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Subject: Q4-16 Deliverables - Email 2 of 3
Attachments: AWP FY 16.pdf; PMP 2016 Annual Update.pdf; Q4-16 Deliverables Transmittal 2.doc
Categories: CHSRA

Hi Juliana,

As stated in the email 1 of 3 - the sum of the Q4 deliverables are too large to send in one email; therefore, I'm spreading them over 3 emails. Each email will have a separate transmittal form for the included deliverables.

This second of 3 emails includes:

- Q4-16 Deliverables Transmittal 2
- 2016 Annual Work Plan
- 2016 Program Management Plan

If you have any questions, or something fails to open for you, please let me know.

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CALIFORNIA
High-Speed Rail Authority

Annual Program Management Plan

December 2016

www.hsr.ca.gov

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ACRONYMS AND ABBREVIATIONS

ARRA	American Recovery and Reinvestment Act of 2009
ATC	Alternative Technical Concepts
CalSTA	California State Transportation Agency
CCC	Change Control Committee
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHSRA	California High-Speed Rail Authority
COBD	Customer-Operations-Build Design process
CP	Construction Package
CPUC	California Public Utilities Commission
CMS	Contract Management System
CWA	Clean Water Act
DAR	Daily Activity Report
DB	Design-Build
DBE	Disadvantaged Business Enterprise
DBPP	Design-Build Program Plan
DCM	Design Criteria Manual
DGS	California Department of General Services
DOC	California Department of Conservation
DOE	U. S. Department of Energy
DOF	California Department of Finance
DPR	California Department of Parks and Recreation
DVBE	Disabled Veteran Business Enterprise
EDMS	Enterprise Document Management System
EEC	Environmental & Engineering Consultant
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMMA	Environmental Mitigation Management and Assessment
EPA	U.S. Environmental Protection Agency
FCS	First Construction Segment
FOF	Finding of Fact
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HSIPR	High-Speed Intercity Passenger Rail

HSR	High-Speed Rail
HST	High-Speed Train
HUD	U.S. Department of Housing and Urban Development
ICE	Independent Checking Engineer
ISE	Independent Site Engineer
ISO	International Organization for Standardization
LEDPA	Least Environmentally Damaging Practicable Alternative
MB	Microbusinesses
MMEP	Mitigation Monitoring and Enforcement Program
MMRP	Mitigation Monitoring and Reporting Program
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NIST	National Institute of Standards and Technology
NMFS	National Marine Fisheries Service
NOD	Notice of Determination
NODA	Notice of Determination to Appraise
OPR	Office of Planning & Research
PCM	Project and Construction Management Consultant/Project Construction Manager
PCMM	Project and Construction Management Manual
PEPD	Preliminary Engineering for Project Definition
PE4P	Preliminary Engineering for Procurement
PMIS	Program Management Information System
PMP	Program Management Plan
Prop 1A	Proposition 1A
PWB	California State Public Works Board
RC	Regional Consultant
RDP	Rail Delivery Partner
RFP	Request for Proposal
RFQ	Request for Qualifications
RMP	Risk Management Plan
ROD	Record of Decision
ROW	Right-of-Way
ROWDES	Right-of-Way Data Exchange System
RPA	Rule of Particular Applicability
RPSS	California Department of General Services, Real Property Services Section

SB	Small Businesses
SCC	Standard Cost Categories (FRA)
SHPO	State Historic Preservation Officer
SSMP	Safety and Security Management Plan
STB	Surface Transportation Board
SWRCB	State Water Resources Control Board
TM	Technical Memorandum
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
USDOT	U.S. Department of Transportation
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
VECP	Value Engineering Change Proposal
WBS	Work Breakdown Structure
YOE	Year of Expenditure

CALIFORNIA HIGH-SPEED RAIL AUTHORITY

MISSION AND VISION

Mission

The mission of the California High-Speed Rail Authority is to build the nation's first high-speed rail system.

Vision

High-Speed Rail: Connecting and Transforming California

Guiding Principles

The California High-Speed Rail Authority (Authority) will continue to advance the statewide program on multiple fronts over the coming years within a flexible framework guided by the following principles:

- Fulfill all commitments made to the citizens of California when they approved Proposition 1A to provide a true statewide high-speed rail system.
- Evaluate new opportunities – and adapt to changing circumstances – so that a cost-effective, high-quality system can be delivered as quickly and efficiently as possible.
- Reduce costs and construction time by using a blended implementation strategy in urban areas where appropriate and consistent with mandated performance goals to enhance access and mobility, minimize impacts, reduce costs, improve safety and expedite implementation.
- Match projects with available funding and deliver them through appropriate business models.
- Advance other strategic early investments in collaboration with our partners.

Core Values

There are a number of core values that the Authority adheres to and that guide how business is done as the program is developed. The core values focus on maximizing the benefits generated through the implementation of the system and include:

- Safety and Security
- Partnership with the Private Sector
- Sustainable Infrastructure
- Workforce Development
- Small Business Participation
- Sustainable Land Use

EXECUTIVE SUMMARY

The program management plan (PMP) describes the Authority's management approach, overall program structure, and plans and procedures used for the management and delivery of the California High-Speed Rail Program (Program), including monitoring program and performance and managing resources. The PMP is a dynamic document that is updated annually to reflect organizational changes and continuous improvements that occur during the program's implementation.

The Authority's business plan is the governing document, which outlines the program scope, phasing schedule and budget for the program. In addition, the following documents, along with the PMP, provide the framework to deliver the program:

- Design-Build Program Plan (DBPP) - outlines the Authority's approach to project delivery and identifies the project implementation procedures and methods established by the Authority to achieve successful design-build project delivery for the first construction segment (FCS).
- Project and Construction Management Manual (PCMM) – describes how the Authority will manage execution of the design-build (DB) projects on the program.

The PMP outlines the procedures used to manage the scope, budget, schedule and risk for the program. As the framework presented in this PMP is refined and utilized, the Authority will verify its consistency with these plans and with any subsequent PMPs developed as future construction segments begin. Together these documents will provide an all-encompassing PMP that addresses every component of the program.

1 INTRODUCTION

1.1 Purpose of the Program Management Plan

The PMP provides the framework for delivery of the program as defined in the Authority's business plan, and describes the management approach and overall program structure, plans, procedures and methods used to manage and deliver the program within the scope, budget and schedule. As a dynamic document, the PMP is updated annually to reflect organizational changes and continuous improvements in methodologies that occur throughout the program's life cycle.

The PMP is required under the American Recovery and Reinvestment Act (ARRA) Cooperative Agreement with the Federal Railroad Administration (FRA). In accordance with Section C3 of Attachment 1 to Amendment #6, the PMP is prepared in compliance with the requirements of 49 U.S.C. §24403(a) and Section 4.2.6 of the High-Speed Intercity Passenger Rail (HSIPR) Program Interim Guidance published in the Federal Register on July 1, 2010 (75 FR 38344).

1.2 Program History and Overview

In 1996, after decades of advocacy for building a statewide high-speed rail system, the Authority was established through the High-Speed Rail Act (SB 1420, Chapter 796, Statutes of 1996), which was added to the Public Utilities Code Section 185000 et seq., to oversee the planning, design, construction and operation of a statewide high-speed rail system. Later that year, the Authority adopted a 20-year plan for the program. By 2000, the Authority had developed ridership, revenue and cost forecasts, and quantified the benefits of the program, which were published in the 2012 Business Plan. In that plan, the Authority laid out the framework for implementing the high-speed rail system in collaboration with other state, regional, local and private rail infrastructure. The business plan continues to provide the direction and articulate the goals for the program.

The vision of the program is to connect the megaregions of the state, contribute to economic development, promote a cleaner environment, preserve agricultural and protected lands and create jobs. Construction contracts began to be awarded in 2013 and the groundbreaking ceremony was held on January 6, 2015. The Authority's 2016 Business Plan outlines the schedule for service to begin in 2025 from the Silicon Valley to the Central Valley. By 2029, service is planned to run from San Francisco to the Los Angeles basin in under three hours at speeds capable of over 200 miles per hour. The high-speed rail system will ultimately extend to Sacramento and San Diego, totaling over 800 miles with up to 24 stations.

Detailed information on the program's budget and funding is provided in Section 1.5 – Budget and Section 1.6 – Financing and Funding Plan.

1.3 Program Scope

The program is an integrated statewide rail system that includes a series of concurrent strategic investments in urban, commuter and intercity rail systems that, when combined, significantly improve mobility and connectivity throughout the state. The scope of the program encompasses the development and implementation of an 800-mile high-speed rail system, including:

- Preliminary engineering
- Environmental clearance and permitting
- Construction
- High-speed train procurement
- System testing, commissioning and operation

The 2016 Business Plan identifies a realistic, reasonable and achievable approach to funding and delivering the system with the focus on three fundamental objectives:

1. Initiate high-speed rail passenger service as soon as possible.
2. Make strategic, concurrent investments throughout the system that will be linked together over time.

3. Position the Authority to construct additional segments as funding becomes available.

These fundamental objectives will be achieved by using the phasing strategy shown in Figure 1. This phased strategy was developed in collaboration with state, regional, local, and private transportation partners.



Figure 1. High-Speed Rail Phasing, 2016 Business Plan

Based on updated ridership, revenue and other forecasts, the Authority evaluated the most efficient way to achieve these three objectives and fulfill the mission of delivering the system. Analysis shows that the Silicon Valley (San Jose) to Central Valley (North of Bakersfield) project section, from Diridon Station in San Jose to a station north of Bakersfield, can be funded and built with available grant funds, Proposition 1A bonds and anticipated Cap and Trade proceeds. The section is expected to generate revenue-producing operations quickly and it meets the requirements of Proposition 1A, including the requirement for nonsubsidized operations.

Although the section has been designed with an interim facility that will function as a temporary station, the Authority's goal is to avoid the need for this interim station. However, if an interim station is needed due to funding constraints, consideration will be given to alternative locations with the goals of reducing the level of interim investment and minimizing impacts, while maximizing connectivity with the permanent station in Bakersfield.

Three Central Valley design-build contracts have been awarded and executed for the first construction segment (FCS), which runs from Avenue 19 in Madera County to north of Bakersfield at approximately Poplar Avenue.

1.4 Schedule

The fundamental objectives outlined in the 2016 Business Plan are key to setting the scope and schedule. The program delivery milestone timeline (Figure 2) shows the schedule dates for key milestones and provides a high-level view of these milestones, which initiate decisions related to resources, schedule, risk, supporting infrastructure and component plans as described in more detail throughout the PMP. This timeline is dynamic and updated monthly based on the individual project schedules.

As the program delivery milestone timeline (Figure 2) indicates, the Authority is projecting passenger service to start on the initial operating segment, which connects the Silicon Valley to the Central Valley, in 2025. This includes the FCS along with the San Jose to the Central Valley Wye. The Authority's objective is for the initial section to extend to Bakersfield and San Francisco, tying into the electrified Caltrain corridor and enhancing ridership and revenues. The Authority will continue to work on the Burbank to Anaheim corridor investments in Southern California and pursue additional funds and opportunities to complete the Phase 1 system with the goal of expanding service to the entire route from San Francisco/Merced to Los Angeles/Anaheim by 2029.

Other key dates shown in the program delivery milestone timeline include the environmental clearances, which are anticipated to be obtained for the entire Phase 1 system by the end of 2017, as shown in Table 1.

Projected Environmental Schedule	
Section	Anticipated FRA Record of Decision
San Francisco to San Jose	2017
San Jose to Merced	2017
Merced to Fresno Project Section	Completed
Central Valley Wye	2017
Fresno to Bakersfield	Completed
Fresno to Bakersfield Project Section Locally Generated Alternative	2017
Bakersfield to Palmdale	2017
Palmdale to Burbank	2017
Burbank to Los Angeles	2017
Los Angeles to Anaheim	2017

Table 1. Projected Environmental Schedule

The program delivery milestone timeline (Figure 2) shows the dates for the release of the request for proposal (RFP) for procurement of the high-speed trains and the RFP for the track and systems. Testing and commissioning of the track is anticipated to be completed by December 2024, in time for revenue service to begin in early 2025.



CHSRA Program Phase 1 Milestone Table

Data Date: October 1, 2016	Environmental/Engineering		Civil Infrastructure			Track and Systems			High-Speed Rail Trains				Testing and Commissioning					READY FOR REVENUE SERVICE	
	FRA ROD	STB ROD	Complete PEAP	Issue RFP	Issue NTP	Substantial Completion	Issue RFP	Issue NTP	Substantial Completion	Issue RFP	Issue NTP	Acceptance	Complete Static Testing	Complete Dynamic Testing	Complete Prototype Testing	Complete Dynamic Testing	Complete Static Testing		Complete Trial Run
Silicon Valley to Central Valley Line (San Jose to Poplar Avenue)																			
San Jose to FCS																			
San Jose Approach				Nov-17	Jun-18	Jan-22													
San Jose to Pacheco Pass				Nov-17	Jun-18	Oct-21													
Pacheco Pass Tunnels	Dec-17	Mar-18	Nov-17	Nov-17	May-18	Oct-21													
Foot hills to Carlucci Rd. & Wye Leg - Carlucci Rd. to FCS				Nov-17	Jun-18	Nov-21		Mar-17	Apr-18										
First Construction Segment (FCS)																			
CP 1			Complete	Mar-12	Oct-13	Jun-19													
CP 2-3				Apr-14	Jul-15	Jun-19				Dec-20									
CP 4				May-15	Apr-16	Apr-19													
Silicon Valley to Central Valley Extensions (San Francisco to Merced & San Francisco to Bakersfield)																			
San Francisco to San Jose	Dec-17	Mar-18	Jul-17	Dec-17	Oct-18	May-21													
Merced to Ranch Rd. & Wye Leg West	Dec-17	Mar-18	Sep-17	Dec-17	Jun-18	Sep-21		Mar-17	Apr-18	Sep-22									
FCS to Bakersfield	Dec-17	Apr-17	Aug-18	Jun-17	Apr-18	Oct-21		Nov-17	Aug-18	Oct-22									
Merced to FCS & FCS to Burbank																			
Wye Leg East	Dec-17	Mar-18	Sep-17	Dec-18	Oct-19	Nov-23		Nov-21	Sep-22	Jun-25									
Bakersfield to Palmdale																			
SCP 1				Jan-19	Nov-19	Oct-24													
SCP 2				Nov-18	Sep-19	Jan-25													
SCP 3				Jan-18	Nov-18	Dec-24													
SCP 4	Dec-17	Apr-18	Jan-20	Sep-18	Jul-19	Sep-24													
SCP 5				May-19	Mar-20	Dec-24		Nov-21	Sep-22	Sep-26									
SCP 6				May-19	Mar-20	Apr-24													
Palmdale to Burbank																			
SCP 7				May-18	Mar-19	Jan-25													
SCP 8	Dec-17	Dec-17	Jun-18	May-18	Mar-19	Mar-25													
SCP 9				May-18	Mar-19	Jan-24													
Burbank to Anaheim Corridor Improvements																			
Burbank to Los Angeles	Dec-17	Feb-18	Aug-18	Sep-18	May-19	Jun-25		Nov-21	Sep-22	Dec-26									
Los Angeles to Anaheim	Dec-17	Mar-18	Aug-17	Jun-19	Apr-20	Apr-25													

Figure 2. Program Delivery Milestone Timeline

1.5 Budget

The program is currently funded with federal, state and local funds. Some funding highlights include:

- November 2008: Initial funding for the system provided by the passage of the Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century (Prop 1A) when voters approved the issuance of \$9.95 billion in bonds.
- 2010-2011: Authority awarded \$2.55 billion in federal ARRA funds for preliminary engineering and environmental review and construction of the FCS.
- November 2011: Authority awarded \$929 million in federal FY10 funding dedicated to final design and construction of the FCS.
- July 2012: California Legislature earmarked \$4.5 billion in bonds, previously approved by voters, to the system with \$2.6 billion allocated to the construction of the initial operating segment.
- June 2014: State legislators and Governor Jerry Brown apportioned 25 percent of the annual Cap and Trade funds to high-speed rail.

Tables 2 and 3 show the funding sources for the Phase 1 environmental clearance and the program delivery of the IOS from Silicon Valley to the Central Valley, as derived from the 2016 Business Plan, Section 6: Funding and Financing.

FUNDING AVAILABLE TO COMPLETE PHASE 1 ENVIRONMENTAL CLEARANCE	
FUNDING SOURCE	AMOUNT (IN MILLIONS)
Federal Grants (ARRA)	\$315
State Bonds (Proposition 1A)	\$675
Greenhouse Gas Reduction Fund Proceeds (FY14/15)	\$59
Total Sources of Funds for Phase 1 Environmental Clearance	\$1,049
Information derived from 2016 Business Plan, Section 6: Funding and Financing.	

Table 2. Funding Sources for Phase I Environmental Clearance

FUNDING AVAILABLE FOR PROGRAM DELIVERY SILICON VALLEY TO CENTRAL VALLEY LINE	
FUNDING SOURCE	AMOUNT (IN BILLIONS)
Federal Grants (ARRA/FY10)	\$3.165
<i>Construction Funding</i>	<i>\$3.165</i>
State Bonds (Proposition 1A)	\$6.775
<i>Matching funds for Federal Grants in Central Valley</i>	<i>\$2.609</i>
<i>Capital Cost for first high-speed rail line</i>	<i>\$4.166</i>
Cap and Trade Proceeds	\$10.578
<i>Through 2024</i>	<i>\$5.341</i>
<i>Long-term Cap and Trade (2025-2050)</i>	<i>\$5.237</i>
Planning Funds*	\$0.338
Total Sources of Funds for Silicon Valley to Central Valley Construction	\$20.856
*Planning funds are comprised of state bonds, federal grants and greenhouse gas reduction fund proceeds allocated to planning.	
Information derived from 2016 Business Plan, Section 6: Funding and Financing	

Table 3. Funding Sources for Silicon Valley to Central Valley Construction

The capital cost estimates were developed based on the methodology outlined in the Capital Cost Basis of Estimate Report (Appendix B). This report also identifies the design completion stage and definition of alternatives used in developing the cost estimates, outlines the assumptions used for the cost estimates and provides a work breakdown structure with respect the FRA Standard Cost Categories (SCC).

The capital cost estimates for the Phase 1 system are summarized in Table 4. These costs, estimated at \$55.3 billion in 2015 dollars, have been converted into year-of-expenditure (YOE) dollars (\$64.2 billion) based on the current schedule. The capital cost estimate for the Silicon Valley to Central Valley project section (Table 5) is \$20.7 billion YOE dollars using a 2.25 to 3 percent escalation rate.

CAPITAL COST ESTIMATES: PHASE I SYSTEM (IN BILLIONS)

FRA STANDARD COST CATEGORIES	2015\$	YOES
10 – Track structures and track	\$22.7	\$26.8
<i>Civil (10.04–10.06, 10.08, 10.18)</i>	\$5.5	\$6.5
<i>Structures (10.01–10.03, 10.07)</i>	\$15.6	\$18.4
<i>Track (10.09, 10.10, 10.14)</i>	\$1.6	\$1.9
20 – Stations, terminals, intermodal	\$2.4	\$2.6
30 – Support facilities: yards, shops, administrative buildings	\$1.0	\$1.2
40 – Sitework, right-of-way, land, existing improvements	\$11.3	\$12.6
<i>Purchase or lease of real estate (40.07)</i>	\$4.4	\$4.8
50 – Communications and signaling	\$1.2	\$1.4
60 – Electric traction	\$3.0	\$3.6
70 – Vehicles	\$3.4	\$4.2
80 – Professional services (applies to categories 10–60)	\$6.4	\$7.3
90 – Unallocated contingency	\$2.1	\$2.5
100 – Finance charges	-	-
SUBTOTAL (San Francisco – Los Angeles Union Station)	\$53.5	\$62.2
Enhanced Design Los Angeles – Anaheim Corridor	\$1.8	\$2.0
TOTAL	\$55.3	\$64.2

Subtotals for information only, figures may not sum due to rounding.

Although the estimates presented represent the best information we have available, the schedules and estimates are subject to further changes based on both internal and external factors, including the availability and timing of funding. Estimates will continue to evolve over time as we receive additional information and the program advances.

Table 4. Capital Cost Estimates, Phase 1 System (in billions), 2016 Business Plan

**CAPITAL COST ESTIMATES: SAN JOSE – NORTH OF BAKERSFIELD
(SILICON VALLEY TO CENTRAL VALLEY LINE) (IN BILLIONS)**

FRA STANDARD COST CATEGORIES	2015\$	YOES
10 – Track structures and track	\$7.0	\$7.9
<i>Civil (10.04–10.06, 10.08, 10.18)</i>	\$1.1	\$1.2
<i>Structures (10.01–10.03, 10.07)</i>	\$5.1	\$5.8
<i>Track (10.09, 10.10, 10.14)</i>	\$0.8	\$0.9
20 – Stations, terminals, intermodal	\$0.3	\$0.3
30 – Support facilities: yards, shops, administrative buildings	\$0.2	\$0.2
40 – Sitework, right-of-way, land, existing improvements	\$4.9	\$5.3
<i>Purchase or lease of real estate (40.07)</i>	\$1.3	\$1.3
50 – Communications and signaling	\$0.5	\$0.5
60 – Electric traction	\$1.1	\$1.3
70 – Vehicles	\$0.8	\$0.9
80 – Professional services (applies to categories 10–60)	\$3.0	\$3.2
90 – Unallocated contingency	\$1.0	\$1.1
100 – Finance charges	-	-
TOTAL	\$18.8	\$20.7

Subtotals for information only, figures may not sum due to rounding.

Although the estimates presented represent the best information we have available, the schedules and estimates are subject to further changes based on both internal and external factors, including the availability and timing of funding. Estimates will continue to evolve over time as we receive additional information and the program advances.

Table 5. Capital Cost Estimates, Silicon Valley to Central Valley (in billions), 2016 Business Plan

1.6 Financing and Funding Plan

The Phase 1 Financial Plan (Appendix C-1) is the financial plan for Phase 1, and the Central Valley Project Financial Plan (Appendix C-2) is the financial plan for the FCS. As the program evolves, the funding is managed as outlined in the funding management plan, which is part of the program controls plan. This overall plan provides the framework for systematically funding the projects that are aligned with the goals and objectives in the business plan. This framework encompasses the process for establishing a funding baseline, which encompasses the funding constraints and funding agreements. These are then aligned with the program-wide time-phased budget for the scope identified in the business plan to create funding allocations. As encumbrances occur, they are measured against the baseline. As change requests are received from contract management, the changes are reviewed and the Authority's budgets branch reviews the fund availability against the funding plan. Approved changes are then incorporated into the budget.

The Authority continues to investigate and seek additional funding and financing sources to provide delivery of the overall program. This includes:

- Exploring commercial structuring options to incentivize innovative financing.
- Encouraging early implementation of the Railroad Rehabilitation and Improvement Financing loan process.
- Supporting efforts to leverage Cap and Trade funding.
- Working to increase visibility with funding agencies and legislators.

As the Authority seeks additional funding and financing sources, an ongoing review of the phased implementation approach for each project section of the program is conducted. The purpose of this review is to consider factors that affect the program, such as legislative requirements, political commitments, safety, transportation needs, traffic management, economic benefits, and construction progress. The review also verifies that these factors are balanced against an optimal completion schedule. The factors are analyzed to provide the most beneficial financial view of the program and an analysis for each project section is also prepared to determine how best to prioritize these sections. Projects are compared to each other and recommendations are made regarding changes to the overall program to achieve the most beneficial prioritization of the project sections.

1.7 Delivery Strategies

The civil works for the FCS have been split into a series of discrete project segments defined as construction packages (CPs). CP 1, CP 2-3 and CP 4 have been awarded to separate design-build (DB) contractors. Future project segments will be reviewed to determine what delivery method is best for that segment. Figure 3 depicts the delivery model for the program

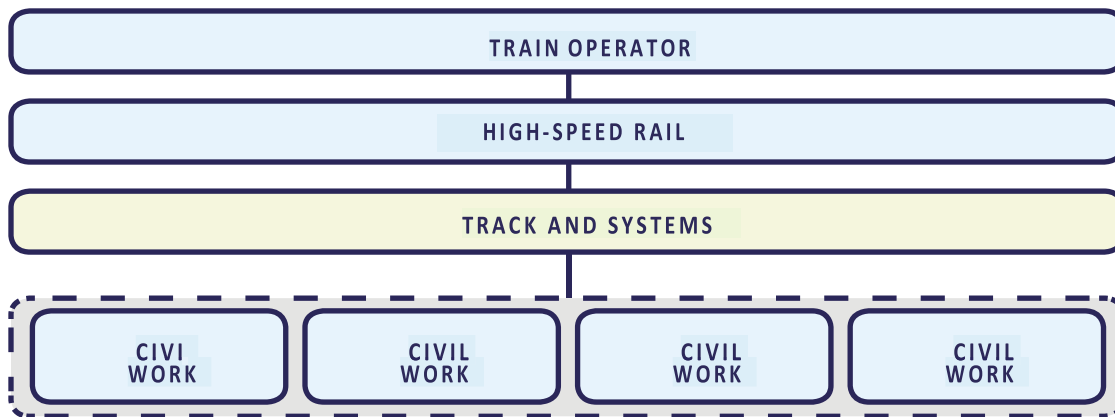


Figure 3. Delivery Model

2 PROGRAM LEADERSHIP AND TEAM ORGANIZATION

2.1 California High-Speed Rail Authority

The Authority is the state entity responsible for planning, designing, constructing and operating the 800-mile high-speed rail system. The Authority is governed by a nine-member Board of Directors (five appointed by the Governor, two appointed by the Senate Committee on Rules and two by the Speaker of the Assembly). Within the Board, there is an elected chair and vice-chair.

Day-to-day leadership of the Authority is the responsibility of the chief executive officer who reports to the Board of Directors and seeks approval and guidance from the board on a broad range of issues regarding the ongoing program, including, but not limited to, certifying environmental documents, entering into contracts, making decisions on the alignment, and defining the content of business plans. The Authority's executive-level organization chart is shown in Figure 4.

2.2 Delegation of Authority

Board of Directors to Chief Executive Officer

The Authority's Board of Directors has established a delegation of authority (Board Policy HSRA11-001) which delineates the authority granted by the board to the CEO and also defines the authority given to the CEO to delegate functions to Authority staff. The CEO is responsible for ensuring that all actions pertaining to the delegation of authority are in accordance with applicable federal and state laws and regulations and with the policies of the Board of Directors.

Procurement

The CEO may delegate procurement authority to Authority staff for contract amounts that do not exceed \$5 million. All procurements are conducted in accordance with applicable federal and state laws and regulations and in compliance with the policies of the Board of Directors. A list of all new or amended Authority contracts with a value of \$10,000 or more is periodically presented to the Board for review.

Contract Management

The CEO may delegate authority to Authority staff for new contracts that do not exceed \$5 million, for amendments of up to 25 percent for contracts between \$5 million and \$10 million, and for amendments of up to 10 percent of contracts over \$10 million. The cumulative sum of increases approved by the CEO for any contract over \$50 million must not under any circumstance exceed \$5 million. Any amendment to an engineering or architectural contract exceeding \$5 million must be reviewed and approved by the Board.

Agreements with Other Public Entities

The CEO may enter into nonmonetary agreements, such as memorandums of understanding, cooperative agreements, interagency agreements, or other agreements and/or instruments, with federal, state and local partners. The CEO, or his/her designee, is authorized to undertake all actions required to prepare and execute one or more cooperative and/or interagency agreement(s) with cities, counties and other state agencies up to an amount not in excess of \$5 million for each agreement needed to advance the program toward construction. The CEO is responsible for negotiating and executing grant agreements with federal, state or local grantors when the Authority is the grantee.

Planning

The CEO is authorized to initiate and negotiate agreements related to the planning, development, design, construction, mitigation and implementation of facilities, physical improvements and station and track infrastructure (including, but not limited to, management, repairs and operations) as well as the construction, removal or relocation of highways, roadways, overpasses, grade separations and rail track relocation. In addition, the CEO may negotiate and enter into funding agreements with communities affected by station area development. These agreements must be consistent with the high-speed train station development policy. The funding of each agreement is limited to 20 percent of the total cost for the station planning study and must not exceed \$200,000. Board review and approval is required for amounts exceeding the \$200,000 limit.

Personnel

The CEO may delegate these authorities to Authority staff:

- Appoint the requisite number and type of employees necessary to carry out the functions of the Authority.
- Promote, transfer, discipline, and terminate employees of the Authority subject to applicable state and federal laws and regulations, including the policies and procedures set forth by the Authority's Human Resources Department.
- Designate an employee to act as the secretary of the Authority for the purpose of keeping its minutes and resolutions.

Fiscal

The CEO is authorized to transfer funds between line items within the Authority's approved annual budget. The CEO or the Authority's chief financial officer is responsible for presenting the Authority's budget to the board for review, input and acceptance.

Legal

The CEO is authorized to settle all lawsuits, alternative dispute matters and claims brought against the Authority when the settlement amount does not exceed \$5 million. In the event that the CEO exercises this authority, he or she will send a memo to the Board as soon as possible. The CEO also has the authority to develop and implement legal plans and strategy, in consultation with legal counsel, for responding to litigation, claims or proceedings and is responsible for ensuring that any legal actions undertaken by the Authority comply with statutory, administrative and regulatory requirements.

Program

The CEO is authorized to carry out all responsibilities required under the provisions of the State CEQA Guidelines Section 15025(a) with the exception that the CEO does not identify the preferred corridor alignments and station locations in the draft environmental document. The Board of Directors has also granted to the CEO the authority to issue notices, prepare and forward to the FRA a draft environmental document, which is issued on behalf of the Authority and the FRA for public review.

The CEO's authority extends to holding hearings to receive public comments on the environmental documents, incorporating these comments, compiling final environmental documents for consideration by the Authority and preparing the final NEPA-compliant environmental document in collaboration with the FRA. In addition, the CEO has the authority to approve all design plans, specifications and estimates for capital outlay projects.

Real Property

Under the oversight of the Board's Committee on Transportation and Land Use, the CEO, or his designated Authority staff, is authorized to perform steps necessary to secure access to and/or acquire any real property needed for high-speed rail purposes. If the CEO requests the Board to initiate litigation for these purposes, the CEO shall send Board members a memo as soon as possible notifying them of this request.

The CEO is authorized to:

- Sell or exchange real property, or an interest therein, at fair market value in the manner set forth in Section 185040 of the CA Public Utilities Code.
- Sell or lease excess right-of-way parcels to municipalities or other local agencies in the manner set forth in Section 185041 of the CA Public Utilities Code.
- Lease non-operating right-of-way areas to municipalities or other local agencies for public purposes and contribute toward the cost of developing these areas into local parks and other recreational facilities in the manner set forth in Section 185042 of the CA Public Utilities Code.

- Lease to public agencies or private entities or individuals for a term not exceeding 99 years the use of areas above or below operating rights-of-way and portions of property not currently being used as operating rights-of-way in the manner set forth in Section 185044 of the CA Public Utilities Code.
- Complete all necessary work and obligations regarding all right-of-way relocation or removal related to publicly owned or privately owned utilities and utility facilities, including, but not limited to, contracting, negotiation, execution, compensation, apportionment of obligations, and settlement of claims or actions in the manner set forth in Section 185500 et seq. of the CA Public Utilities Code.
- Develop and implement legal plans and strategy, in consultation with legal counsel, for maintaining litigation of an action or an adjudication regarding the obligations and costs to be borne by the parties involved in utility or utility facility removal or relocation.

Authority to Rail Delivery Partner (RDP)

The delegation of authority granted to RDP makes the program delivery consultant team responsible for day-to-day management and decisions on behalf of the Authority to meet program objectives, including safety, risk, quality, scope, budget and schedule. RDP is authorized to carry out the following tasks:

- Align the program scope with the expectations of the Authority
- Document the overall program scope requirements in a baseline program milestone timeline and baseline program requirements document.
- Identify individual project scope requirements in collaboration with the specific Authority department responsible for that particular project, the end users of the project and stakeholders affected by the project.
- Manage, monitor and oversee program delivery support resources.
- Manage engineering activities to plan, develop, design, procure and construct the Authority's capital projects.
- Manage the delivery of each project through the necessary environmental and regulatory approval processes.
- Work with the Authority to obtain necessary right-of-way required for the proposed program alignment.
- Develop, track and complete third-party agreements.
- Manage and report on studies and surveys, including:
 - Topographical survey.
 - Geotechnical and geophysical surveys.
 - Value engineering exercises.
 - Risk management exercises.
 - Constructability assessments.
 - Safety and security audits.
 - Sustainability reviews.

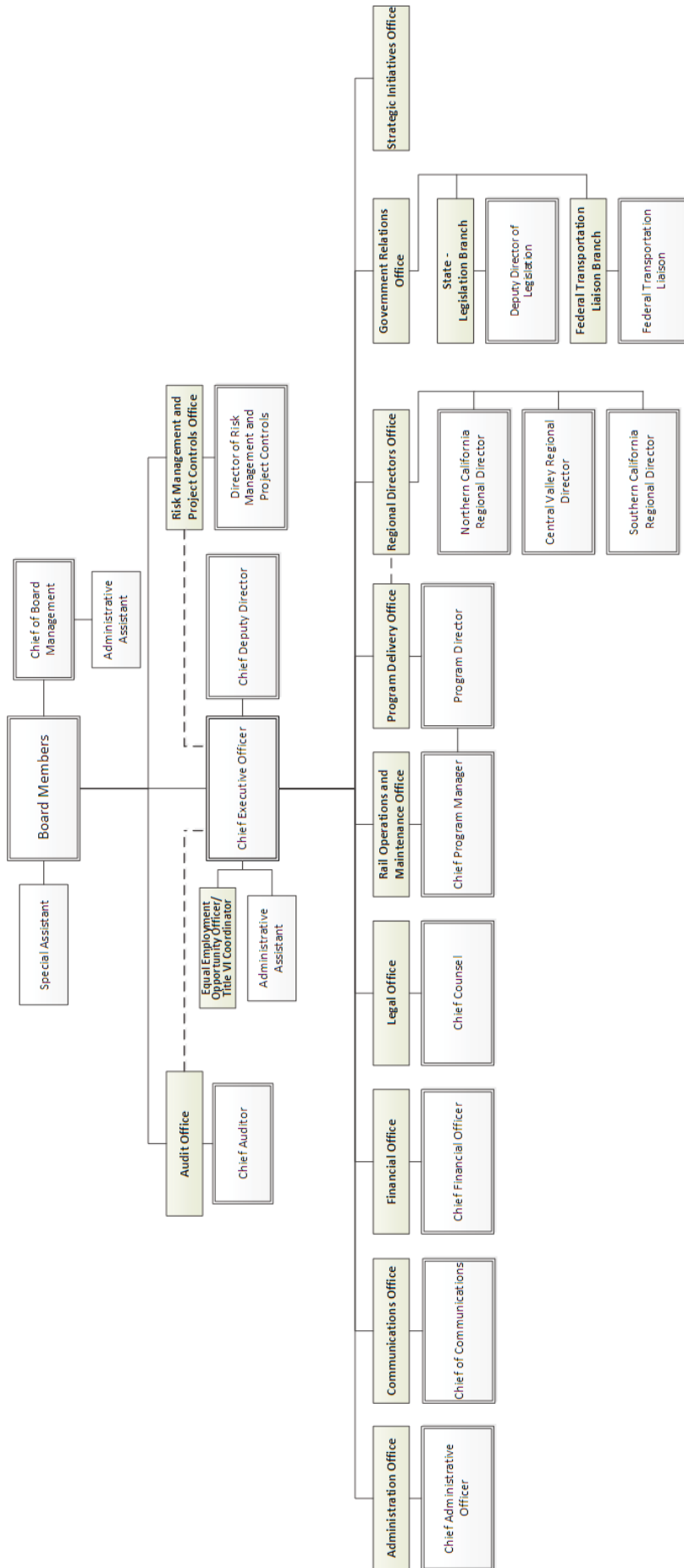


Figure 4. Authority's Executive Staff Level Organization Chart

2.3 Program Team

To assist the Authority with the delivery and implementation of the program, the Authority has contracted with several consulting firms to assist with program delivery and implementation. This includes a program delivery consultant, Rail Delivery Partner (RDP), which is comprised of the prime consultant, WSP | Parsons Brinckerhoff, supported by over 50 sub-consultants. In addition, the Authority has contracted with a financial advisory consultant, regional consultants (RC), environmental and engineering consultants (EEC), project and construction management consultants (PCM), and right-of-way consultants. The delivery model for the program includes different strategies for functionally delivering each of the major elements of the program, including commercial and train operations, high-speed rail trains, track and systems, and construction of civil works. Each element is unique and requires a delivery approach tailored to its specific characteristics.

The Authority is supported by consultants and contractors for the management and delivery of the overall program, including:

- Rail Delivery Partner (RDP) – A multi-firm consultant team providing program delivery services, including program management, program and project controls, engineering and environmental services, right-of-way management, planning, ridership and revenue modeling, operations and maintenance planning, cost estimating, and construction management support.
- Financial Advisory Consultant – Prepares financial analyses and section financial plans. Reviews business model options for procurement, delivery and risk allocation.
- Regional Consultants (RC) – Environmental assessment and preliminary engineering for the Central Valley and Southern California project sections.
- Environmental and Engineering Consultants (EEC) – Environmental assessment, mitigation monitoring and engineering for the Northern California project sections.
- Project and Construction Management Consultants (PCM) – Project and construction management by construction package.
- Design-Build Contractors – Final design and construction by construction package. Currently CP 1, CP 2-3 and CP 4 have been awarded to design-build joint ventures.
- Right-of-way – Supplemental technical staff to support appraisal and acquisition of property.

2.4 Roles and Functions

The executive leadership roles and responsibilities are as follows:

Chief Executive Officer

- Provides executive leadership of Authority activities including management and oversight of the Authority's day-to-day operations.
- Responsible for determining the appropriate organizational structure for the Authority, selecting key management staff, facilitating discussions and agreement between the Board members.
- Responsible for establishing key management plans as well as executing the risk management, budgetary, compliance and other organizational processes.
- Develops policies for Board approval and represents the Authority at public meetings, events, etc.

Chief Deputy Director

- Advises and assists the Chief Executive Officer regarding all aspects of the policies and operations of the Authority.
- Responsible for the oversight and coordination of all Authority staff activities, including administrative support for the Board, on behalf of the Chief Executive Officer.
- Resolves problems, mediates disputes and addresses issues to advance the program.

Director of Risk Management and Project Controls

- Responsible for managing and tracking potential and active risks as well as risk mitigation/contingencies on the program.

Chief Program Manager

- Accountable for the quality, timeliness and cost effectiveness for rail delivery on the program.
- Provides leadership and direction to the rail delivery team.
- Provides input regarding planning, systems, and operations and maintenance.

Chief Financial Officer

- Directs the development, evaluation, negotiation, recommendation and resolution of the Authority's financial goals, objectives, policies, regulations, standards, plans and operating procedures.
- Oversees all accounting, budgeting, and fiscal programming functions.

Chief Administrative Officer

- Develops, manages and provides direction and oversight for the performance and business responsibilities for key services that include HR, IT and BSO.
- Serves as the EEO Officer and Title VI Coordinator and implements the Authority's policies, Title IV program, as well as activities and applicable state laws relating to equal access and employment opportunities.

Chief Counsel

- Principal legal advisor to the CEO, provides policy guidance, advice and representation on all legal matters on the Authority operations and objectives.
- Provides strategic legal advice to the Board and the Executive Management Team
- Responsible for oversight of all Authority legal activities, including significant legal contracting with the State Attorney General's Office (Attorney General) and private counsel.
- Serves as legal advisor on bidding, contractual, real property, insurance, claims, risk mitigation, personnel management and employer-employee related practices, legislative proposals and analyses, litigation, rulemaking and the Public Records Act.

Chief of Communications

- Responsible for the development and implementation of the Authority's communications and media strategy.
- Responsible for the Authority's external affairs functions including communications, legislation, stakeholder outreach, small business, and business analytics and commercial implementation.
- Serves as the primary liaison for the Authority to stakeholder communities, members of the press, California citizens, and others to facilitate the Authority's external outreach, transparency and accountability goals.
- Responsible for building and maintaining strong relationships with local, state and federal representatives and agencies that impact the Authority.

Program Director

- Principle point of contact with the Authority regarding program delivery office services.
- Responsible for execution and delivery of the civil infrastructure portion of the program.
- Provides advice and strategic planning to the Authority.

Regional Directors

- Responsible for ensuring the program in his or her region moves forward on the planned schedule and budget.
- Develops and maintains relationships with local residents, policy makers and Authority personnel while building strategies for communicating with local constituents to foster their continued involvement and support.
- Manages regional staff and volunteers in the implementation of the high-speed rail program.

Deputy Director of Legislation

- Responsible for developing and managing the Authority's legislative program.
- Represents the Authority with legislators, legislative committees, and the Governor's Office.
- Develops, analyzes and coordinates activities on legislative bills affecting the Authority.

Federal Transportation Liaison

- Develops, evaluates and implements specific federal transportation policy to promote the State's transportation goals and initiatives.
- Coordinates with governmental and non-governmental organizations related to congressional transportation initiatives.
- Reviews state legislation and evaluates impact to federal policy and funding programs, prepares federal testimony and presentations and coordinates with congressional representatives.

While the Authority's key personnel discussed above provide oversight and policy direction for the program, the Authority's program delivery consultant, RDP, manages, monitors and oversees the delivery of the program. Together, the Authority and RDP form an integrated organization committed to the shared goal of delivery of the program to meet the 2025 revenue start date.

RDP's responsibilities are defined by the RDP contract (HSR 14-66), which runs through June 30, 2022, and are described below.

- **Program Management:** RDP manages, conducts and provides oversight for the functional components of program management. In addition to supervising program delivery services, RDP provides recommendations and support to the Authority for decisions regarding the delivery approach, business case, and/or master planning of the program. This includes defining performance standards and monitoring the compliance of program participants to these standards, (in essence, translating the Authority's high-level policy objectives into operational terms), including business performance, operations performance (reliability, availability, capacity) and asset performance (whole of life metrics).
- **Program Integration and Coordination:** RDP provides oversight for coordination and compatibility between projects, phases and contracts and manages integration requirements and specifications for system elements through implementation and operation. This includes the application of management policies, practices and procedures that alleviate, or avoid, delivery risks during the program's various stages.
- **Program Delivery:** For every project within the program, on-site teams are deployed and dedicated to oversee and monitor the performance of associated work packages. A critical component of program delivery involves planning and providing specialized technical resources to assist in critical program activities and systems that include, but are not limited to, tunneling and underground construction, design of complex structures and viaducts, seismic design, high-speed rail systems development (track electrification, train control, signaling, communications), procurement of trainsets, design and installation of track work, design of heavy maintenance facilities, high-speed rail system testing and commissioning, and facility operations and maintenance (O&M). Technical resources are also responsible for developing technical requirements and guidelines, system-wide design standards

and criteria, procurement documents, quality assurance/quality control plans and other elements required for program delivery.

RDP's executive leadership team consists of the program director, deputy directors and regional directors of projects. The program director, as the principle point of contact with the Authority, has overall responsibility for the execution of RDP's work program. RDP's regional director of projects reports to the program director. For construction projects, both RDP and outside consultants (PCM, engineering and environmental consultants, etc.) combine to form a balanced program delivery team in which regional management is responsible for project delivery and each project manager reports to the project director who in turn reports directly to the program director.

To provide resources to each project manager, RDP has program functional managers who are responsible for committing resources to each project section. The functional managers include specialists in program management, operations and maintenance, commercial, policy and planning, environmental planning, permitting, design and construction, and program integration and coordination. The program functional managers monitor and evaluate overall program performance and reporting and develop and implementing program-wide policies, systems, procedures and processes for consistent project delivery.

The integrated Authority/RDP organization has built-in flexibility to support program management/delivery. Several positions have been added to RDP's organizational chart to meet the Authority's future needs and plan for future large-scale efforts, including operating concessionaire planning, commercial planning and fare policy.

2.5 Plan for Technical Capacity and Capability

Resource Planning

Resource planning at the program-wide and project level is divided into two categories: personnel resource planning and resource planning for facilities, equipment, materials, etc. At the project initiation, it is the responsibility of the project manager to develop the preliminary scope, schedule and budget. The project-level schedule estimate provides the duration of the task and the estimated resources needed to complete it. The data from the schedule estimate enables the project budget to be developed.

At the program level, each project's scope, schedule and budget are integrated into the program master schedule. The time needed to implement each project in the program master schedule is determined iteratively by balancing program need, available funding and program capabilities over time.

Resource needs are evaluated at project initiation and the cost is included in the preliminary project budget. Resource needs are estimated from the bottom up using these steps:

- Identify the project scope and desired outcomes.
- Determine the tasks necessary to deliver the project scope and desired outcomes.
- Determine the timing and duration of each task.
- Identify the specific staff and their utilization for each task.
- Determine the human resource level/cost for each task.
- Determine potential additional resource needs for the project and estimate their cost.

The program staffing is based on the resource needs and timing of those needs as outlined above. As needs are identified, the integrated organization determines if the position can be filled internally or if outside resource(s) are required to fill the vacancy. Staffing and resource needs are monitored to balance the program needs vs. availability of staff as the program needs change.

3 GOVERNMENT AND COMMUNITY RELATIONS

3.1 Federal Transportation Liaison

The Authority is the recipient of \$3.481 billion in federal funding. The FRA awarded \$2.553 billion in funding for the system through an ARRA grant and \$0.929 billion through an FY 10 grant. The funding covers the completion of project development tasks for Phase 1 System and civil and track construction of the first construction section within the Silicon Valley to Central Valley Line.

The Authority is responsible for the oversight and management of the federal funding and required state match, and provides regular reporting to FRA. In addition to quarterly financial and status reporting to FRA, the Authority also provides a number of deliverables outlining its approach to program and project delivery of the scope of work outlined in the grant agreements. This includes preparation of grant amendments and revisions, monthly reports, quarterly updates, annual reports, budget change requests and other related FRA requests.

3.2 State Legislation

As per Public Utilities Code 185033 and 185033.5, the Authority is responsible for providing regular updates to the legislature. The Authority submits a biennial update report that includes a programwide summary, as well as details by project segment. Information in the report clearly describes the status of the program and the major decisions and milestones that lie ahead.

The Authority is also responsible for preparing, publishing and adopting a business plan that is presented to the Legislature biennially. The business plan is an overarching policy document used to provide the Legislature, the public and stakeholders with information concerning the program's progress and keep the Legislature informed regarding all aspects of the program.

3.3 Intergovernmental and Utility Agreements

The Authority is developing intergovernmental and utility/agency agreements to preserve the success of the program through multi-entity agreements. The agreements among the participants vary and include memorandum of understanding (MOU), operating agreements and contracts.

Intergovernmental Agreements

To further its goal to advance system sustainably, the Authority has joined with several federal agencies to develop sustainable planning. In July 2011, the Authority signed an MOU with the FRA, U.S. Department of Housing and Urban Development (HUD), USDOT, Federal Transit Administration (FTA), federal Surface Transportation Board (STB) and U.S. Environmental Protection Agency (EPA). Together seven goals were established that centered on the need to plan, site, design, construct, operate and maintain the system using environmentally preferable practices. Additionally, the Authority has agreements with the U.S. Army Corps of Engineers (USACE), U.S. Fish and Wildlife Services (USFWS), National Marine Fisheries Service (NMFS), U.S. Forest Service (USFS) and U.S. Bureau of Reclamation (USBR) for coordination of the environmental planning efforts.

At the state level, the Authority coordinates with numerous agencies in the environmental planning, development and coordination of the program. The Authority works closely with the Caltrans, California Department of Fish and Wildlife (CDFW), California Department of Conservation (DOC), State Historic Preservation Officer (SHPO), California Department of Parks and Recreation (DPR), State Water Resources Control Board (SWRCB) and the Office of Planning & Research (OPR).

The potential impacts of the program at the local level are a priority concern for the Authority and this concern is reflected in the Authority's engagement with stakeholders at the county and city levels. With local governmental entities, the Authority is developing a series of agreements including MOUs and contracts that address varying levels of the program. These include assistance for business and utility relocations, notifications about road closures and grade separations, implementation of traffic mitigations, discussion of design aesthetics, facilitation and encouragement of transit-oriented development, and collaboration with local agencies regarding joint funding, cost sharing and related opportunities to accelerate high-speed rail development.

Utility Agreements

The design and construction of the program will directly affect the facilities of numerous utilities throughout the state. Agreements have been developed based on best practices for utility relocations. The Authority is actively working with the affected entities to coordinate design and construction in accordance with federal, state and local rules and regulations.

The relocation of the affected facilities, including utilities owned by third parties, are negotiated by construction segment. In general, the Authority enters into an agreement with each third party whose facilities are affected by the design and construction of the program. The Authority works with the third party to confirm any identified conflicts and negotiates the best course of action for the alteration, removal, relocation, replacement or reconstruction of the affected facilities. The Authority has entered, or intends to enter, into agreements with utility owners, including cities, counties, water and irrigation districts in the Central Valley, and such private companies as AT&T, Pacific Gas & Electric (PG&E) and Spectrum (formerly Time Warner Cable).

Where the design-build project delivery method is used, the draft agreements for the design and relocation of specific facilities are prepared by the design-build contractor, or in coordination with the design-build contractor. This allows the design-build contractor to coordinate utility relocation with the design of the high-speed rail system. The agreements include all federal flow down requirements set forth in 49 U.S.C. §24405(a), and the grant(s) terms and conditions.

3.4 Strategic Communications and Stakeholder Outreach

Transparency and providing timely and accurate information to the public is critically important to the success of the program. The Authority's communications office is responsible for overseeing all aspects of the Authority's communication and outreach programs and strategies. The Authority plans and implements both statewide and regional communications plans and activities based around major project milestones and in coordination with the its stakeholder partners, including elected officials, government agencies, transportation agencies, local jurisdictions, community residents and businesses, and interest organizations. The Authority's experience has clearly shown that a well-planned strategic communications and stakeholder outreach program that is fully integrated into the overall program is a key factor for project success.

Effective stakeholder relations are essential to the success of program implementation. Stakeholders are defined as anyone directly or indirectly affected by the program, those who will ultimately benefit from the mobility improvements and other investments resulting from high-speed rail, and organizations or individuals that have an interest in the program and/or the ability to influence others. In addition to elected officials, business owners and influential organizations, institutions and individuals, other stakeholders include area residents both in or out of the path of the high-speed rail line and a range of interest groups such as environmental, labor, business or rail organizations. Keeping stakeholders informed and engaged is key to keeping the project moving to a successful completion.

Elected officials, government officials and other community leaders are regularly consulted and kept apprised of program and project developments and about any situations that may require these officials and leaders to address their constituencies. The Authority also encourages these officials and leaders to participate in public events, such as public meetings, groundbreakings and ribbon-cuttings.

In keeping with the integrated organizational approach, the communications team comprises staff from the Authority, Rail Delivery Partner, regional consultants and the environmental and engineering consultants who work together to disseminate information about the program and its individual projects. This collaboration provides greater consistency in approach, messaging and branding, while also maximizing effective information sharing and overall coordination. With communications staff located in Sacramento and in the three regional offices, integration is essential to coordinating team members, tasks and responsibilities.

Regional staff and contract employees work with the Authority's communications office to identify specific stakeholders for targeted outreach. Stakeholder relations plans, which are approved by the Authority's communications division, can include a variety of outreach strategies, including in-person meetings at the

stakeholder's location, group meetings to update stakeholders, emails, phone calls, letters, a website and other means of contact.

The mechanisms used by the Authority to conduct communications activities include:

Media Relations

The traditional news media remains one of the most effective ways to disseminate information to the public and stakeholders. Maintaining relationships with journalists is also important for identifying and addressing any issues that might arise on the program.

Media relations are handled through the Authority's chief of communications. Information is proactively shared with the news media to disseminate updates about developments of interest to the public, up-to-date information about the status of the program and its projects, and actions or events that have a direct effect on a community.

Social media is also used, when appropriate, to engage the news media by sharing stories about the program and/or its projects, expressing appreciation to members of the media for attending an event, and pitching story ideas about the program and/or its projects. RDP, regional staff and consultants support the media relations program by identifying contacts for regional media, suggesting story ideas, conducting research and providing data.

Current social media sites include:

- Facebook: www.facebook.com/CaliforniaHighSpeedRail/
- Twitter: www.twitter.com/cahsra
- Instagram: www.instagram.com/cahsra
- LinkedIn: www.linkedin.com/company/california-high-speed-rail-authority
- YouTube: www.youtube.com/CAHighSpeedRail
- Flickr: www.flickr.com/photos/hsrcagov/

Outreach

Outreach is conducted on multiple levels and at various intervals based on major milestones, decisions and developments. Statewide/programmatic outreach and education is managed by the Authority's communications team in Sacramento and implemented by designated staff.

Regional outreach is region and/or project specific. Each region and project has unique characteristics, situations and issues to address and manage. Furthermore, the planning, delivery and construction of the regional projects comprising the program are advancing on different schedules across the state: the Central Valley is under construction, the environmental planning and review is well underway in Southern California and the environmental review in Northern California has been recently restarted.

Regional outreach includes the development of project plans, activities and schedules. The outreach activities are approved by and implemented in coordination with a point of contact from the Authority who reports to the Authority's chief of communications/press secretary. This approach provides for those messages to be augmented with unique and customized communications tailored to fit each region's circumstances and the status and development stage of its projects. This also provides a feedback loop that allows messages to be clarified, honed and strengthened. Regional outreach includes the development of project plans, activities and schedules that are approved by and implemented in coordination with a point of contact from the Authority who reports to the Authority's chief of communications/press secretary.

- Outreach conducted during the environmental process is implemented in collaboration with the regional managers, planning and environmental staff and members of the communications team to verify compliance with CEQA/NEPA and Authority policies.

- Outreach conducted during construction of a project section is coordinated through the direction of an individual designated by the Authority's chief of communications who collaborates with the regional communications staff. The goal is to establish statewide best practices for construction communications/outreach that provides consistency over the long term.
- The Authority receives dozens of invitations and requests throughout the year for participation in events and conferences that inform stakeholders and the public about the high-speed rail program. In addition to attending these events, participation can include delivering a speech, giving a presentation, or taking part in a panel or roundtable discussion. To ensure that the Authority responds to incoming speaker requests and invitations in an effective and efficient manner and gives presentations and speeches that are consistent and reflect current messaging and design standards, the Authority has created a Speakers Bureau comprised of high-speed rail staff who have been selected to speak to groups, organizations, or associations throughout the state and the country. Presentations given by the Speakers Bureau can range from an overview of the statewide high-speed rail program to focusing on individual project topics, such as planning, environmental, engineering, construction, and business opportunities. Information about the Speakers Bureau can be found on the Authority's website at www.hsr.ca.gov/Newsroom/speakers_bureau.html

Authority's Website

An effective method for distributing information to the public is the Authority's website: www.hsr.ca.gov/. The website contains the latest information about the program, including the approved environmental documents, draft environmental documents for circulation, approved reports, meeting notes, newsletters and links, construction updates, and traffic impacts as well as major milestones, program progress, recent developments, biannual business plans and legislative reports.

Because many aspects of the high-speed rail program and the Authority's mission are mandated by state and federal law, some documents and materials must be posted online within a specific timeframe, and in some cases, these items cannot be changed or removed once posted. Examples include:

- Board of Directors Meeting Agendas: According to the Bagley-Keene Open Meeting Act, notice of state body meetings must be posted at least 10 calendar days in advance of the meeting. Because the Authority is a public body, agendas must be posted on the Authority's website within this timeframe to be in compliance with California law.
- Environmental Documents: The Authority is responsible for posting CEQA and NEPA documents in public places for review, including the Authority's website. Once posted, the documents cannot be removed.

3.5 Railroad Agreements

The program is part of an overarching rail modernization program coordinated through the CalSTA. As part of the Budget Act of 2012 (SB 1029, Chapter 152, Statutes of 2012), funding has been identified for investments to enhance existing systems that will ultimately accommodate high-speed rail operations. The Authority is coordinating with these transit agencies to develop MOUs for future operating improvements, including schedule coordination, ticketing, station operations, parking and other improvements that will optimize future service.

The Authority is also entering into third-party agreements with private rail and transit entities, Class I freight railroads (including the Union Pacific Railroad (UPRR) and BNSF Railway) and joint powers authorities and boards operating commuter rail lines within the state.

All agreements with railroad-owned property on the high-speed rail alignment will be approved by the FRA in accordance with 49 U.S.C. 24405(c)(1) and Section 4.2.6 of the HSIPR Program Interim Guidance published in the Federal Register on July 1, 2010 (75 FR 38344). Agreements will include compensation for use, assurance regarding the adequacy of infrastructure capacity, a commitment to maintaining railroad collective bargaining agreements in full force and effect, and compliance with liability requirements consistent with 49 U.S.C. 28103.

3.6 Other Agencies and Communities Involved

The Authority also has agreements with local governments, community-based organizations, regulatory agencies and utilities for additional elements that are required for the program. MOUs have been developed with partners in the northern and southern bookend regions to establish the path and coordination of the statewide modernization rail plan. The Authority engaged in the rulemaking process with the California Public Utilities Commission (CPUC), which culminated in the CPUC issuance of General Order #176 (Rules for Overhead 25kV Railroad Electrification Systems for a High-Speed Rail System). The general order sets the standards for how various public utilities will coexist in the Authority's dedicated right of way.

4 CONTRACT PROCUREMENT AND MANAGEMENT

4.1 Contracting Authority

The power to enter into contracts to carry out the functions of the Authority is provided by Public Utilities Code § 185033. The Authority may enter into contracts with private or public entities for the design, construction and operation of the high-speed rail program. The contracts may be separated into individual tasks or segments, or they may include all tasks and segments, including a design-build or design-build-operate contract.

Additional statutes also apply to the Authority as a state agency. For example, laws regarding contracting for engineering, architectural, or design services (A&E contracts) require contracts to be based on demonstrated competence and qualifications at a fair and reasonable price resulting from negotiation. The Authority's regulations for contracting with private architectural and engineering firms can be found in California Administrative Code Title 21 Section 10000 et seq. In addition, federal grant agreements require compliance with 48 CFR Chapter 1, Subpart 31.2.

4.2 Contract Procurement

Procurement methodology is based on the type of contract being awarded.

Procurement Strategy and Procedures

The overall procurement strategy was developed through an ongoing process of industry engagement, including issuance of requests for expressions of interest, industry forums and one-on-one meetings. Design-build (DB) procurement has been used for the civil works of the FCS and the DB procurement method, as well as other alternative delivery strategies, are under consideration by the Authority for delivery of the Silicon Valley to Central Valley operating segment. Program procurement and its associated schedule are predicated on program funding and financing and on their alignment with the current business plan. A detailed program-wide procurement management plan, aligned with the program master schedule, is the result of the Authority's ongoing efforts to identify funding from industry feedback received through the request for expressions of interest and from emergent policy and direction from the Authority.

For design-build (DB) procurements, the Authority is currently using a two-step process consisting of a request for qualifications (RFQ) followed by a request for proposals (RFP). For A&E and other professional service procurements, the Authority issues the RFQ and RFP packages respectively. A&E procurements are consistent with the requirements of Government Code Section 4525, et seq. and California Code of Regulations Title 21, Division 6, Chapter 1, Article 1. Other professional service procurements are consistent with the requirements of Public Contract Code Sections 10295 and 10335, et seq.

Procurement Status

Procurement status for the initial segments include:

- CP 1, from Madera to Fresno, has been awarded as a design-build package to Tutor-Perini/Zachry/Parsons, a Joint Venture.
- CP 2-3, from Fresno to one mile north of the Kern County line, has been awarded as a design-build package to Dragados/Flatiron (DF), a Joint Venture.
- CP 4, from the Kern County line to Poplar Avenue north of Bakersfield, has been awarded as a design-build package to California Rail Builders.
- Procurement documents for track and systems for the Silicon Valley to Central Valley project section and extensions (San Francisco to Merced and San Francisco to Bakersfield), the high-speed trains and an operator are currently under development.
- Major civil works procurements, including tunneling, viaducts, roadway overcrossings, embankments and other facilities, will be developed and issued.

- Additional traditional design-bid-build contracts will be awarded for specific upfront work. These contracts may include stations and small civil construction packages or contracts for such activities as utility relocations.

4.3 Contract Management

The focus of contract management is to analyze and recommend the appropriate staging of contract packages and procurement strategies for the high-speed rail system given the anticipated funding, geographic challenges and other variables that could affect the program. The Authority is developing and administering the program's contracts in accordance with the state's procurement procedures. Contract performance is monitored against the contract scope and provisions to ensure compliance.

Management of Capital Contracts

Depending on the contract procurement strategy (design-bid-build, design-build, design-build-finance-operate-and-maintain, public-private partnerships, etc.), contract procurement management procedures are implemented to address key elements, including:

- Program management and controls, management and oversight
- Changes and claims management
- Document control and processing
- Risk mitigation
- Contract administration
- Construction management oversight
- Quality management oversight
- Environmental compliance oversight and reporting
- Construction safety and security oversight
- Technical compliance oversight

The federal flow down requirements and required contract language are incorporated into all contracts. Additional details on contract administration methods are available in Section 6 "Methods for Contract Administration" in the design-build program plan (DBPP) (Appendix D).

Management of Professional Service Contracts

The size and complexity of the program necessitates the participation of consultants to undertake a substantial portion of the work. Professional service contracts are written with clauses that require the consultant to provide information pertaining to earned-value management and to follow the program's work breakdown structure. When the consultant submits a payment request, it must be sufficiently detailed to verify the validity of the earned-value reporting. Payment is based either on the achievement of planned milestones or, for design and construction contracts, the percentage of completion for those milestones. Payment can also be made on the basis of cost reimbursement for labor hours expended and materials consumed.

Small Business Commitment and Compliance

The Authority is committed to providing small businesses an equitable opportunity to participate in the program. The Authority has established a small and disadvantaged business enterprise program and set an overall small business participation goal of 30 percent, including 10 percent for Disadvantaged-Business Enterprises (DBEs) and 3 percent for Disabled-Veteran Business Enterprises (DVBEs). The program complies with 49 C.F.R. Part 26, Executive Order S-02-06, Military and Veterans Code 999 and Title VI of the Civil Rights Act of 1964. The small business program provides quarterly small-business utilization reports to reflect the level of small-business participation, including DBE and DVBE utilization, small businesses (SB) and microbusinesses (MB) on program delivery contracts. Similar requirements for

utilization of small-businesses, DBEs and DVBEs are incorporated into the procurement packages for future construction and professional service contracts.

Along with their monthly invoices, consultants and DB contractors are required to submit a report showing the name of the DBE, DVBE, MB and SB firms utilized during the reporting period and the amount committed and expended to date. A complete listing of requirements for DB contractors is provided in Section 3.10.2 "Small and Disadvantaged Business Enterprise Program Requirements" of the Authority's Project and Construction Management Manual (PCMM) (Appendix E).

Civil Rights Program and Labor Rates

The Authority is committed to equal employment opportunity for all employees, contractors and subcontractors and providing them with a work environment free of discrimination and harassment. All employment decisions at the Authority are based on business needs, job requirements and individual qualifications, without regard to race, color, religion or belief; national, social or ethnic origin; sex (including pregnancy); age; physical, mental or sensory disability; HIV status; sexual orientation, gender identity and/or expression; marital, civil union or domestic partnership status; past or present military service; family medical history or genetic information; family or parental leave status; or any other status protected by the laws or regulations in the locations where the Authority operates. The Authority does not tolerate discrimination or harassment based on any of these characteristics and adheres to Title VI of the Civil Rights Act of 1964; Title IX of the Education Amendments of 1972, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, as amended; the Drug Abuse Office and Treatment Act of 1972, as amended; the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970, as amended; the Public Health Service Act of 1912, as amended; and other nondiscrimination provisions required by state and federal requirements. The Authority and the Authority's consultants and contractors are required to prevent discrimination and verify nondiscrimination in their programs, activities and services.

Labor rates for the construction contracts and for project components that use rights-of-way owned by a railroad are established in accordance with federal and state wage rates that comply with the provisions of the Davis-Bacon Act and are included in the procurement documents. DB contractors are required to submit weekly labor compliance reports to the PCM consultants, who track these reports and submit them to the contract compliance group to validate compliance with federal and state regulations and contract requirements. The PCM are also responsible for logging and tracking the DB contractor's compliance with and submission of U.S. Department of Labor Office of Contract Compliance Program Equal Employment Opportunity reports in accordance with Title 41CFR Part 60 and the ten obligations under the Mega-Project reports.

5 PROGRAM AND PROJECT MANAGEMENT

Program management fundamentals, principals and practices are utilized to develop policies, procedures and tools to manage and control the delivery of the scope, budget and schedule commitments of the overall program. The program controls plan provides a functional overview of the control processes for monitoring and reporting the scope, budget and schedule at both the program and project levels.

5.1 Program Controls Plan

The program controls plan establishes the processes for management and control of the program-wide scope, cost and schedule. The plan identifies process interfaces with other functional units in the integrated Authority/RDP organization, including the groups responsible for the management of risk, funding, earned value, contingency, design-build contract changes and program-level changes. The plan also communicates the roles, processes, data, program management information system (PMIS) elements, reports and reviews related to program controls.

In addition to verifying that program control policy decisions are executed in a consistent and systematic manner, the program controls group facilitates the management of several key areas that relate to the entire program and prepares the documents required to implement and monitor the processes, which include:

- Scope management plan
- Cost management plan
- Schedule management plan
- Earned-value management
- Trend management
- Contingency management
- Design-build contract change order management
- Program-level change order management

The program controls framework is based upon the five-stage program control cycle:

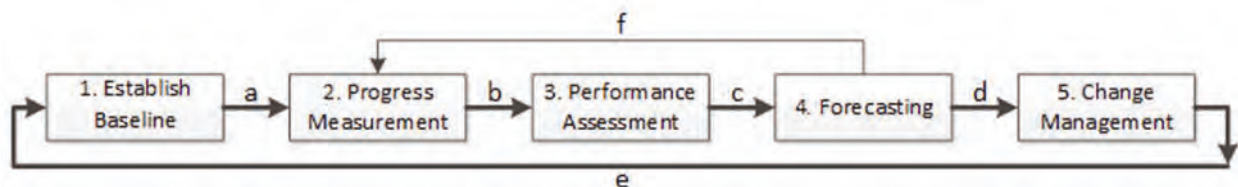


Figure 5. Five Stages of Program Control

Stage 1 - *Establish Baseline* is the basis established by the Authority and program delivery consultant against which the program will be measured, assessed, forecasted and changed; it also describes the organizational elements of the project. Stage 1 elements are represented in the following:

- Work breakdown structure (WBS)
- Organizational breakdown structure
- Cost budget
- Funding baseline
- Program master schedule
- Risk register

The program baseline is derived from the business plan.

Stage 2 - *Progress Measurement* comprises the methods used to measure progress, including:

- Physical progress
- Units completed
- Interim milestones
- Completion milestones
- Resource tracking

Because these methods vary throughout the different phases of program development – design; procurement; construction; systems and high-speed rail train manufacturing, supply, installation, testing and commissioning; and high-speed rail system startup and operations – program controls, in collaboration with task leads and program management, selects the specific method(s) applicable to the development phase. During each phase, progress is measured at various reporting levels and summarized by the WBS. The methods, which are utilized by the cost managers and schedulers, are described under Schedule Management and Program Cost Management.

Stage 3 - *Performance Assessment* utilizes earned-value management techniques to assess performance by comparing the Stage 1 baselines to actual progress, identifying any variances or deviations from the baselines, determining the impact of these variances on cost and schedule, and selecting corrective actions to minimize the impact. The performance assessment is conducted by the program controls group, which then assists program management and functional unit managers with the metrics or assessment to analyze and document variances. The assessment methods are described under Schedule Management, Program Cost Management and Earned-Value Management.

Stage 4 - *Forecasting* represents the program schedule, budget and resource forecasting processes, including trend analysis. Forecasting is performed using variances from the Stage 3 assessment to predict control element outcomes (delay, cost overruns, increased risk, resource shortages, etc.) with the potential to negatively affect delivery of the high-speed rail system and identify opportunities to improve program delivery and/or mitigate risks. Monthly performance measurement and forecast data are used for monthly program reviews and reporting. The specific forecasting methods are described under Schedule Management, Program Cost Management and Earned-Value Management.

Stage 5 - *Change Management* is the process of collecting, reviewing, approving or rejecting, and managing changes to the program baseline. Stage 5 reflects the outcome of the evaluations conducted during Stage 3 - Performance Assessment and Stage 4 – Forecasting, which identified deviations from the baseline, determined their cause(s), evaluated their potential effect on cost and schedule and identified optimal measures for mitigation. In addition to the program controls unit, the risk management group and the Authority's Change Control Committee (CCC) are participants in managing changes and contingencies in accordance with the contingency management plan. The change management procedures encompass trend analyses, causal analyses and mitigation analyses as required.

Program Management Information System (PMIS)

PMIS is a system of tools and techniques used for compiling, integrating, storing and interfacing the information from the various program management processes to determine the status of the overall program and its specific projects. PMIS was developed for use on the program and it will evolve and continue to be developed and refined as the program transitions from conceptual planning through environmental approvals to detailed design, procurement and construction and ultimately to testing, commissioning and revenue service startup. In addition to data entry, PMIS is the repository for storing data as well as the interface for reporting data.

The primary program controls subsystems of PMIS include:

- **Network Schedule:** Primavera P6 is the scheduling software tool used to track the programwide baseline, record status updates, assess performance, develop schedule forecasts and document schedule changes.

- **Contract Management:** Oracle Contract Manager is the software used to track contract management information, including prime contract management, subcontract management, costs, change and other contract-related data.
- **Time-Location Schedule:** TILOS is the time-location planning software used to manage linear construction projects by analyzing and reporting schedule data by geographical location.
- **Schedule Analysis:** Acumen Fuse is the schedule diagnostics tool used to check key schedule characteristics, analyze multiple schedules concurrently, summarize detailed schedule analyses and provide state-of-the-art schedule reporting capabilities.
- **Electronic Document Management System (EDMS):** SharePoint is the web-based system used to enable the Authority and its consultants to share, collaborate and manage all documents distributed for information or review.

Schedule Management

The schedule management plan, a component of the program controls plan, provides an overview of processes and output data used to establish the baseline schedule, measure progress, assess performance, forecast deviations and trends, manage change, and schedule reporting, reviews and meetings.

As described above in the discussion of PMIS, Primavera P6 is the primary software program for developing the baseline schedule for the overall program and its projects, recording status updates, assessing performance, forecasting trends and deviations, and recording changes to the overall program's scheduling data. The program-wide baseline schedule, the program master schedule, is the mechanism for planning program-wide and project delivery, monitoring and reporting progress and identifying variances so that corrective action can be taken to either cancel the effect of the variance or mitigate its potential for adversely affecting the overall schedule. The P6 critical path method software enables detailed schedule data to be recorded and the baseline, both actual and forecast, to be tracked and reported. Because the individual project-specific schedules reflect the key interfaces and milestones, they are used to determine resources and progress profiles for each project comprising the program.

For the civil projects, the DB contractor is required to submit a project-specific baseline schedule which, once approved by the Authority and the PCM, is considered the "approved original baseline schedule." This baseline schedule is the basis for monitoring the DB contractor's progress during the performance of the work. The DB contractor is also required to submit monthly schedule progress updates which, after review and approval, are submitted to the project scheduler to update the master program schedule. Any revisions to the schedule resulting from change orders, revised sequencing of work and/or unforeseen delays must be reviewed by the PCM, design and construction manager and the project scheduler. Once approved by the Authority, the baseline schedule is revised along with the master program schedule.

The schedule management reporting hierarchy includes the integrated organization, RC, PCM, and design-build contractors. The program controls functional unit obtains information from each of these entities to prepare monthly schedule reports.

Program Cost Management

The cost management plan, a subset of the program controls plan, provides an overview of how cost control is managed at both the program level and project level. In addition to defining the roles and responsibilities for cost management staff, the cost management plan addresses the processes and output data associated with each stage, including the establishment of the baseline cost estimate, progress management, performance assessment, forecasting and change management, PMIS components, cost reporting, and reviews and meetings.

The program cost budget was developed based upon the most recent business plan estimate. The cost engineer coordinates with the senior estimator to allocate the business plan budget to the program elements by mapping similar scope elements from the estimate to the WBS elements. The budget is represented in year of expenditure monetary values.

The program-wide cost is updated monthly with input received from the integrated staff, regional consultants, program and construction managers, and design-build contractors. This information is used to prepare program cost reports, including reports that track the cost of third-party agreements, right-of-way acquisition, environmental documentation, permitting and mitigation at the program and project levels as well as costs expended.

Because the work scope definition varies among the projects comprising the program, the techniques used to develop cost estimates are adjusted for each section in accordance with its level of design and delivery method. The estimating process uses parametric estimating techniques for projects whose scope has little definition, and detailed quantity takeoffs and pricing for sections that have a more advanced definition of scope. Each project manager is responsible for preparing and maintaining a construction estimate that is provided to the program controls group for review and incorporation in the cost estimate for the overall program.

Cost assemblies and/or unit rates are developed as needed for each type of quantity. The quantities are priced using the applicable cost assemblies and the resulting estimate is reviewed. If necessary, allowances are made to cover known or anticipated cost categories for projects lacking a well-defined design definition that thwarts the development of quantity figures. A contingency amount is also added to the cost estimate to accommodate unknowns (risk factors). The resulting estimate is then used as input for the budget and forecasted amounts of the cost control system.

PMIS is utilized to conduct monthly assessments of costs incurred to date. Program controls forecasts costs using a systematic forecasting methodology that considers deviations, trends, change request and opportunities integrated in the program-wide trend register. Trending on significant cost variances discovered during the performance assessment stage are analyzed. This forecasting is integrated with the risk management plan and the contingency management plan.

Actions utilized and recommended to produce more accurate and comprehensive estimates include:

- Analyze the bid results for CP 1, CP 2-3 and CP 4 to compare against the current estimate and establish a database for processing future estimates.
- Utilize independent estimating firms to prepare engineer estimates that are then reconciled with the estimate.
- When appropriate, utilize contractors who are not involved in the program to prepare independent “shadow” bids.
- At least two months prior to bidding, implement with the regional consultants an internal value engineering process that emphasizes cost reduction and initiates the development of preliminary alternative technical concepts (ATCs).
- Engage the thinking of the full organization – the Authority and the project delivery support resources, contractors and suppliers – to assist the ATC evaluation process by identifying and mitigating potential complications resulting from right-of-way, environmental and permitting.
- Current procedures support preliminary engineering and, as a result, reflect planning-level estimates. Revise the bid evaluation process so that it uses a uniform base-bid approach for project design. Include ATCs as deductive alternates to eliminate the wide spectrum of bids and design solutions that are difficult to compare.
- Have the members of the estimating team augment the project management staff during the quantity development phase to improve the quantities estimates for both the engineering and planning estimate processes.
- Monitor recent bids for other similar types of projects as a basis for responding and adapting to market conditions and competitive environments.

Earned-Value Management

The earned-value management plan, a subset of the program controls plan, provides an overview of the processes used to administer earned-value management by integrating project scope, schedule and cost

elements through the five cycles of program control: establishment of baseline, progress measurement, performance assessment, forecasting, and change management. The primary focus of earned-value management is to measure project performance, which involves defining the scope, organizing it into manageable work elements and associating each element with the budget and schedule for its accomplishment. The work elements, and the cost and schedule required to complete them, form the performance measurement baseline that is the basis for monitoring performance and providing objective information to facilitate the decision-making process. The program controls unit establishes the basis against which the earned value is assessed, forecasted and changed by aligning the cost budget and baseline schedule through the tasks. This alignment is carried out by the cost engineers and schedulers. The P6 baseline schedule start and finish dates are imported into the cost data system, which is the repository of planned value data. This system then produces the earned-value management performance assessment calculations and metrics that are used for trend analysis and reporting. If any changes are required, updates are made to the budget adjustment and schedule adjustment logs as part of the change management process.

Change Management

As a means of controlling changes to the program, the overall change management strategy distinguishes between program-level changes and project-level changes, including changes affecting the design-build contracts. A change is defined as a modification, positive or negative, to a controlled area of the program in terms of scope, budget, schedule, functionality, interface and/or location. The “controlled area” of the program is also known as the baseline. Each change requires an assessment of its effect on the controlled areas of the program. As changes are reviewed, the technical implications of these changes are weighed against their effect on budget and schedule as well as the adjustment made to the program’s risk factors. These potential impacts inform the Authority of the implications associated with the change and justify whether the change is approved, rejected, or requires the development of recovery plans or alternative approaches.

Program-Level Change

The overall change control strategy for the system includes changes to professional service contracts, changes to construction contracts and changes to the schedule, scope and cost of the system that affect the program level.

The key activities of the program-level change management process include:

- Developing and maintaining the documents that address and define the controlled constraints placed on the program’s scope, schedule and cost.
- Tracking trends that have the potential to adversely affect these constraints.
- Evaluating the effect(s) of a proposed change on the controlled scope, schedule and cost.
- Obtaining concurrence according to the established delegation of authority.
- Ensuring that historical backup data explaining the likely cause of the change and its implications is available and retained.
- Tracking the performance of approved changes against the controlled scope, schedule and cost documents.
- Preparing a change history.

