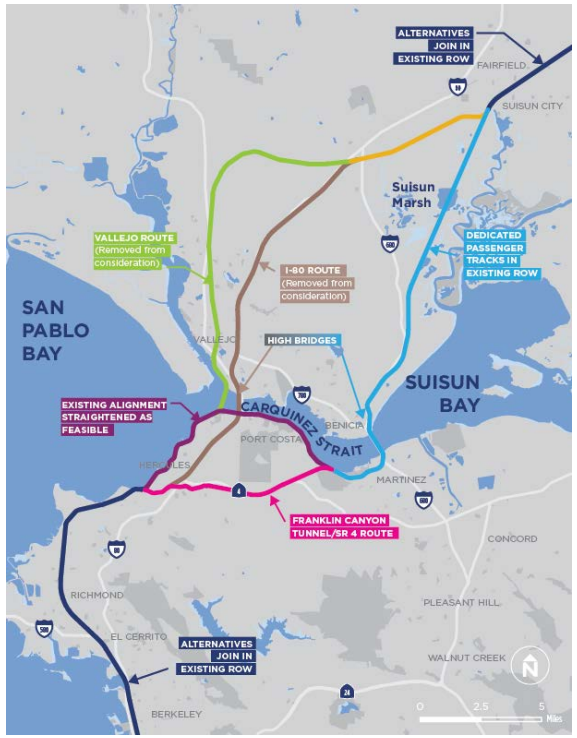
  - Recommend alternative selection >
  - Implementation/prioritization strategy, including next steps
  - (Also: refined service planning, assessment of funding options)
- Phase 3 – Vision Communications Plan (VCP)
  - Detailed ridership analysis +
  - Economic/cost-benefit/return on investment/funding approaches analysis =
  - Strategic plan for dialogue with all partner types

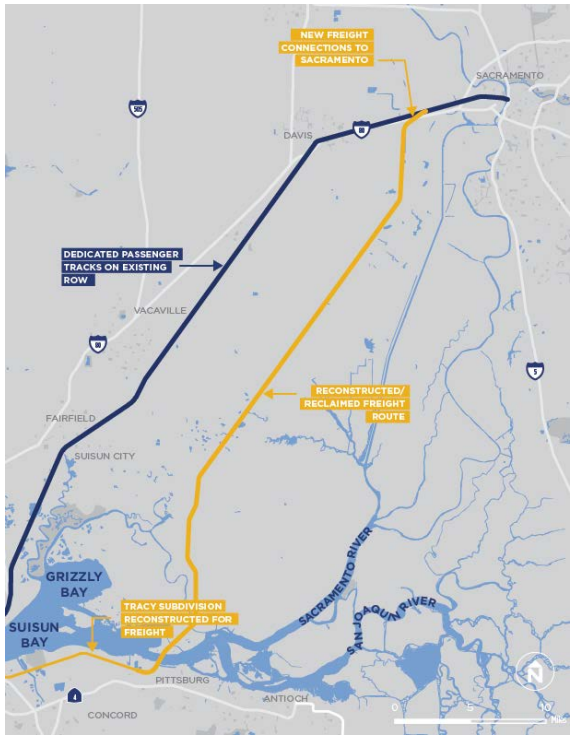
Vision Update Plan:
Where We Were Before VIP – The Possible

Vision Plan Update Alternatives

- Based on assessment of cost/engineering and ridership potential, Vision Plan Update screened range of concepts down to up to 3 alternatives per segment







Vision Implementation Plan:
What is Worthwhile Pursuing?

VIP Evaluation

- Same factors – cost/engineering feasibility and ridership potential – but based on more detailed engineering
- For Jack London, additional research into Posey/Webster Tubes, workshop with City staff
- Need dedicated right-of-way to improve capacity/frequency
- Freight will have to be “made whole” (to agree to sell ROW, as well as maintain goods movement capacity in/out of Port of Oakland)
- Must align with BART and HSR plans

San Jose-Oakland

- Coast alignment recommended
  - More direct and faster than existing
  - Unlike Warm Springs, maintains access to Santa Clara/Golden Triangle core of Silicon Valley
  - Hayward, Fremont stations to be replaced by Dumbarton Bridge station with BRT or rail connection to Palo Alto

San Jose-Oakland

- Capacity improvements needed in shared Caltrain/HSR ROW, at Diridon, potential Tamien terminal facility
- Double-track through Alviso Wetlands – raised to reduce impacts
- Elevated parallel to BART in Oakland
- Would serve as “express alternative” to BART in corridor, providing more direct access to center of Silicon Valley

Jack London

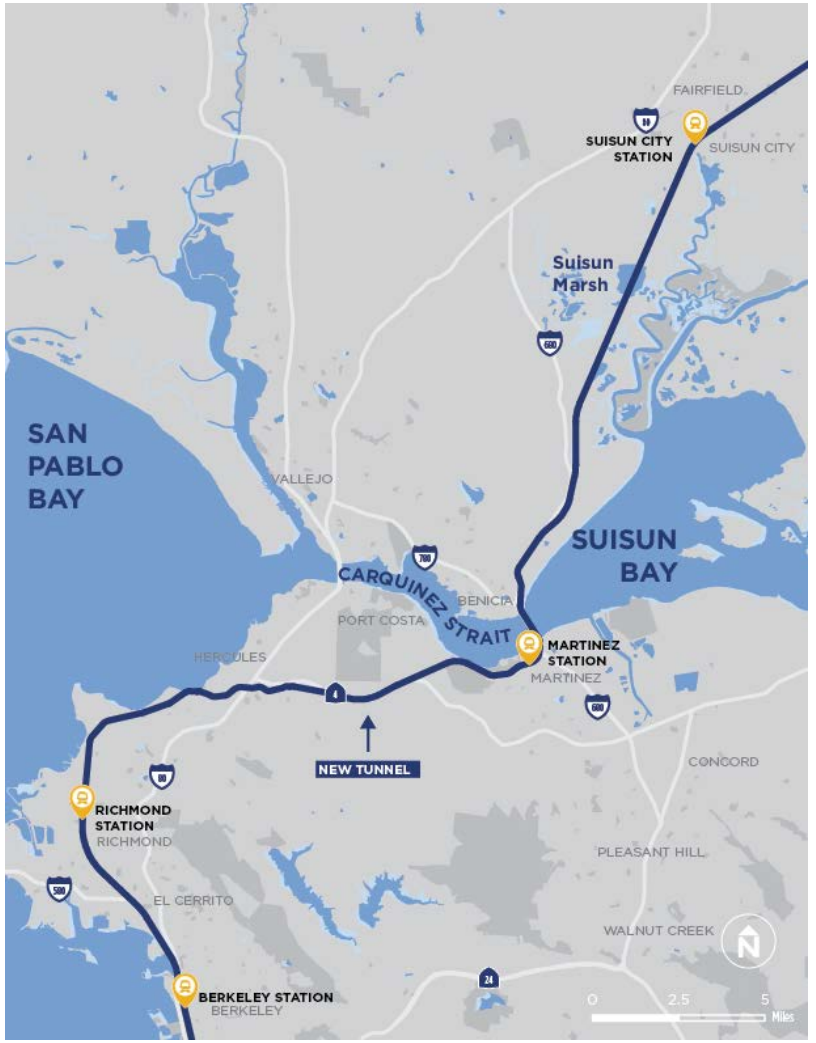
- In Jack London, new alternative developed, recommended: passenger and freight tunnels under 2nd Street, Embarcadero
- Possible to modify Posey/Webster tubes (tunnel top would be ~5’ above grade near existing station)
- New station, potentially with connection to new BART station (part of 2nd Transbay Tube)
- All trains removed from street in Central Oakland

