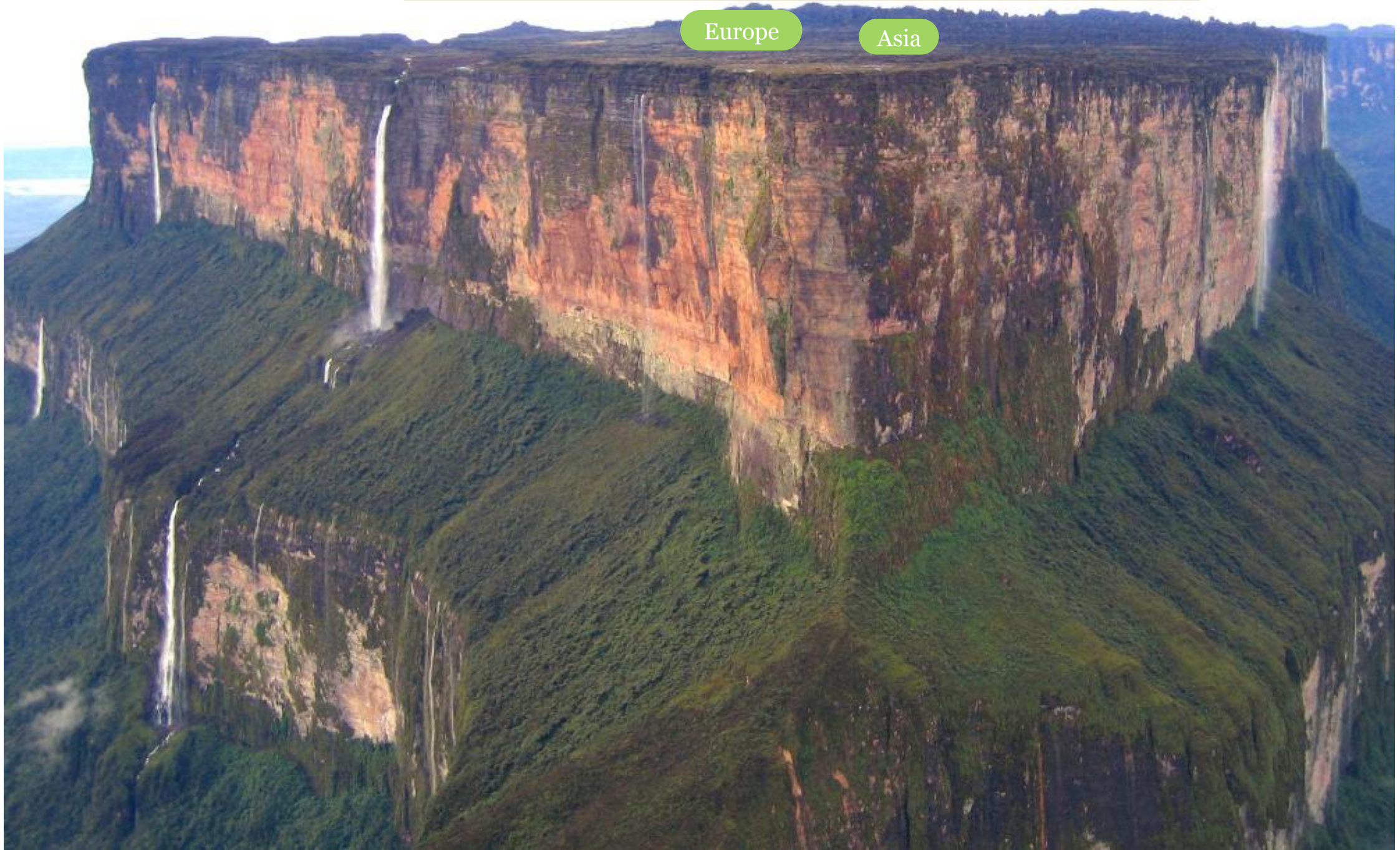
Capitol Corridor Vision Implementation Plan
Vision for the Megaregion

CCJPA | November 2017


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

Electrified, very frequent passenger rail service plateau



CCJPA Board Vision Plan Actions

- Vision Plan Update (Feb 2013) – high-level, conceptual, that retained several alignment alternatives
- Vision Implementation Plan:
  - Process: Develop engineering path toward 15-minute peak-hour electrified intercity passenger rail along the Capitol Corridor route
  - Work backwards from that future aspiration toward a phasing plan from today's conditions
- Adopted Vision Implementation Plan November 2016 by the CCJPA Board but…
  - Board members wanted CCJPA staff to do VIP equivalent for:
    - Transbay: Conventional rail (in a tube) between SF and Oakland
    - Dumbarton Corridor