As shown in Figure 6, once a change is identified, it is brought to the technical evaluation committee, which is led by the program control manager. The technical evaluation committee will identify subject-matter experts to help in evaluating the potential impacts resulting from the proposed change and then make a recommendation to the CCC.

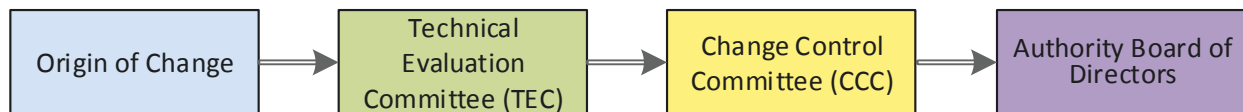


Figure 6. Change Control Process

The CCC meets regularly to review and/or take action on changes. This includes contract changes at the project level as well as configuration changes at the program level. The committee is supported, as needed, by the Authority's consultants and experts in the subject matter pertaining to the change. Members of the CCC include the Authority's chief deputy director, director of risk management and program controls (committee chair), chief program manager, chief engineer, chief financial officer and FRA representative. Some changes may require a decision from the Authority, while others can be submitted for informational purposes to the committee. The process requirements for tracking potential changes and the step-by-step instructions for processing a configuration change to the baseline are detailed in the program controls plan.

Design-Build Contract Change Order Management

The program controls plan and the PCMM delineate the protocols, processes, roles and responsibilities of the Authority, its program controls consultant and PCM consultants when they are managing design-build contract change orders. The process for managing changes on the DB contracts, including the approval matrix and procedures for executing changes, can be found in Section 11 "Changes and Claims" of the PCMM.

Any changes to the DB contract documents are executed by a change order. Prior to being incorporated into the DB contract by formal contract change order, the contract-related changes must be fully documented and within the authorized contract contingency amount to comply with the Authority's and federal and state regulations.

When a potential change is initiated and authorized by the Authority, the PCM prepares the finding of fact (FOF) form and obtains authorization from the appropriate Authority representative and the CCC. Upon approval, the PCM then prepares a directive letter for signature by the Authority's representative and issues the signed directive letter to the DB contractor. The project and constructor manager tracks and maintains the log of all directive letters in the contract management system (CMS). As potential changes advance through the change management process, related documentation is linked to the change management log and tracked by the PCM.

The contractor may submit a written contractor's change notice to the PCM who reviews and prepares an acknowledgement letter to send to the contractor in response to the change notice. This letter may acknowledge merit, deny merit, request additional information concerning the change or request the contractor to submit a change order proposal. The PCM tracks the change notice and updates it as it progresses through the change management process. Once a change order proposal is submitted, the PCM coordinates the review of the proposal with the Authority's design and construction manager to access and determine if the change will be authorized by the Authority.

Whenever possible, the change order is negotiated and an executed change order is issued prior to proceeding with the work. In the event that a negotiated agreement cannot be reached, the PCM drafts a directive letter for signature by the Authority's design and construction manager or other delegated representative directing the contractor to proceed on a time and material basis or change order accounting basis until work is completed.

The PCM coordinates with the Authority and the CCC on any change to the project as detailed in the program-level change management process.

Contractor's Claims

The DB contractor's claim process is outlined in the PCMM Section 11.13 "Contractor's Disputes." As stated in the PCMM, when the DB contractor believes that a potential claim or dispute situation has occurred, the DB contractor is to seek resolution through the partnering process by utilizing the resolution

ladder in accordance with the Authority's delegation of authority matrix. The Authority can apply the steps and levels indicated in the matrix to resolve claims and disputes.

If the claim/dispute cannot be resolved through partnering, the DB contractor then submits a written request to the PCM who notifies the Authority's design and construction manager and change control manager of any potential claim and keeps them updated on the claim's status. The PCM is responsible for providing recommendations regarding entitlement, potential exposure and strategies for claims resolution to the Authority for its review.

In accordance with contract terms, the DB contractor can also seek resolution of disputes, claims or other controversies through the dispute resolution board. If the Authority or the contractor disagree with the board's decision, either party can request mandatory binding resolution.

A list of potential claims and disputes recorder file is maintained in the CMS and updated as the claim/dispute progresses through the decision process.

Document Control

The document control procedure manual outlines how documents are managed throughout the life cycle of the program. Documents refer to program documentation from initial development to the final work product. The document control procedure describes how to manage both electronic and paper repositories of documents and historical information and also addresses how to create, update and format documents.

Key elements contained in the document control procedure manual include:

- References for document templates, standard formats and writing style guide.
- Control and distribution of documents.
- Document storage.
- Records management standards for document version control and requirements for compliance with the Public Records Act and Freedom of Information Act.
- PMIS tools used for document control.

Additional procedures utilized for the environmental processes are referenced in Section 9 - Environmental Management and Sustainability. Documents are retained in accordance with 49 CFR Part 18.

5.2 Project Delivery

Project delivery and implementation is managed at the regional level, as shown in the organizational chart in Figure 7. The sections are broken down into projects within the three regions (North, Central and South), with the project managers responsible for the individual projects. The project managers report to the regional managers of projects who oversee all of the projects within the region. Below is a brief description of the key regional and project roles for project delivery during the environmental review and preliminary engineering phase of the projects.

- **Regional Director of Projects:** The regional director of projects executes the program delivery strategy for the north, central or south region and reports directly to the program director. The regional director of projects provides leadership and support to the project managers who report to them.
- **Project Manager:** The project manager supports the regional director of projects and is responsible for the scope, schedule and budget of the project. Task managers report to the project manager for project support in the areas of environmental, engineering, right-of-way, third party, railroad, etc.
- **Task Managers:** Manage production and completion of discrete deliverables on projects. Task managers coordinate with other task managers and with contract managers and the project manager regarding task deliverables, resources and schedule. In addition, task managers communicate project issues, conflicts or changes and provide potential resolutions to the project manager.

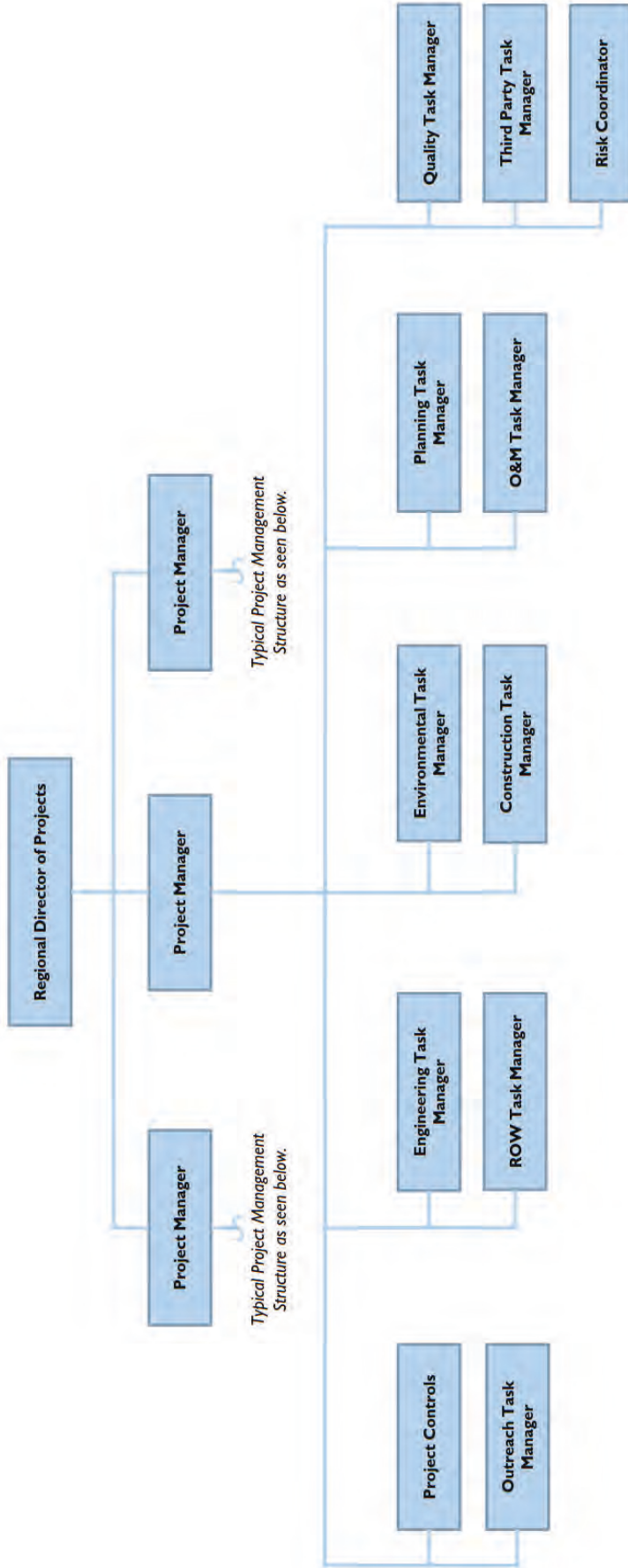


Figure 7. Project-Level Delivery Organization Chart

5.3 Construction Project Management

The construction project-level organization chart is shown in Figure 8. Section 2 of the PCMM and Section 3 of the DBPP describe the composition of the design-build project team and the roles and responsibilities of the team members.

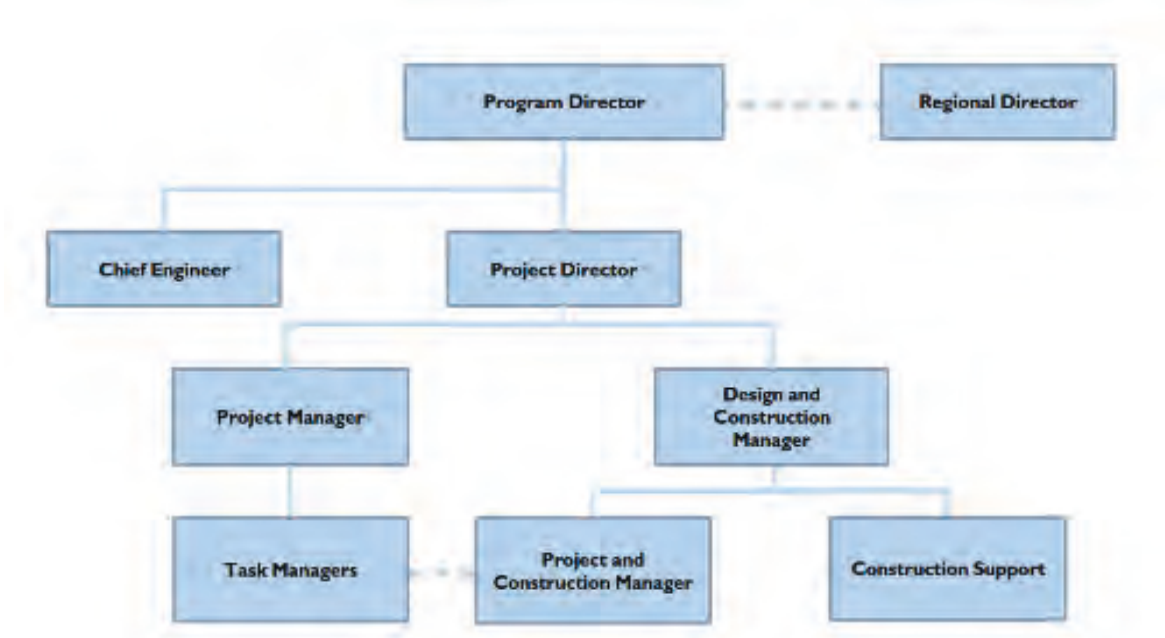


Figure 8. Construction Project-Level Organizational Chart

Below is a brief description of the key regional and project roles along with their responsibilities:

- **Project Director:** Each of the construction projects/packages is led by a project director, who reports directly to the program director and has the overall responsibility for all of the elements of the project, including design, construction, right-of-way, third-party agreements, and project delivery.
- **Project Manager:** The project manager supports the project director during construction and is responsible for the scope, schedule and budget of the project. Task managers report to the project manager for project support in the areas of environmental permitting, engineering, right-of-way, third party, railroad, etc.
- **Design and Construction Manager:** The design and construction manager is the Authority's authorized representative for each DB contract and will manage and provide oversight of the PCM contract.
- **Project and Construction Manager (PCM):** The PCM provides on-site project and construction management services for the DB contracts and is responsible for the management, administration and monitoring of the activities of their assigned contract for the project. One key member of the PCM's staff is the design-build oversight manager (described below).
- **Task Managers:** Manage production and completion of discrete deliverables on projects. Task managers monitor and maintain control of the DB contractor's task progress and performance to verify compliance with contract provisions, including quality, schedule, scope and cost. Task managers coordinate with other task managers and with contract managers and the project manager regarding task deliverables, resources and schedule. In addition, task managers communicate project

issues, conflicts or changes and provide potential resolutions to the project manager and the functional manager.

As shown in Figure 9, project-level information (scope, schedule, budget) is reported up from the DB project controls manager, to the PCM, then to the regional project manager and ultimately to the program controls unit. The EECs, RCs and PCM consultants report up to the regional director of projects.

Project-Level Controls Staff Reporting Structure

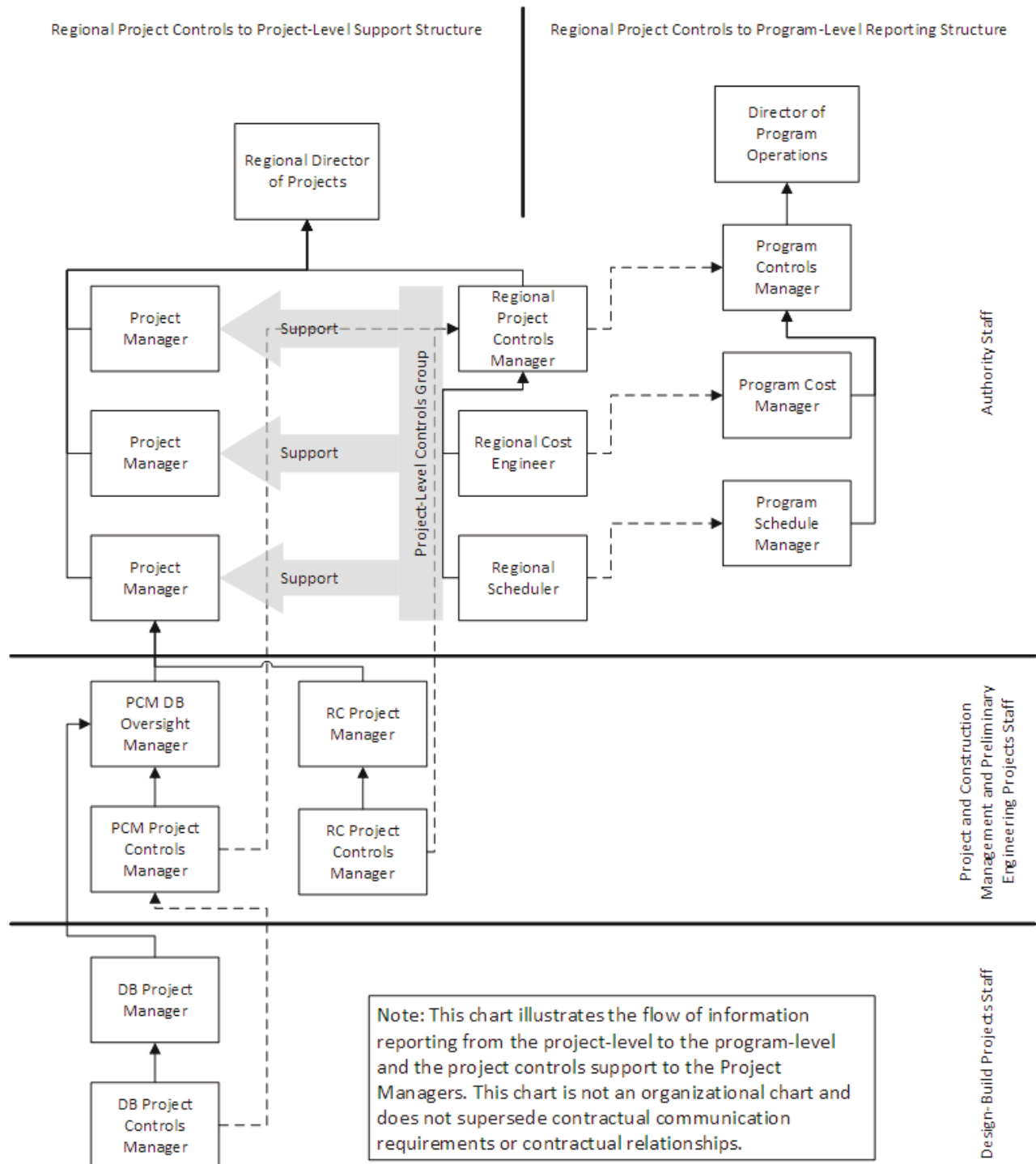


Figure 9. Project-Level Reporting Hierarchy

6 QUALITY MANAGEMENT SYSTEM

Recognizing that effective management of quality and performance accelerates program delivery, the Authority has instituted a programwide quality policy that reflects the Authority's commitment to delivering the program on schedule and at the lowest possible cost with quality and safety that meets or exceeds acceptable industry and government standards. The commitment to quality is further supplemented by the Authority's quality objectives specified in the master quality plan (Appendix F).

The Authority's quality objectives are to:

- Develop and implement quality management plans to promote performance excellence.
- Deliver quality work on schedule and within budget.
- Identify requirements and manage their assignment.
- Develop and implement procedures to meet requirements.
- Identify metrics to facilitate data-driven decisions.
- Identify and implement continuous improvement opportunities.

These objectives are the foundation of the quality management plan and quality management system, which were formulated to support and advance the Authority's quality vision.

6.1 Organizational Requirements and Profile

To align with the quality requirements specified in the program's master quality plan, the approach, integration and implementation of a quality management system that encompasses these standards and programs has been developed. The quality management system is based on precepts that include:

- National Institute of Standards and Technology (NIST) Performance Excellence Criteria (2015-2016).
- International Organization for Standardization (ISO) 9001:2015 – Quality Management Systems requirements.
- FTA Quality Management System Guidelines, December 2012.

Through the integration and implementation of NIST criteria, ISO standards and FTA guidelines, a performance excellence framework was developed. This framework provides the elements essential to identifying and achieving goals and objectives, improving results and aligning requirements, roles, responsibilities, processes, procedures, actions and results. This framework also provides the tools to examine the organization, including its quality management system and to improve processes and results. Figure 10 depicts the application of the integrated performance excellence framework for the high-speed rail program.



Figure 10. Program Application of NIST Performance Excellence Criteria

The incorporation of these standards and guidelines allows the quality management system to be developed and evaluated while taking the maturity level of the organization or its key processes into consideration. Learning and knowledge management are essential attributes of agile high-performing organizations. Effective, well-deployed organizational learning can help an organization improve from the early stages of reactive program executions to the highest levels of improvement, refinement and innovation throughout the organization.

6.2 Continuous Improvement

A number of initiatives have been undertaken to institute a culture of continuous performance improvement, including:

- Internal process improvement for general process assessment and improvement, or for areas identified through the normal work process or through ongoing metrics measurements as needing to be improved.
- Lessons-learned process to implement the knowledge gained from improvement initiatives into the work processes and procedures.
- Brown bag lunches to encourage an environment of workforce focus with opportunities to support our internal customers.
- Meetings between the quality manager and organizational units to update the group on quality developments and to follow up on any action items from prior meetings.
- Integration team comprised of organizational unit leads, along with other entities, which convenes to review progress and make adjustments to optimize performance and customer satisfaction. The team uses the established plan's "do, learn, share and sustain" approach to accelerate improvements within each organizational unit and within the organization as a whole by identifying solutions that can be immediately applied.

As the continuous performance improvement program develops and matures, the quality management system and the quality management plan will be reviewed and updated to reflect the program's current strategic challenges and opportunities. To account for this, the quality management plan has been developed with the intention that it will remain a dynamic and evolving document.

Lessons Learned

As part of the continuous performance improvement program, the Authority works with the program delivery team to implement a "lessons learned" program related to the systems used to develop and implement the projects comprising the program. The lessons learned are communicated to the appropriate personnel in the program via the lessons-learned procedure. The procedure includes:

- Description of the process used to identify lessons learned.
- Documentation and approval of the lessons learned.
- Verification that the lessons were provided to team personnel.
- Description of the archival process for storing and retaining lessons following their presentation to team members.
- Identification of actions undertaken in response to the lessons learned and verification that the actions have been implemented.

The lessons learned are focused on positive experiences that result in ideas that improve the program, such as improved project efficiency and/or budget and schedule savings, as well as negative experiences that have produced undesirable results or unfavorable outcomes and will not be used again to prevent their reoccurrence. Potential actions that could result from the implementation of lessons learned include:

- Revising an existing policy.
- Writing a new procedure.
- Revising a standard.
- Issuing a new or revised specification.
- Improving a work process.
- Changing a contract's terms and conditions.

The lessons-learned procedure as a whole is not applicable to the interactive and compressed process utilized to prepare procurement documents. This function requires the concurrent participation of many disciplines to review, comment and edit the draft versions under the leadership of the commercial and contracts team. However, as the procurement documents are prepared, the lessons-learned process will yield insights and information that are specifically related to these documents and these lessons are applied to the remaining draft procurement documents being developed.

6.3 Program Performance Regime

The performance regime is a method used by the Authority to drive quality, budget and schedule milestones. The performance regime is a fee-at-risk contract feature that links a portion of the program delivery consultant's payment to a combination of quality, budget and schedule performance targets. The performance regime is built around specific program deliverables that can be measured on the basis of quality, budget and schedule. As the performance regime deliverables are identified by the Authority and the consultant, they are placed into a performance regime tracking dashboard that is prominently displayed in the PMIS. For each performance regime deliverable, a performance expectation sheet is prepared defining the expectations for that deliverable. The performance expectation sheet is approved by both the Authority's task manager and the delivery consultant's task lead. Once the deliverable is complete, the task manager assigns a rating based on the performance measures. Any changes to the performance expectation sheet are managed through the change management process.

7 RISK MANAGEMENT PLAN

Risk management is a formalized set of processes, protocols and responsibilities providing a systematic approach to identify, evaluate, assess, document and manage risks that could jeopardize the success of the program. Potential areas of risk include engineering, environmental, planning, right-of-way, procurement, construction, organizational, stakeholder, budget and schedule risk. The risk management plan has been developed under precepts that include:

- Final risk allocation options are the responsibility of the Authority.
- Risk management process meets the Authority's risk objectives.
- Risk management process results in a pragmatic assessment that balances the Authority's objectives with the construction industry's reasonable risk allocation issues and concerns.

The objectives of the risk management plan are to:

- Enhance the ability to anticipate events, assess potential impacts of risks against available budget and schedule contingency, and set risk tolerances consistent with achieving objectives.
- Rationalize resources by identifying key drivers of development and delivery and providing solutions to manage the program's budget, schedule and quality to improve capital allocations.
- Report with greater confidence by preparing internal and external timely information that provides the framework for achieving an acceptable level of certainty regarding the program's budget and schedule.
- Satisfy legal and regulatory requirements and meet the needs and expectations of other stakeholders, including federal, state and local agencies; elected officials; residents and businesses along the alignment; and special interests (organizations and/or institutions, including environmental, business, labor, civic, education, and economic development).

To achieve these objectives, the following standards for risk management deliverables have been adopted:

- Deliverables are presented within a substantive, complete and appropriate engineering or project management context.
- Deliverables are quantified, fully integrated, traceable, consistent and compatible with findings or stated facts.
- Risk management deliverables are qualitative in nature, properly structured and clearly identified with respect to authorship.
- Material analytic results of risk analysis are capable of withstanding independent assessment or reproduction using disclosed methods and assumptions which generate similar analytic findings within an acceptable degree of imprecision or error.
- Funding agencies are able to assess whether it is appropriate to question the adequacy, accuracy and completeness of third-party data, information, modeling or analysis.

The risk management plan balances the competing demands of scope, budget, schedule, quality, resources and risk to minimize risks to the program. Risk is reduced even further by requiring operators, infrastructure providers and contractors to accept risk directly through their contract agreements with the Authority. In addition, risk management specialists identify key potential risks and develop mitigation plans in advance of their possible occurrence. Risk-related items and actions are documented in the risk register for the program. Individual risk registers are reviewed and updated quarterly, though individual risks are updated as new information is developed. The registers are reviewed by management at stipulated intervals and response strategies and actions for individual risks, as well as for overall program risks, are integrated into a consolidated plan. This plan includes:

- Monitoring and controlling risks by implementing agreed-upon actions.

- Regularly reviewing changes in program risk exposure.
- Identifying additional risk management actions as required.
- Assessing the effectiveness of the program.

Quantitative assessments of risks in the risk registers also serve as the primary input for Monte Carlo and sensitivity analyses, which are conducted to evaluate the project or programwide cumulative risk exposure together with the probability of particular cost and schedule outcomes.

The risk management plan is included in Appendix G.

8 PLANNING AND CONCEPT DESIGN

8.1 Preliminary Design Development and Management

The planning and concept design program includes conceptual engineering for program planning and for alternatives analysis during the environmental review.

Preliminary design development is based on performance criteria established in the legislation governing the high-speed rail program and in the business plan, which is described further under Section 10 - Design Control. The general performance requirements for the system are described in Technical Memorandum 0.3 - Basis of Design Policy, which is a foundation document for the development of design standards and criteria.

- Basis of Design Policy- Defines the major components and performance objectives of the high-speed rail program.

https://www.hsr.ca.gov/docs/programs/construction/CP23_executed/P13_57_IR_IVC_03_Basis_of_Design_Policy.pdf

The technical memorandum defines the major components and performance objectives that support the development of the engineering and regulatory basis for the program, including its components, objectives, processes, requirements and assumptions governed by the Authority. The Authority's policies that determine the processes, standards, and subsystems of the high-speed rail system are generally divided to address:

- Program implementation
- Performance requirements
- Infrastructure
- Systems (electrification, train controls and communications)
- High-speed rail trains
- Maintenance
- Operations

8.2 Conceptual Engineering for Program Planning (Nominal 5 Percent Design)

Conceptual engineering in support of programmatic environmental studies is based on a review and compilation of existing high-speed rail standards. The standards and criteria reflect the best practices and serve to support the development of conceptual high-speed rail alternatives applicable to the California environment and terrain.

Through the alignment and station screening evaluation process, a number of alignment and station options are identified, evaluated and defined for further study in the programmatic EIR/EIS. These alignment and station options are developed based on engineering criteria and parameters established for the screening evaluation. The regional teams complete the definition of the alignment and station options and provide the definitions to the environmental teams as the basis of their analyses.

8.3 Station Planning

The Authority is working with stakeholders on station design and station area plans, access planning, land use changes, creating community hubs, defining the environmental footprint and massing, and mitigations.

The station cities are key stakeholders for the program. The Authority is dedicated to supporting station area planning and local land use decisions related to transit-oriented development, joint development and other transit-supportive enhancement opportunities. Agreements are being executed with station cities that outline the partnership between the cities and the Authority to plan for development in these station

areas. Agreements have been executed for the following stations, with additional contracts pending for other station locations:

- City of Merced – Merced Station
- Tulare County Association of Governments – Kings/Tulare Station
- City of Bakersfield/Kern Council of Governments – Bakersfield Station
- City of San Jose – San Jose/Diridon Station
- City of Gilroy – Gilroy Station
- City of Palmdale – Palmdale Station
- City of Burbank – Burbank Station

High-speed rail station and station area planning, design and development are extremely complex issues. The Authority has developed a variety of guidelines, plans and procedures for use by designers, local jurisdictions and other stakeholders in initiating and carrying out this process:

- High-Speed Train Station Area Development: General Principles and Guidelines – Outline of the Authority's general principles and guidelines for station area development.
[https://chsra.pbid.com/sites/ao/pm_pub/pf/POLI-PLAN-01%20HST Station Area Development General Principles and Guidelines.pdf](https://chsra.pbid.com/sites/ao/pm_pub/pf/POLI-PLAN-01%20HST%20Station%20Area%20Development%20General%20Principles%20and%20Guidelines.pdf)
- California High-Speed Train Project: Urban Design Guidelines – A comprehensive planning guide that provides domestic and international examples of station area design, urban design and transit-oriented development. This guide includes simple diagrams that analyze and explain successful public places and how each promotes livability and transit use. Urban design implemented around high-speed rail stations can encourage destination stations and enhance the value of the surrounding community. The report is intended to be used by cities and communities throughout the state as they work with their stakeholders and residents to create a vision for their high-speed rail station areas.
http://www.hsr.ca.gov/docs/programs/green_practices/sustainability/Urban%20Design%20Guidelines.pdf
- Technical Memorandum 0.1 - Preliminary Engineering for Project Definition Guidelines – Presents design guidance for a minimum level of engineering – referred to as preliminary engineering for project definition (PEPD) – required to support the project-specific environmental impact report/environmental impact statement process. It defines design elements, development level and engineering outputs with the objective of providing a consistent approach in developing preliminary engineering documents to a level that supports the identification of an inclusive environmental envelope.
http://www.hsr.ca.gov/docs/programs/eir_memos/Proj_Guidelines_TM0_1_PE_for_Project_Def_Guidelines_R4_021815.pdf
- Station Deliverables for PEPD and Environmental Documents Memorandum - Defines station planning deliverables for use in preliminary engineering for project definition deliverables and project-level draft environmental documents. This memorandum clarifies how to develop conceptual station plans.
<https://chsra.pbid.com/pmt/pln/plndocs/Station%20Deliverable%20Memo%2005.27.16.pdf>
- Technical Memorandum 0.3 - Basis of Design – Defines the major components and performance objectives of the high-speed rail system as envisioned by the Authority, outlining the objectives, requirements, and assumptions for the continuing development of the system. Specifically, it focuses on components, objectives, processes, requirements, and assumptions, which are governed by Authority policy. The policies are divided into program implementation, performance requirements, infrastructure, systems (electrification, train controls and communications), high-speed rail trains and operations.
http://www.hsr.ca.gov/docs/programs/eir_memos/TM%200.3%20Basis%20of%20Design%20R3%20120222%20no%20sigs.pdf

- Project Design Criteria Manual Chapter 14 Stations – Presents station design principles and goals as well as space requirements, passenger amenities, station performance, circulation, connections and safety and security for preliminary and final station design. The intended use of this chapter relates to high-speed rail dedicated stations as well as facilities shared in existing stations with other transportation agencies, owners and operators. Because station ridership is expected to increase over time, not all functions referenced in this document will be included in all initial station programs; instead, construction will occur in a staged or phased manner as the high-speed rail system expands. https://chsra.pbid.com/pmt/pln/plndocs/Des%20Crit%20Manual%20Chap14%20Stations%20%2031Mar2016_Submittal%20Issued.pdf
- Station Area Parking Guidance Technical Memorandum – Defines appropriate station area parking to be evaluated for the draft project-level environmental documents. As such, this technical memorandum defines the maximum possible footprint without taking into account how changes in local land use and transit connectivity can influence parking demand. This technical memorandum explains the desired parking approach, including cost and layout, along with the process for implementation including Authority, local and private-sector responsibilities. <https://chsra.pbid.com/pmt/pln/plndocs/Revised%20Station%20Area%20Parking%20Guidance%20with%20signatures.pdf>
- Technical Memorandum 200.06 - Aesthetic Guidelines for Non-Station Structures - Provides aesthetic guidance for the planning, design, detailing, material selection and construction of structural elements besides stations, including viaducts, bridges, tunnel portals and retaining walls. The design of these elements will require collaboration between planners, engineers, architects and community stakeholders in order to ensure consistently high aesthetic standards for high-speed rail structures. http://www.hsr.ca.gov/docs/programs/eir_memos/Proj_Guidelines_TM200_06R00.pdf
- Technical Memorandum 200.07 - Aesthetic Review Process for Non-Station Structures – Establishes a process to facilitate consultation between the Authority, its representatives and local jurisdictions on aesthetic decisions. The outcome of this process is a clear expression of local aesthetic preferences that will inform procurement documents. This process benefits the Authority by fostering greater understanding at the local jurisdiction of the scope of work and by supporting the delivery of all parties' expectations. http://www.hsr.ca.gov/docs/programs/eir_memos/Proj_Guidelines_TM200_07_PROC_PLAN_Aesthetic_Review_Process_for_Non_Station_Structures.pdf
- Vision California – An effort to explore the critical role of land use and transportation investments in meeting the environmental, fiscal and public health challenges facing California today and in the future. New modeling tools are applied to formulate and compare scenarios for how California can accommodate growth based on policy decisions and development patterns. http://www.hsr.ca.gov/Programs/Green_Practices/sustainability.html
- UC Berkeley Research on the Potential for Transit-Oriented Development in the Central Valley - These reports, prepared with the support of the Authority, examine the potential for transit-oriented development around high-speed rail stations in the Central Valley. They focus on proposed stations sites in the cities of Stockton, Merced, and Fresno and presents planning approaches and design concepts for land use, urban design and multimodal access and circulation in and around the proposed station areas. http://www.hsr.ca.gov/Programs/Green_Practices/sustainability.html

9 ENVIRONMENTAL MANAGEMENT AND SUSTAINABILITY

9.1 Environmental Management

The FRA is the lead agency under NEPA, while the Authority is the lead agency under CEQA for the environmental clearances needed for the program.

The environmental team is responsible for coordinating the activities required to environmentally clear and permit the high-speed rail projects to allow construction. The environmental team provides guidance on environmental strategies for project clearance, programmatic environmental methodologies and program assumptions to meet environmental commitments. The team directs permit activities and provides strategic guidance on permit approaches. In addition, the environmental team provides strategic guidance on the environmental approval process and serves as the liaison with the FRA, the attorney general's office and other federal, state, regional and local agencies, the regional consultants and environmental and engineering consultants, and other environmental consulting firms on environmental work products.

The environmental team guides the regional consultants and environmental and engineering consultants and coordinates with them and other environmental consultants in preparing the environmental studies, documents and subsequent environmental approvals required for implementing high-speed rail construction and operation. In addition, the environmental team follows the quality procedures and reviews proposed environmental approach revisions and environmental deliverables submitted by the regional consultants, the environmental and engineering consultants and environmental teams.

The environmental team is responsible for preparing the guidelines and methods to guide the environmental studies to completion, including:

- Project-Level Environmental Analysis Methodologies - Provides the methodological guidance for the preparation of technical reports and impact chapters of project-level environmental documents. (https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Project_EIR-EIS_Environmental_Methodology_Guidelines-Version5.02.pdf).
- Additional Guidance for Evaluating Impacts under NEPA – Outlines the analytical approach for identifying, evaluating and documenting environmental impacts under NEPA. (<https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/NEPA%20Impact%20Guidance.pdf>).
- Guidance for Preparing Environmental Reviews for Electrical Interconnections – Describes the analytical and documentation steps for evaluating project-related electrical interconnections required for obtaining electrical power for the system. (https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Env_Review_for_Electrical_Interconnections.pdf).
- Refined Guidance on Project EIR/EIS and Technical Report Content – Clarifies the content to be included in technical reports prepared in support of the EIR/EIS. (https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Technical_Report_Preparation_Guidance_2016.pdf).
- Alternatives Analysis Methods for Project-Level Environmental Impact Reports and Environmental Impact Statements (EIR/EIS) – Provides guidance on conducting the alternatives analysis and documenting it in an alternatives analysis report. (<https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Alternatives%20Analysis%20Methods.pdf>).
- Independent Utility/Logical Termini of High-Speed Rail Sections – Outlines the requirement for establishing the logical termini for each of the high-speed rail sections. (https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Authority_Independent_Utility_Letter_02102009.pdf).

- Scoping Guidelines for Project-Level EIR/EIS – Outlines how to conduct and document the environmental scoping process.
- Project Environmental Document EIR/EIS Publication and Public Outreach Guidance – under development.
- Multilingual Public Outreach Guidelines – Sets guidelines for public outreach to meet the Title VI requirements for multilingual outreach.
(<https://chsra.pbid.com/pmt/Environmental/VL/07.%20Outreach%20and%20Participation%20Guidance/Guidance%20for%20Multi-lingual%20Public%20Outreach%20Ver%201.pdf>).
- Limited English Proficiency Guidelines –These are general Authority guidelines which provide additional guidance to the EIS/EIR guidelines adopted in 2009.
- Agency, Environmental Justice and Tribal Coordination Guidelines For Project-Level EIR/EIS – These guidelines relate to compliance with Title VI and Section 106 consultation.
- Common Purpose and Objectives for Project-Level EIR/EIS – Outlines the general purpose and need for each project section.
- U.S. Army Corp of Engineers Section 404/408 MOU – This document establishes the framework for integration of the Section 404/408 permit process with the environmental process.
(https://chsra.pbid.com/pmt/Environmental/VL/06.%20Regulatory%20Permits%20and%20Guidance/NEPA_Section%20404_Section_408%20MOU%20Ver%201.pdf).
- Section 106 Programmatic Agreement for the National Historic Preservation Act Programmatic Agreement – Outlines the requirements and responsibilities for the approval process for SHPO.
(<https://chsra.pbid.com/pmt/Environmental/VL/05.%20Cultural%20Resources%20Guidance/Section%20106%20Programmatic%20Agreement%20Ver%201.pdf>).
- Authority Style and Branding Guide.
(https://chsra.pbid.com/pmt/Environmental/VL/02.%20Environmental%20Document%20Style%20Guide/Authority_Style_and_Branding_Guide_2015.pdf).
- Project Environmental Document Style and Preparation Guidelines.
(<https://chsra.pbid.com/pmt/Environmental/VL/02.%20Environmental%20Document%20Style%20Guide/EnvDocStyleGuide-Final-04-17-15.pdf>).
- EIR/EIS Templates – Provides the outline for preparing sections of the environmental document.
(https://chsra.pbid.com/pmt/Environmental/Site_Pages/Home.aspx).
- Administrative Record Guidance – Describes the steps to organize, assemble and provide the administrative record in support of each individual EIR/EIS.
(<https://chsra.pbid.com/pmt/Environmental/VL/03.%20Environmental%20Admin%20Record%20Guidance/20160105%20Revised%20Documentation%20Guidance-%20Admin%20Record%20FINAL.pdf>).
- Environmental Compliance Program Manual – Details the key elements of the program and lists the set of standards and procedures.
(<https://chsra.pbid.com/pmt/Environmental/pa/compliance/Forms/AllItems.aspx>).
- Draft Comment Management Decision Diagram – Summarizes the process by which the environmental teams compile comments on the draft EIR/EIS and respond to those comments.
- Environmental Re-examination Guidance – Describes the evaluation and documentation process for design and other changes to the high-speed rail project following environmental approval.
([https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Env%20Re-Exam%20Guidance_Complete%20Doc%20\(April%202014\).pdf](https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Env%20Re-Exam%20Guidance_Complete%20Doc%20(April%202014).pdf)).

The environmental team will update these documents and write additional guidance as needed to reflect Authority and/or FRA policy changes, regulatory requirement changes and comments from the environmental resources agencies during the environmental processes.

9.2 Alternatives Analysis

Alternatives analysis reports have been completed for the Phase I segments of the program. The reports were completed in 2010 and are being updated (Supplemental AAs), as required, to refine the alternatives that will be carried forward into the EIR/EIS for analysis. Supplemental AA documents have been completed for the four Southern California high-speed rail project sections, including Bakersfield to Palmdale, Palmdale to Burbank, Burbank to Los Angeles and Los Angeles to Anaheim. These documents were prepared by the regional consultants and environmental and engineering consultants under the direction of the Authority's project managers and were reviewed by the environmental team to verify that an adequate level of environmental reconnaissance has been performed effectively to complete a first-tier screening of the alternatives. The Supplemental AAs serve as part of the checkpoint process described below.

9.3 Checkpoint Process

The Authority and FRA have entered into an MOU with the EPA and the USACE to facilitate compliance with the National Environmental Policy Act (NEPA - 42 U.S.C. section 4321, et seq.), the Clean Water Act (CWA – section 404 [U.S.C. section 1344]), and the Rivers and Harbors Action section 14 (33 U.S.C section 408) processes for the project-level (Tier 2) EISs for the ten sections of the program. Three steps in the checkpoint process require concurrence from the EPA and USACE. These steps are integrated with the environmental approval process as noted:

- Checkpoint A – Purpose and need; integrated with the purpose and need definition.
- Checkpoint B – Range of alternatives; integrated with the alternatives analysis that leads to the range of alternatives studied in the EIR/EISs.
- Checkpoint C – Least environmentally damaging practicable alternative (LEDPA); integrated with the selection of the preferred alternative.

The Checkpoint A process has been completed for the Phase 1 project sections. Checkpoints B and C have been completed for the Merced to Fresno and Fresno to Bakersfield project sections, while the San Jose to Merced project section has completed Checkpoint B. For the remaining sections, work is underway with completion of Checkpoints B and C anticipated in the 2016/17 program year. As outlined in the 2016 Business Plan, Phase 1 environmental clearances are expected no later than December 2017.

9.4 Program-Level Environmental Documentation

The Authority uses a tiered environmental review process. The *2005 Final Program EIR/EIS for the Proposed California HST System* provided a programmatic analysis for implementing the high-speed train system across the state, from Sacramento in the north to San Diego in the south, and from the San Francisco Bay area to the west. At the conclusion of the first-tier EIR/EIS, the Authority and FRA selected preferred alignments and station locations for most of the statewide high-speed rail system to analyze further in second-tier (project-level) EIR/EIS documents.

In 2008, the *Bay Area to Central Valley HST Program EIR/EIS* was completed. The Authority and FRA selected the Pacheco Pass connection, preferred alignments and station locations for further second-tier evaluation. As a result of CEQA litigation, the Authority rescinded its 2008 programmatic decision, prepared a *Bay Area to Central Valley Revised Final Program EIR*, and made a new decision to select the Pacheco Pass as the Bay Area to Central Valley route in 2010. A second legal challenge caused the Authority to rescind its 2010 decision, prepare a *Bay Area to Central Valley Partially Revised Final Program EIR*, and make a new set of decisions for the Bay Area to Central Valley connection in 2012. The 2012 decision confirmed the Pacheco Pass as the Bay Area to Central Valley connection. Tier 2 project segment documents tier off the programmatic EIRs/EISs.

9.5 Project-Level Environmental Documentation

In 2008, preparation of the Tier 2 project-level environmental documents began. The first to be completed was the final EIR/EIS for the Merced to Fresno section. The EIR/EIS were certified on May 3, 2012 and the notice of determination (NOD) was filed on May 4, 2012. On September 18, 2012, the FRA issued a record of decision (ROD) for the section. For the Fresno to Bakersfield section, the EIR/EIS were certified on May 7, 2014, and the NOD was filed on May 8, 2014. On June 27, 2014, the FRA issued a ROD for this section. Environmental work continues on the remaining Phase 1 sections with the remaining RODs expected to be obtained by December 31, 2017.

9.6 Permit and Mitigation Monitoring Activities

The environmental team is responsible for working with the resource agencies to secure environmental permits required for construction of each high-speed rail project section. The range of permits and approvals that are expected for the high-speed rail sections are noted below. Not all sections will require all permits.

Prior to the issuance of the ROD:

- Section 7 Biological Opinion – USFWS, NMFS
- Section 4(f)/Section 6(f) Determination – FRA in consultation with lead agencies for affected properties
- Section 106 compliance, including adoption of a Memorandum of Agreement and treatment plan – SHPO
- Air Quality General Conformity Determination – issued by the FRA in consultation with the regional air pollution control districts
- Indirect Source Permit – regional air pollution control district
- Other special permits unique to the project sections

Prior to the initiation of construction:

- Title 14 MOA – Allows use of state lands for the program; agency dependent upon properties affected - e.g., CDFW
- Section 401, State Water Quality Certification –SWRCB
- Section 402; Construction General Permit, Industrial Permit and Municipal Separate Storm Sewer Permit – SWRCB
- Section 404, Clean Water Act Dredge and Fill Permit – USACE
- Section 1602, Streambed Alteration Permit – CDFW
- Section 2018, Incidental Take Permit – CDFW
- Section 208.10, Encroachment Permits – Flood Protection Board
- Section 408 Determination, Flood Control Facilities – USACE

The environmental team is also responsible for implementing a mitigation monitoring system for the measures that were adopted as part of the mitigation monitoring and reporting program (MMRP) for the EIR and the mitigation monitoring and enforcement program (MMEP) for the EIS. The environmental team is currently involved in permitting and mitigation monitoring activities for the Merced to Fresno and Fresno to Bakersfield project sections. The team is also developing permitting strategies for the Southern and Northern California regional programs as well as regional landscape mitigation approaches.

The Authority will work to obtain the necessary environmental permits within 90 days after each NOD/ROD. For those permits not fully attained by the Authority prior to the award of the delivery contract, the DB contractor will be obligated to take an active role in obtaining any outstanding permits, such as the

Section 408 which requires a high level of design. The Authority will take the lead in negotiations; however, the DB contractor will provide reasonable assistance, including design information, drawings and descriptions of mitigation plans.

9.7 Sustainability

A program-wide sustainability-related actions and policies in coordination with state agencies is being developed and implemented. The Authority has a signed sustainability policy that details its sustainability commitments, including net-zero energy operations, net-zero emissions construction and reporting performance against sustainability indicators to federal, state and other agency stakeholders. An MOU between the Authority, EPA, DOT, HUD and U.S. Department of Energy (DOE) serves as an umbrella agreement covering broad efforts to promote the use of sustainability tools and practices within the high-speed rail system. In addition, the Authority is a signatory of the American Public Transportation Association's sustainability commitment covering specific resource conservation and sustainability performance issues and the International Union of Railways (Internationale Des Chemins De Fer) Railway Climate Responsibility Pledge. Sustainability tasks include refining and implementing the Authority's renewable energy policy, coordinating the research and development of sustainable materials and construction practices, developing sustainability procedures and developing and refining energy-efficiency guidance for the Authority's facilities.

Collaboration is done with state-level agencies, such as the CalSTA, Caltrans, California Air Resources Board (CARB), Strategic Growth Council, California Energy Commission and the CPUC to advance the delivery of sustainability for each project comprising the program, including procurement of renewable energy for project operations. The Authority will also engage with university representatives, research organizations and non-profit advocacy and think-tank organizations to identify best practices and research their implementation into the program. Sustainability work is managed by the sustainability manager. Sustainability tasks are informed and assisted by technical experts within the Authority and by various interagency agreements.

The program currently utilizes the Environmental Mitigation Management and Assessment (EMMA) program, a database using a SharePoint platform, to house performance data and monitor the DB contractor and document compliance on construction-related sustainability activities. Subsequent EMMA applications will be used to track progress on sustainability programs, such as the tree planting program and renewable energy procurement. These, and other data, are consolidated into an annual sustainability report. Sustainability, articulated as such, or as specific objectives – including resource conservation, greenhouse gas emissions reduction, community benefits, or fiscal/economic benefits – will be considered in programwide decision making.

10 DESIGN CONTROL

10.1 Design Standards and Criteria Development

Existing design standards and criteria that complied with federal, state and local regulations were adapted and refined by the Authority, in concert with the FRA, to support preliminary engineering and final design of the high-speed rail system. The process used by the Authority and FRA is documented in Technical Memorandum 0.9 - Process to Support Development of a California High-Speed Rail Program Rule of Particular Applicability.

Two processes were developed to provide a safe and reliable high-speed rail system that meets U.S. regulatory requirements and is commensurate with the best industry practices for high-speed rail:

1. The design development process incorporates the European Union Technical Specifications for an Interoperability approach of evaluating the high-speed rail system as a set of subsystems, evaluating the key interfaces between each subsystem and optimizing the system for safety, reliability, and performance.
2. The process for developing a Rule of Particular Applicability (RPA) builds on the system design development process to verify that federal and state regulatory requirements are addressed and system safety requirements pertaining to existing modern high-speed rail systems are incorporated as part of the Authority's petition for a proposed RPA for consideration by the FRA.

Documentation of the regulatory approval process and compliance with federal, state and local regulations has been included in the program-wide requirements database for use in developing the program's RPA petition, the program-wide design manual and other technical documents.

The design team is responsible for preparing the design criteria and guidelines for the program, including:

- Design Criteria Manual - Establishes criteria, guidelines and requirements for the design of the infrastructure and systems elements of the project.
(http://www.hsr.gov/docs/programs/construction/CP23_executed/P13_57_EX_IIIA_01_Design_Criteria_Manual.pdf)
- Technical Memorandum 0.1 Preliminary Engineering for Project Definition Guidelines – Provides design guidance for a minimum level of engineering, referred to as Preliminary Engineering for Project Definition (PEPD), required to support the project-specific EIR/EIS process.
(http://www.hsr.ca.gov/docs/programs/eir_memos/Proj_Guidelines_TM0_1_PE_for_Project_Def_Guidelines_R4_021815.pdf)
- Technical Memorandum 0.1.1 Preliminary Engineering for Procurement (PE4P) – Defines a minimum overall level of engineering design needed to support procurement of design-build contract and development of detailed construction cost estimates.
(http://hsr.ca.gov/docs/programs/eir_memos/Proj_Guidelines_TM_01_1_Preliminary_Engineering_for_Procurement_Scope_R3_131224_no_sigs.pdf)
- Technical Memorandum 0.3 Basis of Design – Defines the major components and performance objectives of the overall system to support the development of the engineering and regulatory basis for the program. The basis of design includes the performance requirements for the program.
(http://www.hsr.ca.gov/docs/programs/eir_memos/TM%200.3%20Basis%20of%20Design%20R3%20120222%20no%20sigs.pdf)
- Technical Memorandum 0.9 Process to Support Development of a California High-Speed Rail Program Rule of Particular Applicability – Defines the process to develop and submit recommendations to the FRA for a Rule of Particular Applicability (RPA) that supports the design criteria.
(<https://chsra.pbid.com/pmt/eng/TMs2/TM%200.9%20Regulatory%20Approval%20Protocol-PD%20Release-0/TM%200.9%20Development%20of%20a%20CHSTP%20RPA,%20R0%20100301.pdf>)

- Design Variance Request Policy – Defines the procedure for which designers may request and obtain approval to deviate from mandatory requirements established for the preliminary engineering of the program. Provides guidance for preparing a clear and concise record of relevant design standard or other mandatory requirement, proposed variance and rationale, assessment, review and decisions leading to the approval or rejection of the variance.
(http://www.hsr.ca.gov/docs/programs/construction/CP23_executed/P13_57_05_IVE_02_Design_Variance_Request_Procedure.pdf)
- Technical Memorandum 100.07 Value Engineering Implementation Plan – Provides the process of implementing accepted Value Engineering policies and procedures on the program.
(<https://chsra.pbid.com/pmt/eng/SitePages/hs-tm.aspx?View={90E58D02-D2C4-4D7E-B64B-7C8176BB6023}&FilterField1=LinkTitle&FilterValue1=TM%20100%2E07%20Value%20Engineering%20Implementation%20Plan>)

10.2 Preliminary Engineering for Environmental Review

Design criteria and standards supporting environmental reviews are provided in a series of technical memoranda (TM) covering the major high-speed rail subsystems, including infrastructure, train controls, traction power, communications and high-speed rail trains. The criteria and standards are guided by the TM 0.3 – Basis of Design Report and the Concept of Operations Report. The specific preliminary engineering design elements required to support environmental reviews are included in TM 0.1- Preliminary Engineering for Project Definition Guidelines.

TM 0.1 presents design guidance for the minimum level of engineering required for project definition needed to support the project-specific EIR/EIS process. It further defines design elements, development level and engineering outputs with the objective of providing a consistent approach for developing preliminary engineering documents across project teams, while also ensuring compliance with federal, state and local regulations as well as the program-level design criteria.

There are now over 100 individual TMs. In order to make the TM's more useful to the regional and environmental and engineering consultants, an effort is underway to update, consolidate and organize all TMs into a policy and procedures manual.

10.3 Preliminary Engineering for Procurement

Design criteria and standards supporting preliminary engineering for procurement are provided in a series of TMs covering the high-speed rail subsystems, including infrastructure, train controls, traction power, communications and high-speed rail trains, and the design criteria manual (DCM). The criteria and standards are guided by the TM 0.3 - Basis of Design and the Concept of Operations Report. The specific preliminary engineering design elements required to support the procurement documents are included in TM 0.1.1 - Preliminary Engineering for Procurement (PE4P).

The purpose of TM 0.1.1 is to promote the consistency of the program's engineering studies by defining the minimum overall level of engineering design needed to support the procurement of design-build contracts and the development of detailed construction cost estimates. The PE4P for each section is initiated after there is a high level of confidence in the preference for a single alignment alternative; typically, the PE4P is not initiated before the approval of the preferred alternative report and the definition of limits for procurement contracts.

The PE4P provides for a level of design for design-build procurement and recognizes that the level of design for a specific discipline will vary. The regional consultant is responsible for organizing its PE4P into contract packages. Similar to the preliminary design level, PE4P documents are reviewed for design compliance with the program's technical requirements, compliance with federal, state and local regulatory requirements and sufficiency of design to generate the procurement-level construction cost estimate. Verification of the PE4P design is achieved through reviews conducted at key stages of completion. The draft PE4P documents undergo a constructability and bidability review prior to release for use as part of the procurement package.

10.4 Final Design

Final design is supported by the California High-Speed Rail DCM, technical specifications, performance specifications and standard and directive drawings. The standards principally address design criteria for infrastructure elements and interface requirements with the other subsystems. Final design of the system's elements (train controls, traction power, communications and high-speed rail trains) will be procured using the performance specifications.

The DCM establishes the criteria, guidelines and requirements for the design of the high-speed rail's infrastructure and systems elements. Additional guidelines are required for the design of facilities of other owners/operators affected by the project. The criteria include:

- Design survey and mapping
- Trackway clearances, track geometry and track work
- High-speed rail trains and vehicle intrusion protection
- Civil, drainage and utilities
- Geotechnical and seismic
- Structures, tunnels, stations and support facilities
- Facility power and lighting systems
- Traction power supply systems, overhead contact system and traction power return system
- Grounding and bonding requirements
- Corrosion control
- Automatic train control
- Yard signaling
- Electromagnetic compatibility and interface
- Supervisory control and data acquisition subsystems
- Communications
- High-speed rail trains core system interfaces
- Safety and security

10.5 Constructability Reviews

Constructability reviews and an assessment of the construction schedule to support preliminary engineering and environmental assessments are performed as part of the development of the preliminary design submittals. General requirements for the constructability reviews are given in TM 0.1 - Preliminary Engineering for Project Definition Guidelines Design Scope.

Constructability reviews to support preliminary engineering for procurement are conducted as part of the development of the PE4P design submittals. General requirements for the constructability reviews are included in TM 0.1.1 - Preliminary Engineering for Procurement (PE4P).

Constructability reviews during final design consist of confirming the constructability of the preliminary engineering, then substantiating the constructability of the design in the baseline design report prepared by the design-build contractor for each contract package.

10.6 Value Engineering

The goal of the value engineering process is to improve the value of the overall program by sustaining or improving its performance attributes while also reducing overall cost, including the cost of life cycle operations and maintenance. The Authority has a draft process for implementing accepted value

engineering policies and procedures on the high-speed rail program following a three-level approach that includes:

- Level 1 – Review baseline performance and function;
- Level 2 – Review design guidelines, standardization of materials, structural types and components and assess/evaluate alternate mitigations; and,
- Level 3 – Review alternative design solutions for major components that comply with functions and design criteria while maintaining quality and safety at a lower cost.

The Authority uses the value engineering process to seek "value improvement" in various forms. For specific projects within the overall program, this may result in improvements in defining the proper scope, functional design, constructability, coordination (both internal and external) and schedule for development. Other value improvements for specific projects may include reduced environmental impact, reduced public inconvenience or reduced cost. The value engineering process strives to evaluate and incorporate, to the maximum extent possible, the values of the design engineer, construction engineer, maintenance personnel, contractor, public, approval agencies, local government and other stakeholders. The important design decisions are based on the recommendations developed and presented by the value engineering team. Specific information on the value engineering approach can be found in TM - 100.07 - Value Engineering Implementation Plan.

The Authority is also committed to cost-effective implementation of the overall program and encourages each contractor to submit a value engineering change proposal (VECP) if the contractor determines during final design and construction that an alternative not previously considered could provide added value to the Authority at a reduced total cost. The VECP is the mechanism used to change the contract requirements to reduce the cost of a project without impairing its essential functions or characteristics.

10.7 Design Variances

Design variances from design criteria, standard drawings, technical specifications and/or design guidelines are required to undergo an assessment review, approval and documentation process, as outlined in the design variance internal procedure. The guidelines for design variances are applicable during preliminary engineering, final design and construction. The guidelines establish a procedure for identifying, preparing, requesting and documenting a design variance and provide guidance for preparing a clearly articulated and concise record of the relevant design standard, required variance and rationale, assessment, review and key decisions leading to approval of the variance. The design variance request process consists of:

- Early identification of potential variances.
- Preliminary investigation of variances.
- Variance request preparation and documentation.
- Variance review and analysis of potential impacts.
- Approval or rejection of the variance.
- Communication of the approved variance to the Authority.
- Document control and feedback loop to design standards development.

The DB contractor is required to follow the design variance request process procedure to verify proper management of all deviations from the prescribed design criteria. The design changes/variances are reviewed for consistency with the approved environmental documents. Any design that is not consistent with the project, as approved in the ROD, will require additional environmental review and documentation, including the necessary justification to the FRA. The DB contractor will submit the required supplemental documentation and justification for the Authority's and FRA's review.

Changes that are minor in nature and do not require circulation will be documented with a memo to file, which will be copied to the FRA for concurrence and the design process will continue. Changes that

impact the scope, schedule or budget are required to go to the CCC for review. Changes that require a supplemental EIR/S also require FRA's review and concurrence prior to implementation.

11 RIGHT-OF-WAY

11.1 Right-of-Way Assessment and Acquisition Program

In compliance with federal and state mandates required by the California Property Acquisition Law and the Federal Uniform Relocation Assistance and Real Estate Property Acquisition for Federal and Federally Funded Policies Act of 1970, the Authority has developed policies and procedures for the appraisal, acquisition and management of real property. The Authority has also developed the program's right-of-way manual (Appendix H), which includes policies and procedures for acquiring and managing property rights through purchase, easement, lease or other legal instruments including, when necessary, condemnation. These policies and procedures are utilized consistently throughout the program.

In addition to the right-of-way manual, other tools are available for internal reporting regarding right-of-way acquisition and management, including the Right-of-Way Data Exchange System (ROWDES), a database for managing every parcel acquired by the Authority. ROWDES contains modules for each step of the acquisition/management process, including appraisals, acquisition, condemnation, costs, etc. The data generated by ROWDES, in cooperation with another database that performs calculations, enables the generation of weekly reports.

Roles and Responsibilities

The right-of-way manual defines the roles and responsibilities of the many entities involved in the acquisition process, including:

Right-of-Way Division: manages the right-of-way program from offices in the Sacramento headquarters and offices in the following regions: the Central Valley regional office in Fresno, the Southern California regional office in Los Angeles and the Northern California regional office in San Jose.

The real property office in the Sacramento headquarters is responsible for:

- Program and staff administration;
- Policy development, dissemination and compliance;
- General program oversight;
- Right-of-way program standards, procedures and procurement;
- Right-of-way consultant contract management and oversight;
- Approval of – or recommendation for approving – right-of-way deliverables; and,
- Liaison with federal and state agencies as well as stakeholders, including property owners and the public.

The Fresno office's real property staff is responsible for:

- Field oversight of the property management activities and excess land activities;
- Management of the right-of-way engineering contracts;
- Coordination with local agency partners;
- Coordination of DB issues, including change requests, approved change orders and delivery to construction; and,
- Liaison with property owners and the public.

Financial Office: Prepares and monitors the annual capital plan, tracks the funds for each transaction by funding source and appropriation, processes each transaction and oversees each disbursement.

Division of Design and Construction: Certifies the right-of-way requirements of the DB contractors for right-of-way parcel map processing, manages the change order process and manages the engineering and surveying contractors who prepare parcel surveys, appraisal maps, legal descriptions, right-of-way line staking, resolution of necessity exhibits and condemnation exhibits.

California State Public Works Board (PWB): Oversees the fiscal matters associated with construction of projects for state agencies. Under the California Property Acquisition Law, the PWB is authorized to approve real estate transactions. Before an offer of just compensation is approved, the PWB reviews the project and its budget and makes an initial determination that the state has the legal authority to purchase the property in question. Every parcel acquired for the project is screened for compliance with federal grants, state bond provisions and state budget provisions.

California Department of General Services (DGS), Real Property Services Section (RPSS): Reviews and approves each parcel appraisal for just compensation prior to a written offer for acquisition. Upon execution of the parcel's right-of-way contract, the Real Property Services Section reviews and recommends approval.

California Department of Finance (DOF), Capital Program Branch: Reviews and executes the right-of-way agreements for compliance with budgetary and project authority for the parcel acquisition under review.

Caltrans, Legal Division: Provides legal review and representation for right-of-way contracts and performs legal services for cases of eminent domain through the Effective Order of Possession.

Right-of-way group: Provides assistance in the areas of planning and environmental (as it relates to the right-of-way program), document and consultant management, workflow and reporting, right-of-way consulting and review of specialty deliverables, such as surveying and mapping, transactions processing, database administration and management and ad-hoc services by request.

Right-of-way consultant contractors: Performs right-of-way appraisal and acquisition services, including issuing initial letters to the property owners (Notice of Determination to Appraise [NODA]), conducts appraisals, issues the first written offers, conducts negotiations, prepares the administrative settlement memo; issues revised offers, establishes and provides relocation benefits and educates affected property owners about the benefits, prepares the acquisition quality checklist and prepares the memorandum of appraisal updates, the declaration of value and closes escrow and resolutions of necessity (RONs) needed for the condemnation process.

Right-of-Way Acquisition Plan

The Authority prepares a right-of-way acquisition plan for each project (divided into construction packages) once a preferred alignment has been identified and preliminary design has been completed. The acquisition plan gives priority to parcels needed for long-lead construction activities and parcels that may have complicated relocation management matters. This effort is led by the Authority's right-of-way director and the right-of-way contractors. The acquisition plan is supported by a right-of-way cost estimate based on preliminary engineering plans. Land values, improvements and damages for each property are considered in the development of the right-of-way estimate, which includes costs for temporary and permanent easements, utility easements and fee acquisitions along with a contingency for condemnation increments and settlements. Relocation expenses are also included in the estimate for those acquisitions involving displacements and/or personal property moves. Assumptions for business displacements and relocation payments are based on the right-of-way relocation plan.

The property acquisition schedule typically provides time to allow eminent domain proceedings to occur for certain parcels. The delivery contract includes anticipated possession dates for each parcel or group of parcels and each DB contractor is required to schedule its activities around the acquisition plan. If delivery of any parcel is delayed, the DB contractor rearranges the schedule to work in other areas.

Property Management Plan

Maintenance and protection of property interests acquired in the name of the State of California are provided by the property acquisition agent until control of the property is transferred to the contractor. The property acquisition agent is required to maintain an inventory of real property and improvements acquired for the project. The inventory is updated when physical possession of the property occurs. Additional responsibilities assigned to the property acquisition agent include protecting the property from vandalism, encroachment or other misuse as well as taking measures to verify public safety prior to turnover to the DB contractor. Maintenance and protection of the property are a project expense. Upon completion of the project, property management is provided by the Authority.

12 CONSTRUCTION MANAGEMENT

Once each design-build contract has been awarded, the management of the contract will fall under the auspices of the Authority's chief engineer. The Authority's established site staff report to the chief engineer. The on-site staff are supplemented by a PCM consultant who manages the DB contract under the direction of Authority.

12.1 Construction Management

The DBPP (Appendix D) outlines the Authority's approach to project delivery for the initial operating segment (Silicon Valley to Central Valley) and identifies the project implementation procedures and methods established by the Authority to achieve successful design-build project delivery.

The PCMM (Appendix E) describes in detail how the Authority will manage execution of the design-build projects through the use and integration of the Authority staff, PCM consultants, project delivery team and other consultants. The PCMM describes the procedures and policies for initiating and progressing project construction and complies with the program's safety and security management plan, quality management plan and program-wide procedures. It provides a framework for:

- Program structure and organization
- Contract administration
- Communication/documentation/reports
- DB contract submittals
- Verification, validation and self-certification
- Interface management and coordination
- Quality management
- Safety and security
- Schedule control
- Changes and claims
- Right-of-way
- Public involvement
- Completion and closeout

The PCMM establishes uniform guidelines and procedures in contract management and administration and design and construction oversight for each design-build contract. The PCMM addresses responsibilities subsequent to the award of contracts. It also presents, interprets and clarifies established general policies and practices applicable to the work in dealing with various situations that may arise throughout the contract's duration. It also defines the lines and flow of correspondence, and identifies specific tasks and the parties responsible for their successful completion.

The PCM contract management manual, developed by the PCM consultant for each of the DB contract, incorporates project procedures and identifies deliverables from the PCM that are required to provide the level of design and construction oversight commensurate with the staffing, resources and scope authorized under each PCM contract.

12.2 Maintenance of Traffic

Provisions for maintenance of traffic during construction are included in various sections of the general provisions for CP 1, CP 2-3 and CP 4. Generally, these provisions require written public notification and maps, adherence to local and state requirements, and in compliance with the current California Manual on Uniform Traffic Control Devices (CA MUTCD). Specific information can be found in the general provisions in Book 2, Part B of CP 1 and Book 1, Part B.2 of CP 2-3 and CP 4.

Similar requirements will be included in future contracts regardless of the type of contracting method.

12.3 Materials Testing and Procedures

The DB contractor is responsible for providing inspection and testing for materials utilized on the program, as outlined in the contract documents.

As outlined in the PCMM, if material arrives on the project site without evidence of materials inspection by the DB contractor's quality inspectors, the PCM shall promptly contact the DB contractor and the Authority's design and construction manager to determine the appropriate course of action.

The DB contractor is also required to implement effective testing control measures to verify adequate quality in performance of their activities. These test requirements are to be defined in the final design documents prepared by the DB contractor and outlined in the DB contractor's inspection test plan. The PCM is responsible for oversight of the DB contractor's implementation of their quality manual which includes the inspection test plan.

The PCM's quality assurance representatives monitor and/or audit design and/or construction activities.

12.4 Self-Certification and Verification and Validation

As part of the design-build construction packages, the contractor is required to implement a verification and validation (V&V) approach that employs independent V&V based on proven international practice in high-speed rail and internationally accepted standards. The self-certification process is outlined as follows:

1. DB contractor prepares technical contract submittal (including final design, construction, inspection and test submittals) and performs quality procedures per the contract.
2. DB contractor submits technical contract submittal together with the DB contractor's V&V submittal to the Independent Checking Engineer/Independent Site Engineer (ICE/ISE).
3. ICE/ISE shall assess and evaluate the technical contract submittal to certify that the final design/construction meets the contract requirements per the contract. ICE/ISE shall submit an assessment report and certification to the Authority's representative with a copy to the DB contractor.
4. DB contractor shall submit technical contract submittal, including self-certification, the DB contractor's V&V submittal, ICE/ISE assessment report, and certification to the Authority's representative.
5. The Authority's representative will perform audit and due diligence review as required and issue statement of no objection (SONO) or approval, if given, based upon audit and additional review results and ICE/ISE assessment report and certificate.

The DB contractor is required to develop and implement a comprehensive V&V process to demonstrate how the technical and contract requirements are met during final design, construction and testing, and in support of the technical contract submittals. The V&V process is to be based on the general provisions of IEEE 1220/IEC 26702 "Systems Engineering – Application and Management of the Systems Engineering Process" and follow the general provisions of IEC 15288 "Life Cycle Management-Systems Life Cycle Processes." The DB contractor will prepare a V&V Plan that addresses the specific processes for requirements management, design management, interface management, and inspection and testing management. The plan includes:

- Contract life cycle phases.

- Deliverables for each phase.
- Activities for each phase, roles and responsibilities.
- Tools and methods to be used.
- Inputs for each phase.
- Stakeholder considerations.
- Metrics used to measure and report progress.

The contractual requirements for self-certification and V&V are included in special provisions for each DB package.

The V&V process will carry throughout the entire program regardless of contracting methods to ensure the completed project meets all requirements and functions as intended.

12.5 Construction Close-out

Contract completion and close-out is a critical element in the lifecycle of a construction project. Planning for the close-out of the project begins at contract commencement with the PCM developing a contract specific completion/close-out plan in accordance with procedures outlined in Section 14 “Completion/Close-out” of the PCMM. Completion of each contract includes three main divisions: physical completion, fiscal completion and record document completion.

Project physical completion involves not only Authority inspection and acceptance, but also public agencies, franchised utilities companies, and railroads. Final acceptance of the project will be issued once all punch list items are completed and the DB contractor restores the site to the condition required by the final environmental documents. At that time the DB contractor delivers a certification representing there are no outstanding claims, liens or stop notices of any subcontractor or laborer with respect to the work performed.

Project fiscal completion involves all data, processes and files necessary for audit and final payment. The fiscal completion phase may well start prior to the physical completion of the facility. The Authority, in accordance with the general conditions, may choose to release or hold part of the retention prior to or subsequent to the final closeout package stage of payment, based on advice of legal counsel.

The PCM is required to review the record documents for completeness and include them in the final contract documents at the project completion. The field records shall have undergone a final audit by the Authority’s project representative. The PCM transfers the correspondence files to record storage at

13 SAFETY AND SECURITY

Safety and security are priority considerations in the planning and execution of work activities for the program. System safety and security includes a hazard and vulnerability management process that incorporates the characteristics of planning, design, construction, testing, operational readiness and subsequent operation of the system to verify the safety and security of employees, contractors, emergency responders and the public. Successful management of safety hazards and security vulnerabilities is achieved by identifying and analyzing potential hazards and vulnerabilities and developing mitigation measures to reduce the risk to a level acceptable to the Authority. To achieve program-wide safety and security, proven technical standards are applied, many of which have been adopted from service-proven high-speed rail systems in Europe and Asia. In addition, U.S. transportation safety and security standards that comply with the most recent federal and state requirements are applied.

13.1 System Safety and Security

System safety and security management consists of an approach that incorporates federal, state and local requirements with industry best practices. The approach to safety and security management includes a definition of roles and responsibilities throughout the delivery team and the processes used for communication and action on safety and security matters. A key element is the formation by the Authority of safety and security committees whose members have the technical expertise and executive-level support to provide oversight, review and Authority approval of safety and security activities that could affect the program's development and operation.

Safety and Security Management Plan

The Authority's safety and security management plan (SSMP, Appendix I) describes the system safety and system security activities, responsibilities and verification processes to be applied during the planning, design, construction, testing and startup phases of the program. In the absence of current FRA regulations governing the safety and security requirements of major capital projects, the plan closely adheres to the program requirements of FTA with adjustments made to accommodate the unique life cycle characteristics of California's high-speed rail program.

The SSMP formalizes the technical and management strategies for determining safety and security risk acceptance throughout the system's life cycle. The SSMP defines the process for identifying, evaluating and resolving safety hazards and security vulnerabilities associated with operations of the program prior to the start of revenue service, including preliminary engineering, final design, construction, testing and start up.

The provisions of the SSMP establish:

- The Authority's commitment and philosophy to achieve the highest practical level of safety and security for the staff of the Authority, consultants and contractors, emergency responders and members of the public.
- Process for managing safety and security activities intended to minimize the risk of injury and property damage and maximize the safety and security of the system's passengers, employees and stakeholders living and working along the alignment.
- Integration of safety and security functions and activities throughout the program's development.
- Safety and security responsibilities of the Authority and the consultants responsible for design, construction and start up.
- Process for documenting and verifying safety and security activities.
- Process for monitoring project phases and activities to verify continued development and advancement of safety and security principles.
- Management processes and requirements for construction safety and security.

Hazard Management

The Authority has implemented a risk-based hazard management program to identify and assess safety hazards and security risks to enable the application of mitigation measures that reduce the risk to a level acceptable to the Authority. The program delivery consultant is responsible for analyzing safety and/or security risks as well as the corresponding mitigation measures, which are incorporated into the design criteria. The hazard management program also includes implementing and monitoring the safety and security certification program to verify that requirements pertaining to safety and security are included in the design, construction and implementation of the high-speed rail system.

Safety and Security Certification

The Authority's program for safety and security certification, included in the SSMP, describes the responsibilities and processes required to demonstrate that the system is safe and secure. This requirement, which includes every phase and project section of the program, must be completed prior to the start of revenue operations. Based upon program requirements found in the FTA Handbook for Transit Safety and Security Certification, the applicable requirements include FRA Regulations 49 CFR 236, Subparts H & I for positive train control; draft FRA Regulations 49 CFR, Part 270 for system safety programs; and Transit Security Administration program requirements.

13.2 Construction Safety and Security

Contractors must verify that their work complies with federal, state and local safety and security regulations and fulfills SSMP and contractual requirements. Each contractor is required to develop a safety and security management plan that identifies how the contractor will achieve compliance with the contract requirement, the Authority's SSMP and local, state, and federal workplace safety regulations. Contractors must also develop for each job site a site-specific health and safety plan and a site-specific security plan that identifies local conditions and requirements pertaining to the work to be performed at that location.

The Authority, with the assistance of the PCM, has oversight responsibilities for each contractor's construction safety and security program. As the Authority's primary representative regarding the management of the contractor's construction safety and security activities, each PCM develops and submits a safety and security program oversight plan to the Authority describing the process for providing oversight of the contractor's activities.

Each contractor must provide employees with a safe and healthy work environment and with training in the use of personal protective equipment. The contractor must demonstrate that effective actions are being taken to provide and enforce the safe work conditions and practices that are documented in the contractor's SSMP. In addition, it is the contractor's responsibility to verify that subcontractors and suppliers are working safely on the site.

13.3 Security Strategy Implementation

The Authority's risk-based security strategy addresses the unique needs and characteristics of the program. The security strategy includes:

- Coordination with federal, state and local security agencies.
- Security staffing program development, including sworn and unsworn security personnel.
- Evaluation and recommendations for security technology deployment.
- Identification and assessment of security requirements for design and operations.
- Negotiations with state and local law enforcement agencies to support the Authority's security program.

13.4 Regulatory Approvals

The Authority will manage compliance with the safety and security regulatory requirements of the jurisdictional agencies, including the FRA, CPUC, California Office of State Fire Marshal and the U. S. Transportation Security Administration.

14 OPERATIONS AND MAINTENANCE PLANNING

14.1 Customer-Operations-Build-Design Delivery Model

When creating an entirely new railroad, everything should begin with the customers' needs in mind. Customer needs feed into a concept for how the railroad will operate, which informs its construction which, in turn, confirms design. This process is called the customer-operations-build-design (COBD) process (Figure 11). The COBD process begins with the operations and maintenance group.



Figure 11. COBD Delivery Model

The operations and maintenance group ensures that the program is capable of meeting its service level and customer expectations from the day of opening. Being accountable for the planning of efficient rail service operation is a complex task requiring early stage and continuous involvement in the planning, design, testing and delivery of the program. The group's responsibilities include, but are not limited to:

- Consider the needs of riders and other customers to inform operations planning and overall service plan design.
- Coordinate with other railroad operators to deliver safe, efficient operation of train services on adjacent and/or shared railroad systems (e.g. Caltrain, Metrolink).
- Develop and maintain an operations plan which includes:
 - The timetable to operate across the high-speed rail network.
 - The processes and procedures to support operational delivery, including inspection, maintenance, renewals and upgrades required to meet the high-speed rail system's service level and customer expectations.
 - Contingency arrangements to be implemented during periods of disruption.
- Identify key operational milestones that contribute to the delivery of the operating plan;
- Develop and maintain an asset maintenance and renewal plan, including recommendations on methodology, machinery required and location of facilities.
- Represent the viewpoint of an infrastructure owner and a train operator within the program delivery team before procuring the infrastructure provider and/or operating concessionaire.
- Assist in developing infrastructure provider and/or operating concession contract procurements.
- Assist in developing the asset management system from the perspective of an infrastructure owner.
- Provide the concept of operations, maintenance and renewal that will be used to inform the development of railway system performance specifications and subsequent design documents.

14.2 Planning for Operations Start-up

Planning for the operational start of revenue service will follow the program planning direction and milestones set forth in the business plan with focus on establishing the scope and schedule details for service milestones. A Ridership and Revenue Forecasting report (Appendix J) was prepared for the 2016 Business Plan.

As the construction progresses, the program management team will continue to monitor the schedules for critical high-speed rail business plan milestone years (including the first leg of the initial operating segment (Silicon Valley to Central Valley) and passenger operations) which include testing, commissioning and start of service activities. This involves the integrated plans and schedules for bringing into service the track and systems elements as well as operations and maintenance facilities thereby completing the system commissioning milestone.

It is intended that design, installation, integration and testing of the various system components will be supported by the technical requirements and performance specifications. As infrastructure elements, maintenance facilities, high-speed rail trains, etc., are built and ready for service, a skeleton management team and crew are employed to oversee and maintain this investment. Once a revenue start date is planned the program moves into a new phase. A systems testing and operations start-up plan that outlines the transition from construction to operations will be provided at that time. It will be developed following a decision on the business model for operations and maintenance of the high-speed rail system.

The staffing and training of personnel in preparation of revenue service operations is planned, and will be scheduled and executed.