Oakland-Richmond

- Four-tracking existing ROW Oakland-Richmond will require some property takings, station reconstruction
- Opportunity to provide additional service between Richmond and San Jose

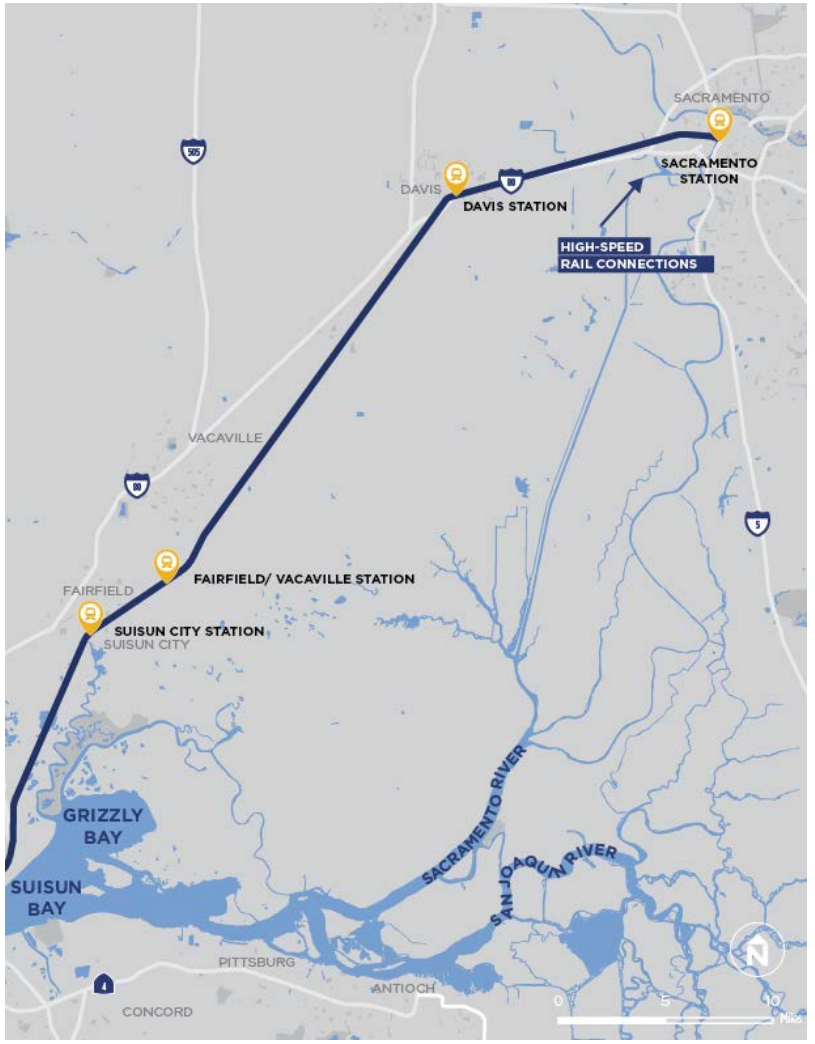
Richmond-Benicia

- Franklin Canyon tunnel recommended
  - Would save several minutes per trip
  - Shoreline alignment would have to be raised, reconstructed anyway to protect from sea level rise
- Elevated station at Martinez
- New high-level crossing of Carquinez Strait



Benicia-Sacramento

- Relocate freight to new Sacramento Northern ROW to allow exclusive passenger use of existing alignment
- If HSR, shared tunnel in central Sacramento or other options depending on freight and HSR actions

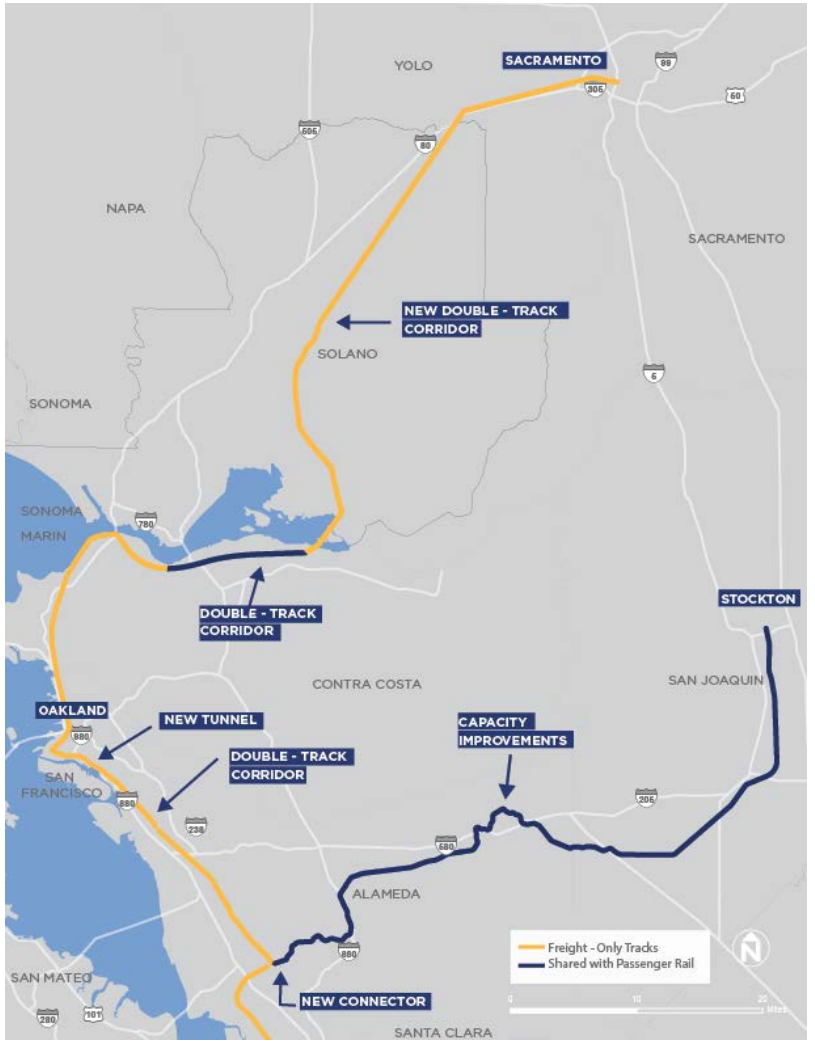


Sacramento-Auburn

- Eventual electrification and capacity improvements to enable more service to Auburn

Freight Improvements

- Passenger conflicts eliminated
- New and improved ROW:
  - Niles Canyon-Oakland: Double-track Niles Sub, new Niles connector
  - Nile Canyon-Stockton: Capacity improvements
  - Oakland: Jack London tunnel
  - Martinez-Sacramento: New Sacramento Northern ROW with new Carquinez Strait crossing



Other Improvements

- Connectivity
  - BART connection in central Oakland/across bay from San Francisco, new HSR connections
- Electrification
  - Cleaner, quieter, and faster acceleration/deceleration
- Level platforms
  - Reduce loading and unloading time, ensure reliability
- Clockface headways
  - Four trains per hour = departures every 15 minutes

Other Improvements

- Grade separations
  - Corridor approach in partnership with communities
- Modern ticketing
  - Integrated with other agencies and modes, on mobile and other platforms
- Station access/area planning
  - Including transition strategy for maintaining service while converting to different rolling stock/higher platforms

Travel Time and Frequency

- Top speeds of 125 mph Sacramento-Benecia, 110 mph in Bay Area
- Capacity improvements allow for limited-stop service
- Result: 30-45% travel time reductions

Travel Time	Sacramento-San Jose	Sacramento-Oakland
With Travel Time Savings Project	2:58	1:48
Future Local	2:00	1:20
Future Limited-Stop	1:41	1:07

- Assumed frequency of 15 mins peak (two local, two limited trains per hour)
- 30 minutes mid-day

