CALIFORNIA
High-Speed Rail Authority

April 20, 2023

## Federal-State Partnership for Intercity Passenger Rail Program (FSP-National)

# CALIFORNIA HIGH-SPEED RAIL AUTHORITY
# CALIFORNIA PHASE 1 CORRIDOR CONFIGURATION DESIGN

- **San Jose to Merced Project Section; and**
- **Bakersfield to Palmdale Project Section**

(Track 2 – Project Development)

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FSP-National Program

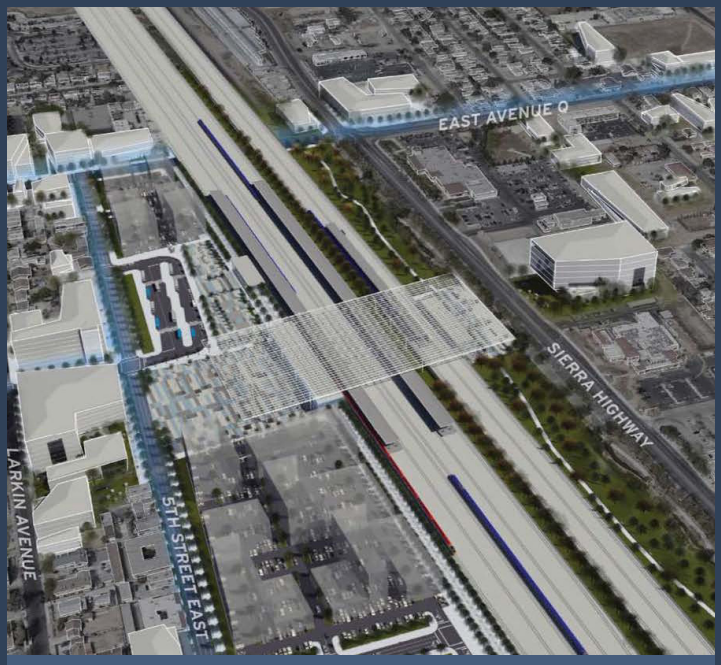
CALIFORNIA HIGH-SPEED RAIL AUTHORITY

# CALIFORNIA PHASE 1 CORRIDOR CONFIGURATION DESIGN

San Jose Station Rendering

Merced Station Rendering

Bakersfield Station Rendering




Palmdale Station Rendering

CALIFORNIA
High-Speed Rail Authority

Gavin Newsom
GOVERNOR

Brian P. Kelly
CHIEF EXECUTIVE OFFICER

Amit Bose
Administrator
Federal Railroad Administration
1200 New Jersey Avenue SE
Washington, D.C. 20590

RE: Federal State Partnership Grant Opportunity for the California Inaugural High-Speed Service

Dear Mr. Bose:

The California High-Speed Rail Authority (Authority) is pleased to submit the attached Application for the Federal State Partnership for Intercity Passenger Rail (FSP-National) Program for Inaugural High-Speed Service in California's Central Valley.

As you know, the Authority is under construction on the nation's first high-speed rail system – a statewide mega-project never before realized in the U.S. Although the project is underway through the benefit of four supportive federal grants (the American Recovery and Reinvestment Act (ARRA), the Omnibus Appropriations Act, 2010 (FY10), and 2021 and 2022 Rebuilding American Infrastructure with Sustainability and Equity (RAISE)) grants, it has always been known that additional federal funding would be needed to complete this substantive and transformative mega-project.

The Authority is both encouraged and appreciative for the enactment of the Bipartisan Infrastructure Law / Infrastructure Investment and Jobs Act (IIJA) under the Biden Administration. The IIJA is crucial in providing transformative transportation projects, such as the Authority's high-speed rail program, an opportunity to advance more expediently and efficiently. Through this FSP-National application and future related applications to other IIJA programs, the Authority will be able to construct and provide high-speed passenger service at speeds up to 220 mph on the 171-mile segment between Merced, Fresno and Bakersfield in California's Central Valley, and thereby move closer to completion of a transformative 500-mile statewide system connecting the San Francisco Bay Area to Southern California.

Connecting Silicon Valley to Central Valley by 2040 will serve an estimated 11.5 million annual riders – more than double the 5.6 million riders served in 2019 on California's three state-supported services – Pacific Surfliner, San Joaquins and Capitol Corridor. 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 by Amtrak on the Northeast Corridor.

Through this application and subsequent applications to appropriate federal programs, the Authority will be requesting a total of $8.185 billion in new federal funding for Merced to Bakersfield high-speed passenger service. The request contained in this application from the FSP-National Program appropriations for Fiscal Years 2022 and 2023 is $2.825 billion, to be matched with $706 million in state funds. The Authority also is requesting in this application a Phased Funding Agreement (PFA) for up to an additional $5.360 million, which, together with funds requested from the Fiscal Year 2022 and 2023 funds and future state matching funds, will be sufficient to provide high-speed passenger service in the Central Valley. The Authority hopes that funds through the FSP-National PFA and additional future funding from other federal programs will fulfill our full federal funding need.

The federal funding from 2022 and 2023 appropriations will support the following areas critical to advancing the California Inaugural High-Speed Service:

- Procure six electric trainsets for testing and use for high-speed rail passenger service at speeds up to 220 mph;
- Construct the second track on the 119-mile high-speed Central Valley Segment (CVS) currently under construction;
- Construct the Fresno Station;
- Complete final design and early works including right-of-way acquisition and utility relocation on the following two extensions beyond the current 119-mile CVS:
    - Merced Extension – from Madera to Merced
    - Bakersfield Extension – from Poplar Avenue, in Shafter, to Bakersfield

The above work would complete the 119-mile segment and a station for testing, certification, and early demonstration service, and prepare the additional 52 miles for construction.

The Phased Funding Agreement from the FSP-National Program for future fiscal years of funding from this program and other federal grant programs will provide for phased funding and expansion of construction to extend construction to the major Central Valley cities of Bakersfield in the south and Merced in the north.

These improvements are a part of California's strategic transportation network investments to address climate concerns, improve health, access, connectivity, and economic vitality and to relieve existing highway and rail capacity constraints. They will achieve both state and federal goals to improve safety, economic strength and global competitiveness, equity, and climate sustainability. These investments will continue to support living wage jobs, provide small business opportunities, and equitably enhance the mobility of communities in need – including disadvantaged agricultural communities – all while reducing greenhouse gas emissions.

This FSP-National grant application is part of an on-going federal-state partnership that, to date, has provided approximately $25.2 billion in funding for California High-Speed Rail ($21.7 billion / 85% state, and $3.5 billion / 15% federal). California is the only state in the country to have committed this level of funding to modernizing rail, and the Authority is asking the federal government to match this level of commitment with strong grant support to the Project with Infrastructure Investment and Jobs Act funding.

Thank you for considering the enormous value that funding for this Project will provide. We hope you will look favorably on the California High- Speed Rail Authority's application under the Federal State Partnership funding opportunity.

Sincerely,

Brian P. Kelly
Chief Executive Officer
California High-Speed Rail Authority

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## Appendices

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# I. Cover Page

| | |
|---|---|
| Project Title | California Phase 1 Corridor Configuration Design |
| Lead Applicant Name | California High-Speed Rail Authority |
| Amount of Federal Funding Requested in Application | **$193.6 million** (Year of Expenditure) |
| Proposed Non-Federal Match | **$48.4 million** (Year of Expenditure) |
| Total Project Cost | **$242.0 million** (Year of Expenditure) |
| Was a Federal Grant Application Previously Submitted for this Project? | Yes, but it was not awarded funding |
| If Yes, State the Name of the Federal Grant Program and Title of the Project in the Previous Application | **Program**: FY2022 Multimodal Project Discretionary Grant (MPDG) Programs (INFRA / MEGA / Rural)<br><br>**Project**: California High-Speed Rail Authority San Francisco to Los Angeles Configuration Design |
| City(-ies), State(s) Where the Project is Located | Merced, Gilroy, Los Baños, Morgan Hill, San José, Bakersfield, Lancaster, Palmdale |
| Current Project Lifecycle Stage | Final Design and Construction |
| Intercity Passenger Rail Service(s) Benefiting from the Project (incl. any Long-Distance Services) | California High-Speed Rail,<br>San Joaquins Corridor, Capitol Corridor, Coast Starlight and various Amtrak long-distance services |
| Infrastructure Owner(s) of Project Assets | State of California |
| Congressional District(s) Where the Project is Located | California 13, 16, 17, 18, 19, 20, 22, 27 |
| LOI/PFA Requested | Not Applicable. PFA not available for Track 2 submissions. |

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# II. Project Summary

**In scope, scale and ambition, California High-Speed Rail is an initiative on par with the nation's greatest transportation and engineering projects.** The California High-Speed Rail Authority (the Authority), a California state agency, is submitting this application for $193.6 million of grant funding to fund the **California Phase 1 Corridor Configuration Design** (Project), which consists of configuration design necessary to complete two key components of a 500-mile high-speed rail line – the San José to Merced segment, and the Bakersfield to Palmdale segment. California Phase 1 Corridor connects San Francisco to Los Angeles / Anaheim. Completion of this full Phase I corridor will serve more than 35 million people and connect the major population centers of the nation's largest state.

**Exhibit II-1. Project Alignment**


In connecting the high-speed rail alignment currently under construction between Merced and Bakersfield to planned services statewide, the Authority will have to overcome geotechnical obstacles presented by two of California's most prominent mountain ranges. In the north, the Diablo Range (crossing through the Pacheco Pass) in the approximately 145-mile San José to Merced program section is a mountain range for high-speed rail service to pierce in order to reach the San Francisco Bay Area. In the south, the Tehachapi Mountains in the approximately 80-mile Bakersfield to Palmdale program section present another natural challenge to extending high-speed rail service to Los Angeles / Anaheim and points between.

This application would support the configuration design work for the program sections that cross the two referenced mountain ranges as depicted in **Exhibit II-1** and prepare these sections for final design and construction. The scope of work described fully in **Appendix A** would include geotechnical investigations, completion of a configuration footprint (a minimum of 30% design), value engineering, refining the costs for construction, right-of-way mapping and utility mapping. Completing this scope of work is vital to reducing cost and schedule risk, maintaining engagement with communities for early co-benefit investments on shared alignments and moving the sections closer to construction. The configuration design milestone will support future funding of tunnels and track alignment allowing the high-speed rail system to pass through those mountain ranges. Collectively this massive engineering effort would ultimately result in the longest railway tunnels in North America. This application will ensure that the Authority is able to continue to advance work beyond the Central Valley to tie the existing under-construction segments of the system to the rest of the State. Because of the complexity and long lead time for this work, design of these vital program sections requires the start of detailed geological investigation and engineering analysis. If the design work is funded, the Authority will be well-positioned to take the next steps towards eventual construction and future funding of these two components.

** In January 2015, the Authority broke ground on construction of the system's backbone alignment, a 119-mile segment located in the state's topographically flat Central Valley. Since that time, construction has continued from the system's center point in Fresno to the north and south. To continue progress beyond the 119-mile segment currently under-construction, a separate FSP-National grant application, distinct from this document, has been submitted to FRA and is the Authority's first priority. The current additional application seeks funding for configuration design elements of the California Phase 1 Corridor as a strong second priority.*

**Challenges Addressed: Improved Connectivity and Critical Technical Needs**

From a technical perspective, the proposed tunneling efforts will be on a grand scale. At their deepest point, the tunnels within the Bakersfield to Palmdale program section will be constructed approximately 8,000 feet below the peaks of the Tehachapi Mountains. Likewise, the tunneling efforts within the San José to Merced program section through the Pacheco Pass will require geotechnical investigations through highly complex layers of sedimentary rock in multiple active fault zones. It is imperative that the configuration design work and geotechnical investigation for this work advance as soon as practical to be ready for future final design and construction.

