

CALIFORNIA HIGH-SPEED RAIL

PRESENTED BY

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A Transformative Project, a Model for Sustainability

April 30, 2014

Sacramento, CA



AGENDA

- California High-Speed Rail Update
- Delivering a Major Capital Program
- Sustainable Planning and Construction Initiatives
- Q&A

HIGH-SPEED RAIL: MORE THAN A TRANSPORTATION PROGRAM

- California is 8th Largest Economy in the World
- Comparable to Northeast Corridor in Terms of Distance, Population and Complexity
- It is a Transformative Investment
- Connecting all California Population Centers



CONTROVERSY IS NOTHING NEW

- Transformative Projects Have **Never Been Easy**
- Golden Gate Bridge:
 - “Upside-Down **Rat Trap** that will Mar the Beauty of the Bay”
 - 2,000+ Lawsuits
- BART – Once Called the **Train to Nowhere**
- Calif. State Water System, University of Calif. System
 - Single-Vote Margins
- **Where Would We be Without Them?**

WHY HIGH-SPEED RAIL IN CALIFORNIA?

- **Curbs Congestion**

- LAX to SFO is the Busiest Short-Haul Market in US

- 1 in 6 Flights out of LA Heads to Bay Area

- Six of Top 30 Congested Urban Areas in US are Located in California

- **Population Growth Estimated to Reach 50 Million by 2050**

- **Air Quality/Sustainability**

- Meets Goals of AB 32/SB 375

- **Alternatives are Costly**

- 2-3 Times More Expensive



RESULTS FOR CALIFORNIA

- **Reduction in Vehicle Miles Traveled (VMT)**
 - By 2040, the system will reduce vehicle miles by almost 10 million miles every day
 - By 2030, the reduction in VMT would be like removing one 500-mile lane of cars
- **Daily Number of Flights Diverted**
 - Starting in 2030, the state will see a daily reduction of 93 to 171 flights
 - By 2040, the state will see a daily reduction of 97 to 180 flights
- **Statewide Air Quality Improvement:**
 - Tons of volatile organic compounds reduced
 - Tons of particulate matter reduced
 - Tons of ozone precursors

A STATEWIDE RAIL MODERNIZATION PLAN

Progress is Underway

- Caltrain Electrification & Early Investments in the Peninsula Corridor
- Central Valley “Backbone” of High-Speed Rail
- Regional Enhancements in Southern California
- Statewide Connectivity Projects & Investments



PHASED IMPLEMENTATION – INITIAL OPERATING SECTION

Length (Approx)	Endpoints	Service description	Planning schedule	Cumulative cost (YOE\$, Billions)
300 miles	Merced to San Fernando Valley	<ul style="list-style-type: none">• One-seat ride• Closes north-south intercity rail gap• Private sector operator• Ridership and revenues sufficient to attract private capital for expansion• Connects with enhanced regional/local rail for blended Operations	2022	\$31

