

From the CEO

This is the California High-Speed Rail Authority's 2023 Project Update Report.

When the Authority submitted its 2022 Business Plan to the legislature last year, so much about our program was in flux: The legislature had not appropriated Proposition 1A bond funds to the project; management was working hard on settling old disputes with contractors—fights over ill-defined project scope and related commercial settlements; we had just initiated work with the California State Transportation Agency and Caltrans on a new ridership model; we were defining a relatively new concept for a sensible early operating segment – 171 miles connecting Merced, Fresno and Bakersfield; and, after several years of relative absence as a partner, the federal government came roaring back as a key participant in this project with the passage of the Infrastructure Investment and Jobs Act (IIJA) and potentially billions of dollars to help California build the nation's first truly high-speed rail project. There was a lot we did not know at the time, and we acknowledged that.

We described the project elements we were advancing, and we developed the 2022 Business Plan as a “bridge document” to this 2023 Project Update Report. We indicated that we would use this report to provide policymakers and the public with vital project updates. In June of last year, when the 2022-23 Budget Act was enacted, the Legislature added additional requirements to this report, including updates on costs, schedules, agreements and milestones related to the 119-mile construction segment and the proposed 171-mile Merced to Bakersfield early operating segment.

This report provides those updates and more. It includes the most comprehensive, risk-based estimates for schedules and costs we have ever per-

formed on the early operating segment. The updated estimates and risk contingencies are in line with Federal Railroad Authority (FRA) and Federal Transit Administration (FTA) guidelines for megaprojects. This report also includes updates to our ridership estimates for each operating segment that we proposed as part of our strategy to build the Phase 1 project. Finally, this report describes important project advancements and our multiyear strategy to pursue and obtain federal grants to advance the project over the next five years.

These updates and enhanced analyses come at a tough time for megaprojects and public transit broadly.

First, public transit ridership in California and across the nation is down. That reduction is largely attributable to more stagnant population growth and employment patterns that are different than before, where employees travel to work fewer days per week, utilizing less transit. Transit agencies have also not fully recovered from the ridership fall that resulted from the COVID-19 pandemic. Interregional travel, like air travel and intercity rail travel, has stabilized. Our enhanced ridership projections included in this report reflect these trends. Although they show reduced ridership numbers, the projected ridership is still robust, and the San Francisco to Los Angeles/Anaheim service would be the most-traveled intercity passenger service in the nation.

Second, the impacts of the COVID-19 pandemic on global supply chains and the resulting market instability and inflation have impacted prices for construction commodities like concrete and steel as well as labor. Large infrastructure projects all over the world have felt the impact of this market instability. We are not immune. We have incorporated these impacts into the resetting of our unit prices and in our escalation rates going forward.

These trends, coupled with a more comprehensive project definition for the 119-mile construction segment and the 171-mile Merced to Bakersfield segment (i.e., greater scope that incorporates input from stakeholders and the Legislature), and an enhanced contingency for risk necessary to meet federal cost estimating guidelines, result in cost estimates higher than we identified in the 2022 Business Plan. We reflect these estimates and the cost drivers in Chapter 3 of this report.

As promised, we also updated project schedules for completing the 119-mile construction segment and for getting the Merced to Bakersfield segment operational. Although we maintain our goal to become operational by the end of 2030, we recognize that stabilized funding dedicated to that objective is required to make it so. When we apply a risk factor to our schedule, the result is a “schedule envelope” for operations to commence between 2030 and 2033. The Authority will deploy strategies to advance work and mitigate schedule impacts, as discussed in Chapter 1 of this report.

The result of our analysis, as contained in this report, reflects a continuing challenging environment to advance this transformative project. More than anything, the project needs stabilized, long-term funding. We have been engaged with our federal partners about this challenge, and we believe that we have a strong strategy to be successful at the federal level. At home, we need an answer on how this project will be funded after 2030. Megaprojects that last for decades need long-term, stable funding. Every country around the world that has built high-speed rail has dedicated billions of dollars over several decades to see it through. We don’t have one penny of state support for this project identified after 2030. And as the legislative Peer Review Group has advised many times, “That must change.”

Not to be lost in the challenges surrounding this project are the important milestones we have hit and will continue to hit as we advance our work. We just celebrated the creation of more than 10,000

construction jobs in the Central Valley on this project. We have environmentally cleared 422 miles of the 500-mile San Francisco-LA/Anaheim Phase 1 segment, including continuous clearance between San Francisco and Los Angeles County. We have now secured nearly all of the right of way (96%) needed to complete the 119 miles of construction underway. We have started advanced design on the country’s first high-speed rail stations in the Central Valley and on the line extensions to Merced and Bakersfield, ensuring that we will deliver those extensions the right way, with much less risk of delay and cost going forward.