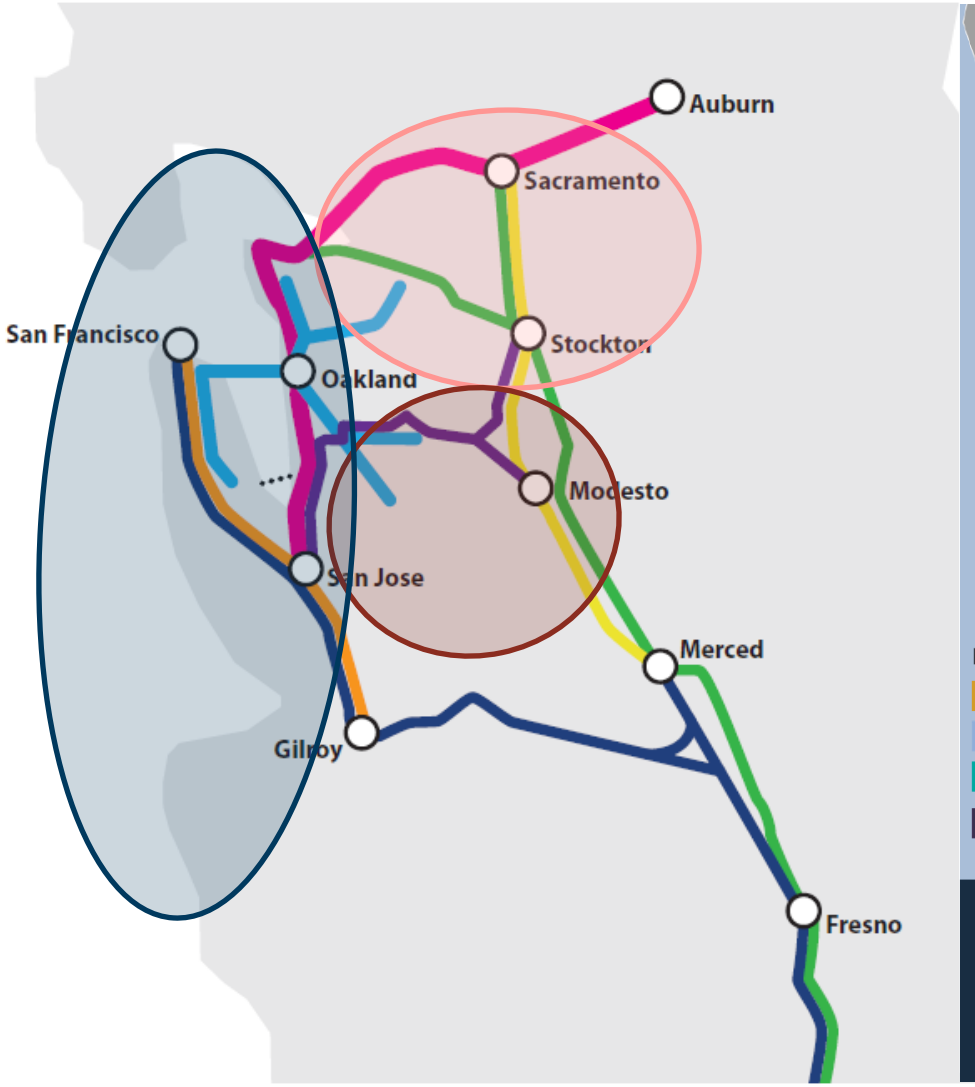
CCJPA Megaregional Context

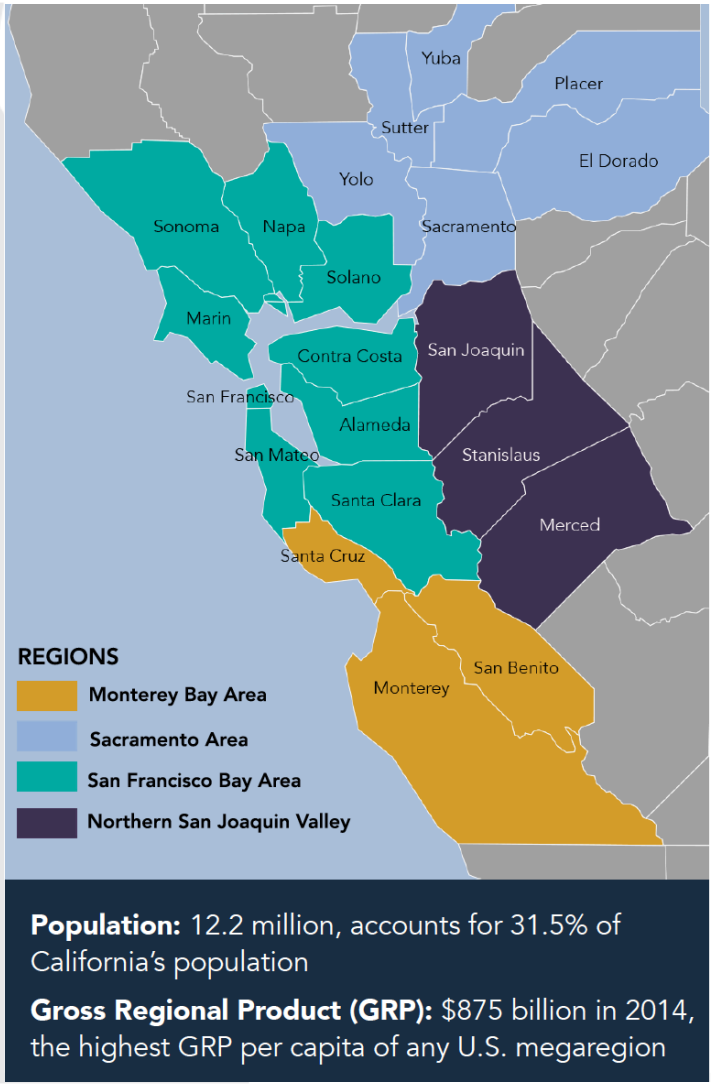
SACOG

MTC

SJCOG

- Capital Corridor
- San Joaquin
- ACE
- Caltrain
- BART
- HSR Phase 1
- HSR Phase 2
- Dumbarton Bridge