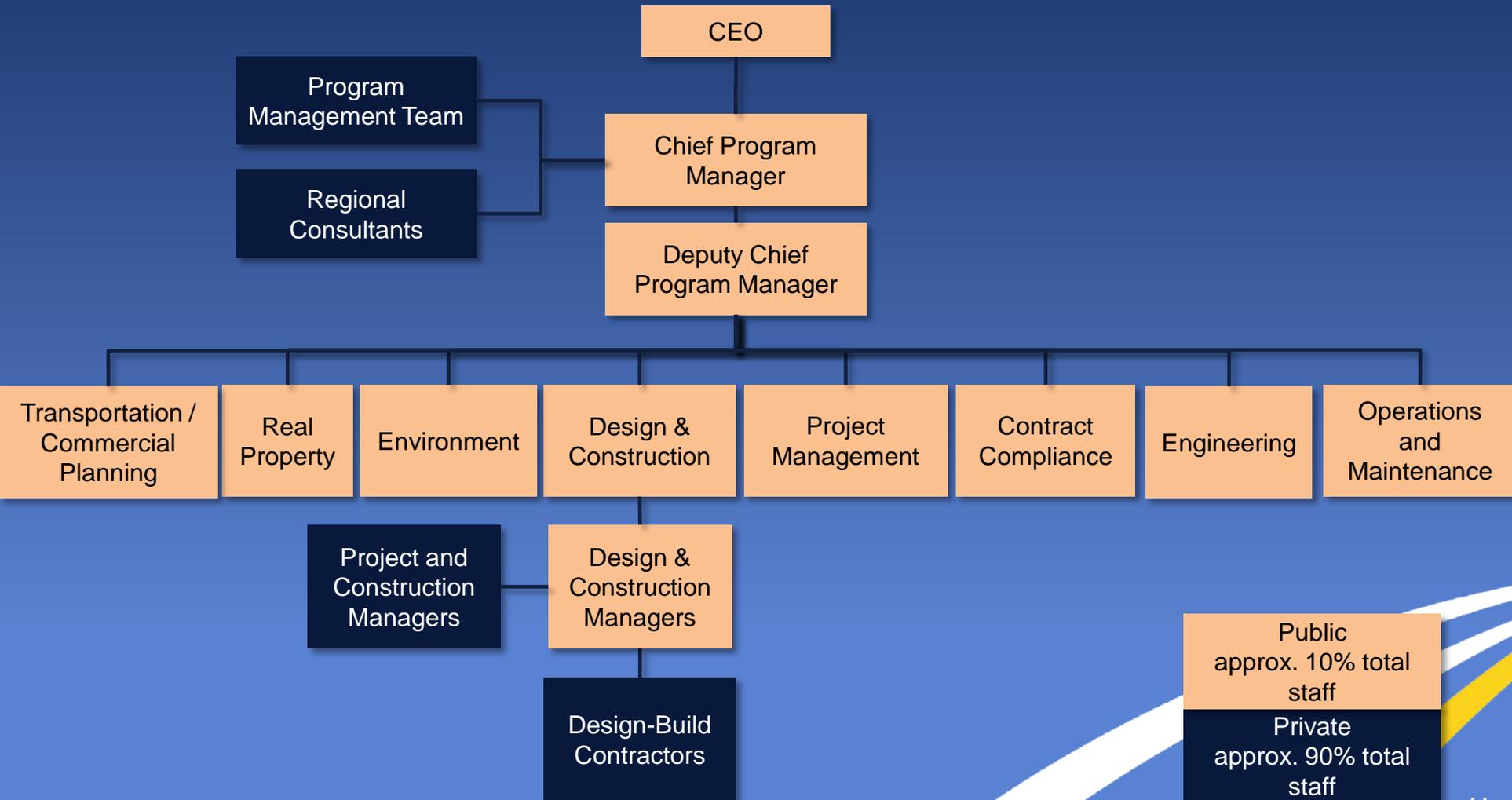
PHASED IMPLEMENTATION – BAY TO BASIN

Length (Approx)	Endpoints	Service description	Planning schedule	Cumulative cost (YOE\$, Billions)
410 miles	San Jose and Merced to San Fernando Valley	<ul style="list-style-type: none">• One-seat ride• Shared use of electrified/upgraded Caltrain corridor between San Jose and San Francisco Transbay Transit Center• First high-speed rail service to connect the San Francisco Bay Area with the Los Angeles Basin	2026	\$51