So where does this all leave us? Moving forward.

Our next steps are to utilize the funds we have to complete our work on the 119 miles now in construction. We owe this to our federal partner, and we are going to see it through. The first construction package on that segment will reach substantial completion this year. We will bring to our Board later this year a restructured Request for Qualifications (RFQ) to begin laying track in the Central Valley. Beyond the current construction segment, in 2023, we will have advanced the design on the extensions to Merced and Bakersfield such that we will have a right-of-way acquisition plan ready to go and we will have identified the utilities that need to be relocated. By the end of 2023, we will ask our Board to consider certifying the environmental document for the Palmdale to Burbank segment, bringing us to 465 of the needed 500 miles to be environmentally cleared. Finally, and most importantly, in 2023, we will have billions of dollars in grant applications pending at the federal government to enable us to meet our goals.

There’s much to do, and we look forward to advancing the work.



Executive Summary

MAJOR ACCOMPLISHMENTS IN 2022

- Environmental clearance for all segments between San Francisco and Palmdale (Los Angeles County) and between Burbank and Los Angeles – 422 miles.
- On the 119-mile Central Valley Segment under construction:
 - ▶ 100% of the design work on the civil infrastructure has been completed;
 - ▶ 71% of all utility relocations were complete/in progress; and
 - ▶ 96% of the right-of-way was delivered to contractors.
- The federal American Recovery and Reinvestment Act (ARRA) grant agreement was amended, aligning our revised schedule with our federal partner's expectations.
- Contracts were awarded to begin advanced design work on the extensions to Bakersfield and to Merced.
- Contract was awarded to begin design work on the four Central Valley stations delivered by the Authority – Merced, Fresno, Kings/Tulare and Bakersfield.

UPCOMING MILESTONES IN 2023

- More than 10,000 jobs created since construction commenced;
- Construction Package 4 will reach substantial completion by summer;
- Palmdale to Burbank environmental document to be certified in the fourth quarter;
- Design for the Bakersfield and Merced extensions to reach draft configuration footprint (30% design) by the fourth quarter – with a right-of-way acquisition plan, utility relocation plan and third-party agreements identified; and
- New strategy for procuring the track and systems completed and Request for Qualifications to the Board of Directors.

REPORT SUMMARY

This is the California High-Speed Rail Authority's 2023 Project Update Report (Report). It fulfills the Authority's requirement to update the California Legislature biennially on the development and implementation of intercity high-speed rail service. It also fulfills commitments we made in our 2022 Business Plan to provide updates on our:

- Baseline budget and schedule;
- Capital cost estimates;
- Funding strategy;
- Ridership forecasts;
- Environmental clearance progress; and
- Strategy to advance design on extensions to Merced and Bakersfield and Central Valley stations.

WHERE WE STAND TODAY

The Authority's mission is to deliver an electrified high-speed rail system that will carry passengers between San Francisco and Los Angeles in under three hours. In 2008, when California's voters approved Proposition 1A, they approved an initial down payment of \$9 billion to build the system. Since then, we have secured \$3.5 billion in federal funds and the State has provided annual appropriations of Cap-and-Trade Program funds, a program which expires in 2030.

Despite challenges, we continue to make progress. **Exhibit 0.0** shows the key milestones for the project since 2008 and they are considerable. Today, 422 miles of the full 500-mile system are environmentally cleared. Construction is well underway on the first 119-mile section in the Central Valley, which will initially serve as a test track for high-speed trains, and additional advanced design is proceeding on stations and the 52 miles of extensions into the downtown Merced and downtown Bakersfield.

This complex project, similar to other megaprojects in the United States and globally, faces many risks

– including high inflation and schedule and scope changes to address community and environmental requests – and all of these items have affected project costs and schedules. This Report describes the steps we are taking to continue addressing these project risks. However, the biggest risk we face is full funding – over which we have very little control. The Legislature's Peer Review Group has noted this many times, beginning in 2019, stating: "If the Legislature cannot . . . provide a credible funding approach based on a commitment from the state, it is very difficult to see how the program can go forward successfully."

In the aftermath of the global COVID-19 pandemic, it is clear that significant additional federal funding is needed to complete the Merced to Bakersfield line. We are engaged with the U.S. Department of Transportation to forge a full federal partnership to complete this effort. If California is to avail itself of attractive federal financing programs and if the Authority is to deliver the voter-approved, 500-mile system connecting San Francisco to Los Angeles/Anaheim by high-speed rail, the state will need to consider a dedicated revenue stream for the project beyond 2030.