Priorities

- Next step after current improvements is San Jose-Oakland – dedicated ROW will allow for same service levels south of Oakland as north (from 7 to 15 daily round-trips)
- Prioritization strategy based on segment-level improvements moving south to north (timing of Jack London tunnel based on funding)
- Where dedicated ROW, can operate more service (e.g., Richmond-San Jose)
- Dedicated ROW and electrification from San Jose to Sacramento is final step

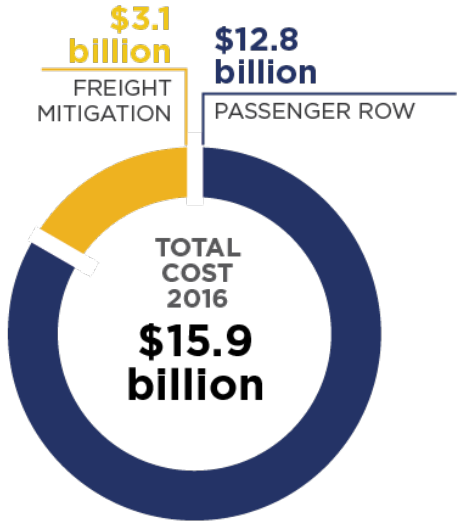
Priorities

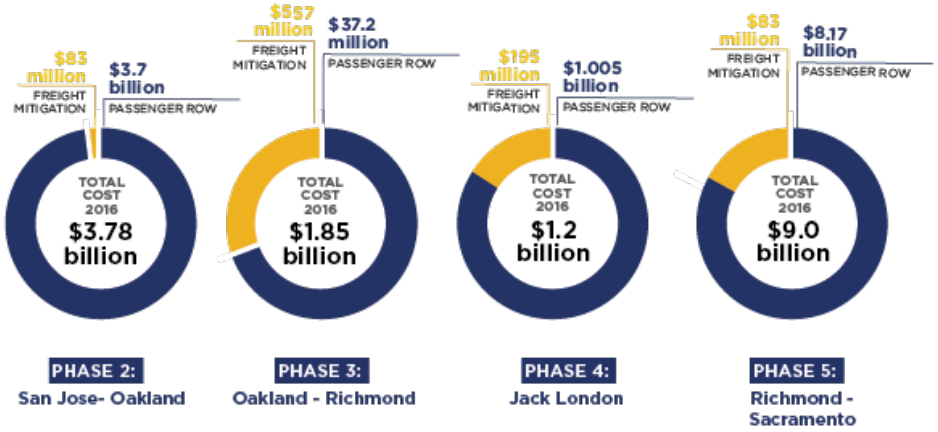
Priority	1	2	3	4	5	6
Projects Status/ Reason for Timing	Already have funding & approvals	Could greatly improve speed and frequency on part of line	Enable further improvements	Major projects that provide immediate benefits	Enable dedicated right-of-way, electrification	Extend dedicated right-of-way, electrification
Timeline	< 10 years	10-15 years	15-20 years	20-25 years	25-30 years	TBD
Passenger Projects	Sacramento-Roseville 3rd track	San Jose-Oakland improvements	Oakland-Richmond improvements	Oakland Jack London tunnel	Richmond-Sacramento improvements	Sacramento-Auburn improvements
Freight Projects		Oakland/Niles Connecctions	Oakland/Niles Double-track	Oakland Jack London tunnel	New Martinez-Sacramento right-of-way	

Priorities may be re-ordered based on VCP analysis and/or political momentum

Costs

- Should be understood in context of:
  - Packaging:
    - Includes large number of individual projects
    - Also includes “core” projects (e.g. double-tracking ROW) as well as “related” projects (e.g. grade separations)
  - Corridor length – 168 miles
  - Length of time: ~35 years assumed; could be longer
  - Cost for alternatives (e.g. widening I-80)
  - Costs for other major infrastructure projects





Costs

- Costs for peer projects:
  - CAHSR Phase 1: $68 billion
  - Los Angeles County upcoming transportation ballot measure (local share only): $120 billion
  - Amtrak Gateway project (trans-Hudson capacity): $24 billion
  - Bay Bridge East Span: $6.4 billion
  - BART Berryessa-Santa Clara extension: $4.7 billion (~$800M/mile)
  - 2nd Transbay Tube: ~$12 billion
  - BART 2015-24 CIP: $9.6 billion

Costs

- Costs for highway projects:
  - Bay Bridge East Span: $6.4 billion
  - I-880/101 interchange reconstruction: $1 billion
  - I-80/680 interchange reconstruction: $740 million
  - Widening of Business 80 bridge over American River: $250 million
  - I-405 Sepulveda Pass NB carpool lane (10 miles): $1.1 billion

High Level Capital Financing

- Current funding sources can't begin to accomplish this plan
- Financing options that exist today are summarized
  - Scale of financing tools mostly limited to station development
    - Public-Private Partnerships
    - A variety of "Value Capture" options (tax/assessment districts)
  - Financing for long linear rail projects would require breaking new financing ground
- Pleading for State and Federal sources of capital for intercity rail could remain a key pastime

Since the VIP Process started…

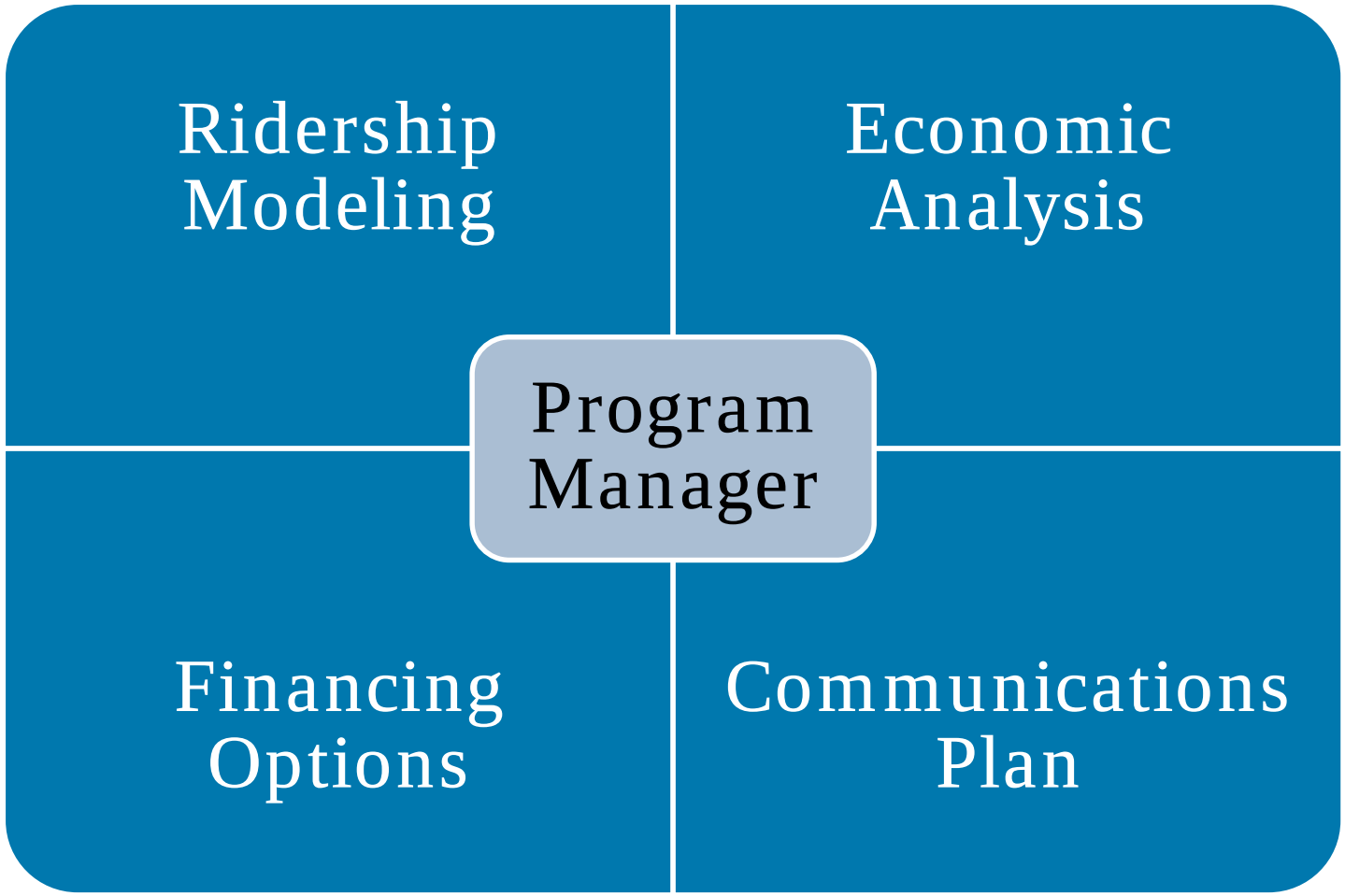
- Talk of a conventional rail tube (parallel to discussed 2nd BART Tube) has elevated
- Dumbarton Rail option concept remains
- State Rail Plan
  - Developing goals of market-based hub transfers
  - Seamless ticketing
  - Layers of HSR, Intercity, Regional rail passenger services
  - Strategic performance based proliferation of linked rail corridors
- Governance/policy gaps exposed (i.e., no champion) when remit is limited
  - Solutions:
    - Gap closing rail operator partnerships and/or
    - Regional MPO and/or CalSTA leadership