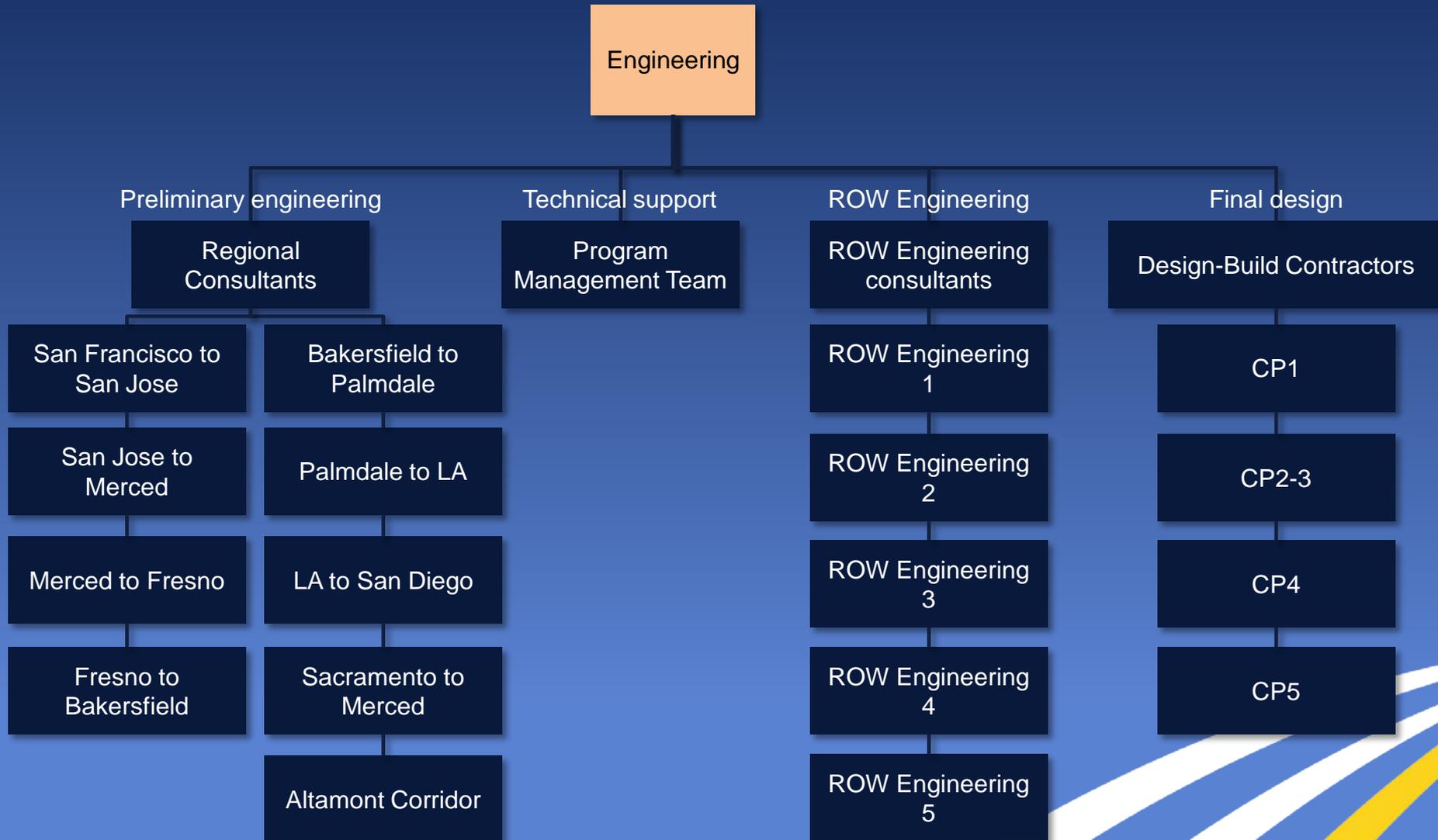
PHASED IMPLEMENTATION – PHASE 1

Length (Approx)	Endpoints	Service description	Planning schedule	Cumulative cost (YOE\$, Billions)
520 miles	San Francisco to Los Angeles/ Anaheim	<ul style="list-style-type: none">• One-seat ride• Dedicated high-speed rail infrastructure between San Jose and Los Angeles Union Station• Upgraded Metrolink corridor from LA to Anaheim	2028	\$68

PROGRAM MANAGEMENT ORGANIZATION MIXES PUBLIC AND PRIVATE EXPERTISE



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PROGRAM DELIVERY

Train Operations

Rolling Stock

Infrastructure (Track, Systems. Power)