A significant amount of work lies ahead – our goals are to:

1. By the end of 2025, complete all environmental documents for the entire 500-mile system connecting San Francisco and Anaheim.
2. By 2028, complete and begin train testing on the first 119-mile, double-tracked and electrified high-speed rail test track between Madera and Poplar Avenue.
3. Between 2030 and 2033, begin high-speed passenger service between Merced, Fresno and Bakersfield – this is our highest priority.
4. By 2030, advance Northern and Southern California sections to 30% design so that construction can continue to progress if and when funding is provided.

These aggressive goals are worth striving for to achieve the mobility, environmental and economic benefits of California high-speed rail. They can only be achieved with a full funding partnership with the federal government and state funding stabilized beyond 2030.

KEY UPDATES, ISSUES AND RISKS

This Report provides significant detail on the development and implementation of the high-speed rail program. Below are the key highlights in this Report.

Schedule

Our schedule to complete the current 119-mile Central Valley Segment has been extended. Over the last two years, we have worked with our contractors to finalize design, complete change orders and settle long standing commercial issues dating back eight years. This detailed effort culminated in new, risk-based baseline schedules for our three

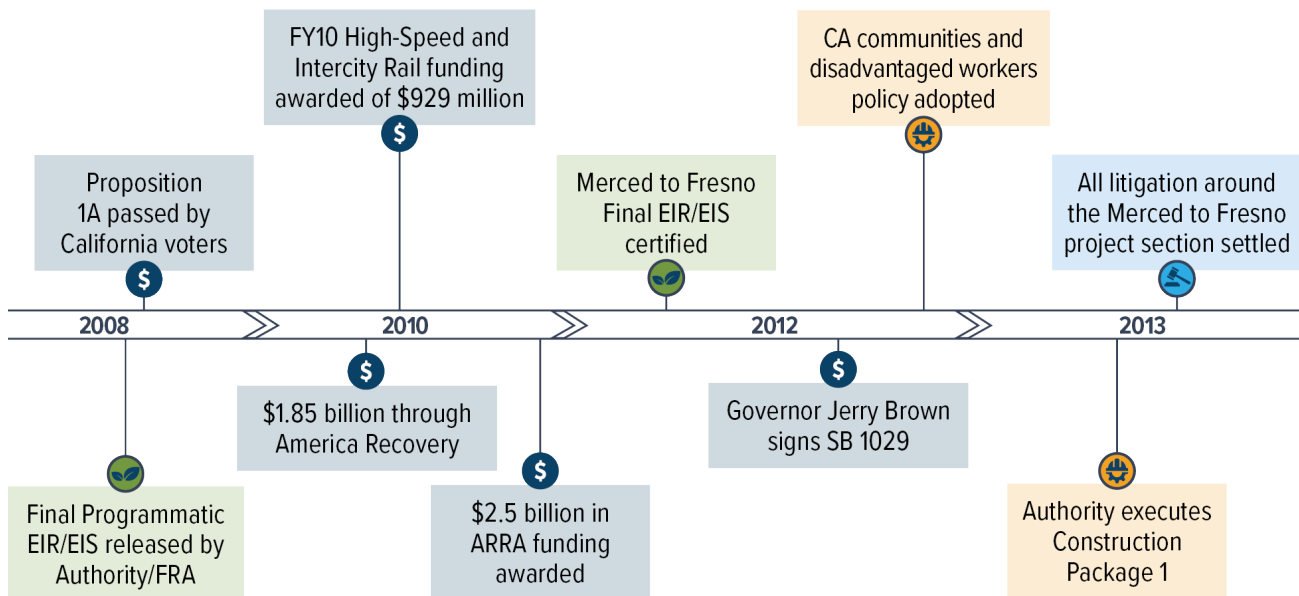
construction packages, which were presented to the Board of Directors in November 2022. These new dates were also incorporated into an ARRA grant amendment to align with Federal Railroad Administration (FRA) expectations:

- Summer 2023 - Construction Package 4;
- 2026 - Construction Package 1; and
- 2026 - Construction Package 2-3.

In 2022, the Legislature appropriated our remaining Proposition 1A funds and directed that the Merced to Bakersfield line should be our highest priority. With that, we have established an aggressive goal to initiate service by the end of 2030; our risk analysis suggests a forecast envelope of between 2030 and 2033. As we advance the Merced to Bakersfield line, we will evaluate options for the earliest possible service even while construction concludes, as outlined in our FRA ARRA Grant Agreement.