Vision Communication Plan: What is Reasonable?

Costs & Benefits

- Detailed analysis of economic benefits, ridership to occur in VCP – allowing for cost-benefit analysis
- Cost-benefit analysis will take into account population growth, traffic growth, roadway capacity and costs of roadway expansion
- High level capital and financing plan needed IF value propositions (economic and environmental) are continually made across phases

VCP Approach – What Else Under the Tent?



VCP Program Manager Role

- Big thinker/relationship maker/information assembler to help CCJPA build a cross-disciplinary VCP document
- Develop scope, schedule, & initial budget for each task area via ongoing Board & Ad Hoc Subcommittee consultation
- Assist CCJPA in procuring required related yet diverse services or any new services (e.g., document writing, graphics) to complete VCP
- Work with:
  - VIP team for continuity to bring all aspects together
  - Ad Hoc Vision Implementation Plan Sub-committee
  - CCJPA Staff

Shall we pick our route and begin planning the expedition?

Vision Plan Update

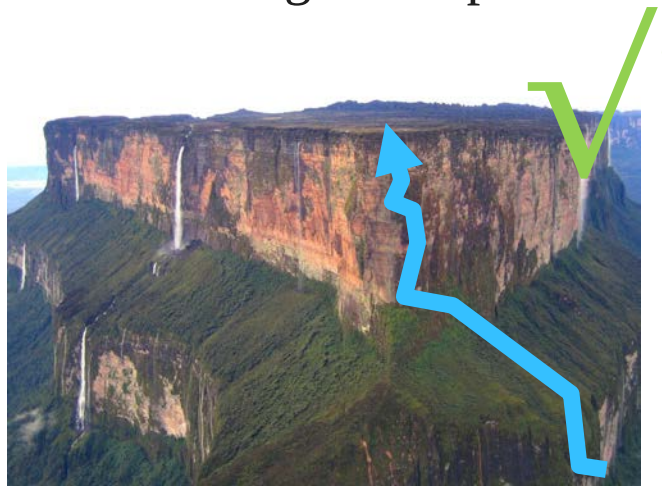
- Bought the guidebook

Vision Implementation Plan

- Picking the route today?

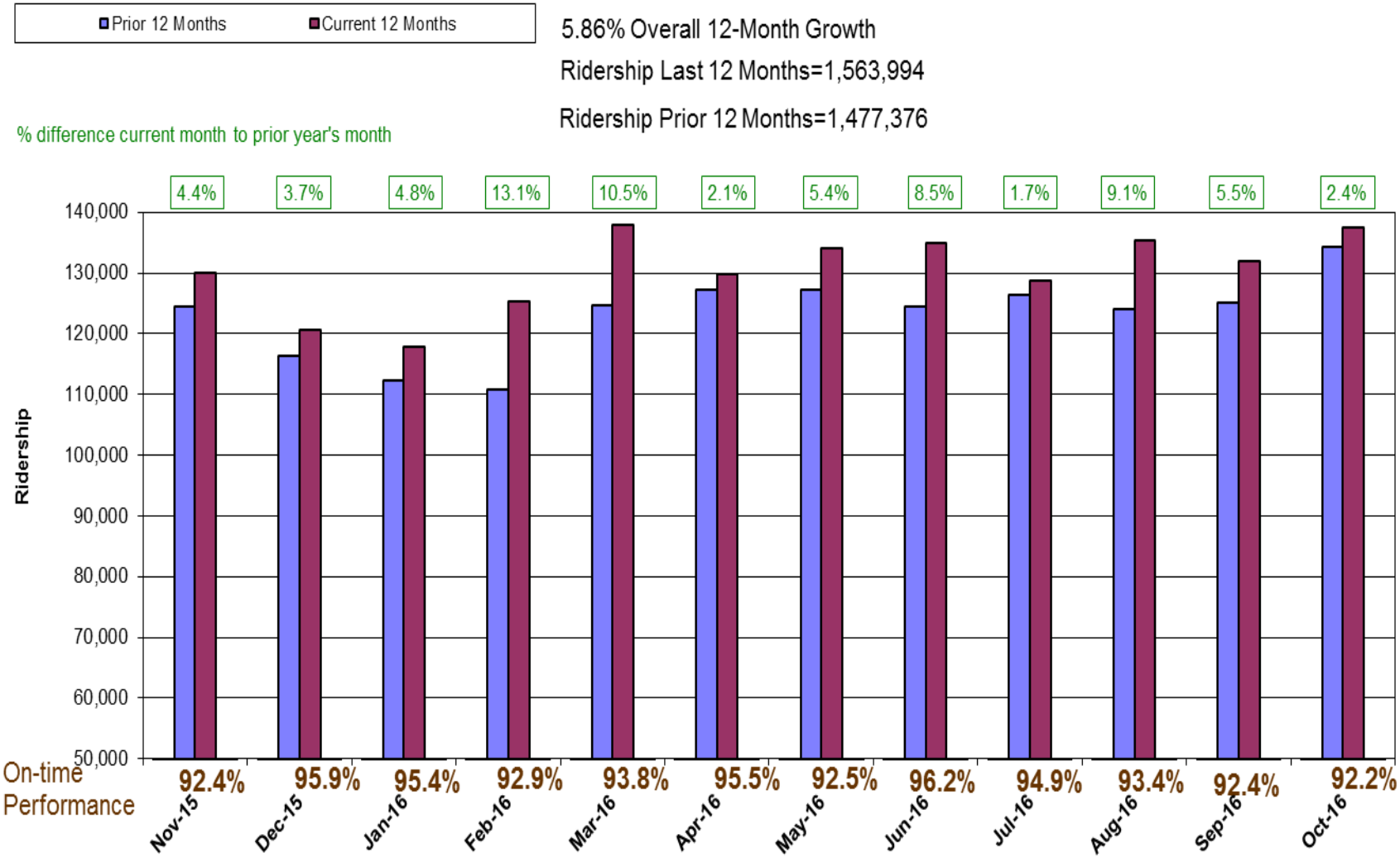
Vision Communication Plan

- Planning the expedition?