Design-Build
Construction
Packages

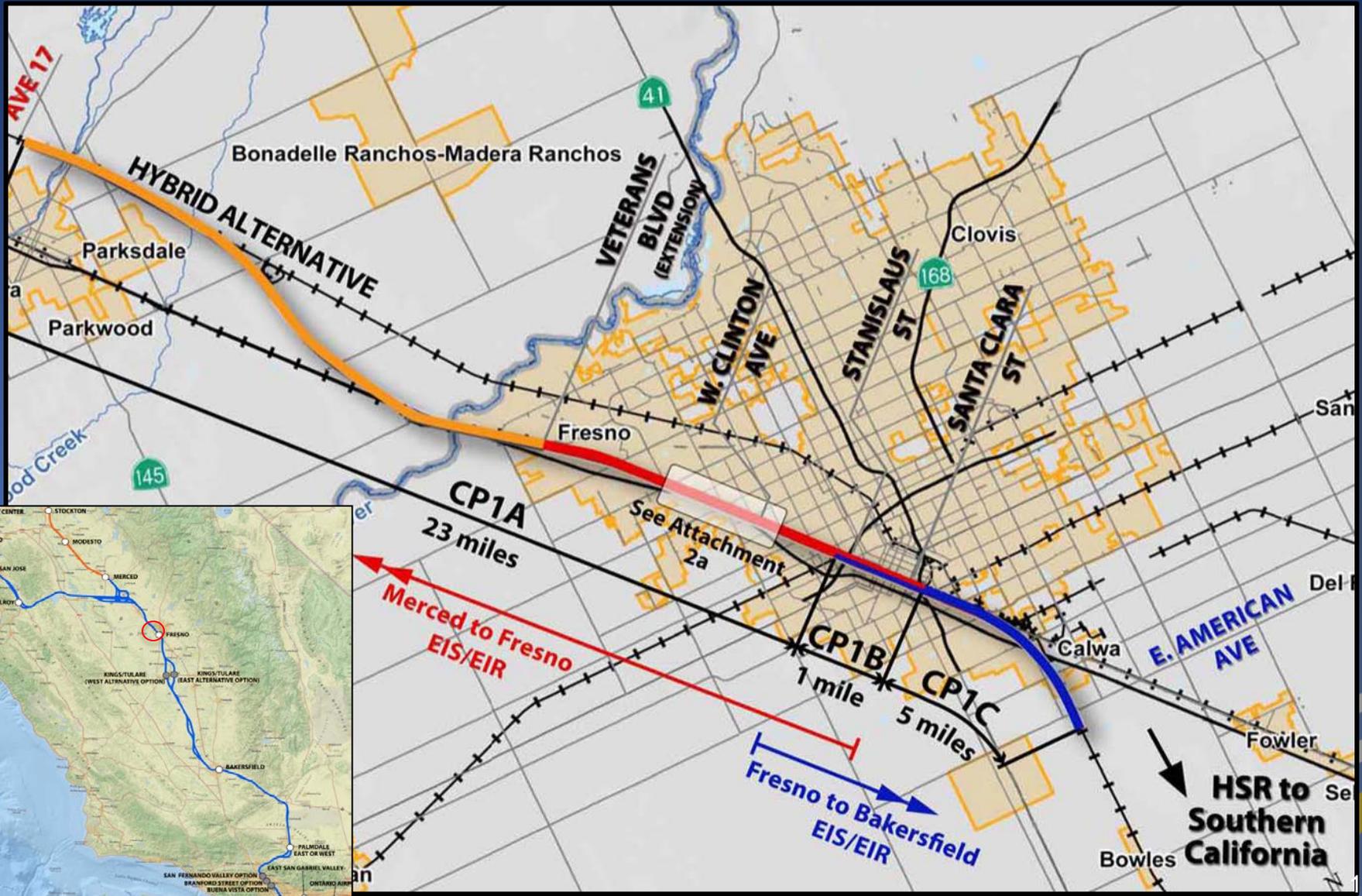
CURRENT FOCUS

Program Comprised of:

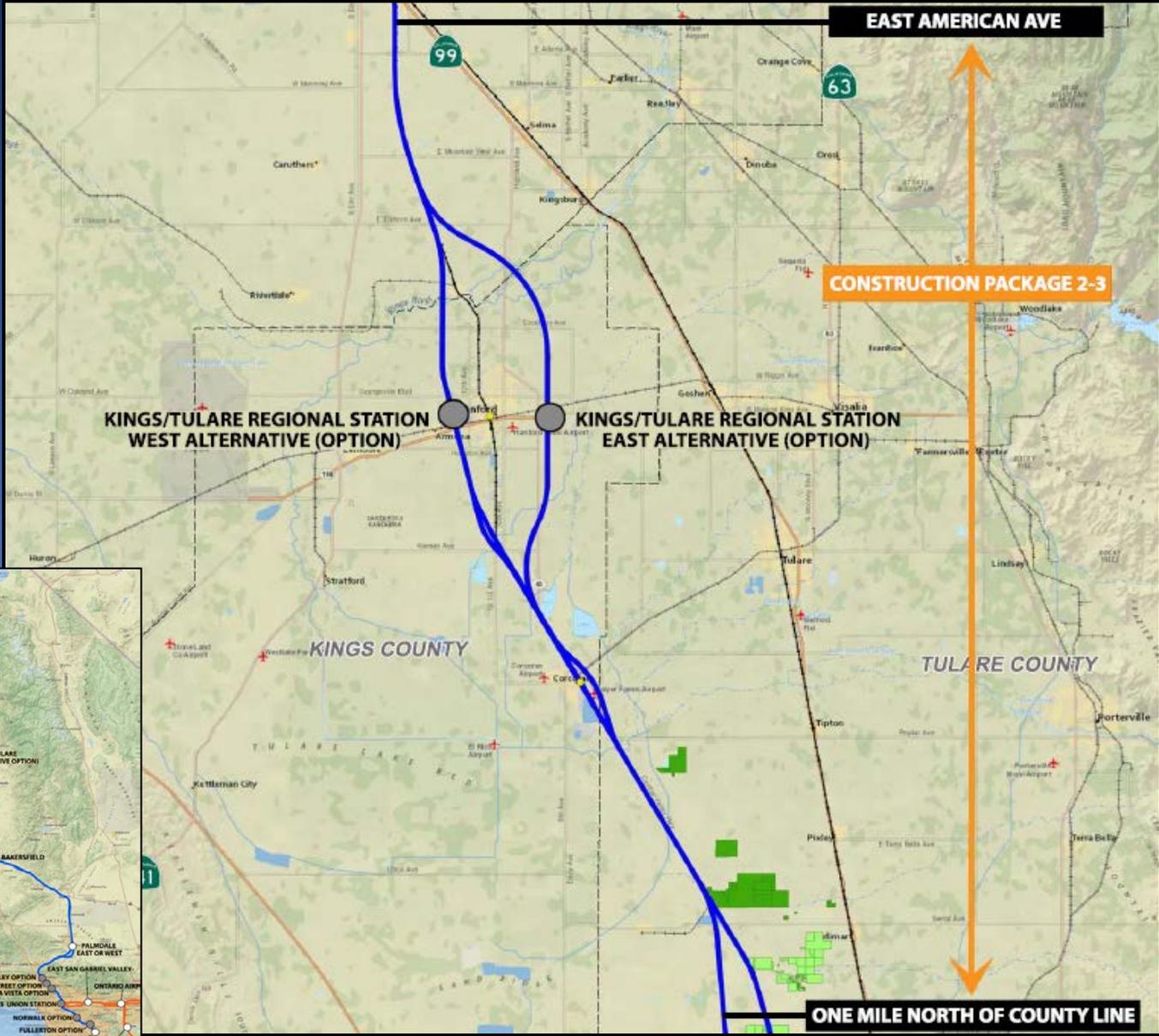
- Environmental Projects
- Third Party Projects (City, Caltrans, Railroad)
- Design-Build Projects
- Smaller but Critical Enabling Projects
 - ROW Acquisition
 - Procurements



CURRENT ACTIVITY – CONSTRUCTION PACKAGE 1



CURRENT ACTIVITY – CONSTRUCTION PACKAGE 2-3



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Meg Cederoth

Sustainability Manager

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CLEAN & GREEN CONSTRUCTION

Eliminating Waste

- Recycling **all concrete and steel**
 - Estimated cost savings
- Recycling of construction waste
 - **75 percent** of construction and demolition waste to be recycled, or reused
- Encouraging the use of recycled material
 - Tire derived aggregate
 - Recycled aggregate
 - Fly ash or other cement replacement



CLEAN & GREEN CONSTRUCTION

New Equipment & Trees

- Tier 4, or retrofitted to meet Tier 4
- Working with **the San Joaquin Valley Air Pollution District** to provide:
 - New, clean buses for schools
 - Clean truck engines and new tractors
 - Electrified irrigation pumps
- Planting Trees
- Keeping track and improving as we go