Some of the items that are included in this section of work include the following:

- Ticketing systems
- Staffing and hiring plan
- Training plan and schedule
- Station operations
 - Staffing and security
- Service Schedules
 - Vehicle maintenance cycles to include cleaning, inspections, maintenance, etc.
- Simulated revenue service
- Revenue operations and fare collection

APPENDIX A-REFERENCED PLANS, POLICIES AND PROCEDURES

2016 Business Plan:

http://www.hsr.ca.gov/About/Business_Plans/2016_Business_Plan.html

Additional Guidance for Evaluating Impacts under NEPA:

<https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/NEPA%20Impact%20Guidance.pdf>

Administrative Record Guidance:

<https://chsra.pbid.com/pmt/Environmental/VL/03.%20Environmental%20Admin%20Record%20Guidance/20160105%20Revised%20Documentation%20Guidance-%20Admin%20Record%20FINAL.pdf>

Alternatives Analysis Methods for Project:

<https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Alternatives%20Analyses%20Methods.pdf>

Authority Style and Branding Guide:

https://chsra.pbid.com/pmt/Environmental/VL/02.%20Environmental%20Document%20Style%20Guide/Authority_Style_and_Branding_Guide_2015.pdf

California High-Speed Train Project: Urban Design Guidelines:

http://www.hsr.ca.gov/docs/programs/green_practices/sustainability/Urban%20Design%20Guidelines.pdf

Design Criteria Manual:

http://www.hsr.ca.gov/docs/programs/construction/CP23_executed/P13_57_EX_III_A_01_Design_Criteria_Manual.pdf

Design Variance Request Policy:

http://www.hsr.ca.gov/docs/programs/construction/CP23_executed/P13_57_05_IVE_02_Design_Variance_Request_Procedure.pdf

EIR/EIS Templates:

<https://chsra.pbid.com/pmt/Environmental/SitePages/Home.aspx>

Environmental Compliance Program Manual:

<https://chsra.pbid.com/pmt/Environmental/pa/compliance/Forms/AllItems.aspx>

Environmental Re-Examination Guidance:

[https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Env%20Re-Exam%20Guidance_Complete%20Doc%20\(April%202014\).pdf](https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Env%20Re-Exam%20Guidance_Complete%20Doc%20(April%202014).pdf)

FTA Handbook for Transit Safety and Security Certification:

<http://transit-safety.fta.dot.gov/publications/safety/SafetyCertification/pdf/SSC.pdf>

Guidance for Preparing Environmental Reviews for Electrical:

https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Env_Review_for_Electrical_Interconnections.pdf

High-Speed Train Station Area Development: General Principals and Guidelines:

https://chsra.pbid.com/sites/ao/pm_pub/pf/POLI-PLAN-01%20HST_Station_Area_Development_General_Principles_and_Guidelines.pdf

Independent Utility/Logical Termini of High-Speed Rail Sections:

https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Authority_Independent_Utility_Letter_02102009.pdf

Multilingual Public Outreach Guidelines:

<https://chsra.pbid.com/pmt/Environmental/VL/07.%20Outreach%20and%20Participation%20Guidance/Guidance%20for%20Multi-lingual%20Public%20Outreach%20Ver%201.pdf>

Project Design Criteria Manual Chapter 14 Stations:

https://chsra.pbid.com/pmt/pln/plndocs/Des%20Crit%20Manual%20Chap14%20Stations%20%2031Mar2016_Submittal%20Issued.pdf

Project Environmental Document Style and Preparation Guidelines:

<https://chsra.pbid.com/pmt/Environmental/VL/02.%20Environmental%20Document%20Style%20Guide/EnvDocStyleGuide-Final-04-17-15.pdf>

Project-Level Environmental Analysis Methodologies:

https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Project_EIR-EIS_Environmental_Methodology_Guidelines-Version5.02.pdf

Refined Guidance on Project EIR/EIS and Technical Report Content:

https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Technical_Report_Preparation_Guidance_2016.pdf

Safety and Security Management Plan:

https://chsra.pbid.com/pmt/ss/VL/SSMP_REV2_Final_Signed.pdf

Safety and Security Policy:

http://www.hsr.ca.gov/docs/programs/construction/CP23_RFP_13_57/mandatory/P13_57_IVC_06_Safety_Security_Policy_Statement.pdf

Small-Business/DBE Program:

http://www.hsr.ca.gov/Programs/Small_Business/policy.html

Section 106 Programmatic Agreement for the National Historic Preservation Act Programmatic Agreement:

<https://chsra.pbid.com/pmt/Environmental/VL/05.%20Cultural%20Resources%20Guidance/Section%20106%20Programmatic%20Agreement%20Ver%201.pdf>

Station Area Parking Guidance Technical Memorandum:

<https://chsra.pbid.com/pmt/pln/plndocs/Revised%20Station%20Area%20Parking%20Guidance%20with%20signatures.pdf>

Station Deliverables for PEPD and Environmental Documents Memorandum:

<https://chsra.pbid.com/pmt/pln/plndocs/Station%20Deliverable%20Memo%2005.27.16.pdf>

Technical Memorandum 0.1 Preliminary Engineering for Project Definition Guidelines:

http://www.hsr.ca.gov/docs/programs/eir_memos/Proj_Guidelines_TM0_1_PE_for_Project_Def_Guidelines_R4_021815.pdf

Technical Memorandum 0.1.1 Preliminary Engineering for Procurement (PE4P):

http://hsr.ca.gov/docs/programs/eir_memos/Proj_Guidelines_TM_01_1_Preliminary_Engineering_for_Procurement_Scope_R3_131224_no_sigs.pdf

Technical Memorandum 0.3 Basis of Design:

http://www.hsr.ca.gov/docs/programs/eir_memos/TM%200.3%20Basis%20of%20Design%20R3%20120222%20no%20sigs.pdf

Technical Memorandum 0.9 Process to Support Development of a California High-Speed Rail Program Rule of Particular Applicability:

<https://chsra.pbid.com/pmt/eng/TMs2/TM%200.9%20Regulatory%20Approval%20Protocol-PD%20Release-0/TM%200.9%20Development%20of%20a%20CHSTP%20RPA,%20R0%20100301.pdf>

Technical Memorandum 100.07 Value Engineering Implementation Plan:

<https://chsra.pbid.com/pmt/eng/SitePages/hs-tm.aspx?View={90E58D02-D2C4-4D7E-B64B-7C8176BB6023}&FilterField1=LinkTitle&FilterValue1=TM%20100%2E07%20Value%20Engineering%20Implementation%20Plan>

Technical Memorandum 200.06 Aesthetic Guidelines for Non-Station Structures:

http://www.hsr.ca.gov/docs/programs/eir_memos/Proj_Guidelines_TM200_06R00.pdf

Technical Memorandum 200.07 Aesthetic Review Process for Non-Station Structures:

http://www.hsr.ca.gov/docs/programs/eir_memos/Proj_Guidelines_TM200_07_PROC_PLAN_Aesthetic_Review_Process_for_Non_Station_Structures.pdf

U.S. Army Corp of Engineers Section 404/408 Memorandum of Understanding (MOU):

https://chsra.pbid.com/pmt/Environmental/VL/06.%20Regulatory%20Permits%20and%20Guidance/NEPA_Section%20404_Section_408%20MOU%20Ver%201.pdf

Verification Validation and Self-Certification Procedures:

http://www.hsr.ca.gov/docs/programs/construction/CP23_executed/P13_57_05_IVE_01_Verification_Validation_SelfCert_Procedures.pdf

APPENDIX B-CAPITAL COST BASIS OF ESTIMATE REPORT

APPENDIX C-1 PHASE I PROGRAM FINANCIAL PLAN

APPENDIX C-2 CENTRAL VALLEY PROJECT FINANCIAL PLAN

**APPENDIX D-DESIGN-BUILD PROGRAM PLAN AND PROJECT MANAGEMENT
PLAN FOR THE FIRST CONSTRUCTION SEGMENT**

APPENDIX E-PROJECT AND CONSTRUCTION MANAGEMENT MANUAL

APPENDIX F-MASTER QUALITY PLAN

APPENDIX G-RISK MANAGEMENT PLAN

APPENDIX H-REAL ESTATE ACQUISITION AND MANAGEMENT PLAN

APPENDIX I-SAFETY AND SECURITY MANAGEMENT PLAN

APPENDIX J-RIDERSHIP AND REVENUE FORECASTING

Barnes, Juliana (FRA)

From: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Sent: Wednesday, March 01, 2017 1:40 PM
To: Malone, Desiree@HSR
Cc: OK-Marian L. Rule; Everett, Lynn (FRA); Giovinazzi, Giles@DOT; Gilliland, Barbara@HSR; OK-Robert L. Zimmerer; Barnes, Juliana (FRA)
Subject: Feedback: Q4-16 Deliverables (Program Management Plan)

Hi Desi,

FRA acknowledges receipt of the Program Management Plan submitted to FRA December 29, 2016.

Please see the following feedback after initial review of the Program Management Plan (PMP0):

1. FRA appreciates the changes CHSRA made and additional information it added to this deliverable since last year's PMP.
 - a. Several important topics were removed from this year's PMP when compared to past versions. *Please incorporate these topics back into your re-submitted version:*
 - i. *Updated Conflict Resolution Procedures*
 - ii. *Updated Contingency Management Plan*
 - iii. *Current Insurance Program*
 - b. In addition, please add a link in the PMP to the following documents referenced in the PMP:
 - i. *CHSRA's Performance Expectation Sheets and Performance Regime Deliverables for its RDP*
 - ii. *Section Financial Plans*
 - iii. *Program-Wide Procurement Management Plan*
 - iv. *Document Control Plan*
 - v. *Interface Management Plans for CP 1, CP 2-3, CP 4*
2. In the past, FRA asked for an appendix that cross-references the FRA's requirements for a project management plan with the chapters/sections and subsections of the PMP. FRA has also asked that this document include any relevant chapters/sections of other documents the PMP references so that one can easily find the most important information.
 - a. *Add an appendix document cross-referencing the FRA's requirements for a project management plan with the various chapters/sections and subsections of the PMP as well as with any relevant chapters/sections of key documents the PMP references.*
 - i. *The twelve components required by federal law are those referenced in the Introduction (page 3) of the PMP you submitted.*
3. The PMP references a multitude of other documents; a few of which are not available or not finalized, including, but not limited to, the Project Environmental Document EIR/EIS Publication & Public Outreach Guidance.
 - a. *Provide copies of, or provide access to, current versions of every document referenced in the PMP. Note that the Risk Management Plan is from the June 2013 and should be updated.*
4. Chapter/Section 12 (Construction Management) ends abruptly in the middle of the sentence; thus, it is incomplete.
 - a. *Complete Chapter/Section 12.*
5. While the PMP provides organizational charts, they are incomplete in that there are no names of individuals or their associated contact information. In addition, in later chapters/sections of the PMP, roles/titles are used that do not directly correlate back to a role/title on the organizational chart. For example, in Chapter/Section 5 (Program & Project Management), the PMP refers to a program control manager, but there is no such role/title on any organizational chart.

I0092

- a. *Add names to the organizational charts as well as use consistent roles/titles throughout the document or add additional roles/titles on the organizational charts.*
6. The CHSRA Program Phase 1 Milestone Table is not current.
 - a. *Provide an updated version of Phase 1 Milestone Table.*

Please note FRA is returning the deliverable after review and requests resubmission after addressing the above FRA comments for further development no later than March 17.

Regards,

Juliana Barnes, PMP
Project Manager
Office of Program Delivery (RPD-15)
Federal Railroad Administration
801 I St., Suite 466
Sacramento, CA 95814
Cell: 916-215-9115

From: Malone, Desiree@HSR [mailto:Desiree.Malone@hsr.ca.gov]
Sent: Thursday, December 29, 2016 2:10 PM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Cc: mlrule@transystems.com; Everett, Lynn (FRA) <lynn.everett@dot.gov>; Giovinazzi, Giles@DOT <Giles.Giovinazzi@dot.ca.gov>; Gilliland, Barbara@HSR <gilliland@pbworld.com>; Malone, Desiree@HSR <Desiree.Malone@hsr.ca.gov>
Subject: Q4-16 Deliverables - Email 2 of 3

Hi Juliana,

As stated in the email 1 of 3 - the sum of the Q4 deliverables are too large to send in one email; therefore, I'm spreading them over 3 emails. Each email will have a separate transmittal form for the included deliverables.

This second of 3 emails includes:

- Q4-16 Deliverables Transmittal 2
- 2016 Annual Work Plan
- 2016 Program Management Plan

If you have any questions, or something fails to open for you, please let me know.

Desi Malone
Grant Manager
California High-Speed Rail Authority
770 L Street, Suite 870
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From: [Malone, Desiree@HSR](mailto:Malone,Desiree@HSR)
To: [Barnes, Juliana \(FRA\)](mailto:Barnes,Juliana@FRA)
Cc: [OK-Marian L. Rule](mailto:OK-Marian.L.Rule); [Everett, Lynn \(FRA\)](mailto:Everett,Lynn@FRA); [Giovinazzi, Giles@DOT](mailto:Giovinazzi,Giles@DOT); [Gilliland, Barbara@HSR](mailto:Gilliland,Barbara@HSR); [OK-Robert L. Zimmerer](mailto:OK-Robert.L.Zimmerer)
Subject: RE: Feedback: Q4-16 Deliverables (Program Management Plan)
Date: Monday, March 20, 2017 2:25:28 PM
Attachments: [image001.jpg](#)
[image002.jpg](#)
[image003.jpg](#)
[image004.jpg](#)
[image005.jpg](#)
[image006.png](#)
[Review Comment Matrix.docx](#)
[PMP 2016 Annual Update FINAL.pdf](#)

Hi Juliana,

Attached is a revised PMP, along with a matrix that reflects FRA's comments and the page number location for easy reference.

From: Barnes, Juliana (FRA) [mailto:juliana.barnes@dot.gov]
Sent: Wednesday, March 01, 2017 1:40 PM
To: Malone, Desiree@HSR
Cc: mlrule@transystems.com; [Everett, Lynn \(FRA\)](mailto:Everett,Lynn@FRA); [Giovinazzi, Giles@DOT](mailto:Giovinazzi,Giles@DOT); [Gilliland, Barbara@HSR](mailto:Gilliland,Barbara@HSR); rlzimmerer@transystems.com; [Barnes, Juliana \(FRA\)](mailto:Barnes,Juliana@FRA)
Subject: Feedback: Q4-16 Deliverables (Program Management Plan)

Hi Desi,

FRA acknowledges receipt of the Program Management Plan submitted to FRA December 29, 2016.

Please see the following feedback after initial review of the Program Management Plan (PMP0:

1. FRA appreciates the changes CHSRA made and additional information it added to this deliverable since last year's PMP.
 - a. Several important topics were removed from this year's PMP when compared to past versions. *Please incorporate these topics back into your re-submitted version:*
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 - ii. *Updated Contingency Management Plan*
 - iii. *Current Insurance Program*
 - b. In addition, please add a link in the PMP to the following documents referenced in the PMP:
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 - iv. *Document Control Plan*
 - v. *Interface Management Plans for CP 1, CP 2-3, CP 4*
2. In the past, FRA asked for an appendix that cross-references the FRA's requirements for a project management plan with the chapters/sections and subsections of the PMP. FRA has also asked that this document include any relevant chapters/sections of other documents the PMP references so that one can easily find the most important information.

Desiree@HSR <Desiree.Malone@hsr.ca.gov>

Subject: Q4-16 Deliverables - Email 2 of 3

Hi Juliana,

As stated in the email 1 of 3 - the sum of the Q4 deliverables are too large to send in one email; therefore, I'm spreading them over 3 emails. Each email will have a separate transmittal form for the included deliverables.


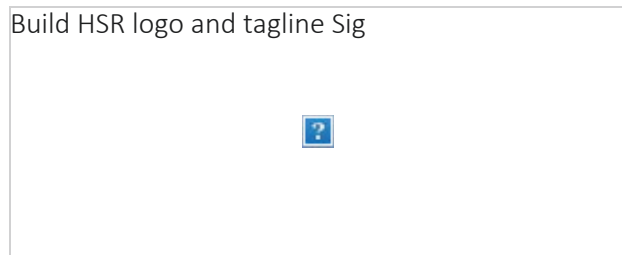
This second of 3 emails includes:

- Q4-16 Deliverables Transmittal 2
- 2016 Annual Work Plan
- 2016 Program Management Plan

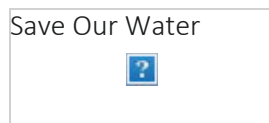
If you have any questions, or something fails to open for you, please let me know.

Desi Malone
Grant Manager
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**Program Management Plan
COMMENT AND RESPONSE MATRIX**

Document Name: 2016 Program Management Plan Annual Update

Comment Number	Comment text	Page # Revised PMP	Response / Resolution / Action Taken
1.	<p>FRA appreciates the changes CHSRA made and additional information it added to this deliverable since last year's PMP.</p> <p>a. Several important topics were removed from this year's PMP when compared to past versions. Please incorporate these topics back into your re-submitted version:</p> <ul style="list-style-type: none"> i. Updated Conflict Resolution Procedures ii. Updated Contingency Management Plan iii. Current Insurance Program <p>b. In addition, please add a link in the PMP to the following documents referenced in the PMP:</p> <ul style="list-style-type: none"> i. CHSRA's Performance Expectation Sheets and Performance Regime Deliverables for its RDP ii. Section Financial Plans iii. Program-Wide Procurement Management Plan iv. Document Control Plan v. Interface Management Plans for CP 1, CP 2-3, CP 4 	<p>36</p> <p>34</p> <p>N/A</p> <p>44</p> <p>N/A</p> <p>27</p> <p>36</p> <p>64</p>	<p>Conflict Resolution Procedures are covered under Section 5.1 Program Controls Plan, Subsection Contractor's Claims. This section has been renamed to Contractor's Disputes and Conflict Resolution (pg 36) to clarify.</p> <p>Subsection Contingency Management has been added under Section 5.1 Program Controls.</p> <p>The PMP was revised to align with the 12 components required by federal law and thus this prior section was deleted. If it is needed to be included please provide guidance on the information intended to be discussed.</p> <p>Section 6.3 Program Performance Regime updated to reflect that the performance regime is not limited to one consultant contract, but is much broader and varies based on the contract. The language for the performance regime is included in the contract language where it is appropriate for that contract.</p> <p>Section Financial Plans were mentioned in Section 2.3 Program Team under the Financial Advisory Consultant. The text has been revised to clarify the role of the Financial Advisor. Financial Plans are available for Phase I and the Central Valley and are included in Appendix C.</p> <p>Program-wide procurement management plan was referenced in Subsection Procurement Strategy and Procedures under Section 4.2 Contract Procurement. The text should have stated "approach" instead of "plan". The text has been revised to clarify the procurement approach and strategy utilized.</p> <p>The Records Management and Document Control Plan is currently under final reviews and should be available by summer.</p> <p>"Interface Management" is referenced under Section 12.1 Construction Management and states the PCMM (Appendix E) provides the framework for Interface Management and Coordination. Plans are available upon request for each current construction contract.</p>

Comment Number	Comment text	Page # Revised PMP	Response / Resolution / Action Taken
2.	<p>In the past, FRA asked for an appendix that cross-references the FRA's requirements for a project management plan with the chapters/sections and subsections of the PMP. FRA has also asked that this document include any relevant chapters/sections of other documents the PMP references so that one can easily find the most important information.</p> <p>a. Add an appendix document cross-referencing the FRA's requirements for a project management plan with the various chapters/sections and subsections of the PMP as well as with any relevant chapters/sections of key documents the PMP references.</p> <p>i. The twelve components required by federal law are those referenced in the Introduction (page 3) of the PMP you submitted.</p>	N/A	Appendix K-Cross Reference for FRA PMP Table of Contents added.
3.	<p>The PMP references a multitude of other documents; a few of which are not available or not finalized, including, but not limited to, the Project Environmental Document EIR/EIS Publication & Public Outreach Guidance.</p> <p>a. Provide copies of, or provide access to, current versions of every document referenced in the PMP. Note that the Risk Management Plan is from the June 2013 and should be updated.</p>	N/A	Referenced plans that are currently approved at this time are provided. Appendix A was revised to include a list of plans currently under revisions. Those that are in the final approval process will be provided with the next annual update. The Risk Management Plan is currently under final review and is anticipated to be approved by Summer 2017.
4.	<p>Chapter/Section 12 (Construction Management) ends abruptly in the middle of the sentence; thus, it is incomplete.</p> <p>a. Complete Chapter/Section 12.</p>	66	Text inadvertently left off was added.
5.	<p>While the PMP provides organizational charts, they are incomplete in that there are no names of individuals or their associated contact information. In addition, in later chapters/sections of the PMP, roles/titles are used that do not directly correlate back to a role/title on the organizational chart. For example, in Chapter/Section 5 (Program & Project Management), the PMP refers to a program control manager, but there is no such role/title on any organizational chart.</p> <p>a. Add names to the organizational charts as well as use consistent roles/titles throughout the document or add additional roles/titles on the organizational charts.</p>	N/A	Names are available upon request. Section 5 Program Control Manager is shown on Figure 9.
6.	<p>The CHSRA Program Phase 1 Milestone Table is not current.</p> <p>a. Provide an updated version of Phase 1 Milestone Table.</p>	7	The Phase 1 Milestone Table was current at the time the PMP was submitted. An updated version is not yet available.



Annual Program Management Plan

December 2016 (Revised)

www.hsr.ca.gov

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ACRONYMS AND ABBREVIATIONS

ARRA	American Recovery and Reinvestment Act of 2009
ATC	Alternative Technical Concepts
CalSTA	California State Transportation Agency
CCC	Change Control Committee
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHSRA	California High-Speed Rail Authority
COBD	Customer-Operations-Build Design process
CP	Construction Package
CPUC	California Public Utilities Commission
CMS	Contract Management System
CWA	Clean Water Act
DAR	Daily Activity Report
DB	Design-Build
DBE	Disadvantaged Business Enterprise
DBPP	Design-Build Program Plan
DCM	Design Criteria Manual
DGS	California Department of General Services
DOC	California Department of Conservation
DOE	U. S. Department of Energy
DOF	California Department of Finance
DPR	California Department of Parks and Recreation
DVBE	Disabled Veteran Business Enterprise
EDMS	Enterprise Document Management System
EEC	Environmental & Engineering Consultant
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMMA	Environmental Mitigation Management and Assessment
EPA	U.S. Environmental Protection Agency
FCS	First Construction Segment
FOF	Finding of Fact
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HSIPR	High-Speed Intercity Passenger Rail

HSR	High-Speed Rail
HST	High-Speed Train
HUD	U.S. Department of Housing and Urban Development
ICE	Independent Checking Engineer
ISE	Independent Site Engineer
ISO	International Organization for Standardization
LEDPA	Least Environmentally Damaging Practicable Alternative
MB	Microbusinesses
MMEP	Mitigation Monitoring and Enforcement Program
MMRP	Mitigation Monitoring and Reporting Program
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NIST	National Institute of Standards and Technology
NMFS	National Marine Fisheries Service
NOD	Notice of Determination
NODA	Notice of Determination to Appraise
OPR	Office of Planning & Research
PCM	Project and Construction Management Consultant/Project Construction Manager
PCMM	Project and Construction Management Manual
PEPD	Preliminary Engineering for Project Definition
PE4P	Preliminary Engineering for Procurement
PMIS	Program Management Information System
PMP	Program Management Plan
Prop 1A	Proposition 1A
PWB	California State Public Works Board
RC	Regional Consultant
RDP	Rail Delivery Partner
RFP	Request for Proposal
RFQ	Request for Qualifications
RMP	Risk Management Plan
ROD	Record of Decision
ROW	Right-of-Way
ROWDES	Right-of-Way Data Exchange System
RPA	Rule of Particular Applicability
RPSS	California Department of General Services, Real Property Services Section
SB	Small Businesses

SCC	Standard Cost Categories (FRA)
SHPO	State Historic Preservation Officer
SSMP	Safety and Security Management Plan
STB	Surface Transportation Board
SWRCB	State Water Resources Control Board
TM	Technical Memorandum
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
USDOT	U.S. Department of Transportation
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
VECP	Value Engineering Change Proposal
WBS	Work Breakdown Structure
YOE	Year of Expenditure

CALIFORNIA HIGH-SPEED RAIL AUTHORITY

MISSION AND VISION

Mission

The mission of the California High-Speed Rail Authority is to build the nation's first high-speed rail system.

Vision

High-Speed Rail: Connecting and Transforming California.

Guiding Principles

The California High-Speed Rail Authority (Authority) will continue to advance the statewide program on multiple fronts over the coming years within a flexible framework guided by the following principles:

- Fulfill all commitments made to the citizens of California when they approved Proposition 1A to provide a true statewide high-speed rail system.
- Evaluate new opportunities – and adapt to changing circumstances – so that a cost-effective, high-quality system can be delivered as quickly and efficiently as possible.
- Reduce costs and construction time by using a blended implementation strategy in urban areas where appropriate and consistent with mandated performance goals to enhance access and mobility, minimize impacts, reduce costs, improve safety and expedite implementation.
- Match projects with available funding and deliver them through appropriate business models.
- Advance other strategic early investments in collaboration with our partners.

Core Values

There are a number of core values that the Authority adheres to and that guide how business is done as the program is developed. The core values focus on maximizing the benefits generated through the implementation of the system and include:

- Safety and Security
- Partnership with the Private Sector
- Sustainable Infrastructure
- Workforce Development
- Small Business Participation
- Sustainable Land Use

EXECUTIVE SUMMARY

The program management plan (PMP) describes the Authority's management approach, overall program structure, and plans and procedures used for the management and delivery of the California High-Speed Rail Program (Program), including monitoring program and performance and managing resources. The PMP is a dynamic document that is updated annually to reflect organizational changes and continuous improvements that occur during the program's implementation.

The Authority's business plan is the governing document, which outlines the program scope, phasing schedule and budget for the program. In addition, the following documents, along with the PMP, provide the framework to deliver the program:

- Design-Build Program Plan (DBPP) - outlines the Authority's approach to project delivery and identifies the project implementation procedures and methods established by the Authority to achieve successful design-build project delivery for the first construction segment (FCS).
- Project and Construction Management Manual (PCMM) – describes how the Authority will manage execution of the design-build (DB) projects on the program.

The PMP outlines the procedures used to manage the scope, budget, schedule and risk for the program. As the framework presented in this PMP is refined and utilized, the Authority will verify its consistency with these plans and with any subsequent PMPs developed as future construction segments begin. Together these documents will provide an all-encompassing PMP that addresses every component of the program.

1 INTRODUCTION

1.1 Purpose of the Program Management Plan

The PMP provides the framework for delivery of the program as defined in the Authority's business plan, and describes the management approach and overall program structure, plans, procedures and methods used to manage and deliver the program within the scope, budget and schedule. As a dynamic document, the PMP is updated annually to reflect organizational changes and continuous improvements in methodologies that occur throughout the program's life cycle.

The PMP is required under the American Recovery and Reinvestment Act (ARRA) Cooperative Agreement with the Federal Railroad Administration (FRA). In accordance with Section C3 of Attachment 1 to Amendment #6, the PMP is prepared in compliance with the requirements of 49 U.S.C. §24403(a) and Section 4.2.6 of the High-Speed Intercity Passenger Rail (HSIPR) Program Interim Guidance published in the Federal Register on July 1, 2010 (75 FR 38344).

1.2 Program History and Overview

In 1996, after decades of advocacy for building a statewide high-speed rail system, the Authority was established through the High-Speed Rail Act (SB 1420, Chapter 796, Statutes of 1996), which was added to the Public Utilities Code Section 185000 et seq., to oversee the planning, design, construction and operation of a statewide high-speed rail system. Later that year, the Authority adopted a 20-year plan for the program. By 2000, the Authority had developed ridership, revenue and cost forecasts and quantified the benefits of the program, which were published in the 2012 Business Plan. In that plan, the Authority laid out the framework for implementing the high-speed rail system in collaboration with other state, regional, local and private rail infrastructure. The business plan continues to provide the direction and articulate the goals for the program.

The vision of the program is to connect the megaregions of the state, contribute to economic development, promote a cleaner environment, preserve agricultural and protected lands and create jobs. Construction contracts began to be awarded in 2013 and the groundbreaking ceremony was held on January 6, 2015. The Authority's 2016 Business Plan outlines the schedule for service to begin in 2025 from the Silicon Valley to the Central Valley. By 2029, service is planned to run from San Francisco to the Los Angeles basin in under three hours at speeds capable of over 200 miles per hour. The high-speed rail system will ultimately extend to Sacramento and San Diego, totaling over 800 miles with up to 24 stations.

Detailed information on the program's budget and funding is provided in Section 1.5 – Budget and Section 1.6 – Financing and Funding Plan.

1.3 Program Scope

The program is an integrated statewide rail system that includes a series of concurrent strategic investments in urban, commuter and intercity rail systems that, when combined, significantly improve mobility and connectivity throughout the state. The scope of the program encompasses the development and implementation of an 800-mile high-speed rail system, including:

- Preliminary engineering
- Environmental clearance and permitting
- Construction
- High-speed train procurement
- System testing, commissioning and operation

The 2016 Business Plan identifies a realistic, reasonable and achievable approach to funding and delivering the system with the focus on three fundamental objectives:

1. Initiate high-speed rail passenger service as soon as possible.
2. Make strategic, concurrent investments throughout the system that will be linked together over time.

3. Position the Authority to construct additional segments as funding becomes available.

These fundamental objectives will be achieved by using the phasing strategy shown in Figure 1. This phased strategy was developed in collaboration with state, regional, local, and private transportation partners.



Figure 1. High-Speed Rail Phasing, 2016 Business Plan

Based on updated ridership, revenue and other forecasts, the Authority evaluated the most efficient way to achieve these three objectives and fulfill the mission of delivering the system. Analysis shows that the

Silicon Valley (San Jose) to Central Valley (North of Bakersfield) project section, from Diridon Station in San Jose to a station north of Bakersfield, can be funded and built with available grant funds, Proposition 1A bonds and anticipated Cap and Trade proceeds. The section is expected to generate revenue-producing operations quickly and it meets the requirements of Proposition 1A, including the requirement for nonsubsidized operations.

Although the section has been designed with an interim facility that will function as a temporary station, the Authority's goal is to avoid the need for this interim station. However, if an interim station is needed due to funding constraints, consideration will be given to alternative locations with the goals of reducing the level of interim investment and minimizing impacts, while maximizing connectivity with the permanent station in Bakersfield.

Three Central Valley design-build contracts have been awarded and executed for the first construction segment (FCS), which runs from Avenue 19 in Madera County to north of Bakersfield at approximately Poplar Avenue.

1.4 Schedule

The fundamental objectives outlined in the 2016 Business Plan are key to setting the scope and schedule. The program delivery milestone timeline (Figure 2) shows the schedule dates for key milestones and provides a high-level view of these milestones, which initiate decisions related to resources, schedule, risk, supporting infrastructure and component plans as described in more detail throughout the PMP. This timeline is dynamic and updated monthly based on the individual project schedules. Quarterly schedule updates are submitted to the FRA.

As the program delivery milestone timeline (Figure 2) indicates, the Authority is projecting passenger service to start on the initial operating segment, which connects the Silicon Valley to the Central Valley, in 2025. This includes the FCS along with the San Jose to the Central Valley Wye. The Authority's objective is for the initial section to extend to Bakersfield and San Francisco, tying into the electrified Caltrain corridor and enhancing ridership and revenues. The Authority will continue to work on the Burbank to Anaheim corridor investments in Southern California and pursue additional funds and opportunities to complete the Phase 1 system with the goal of expanding service to the entire route from San Francisco/Merced to Los Angeles/Anaheim by 2029.

Other key dates shown in the program delivery milestone timeline include the environmental clearances, which are anticipated to be obtained for the entire Phase 1 system by the end of 2017, as shown in Table 1.

Projected Environmental Schedule	
Section	Anticipated FRA Record of Decision
San Francisco to San Jose	2017
San Jose to Merced	2017
Merced to Fresno Project Section	Completed
Central Valley Wye	2017
Fresno to Bakersfield	Completed
Fresno to Bakersfield Project Section Locally Generated Alternative	2017
Bakersfield to Palmdale	2017
Palmdale to Burbank	2017
Burbank to Los Angeles	2017
Los Angeles to Anaheim	2017

Table 1. Projected Environmental Schedule

The program delivery milestone timeline (Figure 2) shows the dates for the release of the request for proposal (RFP) for procurement of the high-speed trains and the RFP for the track and systems. Testing and commissioning of the track is anticipated to be completed by December 2024, in time for revenue service to begin in early 2025.

CHSRA Program Phase 1 Milestone Table



Data Date: October 1, 2016

Project/Segment	Environmental/Engineering			Civil Infrastructure			Track and Systems			High-Speed Rail Trains					Testing and Commissioning					READY FOR REVENUE SERVICE	
	STB ROD	Complete PEIP	Issue RFP	Issue NTP	Substantial Completion	Issue RFP	Issue NTP	Substantial Completion	Issue RFP	Issue NTP	Acceptance	Prototype Acceptance	Acceptance	Complete Static Testing	Complete Dynamic Testing	Complete Prototype Testing	Complete Dynamic Testing	Complete Static Testing	Complete Dynamic Testing		Complete Trial Run
	FRA ROD																				
Silicon Valley to Central Valley Line (San Jose to Poplar Avenue)																					
San Jose to FCS																					
San Jose Approach			Nov-17	Jun-18	Jan-22																
San Jose to Pacheco Pass			Nov-17	Jun-18	Oct-21																
Pacheco Pass Tunnels	Dec-17	Mar-18	Nov-17	Nov-17	May-18	Oct-21															
Foothills to Carlucci Rd. & Wye Leg - Carlucci Rd. to FCS			Nov-17	Jun-18	Nov-21																
	Dec-17	Mar-18	Sep-17																		
First Construction Segment (FCS)																					
CP 1		Complete	Mar-12	Oct-13	Jun-19																
CP 2-3			Apr-14	Jul-15	Jun-19																
CP 4			May-15	Apr-16	Apr-19																
Silicon Valley to Central Valley Extensions (San Francisco to Merced & San Francisco to Bakersfield)																					
San Francisco to San Jose	Dec-17	Mar-18	Jul-17	Dec-17	Oct-18	May-21															
Merced to Ranch Rd. & Wye Leg West	Dec-17	Mar-18	Sep-17	Dec-17	Jun-18	Sep-21															
FCS to Bakersfield	Dec-17	Apr-17	Aug-18	Jun-17	Apr-18	Oct-21															
Merced to FCS & FCS to Burbank																					
Wye Leg East	Dec-17	Mar-18	Sep-17	Dec-18	Oct-19	Nov-23															
Bakersfield to Palmdale																					
SCP 1			Jan-19	Nov-19	Oct-24																
SCP 2			Nov-18	Sep-19	Jan-25																
SCP 3			Jan-18	Nov-18	Dec-24																
SCP 4	Dec-17	Apr-18	Jan-20	Sep-18	Jul-19	Sep-24															
SCP 5			May-19	Mar-20	Dec-24																
SCP 6			May-19	Mar-20	Apr-24																
Palmdale to Burbank																					
SCP 7			May-18	Mar-19	Jan-25																
SCP 8	Dec-17	Dec-17	Jun-18	May-18	Mar-19	Mar-25															
SCP 9			May-18	Mar-19	Jan-24																
Burbank to Anaheim Corridor Improvements																					
Burbank to Los Angeles	Dec-17	Feb-18	Aug-18	Sep-18	May-19	Jun-25															
Los Angeles to Anaheim	Dec-17	Mar-18	Aug-17	Jun-19	Apr-20	Apr-25															

Figure 2. Program Delivery Milestone Timeline

1.5 Budget

The program is currently funded with federal, state and local funds. Some funding highlights include:

- November 2008: Initial funding for the system provided by the passage of the Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century (Prop 1A) when voters approved the issuance of \$9.95 billion in bonds.
- 2010-2011: Authority awarded \$2.55 billion in federal ARRA funds for preliminary engineering and environmental review and construction of the FCS.
- November 2011: Authority awarded \$929 million in federal FY10 funding dedicated to final design and construction of the FCS.
- July 2012: California Legislature earmarked \$4.5 billion in bonds, previously approved by voters, to the system with \$2.6 billion allocated to the construction of the initial operating segment.
- June 2014: State legislators and Governor Jerry Brown apportioned 25 percent of the annual Cap and Trade funds to high-speed rail.

Tables 2 and 3 show the funding sources for the Phase 1 environmental clearance and the program delivery of the IOS from Silicon Valley to the Central Valley, as derived from the 2016 Business Plan, Section 6: Funding and Financing. Quarterly updates to the program budget are submitted to the FRA.

FUNDING AVAILABLE TO COMPLETE PHASE 1 ENVIRONMENTAL CLEARANCE	
FUNDING SOURCE	AMOUNT (IN MILLIONS)
Federal Grants (ARRA)	\$315
State Bonds (Proposition 1A)	\$675
Greenhouse Gas Reduction Fund Proceeds (FY14/15)	\$59
Total Sources of Funds for Phase 1 Environmental Clearance	\$1,049
Information derived from 2016 Business Plan, Section 6: Funding and Financing.	

Table 2. Funding Sources for Phase I Environmental Clearance

FUNDING AVAILABLE FOR PROGRAM DELIVERY SILICON VALLEY TO CENTRAL VALLEY LINE	
FUNDING SOURCE	AMOUNT (IN BILLIONS)
Federal Grants (ARRA/FY10)	\$3.165
<i>Construction Funding</i>	\$3.165
State Bonds (Proposition 1A)	\$6.775
<i>Matching funds for Federal Grants in Central Valley</i>	\$2.609
<i>Capital Cost for first high-speed rail line</i>	\$4.166
Cap and Trade Proceeds	\$10.578
<i>Through 2024</i>	\$5.341
<i>Long-term Cap and Trade (2025-2050)</i>	\$5.237
Planning Funds*	\$0.338
Total Sources of Funds for Silicon Valley to Central Valley Construction	\$20.856
*Planning funds are comprised of state bonds, federal grants and greenhouse gas reduction fund proceeds allocated to planning.	
Information derived from 2016 Business Plan, Section 6: Funding and Financing	

Table 3. Funding Sources for Silicon Valley to Central Valley Construction

The capital cost estimates were developed based on the methodology outlined in the Capital Cost Basis of Estimate Report (Appendix B). This report also identifies the design completion stage and definition of alternatives used in developing the cost estimates, outlines the assumptions used for the cost estimates and provides a work breakdown structure with respect to the FRA Standard Cost Categories (SCC).

The capital cost estimates for the Phase 1 system are summarized in Table 4. These costs, estimated at \$55.3 billion in 2015 dollars, have been converted into year-of-expenditure (YOE) dollars (\$64.2 billion) based on the current schedule. The capital cost estimate for the Silicon Valley to Central Valley project section (Table 5) is \$20.7 billion YOE dollars using a 2.25 to 3 percent escalation rate.

CAPITAL COST ESTIMATES: PHASE I SYSTEM (IN BILLIONS)			
FRA STANDARD COST CATEGORIES	2015\$	YOES	
10 – Track structures and track	\$22.7	\$26.8	
<i>Civil (10.04–10.06, 10.08, 10.18)</i>	\$5.5	\$6.5	
<i>Structures (10.01–10.03, 10.07)</i>	\$15.6	\$18.4	
<i>Track (10.09, 10.10, 10.14)</i>	\$1.6	\$1.9	
20 – Stations, terminals, intermodal	\$2.4	\$2.6	
30 – Support facilities: yards, shops, administrative buildings	\$1.0	\$1.2	
40 – Sitework, right-of-way, land, existing improvements	\$11.3	\$12.6	
<i>Purchase or lease of real estate (40.07)</i>	\$4.4	\$4.8	
50 – Communications and signaling	\$1.2	\$1.4	
60 – Electric traction	\$3.0	\$3.6	
70 – Vehicles	\$3.4	\$4.2	
80 – Professional services (applies to categories 10–60)	\$6.4	\$7.3	
90 – Unallocated contingency	\$2.1	\$2.5	
100 – Finance charges	-	-	
SUBTOTAL (San Francisco – Los Angeles Union Station)	\$53.5	\$62.2	
Enhanced Design Los Angeles – Anaheim Corridor	\$1.8	\$2.0	
TOTAL	\$55.3	\$64.2	
<i>Subtotals for information only, figures may not sum due to rounding.</i>			
<i>Although the estimates presented represent the best information we have available, the schedules and estimates are subject to further changes based on both internal and external factors, including the availability and timing of funding. Estimates will continue to evolve over time as we receive additional information and the program advances.</i>			

Table 4. Capital Cost Estimates, Phase 1 System (in billions), 2016 Business Plan

CAPITAL COST ESTIMATES: SAN JOSE – NORTH OF BAKERSFIELD (SILICON VALLEY TO CENTRAL VALLEY LINE) (IN BILLIONS)		
FRA STANDARD COST CATEGORIES	2015\$	YOES
10 – Track structures and track	\$7.0	\$7.9
<i>Civil (10.04–10.06, 10.08, 10.18)</i>	\$1.1	\$1.2
<i>Structures (10.01–10.03, 10.07)</i>	\$5.1	\$5.8
<i>Track (10.09, 10.10, 10.14)</i>	\$0.8	\$0.9
20 – Stations, terminals, intermodal	\$0.3	\$0.3
30 – Support facilities: yards, shops, administrative buildings	\$0.2	\$0.2
40 – Sitework, right-of-way, land, existing improvements	\$4.9	\$5.3
<i>Purchase or lease of real estate (40.07)</i>	\$1.3	\$1.3
50 – Communications and signaling	\$0.5	\$0.5
60 – Electric traction	\$1.1	\$1.3
70 – Vehicles	\$0.8	\$0.9
80 – Professional services (applies to categories 10–60)	\$3.0	\$3.2
90 – Unallocated contingency	\$1.0	\$1.1
100 – Finance charges	-	-
TOTAL	\$18.8	\$20.7
<i>Subtotals for information only, figures may not sum due to rounding.</i>		
<i>Although the estimates presented represent the best information we have available, the schedules and estimates are subject to further changes based on both internal and external factors, including the availability and timing of funding. Estimates will continue to evolve over time as we receive additional information and the program advances.</i>		

Table 5. Capital Cost Estimates, Silicon Valley to Central Valley (in billions), 2016 Business Plan

1.6 Financing and Funding Plan

The Phase 1 Financial Plan (Appendix C-1) is the financial plan for Phase 1, and the Central Valley Project Financial Plan (Appendix C-2) is the financial plan for the FCS. As the program evolves, the funding is managed as outlined in the funding management plan, which is part of the program controls plan. This overall plan provides the framework for systematically funding the projects that are aligned with the goals and objectives in the business plan. This framework encompasses the process for establishing a funding baseline, which encompasses the funding constraints and funding agreements. These are then aligned with the program-wide time-phased budget for the scope identified in the business plan to create funding allocations. As encumbrances occur, they are measured against the baseline. As change requests are received from contract management, the changes are reviewed and the Authority's budgets branch reviews the fund availability against the funding plan. Approved changes are then incorporated into the budget.

The Authority continues to investigate and seek additional funding and financing sources to provide delivery of the overall program. This includes:

- Exploring commercial structuring options to incentivize innovative financing.
- Encouraging early implementation of the Railroad Rehabilitation and Improvement Financing loan process.
- Supporting efforts to leverage Cap and Trade funding.
- Working to increase visibility with funding agencies and legislators.

As the Authority seeks additional funding and financing sources, an ongoing review of the phased implementation approach for each project section of the program is conducted. The purpose of this

review is to consider factors that affect the program, such as legislative requirements, political commitments, safety, transportation needs, traffic management, economic benefits, and construction progress. The review also verifies that these factors are balanced against an optimal completion schedule. The factors are analyzed to provide the most beneficial financial view of the program and an analysis for each project section is also prepared to determine how best to prioritize these sections. Projects are compared to each other and recommendations are made regarding changes to the overall program to achieve the most beneficial prioritization of the project sections.

1.7 Delivery Strategies

The civil works for the FCS have been split into a series of discrete project segments defined as construction packages (CPs). CP 1, CP 2-3 and CP 4 have been awarded to separate design-build (DB) contractors. Future project segments will be reviewed to determine what delivery method is best for that segment. Figure 3 depicts the delivery model for the program.

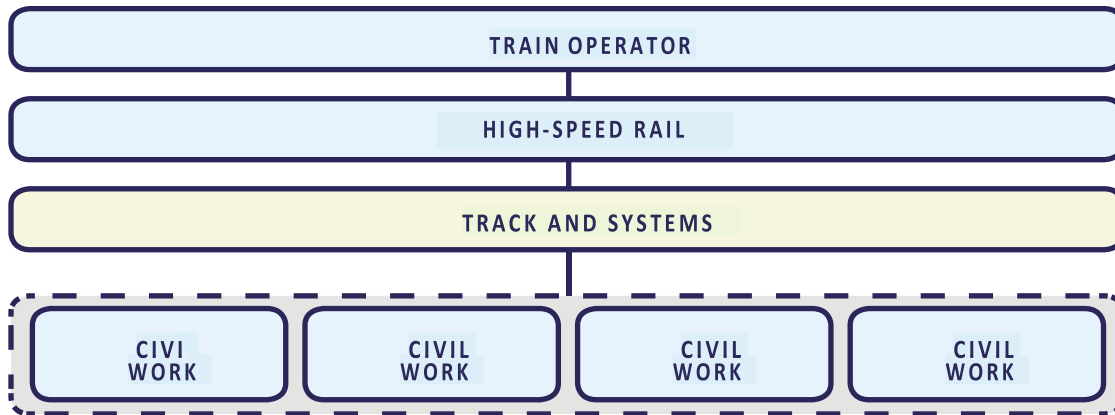


Figure 3. Delivery Model

2 PROGRAM LEADERSHIP AND TEAM ORGANIZATION

2.1 California High-Speed Rail Authority

The Authority is the state entity responsible for planning, designing, constructing and operating the 800-mile high-speed rail system. The Authority is governed by a nine-member Board of Directors (five appointed by the Governor, two appointed by the Senate Committee on Rules and two by the Speaker of the Assembly). Within the Board, there is an elected chair and vice-chair.

Day-to-day leadership of the Authority is the responsibility of the chief executive officer who reports to the Board of Directors and seeks approval and guidance from the board on a broad range of issues regarding the ongoing program, including, but not limited to, certifying environmental documents, entering into contracts, making decisions on the alignment, and defining the content of business plans. The Authority's executive-level organization chart is shown in Figure 4.

2.2 Delegation of Authority

Board of Directors to Chief Executive Officer

The Authority's Board of Directors has established a delegation of authority (Board Policy HSRA11-001) which delineates the authority granted by the board to the CEO and also defines the authority given to the CEO to delegate functions to Authority staff. The CEO is responsible for ensuring that all actions pertaining to the delegation of authority are in accordance with applicable federal and state laws and regulations and with the policies of the Board of Directors.

Procurement

The CEO may delegate procurement authority to Authority staff for contract amounts that do not exceed \$5 million. All procurements are conducted in accordance with applicable federal and state laws and regulations and in compliance with the policies of the Board of Directors. A list of all new or amended Authority contracts with a value of \$10,000 or more is periodically presented to the Board for review.

Contract Management

The CEO may delegate authority to Authority staff for new contracts that do not exceed \$5 million, for amendments of up to 25 percent for contracts between \$5 million and \$10 million, and for amendments of up to 10 percent of contracts over \$10 million. The cumulative sum of increases approved by the CEO for any contract over \$50 million must not under any circumstance exceed \$5 million. Any amendment to an engineering or architectural contract exceeding \$5 million must be reviewed and approved by the Board.

Agreements with Other Public Entities

The CEO may enter into nonmonetary agreements, such as memorandums of understanding, cooperative agreements, interagency agreements, or other agreements and/or instruments, with federal, state and local partners. The CEO, or his/her designee, is authorized to undertake all actions required to prepare and execute one or more cooperative and/or interagency agreement(s) with cities, counties and other state agencies up to an amount not in excess of \$5 million for each agreement needed to advance the program toward construction. The CEO is responsible for negotiating and executing grant agreements with federal, state or local grantors when the Authority is the grantee.

Planning

The CEO is authorized to initiate and negotiate agreements related to the planning, development, design, construction, mitigation and implementation of facilities, physical improvements and station and track infrastructure (including, but not limited to, management, repairs and operations) as well as the construction, removal or relocation of highways, roadways, overpasses, grade separations and rail track relocation. In addition, the CEO may negotiate and enter into funding agreements with communities affected by station area development. These agreements must be consistent with the high-speed train station development policy. The funding of each agreement is limited to 20 percent of the total cost for the station planning study and must not exceed \$200,000. Board review and approval is required for amounts exceeding the \$200,000 limit.

Personnel

The CEO may delegate these authorities to Authority staff:

- Appoint the requisite number and type of employees necessary to carry out the functions of the Authority.
- Promote, transfer, discipline, and terminate employees of the Authority subject to applicable state and federal laws and regulations, including the policies and procedures set forth by the Authority's Human Resources Department.
- Designate an employee to act as the secretary of the Authority for the purpose of keeping its minutes and resolutions.

Fiscal

The CEO is authorized to transfer funds between line items within the Authority's approved annual budget. The CEO or the Authority's chief financial officer is responsible for presenting the Authority's budget to the board for review, input and acceptance.

Legal

The CEO is authorized to settle all lawsuits, alternative dispute matters and claims brought against the Authority when the settlement amount does not exceed \$5 million. In the event that the CEO exercises this authority, he or she will send a memo to the Board as soon as possible. The CEO also has the authority to develop and implement legal plans and strategy, in consultation with legal counsel, for responding to litigation, claims or proceedings and is responsible for ensuring that any legal actions undertaken by the Authority comply with statutory, administrative and regulatory requirements.

Program

The CEO is authorized to carry out all responsibilities required under the provisions of the State CEQA Guidelines Section 15025(a) with the exception that the CEO does not identify the preferred corridor alignments and station locations in the draft environmental document. The Board of Directors has also granted to the CEO the authority to issue notices, prepare and forward to the FRA a draft environmental document, which is issued on behalf of the Authority and the FRA for public review.

The CEO's authority extends to holding hearings to receive public comments on the environmental documents, incorporating these comments, compiling final environmental documents for consideration by the Authority and preparing the final NEPA-compliant environmental document in collaboration with the FRA. In addition, the CEO has the authority to approve all design plans, specifications and estimates for capital outlay projects.

Real Property

Under the oversight of the Board's Committee on Transportation and Land Use, the CEO, or his designated Authority staff, is authorized to perform steps necessary to secure access to and/or acquire any real property needed for high-speed rail purposes. If the CEO requests the Board to initiate litigation for these purposes, the CEO shall send Board members a memo as soon as possible notifying them of this request.

The CEO is authorized to:

- Sell or exchange real property, or an interest therein, at fair market value in the manner set forth in Section 185040 of the CA Public Utilities Code.
- Sell or lease excess right-of-way parcels to municipalities or other local agencies in the manner set forth in Section 185041 of the CA Public Utilities Code.
- Lease non-operating right-of-way areas to municipalities or other local agencies for public purposes and contribute toward the cost of developing these areas into local parks and other recreational facilities in the manner set forth in Section 185042 of the CA Public Utilities Code.

- Lease to public agencies or private entities or individuals for a term not exceeding 99 years the use of areas above or below operating rights-of-way and portions of property not currently being used as operating rights-of-way in the manner set forth in Section 185044 of the CA Public Utilities Code.
- Complete all necessary work and obligations regarding all right-of-way relocation or removal related to publicly owned or privately owned utilities and utility facilities, including, but not limited to, contracting, negotiation, execution, compensation, apportionment of obligations, and settlement of claims or actions in the manner set forth in Section 185500 et seq. of the CA Public Utilities Code.
- Develop and implement legal plans and strategy, in consultation with legal counsel, for maintaining litigation of an action or an adjudication regarding the obligations and costs to be borne by the parties involved in utility or utility facility removal or relocation.

Authority to Rail Delivery Partner (RDP)

The delegation of authority granted to RDP makes the program delivery consultant team responsible for day-to-day management and decisions on behalf of the Authority to meet program objectives, including safety, risk, quality, scope, budget and schedule. RDP is authorized to carry out the following tasks:

- Align the program scope with the expectations of the Authority
- Document the overall program scope requirements in a baseline program milestone timeline and baseline program requirements document.
- Identify individual project scope requirements in collaboration with the specific Authority department responsible for that particular project, the end users of the project and stakeholders affected by the project.
- Manage, monitor and oversee program delivery support resources.
- Manage engineering activities to plan, develop, design, procure and construct the Authority's capital projects.
- Manage the delivery of each project through the necessary environmental and regulatory approval processes.
- Work with the Authority to obtain necessary right-of-way required for the proposed program alignment.
- Develop, track and complete third-party agreements.
- Manage and report on studies and surveys, including:
 - Topographical survey.
 - Geotechnical and geophysical surveys.
 - Value engineering exercises.
 - Risk management exercises.
 - Constructability assessments.
 - Safety and security audits.
 - Sustainability reviews.

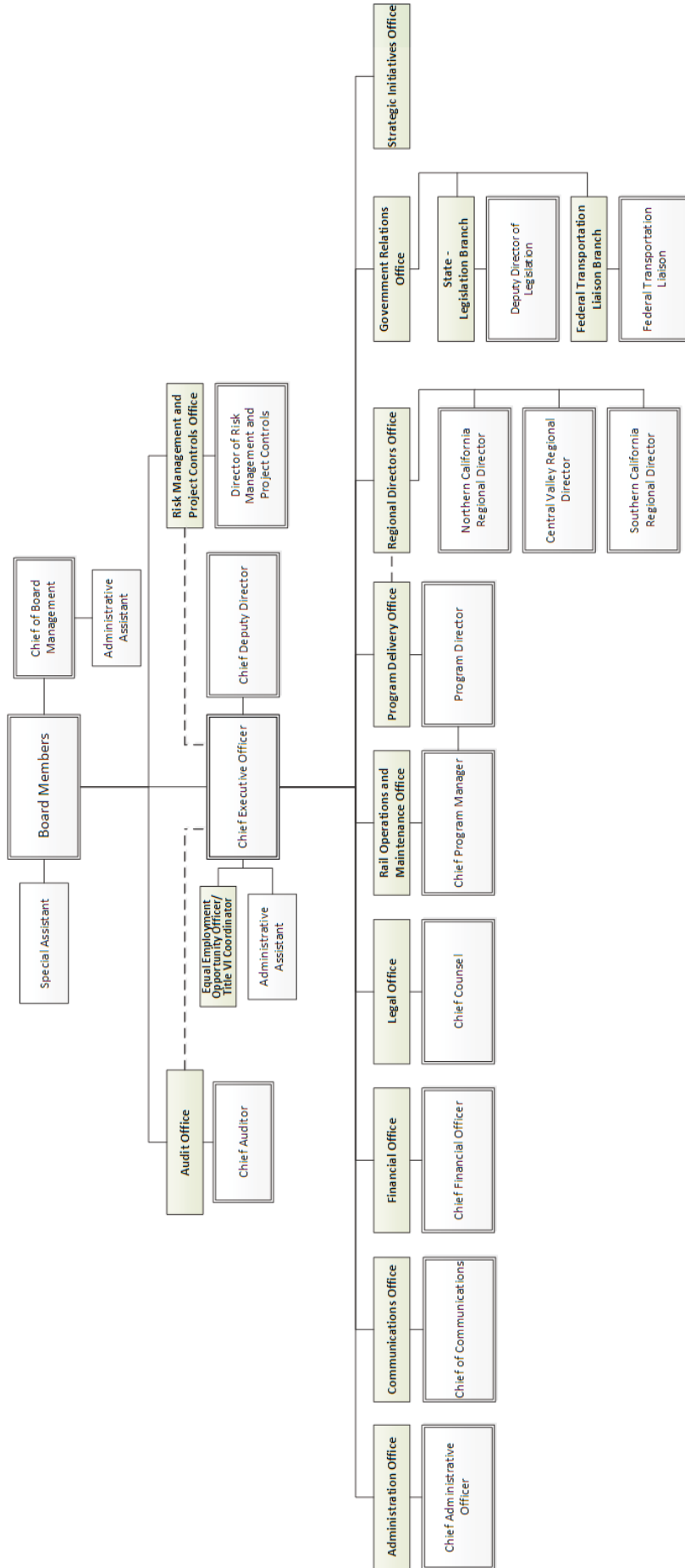


Figure 4. Authority's Executive Staff Level Organization Chart

2.3 Program Team

To assist the Authority with the delivery and implementation of the program, the Authority has contracted with several consulting firms to assist with program delivery and implementation. This includes a program delivery consultant, Rail Delivery Partner (RDP), which is comprised of the prime consultant, WSP | Parsons Brinckerhoff, supported by over 50 subconsultants. In addition, the Authority has contracted with a financial advisory consultant, regional consultants (RC), environmental and engineering consultants (EEC), project and construction management consultants (PCM), and right-of-way consultants. The delivery model for the program includes different strategies for functionally delivering each of the major elements of the program, including commercial and train operations, high-speed rail trains, track and systems, and construction of civil works. Each element is unique and requires a delivery approach tailored to its specific characteristics.

The Authority is supported by consultants and contractors for the management and delivery of the overall program, including:

- Rail Delivery Partner (RDP) – A multi-firm consultant team providing program delivery services, including program management, program and project controls, engineering and environmental services, right-of-way management, planning, ridership and revenue modeling, operations and maintenance planning, cost estimating, and construction management support.
- Financial Advisory Consultant – Prepares financial analyses and identifies innovative financing opportunities. Reviews business model options for procurement, delivery and risk allocation and assists the Authority in advancing the outreach to and interaction with private sector investors.
- Regional Consultants (RC) – Environmental assessment and preliminary engineering for the Central Valley and Southern California project sections.
- Environmental and Engineering Consultants (EEC) – Environmental assessment, mitigation monitoring and engineering for the Northern California project sections.
- Project and Construction Management Consultants (PCM) – Project and construction management by construction package.
- Design-Build Contractors – Final design and construction by construction package. Currently CP 1, CP 2-3 and CP 4 have been awarded to design-build joint ventures.
- Right-of-way – Supplemental technical staff to support appraisal and acquisition of property.

2.4 Roles and Functions

The executive leadership roles and responsibilities are as follows:

Chief Executive Officer

- Provides executive leadership of Authority activities including management and oversight of the Authority's day-to-day operations.
- Responsible for determining the appropriate organizational structure for the Authority, selecting key management staff, facilitating discussions and agreement between the Board members.
- Responsible for establishing key management plans as well as executing the risk management, budgetary, compliance and other organizational processes.
- Develops policies for Board approval and represents the Authority at public meetings, events, etc.

Chief Auditor

- Provides objective evaluations, opinions, and recommendations concerning operational and programmatic deficiencies and internal and external risks to the organization.
- Identifies opportunities for managing organizational risks and the optimization of the internal control environment.

- Provides oversight for the financial and operational reporting processes and compliance monitoring duties.
- Conducts reviews of the Authority's program and administrative control systems to determine if the control systems are operating in accordance with policies and procedures, and in a manner that supports the attainment of strategic goals and objectives.
- Coordinates external audit activities.

Chief Deputy Director

- Advises and assists the Chief Executive Officer regarding all aspects of the policies and operations of the Authority.
- Responsible for the oversight and coordination of all Authority staff activities, including administrative support for the Board, on behalf of the Chief Executive Officer.
- Resolves problems, mediates disputes and addresses issues to advance the program.

Director of Risk Management and Project Controls

- Responsible for managing and tracking potential and active risks as well as risk mitigation/contingencies on the program.

Chief Program Manager

- Accountable for the quality, timeliness and cost effectiveness for rail delivery on the program.
- Provides leadership and direction to the rail delivery team.
- Provides input regarding planning, systems, and operations and maintenance.

Chief Financial Officer

- Directs the development, evaluation, negotiation, recommendation and resolution of the Authority's financial goals, objectives, policies, regulations, standards, plans and operating procedures.
- Oversees all accounting, budgeting, and fiscal programming functions.

Chief Administrative Officer

- Develops, manages and provides direction and oversight for the performance and business responsibilities for key services that include HR, IT and BSO.
- Serves as the EEO Officer and Title VI Coordinator and implements the Authority's policies, Title IV program, as well as activities and applicable state laws relating to equal access and employment opportunities.

Chief Counsel

- Principal legal advisor to the CEO, provides policy guidance, advice and representation on all legal matters on the Authority operations and objectives.
- Provides strategic legal advice to the Board and the Executive Management Team
- Responsible for oversight of all Authority legal activities, including significant legal contracting with the State Attorney General's Office (Attorney General) and private counsel.
- Serves as legal advisor on bidding, contractual, real property, insurance, claims, risk mitigation, personnel management and employer-employee related practices, legislative proposals and analyses, litigation, rulemaking and the Public Records Act.

Chief of Communications

- Responsible for the development and implementation of the Authority's communications and media strategy.
- Responsible for the Authority's external affairs functions including communications, legislation, stakeholder outreach, small business, and business analytics and commercial implementation.
- Serves as the primary liaison for the Authority to stakeholder communities, members of the press, California citizens, and others to facilitate the Authority's external outreach, transparency and accountability goals.
- Responsible for building and maintaining strong relationships with local, state and federal representatives and agencies that impact the Authority.

Program Director

- Principle point of contact with the Authority regarding program delivery office services.
- Responsible for execution and delivery of the civil infrastructure portion of the program.
- Provides advice and strategic planning to the Authority.

Regional Directors

- Responsible for ensuring the program in his or her region moves forward on the planned schedule and budget.
- Develops and maintains relationships with local residents, policy makers and Authority personnel while building strategies for communicating with local constituents to foster their continued involvement and support.
- Manages regional staff and volunteers in the implementation of the high-speed rail program.

Deputy Director of Legislation

- Responsible for developing and managing the Authority's legislative program.
- Represents the Authority with legislators, legislative committees, and the Governor's Office.
- Develops, analyzes and coordinates activities on legislative bills affecting the Authority.

Federal Transportation Liaison

- Develops, evaluates and implements specific federal transportation policy to promote the State's transportation goals and initiatives.
- Coordinates with governmental and non-governmental organizations related to congressional transportation initiatives.
- Reviews state legislation and evaluates impact to federal policy and funding programs, prepares federal testimony and presentations and coordinates with congressional representatives.

While the Authority's key personnel discussed above provide oversight and policy direction for the program, the Authority's program delivery consultant, RDP, manages, monitors and oversees the delivery of the program. Together, the Authority and RDP form an integrated organization committed to the shared goal of delivery of the program to meet the 2025 revenue start date.

RDP's responsibilities are defined by the RDP contract (HSR 14-66), which runs through June 30, 2022, and are described below.

- **Program Management:** RDP manages, conducts and provides oversight for the functional components of program management. In addition to supervising program delivery services, RDP provides recommendations and support to the Authority for decisions regarding the delivery approach, business case, and/or master planning of the program. This includes defining performance standards and monitoring the compliance of program participants to these standards, (in essence, translating the Authority's high-level policy objectives into operational terms), including business

performance, operations performance (reliability, availability, capacity) and asset performance (whole of life metrics).

- **Program Integration and Coordination:** RDP provides oversight for coordination and compatibility between projects, phases and contracts and manages integration requirements and specifications for system elements through implementation and operation. This includes the application of management policies, practices and procedures that alleviate, or avoid, delivery risks during the program's various stages.
- **Program Delivery:** For every project within the program, on-site teams are deployed and dedicated to oversee and monitor the performance of associated work packages. A critical component of program delivery involves planning and providing specialized technical resources to assist in critical program activities and systems that include, but are not limited to, tunneling and underground construction, design of complex structures and viaducts, seismic design, high-speed rail systems development (track electrification, train control, signaling, communications), procurement of trainsets, design and installation of track work, design of heavy maintenance facilities, high-speed rail system testing and commissioning, and facility operations and maintenance (O&M). Technical resources are also responsible for developing technical requirements and guidelines, system-wide design standards and criteria, procurement documents, quality assurance/quality control plans and other elements required for program delivery.

RDP's executive leadership team consists of the program director, deputy directors and regional directors of projects. The program director, as the principle point of contact with the Authority, has overall responsibility for the execution of RDP's work program. RDP's regional director of projects reports to the program director. For construction projects, both RDP and outside consultants (PCM, engineering and environmental consultants, etc.) combine to form a balanced program delivery team in which regional management is responsible for project delivery and each project manager reports to the project director who in turn reports directly to the program director.

To provide resources to each project manager, RDP has program functional managers who are responsible for committing resources to each project section. The functional managers include specialists in program management, operations and maintenance, commercial, policy and planning, environmental planning, permitting, design and construction, and program integration and coordination. The program functional managers monitor and evaluate overall program performance and reporting and develop and implementing program-wide policies, systems, procedures and processes for consistent project delivery.

The integrated Authority/RDP organization has built-in flexibility to support program management/delivery. Several positions have been added to RDP's organizational chart to meet the Authority's future needs and plan for future large-scale efforts, including operating concessionaire planning, commercial planning and fare policy.

2.5 Plan for Technical Capacity and Capability

Resource Planning

Resource planning at the program-wide and project level is divided into two categories: personnel resource planning and resource planning for facilities, equipment, materials, etc. At the project initiation, it is the responsibility of the project manager to develop the preliminary scope, schedule and budget. The project-level schedule estimate provides the duration of the task and the estimated resources needed to complete it. The data from the schedule estimate enables the project budget to be developed.

At the program level, each project's scope, schedule and budget are integrated into the program master schedule. The time needed to implement each project in the program master schedule is determined iteratively by balancing program need, available funding and program capabilities over time.

Resource needs are evaluated at project initiation and the cost is included in the preliminary project budget. Resource needs are estimated from the bottom up using these steps:

- Identify the project scope and desired outcomes.
- Determine the tasks necessary to deliver the project scope and desired outcomes.

- Determine the timing and duration of each task.
- Identify the specific staff and their utilization for each task.
- Determine the human resource level/cost for each task.
- Determine potential additional resource needs for the project and estimate their cost.

The program staffing is based on the resource needs and timing of those needs as outlined above. As needs are identified, the integrated organization determines if the position can be filled internally or if outside resource(s) are required to fill the vacancy. Staffing and resource needs are monitored to balance the program needs vs. availability of staff as the program needs change.

3 GOVERNMENT AND COMMUNITY RELATIONS

3.1 Federal Transportation Liaison

The Authority is the recipient of \$3.481 billion in federal funding. The FRA awarded \$2.553 billion in funding for the system through an ARRA grant and \$0.929 billion through an FY 10 grant. The funding covers the completion of project development tasks for Phase 1 System and civil and track construction of the first construction section within the Silicon Valley to Central Valley Line.

The Authority is responsible for the oversight and management of the federal funding and required state match, and provides regular reporting to FRA. In addition to quarterly financial and status reporting to FRA, the Authority also provides a number of deliverables outlining its approach to program and project delivery of the scope of work outlined in the grant agreements. This includes preparation of grant amendments and revisions, monthly reports, quarterly updates, annual reports, budget change requests and other related FRA requests.

3.2 State Legislation

As per Public Utilities Code 185033 and 185033.5, the Authority is responsible for providing regular updates to the legislature. The Authority submits a biennial update report that includes a program-wide summary, as well as details by project segment. Information in the report clearly describes the status of the program and the major decisions and milestones that lie ahead.

The Authority is also responsible for preparing, publishing and adopting a business plan that is presented to the Legislature biennially. The business plan is an overarching policy document used to provide the Legislature, the public and stakeholders with information concerning the program's progress and keep the Legislature informed regarding all aspects of the program.

3.3 Intergovernmental and Utility Agreements

The Authority is developing intergovernmental and utility/agency agreements to preserve the success of the program through multi-entity agreements. The agreements among the participants vary and include memorandum of understanding (MOU), operating agreements and contracts.

Intergovernmental Agreements

To further its goal to advance system sustainably, the Authority has joined with several federal agencies to develop sustainable planning. In July 2011, the Authority signed an MOU with the FRA, U.S. Department of Housing and Urban Development (HUD), USDOT, Federal Transit Administration (FTA), federal Surface Transportation Board (STB) and U.S. Environmental Protection Agency (EPA). Together seven goals were established that centered on the need to plan, site, design, construct, operate and maintain the system using environmentally preferable practices. Additionally, the Authority has agreements with the U.S. Army Corps of Engineers (USACE), U.S. Fish and Wildlife Services (USFWS), National Marine Fisheries Service (NMFS), U.S. Forest Service (USFS) and U.S. Bureau of Reclamation (USBR) for coordination of the environmental planning efforts.

At the state level, the Authority coordinates with numerous agencies in the environmental planning, development and coordination of the program. The Authority works closely with the Caltrans, California Department of Fish and Wildlife (CDFW), California Department of Conservation (DOC), State Historic Preservation Officer (SHPO), California Department of Parks and Recreation (DPR), State Water Resources Control Board (SWRCB) and the Office of Planning & Research (OPR).

The potential impacts of the program at the local level are a priority concern for the Authority and this concern is reflected in the Authority's engagement with stakeholders at the county and city levels. With local governmental entities, the Authority is developing a series of agreements including MOUs and contracts that address varying levels of the program. These include assistance for business and utility relocations, notifications about road closures and grade separations, implementation of traffic mitigations, discussion of design aesthetics, facilitation and encouragement of transit-oriented development, and collaboration with local agencies regarding joint funding, cost sharing and related opportunities to accelerate high-speed rail development.

Utility Agreements

The design and construction of the program will directly affect the facilities of numerous utilities throughout the state. Agreements have been developed based on best practices for utility relocations. The Authority is actively working with the affected entities to coordinate design and construction in accordance with federal, state and local rules and regulations.

The relocation of the affected facilities, including utilities owned by third parties, are negotiated by construction segment. In general, the Authority enters into an agreement with each third party whose facilities are affected by the design and construction of the program. The Authority works with the third party to confirm any identified conflicts and negotiates the best course of action for the alteration, removal, relocation, replacement or reconstruction of the affected facilities. The Authority has entered, or intends to enter, into agreements with utility owners, including cities, counties, water and irrigation districts in the Central Valley, and such private companies as AT&T, Pacific Gas & Electric (PG&E) and Spectrum (formerly Time Warner Cable).

Where the design-build project delivery method is used, the draft agreements for the design and relocation of specific facilities are prepared by the design-build contractor, or in coordination with the design-build contractor. This allows the design-build contractor to coordinate utility relocation with the design of the high-speed rail system. The agreements include all federal flow down requirements set forth in 49 U.S.C. §24405(a), and the grant(s) terms and conditions.

3.4 Strategic Communications and Stakeholder Outreach

Transparency and providing timely and accurate information to the public is critically important to the success of the program. The Authority's communications office is responsible for overseeing all aspects of the Authority's communication and outreach programs and strategies. The Authority plans and implements both statewide and regional communications plans and activities based around major project milestones and in coordination with the its stakeholder partners, including elected officials, government agencies, transportation agencies, local jurisdictions, community residents and businesses, and interest organizations. The Authority's experience has clearly shown that a well-planned strategic communications and stakeholder outreach program that is fully integrated into the overall program is a key factor for project success.

Effective stakeholder relations are essential to the success of program implementation. Stakeholders are defined as anyone directly or indirectly affected by the program, those who will ultimately benefit from the mobility improvements and other investments resulting from high-speed rail, and organizations or individuals that have an interest in the program and/or the ability to influence others. In addition to elected officials, business owners and influential organizations, institutions and individuals, other stakeholders include area residents both in or out of the path of the high-speed rail line and a range of interest groups such as environmental, labor, business or rail organizations. Keeping stakeholders informed and engaged is key to keeping the project moving to a successful completion.

Elected officials, government officials and other community leaders are regularly consulted and kept apprised of program and project developments and about any situations that may require these officials and leaders to address their constituencies. The Authority also encourages these officials and leaders to participate in public events, such as public meetings, groundbreakings and ribbon-cuttings.

In keeping with the integrated organizational approach, the communications team comprises staff from the Authority, Rail Delivery Partner, regional consultants and the environmental and engineering consultants who work together to disseminate information about the program and its individual projects. This collaboration provides greater consistency in approach, messaging and branding, while also maximizing effective information sharing and overall coordination. With communications staff located in Sacramento and in the three regional offices, integration is essential to coordinating team members, tasks and responsibilities.

Regional staff and contract employees work with the Authority's communications office to identify specific stakeholders for targeted outreach. Stakeholder relations plans, which are approved by the Authority's communications division, can include a variety of outreach strategies, including in-person meetings at the

stakeholder's location, group meetings to update stakeholders, emails, phone calls, letters, a website and other means of contact.

The mechanisms used by the Authority to conduct communications activities include:

Media Relations

The traditional news media remains one of the most effective ways to disseminate information to the public and stakeholders. Maintaining relationships with journalists is also important for identifying and addressing any issues that might arise on the program.

Media relations are handled through the Authority's chief of communications. Information is proactively shared with the news media to disseminate updates about developments of interest to the public, up-to-date information about the status of the program and its projects, and actions or events that have a direct effect on a community.

Social media is also used, when appropriate, to engage the news media by sharing stories about the program and/or its projects, expressing appreciation to members of the media for attending an event, and pitching story ideas about the program and/or its projects. RDP, regional staff and consultants support the media relations program by identifying contacts for regional media, suggesting story ideas, conducting research and providing data.

Current social media sites include:

- Facebook: www.facebook.com/CaliforniaHighSpeedRail/
- Twitter: www.twitter.com/cahsra
- Instagram: www.instagram.com/cahsra
- LinkedIn: www.linkedin.com/company/california-high-speed-rail-authority
- YouTube: www.youtube.com/CAHighSpeedRail
- Flickr: www.flickr.com/photos/hsrcagov/

Outreach

Outreach is conducted on multiple levels and at various intervals based on major milestones, decisions and developments. Statewide/programmatic outreach and education is managed by the Authority's communications team in Sacramento and implemented by designated staff.

Regional outreach is region and/or project specific. Each region and project has unique characteristics, situations and issues to address and manage. Furthermore, the planning, delivery and construction of the regional projects comprising the program are advancing on different schedules across the state: the Central Valley is under construction, the environmental planning and review is well underway in Southern California and the environmental review in Northern California has been recently restarted.

Regional outreach includes the development of project plans, activities and schedules. The outreach activities are approved by and implemented in coordination with a point of contact from the Authority who reports to the Authority's chief of communications/press secretary. This approach provides for those messages to be augmented with unique and customized communications tailored to fit each region's circumstances and the status and development stage of its projects. This also provides a feedback loop that allows messages to be clarified, honed and strengthened. Regional outreach includes the development of project plans, activities and schedules that are approved by and implemented in coordination with a point of contact from the Authority who reports to the Authority's chief of communications.

- Outreach conducted during the environmental process is implemented in collaboration with the regional managers, planning and environmental staff and members of the communications team to verify compliance with CEQA/NEPA and Authority policies.
- Outreach conducted during construction of a project section is coordinated through the direction of an individual designated by the Authority's chief of communications who collaborates with the

regional communications staff. The goal is to establish statewide best practices for construction communications/outreach that provides consistency over the long term.

- The Authority receives dozens of invitations and requests throughout the year for participation in events and conferences that inform stakeholders and the public about the high-speed rail program. In addition to attending these events, participation can include delivering a speech, giving a presentation, or taking part in a panel or roundtable discussion. To ensure that the Authority responds to incoming speaker requests and invitations in an effective and efficient manner and gives presentations and speeches that are consistent and reflect current messaging and design standards, the Authority has created a Speakers Bureau comprised of high-speed rail staff who have been selected to speak to groups, organizations, or associations throughout the state and the country. Presentations given by the Speakers Bureau can range from an overview of the statewide high-speed rail program to focusing on individual project topics, such as planning, environmental, engineering, construction, and business opportunities. Information about the Speakers Bureau can be found on the Authority's website at www.hsr.ca.gov/Newsroom/speakers_bureau.html

Authority's Website

An effective method for distributing information to the public is the Authority's website: www.hsr.ca.gov/. The website contains the latest information about the program, including the approved environmental documents, draft environmental documents for circulation, approved reports, meeting notes, newsletters and links, construction updates, and traffic impacts as well as major milestones, program progress, recent developments, biannual business plans and legislative reports.

Because many aspects of the high-speed rail program and the Authority's mission are mandated by state and federal law, some documents and materials must be posted online within a specific timeframe, and in some cases, these items cannot be changed or removed once posted. Examples include:

- Board of Directors Meeting Agendas: According to the Bagley-Keene Open Meeting Act, notice of state body meetings must be posted at least 10 calendar days in advance of the meeting. Because the Authority is a public body, agendas must be posted on the Authority's website within this timeframe to be in compliance with California law.
- Environmental Documents: The Authority is responsible for posting CEQA and NEPA documents in public places for review, including the Authority's website. Once posted, the documents cannot be removed.

3.5 Railroad Agreements

The program is part of an overarching rail modernization program coordinated through the CalSTA. As part of the Budget Act of 2012 (SB 1029, Chapter 152, Statutes of 2012), funding has been identified for investments to enhance existing systems that will ultimately accommodate high-speed rail operations. The Authority is coordinating with these transit agencies to develop MOUs for future operating improvements, including schedule coordination, ticketing, station operations, parking and other improvements that will optimize future service.

The Authority is also entering into third-party agreements with private rail and transit entities, Class I freight railroads (including the Union Pacific Railroad (UPRR) and BNSF Railway) and joint powers authorities and boards operating commuter rail lines within the state.

All agreements with railroad-owned property on the high-speed rail alignment will be approved by the FRA in accordance with 49 U.S.C. 24405(c)(1) and Section 4.2.6 of the HSIPR Program Interim Guidance published in the Federal Register on July 1, 2010 (75 FR 38344). Agreements will include compensation for use, assurance regarding the adequacy of infrastructure capacity, a commitment to maintaining railroad collective bargaining agreements in full force and effect, and compliance with liability requirements consistent with 49 U.S.C. 28103.

