



CALIFORNIA
High-Speed Rail Authority

CALIFORNIA HIGH-SPEED RAIL CEO Report

Brian Kelly
Chief Executive Officer
February 16, 2023



CALIFORNIA
High-Speed Rail Authority

2023 Project Update Report Summary

2023 PROJECT UPDATE REPORT

Business Plan 2022 Objectives for 2023 Project Update Report

- » Execute Major Change Orders to **define scope**
 - *CP1* Seven of eight major commercial issues noted in 2022 Business Plan have been resolved, and only Church Avenue remains.
 - *CP2-3* Three of four major commercial issues noted in 2022 Business Plan have been resolved, and one is in arbitration (Cross Creek).
 - *CP4* The one major commercial issue noted in the 2022 Business Plan has been resolved.

- » Complete **Revised Baseline Schedules** for CP1 & CP2-3
 - *CP1* 2026
 - *CP2-3* 2026
 - *CP4* Summer 2023

- » **Reset budgets** once scope and schedules are firmed up

- » **Update capital cost** estimates once environmental work is done
 - *Completed ROD for San Francisco to San Jose Segment in Fall 2022*

- » **Update ridership** analysis

2023 PROJECT UPDATE REPORT

Since Business Plan 2022

- » **Senate Bill 198 (Statutes of 2022) enacted, which focuses the 2023 Project Update Report on the Merced-to-Bakersfield segment. The Legislature specified:**
 - *Update cost and schedule estimates for the Merced-to-Bakersfield segment, with specified milestones for completion and stated risk/contingency assumptions.*
 - *Build the segment as a dual-track, electrified railroad, with a shared station in Merced with passenger services that will operate north to Sacramento and west to the Bay Area (San Joaquin Amtrak and Altamont Commuter Express)*
- » **Received additional input from cities and other local partners for station designs.**
- » **Pulled the Track and Systems procurement to work on a new delivery strategy.**

2023 PROJECT UPDATE REPORT

Basis and Assumptions

- **Sets a Target 2030 Goal**—Reflects the Scope, Schedule, Cost, and Risk for an Early Operating Segment with a Target Schedule for operations to be ready Dec 31, 2030. Applying a risk factor creates a 3-year schedule envelope between 2030 – 2033.
- **Credible Estimates**—Cost updates and risk analysis conducted by experts to establish a budget at the P65 Risk level and a Schedule Envelope in line with FRA and FTA guidelines
- **How did we do it**—A whole team effort, starting with guidance and direction from the CEO, set out a plan with a timeline and deliverables, conducted extensive workshops with department leads on Scope, Schedule, Cost, and Risk, and then conducted reasonableness checks:
 - » **Cost Estimates** followed the capital cost estimating guidance from both federal and industry best practices (i.e., US DOT and AACE guidelines)
 - » **Risk Process** was conducted by the Authority’s independent risk advisors following US DOT FTA/FRA Risk and Contingency Review guidance
 - » **Reasonableness Checks** conducted by the Authority’s Financial Advisor on all major projects
- **Results**—A cost estimate range, informed by risk, for the Early Operating Service that meets Legislative requirements.

2023 PROJECT UPDATE REPORT

Cost Outcomes

- **Cost Environment** —A major intercity rail mega-project recently announced a 39% budget increase from \$11.6 billion to \$16.1 billion. This is the Gateway project on the Northeast Corridor. On January 31st, President Biden celebrated federal funding for this project, noting “*This is just the beginning, the beginning of finally constructing a 21st-century rail system*”.
- **Costs in California**—California is facing similar challenges to the Gateway project. Our costs are growing from \$25.7 billion to potentially up to \$35.3 billion (38% at the P65 level). Our cost drivers can be grouped into three categories:
 - **Escalation / Inflation:** *Higher costs due to higher inflation rates and time impacts add about \$2.1 billion, or about 21% of cost growth.*
 - **Scope Increased or Transferred:** *New scope elements added to the Central Valley include short extensions in Merced and Bakersfield for preferred station locations, final scope for the 119-mile Central Valley segment, revised station designs, and solar power elements. Some elements are brought into the Central Valley from other Phase I costs, such as the Light Maintenance Facility and elements of the Bakersfield Station. Scope changes add about \$3.9 billion, or 41% of new costs.*
 - **Contingency and Other:** *The above adjustments result in additional contingency required to achieve a P65 risk level. Other includes updated ROW and Professional Services, with some elements of each of those also related to escalation and scope. Costs here add about \$3.7 billion, or about 38% of new costs.*