SUSTAINABILITY FRAMEWORK

- Authority sustainability priorities

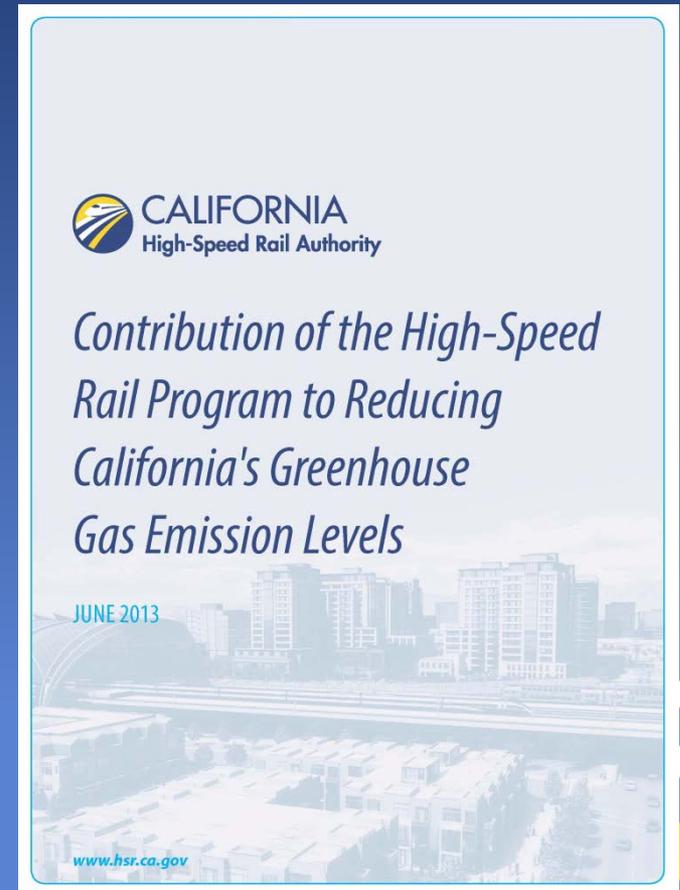
- Energy
- Communities & Ridership
- Sustainable Infrastructure
- Natural Resources
- Business & Management



- Enables focused effort to deliver the program

GHG EMISSION REPORT

- In July 2013, the Authority submitted the California High-Speed Rail Authority's Greenhouse Gas Emissions Report
- Report highlights GHG emissions reduction through:
 - Alternative mobility choices
 - Decreased miles travelled by vehicles and airplanes in California
 - Enabling long-term land use change



GHG EMISSION REDUCTION: SHORT-TERM

- Caltrain Electrification
- Bookend investments in local transit
 - Central Subway
 - LA Metro Regional Rail Connector
- Construction Waste Diversion: **Recycling** All Concrete & Steel
- Clean Fleet Requirements: **Fuel Efficient** & Newest Technology
- Urban Greening: Planting at least **5,000 Trees**
- Voluntary Emissions Reduction Agreement: New Tractors, Cleaner Buses, Upgraded Pumps

GHG EMISSION REDUCTION: IN OPERATION

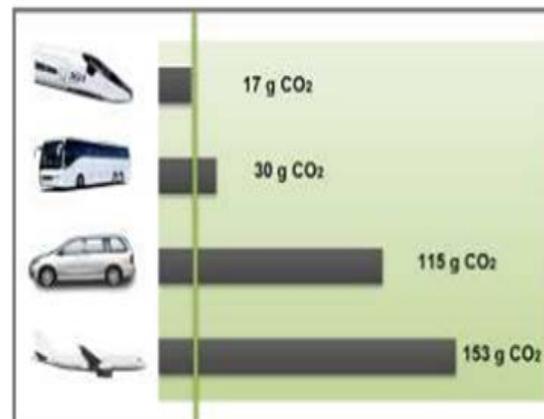
- At the start of service, in **2022**, GHG reductions will be at least **140,000** metric tons of carbon dioxide equivalent (MTCO₂e) in the first year
 - That's at least 16,000 personal vehicles off the road
- By 2028, high-speed rail will reduce at least 500,000 metric tons annually
- Cumulatively, by 2040, it would be equivalent to taking a coal-fired power plant off line (at least ten million metric tons)