3.6 Other Agencies and Communities Involved

The Authority also has agreements with local governments, community-based organizations, regulatory agencies and utilities for additional elements that are required for the program. MOUs have been

developed with partners in the northern and southern bookend regions to establish the path and coordination of the statewide modernization rail plan. The Authority engaged in the rulemaking process with the California Public Utilities Commission (CPUC), which culminated in the CPUC issuance of General Order #176 (Rules for Overhead 25kV Railroad Electrification Systems for a High-Speed Rail System). The general order sets the standards for how various public utilities will coexist in the Authority's dedicated right of way.

4 CONTRACT PROCUREMENT AND MANAGEMENT

4.1 Contracting Authority

The power to enter into contracts to carry out the functions of the Authority is provided by Public Utilities Code § 185033. The Authority may enter into contracts with private or public entities for the design, construction and operation of the high-speed rail program. The contracts may be separated into individual tasks or segments, or they may include all tasks and segments, including a design-build or design-build-operate contract.

Additional statutes also apply to the Authority as a state agency. For example, laws regarding contracting for engineering, architectural, or design services (A & E contracts) require contracts to be based on demonstrated competence and qualifications at a fair and reasonable price resulting from negotiation. The Authority's regulations for contracting with private architectural and engineering firms can be found in California Administrative Code Title 21 Section 10000 et seq. In addition, federal grant agreements require compliance with 48 CFR Chapter 1, Subpart 31.2.

4.2 Contract Procurement

Procurement methodology is based on the type of contract being awarded.

Procurement Strategy and Procedures

The overall procurement strategy was developed through an ongoing process of industry engagement, including issuance of requests for expressions of interest, industry forums and one-on-one meetings. Design-build (DB) procurement has been used for the civil works of the FCS and the DB procurement method, as well as other alternative delivery strategies, are under consideration by the Authority for delivery of the Silicon Valley to Central Valley operating segment. Program procurement and its associated schedule are predicated on program funding and financing and on their alignment with the current business plan. The procurement approach is aligned with the program master schedule, ongoing efforts to identify funding, industry feedback received through the request for expressions of interest and from emergent policy and direction from the Authority.

For design-build (DB) procurements, the Authority is currently using a two-step process consisting of a request for qualifications (RFQ) followed by a request for proposals (RFP). For A&E and other professional service procurements, the Authority issues the RFQ and RFP packages respectively. A&E procurements are consistent with the requirements of Government Code Section 4525, et seq. and California Code of Regulations Title 21, Division 6, Chapter 1, Article 1. Other professional service procurements are consistent with the requirements of Public Contract Code Sections 10295 and 10335, et seq.

Procurement Status

Procurement status for the initial segments include:

- CP 1, from Madera to Fresno, has been awarded as a design-build package to Tutor-Perini/Zachry/Parsons, a Joint Venture.
- CP 2-3, from Fresno to one mile north of the Kern County line, has been awarded as a design-build package to Dragados/Flatiron (DF), a Joint Venture.
- CP 4, from the Kern County line to Poplar Avenue north of Bakersfield, has been awarded as a design-build package to California Rail Builders.
- Procurement documents for track and systems for the Silicon Valley to Central Valley project section and extensions (San Francisco to Merced and San Francisco to Bakersfield), the high-speed trains and an operator are currently under development.
- Major civil works procurements, including tunneling, viaducts, roadway overcrossings, embankments and other facilities, will be developed and issued.

- Additional traditional design-bid-build contracts will be awarded for specific upfront work. These contracts may include stations and small civil construction packages or contracts for such activities as utility relocations.

4.3 Contract Management

The focus of contract management is to analyze and recommend the appropriate staging of contract packages and procurement strategies for the high-speed rail system given the anticipated funding, geographic challenges and other variables that could affect the program. The Authority is developing and administering the program's contracts in accordance with the state's procurement procedures. Contract performance is monitored against the contract scope and provisions to ensure compliance.

Management of Capital Contracts

Depending on the contract procurement strategy (design-bid-build, design-build, design-build-finance-operate-and-maintain, public-private partnerships, etc.), contract procurement management procedures are implemented to address key elements, including:

- Program management and controls, management and oversight
- Changes and claims management
- Document control and processing
- Risk mitigation
- Contract administration
- Construction management oversight
- Quality management oversight
- Environmental compliance oversight and reporting
- Construction safety and security oversight
- Technical compliance oversight

The federal flow down requirements and required contract language are incorporated into all contracts. Additional details on contract administration methods are available in Section 6 "Methods for Contract Administration" in the design-build program plan (DBPP) (Appendix D).

Management of Professional Service Contracts

The size and complexity of the program necessitates the participation of consultants to undertake a substantial portion of the work. Professional service contracts are written with clauses that require the consultant to provide information pertaining to earned-value management and to follow the program's work breakdown structure. When the consultant submits a payment request, it must be sufficiently detailed to verify the validity of the earned-value reporting. Payment is based either on the achievement of planned milestones or, for design and construction contracts, the percentage of completion for those milestones. Payment can also be made on the basis of cost reimbursement for labor hours expended and materials consumed.

Small Business Commitment and Compliance

The Authority is committed to providing small businesses an equitable opportunity to participate in the program. The Authority has established a small and disadvantaged business enterprise program and set an overall small business participation goal of 30 percent, including 10 percent for Disadvantaged-Business Enterprises (DBEs) and 3 percent for Disabled-Veteran Business Enterprises (DVBEs). The program complies with 49 C.F.R. Part 26, Executive Order S-02-06, Military and Veterans Code 999 and Title VI of the Civil Rights Act of 1964. The small business program provides quarterly small-business utilization reports to reflect the level of small-business participation, including DBE and DVBE utilization, small businesses (SB) and microbusinesses (MB) on program delivery contracts. Similar requirements for

utilization of small-businesses, DBEs and DVBEs are incorporated into the procurement packages for future construction and professional service contracts.

Along with their monthly invoices, consultants and DB contractors are required to submit a report showing the name of the DBE, DVBE, MB and SB firms utilized during the reporting period and the amount committed and expended to date. A complete listing of requirements for DB contractors is provided in Section 3.10.2 "Small and Disadvantaged Business Enterprise Program Requirements" of the Authority's Project and Construction Management Manual (PCMM) (Appendix E).

Civil Rights Program and Labor Rates

The Authority is committed to equal employment opportunity for all employees, contractors and subcontractors and providing them with a work environment free of discrimination and harassment. All employment decisions at the Authority are based on business needs, job requirements and individual qualifications, without regard to race, color, religion or belief; national, social or ethnic origin; sex (including pregnancy); age; physical, mental or sensory disability; HIV status; sexual orientation, gender identity and/or expression; marital, civil union or domestic partnership status; past or present military service; family medical history or genetic information; family or parental leave status; or any other status protected by the laws or regulations in the locations where the Authority operates. The Authority does not tolerate discrimination or harassment based on any of these characteristics and adheres to Title VI of the Civil Rights Act of 1964; Title IX of the Education Amendments of 1972, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, as amended; the Drug Abuse Office and Treatment Act of 1972, as amended; the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970, as amended; the Public Health Service Act of 1912, as amended; and other nondiscrimination provisions required by state and federal requirements. The Authority and the Authority's consultants and contractors are required to prevent discrimination and verify nondiscrimination in their programs, activities and services.

Labor rates for the construction contracts and for project components that use rights-of-way owned by a railroad are established in accordance with federal and state wage rates that comply with the provisions of the Davis-Bacon Act and are included in the procurement documents. DB contractors are required to submit weekly labor compliance reports to the PCM consultants, who track these reports and submit them to the contract compliance group to validate compliance with federal and state regulations and contract requirements. The PCM are also responsible for logging and tracking the DB contractor's compliance with and submission of U.S. Department of Labor Office of Contract Compliance Program Equal Employment Opportunity reports in accordance with Title 41CFR Part 60 and the ten obligations under the Mega-Project reports.

5 PROGRAM AND PROJECT MANAGEMENT

Program management fundamentals, principals and practices are utilized to develop policies, procedures and tools to manage and control the delivery of the scope, budget and schedule commitments of the overall program. The program controls plan provides a functional overview of the control processes for monitoring and reporting the scope, budget and schedule at both the program and project levels.

5.1 Program Controls Plan

The program controls plan establishes the processes for management and control of the program-wide scope, cost and schedule. The plan identifies process interfaces with other functional units in the integrated Authority/RDP organization, including the groups responsible for the management of risk, funding, earned value, contingency, design-build contract changes and program-level changes. The plan also communicates the roles, processes, data, program management information system (PMIS) elements, reports and reviews related to program controls.

In addition to verifying that program control policy decisions are executed in a consistent and systematic manner, the program controls group facilitates the management of several key areas that relate to the entire program and prepares the documents required to implement and monitor the processes, which include:

- Scope management
- Cost management
- Schedule management
- Earned-value management
- Trend management
- Contingency management
- Design-build contract change order management
- Program-level change order management

The program controls framework is based upon the five-stage program control cycle:

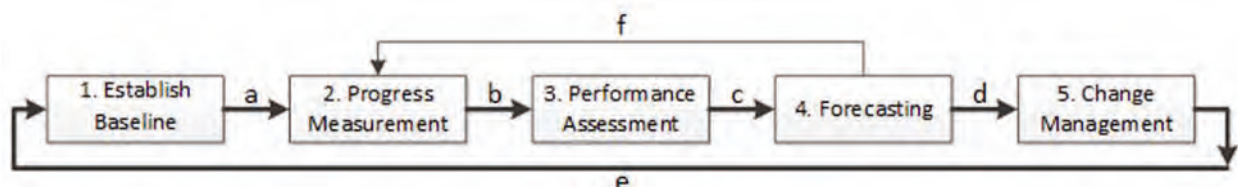


Figure 5. Five Stages of Program Control

Stage 1 - *Establish Baseline* is the basis established by the Authority and program delivery consultant against which the program will be measured, assessed, forecasted and changed; it also describes the organizational elements of the project. Stage 1 elements are represented in the following:

- Work breakdown structure (WBS)
- Organizational breakdown structure
- Cost budget
- Funding baseline
- Program master schedule
- Risk register

The program baseline is derived from the business plan.

Stage 2 - *Progress Measurement* comprises the methods used to measure progress, including:

- Physical progress
- Units completed
- Interim milestones
- Completion milestones
- Resource tracking

Because these methods vary throughout the different phases of program development – design; procurement; construction; systems and high-speed rail train manufacturing, supply, installation, testing and commissioning; and high-speed rail system startup and operations – program controls, in collaboration with task leads and program management, selects the specific method(s) applicable to the development phase. During each phase, progress is measured at various reporting levels and summarized by the WBS. The methods, which are utilized by the cost managers and schedulers, are described under Schedule Management and Program Cost Management.

Stage 3 - *Performance Assessment* utilizes earned-value management techniques to assess performance by comparing the Stage 1 baselines to actual progress, identifying any variances or deviations from the baselines, determining the impact of these variances on cost and schedule, and selecting corrective actions to minimize the impact. The performance assessment is conducted by the program controls group, which then assists program management and functional unit managers with the metrics or assessment to analyze and document variances. The assessment methods are described under Schedule Management, Program Cost Management and Earned-Value Management.

Stage 4 - *Forecasting* represents the program schedule, budget and resource forecasting processes, including trend analysis. Forecasting is performed using variances from the Stage 3 assessment to predict control element outcomes (delay, cost overruns, increased risk, resource shortages, etc.) with the potential to negatively affect delivery of the high-speed rail system and identify opportunities to improve program delivery and/or mitigate risks. Monthly performance measurement and forecast data are used for monthly program reviews and reporting. The specific forecasting methods are described under Schedule Management, Program Cost Management and Earned-Value Management.

Stage 5 - *Change Management* is the process of collecting, reviewing, approving or rejecting, and managing changes to the program baseline. Stage 5 reflects the outcome of the evaluations conducted during Stage 3 - Performance Assessment and Stage 4 – Forecasting, which identified deviations from the baseline, determined their cause(s), evaluated their potential effect on cost and schedule and identified optimal measures for mitigation. In addition to the program controls unit, the risk management group and the Authority's Change Control Committee (CCC) are participants in managing changes and contingencies in accordance with the contingency management plan. The change management procedures encompass trend analyses, causal analyses and mitigation analyses as required.

Program Management Information System (PMIS)

PMIS is a system of tools and techniques used for compiling, integrating, storing and interfacing the information from the various program management processes to determine the status of the overall program and its specific projects. PMIS was developed for use on the program and it will evolve and continue to be developed and refined as the program transitions from conceptual planning through environmental approvals to detailed design, procurement and construction and ultimately to testing, commissioning and revenue service startup. In addition to data entry, PMIS is the repository for storing data as well as the interface for reporting data.

The primary program controls subsystems of PMIS include:

- Network Schedule: Primavera P6 is the scheduling software tool used to track the program-wide baseline, record status updates, assess performance, develop schedule forecasts and document schedule changes.

- **Contract Management:** Oracle Contract Manager is the software used to track contract management information, including prime contract management, subcontract management, costs, change and other contract-related data.
- **Time-Location Schedule:** TILOS is the time-location planning software used to manage linear construction projects by analyzing and reporting schedule data by geographical location.
- **Schedule Analysis:** Acumen Fuse is the schedule diagnostics tool used to check key schedule characteristics, analyze multiple schedules concurrently, summarize detailed schedule analyses and provide state-of-the-art schedule reporting capabilities.
- **Electronic Document Management System (EDMS):** SharePoint is the web-based system used to enable the Authority and its consultants to share, collaborate and manage all documents distributed for information or review.

Schedule Management

The schedule management plan, a component of the program controls plan, provides an overview of processes and output data used to establish the baseline schedule, measure progress, assess performance, forecast deviations and trends, manage change, and schedule reporting, reviews and meetings.

As described above in the discussion of PMIS, Primavera P6 is the primary software program for developing the baseline schedule for the overall program and its projects, recording status updates, assessing performance, forecasting trends and deviations, and recording changes to the overall program's scheduling data. The program-wide baseline schedule, the program master schedule, is the mechanism for planning program-wide and project delivery, monitoring and reporting progress and identifying variances so that corrective action can be taken to either cancel the effect of the variance or mitigate its potential for adversely affecting the overall schedule. The P6 critical path method software enables detailed schedule data to be recorded and the baseline, both actual and forecast, to be tracked and reported. Because the individual project-specific schedules reflect the key interfaces and milestones, they are used to determine resources and progress profiles for each project comprising the program.

For the civil projects, the DB contractor is required to submit a project-specific baseline schedule which, once approved by the Authority and the PCM, is considered the "approved original baseline schedule." This baseline schedule is the basis for monitoring the DB contractor's progress during the performance of the work. The DB contractor is also required to submit monthly schedule progress updates which, after review and approval, are submitted to the project scheduler to update the master program schedule. Any revisions to the schedule resulting from change orders, revised sequencing of work and/or unforeseen delays must be reviewed by the PCM, design and construction manager and the project scheduler. Once approved by the Authority, the baseline schedule is revised along with the master program schedule.

The schedule management reporting hierarchy includes the integrated organization, RC, PCM, and design-build contractors. The program controls functional unit obtains information from each of these entities to prepare monthly schedule reports.

Program Cost Management

The cost management plan, a subset of the program controls plan, provides an overview of how cost control is managed at both the program level and project level. In addition to defining the roles and responsibilities for cost management staff, the cost management plan addresses the processes and output data associated with each stage, including the establishment of the baseline cost estimate, progress management, performance assessment, forecasting and change management, PMIS components, cost reporting, and reviews and meetings.

The program cost budget was developed based upon the most recent business plan estimate. The cost engineer coordinates with the senior estimator to allocate the business plan budget to the program elements by mapping similar scope elements from the estimate to the WBS elements. The budget is represented in year of expenditure monetary values.

The program-wide cost is updated monthly with input received from the integrated staff, regional consultants, project and construction managers, and design-build contractors. This information is used to prepare program cost reports, including reports that track the cost of third-party agreements, right-of-way acquisition, environmental documentation, permitting and mitigation at the program and project levels as well as costs expended.

Because the work scope definition varies among the projects comprising the program, the techniques used to develop cost estimates are adjusted for each section in accordance with its level of design and delivery method. The estimating process uses parametric estimating techniques for projects whose scope has little definition, and detailed quantity takeoffs and pricing for sections that have a more advanced definition of scope. Each project manager is responsible for preparing and maintaining a construction estimate that is provided to the program controls group for review and incorporation in the cost estimate for the overall program.

Cost assemblies and/or unit rates are developed as needed for each type of quantity. The quantities are priced using the applicable cost assemblies and the resulting estimate is reviewed. If necessary, allowances are made to cover known or anticipated cost categories for projects lacking a well-defined design definition that thwarts the development of quantity figures. A contingency amount is also added to the cost estimate to accommodate unknowns (risk factors). The resulting estimate is then used as input for the budget and forecasted amounts of the cost control system.

PMIS is utilized to conduct monthly assessments of costs incurred to date. Program controls forecasts costs using a systematic forecasting methodology that considers deviations, trends, change request and opportunities integrated in the program-wide trend register. Trending on significant cost variances discovered during the performance assessment stage are analyzed. This forecasting is integrated with the risk management plan and the contingency management plan.

Actions utilized and recommended to produce more accurate and comprehensive estimates include:

- Analyze the bid results for CP 1, CP 2-3 and CP 4 to compare against the current estimate and establish a database for processing future estimates.
- Utilize independent estimating firms to prepare engineer estimates that are then reconciled with the estimate.
- When appropriate, utilize contractors who are not involved in the program to prepare independent “shadow” bids.
- At least two months prior to bidding, implement with the regional consultants an internal value engineering process that emphasizes cost reduction and initiates the development of preliminary alternative technical concepts (ATCs).
- Engage the thinking of the full organization – the Authority and the project delivery support resources, contractors and suppliers – to assist the ATC evaluation process by identifying and mitigating potential complications resulting from right-of-way, environmental and permitting.
- Current procedures support preliminary engineering and, as a result, reflect planning-level estimates. Revise the bid evaluation process so that it uses a uniform base-bid approach for project design. Include ATCs as deductive alternates to eliminate the wide spectrum of bids and design solutions that are difficult to compare.
- Have the members of the estimating team augment the project management staff during the quantity development phase to improve the quantities estimates for both the engineering and planning estimate processes.
- Monitor recent bids for other similar types of projects as a basis for responding and adapting to market conditions and competitive environments.

Contingency Management

The contingency management plan identifies and describes the contingency budget elements of the Program in terms of the cost risks they are intended to cover and provides an overall plan for contingency

utilization. The plan outlines the changes the contingencies can be allocated to the direct cost of the project and establishes the overall rules by which the contingency accounts may be drawn-down. The plan describes the management review and approval process and the procedures to be followed prior to a contingency re-allocation. The contingency management plan is currently under revision and expected to be finalized later this summer (Summer 2017).

Earned-Value Management

The earned-value management plan, a subset of the program controls plan, provides an overview of the processes used to administer earned-value management by integrating project scope, schedule and cost elements through the five cycles of program control: establishment of baseline, progress measurement, performance assessment, forecasting, and change management. The primary focus of earned-value management is to measure project performance, which involves defining the scope, organizing it into manageable work elements and associating each element with the budget and schedule for its accomplishment. The work elements, and the cost and schedule required to complete them, form the performance measurement baseline that is the basis for monitoring performance and providing objective information to facilitate the decision-making process. The program controls unit establishes the basis against which the earned value is assessed, forecasted and changed by aligning the cost budget and baseline schedule through the tasks. This alignment is carried out by the cost engineers and schedulers. The P6 baseline schedule start and finish dates are imported into the cost data system, which is the repository of planned value data. This system then produces the earned-value management performance assessment calculations and metrics that are used for trend analysis and reporting. If any changes are required, updates are made to the budget adjustment and schedule adjustment logs as part of the change management process.

Change Management

As a means of controlling changes to the program, the overall change management strategy distinguishes between program-level changes and project-level changes, including changes affecting the design-build contracts. A change is defined as a modification, positive or negative, to a controlled area of the program in terms of scope, budget, schedule, functionality, interface and/or location. The “controlled area” of the program is also known as the baseline. Each change requires an assessment of its effect on the controlled areas of the program. As changes are reviewed, the technical implications of these changes are weighed against their effect on budget and schedule as well as the adjustment made to the program’s risk factors. These potential impacts inform the Authority of the implications associated with the change and justify whether the change is approved, rejected, or requires the development of recovery plans or alternative approaches.

Program-Level Change

The overall change control strategy for the system includes changes to professional service contracts, changes to construction contracts and changes to the schedule, scope and cost of the system that affect the program level.

The key activities of the program-level change management process include:

- Developing and maintaining the documents that address and define the controlled constraints placed on the program’s scope, schedule and cost.
- Tracking trends that have the potential to adversely affect these constraints.
- Evaluating the effect(s) of a proposed change on the controlled scope, schedule and cost.
- Obtaining concurrence according to the established delegation of authority.
- Ensuring that historical backup data explaining the likely cause of the change and its implications is available and retained.
- Tracking the performance of approved changes against the controlled scope, schedule and cost documents.
- Preparing a change history.

As shown in Figure 6, once a change is identified, it is brought to the technical evaluation committee, which is led by the program controls manager. The technical evaluation committee will identify subject-matter experts to help in evaluating the potential impacts resulting from the proposed change and then make a recommendation to the CCC.

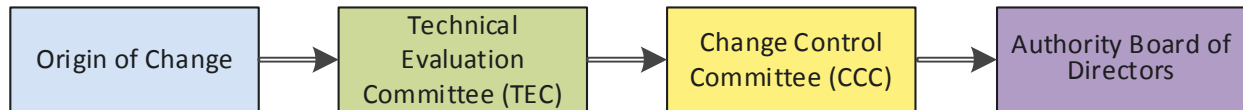


Figure 6. Change Control Process

The CCC meets regularly to review and/or take action on changes. This includes contract changes at the project level as well as configuration changes at the program level. The committee is supported, as needed, by the Authority's consultants and experts in the subject matter pertaining to the change. Members of the CCC include the Authority's chief deputy director, director of risk management and program controls (committee chair), chief program manager, chief engineer, chief financial officer and FRA representative. Some changes may require a decision from the Authority, while others can be submitted for informational purposes to the committee. The process requirements for tracking potential changes and the step-by-step instructions for processing a configuration change to the baseline are detailed in the program controls plan.

Design-Build Contract Change Order Management

The program controls plan and the PCMM delineate the protocols, processes, roles and responsibilities of the Authority, its program controls consultant and PCM consultants when they are managing design-build contract change orders. The process for managing changes on the DB contracts, including the approval matrix and procedures for executing changes, can be found in Section 11 "Changes and Claims" of the PCMM.

Any changes to the DB contract documents are executed by a change order. Prior to being incorporated into the DB contract by formal contract change order, the contract-related changes must be fully documented and within the authorized contract contingency amount to comply with the Authority's and federal and state regulations.

When a potential change is initiated and authorized by the Authority, the PCM prepares the finding of fact (FOF) form and obtains authorization from the appropriate Authority representative and the CCC. Upon approval, the PCM then prepares a directive letter for signature by the Authority's representative and issues the signed directive letter to the DB contractor. The project and constructor manager tracks and maintains the log of all directive letters in the contract management system (CMS). As potential changes advance through the change management process, related documentation is linked to the change management log and tracked by the PCM.

The contractor may submit a written contractor's change notice to the PCM who reviews and prepares an acknowledgement letter to send to the contractor in response to the change notice. This letter may acknowledge merit, deny merit, request additional information concerning the change or request the contractor to submit a change order proposal. The PCM tracks the change notice and updates it as it progresses through the change management process. Once a change order proposal is submitted, the PCM coordinates the review of the proposal with the Authority's design and construction manager to access and determine if the change will be authorized by the Authority.

Whenever possible, the change order is negotiated and an executed change order is issued prior to proceeding with the work. In the event that a negotiated agreement cannot be reached, the PCM drafts a directive letter for signature by the Authority's design and construction manager or other delegated representative directing the contractor to proceed on a time and material basis or change order accounting basis until work is completed.

The PCM coordinates with the Authority and the CCC on any change to the project as detailed in the program-level change management process.

Contractor's Disputes and Conflict Resolution

The DB contractor's claim process is outlined in the PCMM Section 11.13 "Contractor's Disputes." As stated in the PCMM, when the DB contractor believes that a potential claim or dispute situation has occurred, the DB contractor is to seek resolution through the partnering process by utilizing the resolution ladder in accordance with the Authority's delegation of authority matrix. The Authority can apply the steps and levels indicated in the matrix to resolve claims and disputes.

If the claim/dispute cannot be resolved through partnering, the DB contractor then submits a written request to the PCM who notifies the Authority's design and construction manager and change control manager of any potential claim and keeps them updated on the claim's status. The PCM is responsible for providing recommendations regarding entitlement, potential exposure and strategies for claims resolution to the Authority for its review.

In accordance with contract terms, the DB contractor can also seek resolution of disputes, claims or other controversies through the dispute resolution board. If the Authority or the contractor disagree with the board's decision, either party can request mandatory binding resolution.

A list of potential claims and disputes recorder file is maintained in the CMS and updated as the claim/dispute progresses through the decision process.

Document Control

The records management and document control plan, which is being revised and will be available Summer 2017, outlines how documents are managed throughout the life cycle of the program. Documents refer to program documentation from initial development to the final work product. The document control procedure describes how to manage both electronic and paper repositories of documents and historical information and also addresses how to create, update and format documents.

Key elements contained in the records management and document control plan include:

- References for document templates, standard formats and writing style guide.
- Control and distribution of documents.
- Document storage.
- Records management standards for document version control and requirements for compliance with the Public Records Act and Freedom of Information Act.
- PMIS tools used for document control.

Additional procedures utilized for the environmental processes are referenced in Section 9 - Environmental Management and Sustainability. Documents are retained in accordance with 49 CFR Part 18.

5.2 Project Delivery

Project delivery and implementation is managed at the regional level, as shown in the organizational chart in Figure 7. The sections are broken down into projects within the three regions (North, Central and South), with the project managers responsible for the individual projects. The project managers report to the regional directors of projects who oversee all of the projects within the region. Below is a brief description of the key regional and project roles for project delivery during the environmental review and preliminary engineering phase of the projects.

- **Regional Director of Projects:** The regional director of projects executes the program delivery strategy for the north, central or south region and reports directly to the program director. The regional director of projects provides leadership and support to the project managers who report to them.

- **Project Manager:** The project manager supports the regional director of projects and is responsible for the scope, schedule and budget of the project. Task managers report to the project manager for project support in the areas of environmental, engineering, right-of-way, third party, railroad, etc.
- **Task Managers:** Manage production and completion of discrete deliverables on projects. Task managers coordinate with other task managers and with contract managers and the project manager regarding task deliverables, resources and schedule. In addition, task managers communicate project issues, conflicts or changes and provide potential resolutions to the project manager.

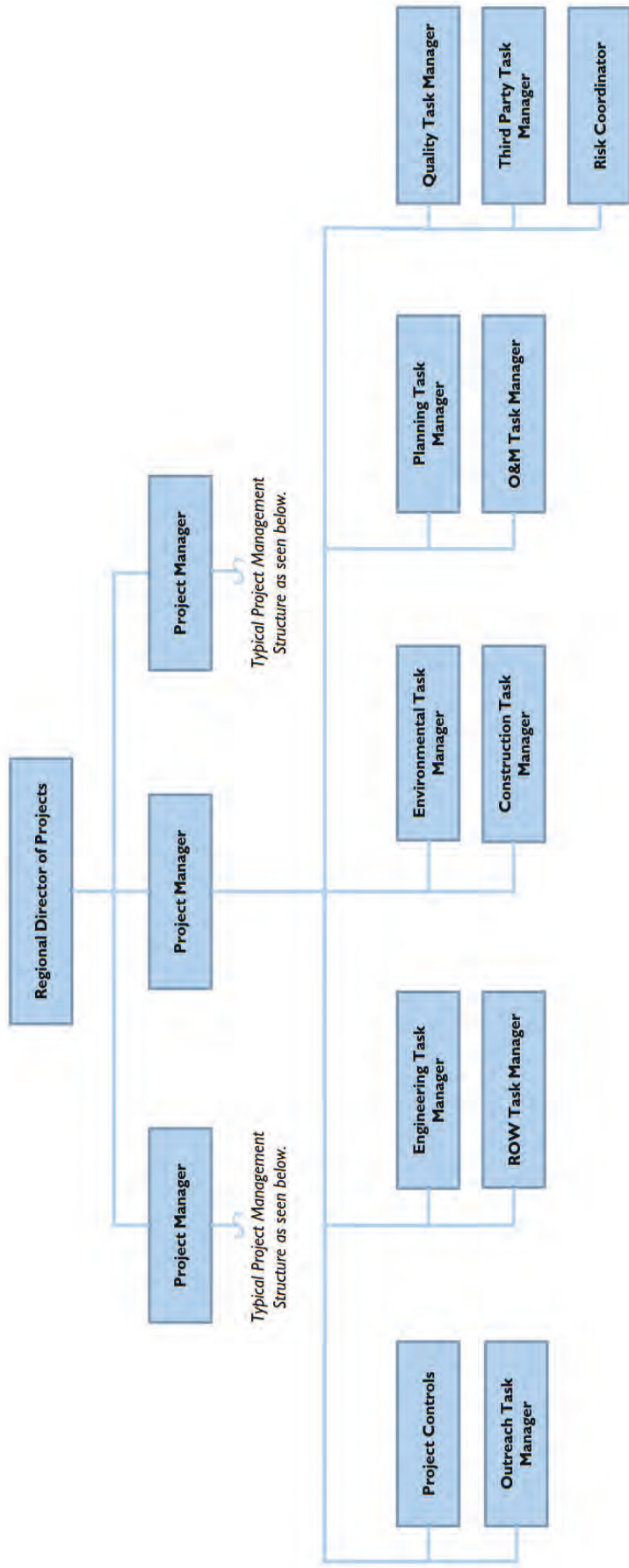


Figure 7. Project-Level Delivery Organization Chart

5.3 Construction Project Management

The construction project-level organization chart is shown in Figure 8. Section 2 of the PCMM and Section 3 of the DBPP describe the composition of the design-build project team and the roles and responsibilities of the team members.



Figure 8. Construction Project-Level Organizational Chart

Below is a brief description of the key regional and project roles along with their responsibilities:

- **Project Director:** Each of the construction projects/packages is led by a project director, who reports directly to the program director and has the overall responsibility for all of the elements of the project, including design, construction, right-of-way, third-party agreements, and project delivery.
- **Project Manager:** The project manager supports the project director during construction and is responsible for the scope, schedule and budget of the project. Task managers report to the project manager for project support in the areas of environmental permitting, engineering, right-of-way, third party, railroad, etc.
- **Design and Construction Manager:** The design and construction manager is the Authority's authorized representative for each DB contract and will manage and provide oversight of the PCM contract.
- **Project and Construction Manager (PCM):** The PCM provides on-site project and construction management services for the DB contracts and is responsible for the management, administration and monitoring of the activities of their assigned contract for the project. One key member of the PCM's staff is the design-build oversight manager (described below).
- **Task Managers:** Manage production and completion of discrete deliverables on projects. Task managers monitor and maintain control of the DB contractor's task progress and performance to verify compliance with contract provisions, including quality, schedule, scope and cost. Task managers coordinate with other task managers and with contract managers and the project manager regarding task deliverables, resources and schedule. In addition, task managers communicate project

issues, conflicts or changes and provide potential resolutions to the project manager and the functional manager.

As shown in Figure 9, project-level information (scope, schedule, budget) is reported up from the DB project controls manager, to the PCM, then to the regional project manager and ultimately to the program controls unit. The EECs, RCs and PCM consultants report up to the regional director of projects.

Project-Level Controls Staff Reporting Structure

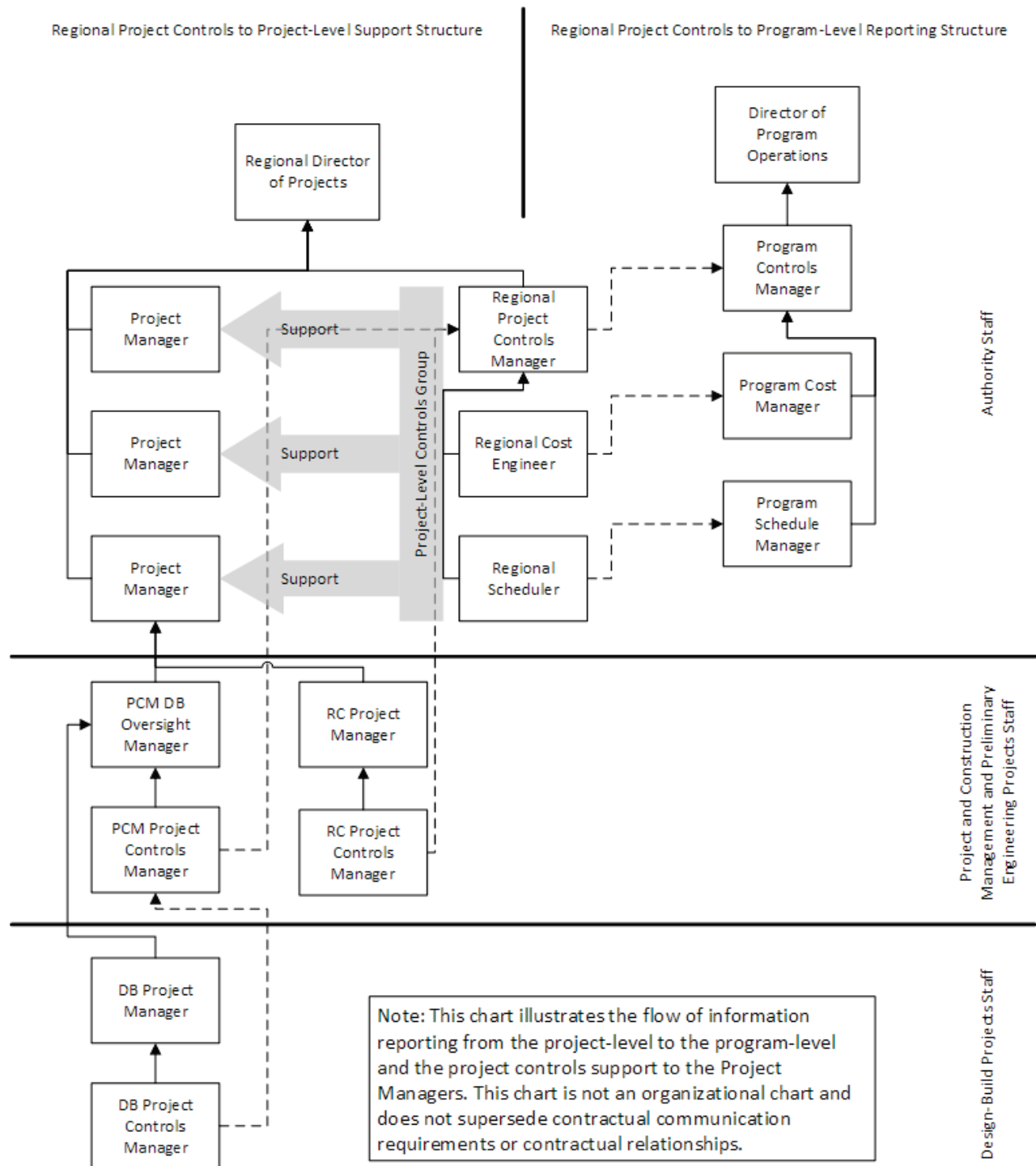


Figure 9. Project-Level Reporting Hierarchy

6 QUALITY MANAGEMENT SYSTEM

Recognizing that effective management of quality and performance accelerates program delivery, the Authority has instituted a program-wide quality policy that reflects the Authority's commitment to delivering the program on schedule and at the lowest possible cost with quality and safety that meets or exceeds acceptable industry and government standards. The commitment to quality is further supplemented by the Authority's quality objectives specified in the master quality plan (Appendix F).

The Authority's quality objectives are to:

- Develop and implement quality management plans to promote performance excellence.
- Deliver quality work on schedule and within budget.
- Identify requirements and manage their assignment.
- Develop and implement procedures to meet requirements.
- Identify metrics to facilitate data-driven decisions.
- Identify and implement continuous improvement opportunities.

These objectives are the foundation of the quality management plan and quality management system, which were formulated to support and advance the Authority's quality vision.

6.1 Organizational Requirements and Profile

To align with the quality requirements specified in the program's master quality plan, the approach, integration and implementation of a quality management system that encompasses these standards and programs has been developed. The quality management system is based on precepts that include:

- National Institute of Standards and Technology (NIST) Performance Excellence Criteria (2015-2016).
- International Organization for Standardization (ISO) 9001:2015 – Quality Management Systems requirements.
- FTA Quality Management System Guidelines, December 2012.

Through the integration and implementation of NIST criteria, ISO standards and FTA guidelines, a performance excellence framework was developed. This framework provides the elements essential to identifying and achieving goals and objectives, improving results and aligning requirements, roles, responsibilities, processes, procedures, actions and results. This framework also provides the tools to examine the organization, including its quality management system and to improve processes and results. Figure 10 depicts the application of the integrated performance excellence framework for the high-speed rail program.



Figure 10. Program Application of NIST Performance Excellence Criteria

The incorporation of these standards and guidelines allows the quality management system to be developed and evaluated while taking the maturity level of the organization or its key processes into consideration. Learning and knowledge management are essential attributes of agile high-performing organizations. Effective, well-deployed organizational learning can help an organization improve from the early stages of reactive program executions to the highest levels of improvement, refinement and innovation throughout the organization.

6.2 Continuous Improvement

A number of initiatives have been undertaken to institute a culture of continuous performance improvement, including:

- Internal process improvement for general process assessment and improvement, or for areas identified through the normal work process or through ongoing metrics measurements as needing to be improved.
- Lessons-learned process to implement the knowledge gained from improvement initiatives into the work processes and procedures.
- Brown bag lunches to encourage an environment of workforce focus with opportunities to support our internal customers.
- Meetings between the quality manager and organizational units to update the group on quality developments and to follow up on any action items from prior meetings.
- Integration team comprised of organizational unit leads, along with other entities, which convenes to review progress and make adjustments to optimize performance and customer satisfaction. The team uses the established plan's "do, learn, share and sustain" approach to accelerate improvements within each organizational unit and within the organization as a whole by identifying solutions that can be immediately applied.

As the continuous performance improvement program develops and matures, the quality management system and the quality management plan will be reviewed and updated to reflect the program's current strategic challenges and opportunities. To account for this, the quality management plan has been developed with the intention that it will remain a dynamic and evolving document.

Lessons Learned

As part of the continuous performance improvement program, the Authority works with the program delivery team to implement a "lessons learned" program related to the systems used to develop and implement the projects comprising the program. The lessons learned are communicated to the appropriate personnel in the program via the lessons-learned procedure. The procedure includes:

- Description of the process used to identify lessons learned.
- Documentation and approval of the lessons learned.
- Verification that the lessons were provided to team personnel.
- Description of the archival process for storing and retaining lessons following their presentation to team members.
- Identification of actions undertaken in response to the lessons learned and verification that the actions have been implemented.

The lessons learned are focused on positive experiences that result in ideas that improve the program, such as improved project efficiency and/or budget and schedule savings, as well as negative experiences that have produced undesirable results or unfavorable outcomes and will not be used again to prevent their reoccurrence. Potential actions that could result from the implementation of lessons learned include:

- Revising an existing policy.
- Writing a new procedure.
- Revising a standard.
- Issuing a new or revised specification.
- Improving a work process.
- Changing a contract's terms and conditions.

The lessons-learned procedure as a whole is not applicable to the interactive and compressed process utilized to prepare procurement documents. This function requires the concurrent participation of many disciplines to review, comment and edit the draft versions under the leadership of the commercial and contracts team. However, as the procurement documents are prepared, the lessons-learned process will yield insights and information that are specifically related to these documents and these lessons are applied to the remaining draft procurement documents being developed.

6.3 Program Performance Regime

The performance regime is a method used by the Authority to align the Consultant's performance with the Authority's performance objectives. The performance regime is used to drive quality, budget and schedule milestones. The performance regime is a fee-at-risk contract feature that links a portion of the program delivery consultant's payment to a combination of quality, budget and schedule performance targets. The performance regime is built around specific program requirements and deliverables that can be measured on the basis of quality, budget and schedule, and that are established jointly by the Authority and the Consultant.

7 RISK MANAGEMENT PLAN

Risk management is a formalized set of processes, protocols and responsibilities providing a systematic approach to identify, evaluate, assess, document and manage risks that could jeopardize the success of the program. Potential areas of risk include engineering, environmental, planning, right-of-way, procurement, construction, organizational, stakeholder, budget and schedule risk. The risk management plan has been developed under precepts that include:

- Final risk allocation options are the responsibility of the Authority.
- Risk management process meets the Authority's risk objectives.
- Risk management process results in a pragmatic assessment that balances the Authority's objectives with the construction industry's reasonable risk allocation issues and concerns.

The objectives of the risk management plan are to:

- Enhance the ability to anticipate events, assess potential impacts of risks against available budget and schedule contingency, and set risk tolerances consistent with achieving objectives.
- Rationalize resources by identifying key drivers of development and delivery and providing solutions to manage the program's budget, schedule and quality to improve capital allocations.
- Report with greater confidence by preparing internal and external timely information that provides the framework for achieving an acceptable level of certainty regarding the program's budget and schedule.
- Satisfy legal and regulatory requirements and meet the needs and expectations of other stakeholders, including federal, state and local agencies; elected officials; residents and businesses along the alignment; and special interests (organizations and/or institutions, including environmental, business, labor, civic, education, and economic development).

To achieve these objectives, the following standards for risk management deliverables have been adopted:

- Deliverables are presented within a substantive, complete and appropriate engineering or project management context.
- Deliverables are quantified, fully integrated, traceable, consistent and compatible with findings or stated facts.
- Risk management deliverables are qualitative in nature, properly structured and clearly identified with respect to authorship.
- Material analytic results of risk analysis are capable of withstanding independent assessment or reproduction using disclosed methods and assumptions which generate similar analytic findings within an acceptable degree of imprecision or error.
- Funding agencies are able to assess whether it is appropriate to question the adequacy, accuracy and completeness of third-party data, information, modeling or analysis.

The risk management plan balances the competing demands of scope, budget, schedule, quality, resources and risk to minimize risks to the program. Risk is reduced even further by requiring operators, infrastructure providers and contractors to accept risk directly through their contract agreements with the Authority. In addition, risk management specialists identify key potential risks and develop mitigation plans in advance of their possible occurrence. Risk-related items and actions are documented in the risk register for the program. Individual risk registers are reviewed and updated quarterly, though individual risks are updated as new information is developed. The registers are reviewed by management at stipulated intervals and response strategies and actions for individual risks, as well as for overall program risks, are integrated into a consolidated plan. This plan includes:

- Monitoring and controlling risks by implementing agreed-upon actions.

- Regularly reviewing changes in program risk exposure.
- Identifying additional risk management actions as required.
- Assessing the effectiveness of the program.

Quantitative assessments of risks in the risk registers also serve as the primary input for Monte Carlo and sensitivity analyses, which are conducted to evaluate the project or program-wide cumulative risk exposure together with the probability of particular cost and schedule outcomes.

The risk management plan is included in Appendix G.

8 PLANNING AND CONCEPT DESIGN

8.1 Preliminary Design Development and Management

The planning and concept design program includes conceptual engineering for program planning and for alternatives analysis during the environmental review.

Preliminary design development is based on performance criteria established in the legislation governing the high-speed rail program and in the business plan, which is described further under Section 10 - Design Control. The general performance requirements for the system are described in Technical Memorandum 0.3 - Basis of Design Policy, which is a foundation document for the development of design standards and criteria.

- Basis of Design Policy- Defines the major components and performance objectives of the high-speed rail program.

https://www.hsr.ca.gov/docs/programs/construction/CP23_executed/P13_57_IR_IVC_03_Basis_of_Design_Policy.pdf

The technical memorandum defines the major components and performance objectives that support the development of the engineering and regulatory basis for the program, including its components, objectives, processes, requirements and assumptions governed by the Authority. The Authority's policies that determine the processes, standards, and subsystems of the high-speed rail system are generally divided to address:

- Program implementation
- Performance requirements
- Infrastructure
- Systems (electrification, train controls and communications)
- High-speed rail trains
- Maintenance
- Operations

8.2 Conceptual Engineering for Program Planning (Nominal 5 Percent Design)

Conceptual engineering in support of programmatic environmental studies is based on a review and compilation of existing high-speed rail standards. The standards and criteria reflect the best practices and serve to support the development of conceptual high-speed rail alternatives applicable to the California environment and terrain.

Through the alignment and station screening evaluation process, a number of alignment and station options are identified, evaluated and defined for further study in the programmatic EIR/EIS. These alignment and station options are developed based on engineering criteria and parameters established for the screening evaluation. The regional teams complete the definition of the alignment and station options and provide the definitions to the environmental teams as the basis of their analyses.

8.3 Station Planning

The Authority is working with stakeholders on station design and station area plans, access planning, land use changes, creating community hubs, defining the environmental footprint and massing, and mitigations.

The station cities are key stakeholders for the program. The Authority is dedicated to supporting station area planning and local land use decisions related to transit-oriented development, joint development and other transit-supportive enhancement opportunities. Agreements are being executed with station cities that outline the partnership between the cities and the Authority to plan for development in these station areas. Agreements have been executed for the following stations, with additional contracts pending for other station locations:

- City of Merced – Merced Station
- Tulare County Association of Governments – Kings/Tulare Station
- City of Bakersfield/Kern Council of Governments – Bakersfield Station
- City of San Jose – San Jose/Diridon Station
- City of Gilroy – Gilroy Station
- City of Palmdale – Palmdale Station
- City of Burbank – Burbank Station

High-speed rail station and station area planning, design and development are extremely complex issues. The Authority has developed a variety of guidelines, plans and procedures for use by designers, local jurisdictions and other stakeholders in initiating and carrying out this process:

- High-Speed Train Station Area Development: General Principles and Guidelines – Outline of the Authority's general principles and guidelines for station area development.
[https://chsra.pbid.com/sites/ao/pm_pub/pf/POLI-PLAN-01%20HST Station Area Development General Principles and Guidelines.pdf](https://chsra.pbid.com/sites/ao/pm_pub/pf/POLI-PLAN-01%20HST%20Station%20Area%20Development%20General%20Principles%20and%20Guidelines.pdf)
- California High-Speed Train Project: Urban Design Guidelines – A comprehensive planning guide that provides domestic and international examples of station area design, urban design and transit-oriented development. This guide includes simple diagrams that analyze and explain successful public places and how each promotes livability and transit use. Urban design implemented around high-speed rail stations can encourage destination stations and enhance the value of the surrounding community. The report is intended to be used by cities and communities throughout the state as they work with their stakeholders and residents to create a vision for their high-speed rail station areas.
http://www.hsr.ca.gov/docs/programs/green_practices/sustainability/Urban%20Design%20Guidelines.pdf
- Technical Memorandum 0.1 - Preliminary Engineering for Project Definition Guidelines – Presents design guidance for a minimum level of engineering – referred to as preliminary engineering for project definition (PEPD) – required to support the project-specific environmental impact report/environmental impact statement process. It defines design elements, development level and engineering outputs with the objective of providing a consistent approach in developing preliminary engineering documents to a level that supports the identification of an inclusive environmental envelope.
http://www.hsr.ca.gov/docs/programs/eir_memos/Proj_Guidelines_TM0_1_PE_for_Project_Def_Guidelines_R4_021815.pdf
- Technical Memorandum 0.3 - Basis of Design – Defines the major components and performance objectives of the high-speed rail system as envisioned by the Authority, outlining the objectives, requirements, and assumptions for the continuing development of the system. Specifically, it focuses on components, objectives, processes, requirements, and assumptions, which are governed by Authority policy. The policies are divided into program implementation, performance requirements, infrastructure, systems (electrification, train controls and communications), high-speed rail trains and operations.
http://www.hsr.ca.gov/docs/programs/eir_memos/TM%200.3%20Basis%20of%20Design%20R3%20120222%20no%20sig.pdf
- Project Design Criteria Manual Chapter 14 Stations – Presents station design principles and goals as well as space requirements, passenger amenities, station performance, circulation, connections and safety and security for preliminary and final station design. The intended use of this chapter relates to high-speed rail dedicated stations as well as facilities shared in existing stations with other transportation agencies, owners and operators. Because station ridership is expected to increase over time, not all functions referenced in this document will be included in all initial station programs; instead, construction will occur in a staged or phased manner as the high-speed rail system expands.

https://chsra.pbid.com/pmt/pln/plndocs/Des%20Crit%20Manual%20Chap14%20Stations%20%2031Mar2016_Submittal%20Issued.pdf

- Station Area Parking Guidance Technical Memorandum – Defines appropriate station area parking to be evaluated for the draft project-level environmental documents. As such, this technical memorandum defines the maximum possible footprint without taking into account how changes in local land use and transit connectivity can influence parking demand. This technical memorandum explains the desired parking approach, including cost and layout, along with the process for implementation including Authority, local and private-sector responsibilities.
<https://chsra.pbid.com/pmt/pln/plndocs/Revised%20Station%20Area%20Parking%20Guidance%20with%20signatures.pdf>
- Technical Memorandum 200.06 - Aesthetic Guidelines for Non-Station Structures - Provides aesthetic guidance for the planning, design, detailing, material selection and construction of structural elements besides stations, including viaducts, bridges, tunnel portals and retaining walls. The design of these elements will require collaboration between planners, engineers, architects and community stakeholders in order to ensure consistently high aesthetic standards for high-speed rail structures.
http://www.hsr.ca.gov/docs/programs/eir_memos/Proj_Guidelines_TM200_06R00.pdf
- Technical Memorandum 200.07 - Aesthetic Review Process for Non-Station Structures – Establishes a process to facilitate consultation between the Authority, its representatives and local jurisdictions on aesthetic decisions. The outcome of this process is a clear expression of local aesthetic preferences that will inform procurement documents. This process benefits the Authority by fostering greater understanding at the local jurisdiction of the scope of work and by supporting the delivery of all parties' expectations.
http://www.hsr.ca.gov/docs/programs/eir_memos/Proj_Guidelines_TM200_07_PROC_PLAN_Aesthetic_Review_Process_for_Non_Station_Structures.pdf
- Vision California – An effort to explore the critical role of land use and transportation investments in meeting the environmental, fiscal and public health challenges facing California today and in the future. New modeling tools are applied to formulate and compare scenarios for how California can accommodate growth based on policy decisions and development patterns.
<https://calhsr.sharepoint.com/sites/theterminal/pp/INST-PLAN-02>
- UC Berkeley Research on the Potential for Transit-Oriented Development in the Central Valley - These reports, prepared with the support of the Authority, examine the potential for transit-oriented development around high-speed rail stations in the Central Valley. They focus on proposed stations sites in the cities of Stockton, Merced, and Fresno and presents planning approaches and design concepts for land use, urban design and multimodal access and circulation in and around the proposed station areas.
http://www.hsr.ca.gov/Programs/Green_Practices/sustainability.html

9 ENVIRONMENTAL MANAGEMENT AND SUSTAINABILITY

9.1 Environmental Management

The FRA is the lead agency under NEPA, while the Authority is the lead agency under CEQA for the environmental clearances needed for the program.

The environmental team is responsible for coordinating the activities required to environmentally clear and permit the high-speed rail projects to allow construction. The environmental team provides guidance on environmental strategies for project clearance, programmatic environmental methodologies and program assumptions to meet environmental commitments. The team directs permit activities and provides strategic guidance on permit approaches. In addition, the environmental team provides strategic guidance on the environmental approval process and serves as the liaison with the FRA, the attorney general's office and other federal, state, regional and local agencies, the regional consultants and environmental and engineering consultants, and other environmental consulting firms on environmental work products.

The environmental team guides the regional consultants and environmental and engineering consultants and coordinates with them and other environmental consultants in preparing the environmental studies, documents and subsequent environmental approvals required for implementing high-speed rail construction and operation. In addition, the environmental team follows the quality procedures and reviews proposed environmental approach revisions and environmental deliverables submitted by the regional consultants, the environmental and engineering consultants and environmental teams.

The environmental team is responsible for preparing the guidelines and methods to guide the environmental studies to completion, including:

- Project EIR/EIS Environmental Methodology Guidelines - Provides the methodological guidance for the preparation of technical reports and impact chapters of project-level environmental documents. (https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Project_EIR-EIS_Environmental_Methodology_Guidelines-Version5.pdf).
- Additional Guidance for Determining Impact Significance under NEPA-Revision 1 – Outlines the analytical approach for identifying, evaluating and documenting environmental impacts under NEPA. ([https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/NEPA%20Impact%20Guidance%20\(Sep%20%202016\).pdf](https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/NEPA%20Impact%20Guidance%20(Sep%20%202016).pdf)).
- Guidance for Preparing Environmental Reviews for Electrical Interconnections – Describes the analytical and documentation steps for evaluating project-related electrical interconnections required for obtaining electrical power for the system. (https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Env_Review_for_Electrical_Interconnections.pdf).
- Refined Guidance on Project EIR/EIS and Technical Report Content – Clarifies the content to be included in technical reports prepared in support of the EIR/EIS. ([https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Technical_Report_Preparation_Guidance%20\(April%202016\).pdf](https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Technical_Report_Preparation_Guidance%20(April%202016).pdf)).
- Alternatives Analysis Methods for Project-Level Environmental Impact Reports and Environmental Impact Statements (EIR/EIS) – Provides guidance on conducting the alternatives analysis and documenting it in an alternatives analysis report. (<https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Alternatives%20Analysis%20Methods.pdf>).
- Independent Utility Memorandum – Outlines the requirement for establishing the logical termini for each of the high-speed rail sections. (https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Authority_Independent_UTILITY_Letter_02102009.pdf).
- Scoping Guidelines for Project-Level EIR/EIS – Outlines how to conduct and document the environmental scoping process.

https://calhsr.sharepoint.com/sites/theterminal/pp/PROC-ENVR-07%20Scoping_Guidelines_for_Project_Level_EIR_EIS.pdf).

- Project Environmental Document EIR/EIS Publication and Public Outreach Guidance – under development.
- Guidance for Multi-lingual Public Outreach – Sets guidelines for public outreach to meet the Title VI requirements for multilingual outreach.
<https://chsra.pbid.com/pmt/Environmental/VL/07.%20Outreach%20and%20Participation%20Guidance/Guidance%20for%20Multi-lingual%20Public%20Outreach%20Ver%201.pdf>).
- Agency, Environmental Justice and Tribal Coordination Guidelines For Project-Level EIR/EIS Technical Memorandum – These guidelines relate to compliance with Title VI and Section 106 consultation.
https://calhsr.sharepoint.com/sites/theterminal/pp/PROC-ENVR-12_Agency_Env_Justice_and_Tribal_Coordination_Guidelines_Project_Level_EIR_EIS.pdf).
- U.S. Army Corp of Engineers Section 404/408 MOU – This document establishes the framework for integration of the Section 404/408 permit process with the environmental process.
https://chsra.pbid.com/pmt/Environmental/VL/06.%20Regulatory%20Permits%20and%20Guidance/NEPA_Section%20404_Section_408%20MOU%20Ver%201.pdf).
- Programmatic Agreement among FRA, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California High-Speed Rail Authority Regarding Compliance with Section 106 of the National Historic Preservation Act, as it pertains to the California High-Speed Train Project – Outlines the requirements and responsibilities for the approval process for SHPO.
<https://chsra.pbid.com/pmt/Environmental/VL/05.%20Cultural%20Resources%20Guidance/Section%20106%20Programmatic%20Agreement%20Ver%201.pdf>).
- Authority Style and Branding Guide.
https://chsra.pbid.com/pmt/Environmental/VL/02.%20Environmental%20Document%20Style%20Guide/Authority_Style_and_Branding_Guide_2015.pdf).
- Project Environmental Document Style and Preparation Guidelines.
<https://chsra.pbid.com/pmt/Environmental/VL/02.%20Environmental%20Document%20Style%20Guide/EnvDocStyleGuide-Final-04-17-15.pdf>).
- EIR/EIS Templates – Provides the outline for preparing sections of the environmental document.
https://chsra.pbid.com/pmt/Environmental/Site_Pages/Home.aspx).
- Project Documentation Guidance – Describes the steps to organize, assemble and provide the administrative record in support of each individual EIR/EIS.
<https://chsra.pbid.com/pmt/Environmental/VL/03.%20Environmental%20Admin%20Record%20Guidance/20160105%20Revised%20Documentation%20Guidance-%20Admin%20Record%20FINAL.pdf>).
- Environmental Compliance Program Manual – Details the key elements of the program and lists the set of standards and procedures.
<https://chsra.pbid.com/pmt/Environmental/pa/compliance/Forms/AllItems.aspx>).
- Environmental Re-examination Process Guidance – Describes the evaluation and documentation process for design and other changes to the high-speed rail project following environmental approval.
[https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Env%20Re-Exam%20Guidance_Complete%20Doc%20\(April%202014\).pdf](https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Env%20Re-Exam%20Guidance_Complete%20Doc%20(April%202014).pdf)).

The environmental team will update these documents and write additional guidance as needed to reflect Authority and/or FRA policy changes, regulatory requirement changes and comments from the environmental resources agencies during the environmental processes.

9.2 Alternatives Analysis

Alternatives analysis reports have been completed for the Phase I segments of the program. The reports were completed in 2010 and are being updated (Supplemental AAs), as required, to refine the alternatives that will be carried forward into the EIR/EIS for analysis. Supplemental AA documents have been completed for the four Southern California high-speed rail project sections, including Bakersfield to Palmdale, Palmdale to Burbank, Burbank to Los Angeles and Los Angeles to Anaheim. These documents were prepared by the regional consultants and environmental and engineering consultants under the direction of the Authority's project managers and were reviewed by the environmental team to verify that an adequate level of environmental reconnaissance has been performed effectively to complete a first-tier screening of the alternatives. The Supplemental AAs serve as part of the checkpoint process described below.

9.3 Checkpoint Process

The Authority and FRA have entered into an MOU with the EPA and the USACE to facilitate compliance with the National Environmental Policy Act (NEPA - 42 U.S.C. section 4321, et seq.), the Clean Water Act (CWA – section 404 [U.S.C. section 1344]), and the Rivers and Harbors Action section 14 (33 U.S.C. section 408) processes for the project-level (Tier 2) EISs for the ten sections of the program. Three steps in the checkpoint process require concurrence from the EPA and USACE. These steps are integrated with the environmental approval process as noted:

- Checkpoint A – Purpose and need; integrated with the purpose and need definition.
- Checkpoint B – Range of alternatives; integrated with the alternatives analysis that leads to the range of alternatives studied in the EIR/EISs.
- Checkpoint C – Least environmentally damaging practicable alternative (LEDPA); integrated with the selection of the preferred alternative.

The Checkpoint A process has been completed for the Phase 1 project sections. Checkpoints B and C have been completed for the Merced to Fresno and Fresno to Bakersfield project sections, while the San Jose to Merced project section has completed Checkpoint B. For the remaining sections, work is underway with completion of Checkpoints B and C anticipated in the 2016/17 program year. As outlined in the 2016 Business Plan, Phase 1 environmental clearances are expected no later than December 2017.

9.4 Program-Level Environmental Documentation

The Authority uses a tiered environmental review process. The *2005 Final Program EIR/EIS for the Proposed California HST System* provided a programmatic analysis for implementing the high-speed train system across the state, from Sacramento in the north to San Diego in the south, and from the San Francisco Bay area to the west. At the conclusion of the first-tier EIR/EIS, the Authority and FRA selected preferred alignments and station locations for most of the statewide high-speed rail system to analyze further in second-tier (project-level) EIR/EIS documents.

In 2008, the *Bay Area to Central Valley HST Program EIR/EIS* was completed. The Authority and FRA selected the Pacheco Pass connection, preferred alignments and station locations for further second-tier evaluation. As a result of CEQA litigation, the Authority rescinded its 2008 programmatic decision, prepared a *Bay Area to Central Valley Revised Final Program EIR*, and made a new decision to select the Pacheco Pass as the Bay Area to Central Valley route in 2010. A second legal challenge caused the Authority to rescind its 2010 decision, prepare a *Bay Area to Central Valley Partially Revised Final Program EIR*, and make a new set of decisions for the Bay Area to Central Valley connection in 2012. The 2012 decision confirmed the Pacheco Pass as the Bay Area to Central Valley connection. Tier 2 project segment documents tier off the programmatic EIRs/EISs.

9.5 Project-Level Environmental Documentation

In 2008, preparation of the Tier 2 project-level environmental documents began. The first to be completed was the final EIR/EIS for the Merced to Fresno section. The EIR/EIS were certified on May 3, 2012 and the notice of determination (NOD) was filed on May 4, 2012. On September 18, 2012, the FRA issued a

record of decision (ROD) for the section. For the Fresno to Bakersfield section, the EIR/EIS were certified on May 7, 2014, and the NOD was filed on May 8, 2014. On June 27, 2014, the FRA issued a ROD for this section. Environmental work continues on the remaining Phase 1 sections with the remaining RODs expected to be obtained by December 31, 2017.

9.6 Permit and Mitigation Monitoring Activities

The environmental team is responsible for working with the resource agencies to secure environmental permits required for construction of each high-speed rail project section. The range of permits and approvals that are expected for the high-speed rail sections are noted below. Not all sections will require all permits.

Prior to the issuance of the ROD:

- Section 7 Biological Opinion – USFWS, NMFS
- Section 4(f)/Section 6(f) Determination – FRA in consultation with lead agencies for affected properties
- Section 106 compliance, including adoption of a Memorandum of Agreement and treatment plan – SHPO
- Air Quality General Conformity Determination – issued by the FRA in consultation with the regional air pollution control districts
- Indirect Source Permit – regional air pollution control district
- Other special permits unique to the project sections

Prior to the initiation of construction:

- Title 14 MOA – Allows use of state lands for the program; agency dependent upon properties affected - e.g., CDFW
- Section 401, State Water Quality Certification –SWRCB
- Section 402; Construction General Permit, Industrial Permit and Municipal Separate Storm Sewer Permit – SWRCB
- Section 404, Clean Water Act Dredge and Fill Permit – USACE
- Section 1602, Streambed Alteration Permit – CDFW
- Section 2018, Incidental Take Permit – CDFW
- Section 208.10, Encroachment Permits – Flood Protection Board
- Section 408 Determination, Flood Control Facilities – USACE

The environmental team is also responsible for implementing a mitigation monitoring system for the measures that were adopted as part of the mitigation monitoring and reporting program (MMRP) for the EIR and the mitigation monitoring and enforcement program (MMEP) for the EIS. The environmental team is currently involved in permitting and mitigation monitoring activities for the Merced to Fresno and Fresno to Bakersfield project sections. The team is also developing permitting strategies for the Southern and Northern California regional programs as well as regional landscape mitigation approaches.

The Authority will work to obtain the necessary environmental permits within 90 days after each NOD/ROD. For those permits not fully attained by the Authority prior to the award of the delivery contract, the DB contractor will be obligated to take an active role in obtaining any outstanding permits, such as the Section 408 which requires a high level of design. The Authority will take the lead in negotiations; however, the DB contractor will provide reasonable assistance, including design information, drawings and descriptions of mitigation plans.

9.7 Sustainability

A program-wide sustainability-related actions and policies in coordination with state agencies is being developed and implemented. The Authority has a signed sustainability policy that details its sustainability commitments, including net-zero energy operations, net-zero emissions construction and reporting performance against sustainability indicators to federal, state and other agency stakeholders. An MOU between the Authority, EPA, DOT, HUD and U.S. Department of Energy (DOE) serves as an umbrella agreement covering broad efforts to promote the use of sustainability tools and practices within the high-speed rail system. In addition, the Authority is a signatory of the American Public Transportation Association's sustainability commitment covering specific resource conservation and sustainability performance issues and the International Union of Railways (Internationale Des Chemins De Fer) Railway Climate Responsibility Pledge. Sustainability tasks include refining and implementing the Authority's renewable energy policy, coordinating the research and development of sustainable materials and construction practices, developing sustainability procedures and developing and refining energy-efficiency guidance for the Authority's facilities.

Collaboration is done with state-level agencies, such as the CalSTA, Caltrans, California Air Resources Board (CARB), Strategic Growth Council, California Energy Commission and the CPUC to advance the delivery of sustainability for each project comprising the program, including procurement of renewable energy for project operations. The Authority will also engage with university representatives, research organizations and non-profit advocacy and think-tank organizations to identify best practices and research their implementation into the program. Sustainability work is managed by the sustainability manager. Sustainability tasks are informed and assisted by technical experts within the Authority and by various interagency agreements.

The program currently utilizes the Environmental Mitigation Management and Assessment (EMMA) program, a database using a SharePoint platform, to house performance data and monitor the DB contractor and document compliance on construction-related sustainability activities. Subsequent EMMA applications will be used to track progress on sustainability programs, such as the tree planting program and renewable energy procurement. These, and other data, are consolidated into an annual sustainability report. Sustainability, articulated as such, or as specific objectives – including resource conservation, greenhouse gas emissions reduction, community benefits, or fiscal/economic benefits – will be considered in program-wide decision-making.

10 DESIGN CONTROL

10.1 Design Standards and Criteria Development

Existing design standards and criteria that complied with federal, state and local regulations were adapted and refined by the Authority, in concert with the FRA, to support preliminary engineering and final design of the high-speed rail system. The process used by the Authority and FRA is documented in Technical Memorandum 0.9 - Process to Support Development of a California High-Speed Rail Program Rule of Particular Applicability.

Two processes were developed to provide a safe and reliable high-speed rail system that meets U.S. regulatory requirements and is commensurate with the best industry practices for high-speed rail:

1. The design development process incorporates the European Union Technical Specifications for an Interoperability approach of evaluating the high-speed rail system as a set of subsystems, evaluating the key interfaces between each subsystem and optimizing the system for safety, reliability, and performance.
2. The process for developing a Rule of Particular Applicability (RPA) builds on the system design development process to verify that federal and state regulatory requirements are addressed and system safety requirements pertaining to existing modern high-speed rail systems are incorporated as part of the Authority's petition for a proposed RPA for consideration by the FRA.

Documentation of the regulatory approval process and compliance with federal, state and local regulations has been included in the program-wide requirements database for use in developing the program's RPA petition, the program-wide design manual and other technical documents.

The design team is responsible for preparing the design criteria and guidelines for the program, including:

- Design Criteria Manual - Establishes criteria, guidelines and requirements for the design of the infrastructure and systems elements of the project.
(http://www.hsr.ca.gov/docs/programs/construction/CP23_executed/P13_57_EX_IIIA_01_Design_Criteria_Manual.pdf)
- Technical Memorandum 0.1 Preliminary Engineering for Project Definition Guidelines – Provides design guidance for a minimum level of engineering, referred to as Preliminary Engineering for Project Definition (PEPD), required to support the project-specific EIR/EIS process.
(http://www.hsr.ca.gov/docs/programs/eir_memos/Proj_Guidelines_TM0_1_PE_for_Project_Def_Guidelines_R4_021815.pdf)
- Technical Memorandum 0.1.1 Preliminary Engineering for Procurement (PE4P) Guidelines– Defines a minimum overall level of engineering design needed to support procurement of design-build contract and development of detailed construction cost estimates.
(http://hsr.ca.gov/docs/programs/eir_memos/Proj_Guidelines_TM_01_1_Preliminary_Engineering_for_Procurement_Scope_R3_131224_no_sigs.pdf)
- Technical Memorandum 0.3 Basis of Design – Defines the major components and performance objectives of the overall system to support the development of the engineering and regulatory basis for the program. The basis of design includes the performance requirements for the program.
(http://www.hsr.ca.gov/docs/programs/eir_memos/TM%200.3%20Basis%20of%20Design%20R3%20120222%20no%20sigs.pdf)
- Technical Memorandum 0.9 Process to Support Development of a CHSTP Rule of Particular Applicability – Defines the process to develop and submit recommendations to the FRA for a Rule of Particular Applicability (RPA) that supports the design criteria.
(<https://chsra.pbid.com/pmt/eng/TMs2/TM%200.9%20Regulatory%20Approval%20Protocol-PD%20Release-0/TM%200.9%20Development%20of%20a%20CHSTP%20RPA,%20R0%20100301.pdf>)

- Design Variance Guidelines – Defines the procedure for which designers may request and obtain approval to deviate from mandatory requirements established for the preliminary engineering of the program. Provides guidance for preparing a clear and concise record of relevant design standard or other mandatory requirement, proposed variance and rationale, assessment, review and decisions leading to the approval or rejection of the variance.
(http://www.hsr.ca.gov/docs/programs/construction/CP23_executed/P13_57_05_IVE_02_Design_Variance_Request_Procedure.pdf)
- Technical Memorandum 100.07 Value Engineering Implementation Plan – Provides the process of implementing accepted Value Engineering policies and procedures on the program.
(<https://chsra.pbid.com/pmt/eng/SitePages/hs-tm.aspx?View={90E58D02-D2C4-4D7E-B64B-7C8176BB6023}&FilterField1=LinkTitle&FilterValue1=TM%20100%2E07%20Value%20Engineering%20Implementation%20Plan>)

10.2 Preliminary Engineering for Environmental Review

Design criteria and standards supporting environmental reviews are provided in a series of technical memoranda (TM) covering the major high-speed rail subsystems, including infrastructure, train controls, traction power, communications and high-speed rail trains. The criteria and standards are guided by the TM 0.3 – Basis of Design Report and the Concept of Operations Report. The specific preliminary engineering design elements required to support environmental reviews are included in TM 0.1- Preliminary Engineering for Project Definition Guidelines.

TM 0.1 presents design guidance for the minimum level of engineering required for project definition needed to support the project-specific EIR/EIS process. It further defines design elements, development level and engineering outputs with the objective of providing a consistent approach for developing preliminary engineering documents across project teams, while also ensuring compliance with federal, state and local regulations as well as the program-level design criteria.

There are now over 100 individual TMs. In order to make the TM's more useful to the regional and environmental and engineering consultants, an effort is underway to update, consolidate and organize all TMs into a policy and procedures manual.

10.3 Preliminary Engineering for Procurement

Design criteria and standards supporting preliminary engineering for procurement are provided in a series of TMs covering the high-speed rail subsystems, including infrastructure, train controls, traction power, communications and high-speed rail trains, and the design criteria manual (DCM). The criteria and standards are guided by the TM 0.3 - Basis of Design and the Concept of Operations Report. The specific preliminary engineering design elements required to support the procurement documents are included in TM 0.1.1 - Preliminary Engineering for Procurement (PE4P) Guidelines.

The purpose of TM 0.1.1 is to promote the consistency of the program's engineering studies by defining the minimum overall level of engineering design needed to support the procurement of design-build contracts and the development of detailed construction cost estimates. The PE4P for each section is initiated after there is a high level of confidence in the preference for a single alignment alternative; typically, the PE4P is not initiated before the approval of the preferred alternative report and the definition of limits for procurement contracts.

The PE4P provides for a level of design for design-build procurement and recognizes that the level of design for a specific discipline will vary. The regional consultant is responsible for organizing its PE4P into contract packages. Similar to the preliminary design level, PE4P documents are reviewed for design compliance with the program's technical requirements, compliance with federal, state and local regulatory requirements and sufficiency of design to generate the procurement-level construction cost estimate. Verification of the PE4P design is achieved through reviews conducted at key stages of completion. The draft PE4P documents undergo a constructability and bidability review prior to release for use as part of the procurement package.

10.4 Final Design

Final design is supported by the California High-Speed Rail DCM, technical specifications, performance specifications and standard and directive drawings. The standards principally address design criteria for infrastructure elements and interface requirements with the other subsystems. Final design of the system's elements (train controls, traction power, communications and high-speed rail trains) will be procured using the performance specifications.

The DCM establishes the criteria, guidelines and requirements for the design of the high-speed rail's infrastructure and systems elements. Additional guidelines are required for the design of facilities of other owners/operators affected by the project. The criteria include:

- Design survey and mapping
- Trackway clearances, track geometry and track work
- High-speed rail trains and vehicle intrusion protection
- Civil, drainage and utilities
- Geotechnical and seismic
- Structures, tunnels, stations and support facilities
- Facility power and lighting systems
- Traction power supply systems, overhead contact system and traction power return system
- Grounding and bonding requirements
- Corrosion control
- Automatic train control
- Yard signaling
- Electromagnetic compatibility and interface
- Supervisory control and data acquisition subsystems
- Communications
- High-speed rail trains core system interfaces
- Safety and security

10.5 Constructability Reviews

Constructability reviews and an assessment of the construction schedule to support preliminary engineering and environmental assessments are performed as part of the development of the preliminary design submittals. General requirements for the constructability reviews are given in TM 0.1 - Preliminary Engineering for Project Definition Guidelines Design Scope.

Constructability reviews to support preliminary engineering for procurement are conducted as part of the development of the PE4P design submittals. General requirements for the constructability reviews are included in TM 0.1.1 - Preliminary Engineering for Procurement (PE4P) Guidelines.

Constructability reviews during final design consist of confirming the constructability of the preliminary engineering, then substantiating the constructability of the design in the baseline design report prepared by the design-build contractor for each contract package.

10.6 Value Engineering

The goal of the value engineering process is to improve the value of the overall program by sustaining or improving its performance attributes while also reducing overall cost, including the cost of life cycle operations and maintenance. The Authority has a draft process for implementing accepted value

engineering policies and procedures on the high-speed rail program following a three-level approach that includes:

- Level 1 – Review baseline performance and function;
- Level 2 – Review design guidelines, standardization of materials, structural types and components and assess/evaluate alternate mitigations; and,
- Level 3 – Review alternative design solutions for major components that comply with functions and design criteria while maintaining quality and safety at a lower cost.

The Authority uses the value engineering process to seek "value improvement" in various forms. For specific projects within the overall program, this may result in improvements in defining the proper scope, functional design, constructability, coordination (both internal and external) and schedule for development. Other value improvements for specific projects may include reduced environmental impact, reduced public inconvenience or reduced cost. The value engineering process strives to evaluate and incorporate, to the maximum extent possible, the values of the design engineer, construction engineer, maintenance personnel, contractor, public, approval agencies, local government and other stakeholders. The important design decisions are based on the recommendations developed and presented by the value engineering team. Specific information on the value engineering approach can be found in TM - 100.07 - Value Engineering Implementation Plan.

The Authority is also committed to cost-effective implementation of the overall program and encourages each contractor to submit a value engineering change proposal (VECP) if the contractor determines during final design and construction that an alternative not previously considered could provide added value to the Authority at a reduced total cost. The VECP is the mechanism used to change the contract requirements to reduce the cost of a project without impairing its essential functions or characteristics.

10.7 Design Variances

Design variances from design criteria, standard drawings, technical specifications and/or design guidelines are required to undergo an assessment review, approval and documentation process, as outlined in the design variance internal procedure. The guidelines for design variances are applicable during preliminary engineering, final design and construction. The guidelines establish a procedure for identifying, preparing, requesting and documenting a design variance and provide guidance for preparing a clearly articulated and concise record of the relevant design standard, required variance and rationale, assessment, review and key decisions leading to approval of the variance. The design variance request process consists of:

- Early identification of potential variances.
- Preliminary investigation of variances.
- Variance request preparation and documentation.
- Variance review and analysis of potential impacts.
- Approval or rejection of the variance.
- Communication of the approved variance to the Authority.
- Document control and feedback loop to design standards development.

The DB contractor is required to follow the design variance request process procedure to verify proper management of all deviations from the prescribed design criteria. The design changes/variances are reviewed for consistency with the approved environmental documents. Any design that is not consistent with the project, as approved in the ROD, will require additional environmental review and documentation, including the necessary justification to the FRA. The DB contractor will submit the required supplemental documentation and justification for the Authority's and FRA's review.

Changes that are minor in nature and do not require circulation will be documented with a memo to file, which will be copied to the FRA for concurrence and the design process will continue. Changes that impact

the scope, schedule or budget are required to go to the CCC for review. Changes that require a supplemental EIR/S also require FRA's review and concurrence prior to implementation.

11 RIGHT-OF-WAY

11.1 Right-of-Way Assessment and Acquisition Program

In compliance with federal and state mandates required by the California Property Acquisition Law and the Federal Uniform Relocation Assistance and Real Estate Property Acquisition for Federal and Federally Funded Policies Act of 1970, the Authority has developed policies and procedures for the appraisal, acquisition and management of real property. The Authority has also developed the program's right-of-way manual (Appendix H), which includes policies and procedures for acquiring and managing property rights through purchase, easement, lease or other legal instruments including, when necessary, condemnation. These policies and procedures are utilized consistently throughout the program.

In addition to the right-of-way manual, other tools are available for internal reporting regarding right-of-way acquisition and management, including the Right-of-Way Data Exchange System (ROWDES), a database for managing every parcel acquired by the Authority. ROWDES contains modules for each step of the acquisition/management process, including appraisals, acquisition, condemnation, costs, etc. The data generated by ROWDES, in cooperation with another database that performs calculations, enables the generation of weekly reports.

Roles and Responsibilities

The right-of-way manual defines the roles and responsibilities of the many entities involved in the acquisition process, including:

Right-of-Way Division: manages the right-of-way program from offices in the Sacramento headquarters and offices in the following regions: the Central Valley regional office in Fresno, the Southern California regional office in Los Angeles and the Northern California regional office in San Jose.