2023 PROJECT UPDATE REPORT

Finishing the 119-mile Construction Packages:

- » The Authority now has over 96 percent of right-of-way in hand, has completed design of the 119-mile HSR civil infrastructure, and has completed 53% of utility relocations, with another 19% underway. The new estimates for this existing construction work represent updates from major final design elements being incorporated into construction contracts via change orders and updates due to global inflation and new construction schedules – due in part to COVID-19. To complete current civil contracts and related work, \$2.2 billion is added to the 2022 Business Plan estimate.

New Contracts/Work to Complete Merced to Bakersfield:

- » The Authority is also looking towards new procurements for civil construction to Merced and Bakersfield, the track and systems work, stations, and finally trainsets. We are already approaching the extensions differently by advancing design to the configuration-level, which is generally about 30 percent, and will procure right-of-way in advance of construction work.
- » Cost updates for new contracts are informed by market conditions, including inflation, and updates to unit costs and scope such as station location and designs. To complete through Merced to Bakersfield, an additional \$7.5 billion is added to the 2022 Business Plan estimate.

2023 PROJECT UPDATE REPORT

- 119-Mile Central Valley Segment

Scope Element	2022 BP	Estimate YOE	P30	P50	P65
119-Mile Central Valley Segment					
Central Valley Construction	10,255	11,485	12,246	12,357	12,455
Track & Systems - Single Track	2,362	2,722	3,236	3,541	3,813
Program Management & Support (Construction)	687	686	728	743	769
Project Reserve	46	46	46	46	46
Interim Use	162	162	162	162	162
Program Wide Unallocated Contingency	420	0	318	368	410
Subtotal Construction	13,932	15,101	16,736	17,217	17,655
Project Development Management and Support	574	544	575	589	607
Total Central Valley Segment	14,506	15,645	17,311	17,806	18,262

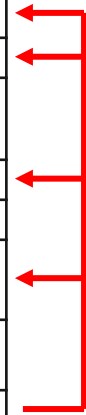
\$2.2B Increase in Civil Construction at P65

(Dollars in millions)

2023 PROJECT UPDATE REPORT

Merced to Bakersfield Early Operating Segment

Scope Element	2022 BP	Estimate YOE	P30	P50	P65
Merced-to-Bakersfield Segment					
Central Valley Segment	14,506	15,645	17,311	17,806	18,262
Project Development Balance	127	127	127	127	127
Merced Extension	2,397	3,172	3,780	4,140	4,462
Bakersfield Extension	1,232	2,301	2,752	3,020	3,258
Stations	242	875	1,044	1,147	1,237
Track & Systems Balance (Including CVS Second Track)	1,615	2,162	2,569	2,810	3,025
Solar and Utility Interconnection	0	165	196	214	230
Trainsets (6 total)	673	379	465	516	561
Maintenance Facility and Driving Simulator	18	273	342	382	418
Program Wide Support and Contingency Balance	905	1,123	1,249	1,336	1,396
Phase1 Transfer (Ph1)	1,719	0	0	0	0
Subtotal Merced to Bakersfield:	23,434	26,222	29,833	31,497	32,976
Project Development Balance (Ph1)	541	522	539	545	559
Program Wide Support Balance (Ph1)	393	428	458	475	490
Bookend	1,298	1,298	1,298	1,298	1,298
Total:	25,667	28,470	32,127	33,815	35,323



Red arrows indicate Phase I scope shifting into Central Valley

(Dollars in millions)

2023 PROJECT UPDATE REPORT

San Francisco to Los Angeles / Anaheim Phase I Costs

Scope Element	Low	Base	High
	Phase I Program		
Merced to Bakersfield	29,833	31,497	32,976
Northern California	21,180	27,865	35,514
Southern California	31,908	40,650	52,807
Program Wide	5,624	6,151	6,636
Total:	88,545	106,163	127,933

(Dollars in millions)

* Includes Project Development and Bookend Investments already budgeted for these segments

2023 PROJECT UPDATE REPORT

Costs are in line with other similar high-speed rail projects, and less expensive than equivalent highway and airport expansion.