***Completion of this Project will facilitate completion of the full 500-mile system from San Francisco to Los Angeles / Anaheim,*** including the following solutions to existing challenges:

***Expanding economic and employment opportunities*** by connecting California:

- Providing rapidly growing, underserved Central Valley communities with new, faster and more reliable connections to jobs and economic opportunities – providing new passenger rail service south of Bakersfield connecting to MetroLink services in Lancaster and Palmdale, and creating new multimodal stations in Merced and San José, improving passenger service between the Central Valley, the San Francisco Bay Area and Sacramento with Altamont Corridor Express (ACE) and San Joaquins Corridor

***Improving transportation equity*** by removing barriers to opportunity

- Cutting travel times in half, thereby providing economic, quality of life, and other benefits to historically disadvantaged communities and areas of persistent poverty

***Expanding environmental benefits*** by reducing health issues from harmful emissions

- Reducing traffic congestion and air pollution – the high-speed rail system will operate on zero emission trains that will reduce GHG emissions ($CO_2e$) by up to 2 million metric tons per year by 2040, which is equivalent to emissions from over 400,000 gas-powered passenger vehicles driven for one year.

***Generating wider economic benefits*** due to improved connectivity, productivity and desirability of commercial property near rail stations

- Facilitating economic development through transportation infrastructure investment to promote transit-oriented development near high-speed rail stations while preserving agricultural and protected lands – increasing employee productivity (and wages) by an estimated $17.6 billion in discounted benefits and profits for firms by an estimated $5.2 billion on a discounted basis along the high-speed rail corridor.

***Expanding transportation capacity*** to meet growing and future demands

- Enhancing both passenger and freight system capacity and reducing asset deterioration – analysis of the 500-mile system indicates that road/airport investments to achieve equivalent capacity would cost from $130 billion to $215 billion (YOE$) compared to the updated high-speed rail system estimate which ranges from $88.5 billion to $127.9 billion (YOE$).

***Reducing safety challenges*** due to over-reliance on automobile travel, including fatalities and injuries on highways and at highway-rail at-grade crossings

- Eliminating current rail/roadway conflicts between trains, automobiles and pedestrians to improve safety – the discounted value of safety benefits is estimated at $5.1 billion for the Phase 1 Corridor enabled by the Project.

# III. Project Funding

***The Authority is seeking approval under Track 2 – Project Development for this application.***

The cost of the Project is estimated at **$242.0 million**. The Authority is requesting **$193.6 million** in FSP-National funds (80%), to be matched by **$48.4 million** of state funding (20%) from the Authority's continuously appropriated Cap-and-Trade revenues. **Exhibit III-1** summarizes this application's Total Project Cost, by task, federal funds received from previous grants, amount of Federal funding requested under this application, the proposed amount of non-federal match, the portion of project costs in a rural area, and pending federal funding requests by Section.

### Exhibit III-1. Summary of Total Project Cost and Funding Plan

($ in actuals, year of expenditure)

| Task # | Task Name / Project Component | San José to Merced* | Bakersfield to Palmdale* | Total Cost (YoE) | % of Total Cost |
|---|---|---|---|---|---|
| 1 | **Detailed Project Work Plan, Budget, and Schedule** | $4,625,212 | $4,597,066 | $9,222,278 | 3.8% |
| 2 | **Configuration Footprint Design** | $62,366,923 | $59,689,567 | $122,056,489 | 50.4% |
| 3 | **Support Facilities, Environmental and Permitting, Right-of Way Activities, and Roadwork** | $13,745,298 | $14,297,577 | $28,042,875 | 11.6% |
| 4 | **Construction Detailed Estimate and Schedule** | $1,003,428 | $892,436 | $1,895,865 | 0.8% |
| 5 | **Track and Systems (T&S) Facilities Site Planning** | $863,409 | $543,498 | $1,406,907 | 0.6% |
| 6 | **Geotechnical Works** | $65,992,597 | $12,440,783 | $78,433,379 | 32.4% |
| 7 | **Final Performance Report** | $477,083 | $474,180 | $951,264 | 0.4% |
| **Total Project Cost** | | **$149,073,950** | **$92,935,107** | **$242,009,057** | **100.0%** |
| Federal Funds Received from Previous Grants | | $0 | $0 | $0 | 0.0% |
| Federal Funding Under this Application | | $119,259,160 | $74,348,086 | $193,607,246 | 80.0% |
| Non-Federal Funding / Match | | $29,814,790 | $18,587,021 | $48,401,811 | 20.0% |
| Portion of Non-Federal Funding from Private Sector | | $0 | $0 | $0 | 0.0% |
| Portion of Total Project Costs Spent in a Rural Area *** | | $84,972,152 | $74,348,086 | $159,320.238 | *** |
| Pending Federal Funding Requests | | $0 | $0 | $0 | 0.0% |

** See Appendix A, Attachment 4 – Project Budget By Task for further details*

*** Allocated and unallocated contingencies are spread between tasks for a total of $41.2 million*

**** Rural share for SJ-M is 57% and for B-P is 80%. Each rural share reflects the percentage of miles of the respective alignment falling within rural census tracts (i.e., in Urban Areas of under 50,000 population based on 2020 Census data); actual percentage of costs spent in any given geographic area may differ due to varying complexity of structures and costs of land, among other factors.*

**Current and Future State Funding – *No other state can match California's continuous commitment to its high-speed rail program and its deep funding partnership with the federal government.*** The State of California has dedicated two funding sources to the Program – $9 billion of general obligation bond proceeds from Proposition 1A (hyperlink), approved by California voters

in 2008, and Cap-and-Trade auction revenues, described in detail, below. The legal basis for use of these funds is in state law and the funds have been appropriated.

***State Match Funding Commitments:*** The Authority will use as the matching state funds for this Project its continuously appropriated Cap-and-Trade funds, received from California's trading system of carbon-emissions allowances, which covers approximately 80 percent of California's greenhouse gas (GHG) emissions and is a central policy that underpins the State's goal of reducing GHG emissions by 40 percent from 1990 levels by 2030. Pursuant to state law[1] the Authority has been appropriated 25 percent of net revenues from each quarterly auction of carbon-emission allowances through the life of the program. The current Cap-and-Trade Program is authorized in state law through 2030, but is anticipated to be extended. Through the February 2023 auction, the Authority has received a cumulative total of $5.6 billion in Cap-and-Trade funds. The four auctions in calendar year 2022 provided the Authority a total of $962 million in revenue. The Authority anticipates that receipts will be above the amounts needed for the state match requirements for this FSP-National Application. The Authority's current available balance of Cap-and-Trade funds is $1.6 billion as of January 31, 2023. Cap-and-Trade funds do not have expenditure deadlines. Additional evidence of the Authority's appropriations from Cap-and-Trade funds appears in **Appendix C.**

## IV. Applicant Eligibility

**The lead and sole applicant is the California High-Speed Rail Authority.** The Authority is an eligible applicant under the FSP-National Program due to the Authority's status as a California state department established pursuant to the California High-Speed Service Act (hyperlink). The Authority's purpose is to develop and implement high-speed intercity passenger rail service in California. It is located within the California State Transportation Agency under the direction of the Secretary of Transportation.

## V. Project Eligibility

The Application is for **Track 2 – Project Development**, to support the configuration design and geotechnical work in two vital project sections that include complex tunnels needed for a new, first-in-the-nation, intercity high-speed passenger rail service touching both rural communities and urban centers. As such, the Project both directly benefits and represents a reasonable investment in Intercity Passenger Rail Transportation.

The Project is a critical project design stage needed to advance the over 500-mile California Phase 1 Corridor connecting the State's largest urban centers in the San Francisco Bay Area and the Los Angeles basin through the Central Valley. As noted in *Section III. Project Funding,* the Project is attainable with a combination of federal grants and state matching funds.

The proposed configuration design in the San José to Merced program section and the Bakersfield to Palmdale program section will facilitate completion of the California Phase 1 Corridor that will improve intercity passenger rail service performance across a full range of measures, including reduced trip times, increased train frequencies, higher operating speeds, improved reliability, expanded capacity, reduced congestion, electrification, reduced air pollution and emissions, and other economic and environmental improvements.

The Project is suitable for independent analysis, and will not restrict the consideration of alternatives for other reasonably foreseeable rail projects; Additional details regarding the Project alignment and Project elements are provided in *Section III. Project Funding* and *Section VI. Detailed Project Description*, as well as **Appendix A** – Scope of Work.

[1] Health and Safety Code Section 39719 (hyperlink)

# VI. Detailed Project Description

## A. Project Background

The Authority is currently constructing the nation's first high-speed rail system – a project of a scale and complexity never before realized in the United States. An award for this application will allow the Authority to move forward with complex technical design work including signature components of the system – two sets of rail tunnels – one beneath the 8,000-foot-high Tehachapi Mountains and another through the Pacheco Pass within the Diablo Mountain Range. **Exhibit VI-1** provides context for the Project as a key next step in completion of the California Phase 1 Corridor.

**Exhibit VI-1. Overview of Progress on the California Phase 1 Corridor**

**2015: Beginnings**
In 2015, California broke ground on the nation's first high-speed rail system at its Fresno, California midpoint with state and federal support.

**2023: Construction is progressing**
Active construction of the corridor's 119-mile backbone alignment is under way in the topographically flat Central Valley.

**2024: Continued design is essential**
This application would support the design and geotechnical work for two signature mountain crossing tunnels connecting California's largest regions.

Ultimately, the completion of these monumental infrastructure initiatives will connect more than 35 million people who live in Southern California, the San Francisco Bay Area and the Central Valley. The total net present value of the benefits that will be generated by the Phase 1 Corridor improvements within the analysis period are calculated to be **$16.9 billion in 2021 dollars, discounted at 7%, and the aggregate benefit cost ratio (BCR) is 1.32 (Appendix B**, Table ES-3 and Table 35).

The requested FSP-National grant funding will enable the Authority to resolve the complex geotechnical and design issues for the tunneling and alignment efforts that will make the Phase 1 Corridor possible. The Project supports the continued design development of the following two segments in Northern and Southern California that have achieved environmental Records of Decision:

- San José to Merced
- Bakersfield to Palmdale

FSP-National funds will result in a completion of a configuration footprint (a minimum of 30% design), value engineering, refining the costs for construction, right-of-way mapping, utility mapping and relocation agreements (including other necessary third-party agreements). A detailed statement of work is included in **Appendix A** – Scope of Work, Attachment 2 – Statement of Work.

Completing configuration design offers many benefits, such as reducing cost and schedule risk, maintaining engagement with communities throughout the corridor and moving these two program sections closer to construction. Advancing configuration design also will ensure the environmental documents do not go stale and that costs for each program section can be verified early. An award to this Project would build on prior federal awards to environmentally clear the Phase 1 Corridor from San Francisco to Los Angeles/Anaheim and to construct the 119-mile Central Valley Segment.