The real property office in the Sacramento headquarters is responsible for:

- Program and staff administration;
- Policy development, dissemination and compliance;
- General program oversight;
- Right-of-way program standards, procedures and procurement;
- Right-of-way consultant contract management and oversight;
- Approval of – or recommendation for approving – right-of-way deliverables; and,
- Liaison with federal and state agencies as well as stakeholders, including property owners and the public.

The Fresno office's real property staff is responsible for:

- Field oversight of the property management activities and excess land activities;
- Management of the right-of-way engineering contracts;
- Coordination with local agency partners;
- Coordination of DB issues, including change requests, approved change orders and delivery to construction; and,
- Liaison with property owners and the public.

Financial Office: Prepares and monitors the annual capital plan, tracks the funds for each transaction by funding source and appropriation, processes each transaction and oversees each disbursement.

Division of Design and Construction: Certifies the right-of-way requirements of the DB contractors for right-of-way parcel map processing, manages the change order process and manages the engineering and surveying contractors who prepare parcel surveys, appraisal maps, legal descriptions, right-of-way line staking, resolution of necessity exhibits and condemnation exhibits.

California State Public Works Board (PWB): Oversees the fiscal matters associated with construction of projects for state agencies. Under the California Property Acquisition Law, the PWB is authorized to approve real estate transactions. Before an offer of just compensation is approved, the PWB reviews the project and its budget and makes an initial determination that the state has the legal authority to purchase the property in question. Every parcel acquired for the project is screened for compliance with federal grants, state bond provisions and state budget provisions.

California Department of General Services (DGS), Real Property Services Section (RPSS): Reviews and approves each parcel appraisal for just compensation prior to a written offer for acquisition. Upon execution of the parcel's right-of-way contract, the Real Property Services Section reviews and recommends approval.

California Department of Finance (DOF), Capital Program Branch: Reviews and executes the right-of-way agreements for compliance with budgetary and project authority for the parcel acquisition under review.

Caltrans, Legal Division: Provides legal review and representation for right-of-way contracts and performs legal services for cases of eminent domain through the Effective Order of Possession.

Right-of-way group: Provides assistance in the areas of planning and environmental (as it relates to the right-of-way program), document and consultant management, workflow and reporting, right-of-way consulting and review of specialty deliverables, such as surveying and mapping, transactions processing, database administration and management and ad-hoc services by request.

Right-of-way consultant contractors: Performs right-of-way appraisal and acquisition services, including issuing initial letters to the property owners (Notice of Determination to Appraise [NODA]), conducts appraisals, issues the first written offers, conducts negotiations, prepares the administrative settlement memo; issues revised offers, establishes and provides relocation benefits and educates affected property owners about the benefits, prepares the acquisition quality checklist and prepares the memorandum of appraisal updates, the declaration of value and closes escrow and resolutions of necessity (RONs) needed for the condemnation process.

Right-of-Way Acquisition Plan

The Authority prepares a right-of-way acquisition plan for each project (divided into construction packages) once a preferred alignment has been identified and preliminary design has been completed. The acquisition plan gives priority to parcels needed for long-lead construction activities and parcels that may have complicated relocation management matters. This effort is led by the Authority's right-of-way director and the right-of-way contractors. The acquisition plan is supported by a right-of-way cost estimate based on preliminary engineering plans. Land values, improvements and damages for each property are considered in the development of the right-of-way estimate, which includes costs for temporary and permanent easements, utility easements and fee acquisitions along with a contingency for condemnation increments and settlements. Relocation expenses are also included in the estimate for those acquisitions involving displacements and/or personal property moves. Assumptions for business displacements and relocation payments are based on the right-of-way relocation plan.

The property acquisition schedule typically provides time to allow eminent domain proceedings to occur for certain parcels. The delivery contract includes anticipated possession dates for each parcel or group of parcels and each DB contractor is required to schedule its activities around the acquisition plan. If delivery of any parcel is delayed, the DB contractor rearranges the schedule to work in other areas.

Property Management Plan

Maintenance and protection of property interests acquired in the name of the State of California are provided by the property acquisition agent until control of the property is transferred to the contractor. The property acquisition agent is required to maintain an inventory of real property and improvements acquired for the project. The inventory is updated when physical possession of the property occurs. Additional responsibilities assigned to the property acquisition agent include protecting the property from vandalism, encroachment or other misuse as well as taking measures to verify public safety prior to turnover to the DB contractor. Maintenance and protection of the property are a project expense. Upon completion of the project, property management is provided by the Authority.

12 CONSTRUCTION MANAGEMENT

Once each design-build contract has been awarded, the management of the contract will fall under the auspices of the Authority's chief engineer. The Authority's established site staff report to the chief engineer. The on-site staff are supplemented by a PCM consultant who manages the DB contract under the direction of Authority.

12.1 Construction Management

The DBPP (Appendix D) outlines the Authority's approach to project delivery for the initial operating segment (Silicon Valley to Central Valley) and identifies the project implementation procedures and methods established by the Authority to achieve successful design-build project delivery.

The PCMM (Appendix E) describes in detail how the Authority will manage execution of the design-build projects through the use and integration of the Authority staff, PCM consultants, project delivery team and other consultants. The PCMM describes the procedures and policies for initiating and progressing project construction and complies with the program's safety and security management plan, quality management plan and program-wide procedures. It provides a framework for:

- Program structure and organization
- Contract administration
- Communication/documentation/reports
- DB contract submittals
- Verification, validation and self-certification
- Interface management and coordination
- Quality management
- Safety and security
- Schedule control
- Changes and claims
- Right-of-way
- Public involvement
- Completion and closeout

The PCMM establishes uniform guidelines and procedures in contract management and administration and design and construction oversight for each design-build contract. The PCMM addresses responsibilities subsequent to the award of contracts. It also presents, interprets and clarifies established general policies and practices applicable to the work in dealing with various situations that may arise throughout the contract's duration. It also defines the lines and flow of correspondence, and identifies specific tasks and the parties responsible for their successful completion.

Interface Management Plans have been completed for CP 1, CP 2-3 and CP 4 and are available upon request.

The PCM contract management manual, developed by the PCM consultant for each of the DB contract, incorporates project procedures and identifies deliverables from the PCM that are required to provide the level of design and construction oversight commensurate with the staffing, resources and scope authorized under each PCM contract.

12.2 Maintenance of Traffic

Provisions for maintenance of traffic during construction are included in various sections of the general provisions for CP 1, CP 2-3 and CP 4. Generally, these provisions require written public notification and maps, adherence to local and state requirements, and in compliance with the current California Manual on Uniform Traffic Control Devices (CA MUTCD). Specific information can be found in the general provisions in Book 2, Part B of CP 1 and Book 1, Part B.2 of CP 2-3 and CP 4.

Similar requirements will be included in future contracts regardless of the type of contracting method.

12.3 Materials Testing and Procedures

The DB contractor is responsible for providing inspection and testing for materials utilized on the program, as outlined in the contract documents.

As outlined in the PCMM, if material arrives on the project site without evidence of materials inspection by the DB contractor's quality inspectors, the PCM shall promptly contact the DB contractor and the Authority's design and construction manager to determine the appropriate course of action.

The DB contractor is also required to implement effective testing control measures to verify adequate quality in performance of their activities. These test requirements are to be defined in the final design documents prepared by the DB contractor and outlined in the DB contractor's inspection test plan. The PCM is responsible for oversight of the DB contractor's implementation of their quality manual which includes the inspection test plan.

The PCM's quality assurance representatives monitor and/or audit design and/or construction activities.

12.4 Self-Certification and Verification and Validation

As part of the design-build construction packages, the contractor is required to implement a verification and validation (V&V) approach that employs independent V&V based on proven international practice in high-speed rail and internationally accepted standards. The self-certification process is outlined as follows:

1. DB contractor prepares technical contract submittal (including final design, construction, inspection and test submittals) and performs quality procedures per the contract.
2. DB contractor submits technical contract submittal together with the DB contractor's V&V submittal to the Independent Checking Engineer/Independent Site Engineer (ICE/ISE).
3. ICE/ISE shall assess and evaluate the technical contract submittal to certify that the final design/construction meets the contract requirements per the contract. ICE/ISE shall submit an assessment report and certification to the Authority's representative with a copy to the DB contractor.
4. DB contractor shall submit technical contract submittal, including self-certification, the DB contractor's V&V submittal, ICE/ISE assessment report, and certification to the Authority's representative.
5. The Authority's representative will perform audit and due diligence review as required and issue statement of no objection (SONO) or approval, if given, based upon audit and additional review results and ICE/ISE assessment report and certificate.

The DB contractor is required to develop and implement a comprehensive V&V process to demonstrate how the technical and contract requirements are met during final design, construction and testing, and in support of the technical contract submittals. The V&V process is to be based on the general provisions of IEEE 1220/IEC 26702 "Systems Engineering – Application and Management of the Systems Engineering Process" and follow the general provisions of IEC 15288 "Life Cycle Management-Systems Life Cycle Processes." The DB contractor will prepare a V&V Plan that addresses the specific processes for requirements management, design management, interface management, and inspection and testing management. The plan includes:

- Contract life cycle phases.

- Deliverables for each phase.
- Activities for each phase, roles and responsibilities.
- Tools and methods to be used.
- Inputs for each phase.
- Stakeholder considerations.
- Metrics used to measure and report progress.

The contractual requirements for self-certification and V&V are included in special provisions for each DB package.

The V&V process will carry throughout the entire program regardless of contracting methods to ensure the completed project meets all requirements and functions as intended.

12.5 Construction Close-out

Contract completion and close-out is a critical element in the lifecycle of a construction project. Planning for the close-out of the project begins at contract commencement with the PCM developing a contract specific completion/close-out plan in accordance with procedures outlined in Section 14 “Completion/Close-out” of the PCMM. Completion of each contract includes three main divisions: physical completion, fiscal completion and record document completion.

Project physical completion involves not only Authority inspection and acceptance, but also public agencies, franchised utilities companies, and railroads. Final acceptance of the project will be issued once all punch list items are completed and the DB contractor restores the site to the condition required by the final environmental documents. At that time the DB contractor delivers a certification representing there are no outstanding claims, liens or stop notices of any subcontractor or laborer with respect to the work performed.

Project fiscal completion involves all data, processes and files necessary for audit and final payment. The fiscal completion phase may well start prior to the physical completion of the facility. The Authority, in accordance with the general conditions, may choose to release or hold part of the retention prior to or subsequent to the final closeout package stage of payment, based on advice of legal counsel.

The PCM is required to review the record documents for completeness and include them in the final contract documents at the project completion. The field records shall have undergone a final audit by the Authority’s project representative. The PCM transfers the correspondence files to record storage at contract closeout.

13 SAFETY AND SECURITY

Safety and security are priority considerations in the planning and execution of work activities for the program. System safety and security includes a hazard and vulnerability management process that incorporates the characteristics of planning, design, construction, testing, operational readiness and subsequent operation of the system to verify the safety and security of employees, contractors, emergency responders and the public. Successful management of safety hazards and security vulnerabilities is achieved by identifying and analyzing potential hazards and vulnerabilities and developing mitigation measures to reduce the risk to a level acceptable to the Authority. To achieve program-wide safety and security, proven technical standards are applied, many of which have been adopted from service-proven high-speed rail systems in Europe and Asia. In addition, U.S. transportation safety and security standards that comply with the most recent federal and state requirements are applied.

13.1 System Safety and Security

System safety and security management consists of an approach that incorporates federal, state and local requirements with industry best practices. The approach to safety and security management includes a definition of roles and responsibilities throughout the delivery team and the processes used for communication and action on safety and security matters. A key element is the formation by the Authority of safety and security committees whose members have the technical expertise and executive-level support to provide oversight, review and Authority approval of safety and security activities that could affect the program's development and operation.

Safety and Security Management Plan

The Authority's safety and security management plan (SSMP, Appendix I) describes the system safety and system security activities, responsibilities and verification processes to be applied during the planning, design, construction, testing and startup phases of the program. In the absence of current FRA regulations governing the safety and security requirements of major capital projects, the plan closely adheres to the program requirements of FTA with adjustments made to accommodate the unique life cycle characteristics of California's high-speed rail program.

The SSMP formalizes the technical and management strategies for determining safety and security risk acceptance throughout the system's life cycle. The SSMP defines the process for identifying, evaluating and resolving safety hazards and security vulnerabilities associated with operations of the program prior to the start of revenue service, including preliminary engineering, final design, construction, testing and start up.

The provisions of the SSMP establish:

- The Authority's commitment and philosophy to achieve the highest practical level of safety and security for the staff of the Authority, consultants and contractors, emergency responders and members of the public.
- Process for managing safety and security activities intended to minimize the risk of injury and property damage and maximize the safety and security of the system's passengers, employees and stakeholders living and working along the alignment.
- Integration of safety and security functions and activities throughout the program's development.
- Safety and security responsibilities of the Authority and the consultants responsible for design, construction and start up.
- Process for documenting and verifying safety and security activities.
- Process for monitoring project phases and activities to verify continued development and advancement of safety and security principles.
- Management processes and requirements for construction safety and security.

Hazard Management

The Authority has implemented a risk-based hazard management program to identify and assess safety hazards and security risks to enable the application of mitigation measures that reduce the risk to a level acceptable to the Authority. The program delivery consultant is responsible for analyzing safety and/or security risks as well as the corresponding mitigation measures, which are incorporated into the design criteria. The hazard management program also includes implementing and monitoring the safety and security certification program to verify that requirements pertaining to safety and security are included in the design, construction and implementation of the high-speed rail system.

Safety and Security Certification

The Authority's program for safety and security certification, included in the SSMP, describes the responsibilities and processes required to demonstrate that the system is safe and secure. This requirement, which includes every phase and project section of the program, must be completed prior to the start of revenue operations. Based upon program requirements found in the FTA Handbook for Transit Safety and Security Certification, the applicable requirements include FRA Regulations 49 CFR 236, Subparts H & I for positive train control; draft FRA Regulations 49 CFR, Part 270 for system safety programs; and Transit Security Administration program requirements.

13.2 Construction Safety and Security

Contractors must verify that their work complies with federal, state and local safety and security regulations and fulfills SSMP and contractual requirements. Each contractor is required to develop a safety and security management plan that identifies how the contractor will achieve compliance with the contract requirement, the Authority's SSMP and local, state, and federal workplace safety regulations. Contractors must also develop for each job site a site-specific health and safety plan and a site-specific security plan that identifies local conditions and requirements pertaining to the work to be performed at that location.

The Authority, with the assistance of the PCM, has oversight responsibilities for each contractor's construction safety and security program. As the Authority's primary representative regarding the management of the contractor's construction safety and security activities, each PCM develops and submits a safety and security program oversight plan to the Authority describing the process for providing oversight of the contractor's activities.

Each contractor must provide employees with a safe and healthy work environment and with training in the use of personal protective equipment. The contractor must demonstrate that effective actions are being taken to provide and enforce the safe work conditions and practices that are documented in the contractor's SSMP. In addition, it is the contractor's responsibility to verify that subcontractors and suppliers are working safely on the site.

13.3 Security Strategy Implementation

The Authority's risk-based security strategy addresses the unique needs and characteristics of the program. The security strategy includes:

- Coordination with federal, state and local security agencies.
- Security staffing program development, including sworn and unsworn security personnel.
- Evaluation and recommendations for security technology deployment.
- Identification and assessment of security requirements for design and operations.
- Negotiations with state and local law enforcement agencies to support the Authority's security program.

13.4 Regulatory Approvals

The Authority will manage compliance with the safety and security regulatory requirements of the jurisdictional agencies, including the FRA, CPUC, California Office of State Fire Marshal and the U. S. Transportation Security Administration.

14 OPERATIONS AND MAINTENANCE PLANNING

14.1 Customer-Operations-Build-Design Delivery Model

When creating an entirely new railroad, everything should begin with the customers' needs in mind. Customer needs feed into a concept for how the railroad will operate, which informs its construction which, in turn, confirms design. This process is called the customer-operations-build-design (COBD) process (Figure 11). The COBD process begins with the operations and maintenance group.



Figure 11. COBD Delivery Model

The operations and maintenance group ensures that the program is capable of meeting its service level and customer expectations from the day of opening. Being accountable for the planning of efficient rail service operation is a complex task requiring early stage and continuous involvement in the planning, design, testing and delivery of the program. The group's responsibilities include, but are not limited to:

- Consider the needs of riders and other customers to inform operations planning and overall service plan design.
- Coordinate with other railroad operators to deliver safe, efficient operation of train services on adjacent and/or shared railroad systems (e.g. Caltrain, Metrolink).
- Develop and maintain an operations plan which includes:
 - The timetable to operate across the high-speed rail network.
 - The processes and procedures to support operational delivery, including inspection, maintenance, renewals and upgrades required to meet the high-speed rail system's service level and customer expectations.
 - Contingency arrangements to be implemented during periods of disruption.
- Identify key operational milestones that contribute to the delivery of the operating plan.
- Develop and maintain an asset maintenance and renewal plan, including recommendations on methodology, machinery required and location of facilities.
- Represent the viewpoint of an infrastructure owner and a train operator within the program delivery team before procuring the infrastructure provider and/or operating concessionaire.
- Assist in developing infrastructure provider and/or operating concession contract procurements.
- Assist in developing the asset management system from the perspective of an infrastructure owner.
- Provide the concept of operations, maintenance and renewal that will be used to inform the development of railway system performance specifications and subsequent design documents.

14.2 Planning for Operations Start-up

Planning for the operational start of revenue service will follow the program planning direction and milestones set forth in the business plan with focus on establishing the scope and schedule details for

service milestones. A Ridership and Revenue Forecasting report (Appendix J) was prepared for the 2016 Business Plan.

As the construction progresses, the program management team will continue to monitor the schedules for critical high-speed rail business plan milestone years (including the first leg of the initial operating segment (Silicon Valley to Central Valley) and passenger operations) which include testing, commissioning and start of service activities. This involves the integrated plans and schedules for bringing into service the track and systems elements as well as operations and maintenance facilities thereby completing the system commissioning milestone.

It is intended that design, installation, integration and testing of the various system components will be supported by the technical requirements and performance specifications. As infrastructure elements, maintenance facilities, high-speed rail trains, etc., are built and ready for service, a skeleton management team and crew are employed to oversee and maintain this investment. Once a revenue start date is planned the program moves into a new phase. A systems testing and operations start-up plan that outlines the transition from construction to operations will be provided at that time. It will be developed following a decision on the business model for operations and maintenance of the high-speed rail system.

The staffing and training of personnel in preparation of revenue service operations is planned, and will be scheduled and executed.

Some of the items that are included in this section of work include the following:

- Ticketing systems
- Staffing and hiring plan
- Training plan and schedule
- Station operations
 - Staffing and security
- Service Schedules
 - Vehicle maintenance cycles to include cleaning, inspections, maintenance, etc.
- Simulated revenue service
- Revenue operations and fare collection

APPENDIX A-REFERENCED PLANS, POLICIES AND PROCEDURES

2016 Business Plan:

http://www.hsr.ca.gov/About/Business_Plans/2016_Business_Plan.html

Additional Guidance for Determining Impact Significance under NEPA-Revision 1:

[https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/NEPA%20Impact%20Guidance%20\(Sep%20%202016\).pdf](https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/NEPA%20Impact%20Guidance%20(Sep%20%202016).pdf)

Project Documentation Guidance:

<https://chsra.pbid.com/pmt/Environmental/VL/03.%20Environmental%20Admin%20Record%20Guidance/20160105%20Revised%20Documentation%20Guidance-%20Admin%20Record%20FINAL.pdf>

Alternatives Analysis Methods for Project EIR/EIS:

<https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Alternatives%20Analyses%20Methods.pdf>

Agency, Environmental Justice and Tribal Coordination Guidelines For Project-Level EIR/EIS Technical Memorandum:

<https://calhsr.sharepoint.com/sites/theterminal/pp/PROC-ENVR-12>
[Agency Env Justice and Tribal Coordination Guidelines Project Level EIR EIS.pdf](#)

Authority Style and Branding Guide:

https://chsra.pbid.com/pmt/Environmental/VL/02.%20Environmental%20Document%20Style%20Guide/Authority_Style_and_Branding_Guide_2015.pdf

California High-Speed Train Project: Urban Design Guidelines:

http://www.hsr.ca.gov/docs/programs/green_practices/sustainability/Urban%20Design%20Guidelines.pdf

Design Criteria Manual:

http://www.hsr.ca.gov/docs/programs/construction/CP23_executed/P13_57_EX_IIIA_01_Design_Criteria_Manual.pdf

Design Variance Guidelines TM 1.1.18:

http://www.hsr.ca.gov/docs/programs/construction/CP23_executed/P13_57_05_IVE_02_Design_Variance_Request_Procedure.pdf

EIR/EIS Templates:

<https://chsra.pbid.com/pmt/Environmental/SitePages/Home.aspx>

Environmental Compliance Program Manual:

<https://chsra.pbid.com/pmt/Environmental/pa/compliance/Forms/AllItems.aspx>

Environmental Re-Examination Process Guidance:

[https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Env%20Re-Exam%20Guidance_Complete%20Doc%20\(April%202014\).pdf](https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Env%20Re-Exam%20Guidance_Complete%20Doc%20(April%202014).pdf)

FTA Handbook for Transit Safety and Security Certification:

<https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/SSC.pdf>

Guidance for Multi-lingual Public Outreach Guidelines:

<https://chsra.pbid.com/pmt/Environmental/VL/07.%20Outreach%20and%20Participation%20Guidance/Guidance%20for%20Multi-lingual%20Public%20Outreach%20Ver%201.pdf>

Guidance for Preparing Environmental Reviews for Electrical:

https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Env_Review_for_Electrical_Interconnections.pdf

HST Station Area Development: General Principals and Guidelines:

[https://chsra.pbid.com/sites/ao/pm_pub/pf/POLI-PLAN-01%20HST Station Area Development General Principles and Guidelines.pdf](https://chsra.pbid.com/sites/ao/pm_pub/pf/POLI-PLAN-01%20HST%20Station%20Area%20Development%20General%20Principles%20and%20Guidelines.pdf)

Independent Utility Memorandum:

[https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Authority Independent Utility Letter 02102009.pdf](https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Authority%20Independent%20Utility%20Letter%2002102009.pdf)

Programmatic Agreement among FRA, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California High-Speed Rail Authority Regarding Compliance with Section 106 of the National Historic Preservation Act, as it pertains to the California High-Speed Train Project:

<https://chsra.pbid.com/pmt/Environmental/VL/05.%20Cultural%20Resources%20Guidance/Section%20106%20Programmatic%20Agreement%20Ver%201.pdf>

Project Design Criteria Manual Chapter 14 Stations:

[https://chsra.pbid.com/pmt/pln/plndocs/Des%20Crit%20Manual%20Chap14%20Stations%20%2031Mar2016 Submittal%20Issued.pdf](https://chsra.pbid.com/pmt/pln/plndocs/Des%20Crit%20Manual%20Chap14%20Stations%20%2031Mar2016%20Submittal%20Issued.pdf)

Project Environmental Document Style and Preparation Guidelines:

<https://chsra.pbid.com/pmt/Environmental/VL/02.%20Environmental%20Document%20Style%20Guide/EnvDocStyleGuide-Final-04-17-15.pdf>

Project EIR/EIS Environmental Methodology Guidelines:

[https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Project_EIR-EIS Environmental Methodology Guidelines-Version5.pdf](https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Project_EIR-EIS_Environmental_Methodology_Guidelines-Version5.pdf)

Refined Guidance on Project EIR/EIS and Technical Report Content:

[https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Technical Report Preparation Guidance%20\(April%202016\).pdf](https://chsra.pbid.com/pmt/Environmental/VL/01.%20Environmental%20Methods/Technical_Report_Preparation_Guidance%20(April%202016).pdf)

Safety and Security Management Plan:

https://chsra.pbid.com/pmt/ss/VL/SSMP_REV2_Final_Signed.pdf

Safety and Security Policy Statement TM 500.01:

[http://www.hsr.ca.gov/docs/programs/construction/CP23_RFP_13_57/mandatory/P13_57_IVC_06 Safety Security Policy Statement.pdf](http://www.hsr.ca.gov/docs/programs/construction/CP23_RFP_13_57/mandatory/P13_57_IVC_06_Safety_Security_Policy_Statement.pdf)

Scoping Guidelines for Project-Level EIR/EIS:

https://calhsr.sharepoint.com/sites/theterminal/pp/PROC-ENVR-07%20Scoping_Guidelines_for_Project_Level_EIR_EIS.pdf

Small-Business/DBE Program:

http://www.hsr.ca.gov/Programs/Small_Business/policy.html

Station Area Parking Guidance Technical Memorandum:

<https://chsra.pbid.com/pmt/pln/plndocs/Revised%20Station%20Area%20Parking%20Guidance%20with%20signatures.pdf>

Sustainability Policy:

https://calhsr.sharepoint.com/sites/theterminal/pp/POLI_PLAN_03_Sustainability_Policy.pdf

Technical Memorandum 0.1 Preliminary Engineering for Project Definition Guidelines:

http://www.hsr.ca.gov/docs/programs/eir_memos/Proj_Guidelines_TM0_1_PE_for_Project_Def_Guidelines_R4_021815.pdf

Technical Memorandum 0.1.1 Preliminary Engineering for Procurement Guidelines:

http://hsr.ca.gov/docs/programs/eir_memos/Proj_Guidelines_TM_01_1_Preliminary_Engineering_for_Procurement_Scope_R3_131224_no_sigs.pdf

Technical Memorandum 0.3 Basis of Design Policy:

http://www.hsr.ca.gov/docs/programs/eir_memos/TM%200.3%20Basis%20of%20Design%20R3%20120222%20no%20sigs.pdf

Technical Memorandum 0.9 Process to Support Development of a CHSTP Rule of Particular Applicability:

<https://chsra.pbid.com/pmt/eng/TMs2/TM%200.9%20Regulatory%20Approval%20Protocol-PD%20Release-0/TM%200.9%20Development%20of%20a%20CHSTP%20RPA,%20R0%20100301.pdf>

Technical Memorandum 100.07 Value Engineering Implementation Plan:

<https://chsra.pbid.com/pmt/eng/SitePages/hs-tm.aspx?View={90E58D02-D2C4-4D7E-B64B-7C8176BB6023}&FilterField1=LinkTitle&FilterValue1=TM%20100%2E07%20Value%20Engineering%20Implementation%20Plan>

Technical Memorandum 200.06 Aesthetic Guidelines for Non-Station Structures:

http://www.hsr.ca.gov/docs/programs/eir_memos/Proj_Guidelines_TM200_06R00.pdf

Technical Memorandum 200.07 Aesthetic Review Process for Non-Station Structures:

http://www.hsr.ca.gov/docs/programs/eir_memos/Proj_Guidelines_TM200_07_PROC_PLAN_Aesthetic_Review_Process_for_Non_Station_Structures.pdf

Unallocated Contingency Management Plan:

<https://chsra.pbid.com/pmt/gm/layouts/AccessDenied.aspx?Source=https%3A%2F%2Fchsra%2Epbid%2Ecom%2Fpmt%2Fgm%2Fdeliverables%2FCHSRA%20Unallocated%20Contingency%20Management%20Plan%20Update%20Period%20Ending%2010%2E30%2E13%2Epdf>

Verification Validation and Self-Certification Procedures:

http://www.hsr.ca.gov/docs/programs/construction/CP23_executed/P13_57_05_IVE_01_Verification_Vali_dation_SelfCert_Procedures.pdf

Plans and procedures currently under review or revision (Available once approved):

Master Quality Plan
Statewide and Regional Communications Plans
Stakeholder Relation Plans
Statewide Rail Modernization Plan
Schedule Management Procedure
Cost Management Procedure
Earned Value Management Procedure
Records Management and Document Control Plan

Project plans and DB Contractor plans are available upon request.

APPENDIX B-CAPITAL COST BASIS OF ESTIMATE REPORT

APPENDIX C-1 PHASE I PROGRAM FINANCIAL PLAN

APPENDIX C-2 CENTRAL VALLEY PROJECT FINANCIAL PLAN

**APPENDIX D-DESIGN-BUILD PROGRAM PLAN AND PROJECT MANAGEMENT
PLAN FOR THE FIRST CONSTRUCTION SEGMENT**

APPENDIX E-PROJECT AND CONSTRUCTION MANAGEMENT MANUAL

APPENDIX F-MASTER QUALITY PLAN

APPENDIX G-RISK MANAGEMENT PLAN

APPENDIX H-REAL ESTATE ACQUISITION AND MANAGEMENT PLAN

APPENDIX I-SAFETY AND SECURITY MANAGEMENT PLAN

APPENDIX J-RIDERSHIP AND REVENUE FORECASTING

APPENDIX K-CROSS REFERENCE FOR FRA PMP TABLE OF CONTENTS

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1.0	Introduction	
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	Project History	1.2
	Project Scope	1.3
	Schedule	1.4
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	Delivery Strategies	1.7
2.0	Project Leadership and Team Organization	
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	Project Team Organization Chart, roles/responsibilities	2
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	Plan to provide Technical Capacity and Capability (see sub-plan below)	2.5
3.0	Government/Community/Labor Relations and Railroad Agreements and other Third Party Agreements	
	Plan for management of:	3
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	Intergovernmental and utility agreements	3.3
	Stakeholder communications, public participation	3.4
	Agreements with host railroads and other transp entities	3.5, 3.6
	Labor relations including project labor agreements, establishment of wage rates and classifications, wage and hour requirements, and adherence to state and local requirements, etc.	4.3
4.0	Planning/Concept Design	
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	establishment of project rationale	
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	management of process to achieve service outcome agreement	14.0
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	management and implementation of mitigation actions	

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c	Plan for investigation and testing including site surveys, geotechnical and materials investigation before and during design, and during construction	
d	Plan for Preliminary Engineering	
e	Plan for development and management of Final Design	
f	Plan for safety and security (see sub-plan below)	
g	Plan for QA QC (see sub-plan below)	6
h	Plan for real estate RAMP (see sub-plan below)	11
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j	Plan to manage changes, config control for design/const	5.1; DBPP-6; PCMM-11
k	Plan for management of design reviews including:	10; DBPP-6.4.6, 6.4.7
	Value Engineering	
	Coordination Reviews	
	Constructability Reviews	
	Reviews for Operations and Maintenance	4.2
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7.0	Management and Project Controls	
a	Scope Control and Configuration-approach to mgmt	5.1; DBPP-6.3; PCMM-3,10
b	Budget and Cost Control-approach to mgmt including descriptions of cost estimating methodologies and assumptions	
c	Schedule Control-approach to management including descriptions of scheduling methodologies and assumptions	
d	Risk Control-approach including risk identification, evaluation, management; including contingency control	7, 5.1; RMP; PCMM-3.17
e	Overall Project Tracking and Reporting	5.1; DBPP-6.4.2.7; PCMM-4
f	Document Control and Records Management including approach to review, track changes, distribution, storage	
g	Dispute/Conflict Resolution Plan	5.1; DBPP-6.4.8; PCMM-11.13
8.0	Project Delivery, Procurement, Contract Administration	
	Contracting Authority	4; DBPP-5, 6
	Procurement Strategy-selection of delivery methods	
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9.0	Construction Management	
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	Construction Inspection including Materials Testing Procedures	12.3; PCMM-8
	Site Logistics Plan including Maint. Of Traffic/Ops	12.2; PCMM-9
	Coord w/ Third Parties affected by construction	3.4, 3.5, 3.6; PCMM-7,13; DBPP-6.4.7.8
	Construction Contract Administration including plan for: Processing shop drawings, bulletins, RFIs	12.1; PCMM-5
	Negotiating and approving change orders and claims	5.1; PCMM-11; DBPP 6.4.7, 6.4.8
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12.0	Quality Assurance, Quality Control Plan (MP 24)	Appendix F
13.0	Safety and Security Management Plan (MP 22)	Appendix I
14.0	Real Estate Acquisition and Management Plan (MP 23)	Appendix H
15.0	Vehicle Acquisition and Management Plan (MP 38)	Future
16.0	Risk and Contingency Management Plan (RCMP) (MP 40)	Appendix G
17.0	Finance Plan (MP 40)	Appendix C

Barnes, Juliana (FRA)

From: Barnes, Juliana (FRA)
Sent: Wednesday, May 31, 2017 2:45 PM
To: Malone, Desiree@HSR
Cc: rlvaldez@transystems.com
Subject: FW: Feedback: Q4-16 Deliverables (Program Management Plan)
Attachments: Review Comment Matrix.docx; PMP 2016 Annual Update FINAL.pdf

Hi Desi,

As a follow up to our conversation on 5/25 on annual deliverables, FRA was to provide feedback on the 2016 PMP as a first step in shaping the upcoming 2017 PMP.

In review of the 2016 PMP, to ensure that we're tracking the 12 requirements as outlined in US code and required by FRA, would you be able to review the attached "Review Comment Matrix" provided by CHSRA on 3/20 and update it to reflect the 12 requirements and corresponding location in the PMP? This would greatly assist us in ensuring we're capturing all the information provided to provide accurate feedback as it pertains to those required topics.

Thank you,
Juliana

From: Malone, Desiree@HSR [mailto:Desiree.Malone@hsr.ca.gov]
Sent: Monday, March 20, 2017 2:25 PM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Cc: mlrule@transystems.com; Everett, Lynn (FRA) <lynn.everett@dot.gov>; Giovinazzi, Giles@DOT <Giles.Giovinazzi@dot.ca.gov>; Gilliland, Barbara@HSR <gilliland@pbworld.com>; rlzimmerer@transystems.com
Subject: RE: Feedback: Q4-16 Deliverables (Program Management Plan)

Hi Juliana,

Attached is a revised PMP, along with a matrix that reflects FRA's comments and the page number location for easy reference.

From: Barnes, Juliana (FRA) [mailto:juliana.barnes@dot.gov]
Sent: Wednesday, March 01, 2017 1:40 PM
To: Malone, Desiree@HSR
Cc: mlrule@transystems.com; Everett, Lynn (FRA); Giovinazzi, Giles@DOT; Gilliland, Barbara@HSR; rlzimmerer@transystems.com; Barnes, Juliana (FRA)
Subject: Feedback: Q4-16 Deliverables (Program Management Plan)

Hi Desi,

FRA acknowledges receipt of the Program Management Plan submitted to FRA December 29, 2016.

Please see the following feedback after initial review of the Program Management Plan (PMP0:

I0195

1. FRA appreciates the changes CHSRA made and additional information it added to this deliverable since last year's PMP.
 - a. Several important topics were removed from this year's PMP when compared to past versions. *Please incorporate these topics back into your re-submitted version:*
 - i. *Updated Conflict Resolution Procedures*
 - ii. *Updated Contingency Management Plan*
 - iii. *Current Insurance Program*
 - b. In addition, please add a link in the PMP to the following documents referenced in the PMP:
 - i. *CHSRA's Performance Expectation Sheets and Performance Regime Deliverables for its RDP*
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 - iii. *Program-Wide Procurement Management Plan*
 - iv. *Document Control Plan*
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2. In the past, FRA asked for an appendix that cross-references the FRA's requirements for a project management plan with the chapters/sections and subsections of the PMP. FRA has also asked that this document include any relevant chapters/sections of other documents the PMP references so that one can easily find the most important information.
 - a. *Add an appendix document cross-referencing the FRA's requirements for a project management plan with the various chapters/sections and subsections of the PMP as well as with any relevant chapters/sections of key documents the PMP references.*
 - i. *The twelve components required by federal law are those referenced in the Introduction (page 3) of the PMP you submitted.*
3. The PMP references a multitude of other documents; a few of which are not available or not finalized, including, but not limited to, the Project Environmental Document EIR/EIS Publication & Public Outreach Guidance.
 - a. *Provide copies of, or provide access to, current versions of every document referenced in the PMP. Note that the Risk Management Plan is from the June 2013 and should be updated.*
4. Chapter/Section 12 (Construction Management) ends abruptly in the middle of the sentence; thus, it is incomplete.
 - a. *Complete Chapter/Section 12.*
5. While the PMP provides organizational charts, they are incomplete in that there are no names of individuals or their associated contact information. In addition, in later chapters/sections of the PMP, roles/titles are used that do not directly correlate back to a role/title on the organizational chart. For example, in Chapter/Section 5 (Program & Project Management), the PMP refers to a program control manager, but there is no such role/title on any organizational chart.
 - a. *Add names to the organizational charts as well as use consistent roles/titles throughout the document or add additional roles/titles on the organizational charts.*
6. The CHSRA Program Phase 1 Milestone Table is not current.
 - a. *Provide an updated version of Phase 1 Milestone Table.*

Please note FRA is returning the deliverable after review and requests resubmission after addressing the above FRA comments for further development no later than March 17.

Regards,

Juliana Barnes, PMP
Project Manager
Office of Program Delivery (RPD-15)
Federal Railroad Administration
801 I St., Suite 466
Sacramento, CA 95814

From: Malone, Desiree@HSR [<mailto:Desiree.Malone@hsr.ca.gov>]
Sent: Thursday, December 29, 2016 2:10 PM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Cc: mlrule@transystems.com; Everett, Lynn (FRA) <lynn.everett@dot.gov>; Giovinazzi, Giles@DOT <Giles.Giovinazzi@dot.ca.gov>; Gilliland, Barbara@HSR <gilliland@pbworld.com>; Malone, Desiree@HSR <Desiree.Malone@hsr.ca.gov>
Subject: Q4-16 Deliverables - Email 2 of 3

Hi Juliana,

As stated in the email 1 of 3 - the sum of the Q4 deliverables are too large to send in one email; therefore, I'm spreading them over 3 emails. Each email will have a separate transmittal form for the included deliverables.

This second of 3 emails includes:

- Q4-16 Deliverables Transmittal 2
- 2016 Annual Work Plan
- 2016 Program Management Plan

If you have any questions, or something fails to open for you, please let me know.

Desi Malone
Grant Manager
California High-Speed Rail Authority
770 L Street, Suite 870
Sacramento, CA 95814
w: (916) 330-5640
c: (916) 291-4121
desiree.malone@hsr.ca.gov
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Federal Railroad Administration

Office of Passenger and Freight Programs

California High-Speed Train Program

FR-HSR-0009, FR-HSR-0118

Annual Deliverables Discussion

FRA Review Comments

Thursday, May 25, 2017



Annual Deliverables Discussion

FRA's Overarching Comments



Annual Deliverables Discussion

FRA’s Review Comments RE All 3 Annual Deliverables

FRA needs to understand the “how.”

- FRA would like to understand CHSRA’s processes (the “how”), so that we can be comfortable with CHSRA’s self-assurances – so that we can defend/explain CHSRA’s actions.
 - We understand that some of the information/topics we discuss on the slides that follow can be sensitive in nature, so FRA is open to other ways of communicating. The issue at present is that CHSRA is not communicating the requisite information/topics to FRA.
- In their current state, the annual deliverables focus on the “what”; what requirements CHSRA is following and what policies CHSRA is implementing.
 - This does not allow for effective communication to FRA, as it offers no new insight other than what is available to the public.
 - FRA is interested in “how” CHSRA is meeting requirements and implementing policies.



How Deliverables Relate & Differ



Annual Deliverables Discussion



How Annual Deliverables Relate & Differ

Program Management Plan

- The Program Management Plan (PMP) covers CHSRA’s approach to manage scope, schedule, budget, and risk over the life of the program.
 - The PMP is the framework and foundation for the other deliverables.

Annual Work Plan

- The Annual Work Plan (AWP) explains what CHSRA is doing this year to stay on target with scope, schedule, budget, and risk.
 - Explain how is the CHSRA staying on top of things this year in the context of its approach to manage scope, schedule, budget, and risk over the life of program as detailed in the PMP.

Central Valley Project Financial Plan

- The Central Valley Project Financial Plan (CVFPF) is a financial plan for the First Construction Segment, including its early/interim use.
 - Tasks 1-4 (but only for Merced – Fresno and Fresno – Bakersfield) and Tasks 5-10.
 - The grants specifically fund the First Construction Segment, not the Silicon Valley to Central Valley Initial Operating Segment.



Other Related Deliverables

Phase 1 Program Financial Plan

- The Phase 1 Program Financial Plan is a financial plan for the scope of work of the grants.
 - A financial plan that covers the First Construction Segment (FCS) as well as the environmental clearance and preliminary design/engineering for Phase 1.
 - This is in contrast with a financial plan that covers environmental clearance, preliminary design/engineering, final design, construction, and operation of Phase 1, which is the subject of CHSRA's Business Plans.
 - This plan is inclusive of the CVPFP. This is a one-time deliverable whereas the CVPFP is annual because the budget for the FCS is more likely necessitate changes, given the nature of construction. However, CHSRA may revise/update any deliverable at any time as warranted.



Other Related Deliverables

Quarterly Progress Reports

- Four quarterly progress reports... shall be submitted for periods: January 1 – March 31, April 1 – June 30, July 1 – September 30, and October 1 – December 31. The Grantee shall furnish one (1) copy to the Grant Manager on or before the thirtieth (30th) calendar day of the month following the end of the quarter being reported. Each report shall set forth concise statements concerning activities relevant to the project, and shall include, but not be limited to, the following:
 - Relate the state of completion times in the Statement of Work to expenditures of relevant budget estimates.
 - An account of significant progress (findings, events, trends, etc.) made during the reporting period.
 - A description of any technical and/or cost problems encountered or anticipated that will affect completion of the grant within the time and fiscal constraints as set forth in the grant agreement, together with recommended solutions or corrective action plans (with dates) to such problems, or identification of specific action that is required by the FRA, or a statement that no problems were encountered.
 - An outline of work and activities planned for the next reporting period.



Program Management Plan Deep Dive



Annual Deliverables Discussion

Program Management Plan Review Comments Deep Dive

The United States Code requires a PMP to provide for the following:

1. adequate recipient staff organization with well-defined reporting relationships, statements of functional responsibilities, job descriptions, and job qualifications;
2. a budget covering the project management organization, appropriate consultants, property acquisition, utility relocation, systems demonstration staff, audits, and miscellaneous payments the recipient may be prepared to justify;
3. a construction schedule for the project;
4. a document control procedure and recordkeeping system;
5. a change order procedure that includes a documented, systematic approach to handling the construction change orders;
6. organizational structures, management skills, and staffing levels required throughout the construction phase;



Program Management Plan Review Comments Deep Dive

The United States Code requires a PMP to provide for the following:

7. quality control and quality assurance functions, procedures, and responsibilities for construction, system installation, and integration of system components;
8. material testing policies and procedures;
9. internal plan implementation and reporting requirements;
10. criteria and procedures to be used for testing the operational system or its major components;
11. periodic updates of the plan, especially related to project budget and project schedule, financing, and ridership estimates; and
12. the recipient's commitment to submit periodically a project budget and project schedule to the Secretary.



Questions



Annual Deliverables Discussion

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Annual Deliverables Discussion

From: [Barnes, Juliana \(FRA\)](#)
To: "Malone, Desiree@HSR"
Cc: [Gilliland, Barbara@HSR](#); "[rlzimmerer@transystems.com](#)"
Subject: RE: Feedback: Q4-16 Deliverables (Program Management Plan)
Date: Wednesday, June 28, 2017 8:47:00 AM
Attachments: [image006.png](#)

Hi Desi,

No issues, the 12 requirements outlined in 49 CFR are listed below:

1. Adequate recipient staff organization with well-defined reporting relationships, statements of functional responsibilities, job descriptions, and job qualifications;
2. A budget covering the project management organization, appropriate consultants, property acquisition, utility relocation, systems demonstration staff, audits, and miscellaneous payments the recipient may be prepared to justify;
3. A construction schedule for the project;
4. A document control procedure and recordkeeping system;
5. A change order procedure that includes a documented, systematic approach to handling the construction change orders;
6. Organizational structures, management skills, and staffing levels required throughout the construction phase;
7. Quality control and quality assurance functions, procedures, and responsibilities for construction, system installation, and integration of system components;
8. Material testing policies and procedures;
9. Internal plan implementation and reporting requirements;
10. Criteria and procedures to be used for testing the operational system or its major components;
11. Periodic updates of the plan, especially related to project budget and project schedule, financing, and ridership estimates;
12. The recipient's commitment to submit periodically a project budget and project schedule to the Secretary.

Thank you,
Juliana

From: Malone, Desiree@HSR [mailto:Desiree.Malone@hsr.ca.gov]
Sent: Tuesday, June 27, 2017 3:14 PM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Cc: Gilliland, Barbara@HSR <gilliland@pbworld.com>
Subject: RE: Feedback: Q4-16 Deliverables (Program Management Plan)

Hi Juliana,

Will you resend me the 12 requirements – the original email was one that I lost when our IT

I0210

accidentally purged the wrong emails.

Thanks

From: Barnes, Juliana (FRA) [<mailto:juliana.barnes@dot.gov>]
Sent: Tuesday, June 27, 2017 12:31 PM
To: Malone, Desiree@HSR; Gilliland, Barbara(PB)@HSR
Cc: rlzimmerer@transystems.com
Subject: FW: Feedback: Q4-16 Deliverables (Program Management Plan)

Hi Desi and Barb,

As a follow-up to our conversation yesterday, I have below what I explained verbally with respect to the PMP. Originally FRA was to provide a mark-up of the PMP with “heavy” and “light” topics to help HSR understand what FRA would need more/less clarity on to focus your man power. To shape our review, we had asked the below to ensure we’re fully grasping where the information is presented.

From: Barnes, Juliana (FRA)
Sent: Wednesday, May 31, 2017 2:45 PM
To: Malone, Desiree@HSR <Desiree.Malone@hsr.ca.gov>
Cc: rvaldez@transystems.com
Subject: FW: Feedback: Q4-16 Deliverables (Program Management Plan)

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As a follow up to our conversation on 5/25 on annual deliverables, FRA was to provide feedback on the 2016 PMP as a first step in shaping the upcoming 2017 PMP.

In review of the 2016 PMP, to ensure that we’re tracking the 12 requirements as outlined in US code and required by FRA, would you be able to review the attached “Review Comment Matrix” provided by CHSRA on 3/20 and update it to reflect the 12 requirements and corresponding location in the PMP? This would greatly assist us in ensuring we’re capturing all the information provided to provide accurate feedback as it pertains to those required topics.

Thank you,
Juliana

From: Malone, Desiree@HSR [<mailto:Desiree.Malone@hsr.ca.gov>]
Sent: Monday, March 20, 2017 2:25 PM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Cc: mlrule@transystems.com; Everett, Lynn (FRA) <lynn.everett@dot.gov>; Giovinazzi, Giles@DOT <Giles.Giovinazzi@dot.ca.gov>; Gilliland, Barbara@HSR <gilliland@pbworld.com>;

rlzimmerer@transystems.com

Subject: RE: Feedback: Q4-16 Deliverables (Program Management Plan)

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Attached is a revised PMP, along with a matrix that reflects FRA's comments and the page number location for easy reference.

From: Barnes, Juliana (FRA) [<mailto:juliana.barnes@dot.gov>]

Sent: Wednesday, March 01, 2017 1:40 PM

To: Malone, Desiree@HSR

Cc: mlrule@transystems.com; Everett, Lynn (FRA); Giovinazzi, Giles@DOT; Gilliland, Barbara@HSR; rlzimmerer@transystems.com; Barnes, Juliana (FRA)

Subject: Feedback: Q4-16 Deliverables (Program Management Plan)

Hi Desi,

FRA acknowledges receipt of the Program Management Plan submitted to FRA December 29, 2016.

Please see the following feedback after initial review of the Program Management Plan (PMP0:

1. FRA appreciates the changes CHSRA made and additional information it added to this deliverable since last year's PMP.
 - a. Several important topics were removed from this year's PMP when compared to past versions. *Please incorporate these topics back into your re-submitted version:*
 - i. *Updated Conflict Resolution Procedures*
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finalized, including, but not limited to, the Project Environmental Document EIR/EIS Publication & Public Outreach Guidance.

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6. The CHSRA Program Phase 1 Milestone Table is not current.
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Please note FRA is returning the deliverable after review and requests resubmission after addressing the above FRA comments for further development no later than March 17.

Regards,

Juliana Barnes, PMP
Project Manager
Office of Program Delivery (RPD-15)
Federal Railroad Administration
801 I St., Suite 466
Sacramento, CA 95814
Cell: 916-215-9115

From: Malone, Desiree@HSR [<mailto:Desiree.Malone@hsr.ca.gov>]
Sent: Thursday, December 29, 2016 2:10 PM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Cc: mlrule@transystems.com; Everett, Lynn (FRA) <lynn.everett@dot.gov>; Giovinazzi, Giles@DOT <Giles.Giovinazzi@dot.ca.gov>; Gilliland, Barbara@HSR <gilliland@pbworld.com>; Malone, Desiree@HSR <Desiree.Malone@hsr.ca.gov>
Subject: Q4-16 Deliverables - Email 2 of 3

Hi Juliana,

As stated in the email 1 of 3 - the sum of the Q4 deliverables are too large to send in one email;

therefore, I'm spreading them over 3 emails. Each email will have a separate transmittal form for the included deliverables.

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- Q4-16 Deliverables Transmittal 2
- 2016 Annual Work Plan
- 2016 Program Management Plan

If you have any questions, or something fails to open for you, please let me know.

Desi Malone
Grant Manager
California High-Speed Rail Authority
770 L Street, Suite 870
Sacramento, CA 95814
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desiree.malone@hsr.ca.gov
www.hsr.ca.gov



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From: [Malone, Desiree@HSR](mailto:Malone,Desiree@HSR)
To: [Barnes, Juliana \(FRA\)](mailto:Barnes,Juliana(FRA))
Cc: [Gilliland, Barbara@HSR](mailto:Gilliland,Barbara@HSR)
Subject: RE: Feedback: Q4-16 Deliverables (Program Management Plan)
Date: Tuesday, June 27, 2017 3:14:33 PM
Attachments: [image006.png](#)

Hi Juliana,

Will you resend me the 12 requirements – the original email was one that I lost when our IT accidentally purged the wrong emails.

Thanks

From: Barnes, Juliana (FRA) [mailto:juliana.barnes@dot.gov]
Sent: Tuesday, June 27, 2017 12:31 PM
To: Malone, Desiree@HSR; Gilliland, Barbara(PB)@HSR
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Subject: FW: Feedback: Q4-16 Deliverables (Program Management Plan)

Hi Desi and Barb,

As a follow-up to our conversation yesterday, I have below what I explained verbally with respect to the PMP. Originally FRA was to provide a mark-up of the PMP with “heavy” and “light” topics to help HSR understand what FRA would need more/less clarity on to focus your man power. To shape our review, we had asked the below to ensure we’re fully grasping where the information is presented.

From: Barnes, Juliana (FRA)
Sent: Wednesday, May 31, 2017 2:45 PM
To: Malone, Desiree@HSR <Desiree.Malone@hsr.ca.gov>
Cc: rvaldez@transystems.com
Subject: FW: Feedback: Q4-16 Deliverables (Program Management Plan)

Hi Desi,

As a follow up to our conversation on 5/25 on annual deliverables, FRA was to provide feedback on the 2016 PMP as a first step in shaping the upcoming 2017 PMP.

In review of the 2016 PMP, to ensure that we’re tracking the 12 requirements as outlined in US code and required by FRA, would you be able to review the attached “Review Comment Matrix” provided by CHSRA on 3/20 and update it to reflect the 12 requirements and corresponding location in the PMP? This would greatly assist us in ensuring we’re capturing all the information provided to provide accurate feedback as it pertains to those required topics.

Thank you,

Juliana

From: Malone, Desiree@HSR [<mailto:Desiree.Malone@hsr.ca.gov>]
Sent: Monday, March 20, 2017 2:25 PM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Cc: mlrule@transystems.com; Everett, Lynn (FRA) <lynn.everett@dot.gov>; Giovinazzi, Giles@DOT <Giles.Giovinazzi@dot.ca.gov>; Gilliland, Barbara@HSR <gilliland@pbworld.com>; rlzimmerer@transystems.com
Subject: RE: Feedback: Q4-16 Deliverables (Program Management Plan)

Hi Juliana,

Attached is a revised PMP, along with a matrix that reflects FRA's comments and the page number location for easy reference.

From: Barnes, Juliana (FRA) [<mailto:juliana.barnes@dot.gov>]
Sent: Wednesday, March 01, 2017 1:40 PM
To: Malone, Desiree@HSR
Cc: mlrule@transystems.com; Everett, Lynn (FRA); Giovinazzi, Giles@DOT; Gilliland, Barbara@HSR; rlzimmerer@transystems.com; Barnes, Juliana (FRA)
Subject: Feedback: Q4-16 Deliverables (Program Management Plan)

Hi Desi,

FRA acknowledges receipt of the Program Management Plan submitted to FRA December 29, 2016.

Please see the following feedback after initial review of the Program Management Plan (PMP0:

1. FRA appreciates the changes CHSRA made and additional information it added to this deliverable since last year's PMP.
 - a. Several important topics were removed from this year's PMP when compared to past versions. *Please incorporate these topics back into your re-submitted version:*
 - i. *Updated Conflict Resolution Procedures*
 - ii. *Updated Contingency Management Plan*
 - iii. *Current Insurance Program*
 - b. In addition, please add a link in the PMP to the following documents referenced in the PMP:
 - i. *CHSRA's Performance Expectation Sheets and Performance Regime Deliverables for its RDP*
 - ii. *Section Financial Plans*
 - iii. *Program-Wide Procurement Management Plan*
 - iv. *Document Control Plan*
 - v. *Interface Management Plans for CP 1, CP 2-3, CP 4*
2. In the past, FRA asked for an appendix that cross-references the FRA's requirements for a

To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>

Cc: mlrule@transystems.com; Everett, Lynn (FRA) <lynn.everett@dot.gov>; Giovinazzi, Giles@DOT <Giles.Giovinazzi@dot.ca.gov>; Gilliland, Barbara@HSR <gilliland@pbworld.com>; Malone, Desiree@HSR <Desiree.Malone@hsr.ca.gov>

Subject: Q4-16 Deliverables - Email 2 of 3

Hi Juliana,

As stated in the email 1 of 3 - the sum of the Q4 deliverables are too large to send in one email; therefore, I'm spreading them over 3 emails. Each email will have a separate transmittal form for the included deliverables.

This second of 3 emails includes:

- Q4-16 Deliverables Transmittal 2
- 2016 Annual Work Plan
- 2016 Program Management Plan

If you have any questions, or something fails to open for you, please let me know.

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From: [Malone, Desiree@HSR](mailto:Malone,Desiree@HSR)
To: [Barnes, Juliana \(FRA\)](mailto:Barnes,Juliana(FRA))
Cc: [OK-Robert L. Zimmerer](mailto:OK-Robert.L.Zimmerer); [OK-Marian L. Rule](mailto:OK-Marian.L.Rule)
Subject: RE: Exhibit A Update Revision 6
Date: Friday, July 14, 2017 3:03:50 PM

Hi Juliana,

The Authority is requesting that the due date for Program Management Plan annual updates be extended from Q3 to Q4. The rationale for this change is two-fold:

1. The completion of the Annual Work Plan and the Central Valley Project Financial Plan occur at the same time. The production and review of these plans involves similar resources as well as management review time. Shifting the due date to the next quarter allows for a more even distribution of resources necessary to complete these documents.
2. The development of the Annual Work Plan and the financial documents follows the adoption of the Authority's annual budget (completed by August of each year). The Program Management Plan is a document that focuses on how the Authority is organized and the processes and procedures that are necessary to deliver that work. As the Authority identifies its implementation plan, modifications may be necessary to how it manages the work going forward. As such it makes sense to have the Program Management Plan be submitted sequentially.

The Authority is also requesting a due date extension for the Infrastructure Maintenance Plan and the Updated Rolling Stock Maintenance Plan to Q4-18. The reason and logic behind this request is that these plans will be prepared by the vendors that are ultimately awarded the contract. The contractor will be expected to provide the plan within six months after receiving the notice to proceed.

Let me know if you need any more information to assist in your decision making – thank you

From: Barnes, Juliana (FRA) [mailto:juliana.barnes@dot.gov]
Sent: Thursday, July 13, 2017 4:38 PM
To: Malone, Desiree@HSR
Cc: Barnes, Juliana (FRA); rlzimmerer@transystems.com; mlrule@transystems.com
Subject: RE: Exhibit A Update Revision 6

Hi Desi,

Acknowledge receipt of HSR's revised 2Q CY16 Exhibit A (*ref "Exhibit A rev 6"*) requesting changes to deliverable due dates and an update to "Exhibit A rev 5"(sent 6/29). Your request is currently being considered.

Please provide a written justification for those deliverables HSR requests a change in submission date to include: (1) current status of the deliverable, (2) reason for extension, and (3) HSRs plan to deliver the deliverable within the new proposed date.

For the Task 1 (Environmental) deliverables and dependent deliverables (e.g. PE, Relocation Assistance Plan), whose changes are being addressed in a different forum, you do not need to include a justification, as I will not make any modifications to Exhibit A until they are agreed upon in outside of our venue.

Thank you,
Juliana

Project Manager
Office of Program Delivery (RPD-15)
Federal Railroad Administration
801 I St., Suite 466
Sacramento, CA 95814
Cell: 916-215-9115

From: Malone, Desiree@HSR [mailto:Desiree.Malone@hsr.ca.gov]
Sent: Wednesday, July 12, 2017 12:27 PM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Cc: Gilliland, Barbara@HSR <gilliland@pbworld.com>
Subject: Exhibit A Update Revision 6

Hi Juliana,

I sent Exhibit A Revision #5 to you on June 21. Please disregard that Exhibit and consider the attached Revision #6 for approval. (The 2 changes are highlighted.)

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desiree.malone@hsr.ca.gov
www.hsr.ca.gov

From: [Barnes, Juliana \(FRA\)](#)
To: [Malone, Desiree@HSR](#)
Cc: [Gilliland, Barbara](#); [OK-Marian L. Rule](#); [OK-Robert L. Zimmerer](#)
Subject: Q3-17 Revised Exhibit A
Date: Wednesday, August 23, 2017 4:25:25 PM
Attachments: [2017-08-21 Q3 17 HSR Exhibit A FRA Update.docx](#)
[2017-08-21 Q3 17 HSR Exhibit A FRA Update \(pdf\).pdf](#)

Hi Desi,

FRA acknowledges receipt of HSR's request to revise Exhibit A on July 12, 2017. In response, please see a updated Exhibit A for Q3-17. I have also attached a pdf version of the document for ease of reading as we went through several iterations of comment.

Thank you,

Juliana

From: Malone, Desiree@HSR [mailto:Desiree.Malone@hsr.ca.gov]
Sent: Friday, July 28, 2017 12:21 PM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Cc: Gilliland, Barbara@HSR <gilliland@pbworld.com>
Subject: RE: Exhibit A Update Revision 6

Hi Juliana,

Below are responses to your comments within the Exhibit A:

- #1: Yes, this is environmental and we will leave as is until FRA/Authority are in agreement
- #2: Yes, we can add a third date – propose Q4-18
- #3: This is actually a draft RFP, it was provided to Troy. We will try to get a copy for you
- #4: The ROW procedures manual is a part of the PMP and located in Appendix H
- #5: Not sure what you're asking

From: Barnes, Juliana (FRA) [mailto:juliana.barnes@dot.gov]
Sent: Tuesday, July 25, 2017 2:34 PM
To: Malone, Desiree@HSR
Cc: [rlzimmerer@transystems.com](#); [mlrule@transystems.com](#)
Subject: RE: Exhibit A Update Revision 6

Hi Desi,

In review of the HSR Exhibit Revision # 6 Q3-17 (attached) and transmitted on 7/12, I have enclosed

comments addressing specific deliverables for your consideration prior to FRA approval.

Thank you,

Juliana

From: Malone, Desiree@HSR [<mailto:Desiree.Malone@hsr.ca.gov>]
Sent: Friday, July 14, 2017 3:04 PM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Cc: rlzimmerer@transystems.com; mlrule@transystems.com
Subject: RE: Exhibit A Update Revision 6

Hi Juliana,

The Authority is requesting that the due date for Program Management Plan annual updates be extended from Q3 to Q4. The rationale for this change is two-fold:

1. The completion of the Annual Work Plan and the Central Valley Project Financial Plan occur at the same time. The production and review of these plans involves similar resources as well as management review time. Shifting the due date to the next quarter allows for a more even distribution of resources necessary to complete these documents.
2. The development of the Annual Work Plan and the financial documents follows the adoption of the Authority's annual budget (completed by August of each year). The Program Management Plan is a document that focuses on how the Authority is organized and the processes and procedures that are necessary to deliver that work. As the Authority identifies its implementation plan, modifications may be necessary to how it manages the work going forward. As such it makes sense to have the Program Management Plan be submitted sequentially.

The Authority is also requesting a due date extension for the Infrastructure Maintenance Plan and the Updated Rolling Stock Maintenance Plan to Q4-18. The reason and logic behind this request is that these plans will be prepared by the vendors that are ultimately awarded the contract. The contractor will be expected to provide the plan within six months after receiving the notice to proceed.

Let me know if you need any more information to assist in your decision making – thank you

From: Barnes, Juliana (FRA) [<mailto:juliana.barnes@dot.gov>]
Sent: Thursday, July 13, 2017 4:38 PM
To: Malone, Desiree@HSR
Cc: Barnes, Juliana (FRA); rlzimmerer@transystems.com; mlrule@transystems.com
Subject: RE: Exhibit A Update Revision 6

I0222

Hi Desi,

Acknowledge receipt of HSR's revised 2Q CY17 Exhibit A (*ref "Exhibit A rev 6"*) requesting changes to deliverable due dates and an update to "Exhibit A rev 5"(sent 6/29). Your request is currently being considered.

Please provide a written justification for those deliverables HSR requests a change in submission date to include: (1) current status of the deliverable, (2) reason for extension, and (3) HSRs plan to deliver the deliverable within the new proposed date.

For the Task 1 (Environmental) deliverables and dependent deliverables (e.g. PE, Relocation Assistance Plan), whose changes are being addressed in a different forum, you do not need to include a justification, as I will not make any modifications to Exhibit A until they are agreed upon in outside of our venue.

Thank you,
Juliana

Project Manager
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Cell: 916-215-9115

From: Malone, Desiree@HSR [<mailto:Desiree.Malone@hsr.ca.gov>]

Sent: Wednesday, July 12, 2017 12:27 PM

To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>

Cc: Gilliland, Barbara@HSR <gilliland@pbworld.com>

Subject: Exhibit A Update Revision 6

Hi Juliana,

I sent Exhibit A Revision #5 to you on June 21. Please disregard that Exhibit and consider the attached Revision #6 for approval. (The 2 changes are highlighted.)

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From: [Barnes, Juliana \(FRA\)](#)
To: [Malone, Desiree@HSR](#); [Everett, Lynn \(FRA\)](#)
Cc: [Giovinazzi, Giles@DOT](#); [Gilliland, Barbara\(PB\)@HSR](#)
Subject: RE: Extension Request for Q4-17 Deliverable - PMP
Date: Wednesday, December 27, 2017 12:25:10 PM

Hi Desi,

Acknowledge the request below for the extension on the delivery date of the PMP. We look forward to the incorporation of the Authority's ongoing efforts into the PMP and receipt on February 28, 2018.

Thank you,

Juliana

From: Malone, Desiree@HSR [mailto:Desiree.Malone@hsr.ca.gov]
Sent: Thursday, December 21, 2017 10:56 AM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>; Everett, Lynn (FRA) <lynn.everett@dot.gov>
Cc: Giovinazzi, Giles@DOT <Giles.Giovinazzi@dot.ca.gov>; Gilliland, Barbara(PB)@HSR <barbara.gilliland@hsr.ca.gov>
Subject: Extension Request for Q4-17 Deliverable - PMP

The Authority is requesting the FRA's approval for an extension to submit the 2017 Program Management Plan (PMP) from December 30, 2017 to February 28, 2018. The time extension will allow the inclusion of updated program delivery projections and plans currently under development into the PMP. These updates will provide the FRA with a much more timely and relevant view of the Authority's framework for delivery on the grant's scope of work.

Thank you for your consideration -

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Barnes, Juliana (FRA)

From: Malone, Desiree@HSR <Desiree.Malone@hsr.ca.gov>
Sent: Tuesday, February 13, 2018 4:29 PM
To: Barnes, Juliana (FRA)
Cc: Gilliland, Barbara(PB)@HSR; Hawkes, Ryan@HSR
Subject: RE: Extension Request for Q4-17 Deliverable - PMP

Thank you – this is very much appreciated and I think in the best interest of all. Yes, mid-March will work. I'll get you a specific date soon.

From: Barnes, Juliana (FRA) [mailto:juliana.barnes@dot.gov]
Sent: Tuesday, February 13, 2018 4:11 PM
To: Malone, Desiree@HSR
Cc: Gilliland, Barbara(PB)@HSR
Subject: RE: Extension Request for Q4-17 Deliverable - PMP

Hi Desi,

Following-up to our discussion on the PMP, we have considered your request for an extension. Would mid-March be sufficient? If so, your request is approved to allow for more time to incorporate the latest HSR projections that are currently being developed to give the most accurate plan for delivery of the FRA's grants' SOW.

Thank you,

Juliana

From: Malone, Desiree@HSR [mailto:Desiree.Malone@hsr.ca.gov]
Sent: Thursday, December 21, 2017 10:56 AM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>; Everett, Lynn (FRA) <lynn.everett@dot.gov>
Cc: Giovinazzi, Giles@DOT <Giles.Giovinazzi@dot.ca.gov>; Gilliland, Barbara(PB)@HSR <barbara.gilliland@hsr.ca.gov>
Subject: Extension Request for Q4-17 Deliverable - PMP

The Authority is requesting the FRA's approval for an extension to submit the 2017 Program Management Plan (PMP) from December 30, 2017 to February 28, 2018. The time extension will allow the inclusion of updated program delivery projections and plans currently under development into the PMP. These updates will provide the FRA with a much more timely and relevant view of the Authority's framework for delivery on the grant's scope of work.

Thank you for your consideration -

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From: [Malone, Desiree@HSR](mailto:Malone_Desiree@HSR)
To: [Barnes, Juliana \(FRA\); Gilliland, Barbara\(PB\)@HSR](mailto:Barnes_Juliana(FRA); Gilliland_Barbara(PB)@HSR)
Cc: [Hawkes, Ryan@HSR](mailto:Hawkes_Ryan@HSR)
Subject: RE: File Request - PMP FTP Site
Date: Friday, March 30, 2018 11:30:27 AM
Attachments: [Transmittal.doc](#)

Hi Juliana, attached is the transmittal to accompany the PMP

From: Barnes, Juliana (FRA) [mailto:juliana.barnes@dot.gov]
Sent: Friday, March 30, 2018 11:28 AM
To: Gilliland, Barbara(PB)@HSR
Cc: Malone, Desiree@HSR
Subject: RE: File Request - PMP FTP Site

Hi Barb,

I have received the files below for the PMP. I'll let you know if there are any issues with the download.

Thank you,

Juliana

From: barbara.gilliland@hsr.ca.gov [mailto:barbara.gilliland@hsr.ca.gov]
Sent: Friday, March 30, 2018 11:27 AM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Subject: Re: File Request - PMP FTP Site

You have received 9 secure files from barbara.gilliland@hsr.ca.gov.
Use the secure links below to download.

For your review.

Secure File Downloads:

Available until: **29 April 2018**

Click links to download:

[CAHSR 2017 Program Management Plan Annual Update.pdf](#)

2.74 MB, Fingerprint: e4cf2d64fb7e30f89c3cfb6d3aae9c0d ([What is this?](#))

[Appendix F Central Valley Project Financial Plan \(CVFPF\).pdf](#)

638.10 KB, Fingerprint: 9a4d5957d6b0bc4bedf1a6372f7f2f09 ([What is this?](#))

[Appendix G Ridership and Revenue Forecasting.pdf](#)

6.10 MB, Fingerprint: 60a1fd310e2105b2c66972861a2fb5b0 ([What is this?](#))

[Appendix H Design Build Program and Project Management Plan.pdf](#)

1.37 MB, Fingerprint: 0bd7b231fdcf1dd4d82920f1f2fe24f4 ([What is this?](#))

[Appendix I Project and Construction Management \(PCMM\).pdf](#)

23.47 MB, Fingerprint: a4464e6ae467afc70ec61368470dcd42 ([What is this?](#))

[Appendix J Program Controls Plan.pdf](#)

1.51 MB, Fingerprint: cb5bb3ab1ad3961dcdf11ede66e2e216 ([What is this?](#))

[Appendix K Master Quality Plan.pdf](#)

557.13 KB, Fingerprint: 3ca39bb384ccc9acd1ddafeae93b14b1 ([What is this?](#))

[Appendix L Risk Management Plan.pdf](#)

1.60 MB, Fingerprint: 6c021411d902b61061a19345848827fb ([What is this?](#))

[Appendix N Safety and Security Management Plan.pdf](#)

65.06 MB, Fingerprint: fdc20f138e58fa8c9175e3797c5c105e ([What is this?](#))

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2017 Program Management Plan Annual Update

March 2018

www.hsr.ca.gov

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ACRONYMS AND ABBREVIATIONS

AA	Alternatives Analysis
Authority	California High-Speed Rail Authority
CalSTA	California State Transportation Agency
Caltrans	California Department of Transportation
CCC	Change Control Committee
CDFW	California Department of Fish and Wildlife
CEO	Chief Executive Officer
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
COBD	Customer-Operations-Build Design process
COO	Chief Operating Officer
CP	Construction Package
CPUC	California Public Utilities Commission
CWA	Clean Water Act
DB	Design-Build
DBE	Disadvantaged Business Enterprise
DBPP	Design-Build Program Plan
DVBE	Disabled Veteran Business Enterprise
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMMA	Environmental Mitigation Management and Assessment
EPA	U.S. Environmental Protection Agency
FCP	Funding Contribution Plan
FCS	First Construction Segment
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GRIP	Governance of Railway Investment Projects
HSR	High-Speed Rail
HST	High-Speed Train
ICE	Independent Checking Engineer
ISE	Independent Site Engineer
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NOD	Notice of Determination
PCM	Project and Construction Management Consultant/Project Construction Manager

PCMM	Project and Construction Management Manual
PE4P	Preliminary Engineering for Procurement
PMIS	Program Management Information System
PMP	Program Management Plan
Program	California High-Speed Rail Program
Proposition 1A	Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century (Prop 1A)
RDP	Rail Delivery Partner
RFP	Request for Proposal
ROD	Record of Decision
ROWDES	Right-of-Way Data Exchange System
RPA	Rule of Particular Applicability
SB	Senate Bill
SHPO	State Historic Preservation Officer
SSMP	Safety and Security Management Plan
SWRCB	State Water Resources Control Board
TM	Technical Memorandum
USACE	U.S. Army Corps of Engineers
USC	United States Code
V&V	Verification & Validation
WBS	Work Breakdown Structure
YOE	Year of Expenditure

CALIFORNIA HIGH-SPEED RAIL AUTHORITY

MISSION AND VISION

Mission

The mission of the California High-Speed Rail Authority is to build the nation's first high-speed rail system.

Vision

High-Speed Rail: Connecting and Transforming California.

Guiding Principles

The California High-Speed Rail Authority (Authority) will continue to advance the statewide program on multiple fronts over the coming years within a flexible framework guided by the following principles:

- Fulfill all commitments made to the citizens of California when they approved Proposition 1A to provide a true statewide high-speed rail system.
- Evaluate new opportunities – and adapt to changing circumstances – so that a cost-effective, high-quality system can be delivered as quickly and efficiently as possible.
- Reduce costs and construction time by using a blended implementation strategy in urban areas where appropriate and consistent with mandated performance goals to enhance access and mobility, minimize impacts, reduce costs, improve safety and expedite implementation.
- Match projects with available funding and deliver them through appropriate business models.
- Advance other strategic early investments in collaboration with our partners.

Core Values

There are a number of core values that the Authority adheres to and that guide how business is done as the program is developed. The core values focus on maximizing the benefits generated through the implementation of the system and include:

- Safety and Security
- Partnership with the Private Sector
- Sustainable Infrastructure
- Workforce Development
- Small Business Participation
- Sustainable Land Use

EXECUTIVE SUMMARY

This Program Management Plan (PMP) describes the management approach, the overall program structure, and the plans and procedures used by the California High-Speed Rail Authority (Authority) for the management, oversight, and delivery for both the California High-Speed Rail Program (Program); and the federally funded portion of the Program's scope of work (Project). This PMP is a dynamic document that is updated annually to reflect organizational changes and continuous improvements that occur during the Program's implementation.

The Authority was awarded two Federal Railroad Administration (FRA) grants that were funded from the American Recovery and Reinvestment Act of 2009 and the Omnibus Appropriations Act, 2010. The two grant agreements provide the overarching guidance for the grant-funded Project, and the Authority's quarterly Funding Contribution Plan (FCP) reflects projected costs for the Project. The Authority's biennial business plan provides the guidance related to the overall Program's phasing schedule and budget. In addition to this PMP, the following documents provide additional insight to the Authority's approach to project delivery:

- Design-Build Program Plan (DBPP): Outlines the Authority's approach to project delivery and identifies the project implementation procedures and methods established by the Authority to achieve successful design-build (DB) project delivery for the first construction segment (FCS).
- Project and Construction Management Manual (PCMM): Describes how the Authority will manage execution of the DB projects on the Program.

As the framework presented in this PMP is refined and utilized, the Authority will verify its consistency with these plans and with any subsequent PMPs developed as future construction segments begin. Together these documents will provide an all-encompassing PMP that addresses every component of the Program and Project.

1 INTRODUCTION

1.1 Program Management Plan Purpose

This PMP informs the FRA of the Authority's framework for delivering the Project scope as defined in the Cooperative Agreements with the FRA. It describes the organization, management approach, organizational structure, plans, procedures and methods used to manage and deliver the Project within the grant scope, budget and schedule. As a dynamic document, the PMP is updated annually to reflect organizational changes and continuous improvements in methodologies that occur throughout the Project's life cycle.

1.2 FRA Program Management Plan Requirements

This PMP fulfills the requirements for Project Management Plans as set by the FRA under the High-Speed Intercity Passenger Rail Program (HSIPR). Also, in accordance with the Cooperative Agreement Attachment 1A, Section 3, the PMP is prepared in compliance with the requirements of 49 United States Code (U.S.C.) §24403(a) and Section 4.2.6 of the High-Speed Intercity Passenger Rail Program Interim Guidance published in the *Federal Register* on July 1, 2010 (75 FR 38344).

Specific provisions required as a part of this plan include:

1. Adequate recipient staff organization with well-defined reporting relationships, statements of functional responsibilities, job descriptions and job qualifications;
2. A budget covering the project management organization, appropriate consultants, property acquisition, utility relocation, systems demonstration staff, audits, and miscellaneous payments the recipient may be prepared to justify;
3. A construction schedule for the project;
4. A document control procedure and recordkeeping system;
5. A change order procedure that includes a documented, systematic approach to handling the construction change orders;
6. Organization structures, management skills, and staffing levels required throughout the construction phase;
7. Quality control and quality assurance functions, procedures, and responsibilities for construction, system installation, and integration of system components;
8. Material testing policies and procedures;
9. Internal plan implementation and reporting requirements;
10. Criteria and procedures to be used for testing the operational system or its major components;
11. Periodic updates of the plan, especially related to project budget and project schedule, financing and ridership estimates; and
12. The recipient's commitment to submit periodically a project budget and project schedule to the Secretary.

1.3 Program History and Overview

In 1996, after years of advocacy for building a statewide high-speed rail system, the Authority was established through the High-Speed Rail Act (SB 1420, Chapter 796, Statutes of 1996), which was added to the Public Utilities Code Section 185000 et seq., to oversee the planning, design, construction and operation of a statewide high-speed rail system. Later that year, the Authority adopted a 20-year plan for the Program. Planning continued and in 2012, the first Business Plan was published, which included ridership, revenue and cost forecasts and a quantified look at the benefits of the Program. In that plan, the Authority laid out a framework for implementing the high-speed rail system in collaboration with other state, regional, local and private rail providers.

The Authority's governing statutes require that an updated business plan be prepared, published, adopted and submitted to the California Legislature every two years. The Authority's business plan informs interested parties on the goals, schedule and projected costs of the Program. This PMP update is based upon the Draft 2018 Business Plan, which was released for public comment on March 9, 2018 with a final version to be submitted to the Legislature by June 1, 2018.

1.4 California High-Speed Rail Program Scope

The overall vision for a high-speed train system in California is to connect the megaregions of the state, contribute to economic development, promote a cleaner environment, preserve agricultural and protected lands and create jobs. Service is planned to run from San Francisco to the Los Angeles basin in under three hours at speeds capable of over 200 miles per hour. The high-speed rail system will ultimately extend to Sacramento and San Diego, totaling over 800 miles with up to 24 stations. The Program is an integrated statewide rail system that includes a series of concurrent strategic investments in urban, commuter and intercity rail systems that, when combined, significantly improve mobility and connectivity throughout the state.

To deliver this system, the Legislature and voters approved Proposition 1A and dedicated funds from the Green House Gas Reduction Fund (Cap-and-Trade), for development and construction. The Draft 2018 Business Plan identifies an approach to funding and delivering the system with the focus on three fundamental objectives:

1. Initiate high-speed rail passenger service as soon as possible.
2. Make strategic, concurrent investments throughout the system that will be linked together over time.
3. Position the Authority to construct additional segments as funding becomes available.