Britain’s “HS2” High-Speed Rail Project (Phase 1): This project covers 140 miles and carries a cost estimate between \$42 billion and \$54 billion and a completion date between 2029 and 2033. While this project differs from ours in the proportion of viaducts, trenches, tunnels, etc., this can be compared to our cost range of \$29.8 billion to \$33.0 billion for the 171-mile Merced to Bakersfield segment.

Expanding California’s Highways and Airports for Equivalent Capacity: Based on a 2019 study updated for inflation, equivalent highway and airport capacity expansion would cost in a range of \$130 billion to \$215 billion relative to the high-speed rail cost range of \$88.5 billion to \$127.9 billion for Phase I San Francisco to Los Angeles / Anaheim.

2023 PROJECT UPDATE REPORT

• Updated Ridership Estimates

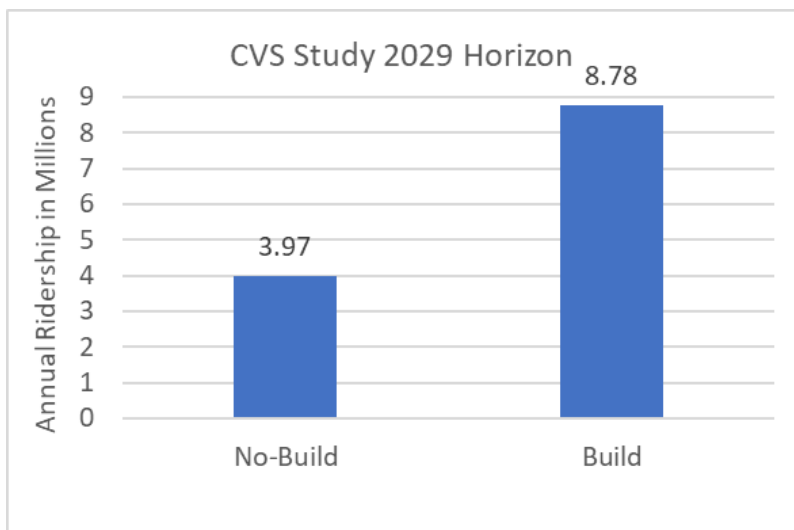
- » Preliminary ridership estimates are more conservative in light of stagnant population growth, revised travel behavior data, reduced ridership baseline on existing services
- » Notwithstanding the reduced ridership estimates, build scenario for Merced – Bakersfield segment produces important benefits for the region:
 - *Ridership 70% higher in 2030 versus a no-build scenario*
 - *Travel by train along segment reduced by 90-100 minutes*
 - *GHG-reduction benefits*
 - *Ridership for Silicon Valley-to-Central Valley and Phase 1 segments still provide maximum benefits*
- » Next steps: work with partners to right size the service plan with new ridership estimates, modernize fare plan for integrated service, execute agreements

Comparison of Ridership Estimates

Merced to Bakersfield Segment

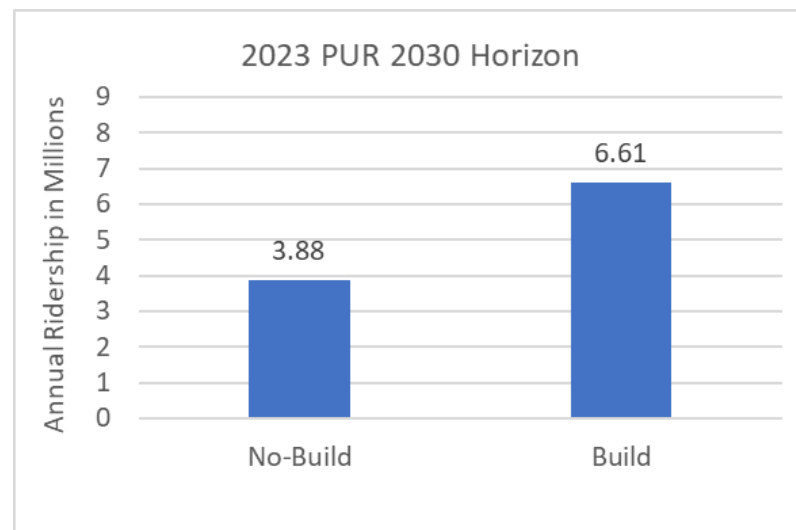
- **2019/2020 System Management & Operations Interim Financial Plan**
 - » State Rail Plan Model
 - » Older data and growth assumptions