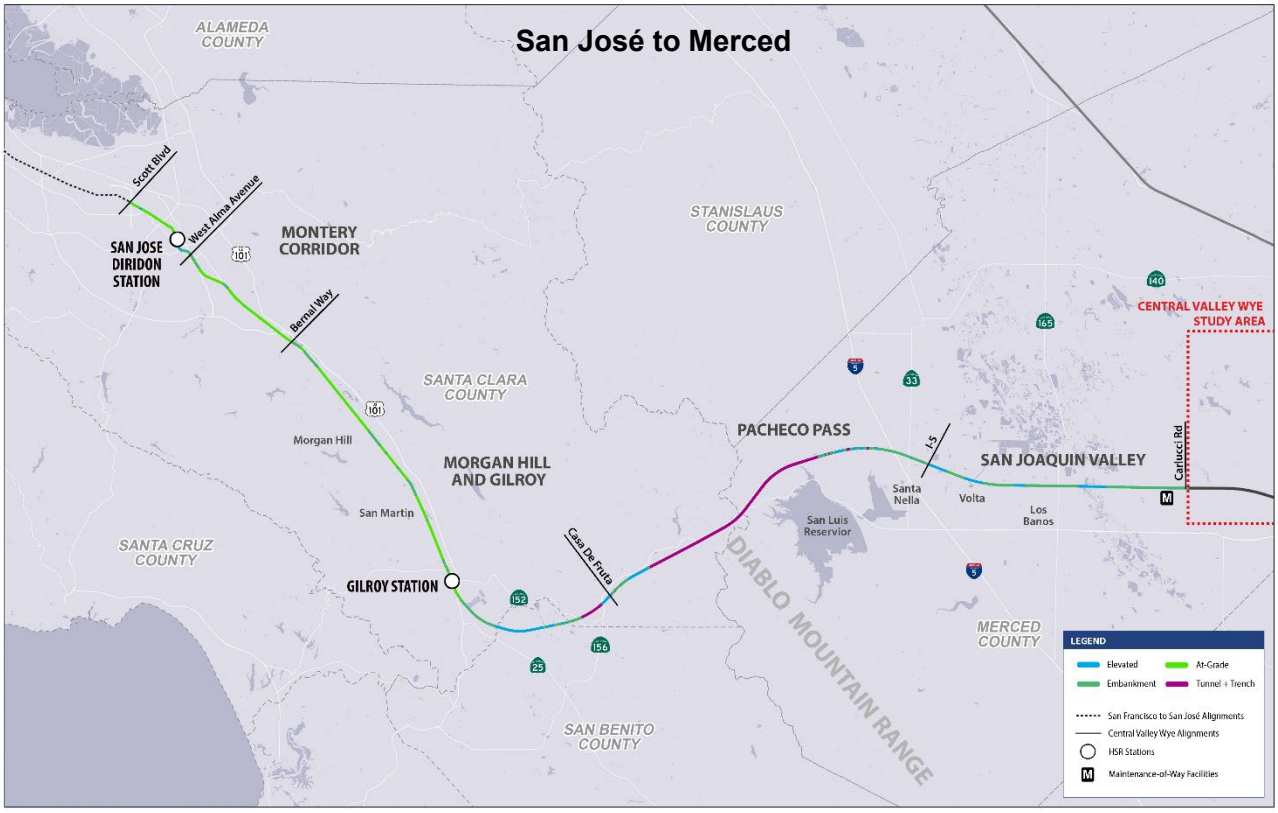
The requested FSP-National funding will position the Authority for future final design and construction when funding is available.

### B. Project Details and Timeline

The cost of the Project is estimated at $242.0 million. Given the complexity and scale of the Phase 1 California High-Speed Rail Program, the Authority is seeking federal funding to accelerate these long lead time design activities. Funding under this Application would be used to complete a configuration footprint (a minimum of 30% design), value engineering, refining the costs for construction, right of way mapping, utility mapping and relocation agreements for both the San José to Merced segment (first map, below) and the Bakersfield to Palmdale segment (second map, below) shown in **Exhibit VI-2 and Exhibit VI-3, respectively.**

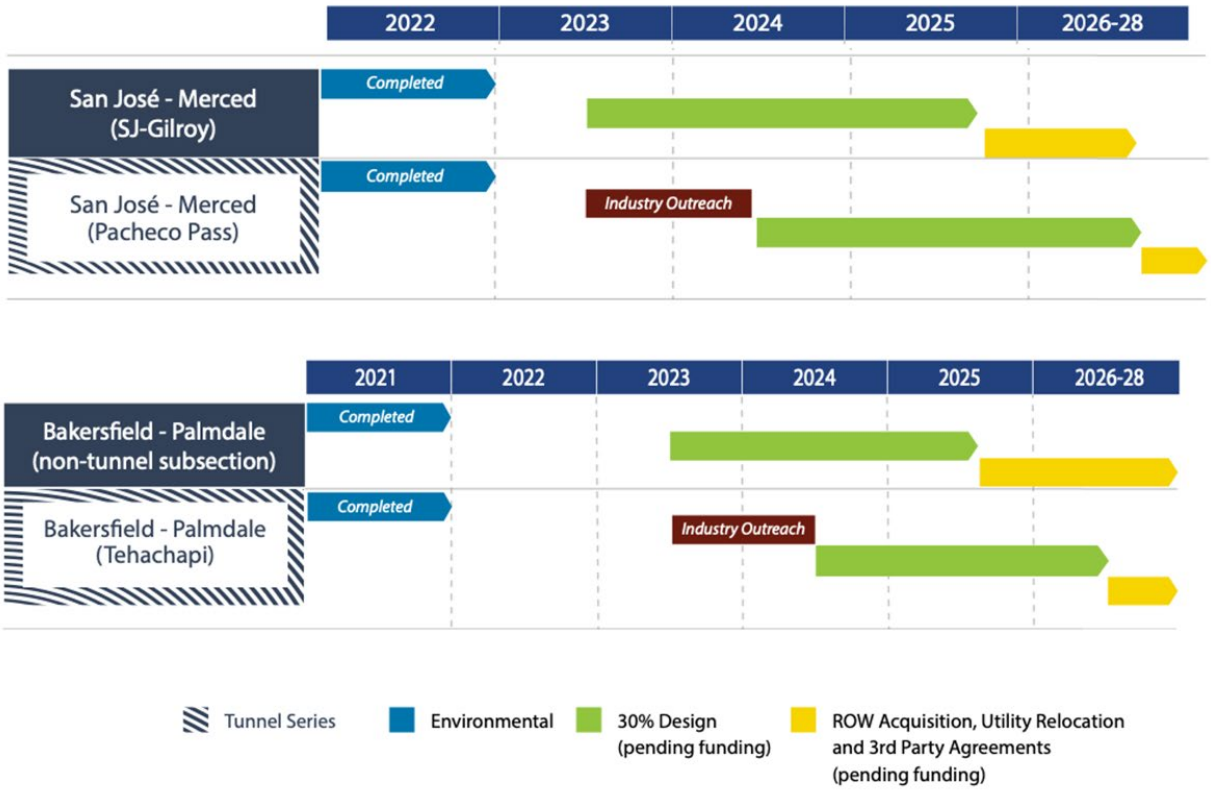
The geotechnical design report will be done within 48 months of grant agreement execution along with other deliverables being available within 58 months. The illustrative timetables in **Exhibit VI-4** assume grant agreement execution before the end of 2023. See **Appendix A,** Attachment 3 – Deliverables and Approved Project Schedule for further details.

**Exhibit VI-2. Overview of Scope of Work Area – San José to Merced**



## Exhibit VI-3. Overview of Scope of Work Area – Bakersfield to Palmdale

**Exhibit VI-4. Illustrative Project Timeline**




Source: California High-Speed Rail 2023 Project Update Report

### C. Transportation Challenges and Primary Expected Outcomes

***Lack of Intercity Connectivity.*** California has limited intercity travel options for bus, rail, and air service available~~,~~ across the state, especially in the Central Valley and between key urban centers in Northern and Southern California. These conditions constrain labor accessibility between and within labor markets, as well as limit economic growth. They also exacerbate existing transportation inequities, leaving disadvantaged communities without access to affordable and reliable transportation.

**Outcomes**: The design of the San José to Merced and Bakersfield to Palmdale program sections will help to connect the mega-regions of the State and enable the completion of the California Phase 1 Corridor. Improving connectivity and expanding mobility within and across regions will create economic opportunities and expand employment options for residents.

***Economic Benefits.*** Investments achieved through this Project and the Phase 1 San Francisco to Los Angeles service it enables will support living wage jobs, provide small business opportunities, increase regional economic activity, and equitably enhance the mobility of communities in need – including disadvantaged agricultural communities. Over the course of construction, the Phase 1 system enabled by the Project will generate 855,000 job years of employment, $69 billion in labor income, and $181.4 billion in economic output, as shown in Table 11 on pg. 29 of the 2022 Economic Impact Analysis (hyperlink).

***Mobility*.** Benefits will include travel time savings, reliability, transit amenities, induced ridership, and more productive hours for travelers, as a result of the Phase 1 Corridor. The Phase 1 service between San Francisco and Los Angeles / Anaheim will realize $629.4 million in

discounted benefits in 2040 related to travel time savings, based on benefits for riders diverted from auto and air, as well as existing rail services. Over the 30-year period of operations analyzed, it will realize $12.7 billion in discounted benefits related to travel time savings (**Appendix B**, Table 9).

***Wider Economic Benefits:*** The Phase 1 Corridor's service will engender positive wider economic impacts (WEBs) that reflect the benefits of increased connectivity for firms and workers. The premise of WEBs is that projects that improve overall accessibility and reduce transportation costs (including travel time, vehicle operating costs, road and parking facility costs) will tend to facilitate inter-city connections between firms, thereby engendering the impacts on innovation, labor specialization, learning and labor market matching between workers and tasks.

**Outcomes:** For firms in industries that benefit from the improved connectivity, buildout of the high-speed rail system will increase employee productivity (and hence wages) and profits for firms along the corridor. Firm profits from increased connectivity will increase the desirability of locations near rail stations served. This increased desirability will be capitalized into increased commercial real estate values proximate to the main high-speed rail stations. The Phase 1 system will realize WEBs that include $17.55 billion in discounted benefits related to employee wage increases, and $5.2 billion in commercial property value uplift over the 30-year period of analysis (**Appendix B**, Section 4.4). These do not include residential property value increases, which would double count users' benefits (notably time savings).

***Transportation System Environmental Impacts.*** State-wide, congestion on highways and at airports generates significant environmental impacts and damages, including harmful emissions.

**Outcomes*:*** The Phase 1 Corridor enabled by this Project directly addresses climate change by utilizing 100 percent renewable energy, with electric trains, supporting EV infrastructure, solar power generation, and reducing GHG emissions through a modal shift from higher emission-generating forms of travel.

***Emission Reductions:*** By transferring trips from modes with higher emissions (commercial air flights and automobile trips) to high-speed rail, when the California Phase 1 Corridor is fully operating it is projected to save an average of 2 million metric tons of carbon each year, equivalent to taking over 400,000 gas-powered passenger vehicles off the roads annually, as noted in the Authority's 2023 Project Update Report (hyperlink) (Ch. 4, pg. 77) and 2022 Sustainability Report (hyperlink) (Ch. 3, pg. 35). The discounted value of over 35 million tons of reduced emissions over the life of the Phase 1 Corridor is estimated at $1.4 billion (**Appendix B**, Table 24).

***Renewable Energy and Electrification Investments.*** The Project will rely primarily on solar energy generation to be developed on Authority land with integrated battery storage to operate electrified high-speed trains and stations. Among the many benefits of this system will be: offsetting the energy load from operation of the trains; reducing peak energy demand; reducing and smoothing demand on the transmission grid; supplying capacity to the State's grid during peak demand; and providing critical resilience to the State's electricity supply. In addition, high-speed rail stations will include electric vehicle charging infrastructure for customers, electric buses, partner transit entities and the Authority fleet vehicles. Stations along the alignment will be incorporated into the overall renewable energy supply for all systems. The Authority also will explore sharing excess energy with adjacent facilities to minimize energy costs of Authority partners.