1.5 Federal Grant Funded Project Scope

The Cooperative Agreement FR-HSR-00009-10-01-00 for the California High-Speed Train Program ARRA grant was executed in August 2010 in the amount of \$194 million, amended to \$2.46 billion in December 2010, and amended to \$2.55 billion in August 2011.

The Cooperative Agreement FR-HSR-01180-12-01-00 for Omnibus Appropriations Act, 2010 (FY10) was executed in November 2011 in the amount of \$928,620,000.

The federal grants fund the following through the performance period of December 30, 2022:

- Obtaining environmental clearance, preliminary engineering (ready for procurement), and associated work such as operations planning, station area plans, and ridership forecasts for all of Phase 1 (Program). Only the ARRA grant funds this scope of work.
- Completing final design and construction of the First Construction Segment (FCS) in California's Central Valley (Project). The FCS will have independent utility. Both grants fund this scope of work.
- Interim use of the FCS in the case of high-speed rail (HSR) initial operating system is delayed. Both grants fund this scope of work.

Figure 1. Phase High-Speed Rail System Implementation shows the Authority's proposed implementation plan including the federally funded First Construction Segment (FCS), found in green from Madera to just north of Bakersfield. The Draft 2018 Business Plan highlights the commitment to deliver the federal grants scope of work, including completion of the Phase 1 environmental documents and civil construction (including track). The draft plan also envisions implementing early interim services on the way to completing the Silicon Valley to Central Valley Line. This includes evaluation of early interim service from Bakersfield to Madera providing early benefits to passengers in this corridor. The graphic further describes completing an initial segment from San Francisco to Gilroy; and then followed by completion of the connection between the Silicon Valley and Central Valley and extensions to Merced.



Figure 1. Phase High-Speed Rail System Implementation

The ARRA and FY10 grants include funding for the following activities:

Task 1: Environmental Review

- Notice of Intent (NOI)/Notice of Preparation (NOP)
- Alternatives Analysis
- Project Definition
- Administrative Draft EIR/EIS
- Draft EIR/EIS
- Administrative Final EIR/EIS
- Final EIR/EIS
- Agency Decision Documents
- Environmental Permits and Regulatory Agency Approvals
- Mitigation Implementation Planning
- Reexaminations
- Resource Agency Coordination

Task 2: Preliminary Engineering (PE)

- By Project Section for Phase 1 environmental analysis, approvals, and permits under Task 1
- CHSTP Design Criteria and O&M Plans
- CONOPS for the FCS and any other segment
- Rolling Stock Performance Specifications
- Systems Safety and Security Management Plan (SSMP)

Task 3: Other Related Work Needed Prior to Start of Construction

- Station Area Planning
- Right-of-Way (ROW) Acquisition Support
- ROW Preservation
- Contingent Planning for Interim FCS Utilization
- Ridership Forecasting
- Preliminary Engineering to Support FCS Procurement
- Small/Disadvantaged Business Program
- Subtask Structure for Task 3: Other Related Work

Task 4: Project Administration and Statewide Cost Allocation Plan (SWCAP)

- Task 4 activities have been completed

Task 5: Program, Project, and FCS Construction Management

- Work Breakdown Structure (WBS)
- Annual Work Plan
- Program Management Plan
- Central Valley Project Financial Plan

- Phase I Program Financial Plan
- DB Program Plan
- RFP & NTP for Design/Construction Services by CP
- Network Integration Strategic Service Plan
- Updated Service Development Plan
- Infrastructure Maintenance Plan
- Rolling Stock Maintenance Plan

Task 6: Real Property Acquisition and Environmental Mitigation

Task 7: Early Work Program

- Activities in Task 7 were redistributed among the other tasks in the grant agreement

Task 8: Final Design and Construction Contract work for FCS

- Final Design and Construction: SR-99
- Final Design and Construction: Civil Infrastructure Construction Package 1
- Final Design and Construction: Civil Infrastructure Construction Package 2-3
- Final Design and Construction: Civil Infrastructure Construction Package 4
- FCS Track work Components of Construction Package 5
- May 2011 ARRA Funding for Final Design and Construction Work

Task 9: Interim Use Project Reserve

Task 10: Unallocated Contingency

1.6 Project Schedule

The Authority maintains a master program schedule for completing the Phase 1 system. For purposes of meeting state legislative requirements, the Authority's Draft 2018 Business Plan provides overall direction on the completion of an Initial Operating Segment (IOS) – defined as the Silicon Valley to Central Valley Line (San Francisco to Bakersfield) – prior to completion of the entire Phase 1 program. The grant agreements' scope requires construction of the 119-mile First Construction Segment (contained within the IOS) and the completion of all Phase 1 environmental documents from Merced/San Francisco to Los Angeles/Anaheim by December 1, 2022.

The Authority's phasing approach focuses on completing the FCS and an extension to Bakersfield and expanded electrified service in the San Francisco to Gilroy corridor. The goal is to deliver early passenger benefits along the way to completion of the IOS. This approach includes the following key activities:

1. Complete Central Valley civil work – Complete construction already well underway in the 119-mile First Construction Segment (Madera to Polar Avenue) by 2022.
2. Add Central Valley track and system – Adding the track and systems will prepare the Central Valley Segment for early, interim use by an operator and for testing of high-speed trains.
3. Expand Central Valley construction – Extend south from Poplar Avenue into Bakersfield and analyze the potential to utilize a completed segment in the Central Valley for early operations or interim improved Amtrak passenger service.
4. Expand electrification of the Caltrain corridor – Expand electrification south of San Jose to Gilroy. The Authority continues to be in discussion with partners about right of way and operational options between Santa Clara and Gilroy, including how passenger and diesel freight trains could share this corridor.

Table 1. Program Phase 1 Milestones shows key schedule milestones. A summary schedule covering the federal grants' milestones is updated and provided to the FRA quarterly. This schedule reflects approved design-build baseline schedules and FRA approved environmental documentation milestones as of November 2017.

Table 1. Program Phase 1 Milestones

CHSRA Program Phase 1 Milestone Table																	
Data Date: February 28, 2018	Environmental/Engineering		Civil Infrastructure			Track and Systems			High-Speed Rail Trains				Testing and Commissioning				READY FOR REVENUE SERVICE
	578 ROD	Complete F&EAP	Issue RFP	Issue NTP	Substantial Completion	Issue RFP	Issue NTP	Substantial Completion	Issue RFP	Issue NTP	Acceptance Prototypes	Acceptance Trains 3-16	Complete Static Testing	Complete Dynamic Testing	Complete Trial Run		
Silicon Valley to Central Valley Line (San Francisco to Bakersfield)																	
First Construction Segment (FCS / Test Track)																	
CP 1		Complete	Mar-12	Oct-13	Jun-19												
CP 2-3			Apr-14	Jul-15	Mar-20												
CP 4			May-15	Apr-16	Apr-19											Dec-26	
San Jose to FCS																	
San Jose Approach (Gilroy)			TBD	TBD	TBD												
San Jose to Pacheco Pass			Jul-19	Jul-20	Mar-25												
Pacheco Pass Tunnel			Jul-20	Jan-22	Dec-26												
Footbills to Carlucci Rd. & Carlucci Rd. to FCS (Wye Leg2)			Jul-19	Jul-20	Mar-25												
Silicon Valley to Central Valley Extensions (San Francisco to Merced & FCS to Bakersfield)																	
FCS to Bakersfield (LGA)			Oct-18	Jan-19	TBD												
San Francisco to San Jose			Jan-20	Apr-20	Dec-20												
Merced to Ranch Rd. & Wye Leg1 (East & West)			Mar-19	Jun-19	TBD												
FCS to Burbank (Southern California)																	
Bakersfield to Palmdale																	
SCP 1																	
SCP 2																	
SCP 3																	
SCP 4																	
SCP 5																	
SCP 6																	
Palmdale to Burbank																	
SCP 7																	
SCP 8																	
SCP 9																	
Burbank to Anaheim Corridor Improvements																	
Burbank to Los Angeles			Feb-19	May-19													
Los Angeles to Anaheim			Mar-19	Jul-19													

LEGEND
 F&E: Federal Railroad Administration
 578: Surface Transportation Board
 RFP: Request for Proposal
 NTP: Notice to Proceed
 P&AP: Preliminary Engineering for Procurement
 FCS: First Construction Segment
 RFP: Request for Proposal
 NTP: Notice to Proceed

Accumulated Date: Min: YR
 Current Forecast Date: Min: YR
 In accordance with the Draft 2018 Business Plan, the delivery of these milestones is dependent upon the program securing sufficient additional funding.

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1.7 Budget and Financial Plan

1.7.1 Current Budget and Finances

The Program budget is adopted and overseen by the Authority's Board of Directors, with appropriations from the California State Legislature. A forecast of sources and uses of funds is updated on biennially, as required by the Legislature, in the form of a Business Plan. The Business Plan reflects additional statutory requirements to provide updates on progress, milestones and schedule, scope, an updated risk assessment and a forecast of capital and operations costs as well as potential revenue and financial plans. The Authority also provides FRA a budget and expenditures/cash flow update on the federal grant quarterly.

To date, the Authority has secured significant funds from both state and federal sources. These funds are being used to deliver the Central Valley Segment and complete environmental planning and other early work for the entire Phase 1 System. In summary, funding for the program has been generated from the following:

- November 2008: Initial funding for the system provided by the passage of Proposition 1A when voters approved the issuance of \$9.95 billion in bonds.
- 2010-2011: Authority awarded \$2.55 billion in federal American Recovery and Reinvestment Act funds for preliminary engineering and environmental review and construction of the FCS.
- November 2011: Authority awarded \$929 million in federal Fiscal Year 10 funding dedicated to final design and construction of the FCS.
- July 2012: The California Legislature earmarked \$4.5 billion in bonds, previously approved by voters, to the system with \$2.6 billion allocated to the construction of the initial operating segment.
- June 2014: State legislators and Governor Jerry Brown appropriated \$650 million in one-time funding and apportioned 25 percent of the annual Cap and Trade Auction proceeds to high-speed rail.
- July 2017: State legislators and Governor Jerry Brown extended the Cap and Trade auction program sunset date to December 31, 2030, effectively providing an estimated \$7 billion in additional funding for high-speed rail advancement.

The discussion below provides additional detail on funding sources and program costs for the federal grant scope of work.

1.7.2 Federal Funding

American Recovery and Reinvestment Act (ARRA) Grant

The expenditure of ARRA grant funds represents a significant milestone in the life of the program. This money has been expended on system planning and Central Valley civil works contract packages in compliance with the federal grant agreement. More than \$2.55 billion has been expended to date on construction in the Central Valley and planning for the wider system. The full expenditure of this grant was achieved before the federally mandated completion date. ARRA funds are currently being matched with appropriated Proposition 1A funds and earlier Cap-and-Trade funds which total \$2.50 billion.

FY10 Grant

Once ARRA funds are fully matched with state funds and other requirements of the grant are fulfilled, the Authority will access a further \$929 million of federal FY10 grant funding for construction in the Central Valley. The entire FY10 balance remains available and will be matched with \$360 million of state funds upon expenditure.

1.7.3 State Funding

Proposition 1A

In 2008, voters approved Proposition 1A, which provided a total of \$9.95 billion for high-speed rail planning and construction and regional connectivity projects. In March 2017, the Authority successfully received permission to access \$3.3 billion in Proposition 1A funds for construction in the Central Valley, Caltrain electrification and the Rosecrans/Marquardt Grade Separation Project in Southern California. Proposition 1A funds also provide the required state match to the ARRA federal funds that have allowed construction to proceed. Approximately \$423 million of bookend funds remain available in Southern California.

Cap-and-Trade

The Authority has received \$650 million in one-time Cap-and-Trade funding, and subsequently a 25 percent continuous funding appropriation of quarterly auction Cap-and-Trade proceeds. The quarterly auctions have delivered variable amounts each quarter since August 2015. In July 2017, AB 398 was approved by the California Legislature and signed into law by Governor Brown. The bill extends the horizon of the Cap-and-Trade Program through December 31, 2030. This was another important step by the Legislature toward securing a long-term stable source of funding for the project. Since the passage of this bill, quarterly receipts from Cap-and-Trade auctions have been strong—an indication that the market has reacted positively to the legislation. Table 2. Summary of Current and Future Funding, details the funding sources for the Program, including the federal grants.

1.7.4 Budget Summary

In March 2018, the Authority released an updated Draft 2018 Business Plan for public review. This effort included a comprehensive assessment of current funding resources and review of an estimate to complete the current civil construction underway and a cost to complete the remaining Phase 1 environmental documents. Table 2. Summary of Current and Future Funding, summarizes the current program funding status, and expenditures through December 2017.

Table 2. Summary of Current and Future Funding

SUMMARY OF CURRENT AND FUTURE FUNDING AS OF DECEMBER 2017			
Funding Source	Total Available (\$M)	Total Expended (\$M)	Total Remaining (\$M)
Federal Funds			
ARRA Construction	2,074	2,074	-
ARRA Planning	479	479	-
FY10	929	-	929
State Funds			
Proposition 1A Planning	675	383	292
Proposition 1A Central Valley Segment Construction	2,609	543	2,066
Cap-and-Trade received through 12/17	1,686	583	1,103
Subtotal	8,452	4,062	4,390
Cap-and-Trade December 2017 forecast through December 2024*	3,500-5,250	-	3,500-5,250
Total	11,952 - 13,702	4,062	7,890 - 9,640

*Includes pay-as-you-go funds through 2024. Assumes a low of \$500 million to a high of \$750 million per year.
 Note: The state funding and expenditures shown in this table are not specific to the Federal scope associated with the ARRA/FY10 grant agreements.

The Authority is currently completing project development work for the seven sections identified in the grant agreement. Two sections have received Records of Decisions that support construction underway. However, both completed documents include extensions that are beyond the construction underway on the First Construction Segments. Both documents are currently under supplemental review for extensions to Bakersfield and beyond Madera through the Central Valley Wye.

In addition to updating costs associated with environmental documentation, a Central Valley Segment estimate-at-completion was updated for the Draft Business Plan. This estimate exercise built upon the scope and costs embodied in the Central Valley Segment Funding Plan. The funding plan was approved by the Board of Directors in January 2017 and estimated the cost at that time at \$7.8 billion in YOE

dollars. The Central Valley Segment Funding Plan allowed access to the \$2.61 billion in Proposition 1A funds that were appropriated in Senate Bill (SB) 1029, the Budget Act of 2012, for the 119-mile federally funded segment under construction from Madera to Poplar Avenue just north of Bakersfield.

The estimate at completion review resulted in a higher estimate of \$10.6 billion to complete this segment. This was reviewed with the Authority Board of Directors in January 2018.

1.7.5 Budget and Finance Management

The Authority's policies and procedures for Budget Monitoring and Budget Development establish the approaches taken by the financial office in the development, monitoring, reporting and revising of the Authority's budget. Additionally, the Authority follows the executive budget process and final adoption of budgets by the Board of Directors which is within approved appropriations from the California State Legislature.

The Authority has an established financial office, led by the CFO. As part of a monthly reporting process, the finance office reports to the Authority Board of Director's Finance and Audit Committee on budgets, expenditures and other financial reporting. This includes a report on total project expenditures and forecasts.

The financial office is separated into five distinct branches: budgets, accounting, contracts and procurement, financial management systems, contract administration.

Budgets: This branch coordinates financial forecasting of current and future year project costs and funding; conducts financial reporting, manages budget change proposals to/for the Department of Finance, and to/for the FRA. This branch utilizes Authority staff in key positions with assistance from contracted consultants.

Accounting: This branch is responsible for maintaining records of all financial transactions, monitoring account balances, managing cash flow, preparing and posting regular financial statements, and reporting on the Authority's financial results. This branch is staffed with Authority staff, and engages consultants as needed.

Financial Management Systems: This branch is responsible planning, deploying, and maintaining technical systems and tools that support the business of the Finance Office, including the Accounting, Budgets, Contracts and Procurements, and Contract Administration branches. This branch works closely with the Authority's Chief Information Officer and consultants to define solution requirements and deploy solutions that comply with the Authority's business, infrastructure, security, information protection, and other technical needs. This conducts solution-focused projects, such as FI\$Cal, and is staffed on a project-by-project basis.

Financial Oversight: In order to maintain appropriate separation of duties and accountability, the Authority has two separate and distinct programmatic and financial oversight branches independent of the Financial Office, outlined below.

Audit Office: The Authority has an established Audit Office that reports directly to, and takes direction from, the Board of Directors. The Audit Office prepares an annual audit plan, for the Board Approval, that can review any aspect of the Authority's operations. This provides for an independent evaluation of the Authority's programmatic/financial compliance to applicable rules and regulations for the Board of Directors. The auditor's office provides ongoing objective evaluations, opinions, and recommendations concerning operational and programmatic deficiencies/strengths, and potential internal and external risks to the organization. Should the Audit Office discover deficiencies, they also monitor corrective action plans for resolution to areas of concern or findings. The Chief Auditor will report to the Authority's chief executive officer as to whether appropriate actions have been taken on audit findings. The Audit Office is also responsible for coordinating all external federal/state audits, and for coordinating the annual external Office of Management and Budget A-133 programmatic audit and annual financial statement audit. The Audit Office is staffed exclusively with civil servants.

Grant Management: The Authority has established a position which reports to the Federal Transportation Liaison in the Government Relations Office. The grant manager is responsible for

the overall management, and compliance oversight for all grant funding that the Authority receives. The grant manager is responsible for quality controls for grant activities, reports and deliverables, and ensuring department-wide awareness and compliance with federal grant provisions, applicable state rules and regulations. The grant manager works closely with the Financial Office and the Legal Office to ensure that grant-related activities remain compliant and consistent with federal and state requirements.

The Budgets branch prepares financial reviews and coordinates financial forecasting in regular frequencies as needed as well as for plans and reports such as the Authority Business Plans. The Central Valley Project Financial Plan (Appendix F) provides an annual snapshot of the Authority's financial plan to deliver the grants scope of work. This plan is updated annually each fall based on the Authority adopted fiscal year budget. This overall plan provides the framework for systematically funding the projects that are aligned with the goals and objectives of delivering the federally funded project and in concert with the Authority's adopted business plan. This framework encompasses the process for establishing a funding baseline, which encompasses the funding constraints and funding agreements. These are then aligned with the program wide time-phased budget for the scope identified in the business plan to create funding allocations. As potential encumbrances arise, they are compared against the baseline. Change requests are received from contract management and changes are reviewed by the Authority's Program Delivery Committee and Business Oversight Committee. Approved changes are then incorporated into the budget.

2 PROGRAM LEADERSHIP AND TEAM ORGANIZATION

The Authority is the state entity responsible for planning, designing, constructing and operating the 800-mile high-speed rail system. The Authority is governed by a nine-member Board of Directors (five appointed by the Governor, two appointed by the Senate Committee on Rules and two by the Speaker of the Assembly). In early 2017 two Ex Officio members representing the Legislature were appointed to the Board of Directors. Within the Board, there is an elected chair and vice-chair.

California Public Utilities Code section 185024(a) directs the Board to appoint an Executive Director to administer the affairs of the Authority as directed by the Authority. These responsibilities are delegated to the Chief Executive Officer (CEO) under Board Policy HSRA11-001. The CEO ensures that all actions taken shall be conducted in accordance with all applicable federal and state laws and regulations, and the policies of the Board of Directors and shall ensure compliance with applicable grant requirements when predominately federal and state funds are used for procurements.

The CEO seeks approval and guidance from the board on a broad range of issues regarding the ongoing program, including, but not limited to, certifying environmental documents, entering into contracts, making decisions on alignments, and adopting key document such as program Business Plans. The day-to-day operations are managed by more than 240 Authority staff and over 300 consultant staff as an integrated organization.

2.1 Strategic Organizational Approach

In the continuing effort to move from a planning organization to a project delivery organization, the Authority is evolving its business processes and organization to define itself as a project delivery organization. This change focuses on the necessity to plan for future successes, be locally agile for contract delivery, create a “field oriented” headquarters and implement practical solutions to address current challenges.

Additionally, the executive team have identified high-level program prioritization of goals to ensure that program components are delivered within approved funding levels and that cash is available to pay for these components. These priorities are based upon meeting the federal grant agreements, pursuing implementation of the Draft 2018 Business Plan goals and are inclusive of executed contract obligations. The Draft 2018 Business Plan goals are:

- Initiating high-speed rail service as soon as possible;
- Making strategic, concurrent investments that will be linked over time and provide mobility, economic and environmental benefits at the earliest possible time; and
- Positioning the Program to construct additional segments as funding becomes available.

The two fundamental core values will be: influential and inspirational leadership; and effective and efficient management. Our foundational concept of operations defines four quintessential operational delivery pillars, with a concentrated focus on delivery and stewardship, as displayed in Figure 2. Concept of Operations.

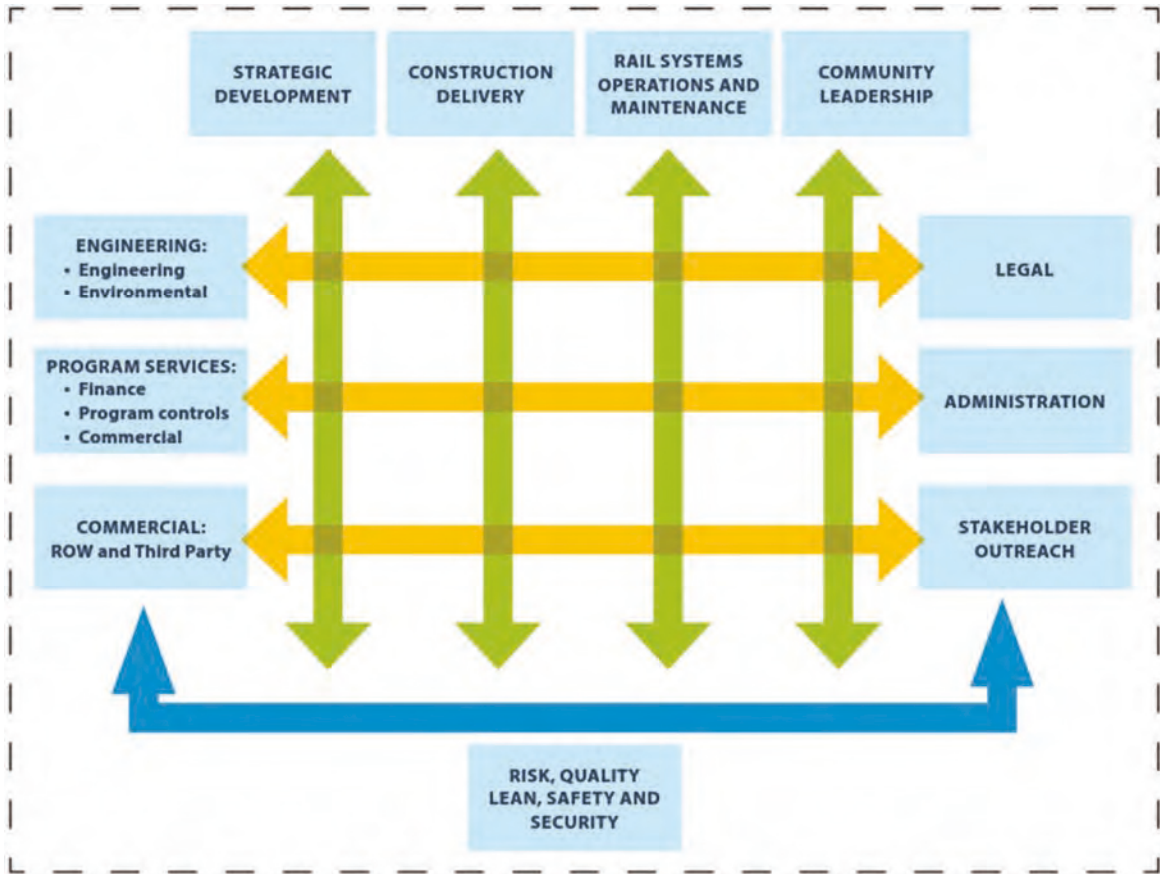


Figure 2. Concept of Operations

Figure 3 identifies the four Operational Pillars of delivery—Strategic Development, Construction Delivery, Rail Systems Operations and Maintenance, and Community Leadership. These pillars are supported by functional areas within the organization. The goal of this organizational structure is to break down silos and drive the organization across the phases of delivery. All of this is built upon a foundation of safety, risk assessment and quality regime. Each pillar and function is defined around clearly identified responsibilities and objectives, as summarized in Figure 3 below.

PILLAR	KEY RESPONSIBILITIES	OBJECTIVES
Strategic Development	Develop project scope, budget, risk, schedule and acquisitions to include completion of environmental reviews and completion of certified real estate in advance of contract procurement.	Advance project planning through organizational collaboration, furthering scope and budget definition while mitigating risk and minimizing unknowns.
Construction Delivery	Execute infrastructure projects on-time, budget and quality/safety; holding our contractors accountable; and ensuring transparent project metrics.	Ensure usable and certifiable high-speed rail infrastructure.
Rail Systems Operations and Maintenance	Establish future-focused high-speed rail criteria for infrastructure construction to support rail operations and maintenance.	Validate and certify infrastructure construction for safety, security and quality to ensure a 220-mph, functional, operable and safe rail system.
Community Leadership	Develop the program through effective engagements with local communities by developing and nourishing long-term relationships with residents, stakeholders and policymakers.	Foster and encourage community engagement throughout the organization in all aspect of construction and operations.

Figure 3. Key Operational Pillars

These pillars are supported by various Authority staff, consultants and contractors. For the Authority to achieve its objectives, headquarters and field resources must be clearly aligned to these four operational delivery pillars. There must also be direct and efficient processes and clear roles, responsibilities and accountability. The goal is to establish enterprise roles and responsibilities, create value-added processes and identify centers of expertise that directly support field delivery. This will require distribution of direct headquarters-held expertise and resources, including engineering, legal, administration, real estate and environmental, toward project implementation.

A key implementation approach of this organization structure will be the creation of Integrated Process Teams (IPT) to address critical deliver issues. These multidisciplinary groups will be collectively responsible for delivering a defined product, process and/or recommendation. IPTs are used in complex development programs/projects for review and decision making. In simple terms, they help solve “hard” cross-functional problems by assembling subject-matter experts across the organization, regardless of divisional origin. An example would include addressing design-build grade subsidence contract issues. An IPT would include members from Construction, Program Delivery, Engineering, Right of Way, Legal and Regional Directors.

Using this IPT concept, a team has been formed to define organizational and key individual roles and responsibilities. This is the first step in achieving alignment between Sacramento headquarters and Central Valley field staff on construction delivery issues and decision making. This is to ensure clear roles and responsibilities, decision-making understanding and defined implementation processes.

The evolution of staff resources to this organizational approach will instill a proactive project-management approach that emphasizes stewardship, creates organizational agility and collaboration, and a collective focus oriented toward achievement, transparency and accountability to delivering the nation’s first high-speed rail system. This is achieved through deliberate planning to:

- Develop a long-range program strategy and goals;
- Formulate project scope, budget, schedule and risk register;
- Narrow unknowns by methodically and perpetually addressing areas of challenge;

- Execute a deliberate plan's schedule and budget;
- Eliminate risk, and active management and mitigation of risks that remain;
- On-time, on-budget and on-quality/safety accountability; and
- Fulfilling our community and other agency agreements.

This organizational approach, proactive project management and strategic planning will build upon risk management and mitigation strategies. The Authority's objective and deliberate decision-making concentrates on total cost benefit, guaranteeing transparency and stewardship. But, more importantly, this approach defines clear program objectives and goals, and resolve and eliminate program unknowns as project elements are advanced. It allows risk to be assigned and quantified using Monte Carlo evaluations. Program contingency can then be established specifically to a risk-mitigation plan, and defined in specific risk- mitigation incremental elements.

It also creates an organizational ethic of aggressive risk minimization initiated in strategic planning and comprehensibly carried through construction and rail operations, allowing for the continual refinement of the program cost-to-complete. This approach revolves around creating financial opportunity in mitigating and retiring individual risk. In doing so, lessons learned from leadership and strategic decision making, organizational input and streamlined processes are directly applied to risk refinement and mitigation. This programmatic approach to refined risk management directly leads to narrowing the cost range and reducing contingencies.

2.2 Organizational Leadership

On July 10, 2017, the Board Chair announced that the program was implementing organizational changes and process improvements to maintain momentum in constructing the nation's first true high-speed rail system. An experienced executive management team of highly qualified professionals has been charged with transforming the Authority into a robust delivery organization:

- In January 2018, a new CEO was appointed by the Authority's Board of Directors with the experience and expertise to provide leadership for the program's delivery and commercialization phase.
- Also in January 2018, a new COO was appointed by Governor Brown to oversee the construction and engineering elements of the high-speed rail program to ensure that they are delivered to quality standards, budget and schedule throughout the program's duration.
- A new Chief Deputy Director, also appointed by Governor Brown, joined the agency in February 2018 to bring a focus on transparency, contract oversight, accountability and performance. This position will advise the CEO on programmatic and administrative issues and will oversee the Authority's internal and personnel operations.
- A new Chief Program Officer joined the program in mid-2017 bringing domain expertise in major rail program delivery, including international high-speed rail.

Strengthened Programmatic Decision Making

In 2017, management formed two program committees to provide internal decision-making rigor, accountability and transparency for major decisions. Proposed changes are subject to a comprehensive review through a highly-structured process requiring consideration of the full effects of a proposed change. This includes any increases to level of effort, or increased costs in one area versus savings in another, potential effects on schedule and understanding all potential tradeoffs before a decision is made.

The program committees, which include broad representation across the agency, forward recommendations to the CEO and/or the Board for final resolution and decisions. This has generated better inter-departmental interaction, greater understanding of the effects of various decisions and earlier identification of issues that need to be resolved.

Program Committees

Program Delivery Committee (PDC), chaired by the COO, has the primary responsibility for the delivery of the program and is accountable for overall capital program scope, schedule, and adherence to budget. The committee reviews and acts upon items involving changes in scope, schedule, budget, and/or priorities that require BOC, CEO or Board approval.

Business Oversight Committee (BOC), chaired by the CFO, was created to streamline financial, commercial and fiscal review processes. The committee assesses and reviews requests and/or proposed commitments relating to public funds in accordance with Business Plan objectives, approved annual budgets, program priorities, and funding availability with a focus on the future enterprise value of an operational business.

2.3 Program Team

A high-level organizational structure is identified in Figure 4, Organization Chart. This structure brings governance and checks and balances appropriate for the size and magnitude of the program, with a focus on delivery. The new leadership is in the process of implementing more detailed organizational changes which will be detailed in future updates.

The delivery of the program is the responsibility of the CEO. The CEO has oversight, as delegated by the Board, and full resource of staff and contractors within the Authority. In addition to the CEO, the members of executive committee are primary staff responsible for the completion of the Program. Below is a description of their roles and responsibilities.

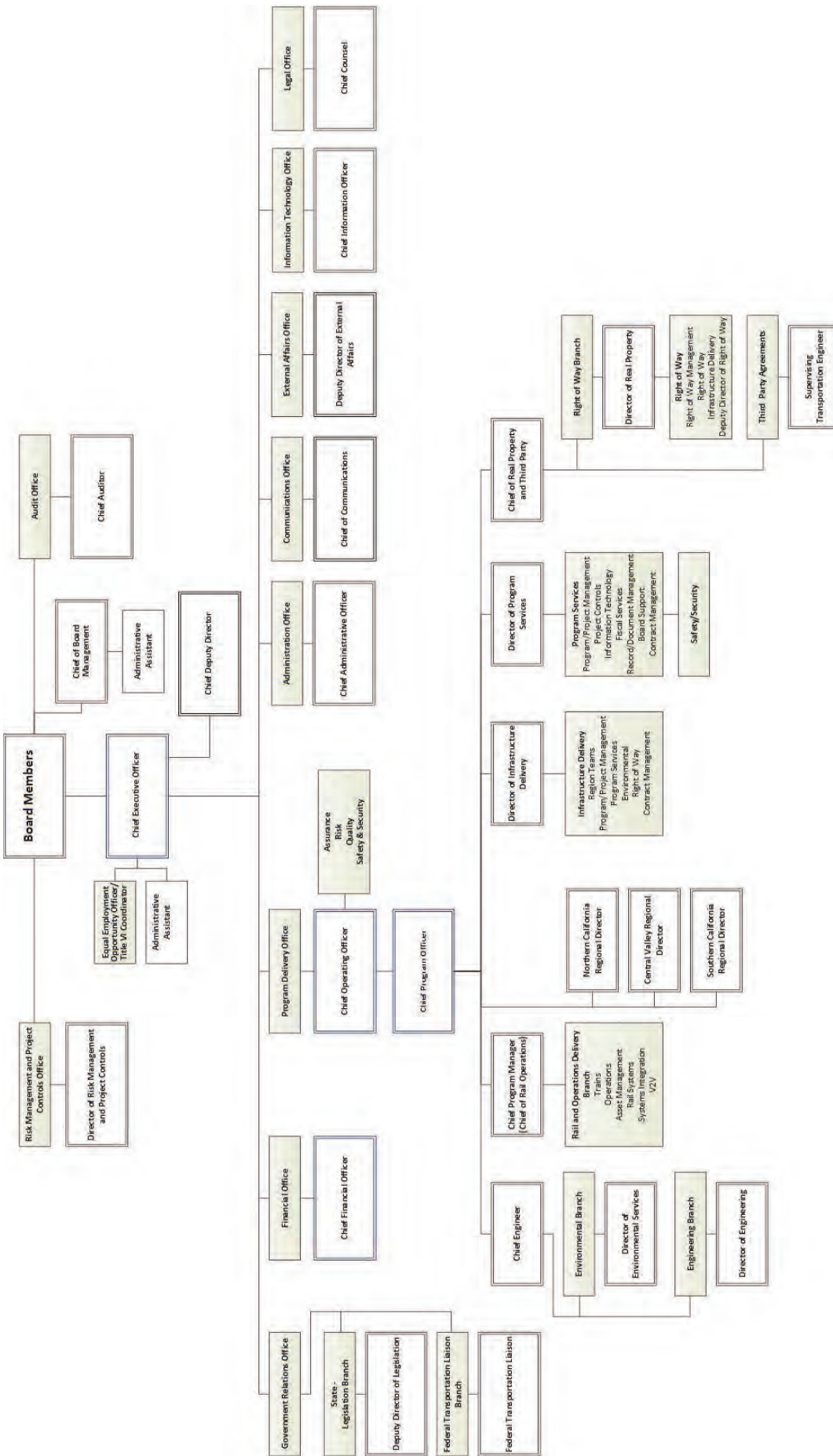


Figure 4. Organizational Chart

2.3.1 Executive Management

Chief Executive Officer

- Provides executive leadership and responsible for determining the appropriate organizational structure, selecting key management staff and facilitating discussions and agreement between the Board members.
- Responsible for establishing key management plans as well as executing the risk management, budgetary, compliance and other organizational processes.
- Develops policies for Board approval and represents the Authority at public meetings, events, etc.

Chief Operating Officer

- Advises and assists the CEO regarding all aspects of the policies and operations of the Authority.
- Responsible for the oversight and coordination of all Authority staff activities, including administrative support for the Board, on behalf of the CEO.
- Provides leadership and direction to the Program.
- Resolves problems, mediates disputes and addresses issues to advance the program.

Chief Deputy Director

- Directs the Program Management Team, consisting of Authority staff and project consultants and contractors, in the timely development and implementation of project objectives on a statewide basis.
- Directs the development and implementation of policies, procedures and plans in support of the Authority's infrastructure requirements.
- Directs and oversees staff in preparation of federal grant applications and in budgeting, allocating and reporting of federal grant funds.
- Directs and manages development and preparation of the Authority budget and negotiation of budget issues with administration and legislative officials.
- Acts as the Authority's liaison with control agencies including Department of Finance, State Controller's Office, State Treasurer's Office and Department of Personnel Administration.

Chief Financial Officer

- Directs the development, evaluation, negotiation, recommendation and resolution of the Authority's financial goals, objectives, policies, regulations, standards, plans and operating procedures.
- Oversees all accounting, budgeting and fiscal programming functions.

Chief Program Officer

- Principal point of contact with the Authority regarding program delivery office services.
- Responsible for execution and delivery of the civil infrastructure and rail portion of the program.
- Provides program advice and strategic planning on systems development and operations and maintenance plans.

2.3.2 Other Board Direct Reports

Direct reports to the Board include:

Chief Auditor

- Provides objective evaluations, opinions, and recommendations concerning operational and programmatic deficiencies and internal and external risks to the organization.

- Identifies opportunities for managing organizational risks and the optimization of the internal control environment.
- Provides oversight for the financial and operational reporting processes and compliance monitoring duties.
- Conducts reviews of the Authority's program and administrative control systems to determine if the control systems are operating in accordance with policies and procedures, and in a manner that supports the attainment of strategic goals and objectives.
- Coordinates external audit activities.

Director of Risk Management and Project Controls

- Responsible for managing and tracking potential and active risks, as well as risk mitigation/contingencies on the program.
- Accountable for the quality, timeliness and cost effectiveness for rail delivery on the program.

Chief of Board Management

- Responsible for managing the business of the appointed Board Members of the Authority.
- Projects, plans, and organizes the work of the Board meetings and Board Members. Develops and manages the Board meeting plans.
- Advises and informs Board Members and staff on requirements of the Open Meeting Act, Quentin J. Kopp Conflict of Interest Act, Administrative Procedures Act, Public Records Act, the Rules of Practice, the Rules of Order, and the conduct of the Board meetings.

2.3.3 CEO Direct Reports

Direct reports to the CEO, include the COO, CFO and CPO identified in the Executive Committee above and the following key staff:

Deputy Director of Legislation

- Responsible for developing and managing the Authority's legislative program.
- Represents the Authority with legislators, legislative committees and the Governor's Office.
- Develops, analyzes and coordinates activities on legislative bills affecting the Authority.

Federal Transportation Liaison

- Develops, evaluates and implements specific federal transportation policy to promote the state's transportation goals and initiatives.
- Coordinates with governmental and non-governmental organizations related to congressional transportation initiatives.
- Reviews state legislation and evaluates impact to federal policy and funding programs, prepares federal testimony and presentations and coordinates with congressional representatives.

Chief Administrative Officer

- Develops, manages and provides direction and oversight for the performance and business responsibilities for key services that include human resources, information technology and business services.
- Serves as the Equal Employment Opportunity Officer and Title VI Coordinator and implements the Authority's policies, Title IV program, and the activities and applicable state laws relating to equal access and employment opportunities.

Chief of Communications

- Responsible for the development and implementation of the Authority's communications and media strategy.
- Responsible for the Authority's external affairs functions, including communications, legislation, stakeholder outreach, small business, and business analytics and commercial implementation.
- Serves as the primary liaison for the Authority to stakeholder communities, members of the press, California citizens and others to facilitate the Authority's external outreach, transparency and accountability goals.
- Responsible for building and maintaining strong relationships with local, state and federal representatives and agencies that impact the Authority.

Deputy Director of External Affairs

- Directs marketing, small business and public outreach strategy, as well as external affairs planning, policies and procedures.
- Oversees and manages, in coordination with the Regional Directors, an external affairs team throughout the state, including contractors, to plan, organize, and execute all aspects of a proactive multi-media, small business and public relations program.
- Manages the implementation of the Small Business outreach program and achieve agency objectives, including compliance with the Authority's 30% SB/DB participation goals and other stated objectives.

Chief Information Officer

- Directs the planning and implementation of enterprise Information Technology (IT) systems in support of business operations in order to improve cost effectiveness, service quality and business development.
- Establishes and implements organizational goals, objectives, policies and operating procedures; manage and evaluate operational effectiveness and continuously implement process improvements.
- Oversees the IT environment, policies and procedures to achieve operational efficiency; continuously evaluates IT services and management functions and develops process improvements to ensure effectiveness and efficiency in meeting IT business needs.
- Monitors and incorporates IT trends and best practices of enterprise services solutions in order to maintain operational readiness and to continuously prepare for future technologies.
- Manages and maintains Authority IT Standards, Asset Management, Security policies and procedures and related Department of Finance and State Administrative Manual requirements.

Chief Counsel

- Principal legal advisor to the CEO; provides policy guidance, advice and representation on all legal matters on the Authority's operations and objectives.
- Provides strategic legal advice to the Board and the executive management team.
- Responsible for oversight of all Authority legal activities, including significant legal contracting with the State Attorney General's Office (Attorney General) and private counsel.
- Serves as legal advisor on bidding, contractual, real property, insurance, claims, risk mitigation, personnel management and employer-employee related practices, legislative proposals and analyses, litigation, rulemaking and the Public Records Act.

2.3.4 Other Key Authority Team

Chief of Rail Operations

- Responsible for advancing the Authority's implementation of the Program.
- Directs rail operations and maintenance staff in the administration, management and development of policies and procedures for transportation and commercial planning, network integration, rail engineering, rail procurement and operations and maintenance activities of the Authority.
- Establishes project design, plans, specifications, cost estimating, and schedules; oversees the development and implementation of the Authority's planning, rail and operations goals, objectives, and priority setting.
- Develops policy, procedures and oversees the management of station planning and development activities, rail engineering and procurement, and operational planning and integration activities.
- Oversees the development of ridership, cost-benefit, and other planning and operational studies.
- Provides direction and recommendations to the Chief Executive Officer, Chief Operating Officer and Authority board on all rail operations projects; acts on behalf of the Chief Operating Officer and the Authority in rail operations functions as required.
- Represents the Authority at meetings with the federal government, local governments, Department of Finance, the Legislative Analyst Office, client State agencies, and legislative hearing and conferences as necessary.

Regional Directors

- Acts as the Authority lead external representative and represents the agency with local agencies and organizations.
- Develops and maintains relationships with local residents, and policy makers while building strategies for communicating with local constituents to foster their continued involvement and support.
- Oversees and provides direction to regional Authority staff responsible for various aspects of project development including planning, environmental analysis, preliminary engineering, and community outreach.

Director of Program Services

- Provides a strong, comprehensive source of performance reporting and essential oversight services to support program delivery efforts.
- Oversees development of program reports for various program areas including: Project costs, budgets, forecasts and schedules.
- Provides program delivery of IT systems.
- Oversees acquisition of essential program consultant personnel to successfully execute the program.

Director of Infrastructure Delivery

- Provides leadership (within budget, scope and schedule) to successfully deliver civil capital construction including oversight and management of the design-build contractors, project construction management consultants and Authority staff and consulting resources.
- Oversees the development of construction guidance documents, and provides programmatic technical guidance and procedures for the construction packages to successfully advance work.
- Oversees and develops construction staffing resources providing expertise, including safety oversight, project/construction management and quality assurance.

- Supports the procurement of right of way and implementation of critical third-party master agreements to advance construction.
- Provides insight and lessons learned to guide future construction work and contract procurements including right of procurement, third party and other early works to prepare for future construction.

Chief Engineer

- Guides program management staff in the administration and management of the Authority's capital projects including oversight of engineering and environmental planning activities.
- Directs the development of policies and procedures for the engineering and planning services including project design, plans, specifications, cost estimating, and schedules.
- Develops policies, procedures and oversees the management of the environmental review and approval process.

Director of Environmental Services

- Develops and oversees policies and procedures related to the environmental documentation and permitting.
- Plans, organizes and directs complex and sensitive environmental policies, programs and plans.
- Reviews all environmental documents responds to concerns to avoid or minimize potential impacts.
- Serves as the single point of contact for environmental policy with state, local and regional elected officials and environmental organizations.
- Responsible for review and input on all environmental legal documents and works closely with the Project Delivery Team to ensure environmental compliance.

Director of Engineering

- Develops, recommends and implements policies in relation to engineering management, engineering standards, infrastructure development, systems development, design and construction support, rolling stock and systems integration.
- Responsible for the engineering activities and end products necessary to successfully plan, engineer, procure, design and construct the Authority's capital projects, including the activities of preliminary engineering, procurement, technical review of design-build submittals, system integration, public utilities management, and railroad interfaces.
- Oversees and directs the development of complex, technical, highly sensitive and critical engineering programs throughout the project lifecycle.
- Acts as a technical expert on engineering committees and task force groups at the national level, as well as with state and local entities.

Chief of Real Property and Third Party

- Manage and supervise the development of plans, strategies, program priorities, goals and objectives of the real estate program.
- Directs staff and consultants to ensure the functions are properly implemented and compliant with applicable laws and regulations.
- Manage and supervise contracts requiring approval by control agencies, including but not limited to the Department of Finance, Invoices, Payments to Title companies, Property Management, Excess land disposition, Relocation appeals, and Legal settlements.
- Manage and supervise Third Party agreements, including but not limited to Utility Project Report, deviations from policies and procedures, utility preliminary engineering, Utilities report approval, Third party agreement execution.

Director of Real Property

- Responsible for development of business plans, business strategies, program priorities, goals and objectives of the real estate program.
- Manages and directs staff and consultants to ensure compliance with applicable laws and regulations.
- Monitors activities in support of real property program and proposes and assists in the development of legislation or policies that further the goals and objectives of the Authority.
- Develops and administers a Real Property Management Plan that outlines functional responsibilities, a management approach, key assumptions, major actions, and milestones to implement a program for acquisition of property rights.
- Develops and maintains uniform policies and procedures that carry out the intent of the approved Real Property Management Plan.

Third Party Agreements Supervising Transportation Engineer

- Directs and manages contracts, engineers and administration responsible for the coordination, tracking and monitoring of the third-party agreement execution in compliance with complex federal and state regulations, engineering and policy-related issues.
- Provides direction related to difficult technical, contract management, contract administration, contract negotiation and contract selection provides advise related to complex policy and divisional issues and priorities.
- Coordinates, monitors and tracks right of way acquisition and provides leadership and support on schedule coordination, environmental impacts, and changing needs.

2.4 An Integrated Organization

The delivery model for the program includes different strategies for functionally delivering each of the major elements of the program, including commercial and train operations, high-speed rail trains, track and systems, and construction of civil works. Each element is unique and requires a delivery approach tailored to its specific characteristics.

Authority state staff set program goals and objectives and retain overall responsibility for decision making and agency approvals. These staff are responsible for contract management and all expenditures of public funds ensuring they are managed appropriately within applicable rules and regulations.

However, the delivery of the program requires unique expertise and a multiple number of similar staff to execute technical and administrative tasks. To access specialized expertise and balance and manage the number of state staff, the Authority has contracted with several consulting firms to assist with program delivery and implementation. These consultants are strategically integrated with Authority staff to provide specific organizational capacity and capabilities and to specifically deliver key program elements.

The program delivery consultant—the Rail Delivery Partner (RDP)—is the largest service provider and is comprised of a prime consultant supported by more than 50 subconsultants (described further below). However, the Authority has also contracted with a financial advisory consultant, regional consultants, environmental and engineering consultants, project and construction management consultants (PCM), right-of-way consultants, an early train operator and Design/Build Contractors. Key contractors include:

- RDP: WSP USA, Inc: A multi-firm consultant team providing a full range of program delivery services, including program management, program and project controls, engineering and environmental services, right-of-way support, planning, ridership and revenue modeling, operations and maintenance planning, cost estimating, risk management, quality, safety and security and construction management support.
- Financial Advisory Consultant: Prepares financial analyses and identifies innovative financing opportunities. Reviews business model options for procurement, delivery and risk allocation and assists the Authority in advancing the outreach to and interaction with private-sector investors.

- **Regional Consultants:** Various regional consultants provide Environmental assessment and preliminary engineering for the Central Valley and Southern California project sections.
- **Environmental and Engineering Consultants:** Various environmental consultants provide environmental assessment, mitigation monitoring and engineering for the Northern California project sections.
- **Project Construction Management:** Project and construction management for construction packages.
- **Design-Build Contractors:** Final design and construction by construction package. Currently CP 1, CP 2-3 and CP 4 DB Contracts are awarded to design-build joint ventures including:
 - Tutor-Perini/Zachry/Parsons (TPZP)
 - Dragados/Flatiron (DF)
 - California Rail Builders (Ferrovial Agroman US Corp and Griffith Company)
- **Right-of-way Consultants:** Supplemental technical staff to support appraisal and acquisition of property.
- **Early Train Operator:** The Authority contracted with DB Engineering & Consulting USA, a subsidiary of Deutsche Bahn AG, as the Early Train Operator (ETO) to address numerous factors related to operations, such as high-speed rail trains and systems procurement, operating costs, maintenance costs, and ridership and revenue. The Board approved a Pre-Development agreement with DB in November 2017 for the first six-year phase of services.

2.4.1 RDP

The Authority's key personnel described above are responsible for program oversight and policy direction and manage all consultant resources. The Authority's program delivery consultant—Rail Delivery Partner (RDP)—manages, monitors and oversees many technical aspects of program delivery. Together, the Authority and RDP form an integrated organization committed to the shared mission of delivering the nation's first high-speed rail system. RDP's responsibilities are defined by the RDP contract (HSR 14-66), which runs through June 30, 2022. Key elements include:

- **Program Management:** Manage, conduct and provide oversight for the functional components of program management. They provide program services related to providing program controls oversight, and recommend and support Authority decision-making regarding the delivery approach, business case and/or master planning of the program. This includes translating the Authority's high-level policy objectives into operational terms.
- **Program Integration and Coordination:** Provides coordination oversight and compatibility between projects, phases and contracts and manages integration requirements and specifications for system elements through implementation and operation. This includes applying management policies, practices and procedures to alleviate and/or avoid delivery risks during the program's various stages.
- **Specialized Resources:** The RDP provides specialized technical expertise and program coordination. This includes specialized expertise in engineering, environmental documentation and operations. In addition, augmented staff resources are provided throughout the program to support agency staff.

The Chief Program Officer, is the principal point of contact with the Authority, and has overall responsibility for the execution of RDP's work program. To provide project resources the RDP has program functional managers who are responsible for resources dedicated to program and individual project delivery. These functional managers include specialists in program management, operations and maintenance, commercial planning, policy and planning, environmental documentation, permitting, design and construction, and program integration and coordination. The program functional managers monitor and evaluate overall program performance and reporting and develop and implement program-wide policies, systems, procedures and processes for consistent project delivery. Additional information related to Project Delivery staffing and organization is described in more detail in Section 7.2, Project Delivery.

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3 GOVERNMENT AND COMMUNITY RELATIONS

3.1 Legislative and Government Relations

3.1.1 Federal Transportation Liaison

The Government Relations Office contains the Federal Transportation Liaison Branch and the State Legislation Branch. The Federal Grants Management Section is within the Federal Transportation Liaison Branch and is responsible for the oversight and management of the federal funding and required state match, and provides regular reporting to FRA. In addition to quarterly financial and performance reporting to FRA, the Authority also provides a number of deliverables outlining its approach to program and project delivery of the scope of work outlined in the grant agreements. This includes preparation of any post-award grant requests, monthly reports, quarterly reports, annual reports and other ad hoc requests from the FRA and other federal and/or state oversight agencies.

Federal Transportation Liaison functions include monitoring the Congressional legislative process, communicating and updating Washington D.C.-based federal stakeholders and U.S. Congressional offices. This function is supported by the Washington D.C. strategic consulting firms of Kadesh & Associates, and Peyser Associates.

Key activities include:

- Keeping key Members of Congress (and staff) and Washington D.C.-based industry and labor stakeholders apprised of new developments with the project.
- Staffing and preparing Authority witnesses for U.S. Congressional Hearings.
- Preparing the itinerary for Authority executive trips to Washington D.C. (e.g., Congressional and federal agency visits that coincide with the Federal Railroad Administration (FRA) Quarterly Review).

3.1.2 Federal Grant Management

Federal grant management is managed by the Authority's Grants Manager, and is supported by two RDP staff: one full-time and one part-time.

The Grant Manager works with the Authority's various programmatic and administrative areas to inform and ensure agency-wide integration of a myriad of complex federal and state requirements, across multiple disciplines, to ensure compliance with the broad range of federal and state rules and regulations, such as: cost principles, records retention, procurement, contract management, Title VI requirements (civil rights), transparency requirements, audit requirements, preventing fraud, waste and abuse, workplace and worksite safety, and protecting personally identifiable information.

In addition to working closely with the FRA, the Grant Manager serves as the primary contact between the Authority's executive management team and the FRA regarding negotiations on post-award activities.

3.1.3 State Legislation

The California State Legislature is a key partner in the delivery of the California High-Speed Rail System and performs its oversight role through ongoing communication and engagement with the California High-Speed Rail Authority (Authority) on a number of fronts. Statutorily required reporting through the submission of a biannual business plan, pursuant to Section 185033 Public Utilities Code (PUC), provides the California Legislature with detailed information related to the planning and delivery of the system, including among other things, capital costs, ridership forecasts, financial scenarios for service levels, funding, implementation strategies, and risks. Following the release of the draft business plan, the California Legislature holds a series of oversight hearings to examine the draft plan and engage the Authority on the information contained.

In the opposite year of the business plan, PUC Section 185033.5 requires the Authority to submit a project update report to the California Legislature. This report is required to provide a program-wide summary, as well as details by project segment, with all information necessary to clearly describe the status of the project, including the baseline budget for all project segments, current and projected budget

by segment or contract for all project phase costs, expenditures to date, comparison of current and projected work schedule, summary of milestones, issues and actions taken to address them, and through discussion of the risks to the project and steps taken to mitigate those risks.

The Authority's State Legislation Branch is the primary point of contact for the California Legislature. This office is led by a Governor-appointed executive serving as the Deputy Director of Legislation and two full-time associate level legislative analysts. Staff of this office monitor activity within the legislature and facilitate the development of any Authority's sponsored legislation as well as develop the analysis of pending legislation before the California Legislature. The Deputy Director of Legislation testifies at legislative hearings as needed and works closely with key policy, budget, and leadership staff within the California Legislature to influence positive outcomes on pending legislation posing impacts to the Program.

Beyond maintaining an enterprise-wide bill analysis program to ensure the Authority is fully assessing the impacts of pending legislation and engaging with key legislative staff on those matters, the State Legislation Branch ensures all members of the legislature are kept apprised of key activities and milestones by sending monthly construction updates, small business newsletters, economic reports, annual sustainability reports and other key information.

To ensure transparency and facilitate the California Legislature's role in active oversight of the project, the State Legislation Branch provides all Board information prior to board meetings as well as all detailed Finance and Audit Committee Reports to key legislative staff. Additionally, through the State Legislation Branch, the Authority meets quarterly (or more frequently as needed) with key policy, budget, appropriations, and leadership staff in both houses and both parties to brief on relevant matters that have been brought to the Board of Directors and to answer any questions.

3.2 Intergovernmental, Utility and Other Agreements

The Authority is developing intergovernmental and utility/agency agreements to ensure the success of the Program through multi-entity agreements. The agreements among the participants vary and include MOUs, operating agreements and contracts.

The Authority also has agreements with community-based organizations and regulatory agencies for additional elements that are required for the Program. For example, MOUs have been developed with partners in the northern and southern bookend regions to establish the path and coordination of the statewide modernization rail plan and coordination occurs with the California State Transportation Agency (CalSTA) to document these integration efforts as part of the State Rail Plan.

3.2.1 Intergovernmental Agreements

At the state level, the Authority coordinates with numerous agencies for the environmental planning, development and coordination of the Program. The Authority works closely with CalSTA, the California Department of Transportation (Caltrans), the California Department of Fish and Wildlife (CDFW), the California Department of Conservation, the State Historic Preservation Officer (SHPO), the California Department of Parks and Recreation, the State Water Resources Control Board (SWRCB) and the Office of Planning and Research.

The potential impacts of the Program at the local level are a priority concern for the Authority, and this concern is reflected in the Authority's engagement with stakeholders at the county and city levels. The Authority has, and continues to develop, agreements and contracts with local governmental entities that address varying levels of the Program. These include assistance for business and utility relocations, notifications about road closures and grade separations, implementation of traffic mitigations, discussion of design aesthetics, facilitation and encouragement of transit-oriented development, and collaboration with local agencies regarding joint funding, cost sharing and related opportunities to accelerate high-speed rail development.

To further its goal to advance system sustainably, the Authority has joined with several federal agencies to develop sustainable planning. In July 2011, the Authority signed an MOU with the FRA, the U.S. Department of Housing and Urban Development, the U.S. Department of Transportation, the Federal Transit Administration (FTA), the federal Surface Transportation Board and the U.S. Environmental

Protection Agency (EPA). Together seven goals were established that centered on the need to plan, site, design, construct, operate and maintain the system using environmentally preferable practices. Additionally, the Authority has agreements with the U.S. Army Corps of Engineers (USACE), U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the U.S. Forest Service and the U.S. Bureau of Reclamation for coordination of the environmental planning efforts.

3.2.2 Utility Agreements

The design and construction of the Program will directly affect the facilities of numerous utilities throughout the state. Agreements have been developed based on best practices for utility relocations. The Authority is actively working with the affected entities to coordinate design and construction in accordance with federal, state and local rules and regulations.

The relocation of the affected facilities, including utilities owned by third parties, are completed by construction segment. In general, the Authority enters into an agreement with each third party whose facilities are affected by the design and construction of the Program. The Authority works with the third party to confirm any identified conflicts and negotiates the best course of action for the alteration, removal, relocation, replacement or reconstruction of the affected facilities. The Authority has entered, or intends to enter, into agreements with utility owners, including cities, counties, water and irrigation districts in the Central Valley, and such private companies as AT&T, Pacific Gas & Electric and communications companies.

Where the DB project delivery method is used, the agreements for the design and relocation of specific facilities are prepared by the DB contractor or in coordination with the DB contractor. This allows the DB contractor to coordinate utility relocation with the design of the high-speed rail system. The agreements include all federal flow down requirements set forth in 49 U.S.C. §24405(a), and the grant(s) terms and conditions.

The Authority is also engaged in the rulemaking process with the California Public Utilities Commission, which culminated in the issuance of General Order #176 (Rules for Overhead 25kV Railroad Electrification Systems for a High-Speed Rail System). The general order sets the standards for how various public utilities will coexist in the Authority's dedicated right-of-way.

3.3 Strategic Communications and Stakeholder Outreach

Transparency and providing timely and accurate information to the public are critically important to the success of the program. The Authority's Communications Office and the Office of External affairs work closely together to oversee all aspects of the Authority's communication and outreach programs and strategies. The Authority plans and conducts communications activities based around major project milestones and in coordination with the its stakeholder partners, including elected officials, government agencies, transportation agencies, local jurisdictions, community residents and businesses, and interest organizations. The Authority's experience has clearly shown that a well-planned strategic communications and stakeholder outreach program that is fully integrated into the overall program is a key factor for project success.

In keeping with the integrated organizational approach, the communications and external affairs team comprises staff from the Authority, the RDP, regional consultants and the environmental and engineering consultants, all of whom work together to disseminate information about the program and its individual projects. This collaboration provides greater consistency in approach, messaging and branding, while maximizing effective information sharing and overall coordination. With communications and external affairs staff located in Sacramento and in the three regional offices, integration is essential to coordinating team members, tasks and responsibilities.

Regional staff and contract employees work with the Authority's communications and external affairs office to identify specific stakeholders for targeted outreach. The Authority employs a variety of outreach strategies, including in-person meetings at the stakeholders' locations, group meetings to update stakeholders and seek their input, emails, phone calls, letters, a website, social media and other means of contact.

The mechanisms used by the Authority to conduct outreach activities are described below.

3.3.1 Partners and Stakeholders

Effective stakeholder relations are essential to the success of program development and implementation. Stakeholders are defined as anyone directly or indirectly affected by the program, those who will ultimately benefit from the mobility improvements and other investments resulting from high-speed rail, and organizations or individuals that have an interest in the program and/or the ability to influence others. In addition to elected officials, business owners and influential organizations, institutions and individuals, other stakeholders include area residents both in or out of the path of the high-speed rail line, and a range of interest and/or community groups such as environmental, labor, business or rail organizations. Keeping stakeholders informed and engaged is key to keeping the project moving toward successful implementation. To that end, the Office of External Affairs leads and implements an overall outreach campaign with these various groups at the direction of the CEO and Executive leadership and in partnership with the offices of Legislation and Communications.

Elected officials, government officials and other community leaders are regularly consulted and kept apprised of program and project developments, as well as any situations that may require these officials and leaders to address their constituencies. The Authority also encourages these officials and leaders to participate in public events, such as public meetings, groundbreakings and ribbon-cuttings.

3.3.2 Media Relations

News outlets remain one of the most effective ways to disseminate information to the public and stakeholders. Maintaining relationships with journalists is also important for identifying and addressing any issues or questions that might arise regarding the program.

Media relations are handled through the Authority's chief of communications. Information is proactively shared with the news media to disseminate updates about developments of interest to the public, up-to-date information about the status of the program and its projects, milestones, and actions or events that have a direct effect on a community.

Social media is also used to engage the news media by sharing stories about the program and/or its projects and alerting members of the media about an upcoming event. RDP, regional staff and consultants support the media relations program by identifying contacts for regional media, suggesting story ideas, conducting research and providing data.

Current social media sites include:

- Facebook: www.facebook.com/CaliforniaHighSpeedRail/
- Twitter: www.twitter.com/cahsra
- Instagram: www.instagram.com/cahsra
- LinkedIn: www.linkedin.com/company/california-high-speed-rail-authority
- YouTube: www.youtube.com/CAHighSpeedRail
- Flickr: www.flickr.com/photos/hsrcagov/

3.3.3 Outreach

Outreach is conducted on multiple levels and at various intervals based on major milestones, decisions and developments. Statewide/programmatic outreach and education is managed by the Authority's communications and external affairs team in Sacramento and implemented by designated staff and/or consultants.

Regional outreach is region and/or project specific. Each region and project has unique characteristics, situations and issues to address and manage. Furthermore, the planning, delivery and construction of the regional projects comprising the program are advancing on different schedules across the state: the Central Valley is under construction, while the environmental planning and review is well underway in Southern California and in Northern California.

Regional outreach includes the development of project plans, activities and schedules. The outreach activities are approved by and implemented in coordination with a point of contact from the Authority who reports to the Authority's Chief of Communications and the Deputy Director of External Affairs. This approach provides for those messages to be augmented with unique and customized communications tailored to fit each region's circumstances and the status and development stage of its projects. This also provides a feedback loop that allows messages to be clarified, honed and strengthened for each region. Regional outreach includes the development of project plans, activities and schedules that are approved by and implemented in coordination with a point of contact from the Authority who reports to the Authority's Chief of Communications and the Deputy Director of External Affairs.

Outreach conducted during the environmental process is implemented in collaboration with the regional directors, planning and environmental staff, regional contractors, and members of the communications and external affairs team to verify compliance with CEQA/NEPA and Authority policies.

Outreach conducted during construction of a project section is coordinated through the direction of an individual designated by the Authority's Chief of Communications and the Deputy Director of External Affairs, that collaborates with the regional directors and regional communications and external affairs staff. The Authority's goal is to establish statewide best practices for construction communications/ outreach that provides consistency throughout the program.

The Authority receives dozens of invitations and speaking requests throughout the year for participation in events and conferences that inform stakeholders and the public about the high-speed rail program. In addition to attending these events, participation can include delivering a speech, giving a presentation, or taking part in a panel or roundtable discussion. To ensure that the Authority responds to incoming speaker requests and invitations in an effective and efficient manner and that presentation and speeches are consistent and reflect current messaging and design standards, the Authority has created a Speakers Bureau. This bureau is comprised of high-speed rail staff and/or consultants who have been selected to speak to groups, organizations, or associations throughout the state and the country. Presentations given by the Speakers Bureau can range from an overview of the statewide high-speed rail program to focusing on individual project topics, such as planning, environmental, engineering, construction, and business opportunities. Information about the Speakers Bureau can be found on the Authority's website at: www.hsr.ca.gov/Newsroom/speakers_bureau.html.

3.3.4 Authority's Website

An effective method for distributing information to the public is the Authority's website: www.hsr.ca.gov/. The website contains the latest information about the program, including the approved environmental documents, draft environmental documents for circulation, approved reports, meeting notes, newsletters and links, construction updates and traffic impacts, as well as major milestones, program progress, recent developments, biannual business plans and legislative reports. This site also functions an archive for past reports and documents such as business plans and project updates.

Because many aspects of the program and the Authority's mission are mandated by state and federal law, some documents and materials must be posted online within a specific timeframe, and in some cases, these items cannot be changed or removed once posted. Examples include:

- Board of Directors Meeting Agendas: Per the Bagley-Keene Open Meeting Act, notice of state body meetings must be posted at least 10 calendar days in advance of the meeting. Because the Authority is a public body, agendas must be posted on the Authority's website within this timeframe to be in compliance with California law.
- Environmental Documents: The Authority is responsible for posting CEQA and NEPA documents in public places for review, including the Authority's website. Once posted, the documents cannot be removed.

To provide an easily accessible and additional means for the public to learn about the progress of the program, the Authority established a supplementary website – www.buildhsr.com – this site features construction projects (including up to date information on road closures and other construction alerts) and other project updates.

As part of its ongoing communications program, the Authority has expanded its multimedia materials under the direction of the Deputy Director of External Affairs and in coordination with the communications office to provide a wider range and greater detailed methods of communication. These tools effectively relay richer information about the high-speed rail system and its specific projects or programs (e.g., small business, faces of high-speed rail, etc.). Through its multimedia program, the Authority develops a wide range of videos, simulations, interactive maps and other tools and materials to enhance public understanding. These multimedia materials are used in public meetings and are posted on the Authority's websites and/or social media.

3.4 Railroad Agreements

The Program is part of an overarching rail modernization program coordinated through CalSTA. As part of the Budget Act of 2012 (SB 1029, Chapter 152, Statutes of 2012), funding has been identified for investments to enhance existing systems that will ultimately accommodate high-speed rail operations. The Authority is coordinating with these transit agencies to develop MOUs for future operating improvements, including schedule coordination, ticketing, station operations, parking and other improvements that will optimize future service.

The Authority is also entering into third-party agreements with private rail and transit entities, Class I freight railroads (including the Union Pacific Railroad and BNSF Railway) and joint powers authorities and boards operating commuter rail lines within the state.

All agreements with railroad-owned property on the high-speed rail alignment will be approved by the FRA in accordance with 49 U.S.C. 24405(c)(1) and Section 4.2.6 of the High-Speed Intercity Passenger Rail Program Interim Guidance published in the *Federal Register* on July 1, 2010 (75 FR 38344). Agreements will include compensation for use, assurance regarding the adequacy of infrastructure capacity, a commitment to maintaining railroad collective bargaining agreements in full force and effect, and compliance with liability requirements consistent with 49 U.S.C. 28103.

3.5 Labor Relations

3.5.1 Authority Project Labor Agreement- Community Benefits Agreement (CBA)

With construction of the Project well underway, a significant number of new construction jobs have been generated. The Authority remains committed to ensuring the communities, small businesses, and residents along the corridors benefit as much as possible during the construction phases of the California High-Speed Rail Program. The Authority desires to improve the socioeconomic characteristics of California and reduce blight in its communities by providing opportunities to disadvantaged residents to enter into sustained careers in the construction trades and to facilitate rapid completion of Authority construction projects.

In December 2012, the Authority entered into a Community Benefits Agreement (CBA) with the State Building and Construction Trades Council of California and the Signatory Craft Councils and Local Unions. The CBA is designed to assist small businesses and job seekers in finding or obtaining construction contracts, jobs and training opportunities. The CBA supports employment of individuals who reside in Disadvantaged Areas and those designated as Disadvantaged Workers, including veterans.

The CBA permits all qualified contractors and subcontractors to bid on and be awarded work on the Authority's construction contracts without regard to whether they are otherwise parties to collective bargaining agreements. Similarly, laborers are not required to join a union organization to be hired or dispatched for work on the Authority's construction contracts.

3.5.2 Establishment of Wage Rates and Classifications; Wage and Hour Requirements; and Adherence to State and Local Requirements

As a federal grantee and recipient of State of California financial assistance, the Authority is required to comply with the provisions of 49 United States Code (U.S.C.) 24405 (c) (2) and relevant sections of the High-Speed Intercity Passenger Rail Program Interim Guide/Notice of Funding Availability the California Labor Code; the California Code of Regulations, the Davis-Bacon Act, and related statutes.

Under these regulations and statutes, private construction contractors must pay prevailing wages to their workers and must follow public works law when working on a project funded, in whole or part, by a public entity. Prevailing wages must be paid to all workers employed on a public works project when the public works project is over \$1,000.00. All public works contracts valued at \$30,000 or more carry an obligation to hire apprentices, unless the craft or trade does not require the use of apprentices, as indicated in the corresponding prevailing wage determination (PWD). To facilitate contractor compliance with these regulations and ensure the application of uniform compliance monitoring, the Authority administers an internal labor compliance monitoring program via the Contract Compliance Unit (CCU).

The CCU monitors the labor compliance activities related to Authority contracts to confirm that contractors working on the Program are following the contract General Provisions, California Labor Code Chapter 1 of Part 7 of Division 2, the Code of Federal Regulations (CFR) Title 29, prevailing wage statutes and regulations, and the Authority Community Benefits Agreement (CBA). Contractors are obligated to monitor the payment of applicable prevailing rates of per diem wages by the subcontractor(s) to its employees, by conducting reviews of certified payroll records of the subcontractor(s).

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4 PLANNING AND CONCEPT DESIGN

In May 2008, the Authority Board of Directors adopted High-Speed Train (HST) Station Area Development policies. This set of policies describe the selection of preferred station locations that provide linkages with local and regional transit, airports and highways and to act as multimodal hubs. Through these plans and policies, the system can meet the objectives of minimizing potential impacts on the environment and maximizing connectivity with other modes.

The Authority's established policy is that, "In pursuing a profitable a successful HST system, the Authority will utilize its resources, both financial and otherwise, to encourage the characteristics listed below for the land use development in and around its station." The characteristics include:

- Higher density development with minimum requirements for density
- Mix of land uses
- Grid street pattern and compact pedestrian-oriented design
- Context-sensitive building design
- Limits on parking for new development

The Authority is currently working with stakeholders on station design and station area plans, access planning, land use changes, creating community hubs, and defining the environmental footprint, massing and mitigation. In fall 2016, the Authority Board created a Transit-Land Use Committee to focus on the connection between what a major transportation project in the state provides and growth patterns and land use decisions. The purview of this committee is broad because leveraging a major public investment such as a high-speed rail system will need to address growth issues in addition to transportation and Authority planning issues.

4.1 Station Area Planning

The station cities are key program stakeholders. The Authority's station area planning program supports communities with their future station development planning. Through this work, the Authority has fostered one of the most important relationships in the development of the system—the relationship with the cities it serves.

In 2011, the Authority began distributing ARRA and Prop 1A funds to station cities through a formal application and approval process. These federal and state funds require a local match. These agreements have been executed with nine local jurisdictions to plan to develop complementary uses in the station area. Executed agreements include:

- City of San Jose and Santa Clara Valley Transportation Authority – San Jose/Diridon Station
- City of Millbrae (Pending agreement as of 2/9/2018)
- City of Gilroy – Gilroy Station
- City of Merced – Merced Station
- City of Fresno – Fresno Station
- Tulare County Association of Governments – Kings/Tulare Station
- City of Bakersfield/Kern Council of Governments – Bakersfield Station
- City of Palmdale – Palmdale Station
- City of Burbank – Burbank Station

Station area planning contracts are managed by the Authority. The local jurisdictions have the discretion to select consultant teams through a competitive RFP process; however, their work plans must align with the Authority's federal flow-down requirements. Additionally, local jurisdictions may include an expanded work scope that is beyond the purview of the Authority's oversight because they are leveraging other funding sources and/or planning processes. Regular meetings are held with the local jurisdictions to

manage contract progress, and work products from local jurisdictions are submitted for approval by the Authority; acceptance and approval is necessary for payment.

When the station area plans are completed, local jurisdictions will have examined circulation, land use, economic development and implementation measures toward increasing development and improving access to each station.

4.2 Station and Station Area Planning Guidance and Research Documents

High-speed rail station and station area planning, design and development are extremely complex issues. The Authority has developed a variety of guidelines, plans and procedures for use by designers, local jurisdictions and other stakeholders in initiating and carrying out this process. This, along with the development of research through the partnership with a variety of entities, help inform high-speed rail station and station area development. A current list of guidance and research documents are included in Appendix B.

5 ENVIRONMENTAL MANAGEMENT

In 2017, the Authority began the process to obtain NEPA Assignment from the FRA; however, at the time of preparing this PMP this process has not been finalized. Therefore this chapter is written per the FRA as the lead agency under NEPA, and the Authority as the lead agency under CEQA for the environmental clearances needed for the Program.

5.1 Environmental Management

The Environmental Services Branch manages the activities required to environmentally clear and permit the high-speed rail project sections under federal and state requirements, and provides a broad range of environmental services to the Program. The Environmental Services Branch is responsible for developing the Authority's environmental strategies, policies and procedures, and for researching and utilizing best practices to obtain project clearance as well as programmatic environmental methodologies to develop and meet environmental commitments, including mitigation planning and compliance monitoring. It also provides specialized expertise to the regional environmental teams and executive leadership. In addition, the branch directs permit activities and provides strategic guidance on permit approaches, as well as strategic guidance on the environmental approval process. The Environmental Services Branch is the liaison with the FRA, the Attorney General's Office, outside counsel, regional consultants, environmental and engineering consultants, and other federal, state regional and local agencies for environmental for environmental studies, documents and required environmental approvals.

The Environmental Services Branch is comprised of Authority staff, RDP staff, regional consultants, engineering and environmental consultants, environmental staff members on the project construction managers and DB contractors with over 450 professionals working on this program to clear the eight project sections, related environmental projects, and provide environmental services to support construction, including monitoring and reporting.

The specific responsibilities of the Environmental Services Branch include:

- Preparing the guidelines and methods to guide the environmental studies to completion. Appendix C summarizes the various guidance documents presently available. With NEPA Assignment will come revised guidelines and methods.
- Coordinating with FRA to ensure that the environmental reviews for each of the project sections are consistent with NEPA and other related federal environmental laws.
- Briefing the Authority's executive leadership and Board of Directors on environmental status and progress, including efforts to expedite the process while ensuring environmental compliance and stewardship.
- Delivering recommendations to the Board of Directors for approval of environmental documents, including alternatives analyses, identification of the preliminary preferred alternative, and draft, final, and supplemental environmental studies, including environmental assessments and categorical exclusions.
- Providing technical direction and oversight of environmental-related resources through contract management.
- Establishing and directing policy related to such environmental issues as NEPA/CEQA compliance, protected species, wetlands, cultural/historic resources, environmental justice, parklands, and other technical disciplines requiring specialized expertise.
- Coordinating with the Authority's legal counsel on issues that may arise in the environmental review and permitting process that relate to legal compliance and require legal strategy.
- Communicating routinely with the environmental teams in the Authority's three regional offices to give policy direction that informs project decisions and facilitates early identification and resolution of potentially problematic issues.
- Approving and signing environmental permits and approvals.

- Verifying, enforcing and reporting environmental compliance during project development, construction, and operations, including the implementation of environmental commitments.
- Developing and managing relationships with federal and state permitting/regulatory agencies, including formal and informal agreements that address such areas as process alignment, funding for staff positions, cooperating and participating agency roles and responsibilities, and others matters that affect consultation and permit acquisition.
- Approving all environmental documentation and supporting materials before releasing them for distribution to cooperating agencies, stakeholders, and the public.

The Director of the Environmental Services leads the Environmental Services Branch and oversees the work defined here. Figure 5. Environmental Services Branch Organizational Chart illustrates the organizational structure of the Environmental Services Branch. The Director oversees more than 60 staff whose skills and experience include NEPA practitioners, senior advisors, environmental policy experts, environmental managers, specialists and subject-matter experts. These experts cover such technical fields as protected species, wetlands, cultural resources, environmental justice, parklands, archaeology, and other disciplines required for environmental documentation and reviews under federal and state law.

In addition to full time staff, the team has access to over 35 subject matter experts whose skillsets cover the array of disciplines necessary to achieve environmental analyses and clearance. Each expert has applicable experience in his/her field and appropriate educational credentials. Appendix E provides detailed descriptions of these work duties and expertise.