KEY ACCOMPLISHMENTS

Exhibit 0.0: Key Accomplishments



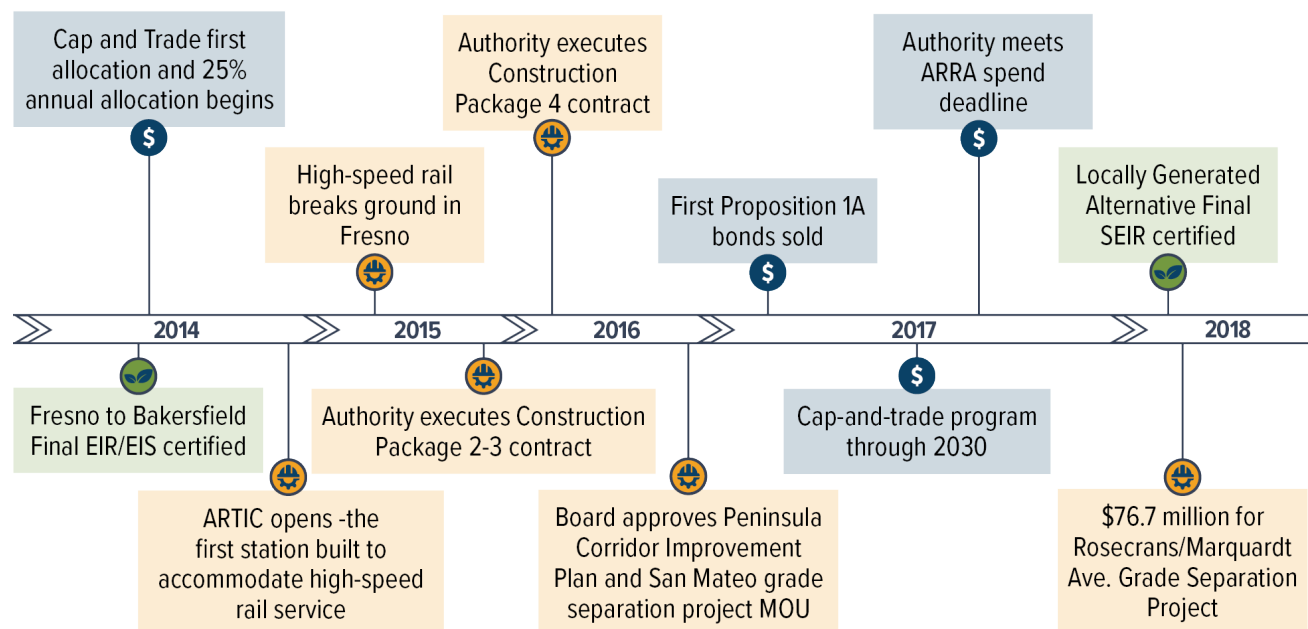
Capital Cost Estimates

Consistent with fiscal impacts felt around the world, our capital cost estimates have increased. Also, they have been revised to reflect the impact of inflation, escalation, expanded scope definition and greater contingency for achieving a risk-based estimate that meets FRA guidance. This new estimate no longer represents a “single-track” phased implementation approach to delivering the Merced to Bakersfield project – it includes double-track and fully built out facilities including stations and maintenance facilities rather than phasing them in. Compared to the 2022 Business Plan, the updated estimate has increased by between \$6.5 billion to \$9.7 billion. The elements that make up this revised cost estimate are inflation/escalation, enhanced scope definition and greater contingency for risk. Other factors have driven our estimates higher, which are described in Chapter 3. Key among them is that current construction has been extended by two years, combined with record high inflation, supply chain issues

and other market forces. As we advance design, we will refine our estimates through value engineering, applying global best practices and identifying cost-effective delivery strategies with an eye toward managing risks and costs prior to construction.

Funding

In 2022, California policymakers affirmed their continued commitment to delivering the nation’s first high-speed rail system with the appropriation of the remaining \$4.2 billion in Proposition 1A funds. Together with previously appropriated Proposition 1A, Cap-and-Trade, and awarded federal grant funds, we will deliver the existing program commitments to environmentally clear the 500-mile alignment from San Francisco to Los Angeles/Anaheim, the Central Valley Segment Funding Plan scope on the 119-mile segment between Madera and Poplar Avenue, and bookend projects in the Bay Area and Southern California. However, to deliver the balance of the Merced to Bakersfield early operating segment,