***Transportation System Capacity***. California's existing highway, airport and rail infrastructure does not have the capacity needed to meet growing and future demands on our transportation system.

> **Outcomes**: The Phase 1 Corridor enabled by this Project will add capacity to the transportation infrastructure by offering a viable alternative to automobile, air, and slower, less-connected forms of rail travel. As noted in the 2023 Project Update Report (hyperlink) (see page 61), the updated analysis indicates that road/airport investments to achieve equivalent capacity would cost from $130 to $215 billion (YOE$) compared to our updated high-speed rail system estimate which ranges from $88.5 to $127.9 billion (YOE$). Clearly high-speed rail remains the most cost-effective way to add this capacity. The Project also will achieve both federal and state goals to improve economic strength and global competitiveness.

***Safety*.** Current levels of automobile travel and rail alignment conditions contribute to injuries, fatalities, and environmental conditions that have negative health impacts.

> **Outcomes**: The Phase 1 Corridor enabled by this Project will increase the safety of passengers, other travelers and community members in several ways: grade separations, reduction in vehicle miles traveled (VMT), dedicated safety infrastructure and technology, and protecting users and community members from health and safety risks generated by the State's current transportation system. The discounted value of safety benefits is estimated at nearly $4.5 billion for the Phase 1 HSR Corridor enabled by the Project.

**D. Additional Outcomes**

***Modernized Transportation System.*** Investment in the Phase 1 Corridor enabled by the Project will reduce constraints on the overall state transportation network and provide equivalent capacity for lower investment, as noted above.

***Current Railroad Operations in the Project Area.*** Currently, there is no direct train service from Bakersfield to Palmdale. Travelers must rely on bus service from Bakersfield to Newhall (1 hour 40-minute ride plus transfer time of up to an hour) to reach a Metrolink Antelope Valley Line train from New Hall to Palmdale (1 hour 4 minutes).

Regional passenger rail operators in the area of San José to Merced currently include:

- Altamont Commuter Express service from Stockton to San Jose making the journey in 2.5 hours four times per dayAmtrak service from San José to Oakland (approximately 1 hour 15 minutes and Sacramento (3 hours) six times per day Caltrain commuter rail services between San Francisco and San Jose
- Planned extension of BART service to San Jose's Diridon Station
- Amtrak Coast Starlight (once per day) to Seattle and Los Angeles

Along with investments made for high-speed rail, on a parallel basis the San Joaquins Corridor and ACE service operators are teaming to develop a near-term service expansion plan, coined "Valley Rail," from Merced to Sacramento and the Bay Area. The proposed plan includes the addition of both San Joaquins trains and ACE trains along the Sacramento Subdivision serving new stations between Stockton and Sacramento. San Joaquins service frequency will be increased. New ACE services from Merced to Natomas and San José will be introduced as well. As recognized in the Authority's 2022 Service Development Plan, the goal is to increase from six to sixteen daily runs, an increase of 166 percent.

***Improved Railroad Operations in the Project Area*.** As part of the 2018 California State Rail Plan and Draft 2023 California State Rail Plan (hyperlink) (pgs. 19, 60-68, 102, 117-121, 139) the Phase 1 Corridor will expand and improve passenger rail transportation in California. Benefits include:

- **Cutting travel time –** between key destinations such as the San Francisco Bay Area to Los Angeles from 11+ hours by existing train service to 2 hours, 39 minutes by high-speed rail.
- **Increasing and improving passenger rail service** – with more round trips per day reliably departing and arriving on time compared to existing train service; and
- **Improving freight rail operations** also will result from separation of passenger rail from freight lines. Freight rail operators in the Phase 1 Corridor include Union Pacific Railroad (UPRR) and BNSF Railway (BNSF).

Furthermore, improvements to existing California routes and stations will have a nationwide impact on routes such as California Zephyr (Emeryville (San Francisco) to/from Chicago through Rocky Mountains), Coast Starlight (Los Angeles to/from Portland and Seattle), Southwest Chief (Los Angeles to/from Chicago), and Sunset Limited (Los Angeles to/from New Orleans). Existing BNSF and UPRR freight service from ports in the Bay Area and Los Angeles area to the rest of the country also will be improved by moving passenger service.

***Increased Ridership.*** Because of its speed, reliability and connectivity, intercity ridership in California will achieve new highs and will be comparable to intercity ridership on the well-established Northeast Corridor. The full Phase 1 Corridor is anticipated to have 31.3 million riders by 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 includes increased ridership among other passenger rail operators including Altamont Corridor Express (ACE), and services operated by Amtrak, including San Joaquins, Capitol Corridor, Pacific Surfliner, and Coast Starlight services, as well as Metrolink and long-distance Amtrak services.

***Users and Beneficiaries.*** Because of its unique combination of connectivity, travel time savings and system capacity benefits, users of the Phase 1 Corridor enabled by the Project will include passengers shifting from other modes of transportation, as well as new travelers who did not previously have access to transportation modes that met their needs for travel between the destinations served by existing services along the Corridor alignment, and beyond. The societal benefits generated by the Phase 1 Corridor improvements (both costs and benefits in discounted 2021 dollars) are estimated to be over **$70.6 billion** over the lifetime of the system, and the total capital costs are calculated to be **$53.7 billion,** taking into account the time value of money and other adjustments in the analysis to avoid double-counting. The difference in the discounted benefits and costs equals a net present value of **$16.9 billion**, resulting in a **benefit-cost ratio (BCR) of 1.32** (**Appendix B**, Table ES-3 and Table 35).

***Performance Measurements.*** As compared to alternative travel modes and existing passenger rail service, the Phase 1 Corridor enabled by the Project will improve intercity passenger rail service performance and overall transportation system performance across a full range of parameters, including, but not limited to: increased rail ridership, fewer accidents, reduced emissions, less auto congestion, more jobs, small business contracting, and spending in disadvantaged communities. For details on proposed performance measurements related to the Project, in particular, see **Appendix A** – Scope of Work, Attachment 5 – Performance Measurements.

## VII. Project Location

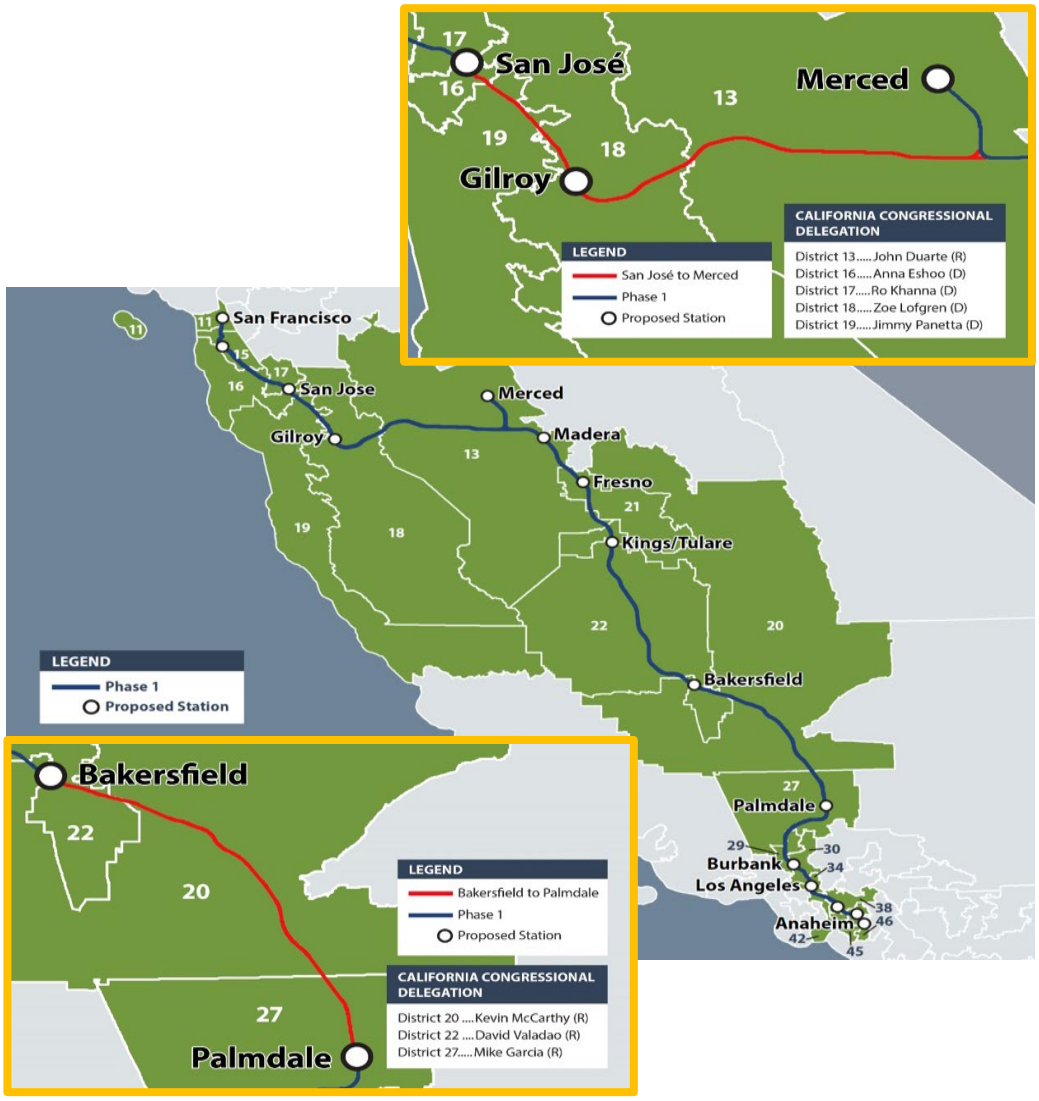
The Project touches rural communities and urban centers. The Project is located between the cities of San José (37.32936, -121.90304) and Merced (37.29789, -120.48007) in the north and Bakersfield (35.39146, -119.02335) and Palmdale (34.58427, -118.11892) in the south.

The Phase 1 Corridor enabled by the Project touches communities along a nearly 500-mile alignment running through 231 census tracts, including 157 tracts designated as Historically Disadvantaged and 78 tracts that are designated as Areas of Persistent Poverty (APP) as defined by the U.S. DOT.

**Appendix D** to this document includes a listing of these designated census tracts that cross the centerline of the Phase 1 Corridor alignment.

**Exhibit VII-1** shows the locations of the design work within the San José to Merced section and the Bakersfield to Palmdale section, including the Congressional Districts in each section**.**

**Exhibit VII-1. Location of Project Sections and Congressional Districts**



# VIII. Grade Crossing Information

Grade separations are integral to safety with train speeds exceeding 200 mph. The Project will enable safer grade crossings between the cities of San José and Merced in the north and Bakersfield and Palmdale in the south. This work will address safety issues by eliminating conflicts passing trains have with vehicles, bicyclists, and pedestrians. Within these two program sections there is one existing at-grade crossing that will be terminated and 38 that will be remediated, including 29 crossings at which enhanced four-quadrant gates ("quad gates") will be constructed. Quad gates are designed to block all lanes of traffic on both sides of the track, and to provide a closure delay on the exit side to allow vehicles that may get stuck between the gates to get off the tracks. In addition, there will be five crossings at which roads will be grade separated over the rail corridor and two crossing at which underpasses will be constructed (road passing under tracks) See **Appendix E** for details.