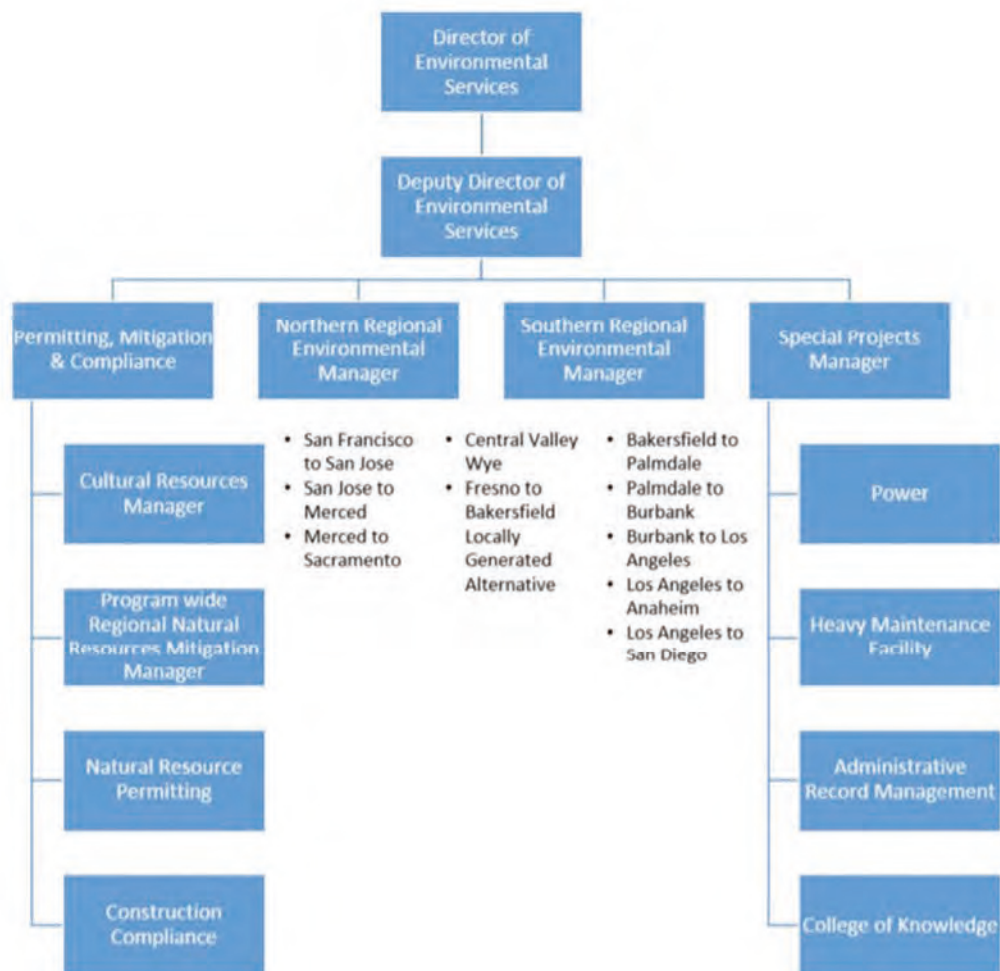


Figure 5. Environmental Services Branch Organizational Chart

5.2 Alternatives Analysis

The Alternatives Analysis (AA) process is used to identify feasible and practicable alternatives for environmental review and evaluation in the EIR/EIS for the project sections of the Program. AA provides the Authority and the FRA with sufficient information and documentation to provide a clear understanding of the evaluation process used to identify and define a range of reasonable, practicable, and feasible project alternatives and importantly, to avoid sensitive environmental areas and resources. Whereas the Program level EIR/EISs analyzes alternative corridors and station-location alternatives, the AAs include site-specific alignment and station alternatives. The description of the process used to develop the AAs, which are presented in the Alternatives chapter in each draft project section EIR/EIS, can be found at: http://www.hsr.ca.gov/docs/programs/eir_memos/Proj_Guidelines_RevisAA_MethodsVer3.pdf.

AA reports for Phase 1 project sections were completed in 2010. The Authority has also completed Supplemental AAs (SAAs) to refine the alternatives for multiple EIR/EISs. SAA documents have been completed for the four Southern California project sections: Bakersfield to Palmdale, Palmdale to Burbank, Burbank to Los Angeles and Los Angeles to Anaheim. Following public input, the Authority Board approved the SAAs in the Spring of 2016.

The Authority is preparing multiple SAAs for scope within several project sections. As part of the Los Angeles to Anaheim project section, two SAAs related to the relocation of Metrolink stations in Los Angeles are being developed. These SAAs have been prepared by the regional consultants under the direction of the Authority's project managers and were reviewed by the environmental team to verify that an adequate level of environmental reconnaissance has been performed effectively to complete a first-tier screening of the alternatives. A third alternatives analysis is underway for evaluating station options at the Burbank Station. The results of these SAAs will inform the alternatives being analyzed in the respective Southern California project section environmental documents.

5.3 Environmental Documentation

The Authority uses a 2-tiered environmental review process. Tier 1 uses a high level programmatic approach and Tier 2 reviews each section of the program in detail. The program level review was developed to determine whether to pursue a high-speed train system and to determine which of the conceptual corridors, alignments and station options to select for further consideration. The programmatic level of analysis presented in the Program EIR/EIS is appropriate for making these two basic decisions. It analyzes the environmental effects at a more generalized level to provide the decision makers with sufficient information to decide whether to continue with the process to pursue a high-speed rail system, and which conceptual corridor alignments to continue to consider.

Tier 2 project section documents build off the programmatic EIRs/EISs. The resulting document describes the route alternatives and impacts, provides environmental information to assist decision makers in selecting the final project to be built, identifies measures to avoid and minimize impacts and compensate when necessary and consider cumulative impacts as part of the review process.

Depending upon the significance of the project impacts, the Authority and FRA may use other environmental clearance approaches. These include initial studies/environmental assessments and categorical exemptions/exclusions.

5.3.1 Program-Level Environmental Documentation

In the first tier, the *2005 Final Program EIR/EIS for the Proposed California HST System* provided a programmatic analysis for implementing the high-speed train system across the state. This included a system from Sacramento in the north to San Diego in the south, and from the San Francisco Bay Area to the west. At the conclusion of this program-wide EIR/EIS, the Authority and FRA selected preferred alignments and station locations for most of the statewide high-speed rail system to analyze further in second-tier (project-level) EIR/EIS documents.

In 2008, the FRA and the Authority prepared a *Bay Area to Central Valley Program EIR/EIS* that further examined the San Francisco Bay Area to Central Valley region as the second part of programmatic analysis in the tiered environmental review process. That document was finalized in 2012. The Authority and FRA selected the Pacheco Pass connection, preferred alignments and station locations for further second-tier evaluation.

As a result of CEQA litigation, the Authority rescinded its 2008 programmatic decision. In 2010, the Authority prepared a *Bay Area to Central Valley Revised Final Program EIR*, and made a new decision to select the Pacheco Pass as the Bay Area to Central Valley route. A second legal challenge caused the Authority to rescind its 2010 decision, and in 2012, prepare a *Bay Area to Central Valley Partially Revised Final Program EIR*, and make a new set of decisions for the Bay Area to Central Valley connection. The 2012 decision confirmed the Pacheco Pass as the Bay Area to Central Valley connection.

5.3.2 Project-Level Environmental Documentation

In 2008, preparation of the Tier 2 project-level environmental documents began. The first to be completed was the final EIR/EIS for the Merced to Fresno section. The EIR/EIS was certified on May 3, 2012, and the NOD was filed on May 4, 2012. On September 18, 2012, the FRA issued a ROD for the section. For the Fresno to Bakersfield section, the EIR/EIS was certified on May 7, 2014, and the NOD was filed on May 8, 2014. On June 27, 2014, the FRA issued a ROD for this section. Environmental work continues on the remaining Phase 1 sections.

The Phase 1 project sections include the following:

- San Francisco to San Jose
- San Jose to Merced
- Merced to Fresno Supplement with the Central Valley Wye
- Fresno to Bakersfield Supplement with the Locally Generated Alternative
- Bakersfield to Palmdale
- Palmdale to Burbank
- Burbank to Los Angeles
- Los Angeles to Anaheim

The Authority and FRA are clearing these project sections under joint CEQA and NEPA processes. Appendix D: Flowchart of EIR/EIS to NOD/ROD illustrates the steps involved in clearing each project section under this joint process. The staffing described in Appendix E: Program-Wide Specialized Environmental Expertise covers the myriad of technical disciplines necessary to achieve the NOD/RODs that this figure depicts.

This environmental documentation undergoes multiple cycles of review within the Authority to ensure it meets the standards of both NEPA and CEQA and then submits that documentation to the FRA for review and final approval of NEPA documentation prior to publication. Under current practice, FRA is responsible for all aspects of compliance with federal law, decision-making during project development, cooperation with other federal agencies, and monitoring the Authority's compliance with environmental commitments. If granted NEPA Assignment, the Authority will assume the FRA duties of NEPA and related environmental federal laws and guidelines.

Following completion of the Authority's and FRA's project section environmental documents, the team also reviews the preparation and approval of environmental reexaminations prepared by the DB contractor or the PCM as they implement the approved project. The reexaminations are required for the evaluation of any proposed project variations, new information, or changes in circumstances to determine the need for additional environmental review beyond what was published in the Final EIR/EIS.

5.4 Checkpoint Process

The Authority and FRA have entered into an MOU with the EPA and the USACE to facilitate compliance with NEPA (42 U.S.C. section 4321, et seq.), the CWA (section 404 [U.S.C. section 1344]), and the Rivers and Harbors Action section 14 (33 U.S.C. section 408) processes for the Tier 2 environmental clearance for the project sections of both phases of the program.

The NEPA/404/408 integration process incorporates three checkpoints, each of which concludes a stage of ongoing coordination efforts between the Signatory Agencies. This integration process applies to all

Tier 2 EISs and is composed of three checkpoints, which punctuate ongoing coordination efforts. The three checkpoints are as follows:

Checkpoint A: Definition of purpose and need for the Tier 2 Project EIS

Checkpoint B: Identification of the range of alternatives to be studied in the Tier 2 Project EIS

Checkpoint C:

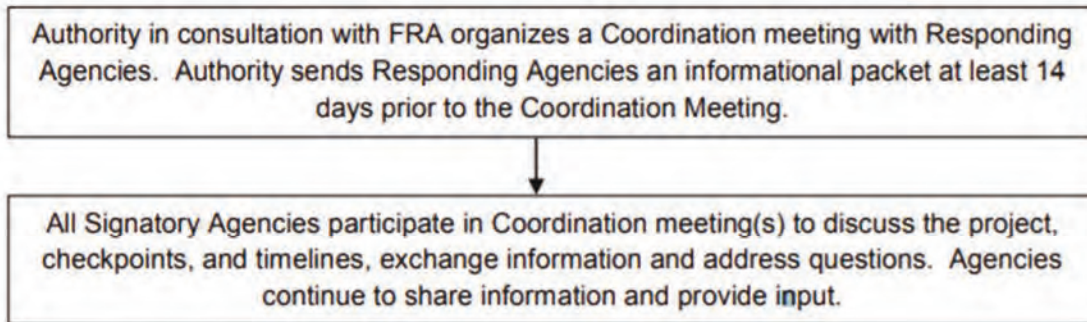
- (a) Draft Checkpoint C Analysis Supporting the Identification of a Proposed Preferred Alternative;
- (b) Final Checkpoint C Analysis for Preliminary LEDPA Determination;
- (c) USACE Section 408 Preliminary District Recommendation.

The flow of information and decision points within each checkpoint is described in Figure 6. NEPA/404/408 Coordination and Checkpoint Process.

All Phase 1 project sections have completed Checkpoint A. San Jose to Merced and Merced to Fresno CV Wye project sections have completed the process through Checkpoint B. Merced to Fresno and Fresno to Bakersfield project sections have completed the process through Checkpoint C.

For the remaining sections, work is underway, with completion of Checkpoints B and C anticipated in the upcoming program years. As outlined in the 2017 Federal Dashboard for major infrastructure projects, Phase 1 environmental clearances are expected no later than January 2020.

1. Start with informal coordination process for information exchange and agency input.



2. When ready for formal Checkpoint process, proceed as follows:

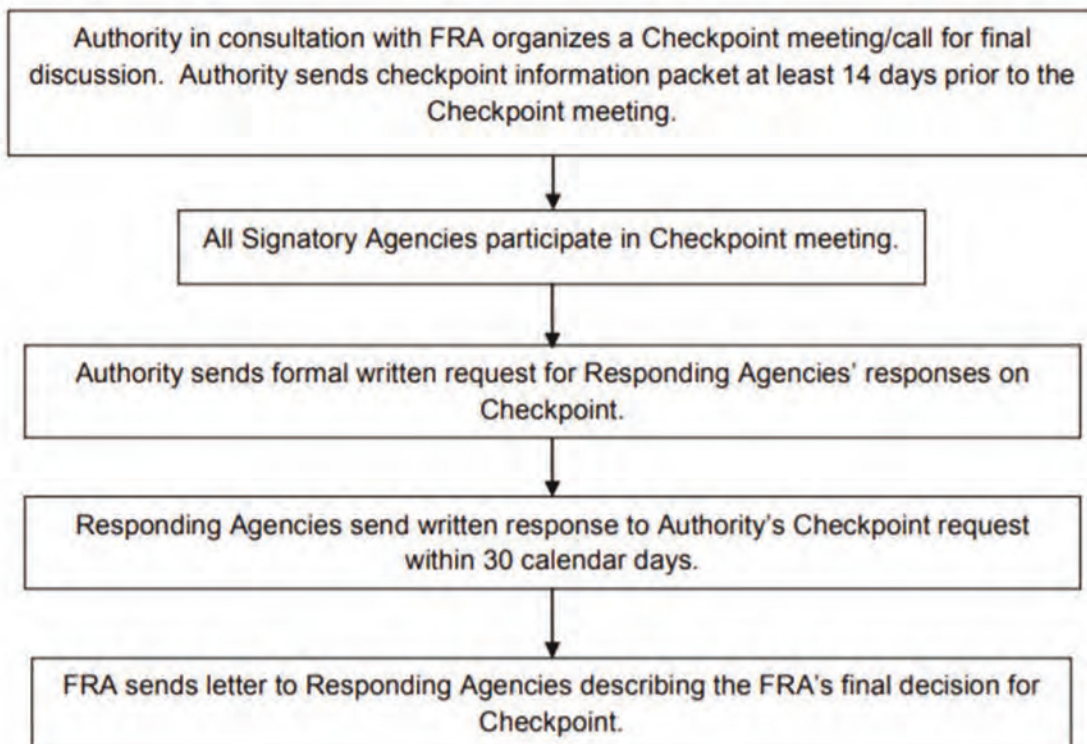


Figure 6. NEPA/404/408 Coordination and Checkpoint Process

5.5 Permit and Mitigation Monitoring Activities

Within the Environmental Services Branch, the Permit, Mitigation and Compliance and Cultural Resources Team is responsible for working with resource agencies to secure the initial environmental permits required for construction of each project section. During the construction stage of a project, amendments to and/or acquisition of new permit and agreement documents is led by the party responsible for the action, either the Authority and/or the DB contractor.

This team is composed of regulatory and compliance experts, strategists and legal counsel. Together with support from the regional consultants, the team develops strategies to support obtaining permits that allow the Authority to implement the project. The team works across disciplines for each region to ensure strategy, documents, and consultation are appropriate, legally defensible, well supported, in the best interest of the Authority and reflective of programmatic policies and approaches.

5.5.1 Compliance and Permit Monitoring

The team develops strategies and programs for Authority and its PCM that demonstrate compliance with permits and agreement documents to support streamlining of future sections and facilities.

Strategies and approaches are developed with the understanding that each step in the process is critical for success of the next step and future sections and is adapted to respond to changes in politics, funding, and staffing. As an example, a project must demonstrate compliance with issued permits and agency agreements so that agencies trust that the Authority will fulfill their commitments. This trust facilitates the early review phases, allows the Authority greater flexibility on how each law is complied with, saves money, increase efficiencies across the board, and reduces the need for use of political influence.

The Authority implements three critical elements to support successful demonstration of compliance:

- Environmental Compliance Program;
- Incorporate lessons learned and improve contracts between the Authority, PCM and DB requirement in areas relative to compliance with State and federal environmental laws between the Authority, PCM and DB; and
- Implement the Authority's Regional Mitigation Policy.

The team also implements the Authority's Regional Mitigation Policy, the framework for each Project section's compensatory mitigation plan. The Authority's policy involves seeking opportunities to advance regional conservation objectives as part of its efforts to appropriately mitigate for project impacts to federal and state-listed species and aquatic resources. This regional approach has the following goals:

- Identify potential mitigation sites through eco-regional and watershed level planning;
- Collaborate up-front with interested agencies, local governments, communities and non-governmental organizations (NGO) in identifying mitigation opportunities;
- Use the best available science and consider existing conservation plans for the region;
- Obtain consistency with the approaches taken across high-speed rail system project sections;
- Identify mitigation as early as possible in the environmental review and permitting processes and
- Transparently document impacts and commensurate mitigation.

The Authority has obtained all the necessary environmental permits for the current construction packages and seeks amendments to these permits when needed. All future permits shall be obtained within 90 days after each NOD/ROD to allow for an earlier start of construction. For those permits not fully obtained by the Authority prior to the award of the delivery contract, the DB contractor will be obligated to take an active role in obtaining any outstanding permits, such as the Section 408 which requires a high level of design. The Authority will take the lead in negotiations; however, the DB contractor will provide reasonable assistance, including design information, drawings and descriptions of mitigation plans.

5.5.2 Mitigation Monitoring

The Permit, Mitigation and Compliance and Cultural Resources team is also responsible for the development and implementation of a mitigation monitoring system, referred to as the EMMA (Environmental Mitigation Monitoring and Assessment) system. Originally designed in 2013, EMMA documents compliance with mitigation measures adopted by the Authority or otherwise required as a condition of project approvals, such as permitting requirements. This database includes mitigation measures specified in EIS/EIRs and mitigation and management enforcement plans, as well as the environmental stewardship and sustainability commitments made by the Authority and its contractors in the environmental permits, treatment plans, and regulatory assessments developed for the Program. While the fulfillment of most commitments occurs during a project's construction phase, EMMA can track commitments throughout the entire project life cycle—from planning, to design, to preconstruction, construction, post-construction, and operations and maintenance.

EMMA also functions as a reference library of environmental commitments. Each commitment can be reviewed to see the text of the commitment and its reporting requirements, implementation mechanisms, and status. EMMA also houses documents associated with the commitment, such as permits, mitigation measures, and reporting programs. This reference library is available to all staff involved in the development and delivery of the HSR program.

An Environmental Compliance Issue Tracker is also accessible in EMMA. This module is used to track the resolution of activities that may be in non-compliance with the Authority commitments. In this module, users create Compliance Issue Records as opposed to the typical EMMA record which is used to track positive compliance.

The environmental team is currently involved in permitting and mitigation monitoring activities for the Merced to Fresno and Fresno to Bakersfield project sections.

5.6 NEPA Assignment

The State of California, working through its State Transportation Agency (CalSTA) and the Authority, is submitting this application to the FRA to assume responsibilities under NEPA and other federal environmental laws authorized by the Surface Transportation Project Delivery Program (23 USC 327), also known as NEPA assignment. If granted NEPA Assignment, the Authority would manage both the NEPA and CEQA processes in their entirety, finding efficiencies where possible to complete the process faster without diminishing the rigor or the environmental analysis or the opportunities for the public to meaningfully engage with the Program.

The Draft Application for NEPA Assignment that outlines program changes and staff planning can be found at http://www.hsr.ca.gov/docs/programs/nepa/Draft_CA_FRA_Assignment_Application_Nov_2017.pdf.

6 DESIGN CONTROL

6.1 Design Development

The California High-Speed Rail System is organized into geographic regional sections for the planning, design and implementation of preliminary and final designs. For the Preliminary Engineering for Procurement (PE4P) and the final designs, the regional sections are further segmented into construction packages. Where two sections interface with each other, the two regional consultant teams or design-builder, in coordination with the Authority/RDP project management teams and the Infrastructure Engineering Group, hold regularly scheduled coordination meetings to ensure that the designs of the two sections match with each other and that the environmental work is coordinated appropriately.

The development, implementation, and monitoring of the standards and criteria for design are managed by two groups, the Infrastructure Engineering Group and the Rail and Operations Group. Both groups operate as combined teams of Authority staff managing and overseeing technical RDP staff. The Infrastructure Engineering Group is responsible for civil and structural related design while the Rail and Operations Group covers rail systems, track, and operational aspects design. The two groups work in a coordinated manner and interact with other elements of the Authority and with the design teams throughout the design process.

The groups meet weekly in a regularly scheduled meeting to discuss and resolve issues related to design coordination and construction. Further, both groups coordinate with the regional consultant teams developing preliminary engineering and with the construction teams on a regular basis. These groups coordinate to perform and/or manage reviews throughout the design development process including the review and approval of any requested design variance reviews (DVR) which occur either in the preliminary or the final design phases.

The purpose of the coordination is to ensure that the civil infrastructure components are satisfactory for providing the base for the rail and systems construction and for the successful operation of the system.

6.1.1 Preliminary Design Development and Management

The planning and concept design program includes conceptual engineering for program planning and for alternatives analysis during the environmental review.

Preliminary design development is based on performance criteria established in the legislation governing the Program and in the business plan. The general performance requirements for the system are described in Technical Memorandum 0.3 - Basis of Design Policy, which is a foundation document for the development of design standards and criteria. This policy defines the major components and performance objectives of the Program.

A copy of the memorandum can be found here:

http://www.hsr.ca.gov/docs/programs/construction/CP23_executed/P13_57_IR_IVC_03_Basis_of_Design_Policy.pdf

The technical memorandum defines the major components and performance objectives that support the development of the engineering and regulatory basis for the Program, including its components, objectives, processes, requirements and assumptions governed by the Authority. The Authority's policies that determine the processes, standards and subsystems of the high-speed rail system are generally divided to address:

- Program implementation
- Performance requirements
- Infrastructure
- Systems (electrification, train controls and communications)
- Rolling Stock
- Maintenance Facilities
- Operations

The regional consultant teams take the statewide Basis of Design Policy and finalize the Basis of Design for their section, incorporating any items that might be specific to their section.

6.1.2 Conceptual Engineering for Program Planning (Nominal 5 Percent Design)

Conceptual engineering in support of programmatic environmental studies is based on a review and compilation of existing high-speed rail standards. The standards and criteria reflect the best practices and serve to support the development of conceptual high-speed rail alternatives applicable to California's environment and terrain.

Through the alignment and station screening evaluation process, a number of alignment and station options are typically identified, evaluated and defined for further study in the project environmental impact report/environmental impact statement (EIR/EIS). These alignment and station options are developed based on engineering criteria and parameters established for the screening evaluation. The regional teams complete the definition of the alignment and station options and provide the definitions to the environmental teams as the basis of their analyses.

6.2 Design Standards and Criteria Development

Existing design standards and criteria that complied with federal, state and local regulations were adapted and refined by the Authority, in concert with the FRA, to support preliminary engineering and final design of the high-speed rail system. The process used by the Authority and FRA is documented in Technical Memorandum 0.9 - Process to Support Development of a California High-Speed Rail Program Rule of Particular Applicability.

Two processes were developed to provide a safe and reliable high-speed rail system that meets U.S. regulatory requirements and is commensurate with the best industry practices for high-speed rail:

- The design development process incorporates the European Union Technical Specifications for an Interoperability approach of evaluating the high-speed rail system as a set of subsystems, evaluating the key interfaces between each subsystem and optimizing the system for safety, reliability and performance.
- The process for developing a Rule of Particular Applicability (RPA) builds on the system design development process to verify that federal and state regulatory requirements are addressed and system safety requirements pertaining to existing modern high-speed rail systems are incorporated as part of the Authority's petition for a proposed RPA for consideration by the FRA.

Documentation of the regulatory approval process and compliance with federal, state and local regulations has been included in the program-wide requirements database for use in developing the Program's RPA petition, the program-wide design manual and other technical documents.

The design team is responsible for preparing the design criteria and guidelines for the Program, including:

- Design Criteria Manual: Establishes criteria, guidelines and requirements for the design of the infrastructure and systems elements of the Program.
- Technical Memorandum Preliminary Engineering for Project Definition Guidelines TM 0.1: Provides design guidance for a minimum level of engineering, referred to as Preliminary Engineering for Project Definition, required to support the project-specific EIR/EIS process. The memorandum also requires the regional teams to obtain written agreement from the Authority and the FRA on PEPD for environmental evaluation.
- Technical Memorandum Preliminary Engineering for Procurement Guidelines TM 0.1.1: Defines a minimum overall level of engineering design needed to support procurement of DB contract and development of detailed construction cost estimates.
- Technical Memorandum Basis of Design TM 0.3: Defines the major components and performance objectives of the overall system to support the development of the engineering and regulatory basis for the Program. The basis of design includes the performance requirements for the Program.
- Technical Memorandum Process to Support Development of a CHSTP Rule of Particular Applicability TM 0.9: Defines the process to develop and submit recommendations to the FRA for a RPA that supports the design criteria.

- Technical Memorandum Value Engineering Implementation Plan TM 100.07: Provides the process of implementing accepted value engineering policies and procedures on the Program.
- Technical Memo Design Variance Guidelines TM 1.1.18: Defines the procedure for which designers may request and obtain approval to deviate from mandatory requirements established for the preliminary engineering of the Program. Provides guidance for preparing a clear and concise record of relevant design standard or other mandatory requirement, proposed variance and rationale, assessment, review and decisions leading to the approval or rejection of the variance.

There are now over 100 individual Technical Memoranda (TM). In order to make the TMs more useful to the regional and environmental and engineering consultants, an effort is underway to update, consolidate and organize all TMs into a policy and procedures manual. The new Design Criteria Manual (DCM) is being developed by the Engineering group and the Rail and Operations group. The Director of Engineering is responsible for the civil, structural, geotechnical, and seismic design chapters while the Director of Rail Delivery is responsible for the rail and systems related chapters. The entire document will be combined into a fully cross-referenced document with searchable criteria.

The team developing the criteria is made up of technical experts from the RDP with management and review by the Authority. Additionally, the development is reviewed and overseen by a panel of subject matter experts across all applicable fields that make up the Technical Advisory Panel (TAP). The team meets quarterly with the TAP to resolve questions presented by the TAP from their review of the document. Further, a Seismic Advisory Board (SAB) reviews the design criteria and approach to ensure compliance with the latest research and understandings for seismic design. The SAB is an external panel of international experts covering seismology and seismic engineering as well as knowledge of current research.

We have committed to providing the integrated DCM to the FRA for their review at the end of September 2018.

For design of facilities that are owned or operated by others, in addition to California High-Speed Rail criteria, the design will follow the requirements of the facility owner/operator, including appropriate review and approval processes.

6.3 Preliminary Engineering for Environmental Review

Design criteria and standards supporting environmental reviews are provided in a series of TMs covering the major high-speed rail subsystems, including infrastructure, train controls, traction power, communications and rolling stock. The criteria and standards are guided by the TM 0.3 – Basis of Design Report and the Concept of Operations Report. The specific preliminary engineering design elements required to support environmental reviews are included in TM 0.1- Preliminary Engineering for Project Definition Guidelines.

TM 0.1 presents design guidance for the minimum level of engineering required for project definition needed to support the project-specific EIR/EIS process. It further defines design elements, development level and engineering outputs with the objective of providing a consistent approach for developing preliminary engineering documents across project teams, while also ensuring compliance with federal, state and local regulations as well as the program-level design criteria. The regional consultants are scoped to develop the preliminary engineering in support of the EIR/EIS in accordance with all of the various design criteria and technical memoranda, and developed to the level specified in TM 0.1.

TM 0.1 describes procedures for Project Level EIR/EIS Design Acceptance for concluding the definition of high-speed rail project alternatives for evaluation, disclosure and mitigation of potential environmental impacts. The regional consultants are responsible for ensuring that all appropriate Authority, FRA and RDP comments and concerns are addressed. Following final administrative acceptance of, and concurrence on, the approved preliminary project design, description and footprint, the regional consultants shall document and submit for approval all activities associated with preliminary project design which could alter the project footprint by the Authority and FRA, accentuate environmental impacts evaluated in the Draft EIR/EIS, or lead to environmental impacts that were not evaluated in the Draft EIR/EIS.

The Environmental and Engineering groups are responsible for comments on and acceptance of the draft environmental and engineering documents. The groups engage with the regional consultants and Infrastructure Delivery Division throughout the process to provide comments and advice as well as providing approval of draft and final environmental and engineering documents. Currently the FRA is responsible for review and approval under NEPA. However, the Authority is currently working with the FRA to have NEPA responsibilities assigned to the Authority for future documents.

The final product of this task is the completion of engineering documents that will accompany the EIR/EIS and will be made available for public review and comment when the EIR/EIS is circulated for public review and comment.

6.4 Preliminary Engineering for Procurement

Design criteria and standards supporting preliminary engineering for procurement are provided in a series of TMs covering the high-speed rail subsystems, including infrastructure, train controls, traction power, communications and high-speed rail trains. The criteria and standards are guided by TM 0.3 - Basis of Design and the Concept of Operations Report. The specific preliminary engineering design elements required to support the procurement documents are included in TM 0.1.1 - Preliminary Engineering for Procurement Guidelines. The Design Submittal and Review Protocol process are outlined in TM 0.7- Design Submittal and Review Protocol In-progress and Draft 15% Design Submittals. This technical memorandum creates an auditable trail for the in-progress and Draft Preliminary Engineering for Project Definition (PEPD) Design Submittals. The process is defined by an established protocol for; transmitting submittals, review comments, and responses; verifying action taken; resolving issues; and maintaining document control.

The purpose of TM 0.1.1 is to promote the consistency of the Program's engineering studies by defining the minimum overall level of engineering design needed to support the procurement of DB contracts and the development of detailed construction cost estimates. The PE4P for each section is initiated after there is a high level of confidence in the preference for a single alignment alternative; typically, the PE4P is not initiated before the approval of the preferred alternative report and the definition of limits for procurement contracts.

The PE4P provides for a level of design for DB procurement and recognizes that the level of design for a specific discipline will vary. The regional consultant is responsible for organizing its PE4P into contract packages. Similar to the preliminary design level, PE4P documents are reviewed for design compliance with the Program's technical requirements, compliance with federal, state and local regulatory requirements and sufficiency of design to generate the procurement-level construction cost estimate. Verification of the PE4P design is achieved through reviews conducted at key stages of completion. The draft PE4P documents undergo a constructability and bidability review prior to release for use as part of the procurement package. The reviews are managed by the Engineering group for the civil infrastructure elements and by the Rail and Operations group for rail, systems, and operational requirements.

6.5 Final Design

Final design is supported by the California High-Speed Rail Design Criteria Manual, technical specifications, performance specifications and standard and directive drawings. The standards principally address design criteria for infrastructure elements and interface requirements with the other subsystems. Final design of the system's elements (train controls, traction power, communications and high-speed rail trains) will be procured using the performance specifications.

The design criteria manual establishes the criteria, guidelines and requirements for the design of the high-speed rail's infrastructure and systems elements. Additional guidelines are required for the design of facilities of other owners/operators affected by the project. The criteria include:

- Design survey and mapping
- Trackway clearances, track geometry and track work
- High-speed rail trains and vehicle intrusion protection
- Civil, drainage and utilities
- Geotechnical and seismic
- Structures, tunnels, stations and support facilities
- Facility power and lighting systems
- Traction power supply systems, overhead contact system and traction power return system
- Grounding and bonding requirements
- Corrosion control
- Automatic train control
- Yard signaling
- Electromagnetic compatibility and interface
- Supervisory control and data acquisition subsystems
- Communications
- High-speed rail trains core system interfaces
- Safety and security

For the FCS civil design-build construction packages, CP1, CP2-3, and CP4, the DB contractor is responsible for preparation of final design documents that are fully compliant with their contracts including the California High-Speed Rail Design Criteria Manual, technical specifications, performance specifications and standard and directive drawings. The DB contractor is required to prepare a Design Baseline Report and obtain the Authority's approval with 180 days of NTP. The purpose of the Design Baseline Report is to demonstrate the contractor's compliance with the requirements of the contract and demonstrate the intent and boundaries to advance the Work through final design. The contractor shall prepare a Design Baseline Report that defines the major design elements to be progressed to design and construction and confirms technical feasibility, constructability and compliance with the approved Final Environmental Documents. The Design Baseline Report submittal and any other submittals in accordance with the FRA grant agreement and/or as mutually agreed to between the Authority and the FRA (where applicable), are reviewed and approved or subject to a Statement of No Objections (SONO) by the FRA. The PCM will send these applicable submittals to the FRA for their review and approval/SONO concurrently with the project-level and program-level due diligence reviews, as required.

The DB contractor prepares the final design in accordance with the Design Baseline Report. Once completed, the final design submittals for designs and construction work shall be independently reviewed and certified by the DB contractor's quality manager that the submittals is complete and in full compliance with the contract requirements. The DB contractor's Independent Check Engineer (ICE)/Independent Site

Engineering (ISE) shall certify to the Authority and to the contractor that the final design and construction satisfies the contract requirements in accordance with the Verification, Validation and Self-Certification requirements (V&V/SC) prior to being submitted to the PCM. These submittals shall be reviewed per the Due Diligence Check (DDC) for Civil-Structural Design-Build Contracts procedure by the PCM and HSR Engineering group, and are subject to SONO per contract requirements. Any design changes/variances are processed in accordance with the design-build contract and current design variance procedures.

Reviews are managed by the Engineering group for the civil infrastructure elements and by the Rail and Operations group for rail, systems, and operational requirements. These reviews follow more detailed reviews and work checks performed by an ICE which is an engineering consultant under contract for the designated construction phase.

6.6 Constructability Reviews

Constructability reviews and an assessment of the construction schedule to support preliminary engineering and environmental assessments are performed as part of the development of the preliminary design submittals. General requirements for the constructability reviews are given in TM 0.1 - Preliminary Engineering for Project Definition Guidelines Design Scope.

Constructability reviews to support preliminary engineering for procurement are conducted as part of the development of the PE4P design submittals. General requirements for the constructability reviews are included in TM 0.1.1 - Preliminary Engineering for Procurement Guidelines and are performed by technical staff of Infrastructure Delivery in coordination with the Engineering group.

Constructability reviews during final design consist of confirming the constructability of the preliminary engineering and then substantiating the constructability of the design in the baseline design report prepared by the DB contractor for each contract package and are performed by the PCM and oversighted by technical RDP members of Infrastructure Delivery Division and the Engineering group. The contractor's Independent Checking Engineer/Independent Site Engineer (ICE/ISE) review and certification of the final designs includes the constructability aspect. These submittals are also reviewed once submitted per the Due Diligence Check (DDC) for Civil-Structural Design-Build Contracts procedure by the PCM and HSR Engineering group for constructability in addition to the other technical aspects.

6.7 Value Engineering

The goal of the value engineering process is to improve the value of the overall Program by sustaining or improving its performance attributes while also reducing overall cost, including the cost of life cycle operations and maintenance. The Authority has a draft process for implementing accepted value engineering policies and procedures on the Program following a three-level approach:

- Level 1: Review baseline performance and function.
- Level 2: Review design guidelines, standardization of materials, structural types and components, and assess/evaluate alternate mitigations.
- Level 3: Review alternative design solutions for major components that comply with functions and design criteria while maintaining quality and safety at a lower cost.

The Authority uses the value engineering process to achieve value improvement in various engineering phases. For specific projects within the overall Program, this may result in improvements in defining the proper scope, functional design, constructability, coordination (both internal and external) and schedule for development. Other value improvements for specific projects may include reductions in environmental impact, public inconvenience or cost. The value engineering process strives to evaluate and incorporate, to the maximum extent possible, the values of the design engineer, construction engineer, maintenance personnel, contractor, public, approval agencies, local government and other stakeholders. The important design decisions are based on the recommendations developed and presented by the value engineering team. Specific information on the value engineering approach can be found in TM - 100.07 - Value Engineering Implementation Plan. The value engineering process is managed by the PCM and also involves Infrastructure Delivery and the Engineering group. In order to achieve the most economical design solutions, it involves engaging the appropriate stakeholders and subject matter experts in the process. The Authority hosts several workshops during preparation of preliminary engineering for project development between RDP, regional consultants (preliminary engineering consultants), environmental specialists and other stakeholders in establishing the ROW alignment that is most economical taking into consideration the numerous and inherent constraints. Potential solutions are further refined during the PE4P development. The DBs are permitted to propose changes that will result in cost or schedule savings on the preliminary design selected, regardless of whether it is in the preliminary design or developed as an alternative technical concept as a part of the proposal process. Any resultant cost savings are shared between the contractor and the Authority.

The Authority is also committed to cost-effective implementation of the overall Program and encourages each DB contractor to submit a value engineering change proposal if the DB contractor determines, during final design and construction, that an alternative not previously considered could provide added value to the Authority at a reduced total cost. The value engineering change proposal is the mechanism used to change the contract requirements to reduce the cost of a project without impairing its essential functions or characteristics.

6.8 Design Variances

Design variances from design criteria, standard drawings, technical specifications and/or design guidelines are required to undergo an assessment review, approval and documentation process, as outlined in the design variance internal procedure. The guidelines for design variances are applicable during preliminary engineering, final design and construction. The guidelines establish a procedure for identifying, preparing, requesting and documenting a design variance and provide guidance for preparing a clearly articulated and concise record of the relevant design standard, required variance and rationale, assessment, review and key decisions leading to approval of the variance. The design variance request process consists of:

- Early identification of potential variances.
- Preliminary investigation of variances.
- Variance request preparation and documentation.
- Variance review and analysis of potential impacts.
- Approval or rejection of the variance.
- Communication of the approved variance to the Authority.
- Document control and feedback loop to design standards development.

During the preliminary engineering phase, the regional consultants identify potential design variance and include a listing in their final deliverable packages. During PE4P, these potential design variances are further evaluated to see if they can be eliminated or otherwise addressed. Typically, formal design variance requests are not initiated until the final design phase.

For any design changes or design variances requests (DVR), which are typically identified by the DB contractor or third party designers, during the development of final design, the DB contractor is required to follow the requirements of the design-built contract requirements, to verify proper management of all deviations from the prescribed design criteria, technical memoranda, and all applicable design standards, etc. In addition, these design changes/variances will be processed, reviewed, and approved/rejected in accordance with the current Engineering and Construction Design Variance Internal Procedure. This procedure describes each of the actions and responsibilities to be followed for processing of each submitted DVRs. The DVRs are reviewed for consistency with the approved environmental documents. Any design that is not consistent with the project, as approved in the ROD, will require additional environmental review and documentation, including the necessary justification to the FRA. The DB contractor will submit the required supplemental documentation and justification for the Authority's and FRA's review.

Changes that are minor in nature and do not require circulation will be documented with a memo to file, which will be copied to the FRA for concurrence and the design process will continue. Changes that impact the scope, schedule or budget are required to go to the Change Control Committee (CCC) for review. Changes that require a supplemental EIR/EIS also require FRA's review and concurrence prior to implementation.

The process starts with a DVR from the DB contractor which is submitted to the PCM. The PCM, along with Infrastructure Delivery, assess the scope, schedule, and budget impacts of the request. Concurrently, the DVR is sent to Engineering and to Rail and Operations for review. These two groups review the DVR for impacts on civil and structural performance, rail operations, and maintenance concerns. If any of the reviewing groups reject the DVR it's rejected. A DVR can only be accepted if all reviewing groups agree to accept it.

7 PROGRAM AND PROJECT MANAGEMENT AND CONTROLS

The Authority uses a program management approach to deliver the Program and manage the group of related projects necessary to deliver the Program with a synchronized approach to attain advantages and control that cannot be achieved by managing each project individually. Program management fundamentals, principles and practices are used to develop policies, procedures and tools to manage and control the delivery of the scope, budget and schedule commitments of the overall Program.

The Authority manages its projects using internal staff and contracted consultants, dynamic processes and specifically created tools for this unique work. The staff assigned to support the success of a project specify products or deliverables required for the project and identify how, when and by whom the work will be performed, as well as the performance requirements, and use those identified tools and techniques to perform and manage the work.

The project manager is the leader, advisor and advocate for a specific project and is accountable for meeting project objectives as defined in the project plan. Project managers are assigned to every project to manage project scope, schedule and budget. The project manager is the primary contact from project inception through closeout.

The program controls plan provides a functional overview of the control processes for monitoring and reporting the scope, budget and schedule at both the Program and project section levels.

7.1 Program Controls

The Program Controls Plan (see Appendix J) establishes the processes for management and control of the program-wide scope, cost and schedule. The plan identifies process interfaces with other functional units in the integrated Authority/RDP organization, including the groups responsible for the management of risk, funding, earned value, contingency, design-build contract changes and program-level changes. The plan also communicates the roles, processes, data, program management information system (PMIS) elements, reports and reviews related to program controls.

In addition to verifying that program control policy decisions are executed in a consistent and systematic manner, the program controls group facilitates the management of several key areas that relate to the entire program and prepares the documents required to implement and monitor the processes, which include:

- Scope management
- Cost management
- Schedule management
- Earned-value management
- Trend management
- Contingency management
- Design-build contract change order management
- Program-level change order management

The program controls framework is based upon the five-stage program control cycle, as shown in Figure 7.

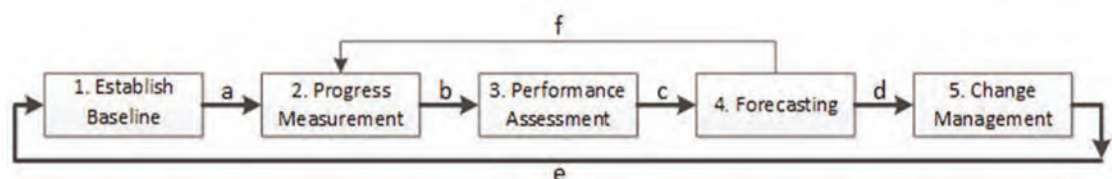


Figure 7. Five Stages of Program Control

Stage 1: Establish Baseline is the basis established by the Authority and program delivery consultant against which the Program will be measured, assessed, forecasted and changed. It also describes the organizational elements of the project. Stage 1 elements are represented in the following:

- Work breakdown structure (WBS)
- Organizational breakdown structure
- Cost budget
- Funding baseline
- Program master schedule
- Risk register

Stage 2: Progress Measurement comprises the methods used to measure progress, including the following:

- Physical progress
- Units completed
- Interim milestones
- Completion milestones
- Resource tracking

The methods vary throughout the different phases of program development— planning; design; procurement; construction; systems and high-speed rail train manufacturing, supply, installation, testing and commissioning; and high-speed rail system startup and operations. Therefore, program controls, in collaboration with task leads and program management, select the specific method(s) applicable to the development phase. During each phase, progress is measured at various reporting levels and summarized by the WBS. The methods, which are used by the cost managers and schedulers, are described under Schedule Management and Program Cost Management. Project directors provide individual project level data to Program Services. This information combined into overall program level reports.

Stage 3: Performance Assessment uses earned-value management techniques to assess performance by comparing the Stage 1 baselines to actual progress, identifying any variances or deviations from the baselines, determining the impact of these variances on cost and schedule, and selecting corrective actions to minimize the impact. The performance assessment is conducted by the program controls group, which then assists program management and functional unit managers with the metrics or assessment to analyze and document variances. The assessment methods are described under Schedule Management, Program Cost Management and Earned-Value Management.

Stage 4: Forecasting represents the program schedule, budget and resource forecasting processes, including trend analysis. Forecasting is performed using variances from the Stage 3 assessment to predict control element outcomes (delay, cost overruns, increased risk, resource shortages, etc.) with the potential to negatively affect delivery of the high-speed rail system and identify opportunities to improve program delivery and/or mitigate risks. Monthly performance measurement and forecast data are used for monthly program reviews and reporting. The specific forecasting methods are described under Schedule Management, Program Cost Management and Earned-Value Management.

Stage 5: Change Management is the process of collecting, reviewing, approving or rejecting, and managing changes to the program baseline. Stage 5 reflects the outcome of the evaluations conducted during Stage 3 – Performance Assessment and Stage 4 – Forecasting, which identified deviations from the baseline, determined their cause(s), evaluated their potential effect on cost and schedule and identified optimal measures for mitigation. In addition to the program controls unit, the risk management group and the CCC are participants and approvers in managing changes and contingencies in accordance with the contingency management plan. The change management procedures encompass trend analyses, causal analyses and mitigation analyses as required.

7.1.1 Program Management Information System (PMIS)

PMIS is a system of tools and techniques used for compiling, integrating, storing and interfacing the information from the various program management processes to determine the status of the overall program and its specific projects. PMIS was developed for use on the Program, and it will evolve and continue to be developed and refined as the Program transitions from conceptual planning through environmental approvals to detailed design, procurement and construction and, ultimately, to testing, commissioning and revenue service startup. In addition to data entry, PMIS is the repository for storing data as well as the interface for reporting data.

The primary program controls subsystems of PMIS include the following:

- **Network Schedule:** Primavera P6 is the scheduling software tool used to track the program-wide baseline, record status updates, assess performance, develop schedule forecasts and document schedule changes. This system is in place and working.
- **Cost Management:** EcoSys EPC is the program cost management tool used to track total program budget and expenditures, and to perform cost forecasting and reporting. This system is in place and working.
- **Contract Management:** Oracle Contract Manager is the software used to track contract management information, including prime contract management, subcontract management, costs, change and other contract-related data. This system is in place and working.
- **Time-Location Schedule:** TILOS is the time-location planning software used to manage linear construction projects by analyzing and reporting schedule data by geographical location. This system is in place and working.
- **Schedule Analysis:** Acumen Fuse is the schedule diagnostics tool used to check key schedule characteristics, analyze multiple schedules concurrently, summarize detailed schedule analyses and provide state-of-the-art schedule reporting capabilities. This system is in place and working.
- **Electronic Document Management System:** SharePoint is the web-based system used to enable the Authority and its consultants to share, collaborate and manage all documents distributed for information or review. This system is in place and working.
- **PMIS Portal:** The PMIS Portal is an online tool being developed to integrate and present data from all PMIS systems in one consolidated location. This system is under development, and is anticipated to be complete by the end of 2018.

At this time, all of the individual systems are being managed independently for oversight and reporting purposes by the project controls group.

7.1.2 Schedule Management

The Schedule Management Plan, a component of the program controls plan, provides an overview of processes and output data used to establish the baseline schedule, measure progress, assess performance, forecast deviations and trends, manage change and schedule reporting, reviews and meetings. This plan is currently being updated to reflect the maturing nature of the program delivery organization.

As described above in the discussion of PMIS, Primavera P6 is the primary software program for developing the baseline schedule for the overall program and its projects, recording status updates, assessing performance, forecasting trends and deviations, and recording changes to the overall Program's scheduling data. The program-wide baseline schedule (i.e., the program master schedule) is the mechanism for planning program-wide and project delivery, monitoring and reporting progress and identifying variances so that corrective action can be taken to either cancel the effect of the variance or mitigate its potential for adversely affecting the overall schedule. The P6 critical path method software enables detailed schedule data to be recorded and the baseline, both actual and forecast, to be tracked and reported. Because the individual project-specific schedules reflect the key interfaces and milestones, they are used to determine resources and progress profiles for each project comprising the Program. A master schedule for the Program is complete and is being updated monthly.

For civil projects, the DB contractor is required to submit a project-specific baseline schedule that, once approved by the Authority and the PCM, is considered the “approved original baseline schedule.” This baseline schedule is the basis for monitoring the DB contractor’s progress during the performance of the work. The DB contractor is also required to submit monthly schedule progress updates that, after review and approval by the individual project teams, are submitted to the project scheduler to update the master program schedule. Any revisions to the schedule resulting from change orders, revised sequencing of work and/or unforeseen delays must be reviewed by the PCM, design and construction manager and the project scheduler. Once approved by the Authority, the baseline schedule is revised along with the master program schedule.

The schedule management reporting hierarchy includes the integrated organization, regional consultants, PCM, and DB contractors. The program controls functional unit obtains information from each of these entities to prepare monthly schedule reports.

7.1.3 Program Cost Management

The cost management policies and procedures, a subset of the program controls plan, provides an overview of how cost control is managed at both the program-level and project-level. In addition to defining the roles and responsibilities for cost management staff, the cost management policies and procedures address the processes and output data associated with each stage, including the establishment of the baseline cost estimate, progress management, performance assessment, forecasting and change management, PMIS components, cost reporting, and reviews and meetings.

The program cost budget is developed based upon the most recent business plan estimate. The cost engineer coordinates with the senior estimator to allocate the business plan budget to the program elements by mapping similar scope elements from the estimate to the WBS elements. The budget is represented in YOE monetary values. Due to the early stage of many of the projects within the Program, parametric estimating methods were used for this estimate. As individual projects progress through development stages and more information is available, estimates will be refined and the budget and business plan updated.

The program-wide cost is updated monthly with input received from the integrated staff, regional consultants, project and construction managers, and DB contractors. This information is used to prepare program cost reports, including reports that track the cost of third-party agreements, right-of-way acquisition, environmental documentation, permitting and mitigation at the program and project-levels, as well as costs expended.

Because the work scope definition varies among the projects comprising the Program, the techniques used to develop cost estimates are adjusted for each section in accordance with its level of design and delivery method. The estimating process uses parametric estimating techniques for projects whose scope has little definition, and detailed quantity takeoffs and pricing for sections that have a more advanced definition of scope. Each project manager is responsible for preparing and maintaining a construction estimate that is provided to the program controls group for review and incorporation in the cost estimate for the overall Program.

Cost assemblies and/or unit rates are developed as needed for each type of quantity. The quantities are priced using the applicable cost assemblies and the resulting estimate is reviewed. If necessary, allowances are made to cover known or anticipated cost categories for projects lacking a well-defined design definition that thwarts the development of quantity figures. A contingency amount is also added to the cost estimate to accommodate unknowns (risk factors). The resulting estimate is then used as input for the budget and forecasted amounts of the cost control system.

EcoSys is used to conduct monthly assessments of costs incurred to date. Program controls forecasts costs using a systematic forecasting methodology that considers deviations, trends, change requests and opportunities integrated in the program-wide trend register. Trending on significant cost variances discovered during the performance assessment stage are analyzed. This forecasting is integrated with the risk management plan and the contingency management plan.

The funding stream for completion of the entire program of projects is limited over time, so programing of the projects and cost controls are necessary for the Authority to achieve the goals of providing a usable segment by 2029. Each project is programed in such a way as to be ready for construction when funding

for construction is projected to become available. Cost controls for each project are in place and managed by the Project Controls team to allocate funding to active projects as needed. These changes are managed through the change control process described in section 7.1.5. In addition, policies and procedures are being updated to enhance controls and streamline the estimating, budgeting, project controls and change processes.

Actions used and recommended to produce more accurate and comprehensive estimates include the following:

- Analyze the bid results for CP 1, CP 2-3 and CP 4 to compare against the current estimate and establish a database for processing future estimates.
- Use independent estimating firms to prepare engineer estimates that are then reconciled with the estimate.
- When appropriate, use contractors who are not involved in the Program to prepare independent “shadow” bids.
- At least two months prior to bidding, implement with the regional consultants an internal value engineering process that emphasizes cost reduction and initiates the development of preliminary alternative technical concepts.
- Engage the thinking of the full organization—the Authority and the project delivery support resources, contractors and suppliers—to assist the alternative technical concepts evaluation process by identifying and mitigating potential complications resulting from right-of-way, environmental and permitting.
- Current procedures support preliminary engineering and, as a result, reflect planning-level estimates. Revise the bid evaluation process so that it uses a uniform base-bid approach for project design. Include alternative technical concepts as deductive alternates to eliminate the wide spectrum of bids and design solutions that are difficult to compare.
- Have the members of the estimating team augment the project management staff during the quantity development phase to improve the quantities estimates for both the engineering and planning estimate processes.
- Monitor recent bids for other similar types of projects as a basis for responding and adapting to market conditions and competitive environments.

7.1.4 Contingency Management

An unallocated contingency management plan is in place which identifies and describes the contingency budget elements of the Program in terms of the cost risks they are intended to cover and provides an overall plan for contingency utilization. In the interim, contingency management policies and procedures are in place to manage contingency amounts. The plan outlines the changes the contingencies can be allocated to the direct cost of the project and establishes the overall rules by which the contingency accounts may be drawn down. The plan describes the management review and approval process and the procedures to be followed prior to a contingency reallocation.

Allocated contingencies are added to each estimate to cover “known-unknowns” or those items that can be reasonable expected to be encountered, but are difficult to quantify at the time of the estimate. Contingencies represent costs that are expected to be expended. There are contingencies that are controlled at both the program and the project-level.

At the program-level, allocated contingency is developed for each estimate, and is determined based on a percentage of the total direct construction value in the business plan cost estimate. At the point of development of the engineer’s estimate for construction, a portion of the allocated contingency is drawn from the program allocated contingency and assigned to that project as project contingency.

Unallocated contingency at the program-level is set at 5% of the total estimated cost for “unknown-unknowns”. These are items that are not anticipated and cannot be quantified. This amount is set aside in the business plan and is managed at the program-level.

It is important to note that these amounts are not designed to cover items like:

- Major scope changes
- Extraordinary events
- Management Reserves
- Escalation and currency effects

Costs for these items go through the change control process for resolution.

Management of contingency program and funds is the responsibility of the Project Controls Group. Allocated contingency is controlled through the change management policies and procedures, and are reported monthly to executives and the Board. Unallocated contingency amounts are requested through the change management process, controlled by the Chief Operations Officer and Chief Program Officer and are approved for use by the CEO.

7.1.5 Change Management

As a means of controlling changes to the Program, the overall change management strategy distinguishes between program-level changes and project-level changes, including changes affecting the DB contracts. A change is defined as a modification, positive or negative, to a controlled area of the Program in terms of scope, budget, schedule, functionality, interface and/or location. The “controlled area” of the Program is also known as the baseline. Each change requires an assessment of its effect on the controlled areas of the Program. As changes are reviewed, the technical implications of these changes are weighed against their effect on budget and schedule, as well as the adjustment made to the Program’s risk factors. These potential impacts inform the Authority of the implications associated with the change and justify whether the change is approved, rejected or requires the development of recovery plans or alternative approaches.

Program-Level Change

The overall change control strategy for the system includes changes to professional service contracts, changes to construction contracts and changes to the schedule, scope and cost of the system and project configuration that affect the program-level.

The key activities of the program-level change management process include the following:

- Developing and maintaining the documents that address and define the controlled constraints placed on the Program’s scope, schedule and cost.
- Tracking trends that have the potential to adversely affect these constraints.
- Evaluating the effect(s) of a proposed change on the controlled scope, schedule and cost.
- Obtaining concurrence according to the established delegation of authority.
- Ensuring that historical backup data is available and retained that explains the likely cause of the change and its implications.
- Tracking the performance of approved changes against the controlled scope, schedule and cost documents.
- Preparing a change history.

As shown in Figure 8, once a change is identified, it is brought to the technical evaluation committee, which is led by the program controls manager. The technical evaluation committee will identify subject-matter experts to help in evaluating the potential impacts resulting from the proposed change and then make a recommendation to the CCC.



Figure 8. Change Control Process

Changes are initiated from the project teams and are formally submitted into the system to be reviewed by appropriate program staff and then proceed to the Technical Evaluation Committee. After review and approval at this step, they are sent through the CCC and on through the process. If a change is not passed at any step, then the project team may choose to revise the change request and resubmit or to not proceed with the change.

The CCC meets regularly to review and/or act on changes. This includes contract changes at the project level and configuration changes at the program-level. The committee is supported, as needed, by the Authority's consultants and experts in the subject matter pertaining to the change. Members of the CCC include the COO, Director of Risk Management and Program Controls, CPO, Chief Engineer, CFO. The FRA is invited to observe all CCC meetings. Some changes may require a decision from the Authority, while others can be submitted for informational purposes to the committee program-level designee. The process requirements for tracking potential changes and the step-by-step instructions for processing a configuration change to the baseline are detailed in the program controls plan. Presently, due to program needs and Authority changes, the Authority is preparing a stand-alone CCC plan that follows the prior approved processes and is anticipated to be completed by summer of 2018.

Design-Build Contract Change Order Management

The Design-Build Contract Change Order Procedure (PROC-PRCN-05) and the PCMM (Section 11 Change and Claims) delineate the protocols, processes, roles and responsibilities of the Authority, its program controls consultant and PCM consultants when they are managing DB contract change orders. These documents outline the process for managing changes on the DB contracts, including the approval matrix and procedures for executing changes.

Any changes to the DB contract documents are executed by a change order. Prior to being incorporated into the DB contract by formal contract change order, the contract-related changes must be fully documented and within the authorized contract contingency amount or other approved funding source to comply with the Authority's and federal and state regulations.

When a potential change is initiated and authorized by the Authority, the PCM prepares the finding of fact form and obtains authorization from the appropriate Authority representative and the CCC in accordance with the approved delegation of authority. Upon approval, the PCM then prepares a directive letter or change order for signature by the Authority's representative and issues the signed directive letter or change order to the DB contractor. The directives and change orders are signed off based on the Authority Delegated Authority Policy. The PCM tracks and maintains the log of all directive letters/change orders in the contract management system. As potential changes advance through the change management process, related documentation is linked to the change management log and tracked by the PCM.

The contractor may submit a written contractor's change notice to the PCM who reviews and prepares an acknowledgement letter to send to the contractor in response to the change notice. This letter may acknowledge merit, deny merit, request additional information concerning the change or request the contractor to submit a change order proposal. The PCM tracks the change notice and updates it as it progresses through the change management process. Once a change order proposal is submitted, the PCM coordinates the review of the proposal with the Authority's design and construction manager to assess and determine if the change will be authorized by the Authority.

Whenever possible, the change order is negotiated and an executed change order is issued prior to proceeding with the work. In the event that a negotiated agreement cannot be reached, the PCM drafts a directive letter for signature by the Authority's design and construction manager or other delegated

representative directing the contractor to proceed on a time-and-materials basis or a change order accounting basis until work is completed.

The PCM coordinates with the Authority and the CCC on any change to the project as detailed in the program-level change management process.

7.1.6 Contractor's Disputes and Conflict Resolution

The DB contractor's claim process is outlined in the PCMM, Section 11.13 Contractor's Disputes. As stated in the PCMM, when the DB contractor believes that a potential claim or dispute situation has occurred, the DB contractor is to seek resolution through the partnering process by using the resolution ladder in accordance with the Authority's delegation of authority. The Authority can apply the steps and levels indicated in the matrix to resolve claims and disputes.

If the claim/dispute cannot be resolved through partnering, the DB contractor then submits a written request to the PCM who notifies the Authority's design and construction manager and change control manager of any potential claim and keeps them updated on the claim's status. The PCM is responsible for providing recommendations regarding entitlement, potential exposure and strategies for claims resolution to the Authority for its review.

In accordance with contract terms, the DB contractor can also seek resolution of disputes, claims or other controversies through the dispute resolution board. If the Authority or the contractor disagree with the board's recommendation, then either party can request arbitration as described in the contract General Provisions. Regular Dispute Resolution Board (DRB) meetings are occurring on each DB project to keep the DRB members apprised of ongoing progress and potential issues. One issue has been elevated to the DRB and has been resolved.

A list of potential claims and disputes recorder file is maintained in the contract management system and updated as the claim/dispute progresses through the decision process.

7.1.7 Document Control

The Authority Records Management and Document Control Plan describes the management of program documents and records in all forms. The document control process applies to all program documents including, but not limited to, correspondence, drawings, specifications, design criteria, memos, transmittals, contracts, solicitations, reports, plans, submittals, studies, deliverables, publications, and associated email originated or received by program staff. The plan, which is currently in draft, with a projected completion date of summer 2018, will outline how documents are managed throughout the life cycle of the Program. The term "document" refers to program documentation from initial development through the final work product. The term "record" refers to completed documents containing evidence of program operations that the Authority must retain for a specific period of time. The Records Management and Document Control procedures will describe how to manage documents and records in both physical form and electronic repositories. Additionally, the procedures will address how to create, update, and format documents.

Records Management Section, part of the Administration Office, is comprised of a Records Manager who is supported by Program Delivery Office staff, including a Document Control Manager, Supervising Document Controller, and Document Controllers. Records Management and Document Control staff is responsible for the following:

- Defining the business needs of Records Management and Document Control and verifying that the Authority's electronic repositories meet those needs;
- Implementing a Records Management and Document Control Policy, Plan, and procedures;
- Collaborating with the Information Technology Office to define program needs that support work sharing, data exchange, system integration, and consistent deliverables;
- Conducting Records Management and Document Control training; and
- Assisting with document turnover activities, particularly the effective and efficient submission of deliverables to the Authority.

The responsibilities of the Records Manager include, but are not limited to: developing, implementing, and maintaining the policy; implementing and maintaining the plan and procedures; identifying the record owner of each record series; supporting record owners in creating a chain of custody and audit trail for records; ensuring that record owners adhere to retention periods; assisting branches and/or offices in determining which records are essential to the functioning of state government; facilitating the development, review, and modification to records retention schedules; verifying that vital records are adequately preserved; and providing direction to Document Control staff, as appropriate.

The responsibilities of the Document Control Manager include, but are not limited to: developing, implementing, and maintaining the plan and associated procedures; overseeing the preparation of records for retention and storage; establishing and maintaining filing systems for paper and electronic documents; receiving and releasing documents to and from the Authority through electronic repositories; assisting with the preservation of field documents; preparing Document Control reports; and overseeing Document Control staff in support of the Records Management Section's responsibilities.

Key elements contained in the Records Management and Document Control Plan include the following:

- Purpose, scope, and principles of Records Management and Document Control;
- Laws and regulations that define the plan's requirements;
- Roles and responsibilities of all relevant staff;
- Requirements for document access, creation, metadata, review, approval, distribution, and change control;
- Requirements for the retention, storage, and disposition of documents and records; and
- A variety of electronic document management tools used for controlled documents and records retention.

Regarding federal grants, records are retained in accordance with 49 CFR Part 18.

7.2 Project Delivery

The Authority recently fine-tuned the organization to meet the changing needs of the Program and enhance the governance structure to manage the program and project delivery. Under this new organizational structure, four major divisions report to the Chief Program Officer, who reports to the COO:

- Environmental/Third Party/Right-of-Way/Engineering Division
- Rail Delivery and Operations
- Infrastructure Delivery
- Program Services Division

The Infrastructure Delivery Division is responsible for delivering the civil infrastructure, and the Rail Delivery and Operations Division is responsible for delivering the rail infrastructure. These two delivery divisions are supported by the Environment/Third Party/Right-of-Way/Engineering and Program Services Delivery Division in terms of setting processes/procedures and provide supporting services.

The Infrastructure Delivery Director heads the Infrastructure Delivery Division and is supported by the Regional Project Directors, Construction Package Directors, and Project Services Director. The Regional Project Directors support the project managers that manage the regional consultant contracts, and the Construction Package Directors manage construction package delivery.

A Project Director is responsible for each of the FCS construction packages (CP1, CP2-3 and CP4) that reports to the Infrastructure Delivery Director. The Project Director is supported by the Authority Design and Construction Manager and a PCM consultant. All project-level issues are addressed and resolved as much as possible within the projects. Issues that are beyond projects' control will be escalated to the Infrastructure Delivery Director or the Executive Committee as appropriate for resolution.

The PCM administers the construction contracts under the Project Director's and Design and Construction Manager's direction. The PCM has primary oversight and audit responsibility for the administration, management and quality of the assigned DB contract.

The PCM Design-Build Oversight Manager is the lead PCM manager and is the Authority's on-site representative as delegated for the assigned DB contract. They are responsible for the oversight of all work through final acceptance. The PCM Design-Build Oversight Manager is the single point of contact for all formal communication with the DB contractor through whom all such communications flow. All verbal and written direction given to the DB contractor will be communicated by the PCM Design-Build Oversight Manager only. Directions regarding contractual changes will be per the authorized delegation of the Authority. The PCM Design-Build Oversight Manager will work closely with the Authority/RDP Design and Construction Manager or designee and will communicate and coordinate on the progress, issues, changes, etc. as needed. The PCM Design-Build Oversight Manager will supervise and be supported by the PCM staff in administering the construction contracts.

Project development involves preliminary engineering for environmental assessment, preliminary engineering for procurement, permitting etc. This portion of the project delivery and implementation is managed at the regional level, as shown in the organizational chart in Figure 9. The sections are broken down into projects within the three regions (north, central and south), with the project managers responsible for the individual projects. The project managers report to the regional directors of projects who oversee all the projects within the region. The following is a brief description of the key regional and project roles for project delivery during the environmental review and preliminary engineering phase of the projects:

- **Regional Director of Projects:** The regional director of projects executes the program delivery strategy for the north, central or south region and reports directly to the infrastructure delivery director. The regional director of projects provides leadership and support to the project managers who report to them.
- **Project Manager:** The project managers support the regional director of projects and are responsible for the scope, schedule and budget of the various projects.
- **Task Managers:** Task managers report to the project manager and provide project support of the various the areas of the Program including environmental, engineering, right-of-way, third party, railroad scope. The task managers manage production and completion of discrete deliverables on projects. Task managers coordinate with other task managers and with contract managers and the project manager regarding task deliverables, resources and schedule. In addition, task managers communicate project issues, conflicts or changes and provide potential resolutions to the project manager.

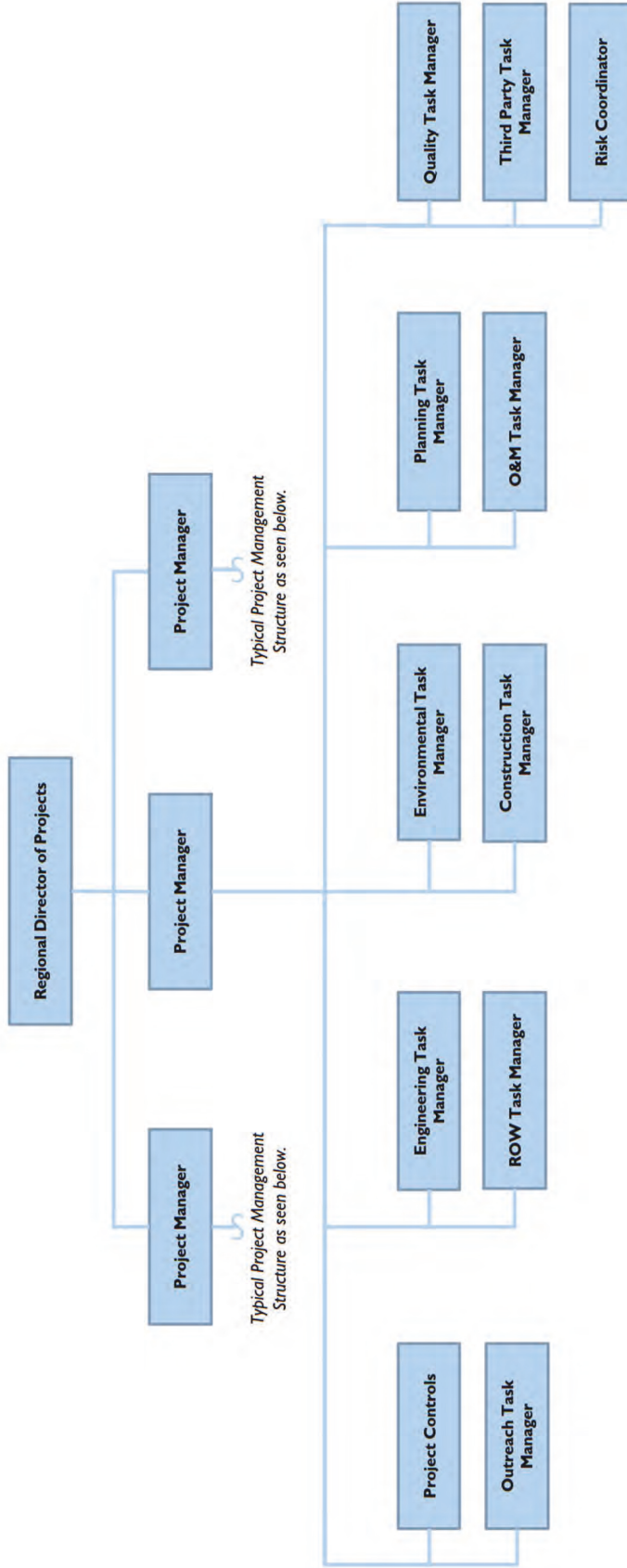


Figure 9. Project-Level Delivery Organization Chart

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7.3 Construction Project Management

A description of the DB project team and the roles and responsibilities of team members are outlined in Section 2 of the PCMM and Section 3 of the DBPP.

Below is a brief description of the key regional and project roles along with their responsibilities:

- **Project Director:** Each of the construction projects/packages is led by a project director, who reports directly to the Infrastructure Delivery Director and has the overall responsibility for all the elements of the project, including design, construction, right-of-way, third-party agreements and project delivery.
- **Project Manager:** The project manager supports the project director during construction and is responsible for the scope, schedule and budget of the project. Task managers report to the project manager for project support in the areas of environmental permitting, engineering, right-of-way, third party, railroad, etc.
- **Design and Construction Manager:** The design and construction manager is the Authority's authorized representative for each DB contract and will manage and provide oversight of the PCM contract.
- **Project and Construction Manager:** The PCM provides on-site project and construction management services for the DB contracts and is responsible for the management, administration and monitoring of the activities of their assigned contract for the project. One key member of the PCM's staff is the design-build oversight manager (described below).
- **Task Managers:** Task managers manage production and completion of discrete deliverables on projects. Task managers monitor and maintain control of the DB contractor's task progress and performance to verify compliance with contract provisions, including quality, schedule, scope and cost. Task managers coordinate with other task managers and with contract managers and the project manager regarding task deliverables, resources and schedule. In addition, task managers communicate project issues, conflicts or changes and provide potential resolutions to the project manager and the functional manager.

As shown in Figure 10. Project-Level Reporting Hierarchy, project-level information (scope, schedule and budget) is reported up from the DB Project Controls Manager to the PCM, then to the regional project manager and ultimately to the program controls unit. The environmental and engineering consultants, the regional consultants and the PCM consultants report up to the regional director of projects.

Project-Level Controls Staff Reporting Structure

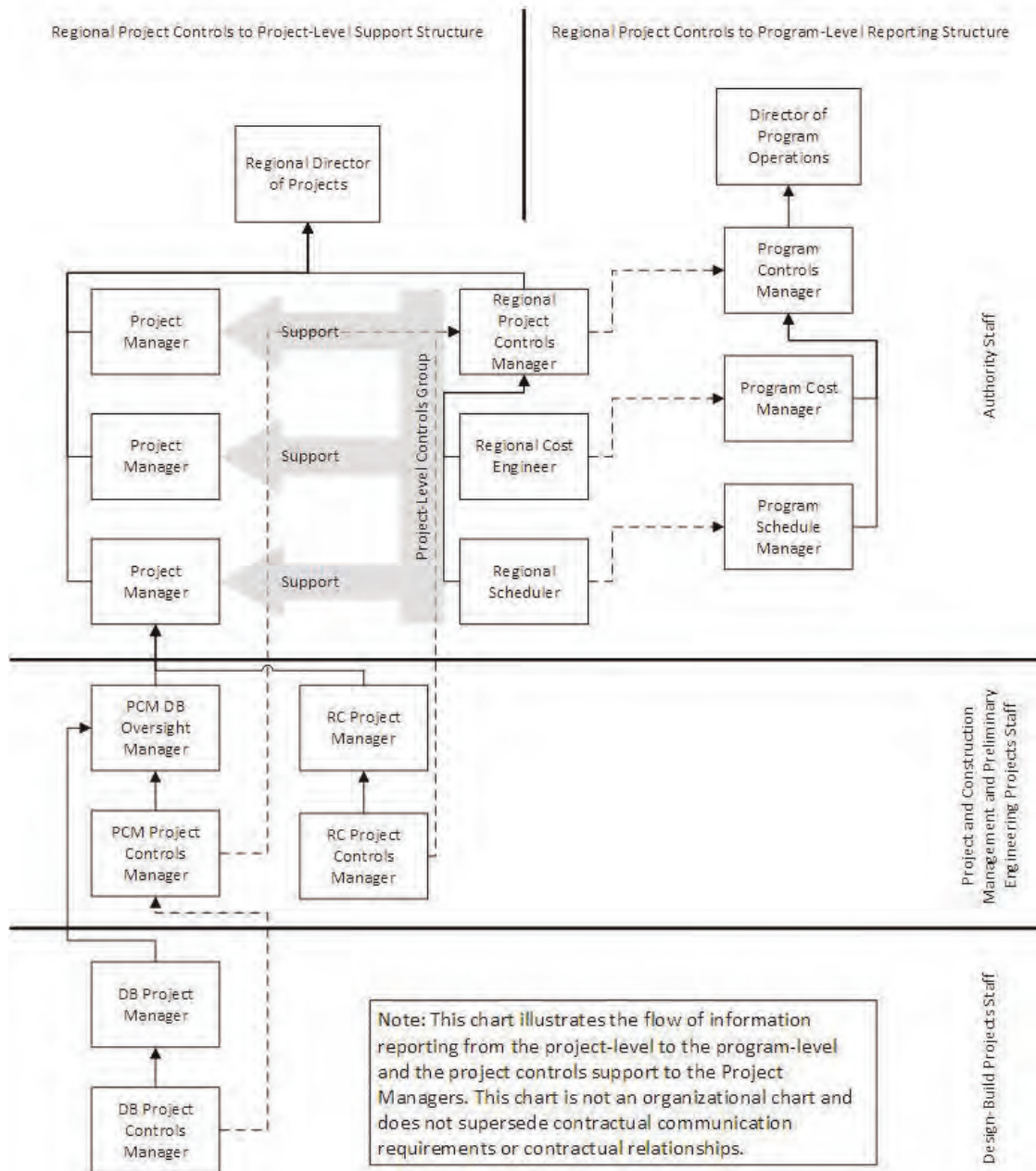


Figure 10. Project-Level Reporting Hierarchy

8 CONTRACT PROCUREMENT AND MANAGEMENT

8.1 Contracting Authority

The Authority may enter into contracts with private and public entities for the design, construction, and operation of high-speed rail trains pursuant to its authority under California Public Utilities Code section 185036. The contracts cover all functions of the Authority and may be separated into individual tasks or segments or may include all tasks and segments, including a design-build or design-build-operate contract.

Additional authority for a State agency to enter into agreement includes, but is not limited to, Government Code sections 4525, *et seq.* and Public Contract Code sections 10335, *et seq.* For example, laws regarding a state agency contracting for professional services of private architectural, landscape architectural, engineering, environmental, land surveying, or construction project management firms contracting for engineering, architectural, or design services require contracts to be based on demonstrated competence and professional qualifications necessary for performance at a fair and reasonable price resulting from negotiation. The Authority's regulations for contracting with private architectural and engineering firms can be found in California Administrative Code Title 21 Section 10000 *et seq.* In addition, federal grant agreements require compliance with 48 Code of Federal Regulations (CFR) Chapter 1, Subpart 31.2, among other federal terms.

8.2 Contract Procurement Strategy

Contract procurement strategy is developed and implemented in accordance with the direction established in the Authority's biennial business plans. The Authority's procurement strategy is prepared by the Authority's commercial team, which works closely with the Authority's Chief Financial Officer. Prior to issuance, all procurements are reviewed by the Business Oversight Committee (BOC), chaired by the Authority's Chief Financial Officer, to ensure that the Authority has the financial capability to award the contract.

Contract procurement related to design, construction, and operations is conducted in accordance with the Authority's contracting power, as described in Public Utilities Code section 185036, and the Authority's contracts and procurement policies and procedures. Procurement of architecture and engineering services is conducted pursuant to Government Code sections 4525, *et seq.*, and California Code of Regulations, Title 21, Division 6, Chapter 1, Article 1. The procurement of other goods and services is conducted in accordance with Public Contract Code sections 10295 and 10335, *et seq.*, and the California State Contracting Manual. The legal authority applicable to each procurement is determined by the Authority's legal counsel.

The procurement methodology is based on the type of contract being awarded. Once approved by the BOC, procurement of contracts related to design, construction, and operations is prepared and managed by the Authority's capital procurement team. This team coordinates with subject matter experts and functional areas, including engineering, environmental, finance, legal, right-of-way, and others to develop procurement documents. Scopes of work and other technical documents are prepared by subject matter experts, while commercial terms and conditions and procurement instructions are prepared by the capital procurement team in conjunction with legal and program management personnel.

Procurement of non-professional services and low-bid contracts are prepared and managed by the Authority's Contract and Procurement Branch in accordance with the above-referenced statutory authority.

Procurement status for the initial segments includes:

- Construction Package 1 (CP 1), extending from Madera Acres to Fresno, has been awarded to the Tutor Perini/Zachry/Parsons, Joint Venture;
- CP 2-3, extending from Fresno to one mile north of the Kern County line, has been awarded to the Dragados/Flatiron, Joint Venture;
- CP 4, extending from the Kern County line to Poplar Avenue north of Bakersfield, has been awarded to the California Rail Builders;

- Early Train Operator (ETO), which will assist the Authority with decisions on safety, operations, equipment and systems, fare structures and schedules, and other commercial and operating elements, has been awarded to DB Engineering & Consulting USA Inc. The first phase of the ETO contract is a Pre-Development Agreement; the second phase of the ETO contract will be governed by a Franchise Agreement that will be negotiated and executed during the term of the Pre-Development Agreement.
- Procurement of Track and Systems (TS-1), including track work;
- Procurement for rolling stock;
- Tunneling contracts will be issued in sequence with other civil works contracts, depending on resource availability and delivery schedules approved in the most recently adopted California High-Speed Rail Authority Business Plan; and
- Traditional design-bid-build contracts may be awarded for specific work. These contracts would be small civil construction packages or contracts for such activities as utility relocations, hazardous materials removal/remediation, site demolition, clearing and grubbing. The Authority's program management team is currently developing the policies and procedures that would be employed to prepare and manage design-bid-build projects.

For DB procurements, the Authority is using a two-step process consisting of a request for qualifications followed by a request for proposals. To assist in the selection of DB contractors, the procurement team's responsibilities include:

- Initial preparation of procurement documents:
 - Coordination with engineering management to ensure the inclusion of all design standards, specifications, special provisions and design plans required to meet the staging and delivery system(s);
 - Review and approval by the Authority's general counsel;
 - Review by the state's Department of Finance and the Federal Railroad Administration;
 - Circulation of the draft version of the procurement documents for industry review; and
 - Participation in one-on-one meetings with the Authority and the DB teams.
- Release of revisions to procurement documents:
 - Issue procurement documents in accordance with contract and procurement policies and procedures;
 - Respond to requests for information regarding issues identified in the procurement documents;
 - Participate in one-on-one meetings between the Authority and the DB teams;
 - Prepare and issue addenda to the procurement documents to incorporate revisions arising from consideration of proposer comments in the requests for information, during the one-on-one meetings or resulting from other factors; and
 - Prepare the statement of qualifications/proposal evaluation manuals and support proposal evaluation committees and processes.
- Activities after the submittal of statements of qualifications/proposals:
 - Support in evaluating the statements of qualifications/proposals;
 - Support development of a shortlist based on qualifications at the request for qualifications stage; and
 - Support in identifying the best-value proposal at the request for proposal stage.