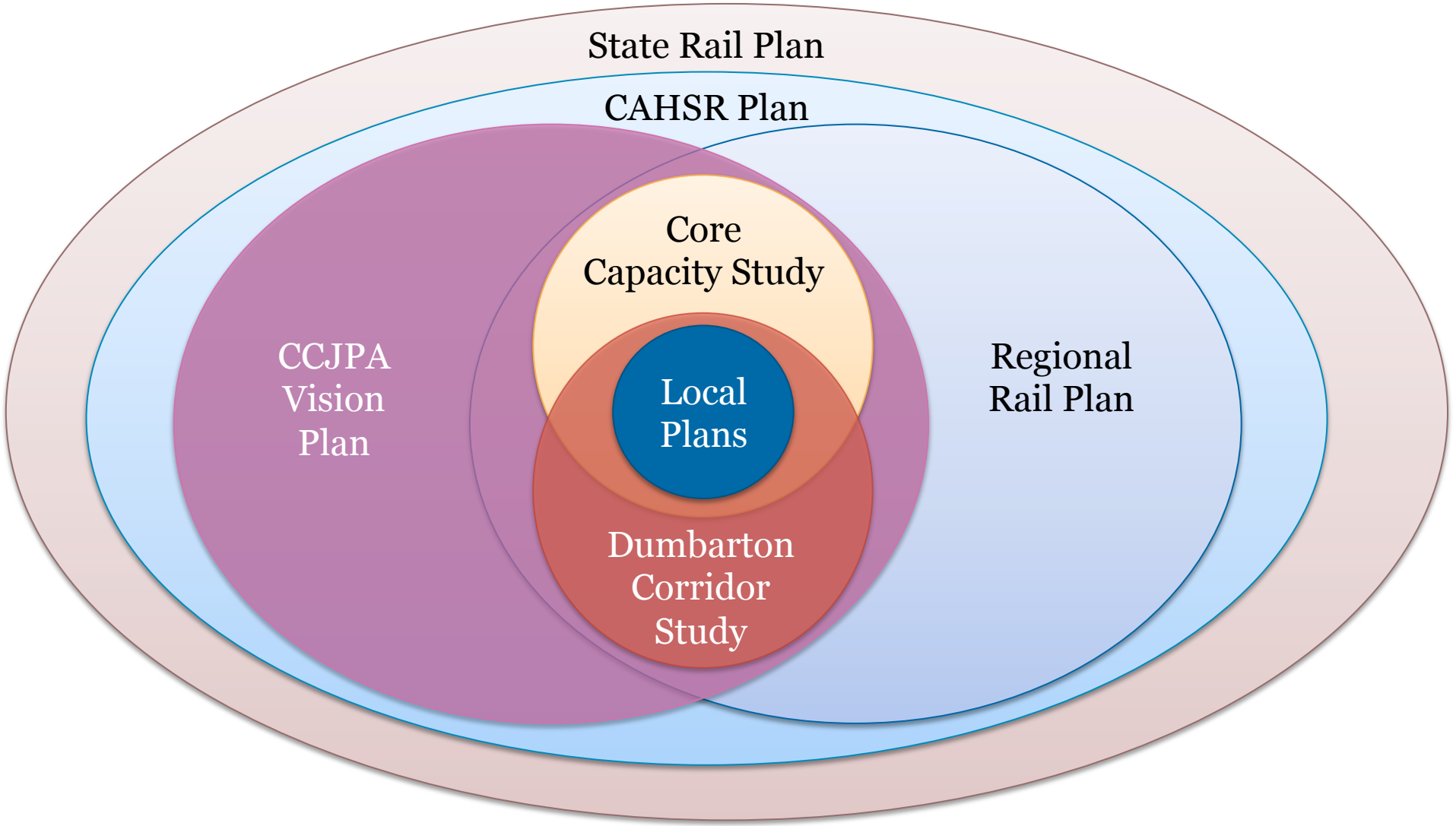




Population: 12.2 million, accounts for 31.5% of California's population

Gross Regional Product (GRP): $875 billion in 2014, the highest GRP per capita of any U.S. megaregion

Nested Rail Plans – Where Is the Megaregional Governance Authority?



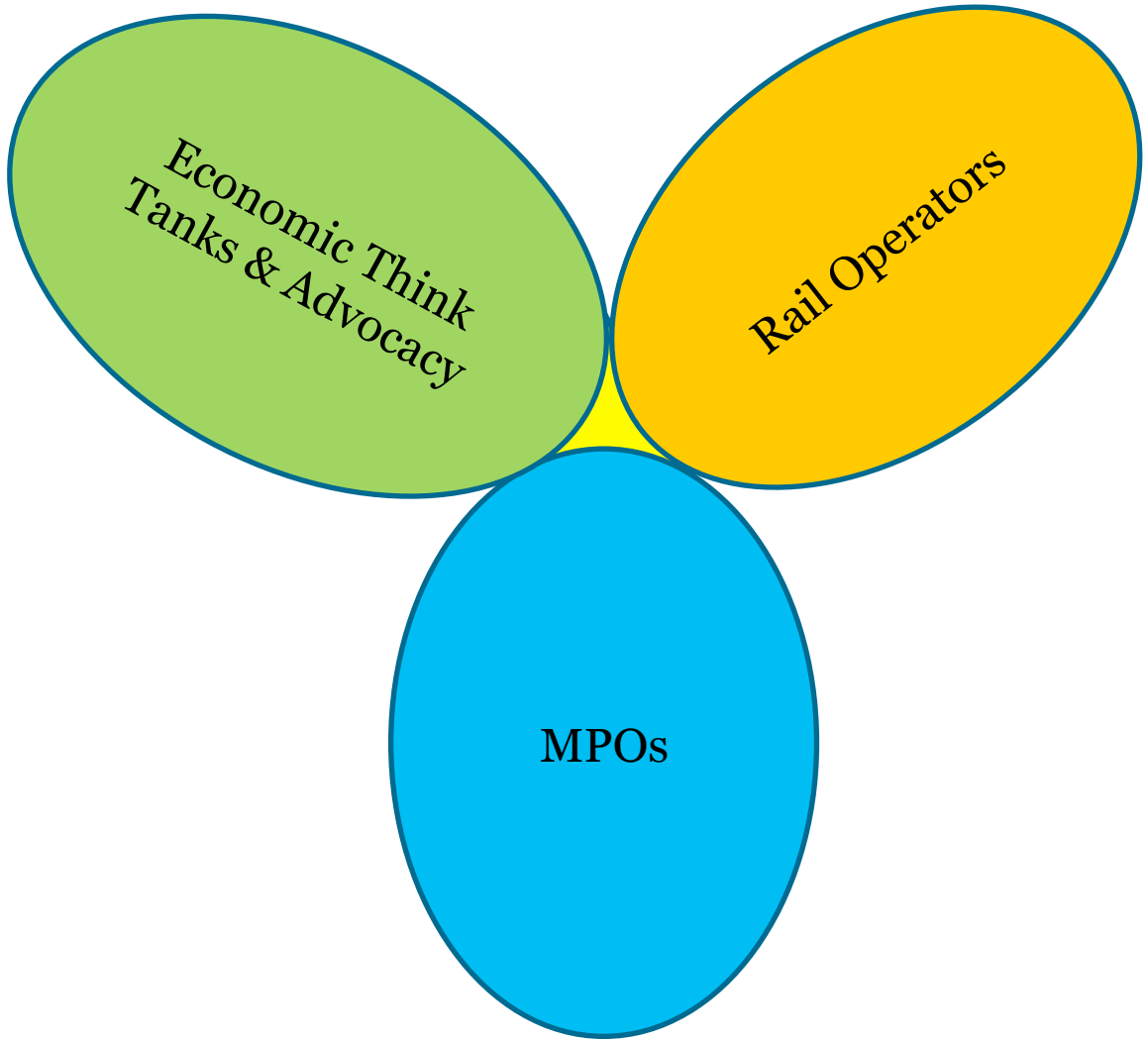
Draft 2018 State Rail Plan – http://www.dot.ca.gov/californiarail/

Exhibit 4.2: Caltrans Statewide 2040 Vision Rail Map

- Governance
  - For now…a starting point
  - Future Nor Cal Megaregional Rail governance??? TBD
- Framework
  - Networked Hubs
  - Connecting Markets
  - Incremental
  - Invest strategically
- The draft State Rail Plan requires a different scale of thinking and possibly organizing than minding after one particular corridor

Learning to work Megaregionally in Nor Cal

- Getting By: Adaptation of existing responsibility, authority, and interest
- How to be inclusive across a 250 mile x 250 mile swath of Nor Cal?
- Logistics of physically meeting together and calendar alignment a challenge at a staff level
- Convening elected officials across megaregional policy bodies have Brown Act complications