Benefits of grade separations alone include improved safety from crashes, travel time savings for residents, commercial trucks and emergency services, reduced noise (no train horns), decrease in traffic congestion, reduction in emissions from idling vehicles, improved train operations reliability (both for freight and passengers rail operation), and property value uplift. These grade-separation projects also will help provide more equity in access to jobs in communities historically enclaved / segregated by the crossings. This will result in major improvements to both urban and rural areas in the Central Valley, including less segregated cities and neighborhoods in areas historically separated by the rail lines. For the full Phase 1 Corridor enabled by the Project, the discounted value of these combined benefits is estimated at $6.7 billion for the Phase 1 Corridor (**Appendix B**, Table 30).

# IX. Evaluation and Selection Criteria

## A. Technical Merit

This Section provides details regarding the technical merit criteria in the NOFO.

### 1. Appropriateness of SOW to Achieve Expected Outcomes

**Appendix A** provides the required Scope of Work (SOW) for this Application, including: Attachment 2 – Statement of Work; Attachment 3 – Deliverables and Schedule; Attachment 4 – Approved Project Budget; and Attachment 5 – Performance Measurements. Completion of the SOW for the Project involves design and geotechnical work including value engineering studies, development of refined project costs, travel time enhancement studies, updated project risk assessments and schedules, right-of-way mapping, identification of utility conflicts and relocations, and development of third-party agreements with railroad, local jurisdictions, and utilities as well as project management, surveying, plan and profile with vertical and horizontal alignment, roadway plan and profile, constructability reviews, preliminary type selection and configuration footprint design for structure foundations, superstructure, substructure, and retaining walls, seismic design basis, earthwork design, hydrology and hydraulic reports, drainage drawings, and preliminary geotechnical design reports.

These tasks support completion of the first stage of design to establish a project configuration footprint (progress design to a minimum of 30%) of tunnel and track alignment for the San José to Merced Section and Bakersfield to Palmdale Section, which are essential to the timely delivery of the Phase 1 Corridor. Therefore, the SOW is appropriate to complete the Project, which will generate the expected outcomes described throughout this Application, including increased regional and inter-regional mobility, economic impacts, job creation, and reduced GHG emissions and sustainability.

### 2. Experience of Key Personnel and Organizations

The Authority is a robust organization that also relies on a network of partners comprised of infrastructure advisors, financial advisors, rail delivery experts with experience building high-speed rail internationally, the insights of an early train operator, and nationally recognized design build contractors. The Authority's Integrated Organizational Chart in **Appendix F** shows the structure and size of the Authority's personnel,

which includes roughly 700 total positions between state and consultant staff members. Additional information is contained in *Section XI. Implementation and Project Management.*

### 3. Private Sector Participation

The Project and the Phase 1 Corridor it advances will engage the private sector extensively, first in design and ultimately in construction, systems and operations, which will support additional living wage private sector jobs, provide more small business opportunities, and equitably enhance the mobility of communities in need – including disadvantaged agricultural communities. Over the course of construction of the Phase 1 system, the Corridor will generate 855,000 job years of employment, $69 billion in labor income, and $181.4 billion in economic output, as shown in Table 11 on pg. 29 of the 2022 Economic Impact Analysis (hyperlink).

### 4. Past Performance and Previous Financial Commitments

The Authority has experience delivering projects involving state and federal contributions. In 2009, the American Recovery and Reinvestment Act (ARRA) was enacted and allocated $8 billion in funding for high-speed rail projects nationwide. California was awarded $2.5 billion in ARRA funds. Additionally, the Authority was awarded $929 million in FY10 funds, made available through federal appropriations, for completion of final design and construction of the first 119-mile section in the Central Valley. The funds from these two federal grants were appropriated along with initial Proposition 1A proceeds in the Budget Act of 2012 to advance planning and environmental work from San Francisco to Los Angeles, construct the 119-mile backbone in the Central Valley and fund other associated rail investments throughout the State. The Authority also received two more awards from RAISE – a $24 million FY 2021 grant was awarded to the Wasco State Route 46 Grade Separation Project and a $25 million FY 2022 grant was awarded to the Merced Extension Design Project – for which grant agreements remain in process. The Authority has consistently met match funding commitments and augmented the budget with state funds as necessary.

The Authority has environmentally cleared 422 miles of the high-speed rail project's 500-mile Phase 1 Corridor from San Francisco to Los Angeles / Anaheim – including a contiguous stretch between Merced and Palmdale. In addition, Central Valley construction is advancing with 66 of 93 major structures completed or in active construction through January 2023. The Authority expects the first of three civil construction packages to be completed in 2023.

The Authority has the administrative and programmatic infrastructure in place to successfully manage mega projects and contracts. The Authority undergoes rigorous external and internal audits, as well as conducts ongoing enterprise-wide risk analysis to develop quality improvement plans. The Authority also is subject to external oversight by the Department of Finance, California State Transportation Agency and the California Legislature. In addition, a new independent Inspector General has been established, for which an appointment by the Governor is anticipated shortly.

### 5. Approach to Risk Mitigation

The Risk Management Office (RMO) was established to increase risk awareness and management capabilities, which included the development of an Enterprise Risk Management (ERM) program and the Enterprise Risk Committee (ERC), an oversight body comprised of members including the Chief Executive Officer, the Director of Risk Management and Project Controls, and other Authority executives. The Enterprise Risk Register contains the top strategic risks to be managed and monitored by the Authority's ERC. On an annual basis, the RMO conducts an enterprise risk assessment to identify any new risks for the ERC to discuss for inclusion in the Enterprise Risk Register. There is also a monthly forum for committee members to analyze and potentially include emerging risks throughout the year. In accordance with the NOFO instructions, more information is provided in **Appendix G** – Risk Approach and **Appendix H** – Key Risks and Mitigations**.**

***This Project's Role in Risk Management of the Overall Program:*** This Project is part of Stage 3 (Environmental Clearance, Prepare for Preconstruction) of the Authority's Staged Project Delivery process. The purpose of Stage 3 is to resolve early risks. Because the Authority already has completed the Final EIR/EIS and Record of Decision, the work under this project is focused on the following:

- 30% Preliminary Engineering (including seismic studies)
- Risk assessment
- Develop Procurement/ Delivery Plan
- Right-of-Way Mapping
- Identify Utility Relocations

This Project is intended to prepare for Stage 4 to mitigate specific risks such as ROW acquisition and early works, as additional funding is available.

## 6. Legal, Financial and Technical Capacity

**The Authority has sufficient legal, financial, and technical capacity to carry out the Project, ,** including leadership team members shown in its Integrated Organizational Chart in **Appendix F.** Authority leadership is charged with providing oversight of funding, planning, design and construction, future oversight and operation of the rail network, as well as the development of processes and procedures to ensure the built infrastructure, facilities and equipment remain in a state of good repair, thereby assuring continuing access and availability of the system to serve rail passengers. Additional details about the Authority's organizational structure and processes can be found in *Section X. Implementation and Project Management*. The Authority also maintains a network of partners comprised of infrastructure advisors, financial advisors, rail delivery experts with international high-speed rail development and construction experience, an early train operator with insights on the high-speed rail development and operating lifecycle, and nationally-recognized design build contractors.

The Authority's financial capacity to carry out the Project is demonstrated by the state's Proposition 1A and Cap-and-Trade program funding commitments and the federal grant awards that continue to support the current construction in the Central Valley and the future expansion of the Phase 1 system.

The Authority plans to maintain control over and access to equipment and facilities. In addition, the Authority's operations and maintenance program ensures that equipment and facilities will be maintained in a state of good repair.

## 7. Capital Project Lifecycle Prerequisites and Project Readiness

The Authority has completed all environmental clearances for the program sections that comprise the alignments relating to this FSP-National Application. This major project milestone is part of Stage 3 of the Authority's Staged Project Delivery process; it mitigates environmental risk for the Project. See *Section XI. Environmental Readiness* and **Appendix I** for links to all relevant RODs.

The new configuration design documents will build on the Records of Decision to refine the requirements to deliver the Project and further demonstrate Project Readiness. The Authority's extensive design criteria cover the range of requirements that are needed to construct and operate the high-speed rail system and comply with FRA requirements for safety compliance, among other things. The deliverables specified in the contracts for configuration design for the Project will achieve Class 3 estimates, a key milestone to complete before commencing the final design for which grant funding is now being requested.

## 8. Consistency with Planning Guidance

As discussed in the U.S. DOT Strategic Goals section, below, the Project is consistent with planning guidance and documents set forth by the Secretary of Transportation, including the US DOT Strategic Plan (hyperlink) and the January 2023 Final Railroad Capital Project Guidance (hyperlink).

## B. Project Benefits

***System and service performance:*** The Phase 1 Corridor enabled by the Project will improve system and service performance by creating new intercity passenger rail service throughout the State, as well as reducing transit time for travel for other modes. There are trains that just travel within the State, such as the ACE commuter rail and Capitol Corridor, San Joaquins and the Pacific Surfliner passenger rail services – and the benefits of the high-speed rail improvements are consequential to these services. In addition, improvements to routes and stations along the California Phase 1 Corridor will have a nationwide impact. California has the most Amtrak stations in the United States. Amtrak customers on cross-country routes such as California Zephyr, Coast Starlight, Southwest Chief and Sunset Limited all will benefit from the improvements in California Amtrak service brought about by California High-Speed Rail. The improvements to the Phase 1 Corridor also create the opportunity for a connection to the planned Brightline West project connecting Southern California to Las Vegas. That connection will be mutually beneficial to both projects in terms of ridership and will provide additional economic benefits to communities served by both projects.

***Safety, Competitiveness, Reliability, and Trip or Transit Time, Resilience*:** The Corridor that this Project enables will increase the safety of passengers, other travelers and community members through a reduction of vehicle miles traveled (VMT), as travelers shift to passenger rail, resulting in reduced incidents of passenger vehicle and road freight accidents. In addition to the reduced injuries and fatalities caused by accidents, cost savings include direct savings (e.g., reduced personal medical expenses, lost wages, and lower individual insurance premiums) as well as significant avoided costs to society (e.g., other medical and litigation fees, emergency response costs, incident congestion costs, and litigation costs). Annual VMT savings in the opening year of the Phase 1 Corridor are estimated at 50.5 million, rising to 3.4 billion by 2040 and 3.6 billion by 2060, the final year of analysis (**Appendix B**, Table 7). Safety benefits resulting directly from reduced VMT include over 66,000 fewer crashes – notably, a reduction of over 1,300 fatal crashes and 24,000 injury crashes through 2060 – **reduced vehicle traffic due to high-speed rail will result in over 1,300 lives saved.** The discounted value of the safety benefits from reduced highway traffic is $5 billion through 2060 (**Appendix B**, Table ES-3, Table 22 and Table 35). The system also will improve safety at highway-rail grade crossings, by reducing incidences of rail-related trespassing (both freight and passenger rail), upgrading infrastructure, and reducing injuries at at-grade crossings by creating grade separations and delivering other improvements along the rail alignment. The discounted value of these safety savings is $134 million, solely from removal of at-grade crossings across Phase 1 (**Appendix B**, Table ES-3, Table 30 and Table 35).