How's Business?

Ridership



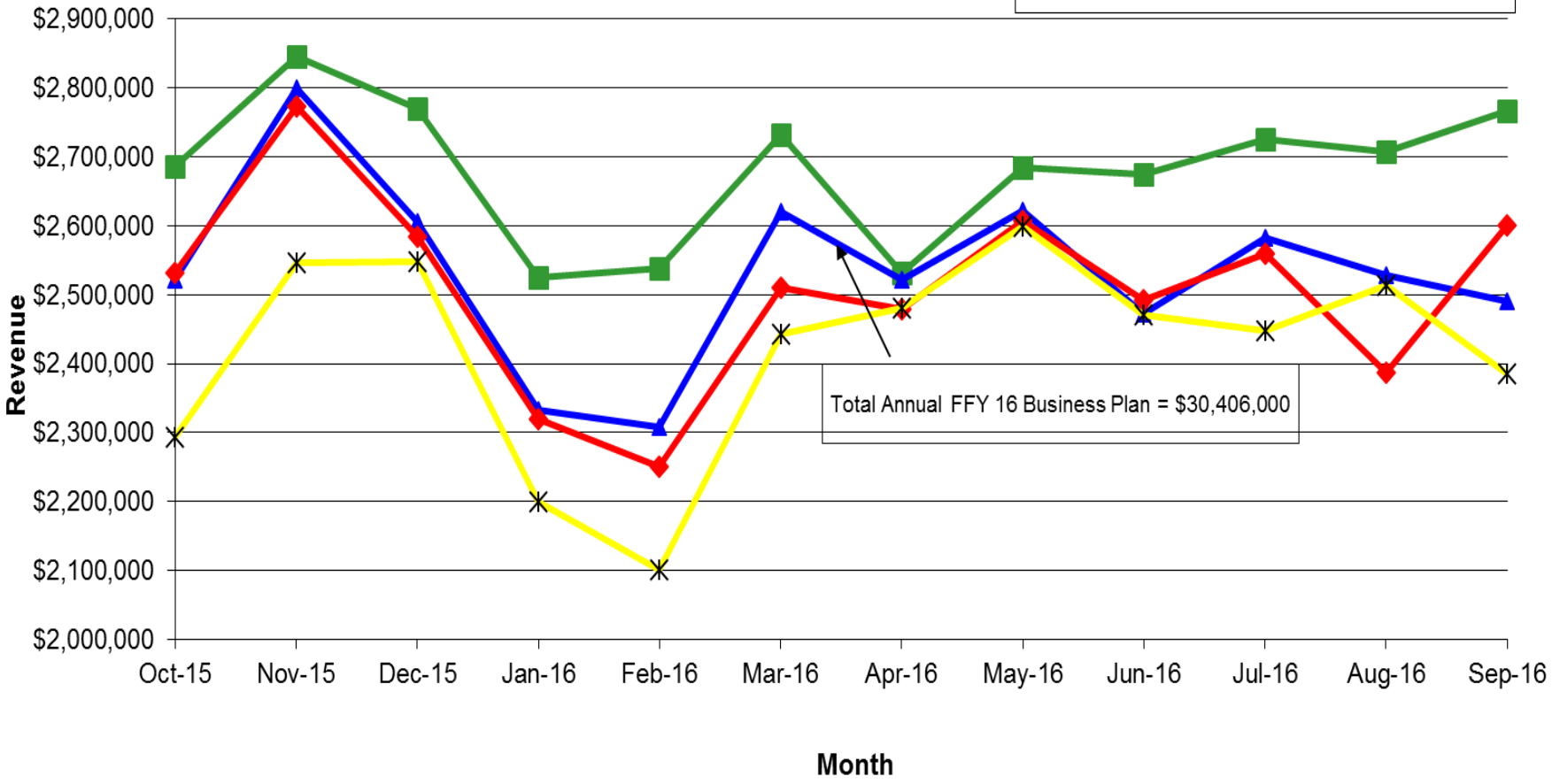
How's Business?:
Revenue

Capitol Corridor Performance
FFY 2015-16
Monthly Revenues
Actual vs Business Plan