CCJPA View

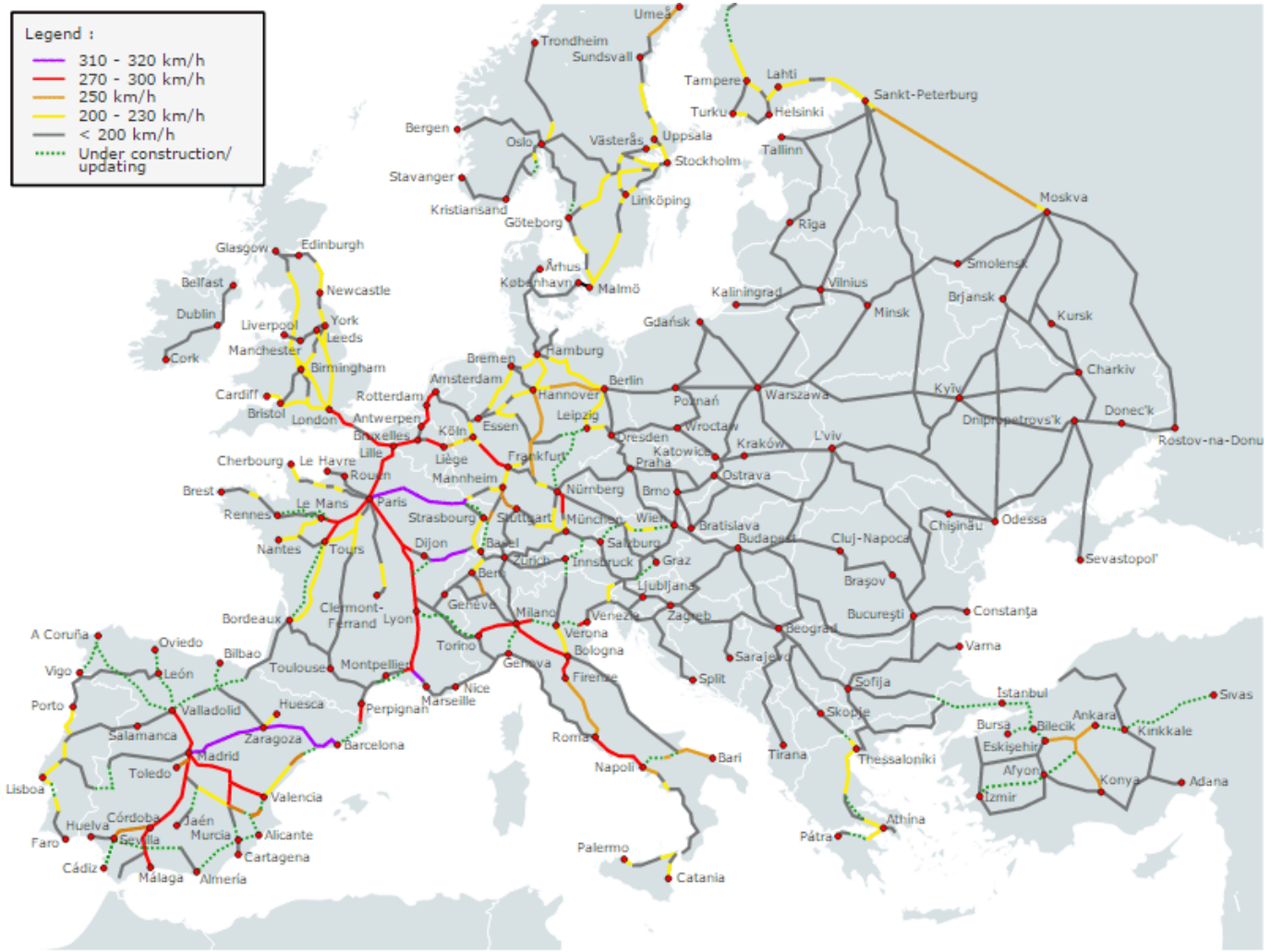
The CCJPA VIP is a high-level engineering and phasing blueprint for CCJPA's corridor

State Rail Plan View

The CCJPA's VIP is a high-level engineering and phasing blueprint for a key corridor in the Northern CA Megaregion

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 along 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

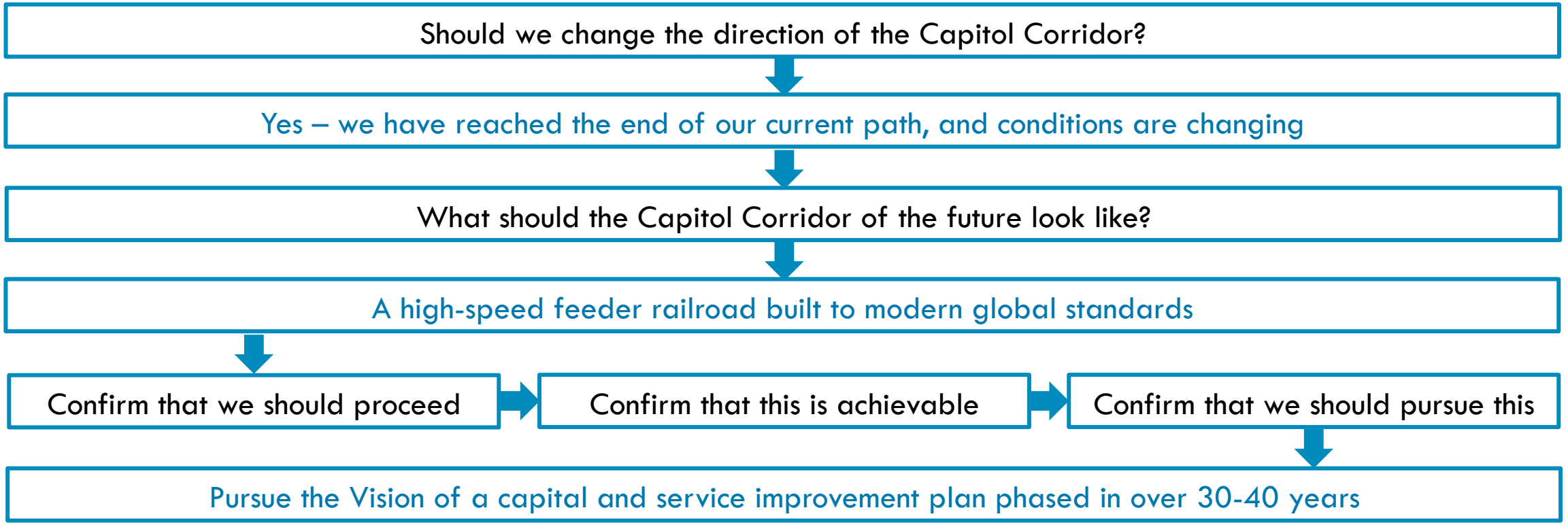
Munich-Nuremberg Regional-Express by Sese Ingolstadt