***Travel Times:*** The Corridor enabled by this Project will substantially reduce travel times, as well as increase frequency of daily train service, that will attract passengers who might otherwise travel by car or other modes, as demonstrated in **Exhibit IX-1,** below (See *DOT Strategic Goals, Transformation of our Nation's Infrastructure*). For example, a trip from San Francisco to Los Angeles that would require at least 6-8 hours by car or 11+ hours on existing Amtrak Coast Starlight service from Oakland to Los Angeles will be completed in as little as 2 hours and 39 minutes. Travel time is considered a cost to users, and its value depends on the disutility that travelers attribute to time spent traveling. A reduction in travel time translates into more time available for work, leisure, or other activities Based on travel time savings benefits for riders diverted from auto and air, as well as existing rail services, the Phase 1 system will realize $629.4 million in discounted benefits related to travel time savings in 2040. Over the 30-year period of operations analyzed, it will realize $12.7 billion in discounted benefits related to travel time savings (**Appendix B**, Table 9).

***Reliability:*** The Corridor will improve reliability by removing passenger rail from shared rail lines currently impacted by freight service, including delays at rail crossings while waiting for freight trains to pass. The Phase 1 Corridor will improve reliability by reducing uncertainty of trip or transit times. Also, relative to a highway trip, travelers can generally expect a more reliable trip with trains arriving on time and per a schedule, rather than being subject to the random delays that can occur on the highway network. The discounted value of reliability time savings benefits to direct users of the Phase 1 high-speed rail service are $4.8 billion over the analysis period (**Appendix B**, Table 13).

***Resilience:*** The Phase 1 Corridor will provide both energy resilience and withstand environmental conditions. The Authority included climate hazards in its risk management process with its Safety and Security Management Plan (SSMP). The SSMP describes new, resilient design criteria, facility backup power, defensible space in wildfire prone areas, requirements to use climate data in station design and energy modeling and designs that account for sea level rise projections in affected areas (to comply with Federal Flood Risk Management Standards). The Phase 1 Project also improves modal integration for both passenger and freight transport modes; and builds resiliency to the currently strained freight transport infrastructure. It protects and enhances the freight-carrying capacity of California existing freight rail providers and reduce conflicts between freight and passenger trains, increasing reliability and travel times of both. This results in freight rail benefits including cost savings to existing rail freight and emission reductions, and pavement damage reductions from truck-to-rail diversion.

***Wider Economic Benefits:*** The Phase 1 Corridor's service will engender positive wider economic benefits (WEBs) that reflect the benefits of increased connectivity for firms and workers. The premise of WEBs is that projects that improve overall accessibility and reduce transportation costs (including travel time, vehicle operating costs, road and parking facility costs) will tend to facilitate inter-city connections between firms, impacting innovation, labor specialization, learning and labor market matching between workers and tasks. The buildout of the high-speed rail system will increase employee productivity (and hence wages) and profits for firms along the corridor. Firm profits from increased connectivity will increase the desirability of locations near rail stations served. This increased desirability will be capitalized into increased commercial real estate values proximate to the main high-speed rail stations.

These benefits reflect increased accessibility *between* labor markets, as well as increased density *within* a single labor market. Improved connectivity between businesses (and their employees) in different locations will result in better labor matching between employee skills and job requirements, better on-the-job learning, and increased labor specialization. The discounted value of WEBs on employee productivity in management services industries is $17.6 billion and the increase in property values proximate to rail stations from the Project is $6 billion over the analysis period (**Appendix B**, Section 4.4). These do not include residential property value increases, which would double count users' benefits (notably time savings).

***Effects of anticipated positive economic and employment impacts*:** Investments achieved through the Phase 1 Corridor that this Project enables will support living wage jobs, provide small business opportunities, and equitably enhance the mobility of communities in need – including disadvantaged agricultural communities. The construction of the Phase 1 Corridor enabled by the Project will generate 855,000 job years of employment, $69 billion in labor income, and $181.4 billion in economic output, as shown in the 2022 Economic Impact Analysis (hyperlink). In particular, this will provide benefits to historically disadvantaged communities and areas of persistent poverty across the region, including empowerment zones, opportunity zones, and other community development zones.

***Efficiencies from improved connections with other modes:*** The Phase 1 Corridor enabled by this Project will improve efficiency of vehicles, bicycles, pedestrians and trains by reducing reliance on automobile travel and easing traffic congestion in the region. The Corridor will also allow for improved travel time for Amtrak trains as they move from BNSF-owned infrastructure to high-speed rail lines.

***Ability to meet existing or anticipated demand:*** The Phase 1 Corridor enabled by this Project adds capacity to congested corridors, builds new connections to the Central Valley, attracts new users and ensures existing assets are improved to a state of good repair. The project will bring improved modal integration to meet current and anticipated demand.

***Service for historically unconnected or under-connected communities:*** The Phase 1 Corridor will serve under-connected communities both in the Central Valley and statewide by providing faster and more frequent intercity train service that will, as part of the Phase 1 system, connect travelers to destinations from San Francisco Bay Area to Los Angeles. The Phase 1 Corridor will also improve on current bus bridges and other connecting services by providing more direct multi-modal connections that provide more equitable economic growth and access to opportunities for historically disadvantaged communities.

### Statutory Selection Criteria

The Project meets all four statutory selection criteria for the FSP-National Program, as further explained below.

1) **Amtrak is not the sole applicant.** The Authority is the lead and sole applicant for grant funding.
2) **Project will improve the financial performance, reliability, service frequency, or address the state of good repair of an Amtrak route.** The Project will deliver improvements to Amtrak routes in the State of California and nationally. Amtrak service between Merced and Bakersfield will shift to high-speed rail service. The Phase I Corridor enabled by the Project will encompass and provide benefits for Amtrak service routes operating within the State. Improvements to existing California routes and stations will have a nationwide impact on long-distance Amtrak routes such as California Zephyr, Coast Starlight, Southwest Chief, and Sunset Limited. Within California, routes operated by Amtrak under contract, such as the Capitol Corridor, San Joaquins and the Pacific Surfliner passenger rail services, also all will benefit from high-speed rail improvements to stations and connecting service.
3) **Project is Consistent with Corridor Identification and Development Program**.

   The California High-Speed Rail Program is one of 11 high-speed rail corridors previously designated by the FRA. Furthermore, the California High-Speed Rail Authority has been active in each phase of the current Corridor Identification and Development Program (Corridor ID) effort, and submitted a proposal in response to the FRA's Notice of Solicitation of Corridor Proposals and Funding Opportunity published in the Federal Register on December 20, 2022.

### DOT Strategic Goals

The Phase 1 HSR Corridor enabled by the Project will contribute to virtually all of the national goals described under Section 150. The following contributions are among the most significant.

#### Safety

The Phase 1 Corridor enabled by the Project will result in an annual reduction of vehicle miles, reductions of over 1,300 fatal crashes and 24,00 injury crashes through 2060 from grade crossing eliminations. In addition, the Project will achieve 30 percent design on 29 remediated grade crossings from San José to Merced and 9 remediated grade crossings from Bakersfield to Palmdale, which ultimately will eliminate safety conflicts between passing trains and vehicles, bicyclists, and pedestrians. Additional details are provided in *Section VIII. Grade Crossing Information* and **Appendix E**. Furthermore, the technology imbedded in the high-speed rail systems and the rolling stock are focused on performance and passenger safety. They include the highest standards related to train control systems. Positive Train Control (PTC) with hazard warning detection systems, earthquake detection and autonomous reaction are state-of-the art technologies designed to avoid collisions. Trainsets also will carry the latest technology and safety features to comply with FRA's highest passenger equipment safety standards (Tier III). Details can be found in a summary of the Authority's Safety Protocols (hyperlink).

#### Equitable Economic Growth and Job Creation

***Investments in Disadvantaged Communities***. In FY 2021-2022, 62 percent of total high-speed rail program expenditures occurred in disadvantaged communities in California (identified with CalEnviroscreen), spurring economic activity in these areas. The Project and Phase 1 Corridor will further enhance economic vitality in disadvantaged and low-income communities in the state by attracting new businesses that will lead to local job creation, as well as by removing commute barriers to job markets – both of which support economic and racial equity.

***Job Creation***. On average, more than 1,000 workers are dispatched each day to a high-speed rail construction site. Within the segment already under construction in the Central Valley, 3,367 jobs have gone to workers from Fresno County, 1,891 from Kern County, 1,007 from Tulare County, 430 from Madera County and 367 from Kings County. These FY 2021-2022 expenditures supported approximately 9,670 job-

years within the State of California; approximately $830 million in labor income; and over $2.3 billion in total economic output. As of January 31, 2023, the Project reached 10,000 jobs, and more than 50 percent of workers from disadvantaged communities. Completion of the Corridor is expected to generate a total of 855,000 job-years of employment. In addition, the Phase 1 system will employ approximately 1,000 employees in operations and maintenance roles upon completion.

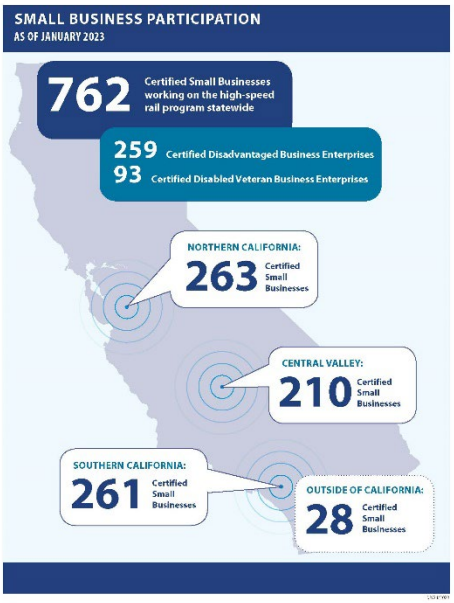
***Workforce Development.*** The Authority and its partners have established programs to provide training and employment opportunities in constructing the Phase 1 Corridor. This includes the City of Selma's workforce development center which provides pre-apprenticeship classes and hands-on construction industry training for Central Valley residents, serves veterans, at-risk young adults, minority and low-income populations. The Authority also partners with building trade unions and the Fresno Regional Workforce Development Board for Construction Pre-Apprentice training. The Authority requested federal funding to extend the pre-apprenticeship program from the RCE program and the CRISI program in FY 2022.

***Community Benefits Agreement*** (CBA). The Authority's CBA (hyperlink) contains a Targeted Worker Program with a goal for 30 percent of all project work hours to be performed by National Targeted Workers, whose primary residence is within an Economically Disadvantaged Area or an Extremely Economically Disadvantaged Area in the U.S. At least 10 percent of the work hours are to be performed by Disadvantaged Workers, who meet income requirements (e.g., annual household incomes from $32,000 to $40,000) and face barriers to employment (e.g., homeless, veteran, without high school diploma or GED, etc.). In addition, pursuant to Article VIII – Wages and Benefits of the CBA (page 17), all employees covered by the CBA must be compensated in accordance with the then-current multi-employer "Schedule A" Agreement of the applicable Union; furthermore, employees must be paid the applicable federal and state prevailing wage rates even if they are higher than those required by such Agreement.

## Equity and Barriers to Opportunity

The Phase 1 Corridor runs through 231 tracts, including 157 tracts designated as Historically Disadvantaged and 78 tracts that are designated as Areas of Persistent Poverty (APP) as defined by the U.S. DOT. The Authority has committed to several equity-focused practices in its delivery of the Project and Phase 1 Corridor. See Appendix [D] for the lists of these census tracts. The Authority has committed to several equity-focused practices in its delivery of the program, as summarized below.