System Total
No-Build vs. Build
Scenario



- **2023 Project Update Report**
 - » New California Rail Ridership Model (CRRM)
 - » Updated assumptions and data (2022)
 - » Preliminary estimates, ongoing refinements

System Total
No-Build vs. Build
Scenario



Comparison of Ridership Estimates

Silicon Valley to Central Valley Service

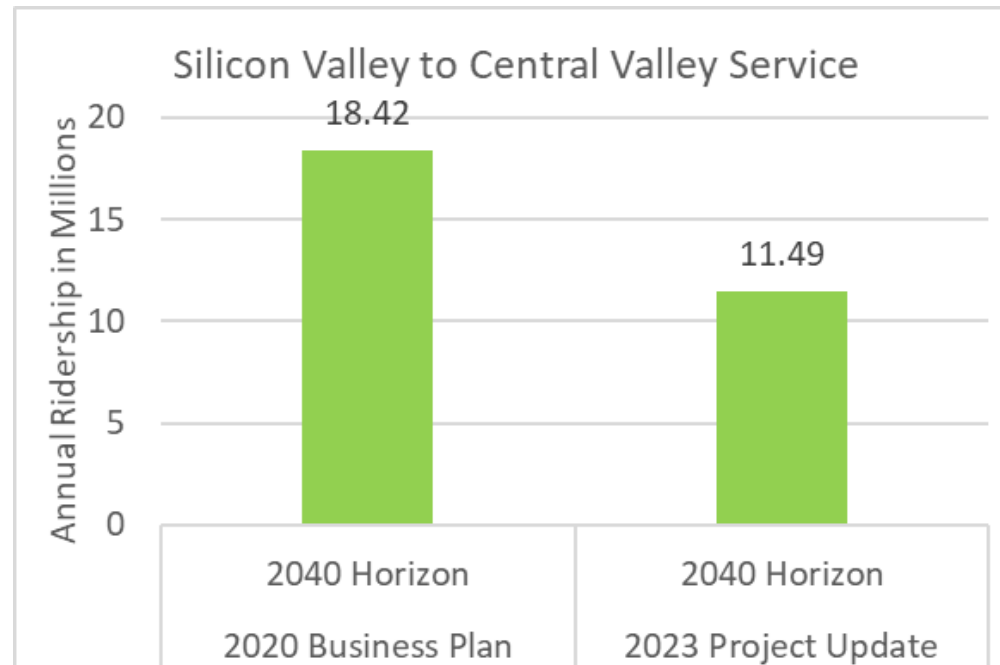
- **2020 Business Plan**

- » Business Plan Model – Version 3
- » 2019 data update
- » Fare Structure from 2008

- **2023 Project Update Report**

- » New California Rail Ridership Model
- » Updated assumptions and data (2022)
- » Revised service plan assumptions
- » Revised fare policy
- » New data on user behavior

HSR
Ridership
Build
Scenario



Comparison of Ridership Estimates

Phase 1 Service

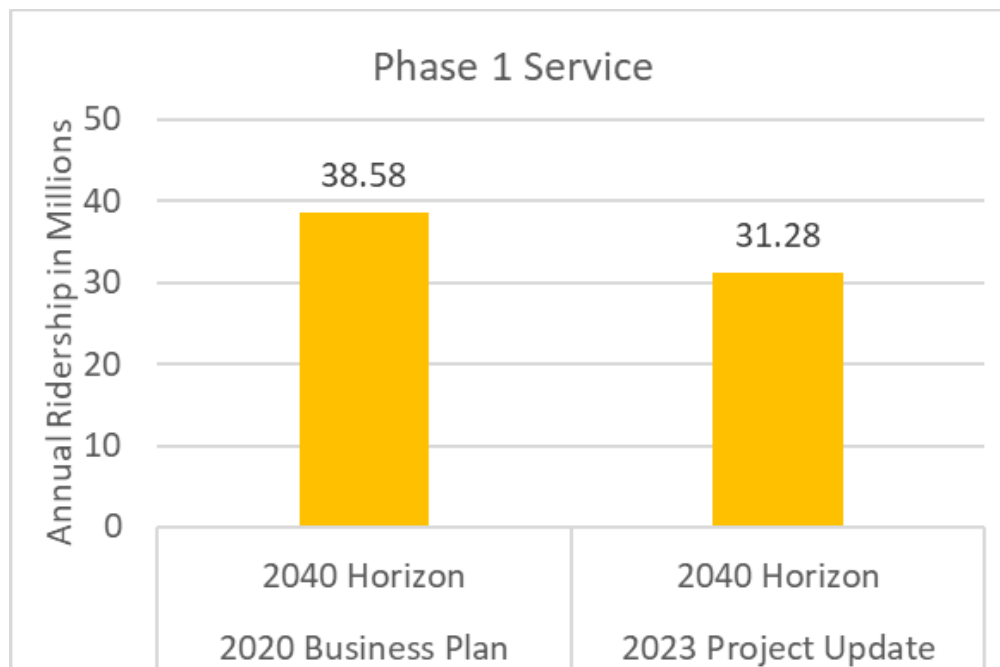
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- **2023 Project Update Report**