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

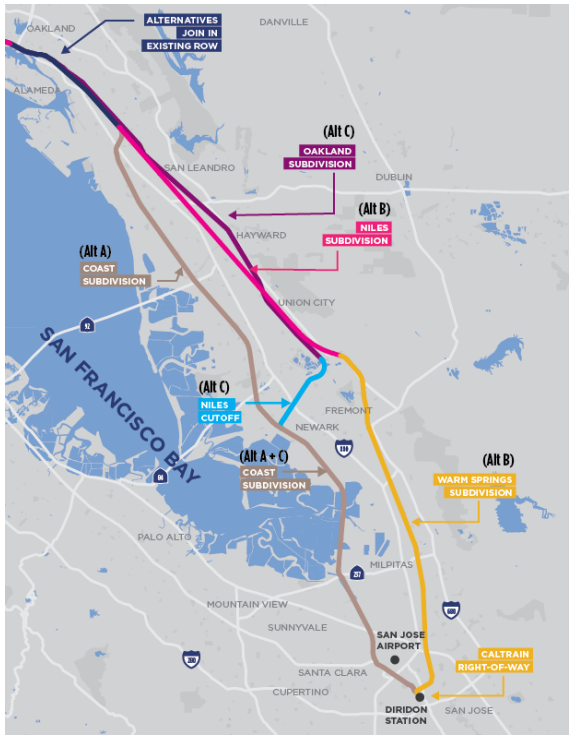
Steps in the Vision Process

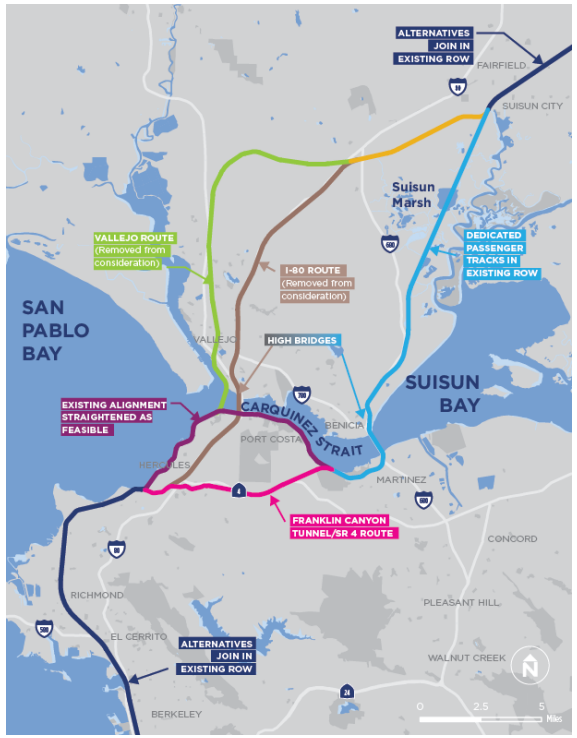


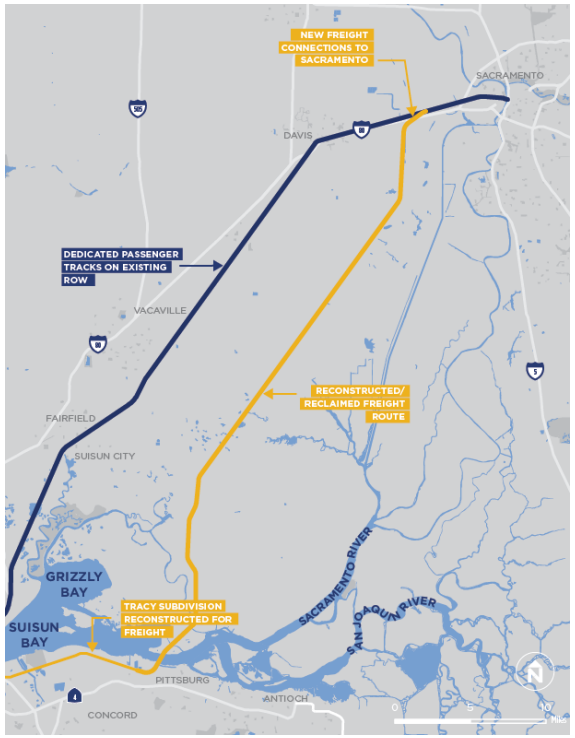
Vision Update Plan:
Where We Were Before VIP – The Possible

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/HSR/State Rail 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 BART Tube)
- All trains removed from street in Central Oakland

Oakland-Richmond

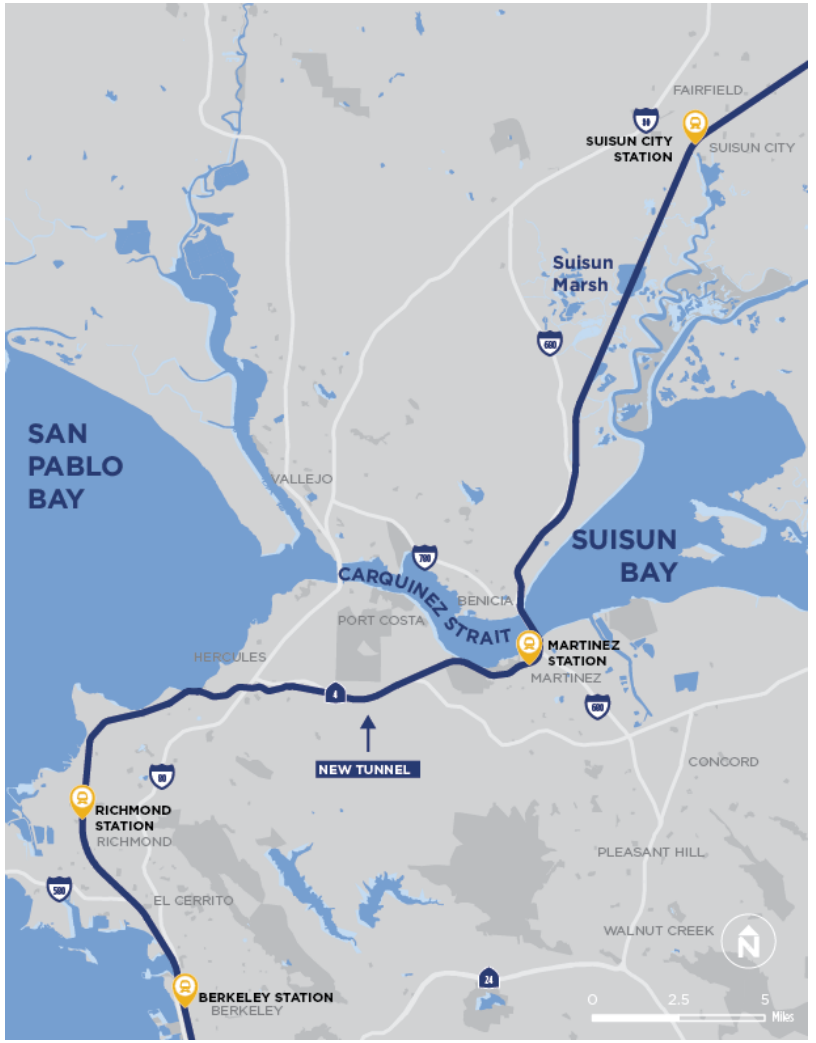
- Four-tracking existing ROW Oakland-Richmond will require some property takings, station reconstruction
- Opportunity to provide additional service between Richmond and San Jose

Since VIP adoption…Conventional Rail Tube – SF to East Bay

- A conventional rail tube SF-East Bay puts the precise solution in this area in doubt
- Market study and high-level design analysis is required to determine how service would be accommodated and function for passenger rail operations