***Small Business Contracting.*** The Authority's Small Business Policy Directive (POLI-SB-01) (hyperlink) requires that Small Businesses (SB) *(inclusive of Small Businesses, Microbusinesses, Disadvantaged Business Enterprises (DBEs) and Disabled Veteran Business Enterprises (DVBEs))* have an equitable opportunity to participate in the Authority's contracting and procurement process. The Authority maintains a 30 percent small business participation goal. The Authority is fully committed to small businesses playing a major role in building high-speed rail. From project conception through June 30, 2022, the Authority has paid more than $1.3 billion to certified Small Businesses, Microbusinesses, Disadvantaged Business Enterprises and Disabled Veteran Business Enterprises in California for work on the high-speed rail program. As of January 31, 2023, 762 certified SB firms, including 259 certified DBE firms and 93 certified DVBE firms, have participated in the Program. All but 28 of the certified SB firms are located in California, fairly evenly split between Northern California (263) the Central Valley (210) and Southern California (261).




***Expanded Transportation Options.*** The Phase 1 Corridor enabled by this Project will improve and expand travel options in the state by providing faster and more frequent rail service, increasing the number of trains, provide new routes, and reduce travel times. As part of the Phase 1 Corridor, the Project will connect the San Francisco Bay Area to the Central Valley and beyond to Los Angeles / Anaheim.

***Environmental Justice and Community Engagement.*** The Authority proactively addresses potential disproportionate environmental impacts to disadvantaged communities in California. The Authority has implemented an Environmental Justice Policy (hyperlink), overseen by the Authority's Title VI Office, to ensure the fair and meaningful involvement of all affected populations in the planning and development of the program. Environmental justice engagement and outreach is undertaken during environmental clearance across the system; results of this engagement are addressed in Chapter 5 of the resulting environmental impact reports. For example, as part of the community engagement process, instead of building a sound barrier wall to mitigate noise impacts on local residents, the Authority contributed $10 million to the Wasco Farmworkers Housing Relocation Project to relocate and build new housing for the farmworkers that substantially improved the living conditions and safety for these residents. In the San Jose to Merced Final EIR/EIS the Authority worked with the community and ultimately made a series of commitments to community improvements worth over $60 million to offset and reduce any disproportionate effects the project may have. In addition, through the CalSTA Secretary, the Authority is represented on the Strategic Growth Council, which has adopted a Racial Equity Action Plan (hyperlink), to implement equity practices to reduce the burdens felt by disadvantaged communities.

***California Climate Investments Plan.*** The California Climate Investments Plan (hyperlink) recognizes that low-income communities, historically underserved communities, and communities that already bear an outsized environmental burden are those most likely to be impacted by the effects of a changing climate. Directing future projects toward such communities is a principal objective of California Climate Investments. Cumulatively, 57 percent of climate investments pursuant to the state-wide plan are benefiting disadvantaged and low-income communities, substantially exceeding the 35 percent aggregate investment minimum established in statute.

***Title VI / Civil Rights Compliance.*** The Authority has a dedicated Title VI/Civil Rights officer assigned to verify that no person shall, on the grounds of race, color, national origin, sex, age or disability be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity in the design, construction and operation of the high-speed rail system. Details are available here: Title VI Policy (hyperlink) and Title VI Plan (hyperlink).

### Climate Change and Sustainability

The Authority adheres to a Climate Adaptation Plan (hyperlink to Executive Summary) as a necessary part of the state's greenhouse gas mitigation efforts. California's goal is to deliver the greenest infrastructure project in the nation, both during construction and into operations. California's high-speed rail system is an electrified, green transportation choice that will create a modal shift of travel away from automobiles and short haul air travel to high-speed rail. It is a core part of California's mandated goals to achieve carbon neutrality by 2045 while decarbonizing the transportation sector by 2035 *(see 2023 Project Update Report, page 6)*. High-speed rail is the most cost-effective and cleanest solution to address California's travel needs for the future and the best opportunity to achieve new mobility for future generations and meet California's climate goals. The State's high-speed rail program is the largest transportation infrastructure project, both in terms of capital investment and geographic area, to earn an Envision award for sustainable infrastructure.

***Reducing air pollution and greenhouse gas emissions*.** According to the US Environmental Protection Agency, almost a third of the greenhouse gas emissions generated in the United States come from the transportation sector, primarily from burning fossil fuel for cars, trucks, ships, trains and planes (*see 2023 Project Update report, page 6).* The Phase 1 Corridor enabled by the Project will reduce overall lifecycle emissions with a permanent net decrease in the emissions of mobile source air toxics (such as GHGs, VOCs, NOX, sulfur dioxide, carbon monoxide, and particulate matter smaller than or equal to 10 microns and 2.5 microns in diameter (PM10 and PM2.5)). The Phase 1 system will operate on zero emission trains projected to save 2 million metric tons of carbon each year, equivalent to taking over 400,000 gas-powered passenger vehicles off the road annually. More details can be found in the Authority's 2022 Sustainability Report (hyperlink). The discounted value of over 35 million tons of reduced emissions over the life of the Phase 1 Corridor is estimated at $1.4 billion (**Appendix B**, Table 24). Additionally, the investments in the

San Jose to Gilroy corridor will allow Caltrain commuter rail service to transition to 100% electric service, further reducing emissions.

***Energy Efficiency and Renewable Energy.*** Although operating the system requires electricity, the high-speed rail system still will create a net reduction in energy use because it will transfer trips from transportation modes with higher energy use (commercial air flights and automobiles) to high-speed rail, which has lower energy use. Travel on high-speed rail would use one-third the energy of a similar trip by air, and one-fifth the energy of a trip made by car, as noted in the Bay Area Council Economic Institute 2008 Report on High-Speed Rail (hyperlink). The Authority will also operate on 100% renewable energy, relying primarily on solar energy generation with integrated battery storage on Authority properties and also will purchase renewable energy credits from various California utilities.

***Making electrification investments at stations.*** High-speed rail stations will include electric vehicle charging infrastructure for customers, community members, electric buses, partner transit entities and the Authority fleet vehicles. Stations along the alignment will be incorporated into the overall renewable energy supply for all systems. The Authority also will explore how excess energy can be shared with adjacent facilities to minimize energy costs of other Authority partners.

***Building a high-speed rail system that is resilient in the face of climate change.*** The California High-Speed Rail System, as new infrastructure, is intended to last for the next century. The system is being built to adapt to heat increases, sea level rise and flooding, precipitation, and wildfire events. We also are engaging with station communities to understand the role these facilities can play in reinforcing community resilience. The Authority included climate hazards in its risk management process with its Safety and Security Management Plan (SSMP). The SSMP describes new, resilient design criteria, facility backup power, defensible space in wildfire prone areas, requirements to use climate data in station design and energy modeling, and designs that account for sea level rise projections in affected areas (to comply with Federal Flood Risk Management Standards).

***Employing responsible construction.*** The Authority committed the system to net zero construction greenhouse gas emissions and criteria air pollution. It is employing industry-leading methods during construction to make the country's largest infrastructure program a model for sustainable delivery. All future construction contracts will be required to solely use zero emissions vehicles (ZEV) for their on-road project fleets. In addition, by 2030, 10% of off-road equipment must be ZEV. Among the Authority's achievements is recycling 95 percent (196,906 tons) of all construction waste to date and sending only 5 percent (9,651 tons) to landfills. In 2021, the Authority began developing its Sustainability Procurement Policy, which will ensure the alignment of procurement practices with the Authority's environmental, social and governance (ESG) priorities, including materials procured for construction, planning, design, construction, operations, maintenance, administration and management. More details can be found in the Authority's 2022 Sustainability Report (hyperlink).

### Transformation of our Nation's Transportation Infrastructure

The Phase 1 Program is transforming California and our nation's transportation infrastructure. The societal benefits generated by the Phase 1 system improvements are estimated to be over $66.0 billion in discounted 2021 dollars over the lifetime of the system. The total capital costs are calculated to be $52.0 billion in discounted 2021 dollars. The difference in the discounted benefits and costs equals a net present value of $15 billion in discounted 2021 dollars, resulting in a benefit-cost ratio (BCR) of 1.3.

The Authority also is making vital investments with its partners to improve and maintain aging assets, including stations, freight rail realignments, and grade separations. These improvements will add capacity to the State's transportation system, reducing congestion and accommodating future population growth. The Project will lay the foundation for new connections to the San Francisco Bay Area and Southern California as a necessary step in completing the full Phase 1 system. The Phase 1 Corridor further promotes geographic diversity by providing improved service, connectivity, and economic opportunities in California's rural communities.

As demonstrated in **Exhibit IX-1,** the high-speed service will attract new users through reducing travel times across the State**.**

**Exhibit IX-1. Reduced Travel Times**

| Destination | HSR Travel Time | Auto Travel Time | Current Train Service |
|---|---|---|---|
| **Merced to Bakersfield** | 56 mins | 2.5 hours | 3+ hours |
| **San José to Fresno** | 51 mins | 3 hours | 5 hours |
| **Fresno to Los Angeles** | 1 hour, 19 mins | 3.75 hours | 6 hours |
| **San Francisco to Los Angeles** | 2 hours, 39 mins | 6-8 hours | 11+ hours* |

*Sources: 2022 Business Plan, 2022 Phase 1 Service Development Plan and 2023 Project Update Report*

** Oakland to Los Angeles on Amtrak Coast Starlight takes 11+ hours*

The Phase 1 Corridor enabled by this Project will substantially expand and improve the nation's rail network by adding 500 miles of high-speed rail service connecting California's mega-regions and improving connections with key long-distance Amtrak services from California across the country. Improvements to existing California routes and stations will have a nationwide impact on routes such as California Zephyr (to/from Chicago through Rocky Mountains), Coast Starlight (West Coast to/from Portland and Seattle), Southwest Chief (L.A. to/from Chicago), Sunset Limited (L.A. to/from New Orleans), and Texas Eagle (to/from Chicago via Texas and St. Louis). Existing BNSF Railway and Union Pacific Railroad service from ports in the Bay Area and Los Angeles area to the rest of the country also will be improved by moving Amtrak service.

## X. Project Implementation and Management

**The Authority has sufficient legal, financial, and technical capacity to carry out the Project,** including a robust organization that also relies on a network of partners comprised of infrastructure advisors, financial advisors, rail delivery experts with experience building high-speed rail internationally, the insights of an early train operator, and nationally recognized design build contractors. The Authority's Executive Organizational Chart (hyperlink) shows the structure and size of the Authority's personnel. The Authority's organizational structure includes well-defined reporting relationships, statements of functional responsibilities, job descriptions and job qualifications, to provide the organization with the necessary management skills and staffing levels throughout the Program's life cycle. The Authority's evolving and growing team includes roughly 700 total positions between state and consultant staff members.

**Project Management Plans for a Major Capital Project --** The Authority has significant experience in delivering federally funded major capital construction projects due to many years of on-going work on the Central Valley Segment and the Phase 1 Program. The Authority has environmentally cleared 422 miles of the approximately 500-mile Phase 1 program, with 119 miles under construction. This has been done in collaboration with FRA to meet federal funding requirements – including a broad range of required arrangements and deliverables, such as a project management plan, annual work plans, construction updates, risk management plans, change-order management processes, and project management reports.