5.9% vs.FFY 16 Business Plan YTD

7.% vs. Prior FFY 15 YTD

10.9% vs. Prior FFY 14 YTD



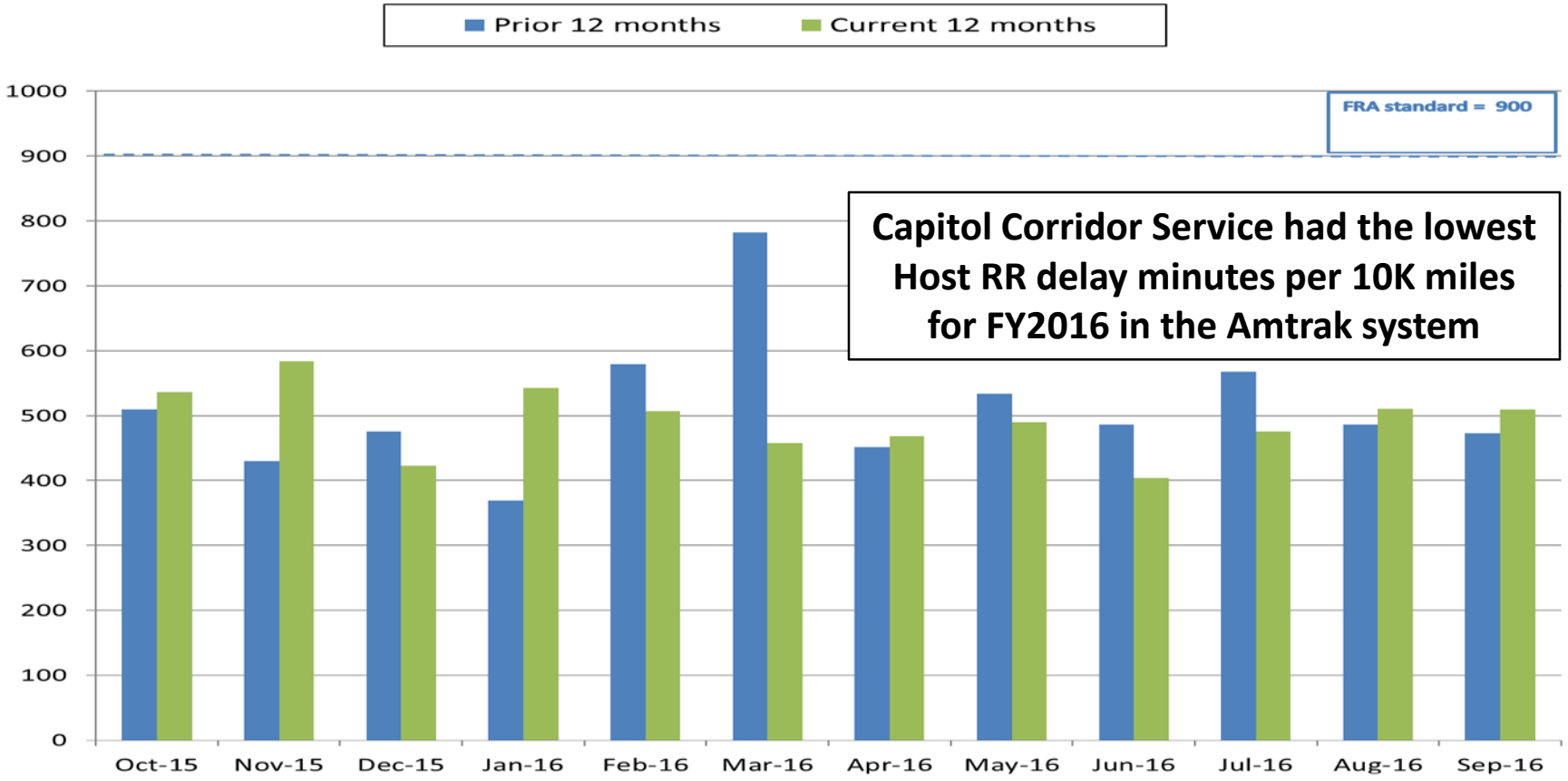
FY 2016 Performance Measures

	State Perfomance Standards (a)				Other Performance Measures		
	Ridership		On-time Performance	System Operating Ratio (b)	Revenues		Customer Satisfaction
Month	Actual	Business Plan	Actual	Actual	Actual	Business Plan	Actual
October-15	134,233	127,310	94.4%	55.7%	$2,686,162	$2,522,142	88
November-15	130,045	127,120	92.4%	59.7%	$2,845,496	$2,800,028	87
December-15	120,600	116,620	95.9%	55.8%	$2,770,456	$2,605,670	88
January-16	117,809	111,830	95.4%	50.2%	$2,524,279	$2,332,299	91
February-16	125,233	112,030	92.9%	53.1%	$2,538,101	$2,308,541	90
March-16	137,928	128,460	93.8%	61.4%	$2,732,694	$2,619,967	89
April-16	129,894	126,870	95.5%	51.6%	$2,531,581	$2,521,391	89
May-16	134,136	131,030	92.5%	54.2%	$2,684,991	$2,621,365	89
June-16	134,979	121,650	96.2%	56.8%	$2,673,969	$2,472,371	90
July-16	128,655	117,260	94.9%	56.7%	$2,725,358	$2,582,879	92
August-16	135,380	124,340	93.4%	56.1%	$2,707,246	$2,528,269	90
September-16	131,922	116,930	92.4%	55.2%	$2,767,316	$2,491,078	88
Total YTD	**1,560,814**	**1,461,450**	**94.1%**	**56%**	**$32,187,649**	**$30,406,000**	**89**
Previous YTD	**1,474,873**	**- -**	**93.1%**	**52%**	**30,092,694**	**- -**	**87**
YTD Change	**5.8%**	**6.8%**	**1.0%**	**6.6%**	**7.0%**	**5.9%**	**2.8%**
Annual Standard/Measure		**1,461,450**	**90%**	**50%**		**$30,406,000**	**88**

a) Standard developed by CCJPA in annual business plan update and approved by the California State Transportation Agency

b) This standard measures total revenues (farebox and other operating credits) divided by total expenses (Amtrak operations + CCJPA Call Center)

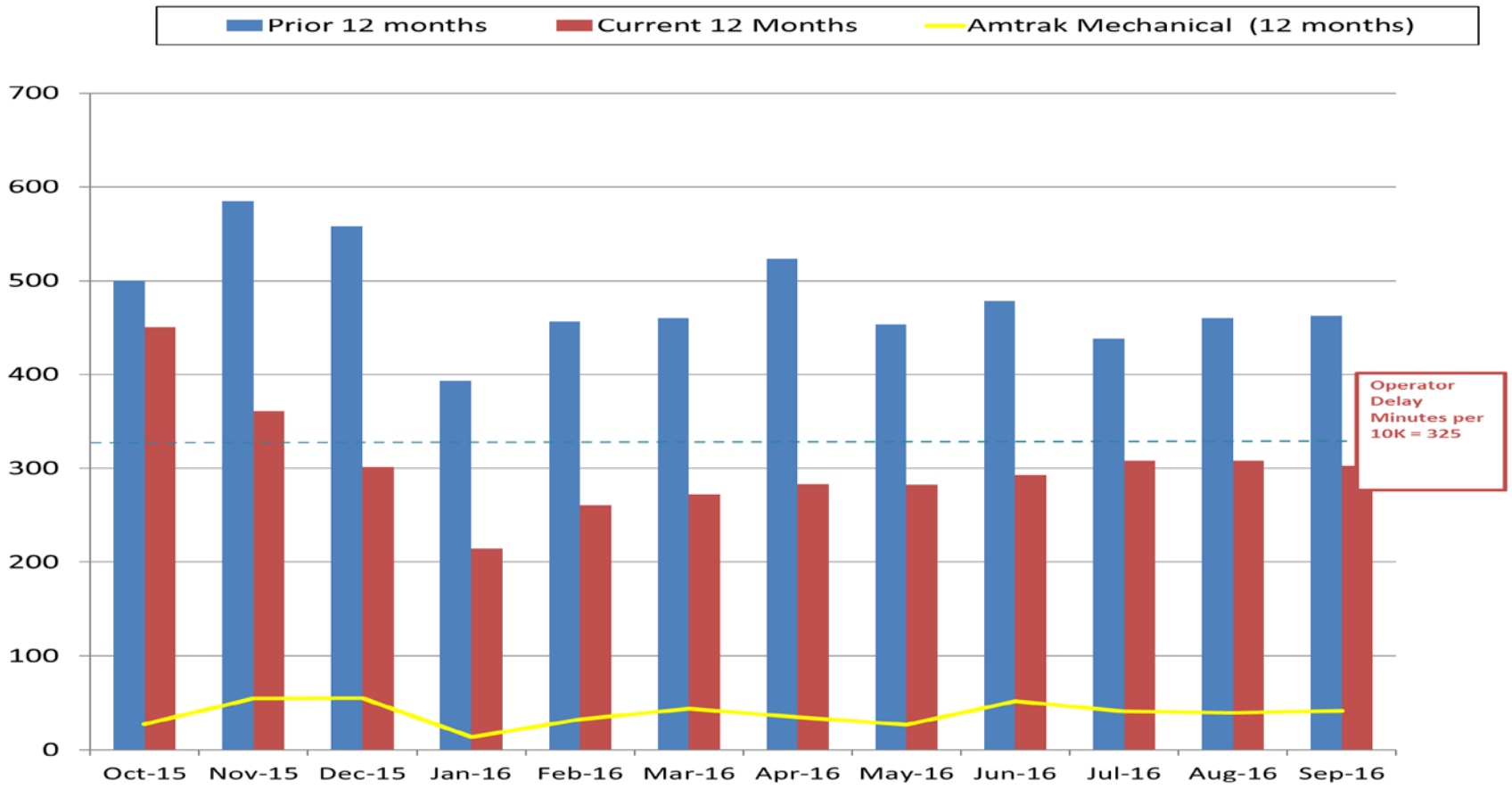
Capitol Corridor
Host RR Delays per 10K Miles



Capitol Corridor Service had the lowest Host RR delay minutes per 10K miles for FY2016 in the Amtrak system