- » New California Rail Ridership Model
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HSR
Ridership
Build
Scenario



2023 PROJECT UPDATE REPORT

- **Still the right option for California**
 - » Initial operations will:
 - *Cut travel times in half, reducing trips by 90-100 minutes*
 - *Have higher projected ridership than all CA supported Amtrak supported services combined (6.6m vs 5.6m riders)*
 - » When complete CA High-Speed Rail will carry an estimated 31 million riders annually – 2.5x higher than the 12.5 million riders reported on the Northeast Corridor

2023 PROJECT UPDATE REPORT

- **Project Continues to Advance**

- » To date:

- *422 of 500 miles environmentally cleared*
- *By end of 2023 will bring Palmdale to Burbank EIR/EIS to Board for approval (with approval, 465 of 500 miles will be clear)*
- *119 miles under construction*
 - Summer 2023 - Substantial completion of CP4
 - ROW 96% acquired
 - Utility Relocations 75% complete or underway
- *With advanced design into Merced and Bakersfield – 171 miles will be in construction or advanced design*
- *Station design underway for 4 Central Valley stations*
- *10K labor jobs milestone reached this month*
- » Q4 2023 - Design for Bakersfield and Merced extension reach configuration footprint (30%)
- » 2026 - CP 1 and CP 2/3 targeted completion