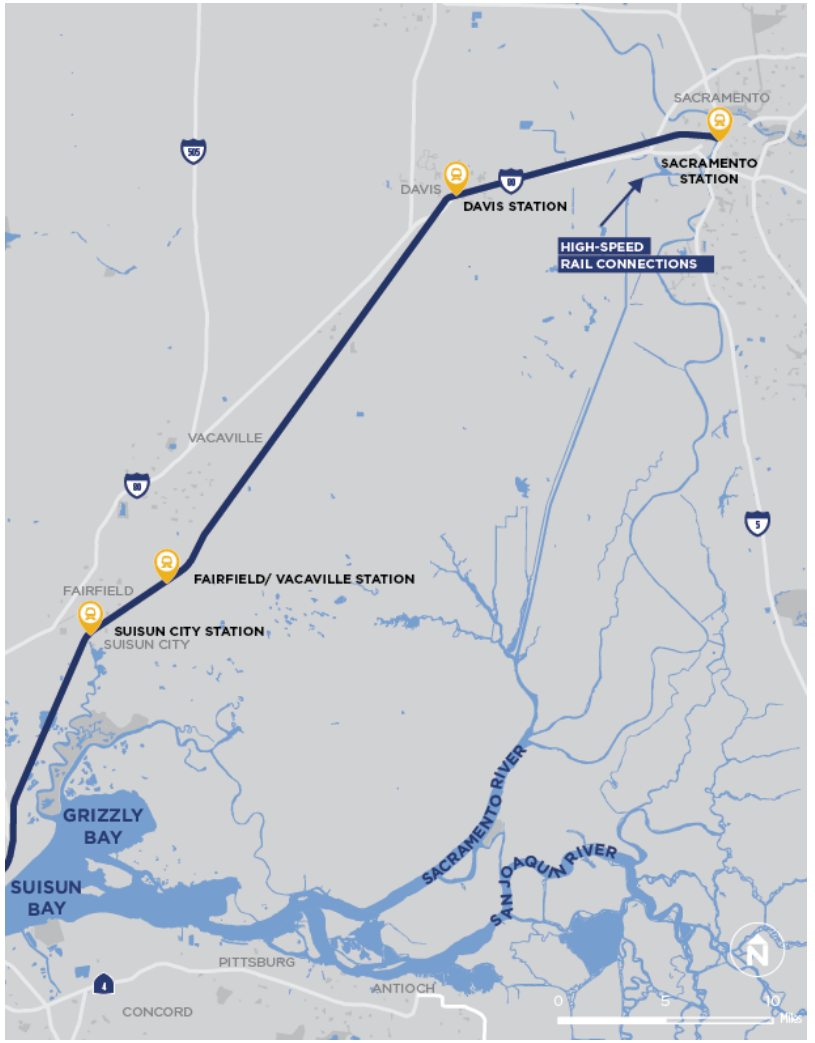
Richmond-Benicia

- 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

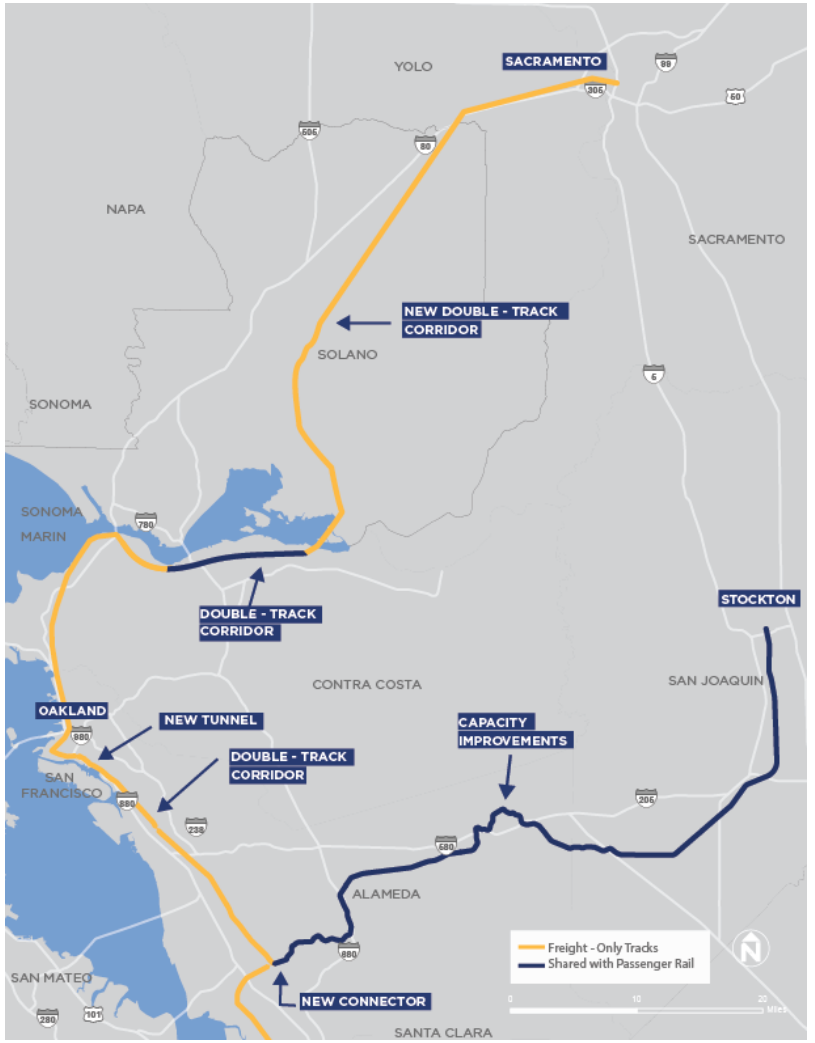


Sacramento-Auburn

- 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

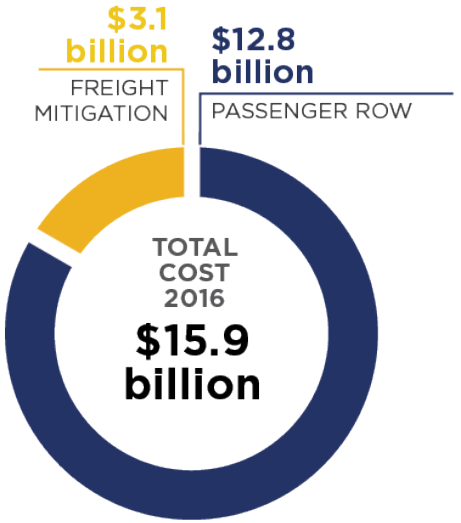
Priorities

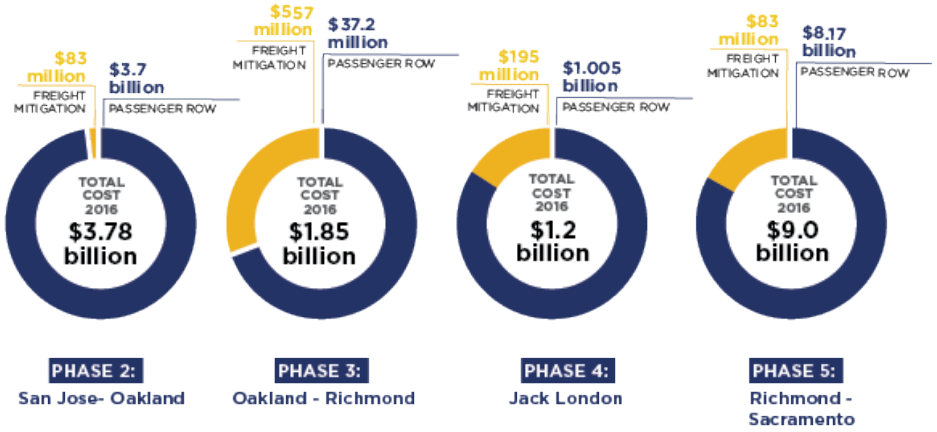
Priority	1	2	3	4	5	6
Projects Status/ Reason for Timing	Already have funding & approvals	Could greatly improve speed and frequency on part of line	Enable further improvements	Major projects that provide immediate benefits	Enable dedicated right-of-way, electrification	Extend dedicated right-of-way, electrification
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 can be re-ordered based on market analysis and/or political momentum