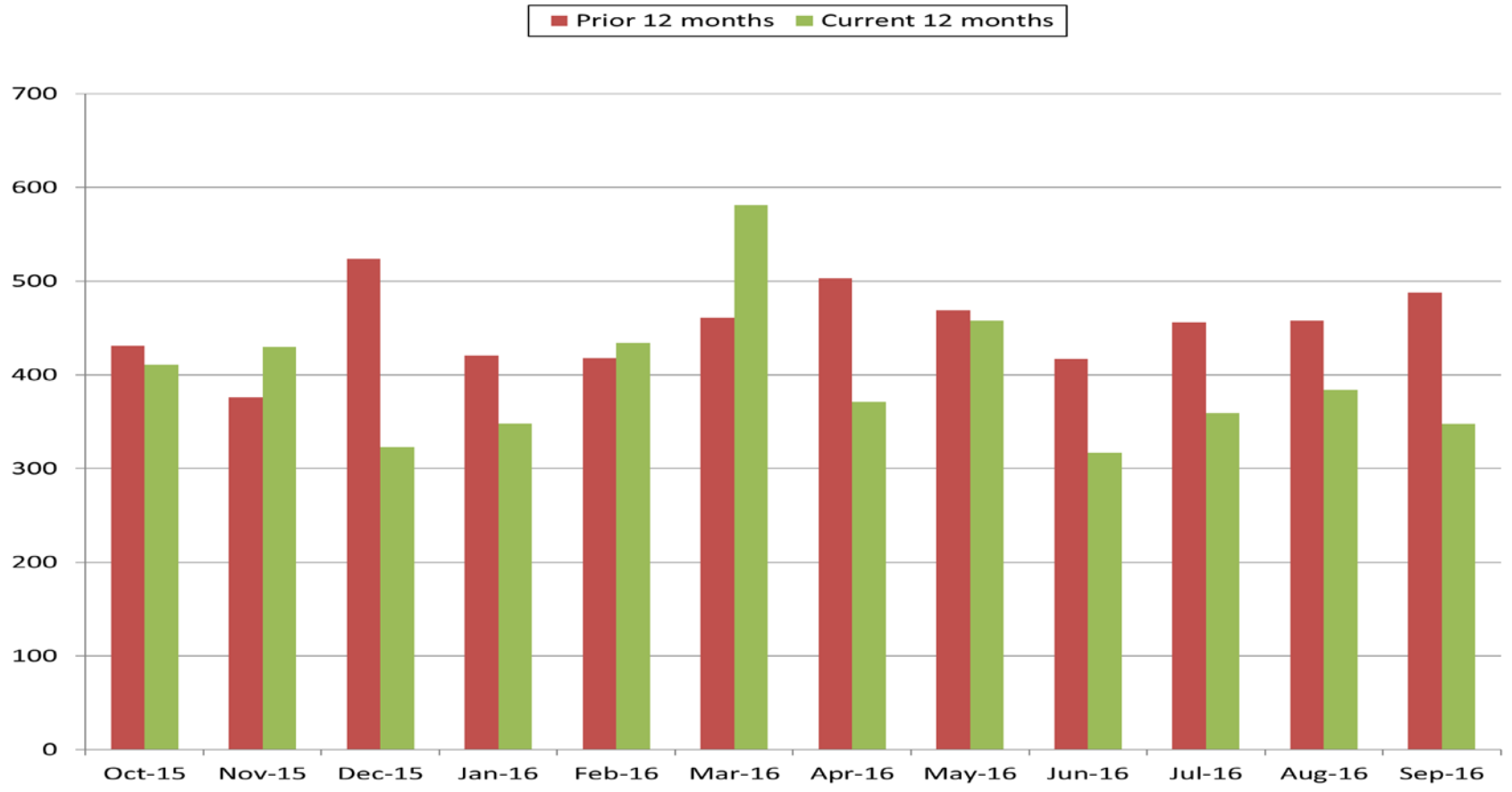
Monthly Average	
-Current 12 months	**492**
-Prior 12 months	**512**
% Difference	**-4%**
FRA Standard	**900**

Capitol Corridor
Amtrak Operator Delays per 10K Miles

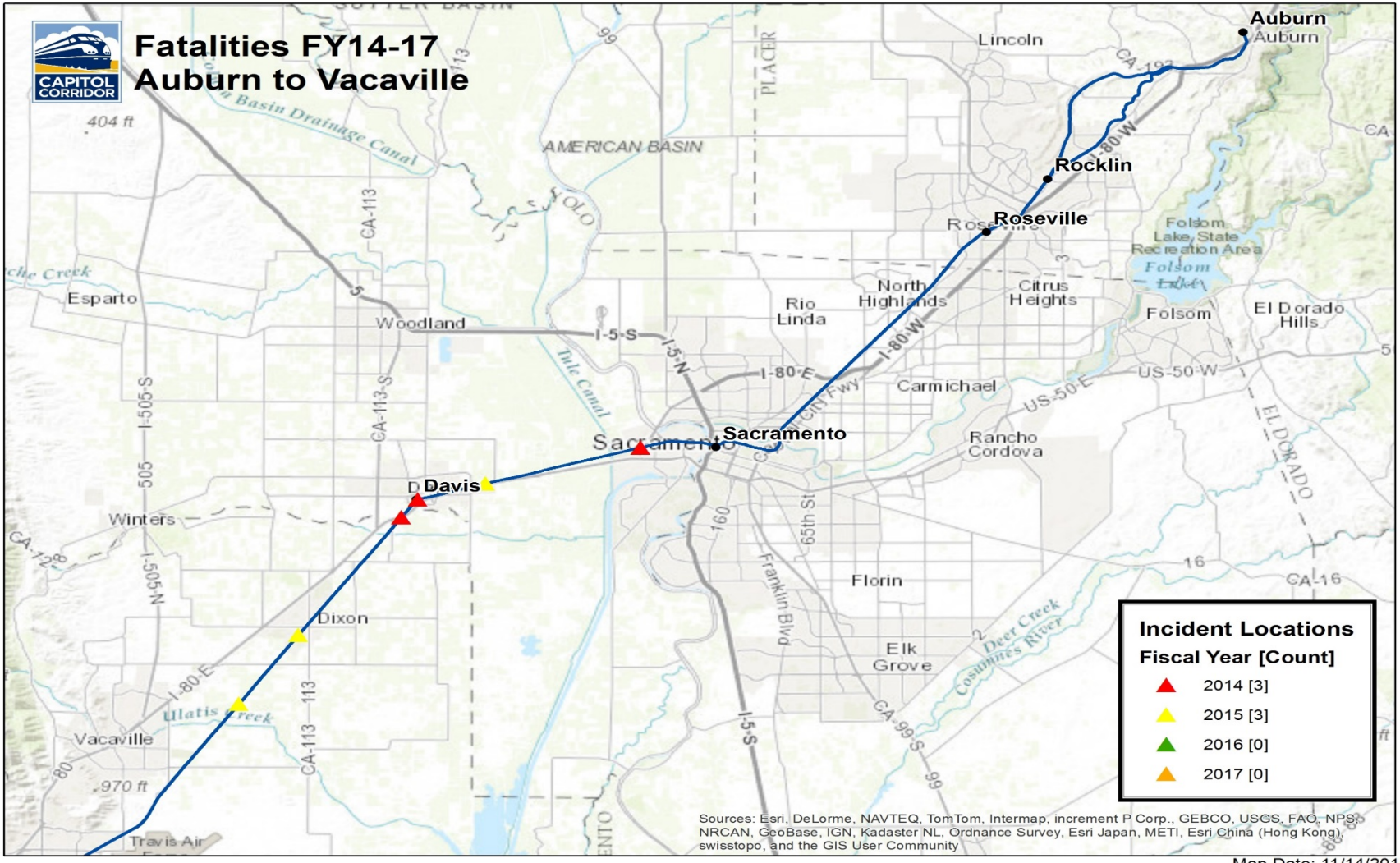


Monthly Average	
-Current 12 months	**303**
-Prior 12 months	**480**
% Difference	**-37%**
-Avg Mechanical Delays =	**39 mins**
% Diff from prior 12 mos	**-36%**