2023 PROJECT UPDATE REPORT

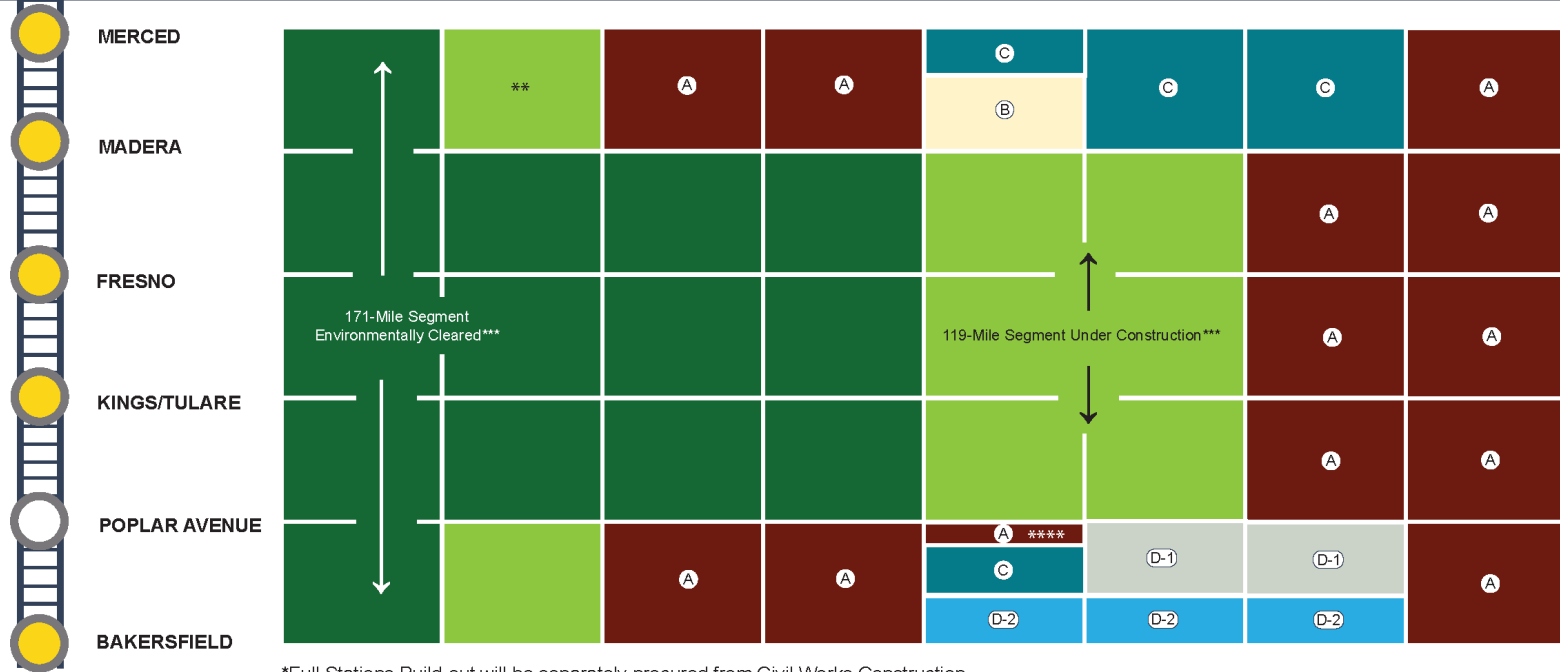
• Revenue to Support the Program

- » No permanent funding programs exist for high-speed rail nationally or in California. Funding currently directed to the project is estimated at about \$25 billion. Of this funding directed to date:
 - *California has contributed about \$21.5 billion (or 85%) – assuming Cap-and-Trade stays at current levels through 2030.*
 - *The federal government has contributed about \$3.5 billion (or 15%)*
- » The 2022 Business Plan indicated additional federal funds would be needed to complete the Merced-to-Bakersfield segment and set a target of \$8 billion to be awarded from the Bipartisan Infrastructure Law for the project. If that target is achieved, about \$33 billion would be directed to the program (about 65% state, 35% federal in total). Future state or federal funds of about \$2 billion would address full P65 cost estimate.

• Phased Approach

- » In consultation with the FRA, and in light of cost estimates, the Authority is proposing to construct Merced and Bakersfield in phases as federal funding is awarded.

Phasing Approach for Federal Grants



*Full Stations Build-out will be separately procured from Civil Works Construction.

**2022 RAISE Award

***ARRA, FY 10, 2021 RAISE Grants

****2022 RCE & CRISI Application (6 Grade Separations in Shafter)

■ Completed

■ Funded & Underway

■ PHASE A (2023): Future Federal IJA Grants, including applications submitted & awards pending (RCE/CRISI)

■ PHASE B (2024): Future Federal IJA Grants for Final Design, ROW, Civil Construction to Merced

■ PHASE C (2025): Future Federal IJA Grants for Civil Construction to Merced Station, to North Bakersfield, Track & Systems to Merced

■ PHASE D-1 (2026): Future Federal IJA Grant for Track and Systems to North Bakersfield

■ PHASE D-2 (2026): Future State and Federal Funds not currently identified to Bakersfield F Street Station

2023 PROJECT UPDATE REPORT

US DOT Comments on Future Grants on February 14, 2023:

FRA Administrator Amit Bose:

“This project is unparalleled, and the federal government will continue to partner with California to deliver passenger rail benefits that people want and deserve, The Department of Transportation and the Federal Railroad Administration will continue to stand shoulder to shoulder with the workers and the cities of California to deliver this project.”

Asked specifically about the recent MEGA Grant Program awards that did not include an award to the Authority, Administrator Bose said:

“I don’t think in any way it’s a reflection of the (federal) commitment to the California high-speed rail project..... “but the pot that the California project in particular is paying close attention to is \$12 billion from the Federal-State Partnership (for intercity passenger rail) over five years; that’s going to be a really good opportunity.”