HIGH-SPEED RAIL: MODAL COMPARISON

- According to the UIC, HSR is “widely acknowledged as **the most carbon efficient** form of mass transport.”
- It replaces “less sustainable modes such as aviation or the private car, which have GHG emissions **factors 5 to 6 times larger.**”

http://www.uic.org/IMG/pdf/hsr_sustainability/_main_study_final.pdf

Figure 8 CO₂ Average emissions per pkm in Europe - modal comparison



Source: Data by Alstom¹ and Calculation by SYSTRA

100 PERCENT RENEWABLE ENERGY USE

- The Authority has committed to using **100 percent** renewable energy to power the system
- This net-zero approach:
 - Reduces transportation dependence on fossil fuels
 - Provides the Authority with a cost-stable energy source
 - Reinforces clean energy economy
 - Supports AB 32 objectives for clean transportation



STATION AREA PLANNING

- The Authority is partnering with several cities to establish smart, station-specific planning, unique to that location.

Fresno

Merced

Gilroy

San Jose

Palmdale

Bakersfield

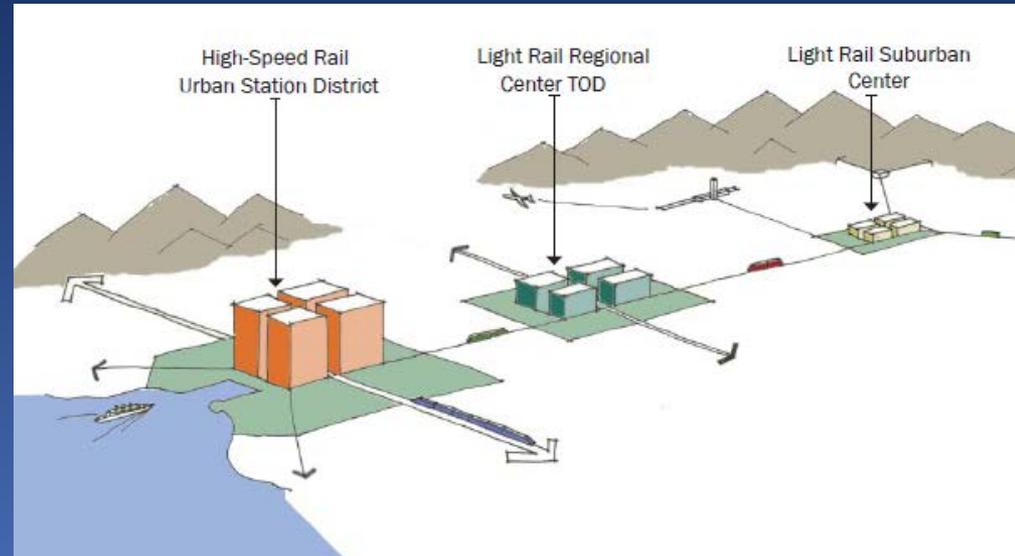
Hanford

- The Authority is providing
 - funding for critical planning
 - technical assistance on transit orientated design
 - strategies for encouraging development



STATION AREA PLANNING :GOALS

- Enabling a network of connected, creative, livable communities spanning California
- Creating Livable Communities around the stations
 - Integrated rail & transit connectivity
 - Station's as travel nodes & destinations
- TOD & Joint Development
 - Sustainability as core program value
 - AB 32 Goals
 - SB 375; Transportation AND Land Use



SUSTAINABLE DESIGN

- Station facilities that reflect the Authority's leadership and commitment to good design

Station Access



Concourse
Free Areas



Ticketing



Commercial
Spaces



Platforms



Security



Safety
Reliability
Performance
Sustainability

ENVIRONMENTAL BENEFITS: HIGH-SPEED RAIL'S BEST KEPT SECRETS

- Preserving Agricultural Land
- Improving Air Quality
- Preserving and Enhancing Critical Habitat
- Reducing Greenhouse Gases
- Enabling Smart Land Use
- Urban Greening: Planting Trees
- Modernizing Transit Statewide
- Using Renewable Energy

PROGRAM NEXT STEPS

- Continue Environmental Review and Design; Focusing on Continuing South to San Fernando Valley
- Continue Collaboration with Transportation Stakeholders on Integrated Services and Bookend Investments
- Conclude Joint Rolling Stock Procurement with Amtrak
- Procure Remainder of Construction Contracts
- 2014 Business Plan



Q&A

CALIFORNIA HIGH-SPEED RAIL AUTHORITY

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