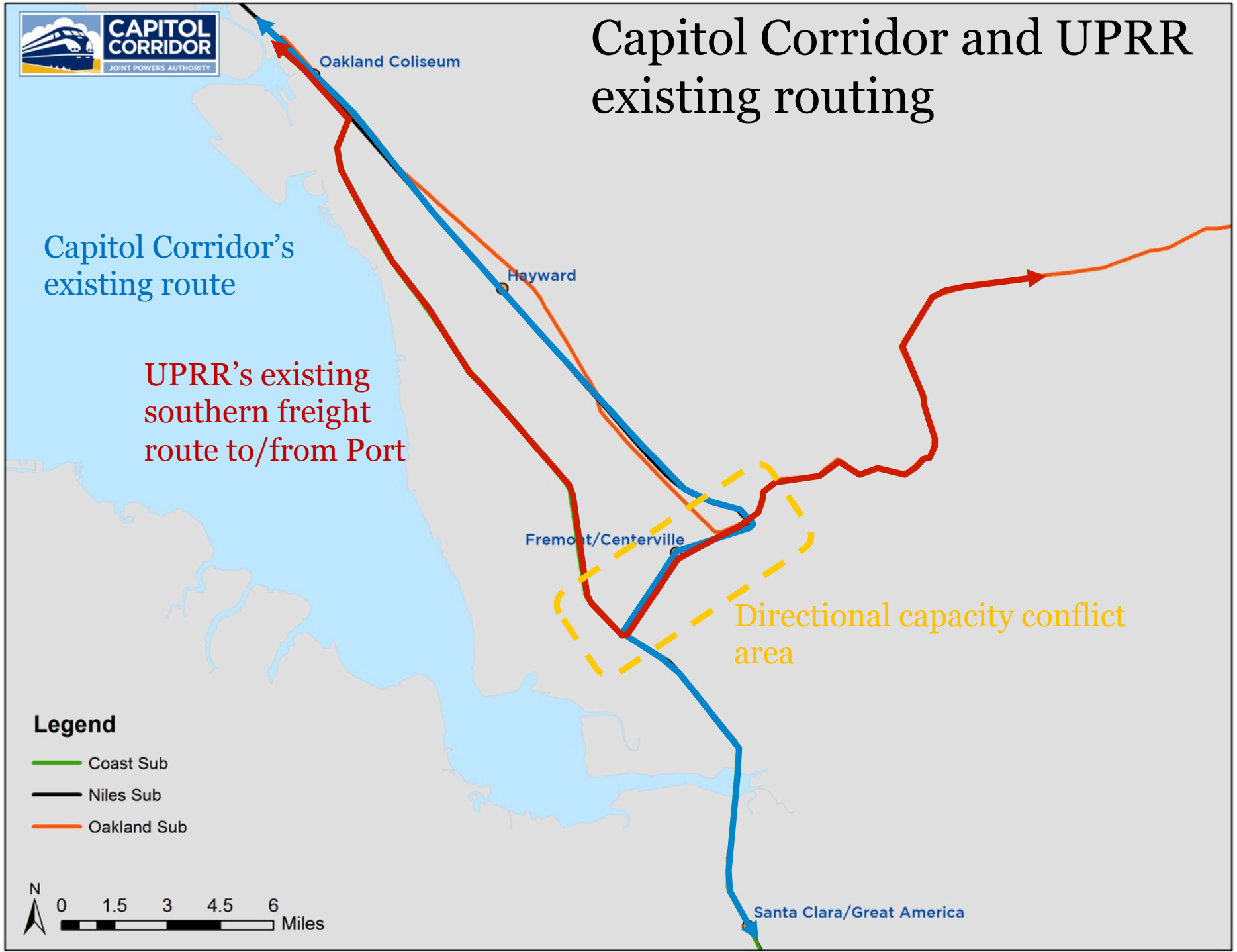
Costs

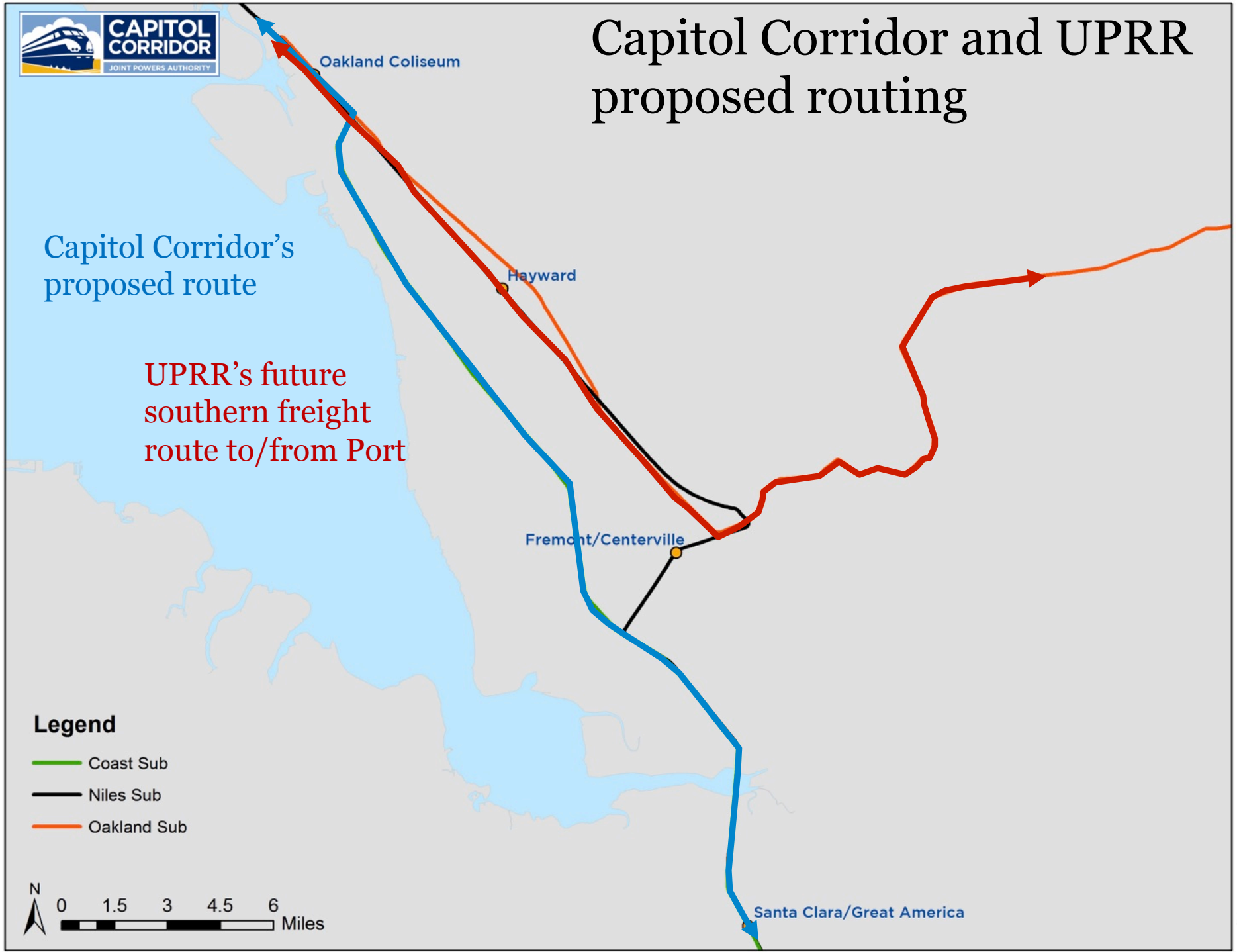
- Should be understood in context of:
  - Packaging:
    - Includes large number of individual projects
    - Also includes “core” projects (e.g. double-tracking ROW) as well as “related” projects (e.g. grade separations)
  - Corridor length – 168 miles
  - Length of time: ~35 years assumed; could be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



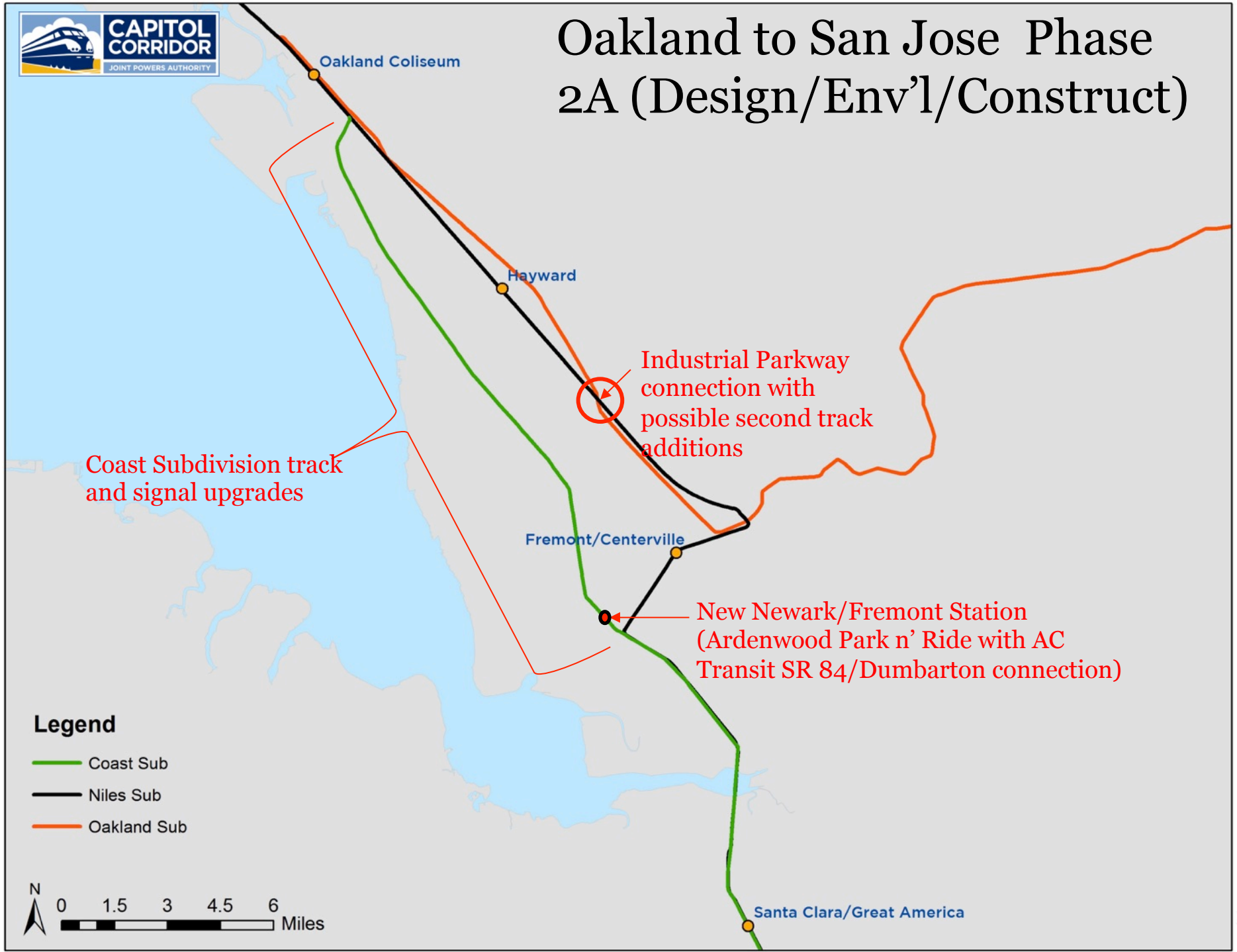


Capitol Corridor and UPRR existing routing




Capitol Corridor and UPRR proposed routing
CAPITOL CORRIDOR
JOINT POWERS AUTHORITY
Oakland Coliseum
Hayward
Fremont/Centerville
Santa Clara/Great America
Capitol Corridor's proposed route
UPRR's future southern freight route to/from Port
Legend
Coast Sub
Niles Sub
Oakland Sub
N
0 1.5 3 4.5 6
Miles

Oakland to San Jose Phase 2A (Design/Env'l/Construct)



What about that Second BART tube and the Conventional Rail Tube?

- Identified in the Core Capacity Study - 🙂
- Disruptive in a good way to VIP - 🙂
- Included in draft State Rail Plan - 🙂
- Most extensive and transformative of the megaregional-regional discussions
  - How to organize, be inclusive without being impractical, and govern just the various studies/steps – aka, planning 🤔