2023 PROJECT UPDATE REPORT

• Program Goals

- » Targeted goals to achieve passenger service:
 - *Track and Systems RFQ (2023)*
 - *Trainset procurement (2024)*
 - *119 mile double tracked, electrified test track (2028)*
 - *Passenger service between Merced and Bakersfield (2030-2033)*
- » Goals for voter approved statewide progress:
 - *Full environmental clearance for all 500 miles (2025)*
 - *All segments from SF – Anaheim advanced design (30%) to prepare for pre-construction and construction activities pending available funding (2030)*
 - *Goals necessitate a full federal funding partnership to fund specific project deliverables.*



CALIFORNIA
High-Speed Rail Authority

Program Update

CEO REPORT

Program Update – CP 1

- **SR99 Guideway Intrusion Protection Barrier (IPB)**

- » Received approval to begin construction

- *IPB work expected to commence in the next ten business days*
- *First IPB construction adjacent to Union Pacific Railroad (UPRR)*

CEO REPORT

Program Update – CP 4

- **CP 4 Revised Schedule**

- » Schedule is revised to a completion date of Summer 2023

- *Reasons for the revised completion date include:*

- Execution of two utility agreements still in negotiations are still in negotiation. Working to conclude this month.
- Prescriptive agreements with BNSF are being negotiated and should conclude this spring.
- Heavy rains in December/January pushed back work

CEO REPORT

Program Update – CP 1

- **Wong-Harris Extension**

- » **Contract Amendment: 7**

- » **Justification:** The revised CP 1 schedule has required that the Wong-Harris contract be extended 15 months. This request assures for continuity in the critical services provided by Wong-Harris.

- » **Scope of Work:** No change to the scope of work. Increases in budget and extends the contract from 12/31/22 to 3/31/24

- » **Cost:** \$66,028,342

CEO REPORT

Program Update – CP 1

- **Downtown Bridges**

- » **Change Order: 478**

- » **Justification:** The Authority reached an agreement with Union Pacific Railroad (UPRR) and the City of Fresno on the design of the bridges at Fresno Street, Tulare Street, and Ventura Street in Downtown Fresno. The agreement resulted in changes to the scope of work and required modifications to the bridges to comply with scope changes stemming from 2015-2018 agreements.

- » **Scope of Work:** Scope change and modifications to the design for bridges at Fresno Street, Tulare Street and Ventura Street.

- » **Cost:** \$74,203,857

CEO REPORT

Program Update – CP 2-3

- **Arcadis Extension**

- » **Contract Amendment: 7**

- » **Justification:** The revision of the CP 2-3 schedule requires that the Arcadis contract be extended 15 months. This request to increase the budget and time assures for continuity in the critical services provided by Arcadis.

- » **Scope of Work:** No change to the scope of work. Increase in budget and contract extended to March 31, 2024.

- » **Cost:** \$43,000,000

CEO REPORT

Governor Appointments

Bill Casey, Chief Operating Officer



- History of helping solve complex construction challenges.
- Deputy District Director, Construction, District 4 for Caltrans since 2021.
- Served in multiple positions for Caltrans since 1991, including Deputy District Director for Construction, District Division Chief, Construction, Assistant Division Chief, Construction and Construction Manager.
- Member of the American Society of Civil Engineers and the Professional Engineers in California Government

CEO REPORT

Governor Appointments

Bruce Armistead, Chief Program Manager



- Over 30 years of experience in the transportation industry.
- Almost 8 years at the Authority as the Director of Operations and Maintenance.
- Executive Project Director at Fluor Enterprises from 2011 to 2014
- Assistant Vice President at Parsons Brinckerhoff from 2008 to 2011.
- Senior Project Manager at Alameda Corridor – East Construction Authority from 1997 to 2007.

CEO REPORT

Governor Appointments

Dominique Rulens, Deputy Chief of Rail and Operations



- 38 years of experience in design and construction of railways and high-speed rail lines internationally.
- Almost 7 years at the Authority as the Deputy Director Integration and Senior Director of Construction Management.
- International high-speed rail expertise
- Member of the American Railway Engineering and Maintenance-of-Way Association and the American Public Transportation Association.

Making Headlines, 10k Jobs and Counting

We stand here shoulder to shoulder with the California High Speed Rail Authority, with California, with Gov. Newsom and the California Department of Transportation to deliver this project.”

- Amit Bose, FRA administrator to the Bakersfield Californian

“We are committed to partnering with the state to figure out what the capital stack of funding will be ... That’s the beauty of the Bipartisan Infrastructure Law, that we have a variety of programs that this project is eligible for and to be able to provide the necessary funding to move this thing forward.”

- Charles Small, US DOT Deputy Assistant Transportation Secretary to the Fresno Bee



CEO REPORT

Questions