***Project Management Plan and Other Deliverables***. The Authority currently prepares an annual Project Management Plan (PMP), covering the entire Central Valley Project, including management and mitigation of project risks. This PMP is consistent with 49 U.S. Code Section 22903 (Project management oversight) and will be the foundation for a tailored PMP for the Project. Likewise, the Authority will build on its existing Annual Work Plan (AWP), Central Valley Project Financial Plan (CVPFP), Service Development Plans, and quarterly Funding Contribution Plans and Budget Updates, among others, to tailor comparable processes and deliverables for the California Phase 1 Corridor Configuration Design Project, aligned with the scope and cadence developed in collaboration with the FRA. The Authority also will build on its past experience and existing arrangements for project contracting, contract oversight and control, change-order management, document controls, recordkeeping, quality control and assurance, material testing, internal

reporting and conformance to federal requirements for project progress reporting. Activities such as construction close out and start up and revenue operation will not be a part of the Project Management Plan for the configuration design work, but will be covered in others.

***Budget and Schedule***. The budget and schedule for the Project are provided in **Appendix A** – Scope of Work, Attachment 3 - Deliverables and Project Schedule and Attachment 4 – Approved Project Budget.

Going forward, in the event the Project is awarded grant funding, the primary reference for detailed construction schedules and progress is expected to be an Annual Work Plan (AWP), comparable to the AWP the Authority delivers each year for the Central Valley Project. The 2023 Project Update Report (PUR) (hyperlink) contains the latest updates to cost estimates and schedules, including those relevant to the Project. Exhibit 3.0 of the PUR (Pg. 37) shows total authorized funds of $23.5 billion to $25.2 billion at a range of future annual Cap-and-Trade revenues from $750 million to $1 billion. For each of the last two years, the Authority has received about $960 million from the Cap-and-Trade program and funding at that level is expected going forward. Program-wide, the Authority maintains a Capital Outlay Budget and an Administrative Budget. The current Capital Outlay Budget and Expenditures Report (hyperlink) was published in March 2023, reflecting data through January 2023 for state and federal funding sources for project development, construction, and local assistance to bookend projects. See also the current Administrative Budget and Expenditures Report (hyperlink) published in March 2023, reflecting data through January 2023 for Program executive functions, risk management, administrative, strategic communications, financial, program delivery, regional offices, audit, legislative affairs and information technology. This report also includes details such as salaries and wages; operating and equipment expenses; and positions authorized, filled and vacant.

***Managing Relationships with Other Parties.*** Given the size and scale of the California High-Speed Rail Program, the Authority has more than a decade of collaborative partnering experience with a multitude of governmental and stakeholder entities in achieving the progress on the high-speed rail program and assisting those partners with improving and connecting transit services throughout the State. The result of these collaborative efforts can be seen in the 2018 California State Rail Plan and the Draft 2023 California State Rail Plan (hyperlink) (pgs. 19, 60-68, 102, 117-121, 139). Examples of partnering to improve connectivity in the north and south end of the Project are noted below. Examples of key partners include:

- State leadership with responsibility for state transportation policy and oversight (e.g., California Governor's Office, California State Transportation Agency (CalSTA), and the California State Legislature);
- Counties and cities throughout the Phase 1 Corridor, including in the locations of future stations, training centers or grade separations, and Joint Power Authorities (JPAs), including those that may participate in early operations (e.g., San Joaquin JPA (SJJPA), Altamont Corridor Express (ACE) and Caltrain).

For example, in San José, the Authority is partnering in an effort to reimagine Diridon Station as an integrated, multimodal transit hub. This work completed a concept in 2020 and is in the planning stages with a business case now underway to advance the project. The City of Palmdale has completed its planning around the high-speed rail station to prioritize transit-complementing land use, and next steps will include advancing the planning and design of an integrated facility.

The Authority's relationships with these parties are active and collaborative. See **Appendix J** for Letters of Support from many of these parties and other project stakeholders and supporters.

**Project Contracting Arrangements –** The Authority has significant experience procuring and managing contracts under federal requirements, has implemented project management plans and policies toward completing the high-speed rail initial operating segment, and is making progress towards completing the configuration-level design phase of the Project. The Authority already has entered into critical contracts essential to success of the Program, including construction contracts on the 119-mile Central Valley Segment, third-party agreements, and interagency agreements and memoranda. The Authority also has advanced configuration design under two new contracts for the Merced Extension and Bakersfield

extension, respectively, and will be ready to move into final design should funds be awarded under the sister application to this proposal that being submitted separately.

***Contract Management Branch.*** The Authority has a Contract Management Branch (CMB) responsible for providing contract management governance, support, training, and performance monitoring. **Exhibit X-1**, below, shows the functions and organization of the CMB, which is responsible for the oversight and governance of all capital contracts, including performance, adherence to scope, schedule, and budget that support program delivery from procurement through final close-out.

***Construction Contracts.*** The Authority is under construction for the 119-mile Central Valley Segment, with three contract packages (CP 1, CP 2-3, and –CP 4) consisting of Civil Design-build (DB) contracts, together with Civil Project Construction Management (PCM) contracts and all Authority provided support and services contracts (i.e., program management, third party, environmental mitigation, legal and real property). Future contracts will be executed for construction work to complete the full segment extending north to Merced and south to Bakersfield, as well as new contracts for track and systems, trainsets, a trainset certification facility and all necessary project management and construction management functions.

[The Authority maintains reports on a monthly basis that provide status and progress updates for all construction packages. Those reports provide both additional detail and context regarding the planning and construction of the CVP, including but not limited to performance metrics regarding schedule, expenditures, progress, time spent, percentage complete, and descriptions of various activities. The reports are available by following the current links to the Authority's monthly Finance & Audit Committee meeting materials: https://www.hsr.ca.gov/about/board/finance.aspx]

***Build America, Buy America.*** The Authority has experienced personnel and policies in place to implement federal requirements, such as the Title VI / Civil Rights Act; the Americans with Disabilities Act; Buy America requirements, the Build America, Buy America Act; Department of Labor Federal Contract Compliance (Equal Employment Opportunity); and Disadvantaged Business Enterprise requirements. The Authority has an established record of fully complying with Buy America provisions and has not utilized waivers. Our record shows investments to date of over $10 billion in American jobs and materials, generating approximately $16 billion in economic activity – well over 99% of that within the United States.

No BABA issues are expected for this Project. However, we are aware of challenges experienced by Amtrak in its recent trainset procurement, for which waivers were required in some areas. The Amtrak experience underscores the challenges of meeting BABA requirements in a market/industry that has suffered from long-term underinvestment. In anticipation of future construction procurements, the Authority has begun conversations with the FRA and has submitted an initial Domestic Sourcing and Workforce Development Plan as part of another application and has initiated industry outreach. It is our sincere desire to support the emergence of a vigorous and competitive US high-speed rail industry, and leverage existing Community Benefits Agreement (hyperlink), work force training programs and multi-employer union agreements.

***Federal Reporting and Plan Updates.*** The Authority is familiar with and able to comply with federal requirements for periodic plan updates and project progress reporting, particularly on budget and schedule, having been delivering such reports on the Central Valley Project for many years. Such reports and updates include both quarterly and annual deliverables. The Authority is prepared to work collaboratively with the FRA in defining a scope and cadence for similar deliverables for the Inaugural High-Speed Operating Service project.

***Right-of-Way Acquisition.*** The timely identification, acquisition, and delivery of right-of-way (ROW) parcels is on the critical path for design and construction of the Phase 1 Corridor. The work under this grant application would enable the Authority to establish a configured footprint and ROW acquisition plan that will be necessary to advance quickly toward Phase 1 construction once future phases of work are funded.

***Third-Party Agreements.*** Third-Party Agreements are agreements with agencies, utilities, railroads and other critical parties for the relocation, modification, reconstruction, and/or protection of utilities, irrigation facilities, and roadways that are in physical conflict with the proposed alignment. Examples include:

- Utilities, such as AT&T, Fresno Metropolitan Flood Control District, Level 3 Communications, Madera Irrigation District, Madera Valley Water Company, North Kern Water Storage District, Pacific Gas & Electric Company, Semitropic Water Storage District, Sempra, Southern California Gas Company, and Sprint; and
- Railroads, such as BNSF, UPRR and the San Joaquin Valley Railroad (SJVR), in addition to the joint powers authorities and boards operating commuter rail lines within the State.

***Interagency Agreements and Memoranda.*** The Authority has entered into planning agreements with cities throughout the state that enable the parties to work closely together to galvanize station planning efforts, promote local community regeneration opportunities and enable sustainable, district-scale development. Future station site planning agreements will focus on refined station planning, governance, milestone timelines and resource commitments among the parties. The efforts include working with regional and local transit and rail operators to enhance multi-modal connectivity to high-speed rail stations and surrounding transportation improvements. Together, these efforts will facilitate adoption of any necessary amendments to general plans and zoning codes and help develop phased development and financing plans to support station area trains-oriented development, including options to attract private investors.

**Past Experience with Similar Major Projects –** The Authority has significant experience delivering federally-funded Major Capital Projects. The Authority's Program constitutes the largest active construction program in the country. Multiple federal funding sources have been awarded to the Program, including $2,553 million from ARRA, $929 million from FY10 and $49 million from RAISE programs. The Authority has worked closely with the FRA in meeting the requirements of these federal funds, and has the administrative and programmatic experience and infrastructure to successfully oversee and manage the program and future grant agreements, including rigorous external and internal audits, enterprise-wide risk analysis and quality improvement plans to ensure efficient use and safeguarding of the public's resources.

***Project Management and Controls.*** The Authority has established the Staged Delivery Process that represents the logical sequencing of key decision milestones and transition points in project development and delivery. This approach is designed to mitigate risk and drive cost efficiency within the entire program. The Staged Delivery Process includes comprehensive processes for change order management. An illustration of this process can be found in *Exhibit 1.3: Staged Project Delivery,* in the 2023 Project Update Report (hyperlink).

***Assessment of Project Risks and Mitigation Strategies.*** The Authority has made important organizational changes in recent years to better recognize, manage and mitigate the risks inherent in such a complex program. **Appendix G** and **Appendix H** provide information about the Authority's approach to risk management and key risks and mitigations, respectively.

## XI. Environmental Readiness

**All environmental approvals for the application scope have been completed**. The Record of Decision for each relevant program section can be viewed at the following links The Record of Decision for each relevant program section can be viewed at the following links:

- San José to Merced Record of Decision (hyperlink), dated April 2022
- Merced to Fresno: Central Valley Wye Supplemental ROD (hyperlink), dated September 2020
- Bakersfield to Palmdale Record of Decision (hyperlink), dated August 2021.

The Authority is well-situated to obtain any remaining permits in a timely fashion concurrent with design and other work that would be funded by this grant. The Authority has already advanced permitting significantly by gathering technical data, and funding agency positions with permitting agencies via funding agreements that ensure staff are available to review our permits

## Appendices

A. Scope of Work

Attachment 2 - Statement of Work

Attachment 3 – Deliverables and Schedule

Attachment 4 – Project Budget

Attachment 5 – Performance Measurements

B. Benefit Cost Analysis

C. Evidence of Cap-and-Trade Revenues Available to the High-Speed Rail Authority

D. Historically Disadvantaged Communities and Areas of Persistent Poverty

E. At-Grade Crossings Addressed by the Phase 1 Corridor Design Configuration Project

F. California High-Speed Rail Authority Integrated Organizational Chart

G. Risk Approach

H. Key Risks and Mitigations

I. Environmental Compliance Documentation Links

J. Letters of Support

K. SF 424 – Application for Federal Assistance

L. SF 424A – Budget Information for Non-Construction

M. SF 424B – Assurances for Non-Construction

N. FRA F30 – Certifications Regarding Debarment, Suspension and Other Responsibility Matters, Drug-Free Workplace Requirements and Lobbying

O. FRA F251– Applicant Financial Capability Questionnaire

P. SF LLL – Disclosure of Lobbying Activities