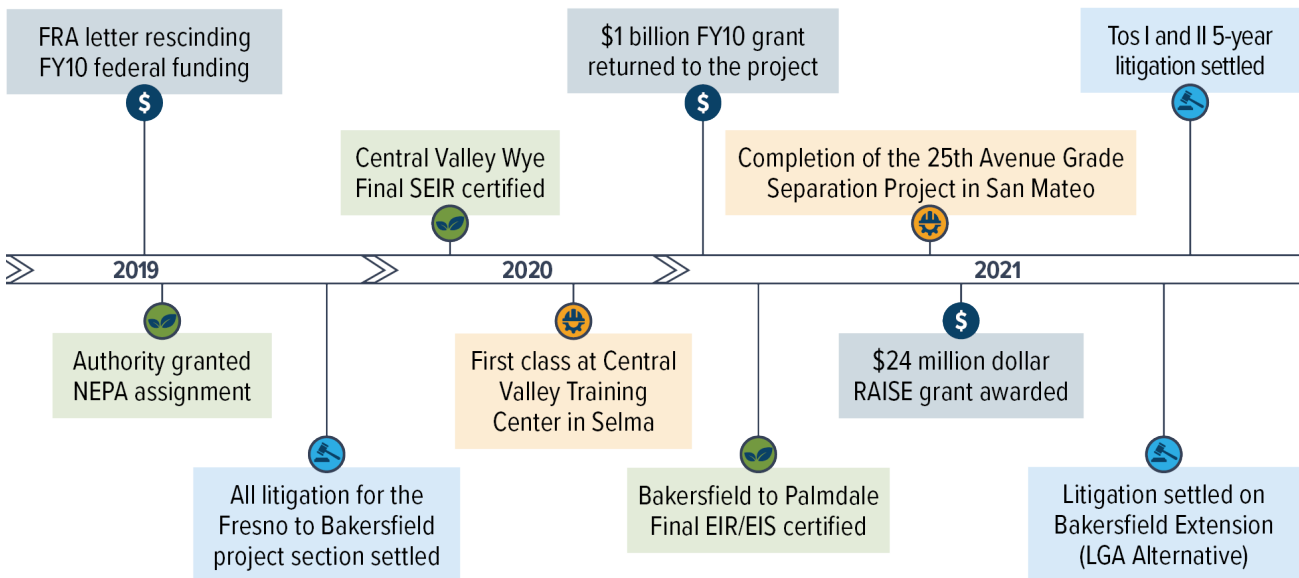


securing large new federal grants is a necessary and critical step. The California high-speed rail program is uniquely positioned to immediately deploy new federal funding investments, that will supplement current state funds, toward the delivery of the initial high-speed rail line between Merced and Bakersfield and to advance design on crucial segments in both Northern and Southern California. We have submitted three grant applications, pending federal decisions, and plan to submit multiple federal grant applications over the duration of the 5-year Bipartisan Infrastructure Law (BIL) program with a total award target of around \$8.0 billion. In consultation with the Federal Railroad Administration, and in light of the updated cost estimates, we are proposing to construct the Merced to Bakersfield line in phases as federal funds are awarded. Connections to the Bay Area and Southern California remain unfunded. If policymakers choose to deliver high-speed rail beyond the Central Valley, funding commitments for high-speed rail will have to be permanent and substantial at both the federal and state level, as was the case starting in the 1950s for highways.

Ridership Forecasts

Together with the California State Transportation Agency and Caltrans, the Authority has developed a new ridership forecasting model. This allows us to optimize how high-speed rail service integrates with state/regional rail and transit services. Our first step was to use the new model to prepare a new ridership forecast for the Merced to Bakersfield corridor. The new model incorporates revised population and employment growth forecasts, which have flattened significantly over the last decade. This, along with changes in travel behavior from COVID-19, has caused transit ridership among all California transit agencies to be down.

However, updated ridership forecasts still show that high-speed rail in the Merced to Bakersfield segment will nearly double current rail ridership, despite the lower population and employment growth forecasts. While growth forecasts have flattened our ridership projection by 25 percent (2030 forecast),



compared to the last update, the dramatic travel time improvements (cutting travel times in half) and rail-to-rail connectivity we are creating still yields significant ridership increases.

Improvements are even more dramatic for the full 500-mile system at 31.3 million riders (2040), which is two and a half times the pre-pandemic 12.5 million riders served on the Northeast Corridor’s intercity service in 2019. This shows that the system, as originally proposed to the voters, still yields significant mobility benefits and reduced greenhouse gas emissions. Our next step is to continue working with our partners to refine the integrated service plan, modernize fare policies, and execute necessary agreements to incorporate into future ridership forecasting refinements.

STAYING FOCUSED ON OUR OBJECTIVES

As we work to deliver this project, we remain focused on our three fundamental objectives:

1. Expand economic development and economic opportunity;
2. Meet the state’s environmental objectives – particularly the reduction of greenhouse gas emissions; and
3. Improve mobility for all our citizens.