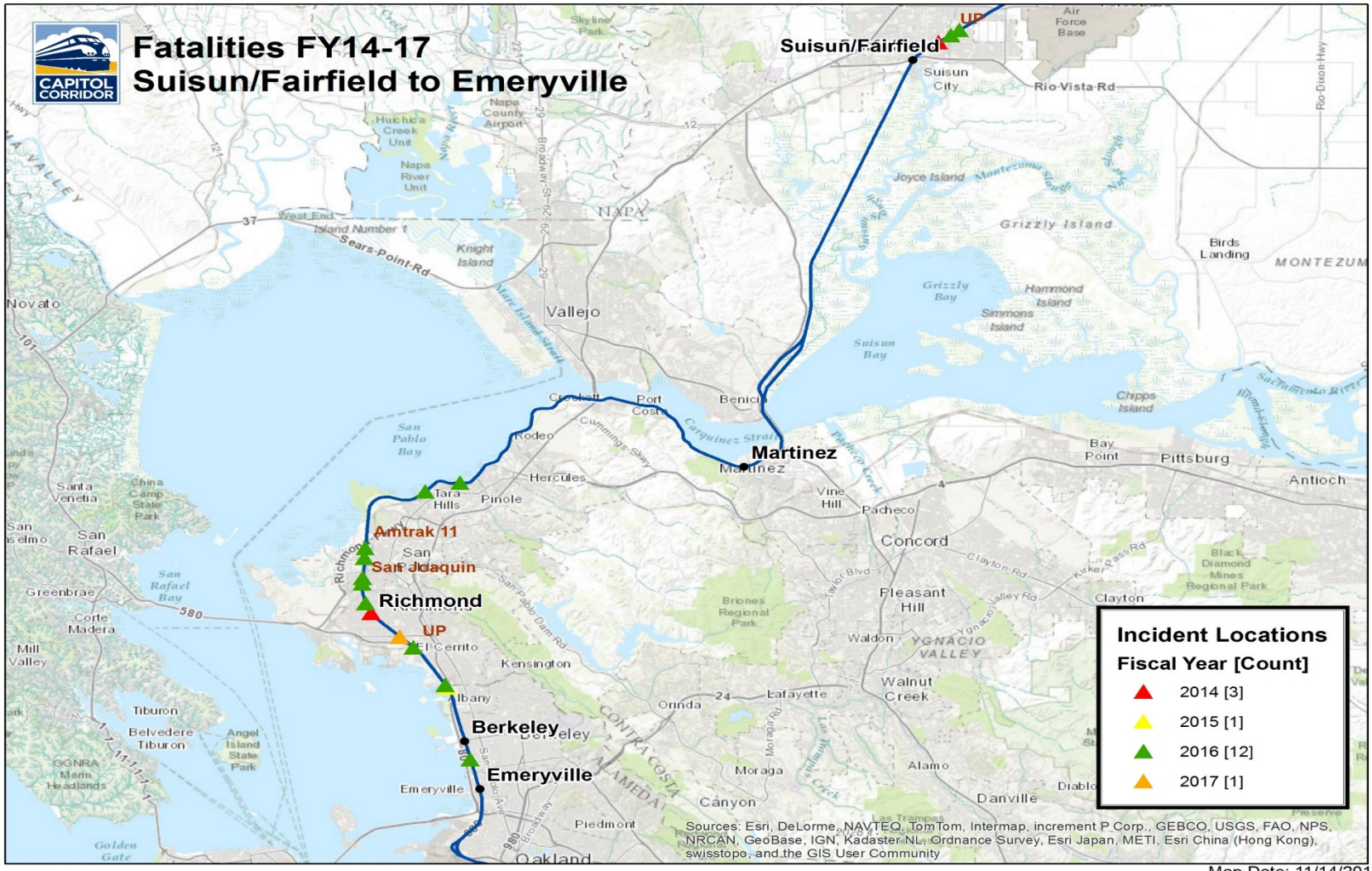
Capitol Corridor
3rd Party (Police, Trespasser, Bridge Lifts) Delays per 10K Miles



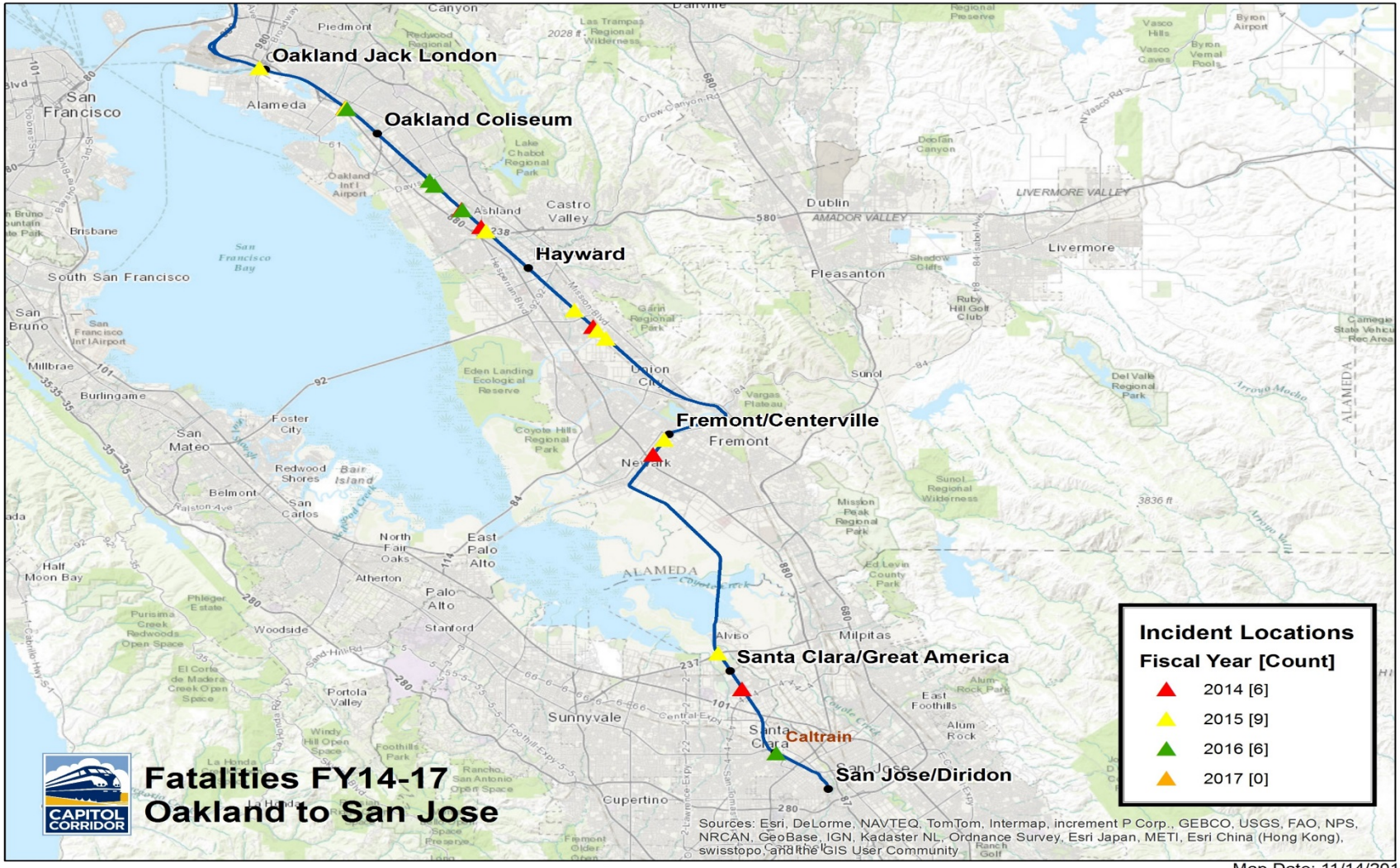
Monthly Average	
-Current 12 months	**397**
-Prior 12 months	**452**
% Difference	**-12%**



Map Date: 11/14/2016



Map Date: 11/14/2016



Map Date: 11/14/2016

Capitol Corridor
Train Performance [November 1-13, 2016]

Trains Operating	358
Trains Late	55
On Time Performance	84.6%

Reason for delay	# of Trains	
Host Railroad	17	31%
Amtrak Operator	0	
Amtrak Mechanical	1	2%
3rd party		
-Trespasser Incidents	36	65%
-Bridge/I Street	1	2%