For architecture and engineering (A&E) and other professional service procurements, the Authority issues RFQs and RFPs respectively. The Authority may also issue two-step procurements with both an RFQ and an RFP stage when appropriate for the procurement. RDP's responsibilities in the procurement of

professional service contracts are substantially similar to those in the procurement of design-build contracts.

8.3 Contract Management

The Authority has developed a Contract Administration Branch (CAB) to serve as the governing body for contract management. The CAB is responsible for providing contract management governance, support, training, and performance monitoring. The Authority assigns contract managers that reside in the functional areas responsible for the contract work performed. The contract managers are subject matter experts which facilitate technical performance evaluation and are trained by the CAB to be proficient in contract management policies and procedures.

The CAB includes a Contract Management Support Unit (CMSU) and a Contract Administration Support Unit (CASU). The CMSU has developed and maintains contract-management-related policies and procedures (POLI/PROC-FIS-030-038), roles and responsibilities, contract management job aids, including a contract management handbook, and provides training for contract managers. The CMSU also reports on the status of contracts and monitors the contract manager's adherence to the policies and procedures. The CASU provides contract administrators to directly support the contract managers. The contract administrators also help the Contract Managers with adhering to and implementing contract management policies and procedures.

The contract management policies and procedures include such topics as contract management governance, document and deliverables management, invoicing and payment, performance monitoring and reporting, risk and change management, claim and dispute guidance, and contract compliance.

8.3.1 Management of Capital Contracts

The civil design-build construction contracts, CP1, CP2-3, and CP4, are lump sum contracts. The scope, completion requirements, quality, and contract values are defined by the design-build contract documents. Any changes to the contract documents are processed in accordance with the contract and Design-Build Contract Change Order Procedure. The design-build contracts are administered by the RDP Project Director, RDP Project Manager, and Authority Design and Construction Manager supported by a PCM consultant team. The PCM manages all aspects of the design-build contract in accordance with the Project & Construction Management Manual (for Design-Build contracts).

The contractors are required to submit and obtain approval of a baseline schedule in accordance with the contract specification. Once approved this schedule forms the contract baseline against which the work progress is measured and monitored against.

Depending on the contract procurement strategy used (design-bid-build, design-build, design-build-finance-operate-and-maintain, or public-private partnerships), contract procurement management procedures are implemented to address key elements, including:

- Program management and controls, management and oversight
- Change and claims management
- Document control and processing
- Risk mitigation
- Contract administration
- Construction management oversight
- Quality management oversight
- Environmental compliance oversight and reporting
- Construction safety and security oversight
- Technical compliance oversight

All federal flow down requirements and required contract language are incorporated into all contracts. Additional details on contract administration methods are available in the DBPP.

8.3.2 Management of Professional Service Contracts

The size and complexity of the Program necessitates the participation of consultants to undertake a substantial portion of the work. Professional service contracts are written with clauses that require the consultant to provide information pertaining to earned-value management and to follow the Program's work breakdown structure. When the consultant submits a payment request, it must be sufficiently detailed to verify the validity of the earned-value reporting. Payment is based either on the achievement of planned milestones or, for design and construction contracts, the percentage of completion for those milestones. Payment can also be made on the basis of cost reimbursement for labor hours expended and materials consumed.

A performance regime method is used by the Authority on the contract with the RDP to align the consultant's performance with the Authority's performance objectives. A performance regime is used to drive quality, budget and schedule milestones. A performance regime is a fee-at-risk contract feature that links a portion of the program delivery consultant's payment to a combination of quality, budget and schedule performance targets. A performance regime is built around specific program requirements and deliverables that can be measured on the basis of quality, budget and schedule, and that are established jointly by the Authority and the consultant. This may be used on other future contracts.

8.4 Small Business Commitment and Compliance

The Authority is committed to providing small businesses with an equitable opportunity to participate in the Program. The Authority has established the Small and Disadvantaged Business Enterprise Program and set an overall small business participation goal of 30 percent, including 10 percent for Disadvantaged-Business Enterprises (DBEs) and 3 percent for Disabled-Veteran Business Enterprises (DVBEs).

California Executive Orders D-37-01 (Davis) and S-02-06 (Schwarzenegger) establish a 25 percent Small and Micro Business (SB), participation goal on contracts issued by California state agencies. Military and Veterans Code section 999, et seq., establishes a 3 percent participation goal for Disabled Veterans Business Enterprises (DVBE) on state contracts. In addition to these California-specific goals, the U.S. Department of Transportation (USDOT) has established an overall 10 percent participation goal for Disadvantaged Business Enterprises (DBE) on public works projects receiving federal financing from USDOT.

In addition to Titles VI and VII of the Civil Rights Act of 1964, of the Authority complies with other established U.S. Federal and State of California statutory and regulatory requirements and goals for participation by small, disadvantaged, and disabled veteran businesses related to government contracts, including the following: 1) 49 CFR Part 26; 2) 41 CFR Part 60; 3) California Constitution, Art. 1, section 31; 4) Government Code sections 14837 and 14838; 5) California Code of Regulations, Title 2, section 1896; 6) State Administrative Manual, section 8.20.

After consideration of state and federal statutes and regulations impacting small, disadvantaged and disabled veteran business (all collectively referred to herein as "SB/DBE/DVBEs") participation, the Authority's Board of Directors (Board) issued Policy Directive, POLI-SB-01, and the 2012 Revised Small and Disadvantaged Business Enterprise Program Plan. These documents are available on the Small Business Program page of the Authority's website:

http://www.hsr.ca.gov/Programs/Small_Business/index.html

All prime consultants and contractors must comply with the utilization and reporting requirements of the small business program as incorporated in their contract documents. The small business program provides quarterly small business utilization reports to reflect the level of small-business participation, including DBE and DVBE utilization, small businesses and microbusinesses on program delivery contracts. Similar requirements for utilization of small-businesses, DBEs and DVBEs are incorporated into the procurement packages for future construction and professional service contracts.

Along with their monthly invoices, consultants and DB contractors are required to submit a report showing the name of the DBE, DVBE, microbusinesses and small business firms utilized during the reporting

period and the amount committed and expended to date. A complete listing of requirements for DB contractors is provided in the PCMM.

The Authority is committed to California's small business community and is continually seeking new approaches to improve its policies and procedures to eliminate barriers and increase SB/DBE/DVBE utilization.

To achieve and maintain the small business goal, the Small Business Branch, led by the Authority's Small Business Advocate actively engages with the small business community. The Authority's Small Business Advocate is responsible for identifying and implementing innovative small business development and outreach strategies. Community engagement is a vital component to our outreach strategy.

From the implementation of the Authority's Small and Disadvantaged Business Enterprise Program in August 2012 to June 2016, more than \$196 million has been paid to certified Small, Disadvantaged and Disabled Veteran Business Enterprises in California for their work on the Program. As of June 2016, 318 small business are either committed, utilized, or actively working on the Program. To continue this impact, the Small Business team has worked to update the 2012 Small and Disadvantaged Business Program Plan. The updated SB Program Plan is under development and expected to be presented to the Board in Fall 2018. This document will supersede and replace in its entirety the following documents:

- 2012 Revised Small and Disadvantaged Business Enterprise Program
- 2012 Revised Small and Disadvantaged Business Enterprise Program for Professional Services Contracts
- 2012 Authority Policy Directive, POLI-SB-01
- 2015 Authority's Management Memo

The SB Program continues the purpose of the Authority's original Revised Small and Disadvantaged Business Enterprise Program as follows:

- Comply with state laws and federal regulations and financial assistance agreements
- Meet legal standards of application
- Ensure non-discrimination in the award of state and USDOT-assisted contracts
- Affirm the Authority's commitment to fairness and the principles of equal opportunity

8.5 Civil Rights Program

The Authority is both required and committed to ensuring equal employment opportunity for all employees, contractors and subcontractors and to providing a work environment free of discrimination and harassment. All employment decisions at the Authority are based on business needs, job requirements and individual qualifications, without regard to race, color, religion or belief; national, social or ethnic origin; sex (including pregnancy); age; physical, mental or sensory disability; HIV status; sexual orientation, gender identity and/or expression; marital, civil union or domestic partnership status; past or present military service; family medical history or genetic information; family or parental leave status; or any other status protected by the laws or regulations in the locations where the Authority operates. The Authority adheres to Title VI of the Civil Rights Act of 1964; Title IX of the Education Amendments of 1972, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, as amended; the Drug Abuse Office and Treatment Act of 1972, as amended; the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970, as amended; the Public Health Service Act of 1912, as amended; and other nondiscrimination provisions required by state and federal requirements. The Authority and the Authority's consultants and contractors are required to prevent discrimination and verify nondiscrimination in their programs, activities and services.

The Title VI Program Plan governs the Title VI Program. The first Title VI Program Plan was adopted by the Authority's Board of Directors and made available to the public in 2012. The Title VI Program Plan showed a systematic interdisciplinary approach: A method designed to integrate various offices and departments working within their respective disciplines to achieve an established goal. Several references were used to guide the creation of the 2012 Title VI Program Plan including: The Federal Highway Administration (FHWA) Guidance, Preventing Discrimination in the Federal-Aid Program; A Systematic

Interdisciplinary Approach, Chapter III “Implementation”; and Chapters III, IV, and V from the Title VI-Dependent Guidelines for Federal Transit Authority Recipients- Circular 4702.1B. Additionally, comprehensive U.S. Census demographic data was utilized to identify impacted and potentially impacted communities.

The Authority’s Title VI Program is federally regulated by the FRA’s Office of Civil Rights (OCR). This Office provides advice and assistance to the Authority’s Title VI division on all matters relating to civil rights, including the Americans with Disabilities Act (ADA) of 1990 Equal Employment Opportunity, Title VI of the Civil Rights Act of 1964 and Disadvantaged Business Enterprises.

The Authority’s Title VI Program is also inclusive of Limited English Proficiency (LEP) and Environmental Justice (EJ) regarding nondiscrimination efforts and compliance. LEP is a term that refers to a person who is not fluent in the English language, and has limited ability to read, write, speak or understand English. The Authority is committed to ensure LEP individuals are afforded the same access to Authority programs, information, and services as predominantly English-speaking individuals by free language assistance upon request. To reinforce the Authority’s efforts in providing LEP individuals with fair and equal treatment, a language assistance contractor has been secured to perform Interpreter and Translator services.

The purpose of the language assistance contract is to provide qualified translation and interpretation services for the Authority when required, during all aspects of planning, building and operation of the high-speed rail system. The contractor agrees to provide the Authority qualified and experienced language professionals with relevant specialist knowledge in the required field of expertise, as applicable, in performance of the services requested. Qualified interpreter means an interpreter who is able to interpret effectively, accurately, and impartially, either for individuals with disabilities or for individuals with limited English skills. The interpreter should be able to interpret and proof both receptively and expressively, using any necessary specialized vocabulary. The interpreter should be experienced in interpreting for one person, for large groups and/or an audience.

As mentioned above, the Title VI Program also includes the Environmental Justice (EJ) Program. EJ identifies and addresses the potential for disproportionately high and adverse effects of programs, policies and activities on minority and low-income populations, and provide fair and equal treatment to all races, cultures, minority and low-income populations during the development and adoption of said environmental laws and policies as pursuant to EJ guidelines. These programs, in conjunction with Title VI, are essential to assisting the Authority with nondiscrimination compliance and are described in further detail within the Title VI Program Plan.

The Authority has designated a single point of contact to oversee, implement and manage its commitment of assurance and compliance of the overall Title VI Program. This responsibility is assigned to the Title VI Coordinator. Within the Authority’s organizational structure, the Title VI Coordinator has direct access to the CEO concerning Title VI, LEP, and EJ matters. However, the Authority’s Civil Rights and Title VI activities are administered by the Title VI Coordinator, Chief of Communications, Title VI Program Manager and their designees. The role of the Title VI Program Manager is to provide guidance and technical assistance to the Title VI Coordinator on related Title VI, LEP, and EJ matters.

8.6 Labor Compliance

Labor rates for the construction contracts and for project components that use rights-of-way owned by a railroad are established in accordance with federal and state wage rates that comply with the provisions of the Davis-Bacon Act and are included in the procurement documents. DB contractors are required to submit weekly labor compliance reports to the PCM consultants, who track these reports and submit them to the contract compliance group to validate compliance with federal and state regulations and contract requirements. The PCM are also responsible for logging and tracking the DB contractor’s compliance with and submission of U.S. Department of Labor Office of Contract Compliance Program Equal Employment Opportunity reports in accordance with Title 41 CFR Part 60 and the 10 obligations under the Mega-Project reports.

9 CONSTRUCTION MANAGEMENT

Once each DB contract is awarded, the management of the contract falls under the Infrastructure Delivery Division. This division is headed by the Director of Infrastructure Delivery who is supported by on-site RDP project directors, RDP project managers, and Authority Design and Construction Managers to manage the design and construction works. On-site staff are supplemented by a PCM consultant who manages the DB contract under the direction of the Authority. The PCM will have a PCM Oversight Manager who is supported by a team of qualified staff and is responsible for providing quality; verification & Validation (V&V), self-certification oversight; ICE/ISE responsibilities; safety and security oversight; project controls and risk management oversight, engineering oversight, environmental oversight; third-party, other contracts, and utility oversight; and right of way coordination services in managing DB contract works. Each design-build package has a RDP Project Director who is responsible for monitoring and controlling all the design and construction works and managing any project issues. Issues that are beyond the control of the projects will be escalated to Director of Infrastructure Delivery or executive management for resolution.

9.1 Construction Management

The DBPP outlines the Authority's approach to project delivery for the initial operating segment (Silicon Valley to Central Valley) and identifies the project implementation procedures and methods established by the Authority to achieve successful design-build project delivery.

The PCMM describes in detail how the Authority manages the execution of the design-build projects through the use and integration of the Authority staff, PCM consultants, project delivery team and other consultants. The PCMM describes the procedures and policies for initiating and progressing project construction and complies with the Program's safety and security management plan, quality management plan and program-wide procedures. It provides a framework for:

- Program structure and organization
- Contract administration
- Communication/documentation/reports
- DB contract submittals
- Verification, validation and self-certification
- Interface management and coordination
- Quality management
- Safety and security
- Schedule control
- Changes and claims
- Right-of-way
- Public involvement
- Completion and closeout

The PCMM establishes uniform guidelines and procedures in contract management and administration and design and construction oversight for each DB contract. The PCMM addresses responsibilities after the award of contracts. It also presents, interprets and clarifies established general policies and practices applicable to the work in dealing with various situations that may arise throughout the contract's duration. It also defines the lines and flow of correspondence, and identifies specific tasks and the parties responsible for their successful completion.

Interface Management Plans have been completed for CP 1, CP 2-3 and CP 4. These plans are available upon request.

The PCM contract management manual, developed by the PCM consultant for each DB contract, incorporates the PCM's plan and identifies deliverables from the PCM that are required to provide the level of design and construction oversight commensurate with the staffing, resources and scope authorized under each PCM contract.

9.2 Maintenance of Traffic

Provisions for maintenance of traffic during construction are included in various sections of the general provisions for CP 1, CP 2-3 and CP 4. Generally, these provisions require written public notification and maps, adherence to local and state requirements, and compliance with the current California Manual on Uniform Traffic Control Devices. Specific information can be found in the general provisions in Book 2, Part B of CP 1 and Book 1, Part B.2 of CP 2-3 and CP 4. Similar requirements will be included in future contracts regardless of the type of contracting method. The PCM conducts regular audits to make sure that the design-builder's traffic management activities are in compliance with the contract.

9.3 Materials Testing and Procedures

The DB Contractors are required to implement effective testing control measures to verify adequate quality in performance of their activities. These test requirements will be defined in the final design documents prepared by the DB Contractor and the testing types and details will be included in the DB Contractor's Inspection Test Plan, which is subject to SONO. The PCM, with the assistance of the Authority Quality Assurance Manager, is responsible for oversight of the DB contractor's implementation of the DB Contractor's Quality Manual (CQM), including the Inspection Test Plan. When required by the DB Contract Documents, or as deemed necessary in the judgment of the PCM, testing of material and workmanship shall be performed by authorized field personnel or by an approved testing service. The number and quantity of tests must be sufficient to permit adequate verification testing. The PCM is required to submit a Statistical Sampling Program as part of the PCM Quality Assurance Plan for review and approval by the Authority, in accordance with the PCM Contract. The Authority and/or the PCM will implement the approved statistical sampling and testing program in consultation with the Authority, for:

- Testing of the DB contractor's work activities and
- To verify that the DB contractor's material sampling and testing results are in conformity with the contract requirements.

The PCM reviews the DB contractor's Inspection Test Plan to determine and support what verification testing effort may be needed. In addition, this statistical sampling and testing program may need to be revised as needed, depending on the performance and reliability of the DB contractor's Quality Program, DB contractor's Inspection Test Plan results, and the ISE's assessment reports. The PCM test results are to be correlated to the DB contractor's quality test results and reported to the Authority, with their recommendations for further actions, if applicable. The Authority or PCM material testing activities shall be performed by a certified testing laboratory. The PCM shall verify that all testing laboratories performing materials acceptance sampling and testing, are in compliance with the DB contract requirements. The Authority has the option to implement the statistical sampling and testing program independently.

9.4 Self-Certification and Verification and Validation

As part of the DB construction packages, the contractor is required to implement a V&V approach that employs independent V&V based on proven international practice in high-speed rail and internationally accepted standards. The self-certification process is outlined as follows:

1. DB contractor prepares technical contract submittal (including final design, construction, inspection and test submittals) and performs quality procedures per the contract.
2. DB contractor submits technical contract submittal together with the DB contractor's V&V submittal to the ICE/ISE.
3. ICE/ISE shall assess and evaluate the technical contract submittal to certify that the final design/construction meets the contract requirements per the contract. ICE/ISE shall submit an assessment report and certification to the Authority's representative with a copy to the DB contractor.

4. DB contractor shall submit technical contract submittal, including self-certification, the DB contractor's V&V submittal, ICE/ISE assessment report and certification to the Authority's representative.
5. The Authority's representative will perform audit and due diligence review as required and issue statement of no objection or approval, if given, based upon audit and additional review results and ICE/ISE assessment report and certificate.

The DB contractor is required to develop and implement a comprehensive V&V process to demonstrate how the technical and contract requirements are met during final design, construction and testing, and in support of the technical contract submittals. The V&V process is to be based on the general provisions of IEEE 1220/IEC 26702 "Systems Engineering – Application and Management of the Systems Engineering Process" and follow the general provisions of IEC 15288 "Life Cycle Management-Systems Life Cycle Processes." The DB contractor will prepare a V&V Plan that addresses the specific processes for requirements management, design management, interface management, and inspection and testing management. The plan includes:

- Contract life cycle phases
- Deliverables for each phase
- Activities for each phase, roles and responsibilities
- Tools and methods to be used
- Inputs for each phase
- Stakeholder considerations
- Metrics used to measure and report progress

The contractual requirements for self-certification and V&V are included in special provisions for each DB package. The V&V process will carry throughout the entire Program regardless of contracting methods to ensure the completed project meets all requirements and functions as intended.

9.5 Construction Close-Out

Contract completion and closeout is a critical element in the lifecycle of a construction project. Planning for the closeout of the project begins at contract commencement with the PCM developing a contract-specific completion/closeout plan in accordance with procedures outlined in the PCMM Section 14 Completion/Close-out. Completion of each contract includes three main divisions: physical completion, fiscal completion and record document completion.

Project physical completion involves not only Authority inspection and acceptance, but also public agencies, franchised utilities companies and railroads. Final acceptance of the project will be issued once all punch list items are completed and the DB contractor restores the site to the condition required by the final environmental documents. At that time the DB contractor delivers a certification representing there are no outstanding claims, liens or stop notices of any subcontractor or laborer with respect to the work performed.

Project fiscal completion involves all data, processes and files necessary for an audit and final payment. The fiscal completion phase may well start prior to the physical completion of the facility. The Authority, in accordance with the general conditions, may choose to release or hold part of the retention prior to or subsequent to the final closeout package stage of payment, based on advice of legal counsel.

The PCM is required to review the record documents for completeness and include them in the final contract documents at the project completion. The field records shall have undergone a final audit by the Authority's project representative. The PCM processes the correspondence files to the Records Management and Document Controls group as outlined in section 7.1.7 Document Control.

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10 OPERATIONS AND MAINTENANCE PLANNING

10.1 Early Train Operator

The Authority awarded the Early Train Operator (ETO) contract in the fall of 2017; the successful contractor, DB Engineering & Consulting USA, Inc. received the notice to proceed in December 2017.

The ETO contract is split into three phases:

Phase 1 – the current phase – is a \$30M contract with a six-year performance period. During this period, the ETO acts as an advisor to the Authority, providing input on operational specifications affecting high-speed trains, systems and stations; development of performance based maintenance models for track and systems and high-speed rail trains, support to the procurement and contract management of rail; developing an operations plan, financial plan, and marketing plan; and plans for ancillary revenue optimization.

Phase 2 – upon completion of a successful financial plan negotiation between the ETO and the Authority the second phase of the contract will be entered into. The ETO will then be responsible for pre-operations and revenue ramp up. The ETO will; launch the new high-speed rail service and develop the high-speed rail brand; recruit and train all staff, run train and systems operations under a short/medium term franchise without subsidy; manage maintenance providers and maintenance costs; and manage ridership and ancillary revenues.

Phase 3 – mature operations will only commence when the ETO has recovered any losses incurred in the ramp-up period. Phase 3 will be a long-term concession and will be competitively tendered.

10.2 Customer-Operations-Build-Design Delivery Model

When creating an entirely new railroad, everything should begin with the customers' needs in mind. Customer needs feed into a concept for how the railroad will operate, which informs its construction which, in turn, confirms design. This process is called the customer-operations-build-design (COBD) process and can be seen in Figure 11. COBD Delivery Model.



Figure 11. COBD Delivery Model

The COBD process begins with the operations and maintenance group. The operations and maintenance group ensures that the Program is capable of meeting its service level and customer expectations from the day of opening. Being accountable for the planning of efficient rail service operation is a complex task requiring early stage and continuous involvement in the planning, design, testing and delivery of the Program. The group's responsibilities include, but are not limited to:

- Consider the needs of riders and other customers to inform operations planning and overall service plan design.
- Coordinate with other railroad operators to deliver safe, efficient operation of train services on adjacent and/or shared railroad systems (e.g., Caltrain, Metrolink).
- Develop and maintain an operations plan that includes:

- The timetable to operate across the high-speed rail network.
- The processes and procedures to support operational delivery, including inspection, maintenance, renewals and upgrades required to meet the high-speed rail system's service level and customer expectations.
- Contingency arrangements to be implemented during periods of disruption.
- Identify key operational milestones that contribute to the delivery of the operating plan.
- Develop and maintain an asset maintenance and renewal plan, including recommendations on methodology, machinery required and location of facilities.
- Represent the viewpoint of an infrastructure owner and a train operator within the program delivery team before procuring the infrastructure provider and/or operating concessionaire.
- Assist in developing infrastructure provider and/or operating concession contract procurements.
- Assist in developing the asset management system from the perspective of an infrastructure owner.
- Provide the concept of operations, maintenance and renewal that will be used to inform the development of railway system performance specifications and subsequent design documents.

10.3 Planning for Operations Start-Up

Planning for the operational start of revenue service will follow the program planning direction and milestones set forth in the business plan with focus on establishing the scope and schedule details for service milestones. A Ridership and Revenue Forecasting report (Appendix G) was prepared for the Draft 2018 Business Plan.

As the construction progresses, the program management team will continue to monitor the schedules for critical high-speed rail business plan milestone years (including the first leg of the initial operating segment and passenger operations), which include testing, commissioning and start of service activities. This involves the integrated plans and schedules for bringing into service the track and systems elements, as well as operations and maintenance facilities, thereby completing the system commissioning milestone.

The ETO will advise and develop, with the Authority, the planning, design and implementation of the high-speed rail system. Engaging an operator in early decisions on safety, operations, equipment and systems, fare structures and schedules, as well as other commercial and operating elements will ensure that the system is designed to operate as a safe and successful enterprise once construction is complete.

It is intended that design, installation, integration and testing of the various system components will be supported by the technical requirements and performance specifications. As infrastructure elements, maintenance facilities, high-speed rail trains, etc., are built and ready for service, a skeleton management team and crew are employed to oversee and maintain this investment. Once a revenue start date is planned, the Program enters a new phase. A systems testing and operations start-up plan that outlines the transition from construction to operations will be provided at that time. It will be developed following a decision on the business model for operations and maintenance of the high-speed rail system.

The system testing will be performed by the systems providers to demonstrate that the systems, both as individual elements and as an integrated system meet the performance requirements – these tests are progressive testing throughout the implementation of the contracts and commence with factory type testing, factory simulation testing and continue in the field with installation testing, individual subsystem static testing and progressing to dynamic integrated testing of the systems at progressively increasing speeds up to 242 mph. These testing requirements are incorporated in the track and systems contract and the trainset contract documents.

The track and systems and the trainset contracts are planned to include 30 years of maintenance and the maintenance facilities for each contractor are provided and maintained by the respective contractor. The testing and commissioning of the maintenance facility is the responsibility of the contractors.

The stations will be procured under conventional design, bid, build contracts. In this case, the testing and commissioning of the building and equipment will be performed by the build contractor. The commissioning of the station operation for entry into passenger service will be carried out by the operator contractor.

10.3.1 Training

The staffing and training of personnel in preparation of revenue service operations is planned, and will be scheduled and executed. Some of the items that are included in this section of work include the following:

- Ticketing systems
- Staffing and hiring plan
- Training plan and schedule
- Station operations
- Staffing and security
- Service schedules
- Vehicle maintenance cycles to include cleaning, inspections, maintenance, etc.
- Simulated revenue service
- Revenue operations and fare collection

The track and systems and the trainset contracts are planned to include 30 years of maintenance. Both contractors are responsible for the recruitment, training and demonstration of competence for their staff. Similarly, the operator contractor is responsible for the recruitment, training and demonstration of competence for its staff (train engineers, train crews, station attendants. Operational staff will be qualified based on the job requirements and undergo technical training programs. The duration of each training program will depend on the education and experience level of the candidate. The training program for train crews and for operations supervisors will include railroad safety, accidents/incidents response, railroad operating practices, train driving hours, safety at work, new techniques / vehicles / component trainings; and will specifically address, as required, operator certification training (49 CFR Part 240 and Part 242); Operating Rules for operations employees (49 CFR Part 217.11); Drug & Alcohol training for supervisors (49 CFR Part 219.11 (g)); Emergency preparedness training (49 CFR Part 239.101); Radio communications (49 CFR Part 220); Railroad accidents and incidents (49 CFR Part 225); and GCOR Transportation. DB will establish a recertification program in accordance (49 CFR Part 240 and Part 242).

Training for facilities maintainers will include roadway worker protection, blue flag protection, radio communications, and accident/incident response.

10.3.2 Operations Planning with other Transportation Entities

Transportation providers in areas served by the Program are front-line stakeholders. Those providing connecting services and fulfilling last mile access are especially important partners, including bike-share, taxi and ride-hailing services, and walkable community planning organizations like CaliforniaWalks. Connecting service stakeholders include Amtrak and intercity rail lines, commuter rail services such as Metrolink and ACE, bus lines, transit providers, local transportation management agencies (TMAs), and freight operators. Caltrain/CHSR began Blended Operational Analysis began in March of 2012, we are reviewing long range forecasts to make our planning efforts consistent with the State Rail Plan. The current work is intended to result in a blended service plan which extends to 2040.

Southern California analysis continues under the “SCORE” banner, Southern California Optimized Rail Extension. This work includes all Southern California operators with BNSF confirming results by performing their own analysis. It is led by CalSTA and identifies opportunities for infrastructure improvements that support year 2030/2040 operations. Regular coordination meetings also occur with LA Metro on the Link US project to assure alignment of Authority needs with other operators.

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11 REAL PROPERTY PROGRAM

In compliance with federal and state mandates required by the California Property Acquisition Law and the Federal Uniform Relocation Assistance and Real Estate Property Acquisition for Federal and Federally Funded Policies Act of 1970, the Authority has developed policies and procedures for the appraisal, acquisition and management of real property. The Authority has also developed the Program's Right of Way (ROW) Manual, that includes policies and procedures for acquiring and managing property rights through purchase and easement, lease or other legal instruments including, when necessary, condemnation. These policies and procedures are utilized consistently throughout the Program.

In addition, other tools are available for internal reporting regarding right-of-way acquisition and management, including the Right of Way Data Exchange System (ROWDES), a database for managing every parcel touched or considered by the project for acquisition. ROWDES contains modules for each step of the acquisition/management process, including appraisals, acquisition, condemnation, costs, as well as other data. The data generated by ROWDES, in cooperation with another SQL database that performs calculations, supports the production of weekly reports.

11.1 Roles and Responsibilities

The ROW Manual defines the roles and responsibilities of the many entities involved in the acquisition process. The Real Property Program provides oversight in accordance with Government Code 13400, "State Leadership and Accountability Act". The program is managed from offices in the Sacramento headquarters and offices in the Central Valley regional office in Fresno, the Southern California regional office in Los Angeles and the Northern California regional office in San Jose.

The headquarters program staff consist of a Director of Real Property, a Principal Right of Way Agent (Deputy Director of Real Property), and dependent on program needs Supervising Right of Way Agents (Assistant Director of Real Property) and Senior Right of Way Agents.

The real property office in the Sacramento headquarters is responsible for the development of effective system of internal control including:

- An organization plan that provides segregation of duties appropriate for proper safeguarding of state agency assets.
- A plan that limits access to state agency assets to authorized personnel who require these assets in the performance of their assigned duties.
- A system of policies and procedures adequate to provide compliance with applicable laws, criteria, standards, and other requirements (Right of Way Manual).
- An established system of practices to be followed in performance of duties and functions (Right of Way Manual).
- Personnel of a quality commensurate with their responsibilities.
- An effective system of internal review.
- A technology infrastructure to support the completeness, accuracy, and validity of information processed.
- Relationships with federal and state agencies as well as stakeholders, including property owners and the public.
- Process all ROW financial claims and accounting for processing and payment.

The Regional Real Property staff is under the direction of the Director of Real Property, and consists of a Supervising Right of Way Agent (Assistant Director of Real Property), two Senior Right of Way Agents, and one Senior Surveyor.

The Fresno office's real property staff is responsible for:

- Oversight of ROW delivery (parcels delivered to the design-builders).
- Oversight of ROW consultant project management in support of appraisals, acquisition and delivery.

- Oversight of property management activities and excess land activities.
- Management of the right-of-way engineering contracts.
- Coordination with local agency partners.
- Coordination of DB issues, including ROW change requests, approved change orders and delivery to construction.
- Liaison with property owners and the public.

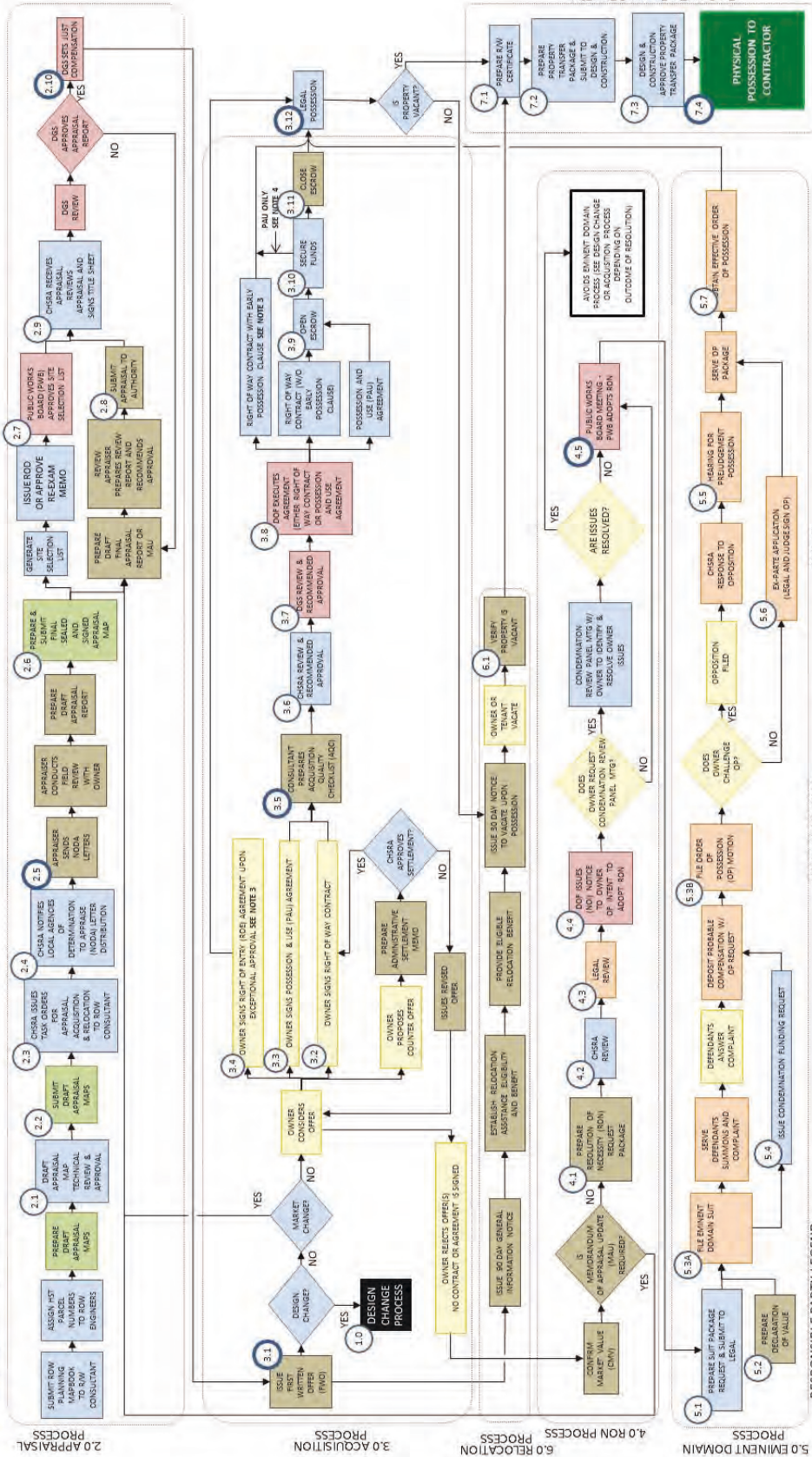
The DRP is assisted in its compliance efforts by various Authority divisions and State agencies:

Per the process flow charts outlined in Figure 12. Right of Way Acquisition Process, Figure 13. Design Change Process and Figure 14. Appraisal Update / Environmental Re-Examination Process outlines the steps where other state agencies have touch points in the process to appraise and acquire real property.

- The Deputy Director prepares and monitors the annual capital plan for submittal to Project Controls and Finance.
- ROW Contract Administration: Processes each financial claim forwarding to the financial office for processing and payment.
- Financial Office: Accounting receives ROW claims for payment, processes them in cooperation with Budgets and tracks the funds for each transaction by funding source and appropriation.
- ROW Regional Field Office: Certifies the right-of-way requirements of the DB contractors for right-of-way parcel map processing, manages the change order process and manages the engineering and surveying contractors who prepare parcel surveys, appraisal maps, legal descriptions, right-of-way line staking, resolution of necessity exhibits and condemnation exhibits.
- California State Public Works Board: Oversees fiscal matters associated with construction of projects for state agencies. Under the California Property Acquisition Law, the Public Works Board is authorized to approve real estate transactions. Before an offer of just compensation is approved, the Public Works Board reviews the project and its budget and makes an initial determination that the state has the legal authority to purchase the property in question. Every parcel acquired for the project is screened for compliance with federal grants, state bond provisions and state budget provisions.
- California Department of General Services (DGS), Real Property Services Section: Reviews and approves each parcel appraisal for just compensation prior to any written offer for acquisition. Upon execution of the parcel's right-of-way contract, the Real Property Services Section of DGS reviews and recommends approval.
- California Department of Finance (DOF), Capital Program Branch: Reviews and executes the right-of-way agreements for compliance with budgetary and project authority for the parcel acquisition under review.
- Caltrans, Legal Division: Provides legal review and representation for right-of-way contracts and performs legal services for cases of eminent domain. Property is secured through the Effective Order of Possession and final settlement for compensation may be settled in court or through a stipulated settlement.
- Right-of-Way team: The team consists of the RDP providing planning, budget for forecasting, database management, document control, contract administration, title searches, workflow and reporting services, ROW consultants providing appraisal and acquisition services, ROW engineering and surveyors providing surveying and mapping services.
- Right-of-Way consultant contractors: Performs right-of-way appraisal and acquisition services, including issuing initial letters to property owners (Notice of Determination to Appraise), conducts appraisals, issues the first written offers, conducts negotiations, prepares the administrative settlement memo, issues revised offers, establishes and provides relocation benefits and educates affected property owners about the benefits, prepares the acquisition quality checklist and prepares the memorandum of appraisal updates, the declaration of value and closes escrow and resolutions of necessity needed for the condemnation process.



RIGHT OF WAY ACQUISITION PROCESS



RESPECTABLE PARTY LEGEND

- CHSRA
- OWNER
- ROW ENGINEERING
- ROW ACQUISITION CONSULTANT
- CALTRANS LEGAL
- DOF, PWB and/or OSS

SYMBOL LEGEND

- Circle with number: CIRCLED NUMBER REPRESENTS A TASK OR MAILETODIE WHERE PROGRESS WILL BE TRACKED AND REPORTED
- Thick circle with number: THICK CIRCLED MAILETODIES WILL ALSO BE REPRESENTED ON THE CHSRA GIS SITE <http://gisportal.chsra.com/development/row/acq/>

NOTES

1. CHSRA WILL BE REQUIRED TO FILE A CONDEMNATION ORDER WITH THE SUPERIOR COURT OF CALIFORNIA IN THE COUNTY OF SAN DIEGO WITHIN 180 DAYS OF THE DATE OF THE ORDER OF CONDEMNATION.
2. IF THE PROJECT MAKES A PORTION OF ANY PARCELS THAT IS WITHIN CONDEMNATION JURISDICTION, LAND THE AUTHORITY BOARD IS REQUIRED TO MAKE CANCELLATION DETERMINATION ON THE PARCELS PRIOR TO DOING EXECUTING AN AGREEMENT.
3. LEGAL POSSESSION GRANTED AT SIGNING. MUST CLOSE ESCROW OR OBTAIN FINAL ORDER OF CONDEMNATION TO SECURE TITLE.
4. LEGAL POSSESSION GRANTED WHEN FUNDS ARE DEPOSITED. MUST CLOSE ESCROW OR OBTAIN FINAL ORDER OF CONDEMNATION TO SECURE TITLE.
5. ACQUISITION FROM GREAT VALUATION. MUST GOVERN TO PHYSICAL POSSESSION. TITLE TO PROPERTY MUST NOT BE SECURED BY TITLE OF PHYSICAL POSSESSION.

RIGHT OF WAY FLOW CHART VS.9.2.MMP

Figure 12. Right of Way Acquisition Process

APPRAISAL UPDATE / ENVIRONMENTAL RE-EXAMINATION PROCESS

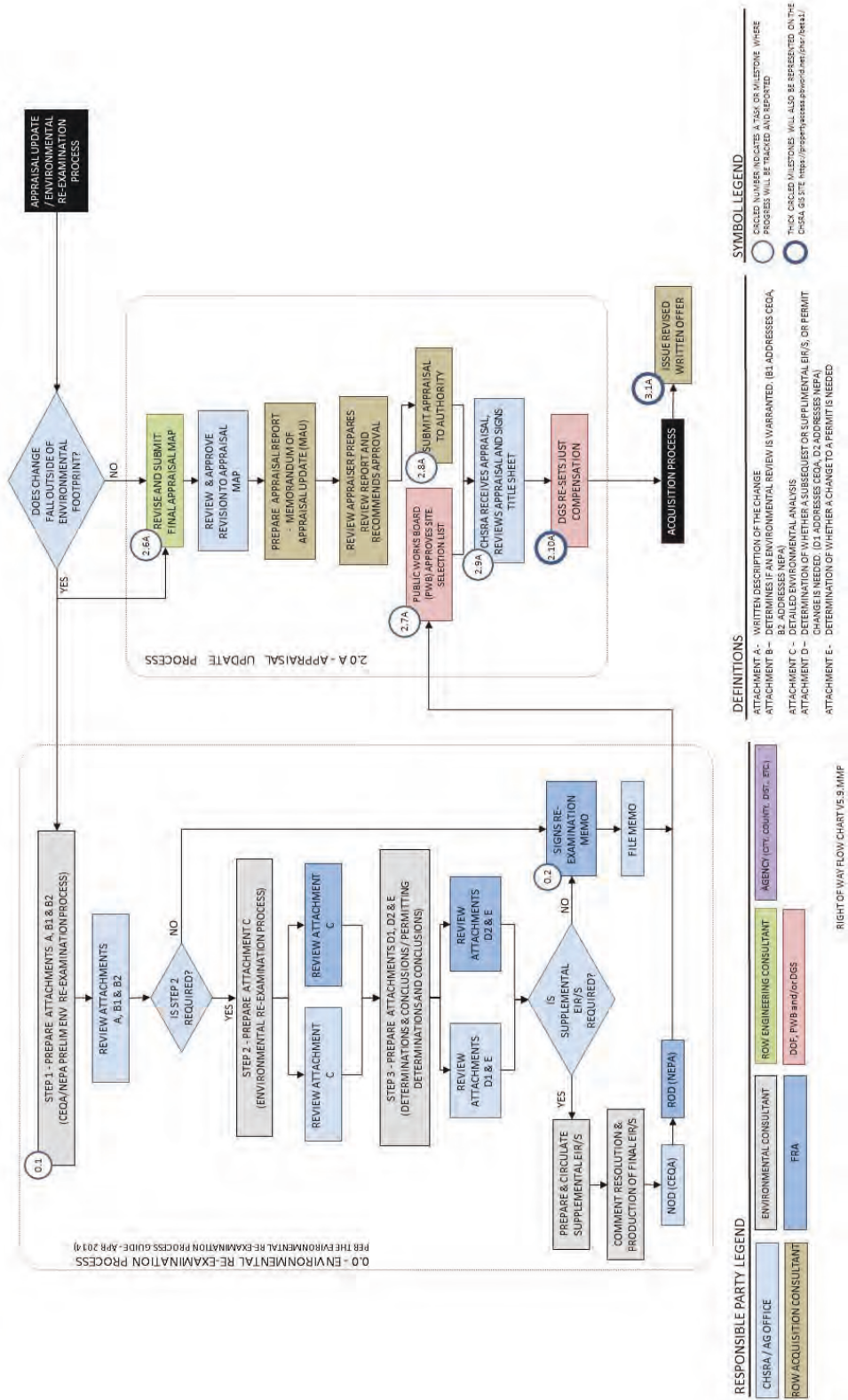


Figure 14. Appraisal Update / Environmental Re-Examination Process

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11.2 Right-of-Way Acquisition Plan

The Authority prepares a right-of-way acquisition plan for each project (divided into construction packages) once a preferred alignment has been identified and preliminary design has been completed. The acquisition plan gives priority to parcels needed for long-lead construction activities and parcels that may have complicated relocation management matters. This effort is led by the Authority's right-of-way Director or Real Property and the right-of-way contractors. The acquisition plan is supported by a right-of-way cost estimate based on preliminary engineering plans. Land values, improvements and damages for each property are considered in the development of the right-of-way estimate, which includes costs for temporary and permanent easements, utility easements and fee acquisitions along with a contingency for condemnation increments and settlements. Relocation expenses are also included in the estimate for those acquisitions involving displacements and/or personal property moves. Assumptions for business displacements and relocation payments are based on the right-of-way relocation plan.

The property acquisition schedule typically provides time to allow eminent domain proceedings to occur for certain parcels. The delivery contract includes anticipated possession dates for each parcel or group of parcels, and each DB contractor is required to schedule its activities around the acquisition plan. If delivery of any parcel is delayed, the DB contractor rearranges the schedule to work in other areas.

11.3 Property Management Plan

Maintenance and protection of property interests acquired in the name of the State of California are provided by the property acquisition agent until control of the property is transferred to the contractor. The property acquisition agent is required to maintain an inventory of real property and improvements acquired for the project. The inventory is updated when physical possession of the property occurs.

Property turned over to a DB is in the care and protection of the DB, per contract language. Excess parcels are under the care and protection of a property management contractor to protect the property from vandalism, encroachment or other misuse, as well as taking measures to verify public safety.

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12 SAFETY AND SECURITY

The Authority has developed and implemented a Safety and Security Management Plan (SSMP), attached as Appendix N, to formalize the management principles and strategies for determining safety and security risk acceptance throughout the Program's life cycle, from the design phase through the start of revenue service. This plan details safety and security activities and methods for identifying, evaluating, and resolving potential safety hazards and security vulnerabilities.

Safety and security are priority considerations in the planning and execution of work activities for the Program. System safety and security includes a hazard and vulnerability management process that incorporates the characteristics of planning, design, construction, testing, operational readiness and subsequent operation of the system to verify the safety and security of employees, contractors, emergency responders and the public. Successful management of safety hazards and security vulnerabilities is achieved by identifying and analyzing potential hazards and vulnerabilities and developing mitigation measures to reduce the risk to a level acceptable to the Authority. To achieve program-wide safety and security, proven technical standards are applied, many of which have been adopted from service-proven high-speed rail systems in Europe and Asia. In addition, U.S. transportation safety and security standards that comply with the most recent federal and state requirements are applied.

12.1 System Safety and Security

System safety and security management consists of an approach that incorporates federal, state and local requirements with industry best practices. The approach to safety and security management includes a definition of roles and responsibilities throughout the delivery team and the processes used for communication and action on safety and security matters. A key element is the formation by the Authority of safety and security committees whose members have the technical expertise and executive-level support to provide oversight, review and Authority approval of safety and security activities that could affect the Program's development and operation.

12.1.1 Safety and Security Management Plan

The SSMP describes the system safety and system security activities, responsibilities and verification processes to be applied during the planning, design, construction, testing and startup phases of the Program. In the absence of current FRA regulations governing the safety and security requirements of major capital projects, the plan closely adheres to the program requirements of FTA with adjustments made to accommodate the unique life cycle characteristics of the Program.

The SSMP formalizes the technical and management strategies for determining safety and security risk acceptance throughout the system's life cycle. The SSMP defines the process for identifying, evaluating and resolving safety hazards and security vulnerabilities associated with operations of the Program prior to the start of revenue service, including preliminary engineering, final design, construction, testing and start up. The provisions of the SSMP establish:

- The Authority's commitment and philosophy to achieve the highest practical level of safety and security for the staff of the Authority, consultants and contractors, emergency responders and members of the public.
- Process for managing safety and security activities intended to minimize the risk of injury and property damage and maximize the safety and security of the system's passengers, employees and stakeholders living and working along the alignment.
- Integration of safety and security functions and activities throughout the Program's development.
- Safety and security responsibilities of the Authority and the consultants responsible for design, construction and startup.
- Process for documenting and verifying safety and security activities.
- Process for monitoring project phases and activities to verify continued development and advancement of safety and security principles.
- Management processes and requirements for construction safety and security.

12.1.2 Hazard Management

The Authority has implemented a risk-based hazard management program to identify and assess safety hazards and security risks to enable the application of mitigation measures that reduce the risk to a level acceptable to the Authority. The program delivery consultant is responsible for analyzing safety and/or security risks as well as the corresponding mitigation measures, which are incorporated into the design criteria. The hazard management program also includes implementing and monitoring the safety and security certification program to verify that requirements pertaining to safety and security are included in the design, construction and implementation of the high-speed rail system.

12.1.3 Safety and Security Certification

The Authority's program for safety and security certification, included in the SSMP, describes the responsibilities and processes required to demonstrate that the system is safe and secure. This requirement, which includes every phase and project section of the Program, must be completed prior to the start of revenue operations. Based upon program requirements found in the FTA Handbook for Transit Safety and Security Certification, the applicable requirements include FRA Regulations 49 CFR 236, Subparts H and I for positive train control; draft FRA Regulations 49 CFR, Part 270 for system safety programs; and Transit Security Administration program requirements.

12.2 Construction Safety and Security

Construction safety and security is of vital importance in building the high-speed rail system. The contractor plays a key role in maintaining responsibility for safety and security, including adherence to all program requirements and compliance with local, state and federal regulations. Each contractor is required to develop a Safety and Security Management Plan that identifies how to achieve compliance with contract requirements, the Authority's SSMP and local, state, and federal regulations. The contractor must also develop for each job site a Site-Specific Health and Safety Plan and a Site-Specific Security Plan that identifies site-specific safety, health and security conditions and requirements pertaining to work-performed on each construction package.

The PCM also plays a key role in maintaining responsibility for safety and security within the Program. The Authority, with the assistance of the PCM, has oversight responsibilities for each contractor's construction safety and security program. As the Authority's primary representative regarding the management of the contractor's construction safety and security activities, each PCM develops and submits a Safety and Security Program Oversight Plan to the Authority describing the processes and procedures for providing oversight of contractor activities. The PCM is charged with overseeing contractor adherence to all program, contractual, local, state and federal regulations and requirements.

The contractor has the responsibility to provide employees, visitors and the public with a safe and healthy environment, and must demonstrate that effective mitigations are in place to reduce the risk of injury, illness and incidents on each project site. Overall, it is the contractor's responsibility to enforce safe work practices and conditions as required by regulatory agencies, their contract and the SSMP, and manage subcontractor adherence to local, state and federal regulations.

12.3 Security Strategy Implementation

The Authority's risk-based security strategy addresses the unique needs and characteristics of the Program. The security strategy includes:

- Coordination with federal, state and local security agencies.
- Security staffing program development, including sworn and unsworn security personnel.
- Evaluation and recommendations for security technology deployment.
- Identification and assessment of security requirements for design and operations.
- Negotiations with state and local law enforcement agencies to support the Authority's security program.

12.4 Regulatory Approvals

The Authority will manage compliance with the safety and security regulatory requirements of the jurisdictional agencies, including the FRA, California Public Utilities Commission (CPUC), California Office of State Fire Marshal and the U. S. Transportation Security Administration.

13 QUALITY MANAGEMENT SYSTEM

The Authority's Quality Policy emphasizes the importance of effective management of quality and performance on program delivery. The program-wide Quality Policy reflects a commitment to delivering an operating system on schedule and at the lowest possible cost—a system that meets industry and government standards. This commitment to quality is articulated in the following objectives, as noted in the Authority Master Quality Plan (Appendix K):

- Develop and implement quality management plans to promote performance excellence.
- Deliver quality work on time and within budget.
- Identify requirements and assign responsibility.
- Guide the development and implementation of procedures to meet requirements.
- Identify metrics to facilitate data-driven decisions.
- Identify and implement continuous improvement opportunities.

13.1 Organizational Requirements and Profile

The Quality Policy and the Master Quality Plan (Appendix K) implement a Quality Management System based on the following industry standards:

- National Institute of Standards and Technology Baldrige Excellence Framework (2015-2016).
- International Organization for Standardization 9001:2015 – Quality Management Systems Requirements.
- FTA Quality Management System Guidelines, Dec. 2012.
- CHSR Project and Construction Management Guidelines

The National Institute of Standards and Technology criteria, the International Organization for Standardization standards and FTA guidelines include seven criteria for a quality management system: organization, leadership, planning, operation, support, improvement, and performance evaluation.

The Authority has consolidated these seven criteria into a performance framework of the following: Leadership System, Workforce, Process and Results, and Continuous Improvement. The framework, shown in Figure 15. Program Application of National Institute of Standards and Technology Performance Excellence Criteria allows the quality management system to be developed and evaluated while taking the maturity level of the organization and its key processes into consideration. The four elements of the quality program are summarized as follows:

- **Leadership System:** Management commitment and accountability that implement activities to assess, support and lead a culture of quality. This includes ensuring that goals and daily work are aligned with the Program's mission, vision, and values, processes and procedures are adequate and support daily tasks, and that customer satisfaction is accounted for and documented.
- **Workforce:** An engaged and empowered staff that is competent and trained with clear roles and responsibilities and established methods of communication and collaboration.
- **Process and Results:** Established plans, procedures and processes that define required results and a consistent approach in evaluating results and documenting results and outcomes.
- **Continuous Improvement:** Ongoing assessment of processes, procedures and results to identify lessons learned and measures to improve implementation.



Figure 15. Program Application of National Institute of Standards and Technology Performance Excellence Criteria

13.2 Process and Results

Operations and key processes transform inputs into products and services that meet customer requirements and expectations. The Program has identified internal and external processes to manage quality work, provide quality oversight and continuously improve to meet goals and objectives. The systems in place to ensure compliance during final design and construction are intended to ensure suitability of the rail system for the required level of performance, and compliance with applicable and emerging high-speed rail regulations.

Project acceptance and certification within the Program is identified in a four-step process:

- Contract Acceptance;
- Systems Assurance Certification;
- Safety and Security Certification; and
- Quality Certification.

Contract Acceptance: DB contracts are structured to ensure multiple layers of technical review that begins with the contractor's QC/QA program and ends with the Authority's Due Diligence Check and Final Review. The Contract Manager for the Authority is responsible for ensuring that the terms and conditions of the DB contracts are met. The PCM Team provides oversight of the DB contract to ensure that it remains within scope, schedule, and budget. Contract Acceptance is the responsibility of the Contract Manager, who provides the affirmation that all contract requirements are met.

Systems Assurance Certification: System Assurance requirements are described in the Verification, Validation, and Management Plan (VVMP). The VVMP establishes the overall inputs, outputs and deliverables, methods and tools, and roles and responsibilities for each stage in the Program. Details on roles and responsibilities, tools and methods can be found in the VVMP. Readiness of the completed usable segments is confirmed through the process of verification, validation, and final acceptance of the

installed components of the CHSR system for performance and compliance with the requirements. This is followed by system performance testing and commissioning to confirm integration and safety certifications as the usable segment is completed.

Safety and Security Certification: Safety & Security Certification is required by the FRA prior to project acceptance. Certificates of Compliance for items listed in the contract must be submitted to the Authority Safety & Security team for review and acceptance. Specific safety requirements and processes are delineated in the Safety & Security Management Plan.

Quality Certification: Quality Certification is achieved when no outstanding quality related issues or non-compliance reports remain open at any level of the project and when quality records have been provided and accepted by the PCM and Authority. Issues and reports can be identified by the PCM, Authority, or by the DB contractor itself.

In addition to the certification process, the Authority implements quality requirements of design and construction at varying levels of oversight of the consultants and contractors responsible for conducting the work. Quality Control and Quality Assurance programs inclusive of sampling and testing requirements are implemented by the Design-Build Contractor per their documented quality plan and procedures. DB quality plans and procedures are required to be submitted to the PCM and Authority for review and approval.

The PCM is responsible for conducting quality oversight of the DB contractor's quality program in addition to implementing their own internal quality program. The PCM contract ensures that the DB contractor's quality programs are up-to-date and that the work is consistent with documented processes and procedures. PCM quality plans and procedures are submitted to the Authority for review and approval.

The Authority plays an additional oversight role of both contracts by conducting Quality Assessments of each of the PCM contracts to ensure that the PCM and DB quality programs are being implemented as required and that requirements are being met.

Part of the overall Quality Management System in place is the implementation of the Independent Assurance Program Plan and the Statistical Sampling and Testing Program Plan by the PCM contracts. The Independent Assurance Program Plan outlines the requirements to provide an independent and unbiased sampling and testing procedure used in construction material acceptance. The Statistical Sampling and Testing Program Plan describes the requirements to validate the quality of construction and materials.

13.3 Continuous Improvement

The program's continuous improvement approach acknowledges that through incremental changes an organization can become more efficient and effective at meeting its goals. Continuous improvement engages employees at all levels and encourages active contributions to the learning culture through small positive changes.

The tools and initiatives of the program-wide continuous improvement program include both internal process improvements and lessons learned, examples of which include the following:

- Internal process improvement for general process assessment and improvement, or for areas identified through the normal work process or through ongoing metrics measurements as needing to be improved.
- Lessons-learned process to implement the knowledge gained from improvement initiatives into the work processes and procedures.
- The "What's for Lunch?" program to encourage an environment of workforce focus with opportunities to support internal customers.
- Meetings between the quality manager and organizational units to update the group on quality developments and to follow up on any action items from prior meetings.
- As the continuous improvement program evolves and matures, the quality management system and the quality management plan are refined to reflect the program's current strategic challenges and opportunities. Accordingly, the quality management plan is a "living document."

13.4 Lessons Learned

As part of the continuous performance improvement program, the Authority works with the program delivery team to implement a lessons-learned program related to the systems used to develop and implement the projects comprising the Program. The lessons learned are communicated to the appropriate personnel in the Program via the lessons-learned procedure. The procedure includes the following:

- Description of the process used to identify lessons learned.
- Documentation and approval of the lessons learned.
- Verification that the lessons were provided to team personnel.
- Description of the archival process for storing and retaining lessons following their presentation to team members.
- Identification of actions undertaken in response to the lessons learned and verification that the actions have been implemented.

The lessons learned are focused on positive experiences that result in ideas that improve the Program, such as improved project efficiency and/or budget and schedule savings, as well as negative experiences that have produced undesirable results or unfavorable outcomes and will not be used again to prevent their reoccurrence. Potential actions that could result from the implementation of lessons learned include the following:

- Revising an existing policy.
- Writing a new procedure.
- Revising a standard.
- Issuing a new or revised specification.
- Improving a work process.
- Changing a contract's terms and conditions.

14 RISK MANAGEMENT PLAN

Risk management is a formalized set of processes, protocols and responsibilities providing a systematic approach to identify, evaluate, assess, document and manage risks that could jeopardize the success of the Program. Potential areas of risk include engineering, environmental, planning, right-of-way, procurement, construction, organizational, stakeholder, budget and schedule risk. The risk management plan has been developed under precepts that include:

- Final risk allocation options are the responsibility of the Authority.
- Risk management process meets the Authority's risk objectives.
- Risk management process results in a pragmatic assessment that balances the Authority's objectives with the construction industry's reasonable risk allocation issues and concerns.
- The objectives of the risk management plan are to:
 - Systematize the process by which the Authority responds to circumstances that could significantly delay, halt or increase cost on the project minimize differences between project plans and objectives.
 - Determine risks and costs of proposed project changes and identify project alternatives that satisfy the Authority's objectives and priorities.
 - Increase transparency regarding challenges to project plans and objectives - prepare internal and external information that is reliable, timely and relevant, providing the means to achieve an acceptable level of cost and schedule certainty.
 - Capture project opportunities - aid the identification, and ability to take advantage of, positive events quickly and efficiently.
 - Satisfy legal and regulatory requirements and meet the needs and expectations of other stakeholders - support efforts to ensure compliance with legal and regulatory requirements, identify risks of noncompliance and identify and manage challenges of particular importance to local communities and other stakeholders.
 - Rationalize allocation of resources - allow the project to deploy resources more effectively by identifying key drivers of Development and Delivery and provide the means to manage cost estimate contingency and schedule float, thereby reducing overall capital requirements and improving capital allocations.

To achieve these objectives, the following standards for risk management deliverables have been adopted:

- Deliverables are presented within a substantive, complete and appropriate engineering or project management context.
- Deliverables are quantified, fully integrated, traceable, consistent and compatible with findings or stated facts.
- Risk management deliverables that are qualitative in nature are properly structured and clearly identified with respect to authorship.
- Material analytic results of risk analysis are capable of withstanding independent assessment or reproduction using disclosed methods and assumptions that generate similar analytic findings within an acceptable degree of imprecision or error.
- Funding agencies can assess whether it is appropriate to question the adequacy, accuracy and completeness of third-party data, information, modeling or analysis.

The Risk Management Plan (Appendix L) seeks to balance the competing demands of scope, time, cost, quality, resources and risk to most successfully deliver the Program. The risk management plan describes the risk management organization, roles and responsibilities, and processes in greater detail.

Risk is reduced even further by requiring operators, infrastructure providers and contractors to accept risk directly through their contract agreements with the Authority. In addition, risk management specialists, both at the Program and the project levels, identify key potential risks and develop mitigation plans in advance of their possible occurrence. Risk-related items and actions are documented in the risk register for the Program. Individual risks are updated as new information is developed and project specific risk registers are reviewed and updated quarterly. The registers are reviewed by management at stipulated intervals per contract requirements and response strategies and actions for individual risks, as well as for overall program risks, are integrated into a consolidated plan. This plan includes:

- Monitoring and controlling risks by implementing agreed-upon actions.
- Regularly reviewing changes in program risk exposure.
- Identifying additional risk management actions as required.
- Assessing the effectiveness of the Program.

Quantitative assessments of risks in the risk registers also serve as the primary input for Monte Carlo and sensitivity analyses, which are conducted to evaluate the project or program-wide cumulative risk exposure together with the probability of particular cost and schedule outcomes.

Appendix A REFERENCED PLANS, POLICIES AND PROCEDURES

- Draft 2018 Business Plan
- California High-Speed Train Project: Urban Design Guidelines
- Confirmation of and Delegation of Authority for Design-Build Construction Packages
- Design Criteria Manual
- Design Variance Guidelines
- Design-Build Contract Change Order Management Procedure
- FTA Handbook for Transit Safety and Security Certification
- Program Controls Plan
- Project Design Criteria Manual Chapter 14 Stations
- Quality Policy
- Small-Business/DBE Program
- Station Area Parking Guidance Technical Memorandum
- Technical Memorandum 0.1 Preliminary Engineering for Project Definition Guidelines
- Technical Memorandum 0.1.1 Preliminary Engineering for Procurement Guidelines
- Technical Memorandum 0.3 Basis of Design Policy
- Technical Memorandum 0.9 Process to Support Development of a CHSTP Rule of Particular Applicability
- Technical Memorandum 100.07 Value Engineering Implementation Plan
- Technical Memorandum 200.06 Aesthetic Guidelines for Non-Station Structures
- Technical Memorandum 200.07 Aesthetic Review Process for Non-Station Structures
- Title VI Program Plan
- Verification Validation and Self-Certification Procedures
- Vision California

Referenced plans, policies, procedures, project plans and DB contractor plans are available upon request.

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Appendix B STATION AREA PLANNING GUIDANCE AND RESEARCH DOCUMENTS

Authority Guidance	Information Provided
Current Documents	
1 HSR Station Area Development Policies (May 2008)	As noted earlier, these policies were approved by the Authority Board of Directors in May 2008. This document says the Authority will utilize its resources, both financial and otherwise, to encourage specific development patterns listed in the policy for land use development in and around its stations.
2 Vision California (Jan. 2009 – Jun. 2010)	An effort to explore the critical role of land use and transportation investments in meeting the environmental, fiscal and public health challenges facing California today and in the future. New modeling tools were applied to formulate and compare scenarios for how California can accommodate growth based on policy decisions and development patterns.
3 HSR Station Area Development: General Principles and Guidelines (Feb. 2011)	As part of the Bay Area to Central Valley Program EIR/EIS, the Authority developed general principles and guidelines for station area development. As directed by the Executive Committee in August 2010, this document was shared with regional agencies, transportation agencies, all the cities slated to potentially have HSR stations, and other organizations and agencies. Written comments were received by 35 entities. An updated version of the document based on the feedback received was presented to the Authority Board of Directors in February 2011. Station area development principles include, but are not limited to, the following features: transit-oriented and higher density development; a mix of land uses and housing types; a grid street pattern; compact, pedestrian-oriented design; context-sensitive building design; and limited amounts of vehicular parking. The primary ways in which the Authority can help ensure that the HSR system becomes an instrument for encouraging maximizing implementation of station area development principles include: <ol style="list-style-type: none"> 1. Select station locations that are multi-modal transportation hubs, preferably in traditional city centers. 2. Adopt HSR station area development policies that require TOD, promote value capture at and around stations as a condition for selecting a HSR station site. 3. Provide incentives for local governments in which potential HST stations would be located to prepare and adopt station area plans, amend city and county general plans and encourage TOD in the vicinity of HSR stations.

	Authority Guidance	Information Provided
4	California High-Speed Train Project, Urban Design Guidelines (Mar. 2011)	A comprehensive planning guide that provides domestic and international examples of station area design, urban design and transit-oriented development. This guide includes simple diagrams that analyze and explain successful public places and how each promotes livability and transit use. Urban design implemented around high-speed rail stations can encourage destination stations and enhance the value of the surrounding community. The report is intended to be used by cities and communities throughout the state as they work with their stakeholders and residents to create a vision for their high-speed rail station areas.
5	Technical Memorandum Station Area Parking Guidance (Jul. 2011)	Defines appropriate station area parking to be evaluated for the draft project-level environmental documents. As such, this technical memorandum defines the maximum possible footprint without considering how changes in local land use and transit connectivity can influence parking demand. This technical memorandum explains the desired parking approach, including cost and layout, along with the process for implementation, including Authority, local and private-sector responsibilities.
6	Technical Memorandum 200.06, Aesthetic Guidelines for Non-Station Structures (Dec. 2011)	Provides aesthetic guidance for the planning, design, detailing, material selection and construction of structural elements other than stations, including viaducts, bridges, tunnel portals and retaining walls. The design of these elements will require collaboration among planners, engineers, architects and community stakeholders to ensure consistently high aesthetic standards for high-speed rail structures.
7	Technical Memorandum 200.07, Aesthetic Review Process for Non-Station Structures (Mar. 2014)	Establishes a process to facilitate consultation between the Authority, its representatives and local jurisdictions on aesthetic decisions. The outcome of this process is a clear expression of local aesthetic preferences that will inform procurement documents. This process benefits the Authority by fostering greater understanding at the local jurisdiction of the scope of work and by supporting the delivery of all parties' expectations.
8	Technical Memorandum 0.1 Preliminary Engineering for Project Definition Guidelines (Mar. 2015)	<p>This document provides design guidance for a minimum level of engineering required to support the project-specific EIR/EIS process. It defines design elements, development level and engineering outputs with the objective of providing a consistent approach in developing preliminary engineering documents to a level that supports the identification of an inclusive environmental envelope. Previous documents that were incorporated include:</p> <ul style="list-style-type: none"> • TM 0.1 R02 15% Design Scope Guidelines

	Authority Guidance	Information Provided
9	<p>Design Criteria Manual, Chapter 14 Stations Rev 2 (Mar. 2016)</p>	<p>Presents station and support facilities design principles and goals as well as space requirements, passenger amenities, station performance, circulation, connections and safety and security for preliminary and final station design. The intended use of this chapter relates to stations dedicated to high-speed rail, as well as facilities shared in existing stations with other transportation agencies, owners and operators. Because station ridership is expected to increase over time, not all functions referenced in this document will be included in all initial station programs; instead, construction will occur in a staged or phased manner as the high-speed rail system expands. This chapter incorporates and consolidates data from the following previous documents:</p> <ul style="list-style-type: none"> • TM 2.2.2 R01 Station Program Design Guidelines • TM 2.2.3 R00 High-Speed Train Passenger Station Site Design Guidelines • TM 2.2.4 R01 High-Speed Train Station Platform Geometric Design • TM 2.2.5 R00 High-Speed Train Station Descriptions • DCM CP4 R00 CH 14 Stations • NTD 013 Station and Platform Track Layout
10	<p>California High-Speed Rail Authority Sustainability Policy (Jul. 2016)</p>	<p>Approved by the Authority Board of Directors in March 2016 and signed by the CEO in July 2016, the updated Sustainability Policy states that the Authority will deliver a sustainable high-speed rail system for California that serves as a model for sustainable rail infrastructure. The Authority has developed and will continue to implement sustainability practices that inform and affect the planning, siting, designing, construction, mitigation, operation, and maintenance of the high-speed rail system. One of the objectives of the policy is to encourage compact, walkable land development around transit stations. One of the sustainability priorities is Station Communities and Ridership, which refers to collaborative planning activities that promote transit-oriented development and sustainable land use decisions that will help bring riders into the system. Additional objectives, strategies, and principles are included that correspond to Station Communities and Ridership and multimodal system access.</p>

Authority Guidance	Information Provided
<p>11 Station Deliverables for PEPD and Environmental Documents (May 2016)</p>	<p>Defines station planning deliverables for use in Preliminary Engineering for Project Definition (PEPD) deliverables and project-level draft environmental documents produced by the HSR regional teams. Clarifies how to develop conceptual station plans based on the guidance provided in Technical Memorandum 0.1 and Project Design Criteria Manual, Chapter 14 Stations, and how to use one set of station deliverables consistently for the regional teams' work products in Volume 1, Chapter 2: Alternatives of the project-level draft environmental documents and in the PEPD deliverables. Originally released May 27, 2016, an updated version is currently being reviewed for approval that clarifies direction, defines how to incorporate non-HSR stations into project deliverables, and aligns guidance with current practice. Previous documents that were incorporated include:</p> <ul style="list-style-type: none"> • NTD 002 Guidance on Functional Station Design to Support the Environmental Documents
<p>Forthcoming Documents</p>	
<p>1 Station Deliverables for PEPD and Environmental Documents, Version 2</p>	<p>An updated version of the May 2016 document is currently being reviewed for approval that clarifies direction, defines how to incorporate non-HSR stations into project deliverables, and aligns guidance with current practice.</p>
<p>2 Design Opportunities for Local Jurisdictions and Aesthetic Requirements</p>	<p>Currently under consideration with the Authority's leadership team, this document identifies which types of non-station elements are eligible for aesthetic treatment options and provides examples of different aesthetic treatment options. The document also identifies which entity makes decisions on HSR system elements and local infrastructure elements associated with HSR and provides local jurisdictions with information on the Authority's design review process for this infrastructure.</p> <ul style="list-style-type: none"> • Note: When this document is approved and adopted by the Authority's leadership team, it will supersede Technical Memorandum 200.06: Aesthetic Guidelines for Non-Station Structures and Technical Memorandum 200.07: Aesthetic Review Process for Non-Station Structures.

Authority Guidance	Information Provided
<p>3 California High-Speed Rail Statewide Vision Plan for Stations</p>	<p>To develop an “identity” for the California high-speed rail system, ahead of branding and private operators developing their own materials, the Authority retained a team of architects to develop a vision plan for the entire system. In addition to updated visuals and illustrations of the California high-speed rail experience, the team developed sustainability metrics and detailed analyses of elements such as photovoltaics for system use, vegetation options for system-wide revegetation (all native), a kit of parts approach to the elements of future high-speed rail stations and a video messaging the importance of high-speed rail stations as economic generators for communities, jobs, systemwide network integration and the experience of riding high-speed rail. This work is scheduled to be revealed in 2018.</p>
<p>4 HSR Station Area Access Policy</p>	<p>A comprehensive assess policy to guide investments non-automobile access modes, inform decisions and actions during planning and development phase, develop criteria on how the Authority will evaluate alternative investments, set priorities and form partnerships, produce a more robust portfolio of modal investments. It will look to set priorities for investments that balance multimodal access to stations and address network gaps, optimize HSR access investment needs by leveraging investment by others I (e.g., shared parking), encouraging private sector development; seeking grant funding, and phasing investments to support changing HSR access demands, highest and best land use, and new technologies.</p>
<p>5 Design Criteria Manual, Chapter 14 Architecture Rev 3</p>	<p>Presents station and support facilities design principles and goals as well as space requirements, passenger amenities, station performance, circulation, connections and safety and security for preliminary and final station design. The intended use of this chapter relates to stations dedicated to high-speed rail, facilities shared in existing stations with other transportation agencies, owners and operators, and operations and maintenance facilities. Because station ridership is expected to increase over time, not all functions referenced in this document will be included in all initial station programs; instead, construction will occur in a staged or phased manner as the high-speed rail system expands. This chapter incorporates and consolidates data from the following previous documents:</p> <ul style="list-style-type: none"> • DCM Chapter 14 Stations Rev 2 • TM 5.1 R00 Terminal and Heavy Maintenance Facility Guidelines • TM 5.1 R01 Summary of Requirements for O&M Facilities • TM 5.3 R00 Summary Description of Requirements and Guidelines for: Heavy Maintenance Facility (HMF), Terminal Layout/Storage & Maintenance Facilities & Right-of-Way Maintenance Facilities • DCM CP4 R00 Chapter 15 Support Facilities

	Authority Guidance	Information Provided
6	Design Criteria Manual, Chapter 34 Sustainability	<p>Developed based on existing policies and procedures to deliver the Authority's goals for net-zero facilities and a system run on renewable power. Among others, the following policy-level documents are informing this chapter of the design criteria manual:</p> <ul style="list-style-type: none"> • POLI-PLAN-02 Strategic Energy Plan • POLI-PLAN-03 Sustainability Policy • POLI-PLAN-09 Renewable Energy Policy • Sustainability MOU
	Authority Research	Information Provided
1	Transit-Oriented Development for High-Speed Rail (HSR) in the Central Valley, California: Design Concepts for Stockton and Merced (Jul. 2008)	<p>This report, prepared by University of California Berkeley with the support of the Authority, examines the potential for transit-oriented development around high-speed rail stations in the Central Valley. The report focuses on proposed stations sites in the Northern San Joaquin Valley cities of Stockton and Merced, and presents planning approaches and design concepts for land use, urban design and multimodal access and circulation in and around the proposed high-speed rail station areas.</p>
2	Transit-Oriented Development Design Proposals for Fresno (Jun. 2010)	<p>This report, prepared by University of California Berkeley with the support of the Authority, presents a detailed analysis of the proposed high-speed rail station area in downtown Fresno, and proposes illustrative urban design concepts meant to increase density and create a pedestrian and transit friendly environment in the vicinity of the station. The proposed urban design strategies address issues ranging in scale from regional growth and transportation patterns to detailed street and building design concepts, promoting multimodal transportation and sustainable building design.</p>
3	SPUR Report, Harnessing High-Speed Rail (Sep. 2017)	<p>The Authority contracted with the San Francisco Bay Area Planning Urban Research Association (SPUR) to advance a study on ways to leverage the development of high-speed rail in California. This followed an initial study in 2011 about what the state should do to ensure it is fully utilizing and creating smart growth with one of its major climate change investments, high-speed rail. The report built on work conducted with station area planning stakeholders, including city staff, to identify what is needed to fully realize the new transportation system serving the people of California. A series of recommendations were developed that are consistent with themes from the Authority's Transit-Land Use Committee, Station Area Plans, and work with its stakeholders.</p>

	Authority Research	Information Provided
4	<p>Understanding Future Access/Egress for High-Speed Rail Stations</p>	<p>This report, currently being prepared by Caltrans Division of Research, Innovation and System Information with the support of the Authority, will inform Caltrans and the Authority of best practices for integrating high-speed rail with existing and future modal uses (including, but not limited to intercity/commuter/regional rail systems, shared mobility, and active transportation modes), and planning for appropriate parking based on modal share for shared modes, as well as leveraging opportunities for shared parking, managed in real-time. Literature review, expert interviews, user surveys, model development and stakeholder workshops are included in the scope of work. The report is expected to be completed by the end of 2019.</p>

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Appendix C ENVIRONMENTAL GUIDANCE DOCUMENTS

Authority Guidance		Information Provided
Environmental Methods		
1	Environmental Methods Version 5 (Rev. Apr. 2017)	Describes the methodology for conducting investigations and analyzing potential environmental and community impacts, preparing the content of an EIR/EIS, compiling and producing the EIR/EIS Volume 1 document and the Volume 2 Appendices for high-speed rail projects.
2	Environmental Methods Version 5 RSA Dimensions (Jun. 2014)	Table that identifies the resource study area dimensions for evaluating environmental resource impacts.
3	FRA Procedures for Considering Environmental Impacts (May 1999)	Describes procedures adopted by the FRA that governs the agency's compliance with NEPA and related environmental and historic preservation laws and regulations.
4	Additional Guidance for Determining Impact Significance under NEPA (Sep. 2016)	Authority memo on determining impact significance under NEPA.
5	Determining NEPA Significance (Apr. 2017)	FRA memo that provides additional guidance on determining impact significance under NEPA.
6	Agricultural Lands Methodology (Aug. 2016)	Updated methodology for evaluating impacts to agricultural lands.
7	Agricultural Lands Methodology for Mitigation Calculation (Jun. 2016)	Presentation describing methodology for impact analysis and mitigation calculations for agricultural lands impacts.
8	Alternative Analysis Methods for Project Level EIR/EIS (Jan. 2011)	Provides background and establishes the process and considerations to be employed when conducting the alternatives analysis (AA) for the high-speed rail alternatives.
9	Guidance for Preparing Environmental Reviews for Electrical Interconnections (Apr. 2016)	Provides direction for incorporating utility improvements into the project description, environmental impact analyses, mitigation measures and other aspects of the Authority's environmental documents.
10	Guidance for Preparing Environmental Reviews for Geotechnical Investigations (Aug. 2016)	Describes the methods for completing CEQA and NEPA review for the Authority's and FRA's geotechnical investigations.
11	Guidance for Evaluating Environmental Issues for Interim End of Line Facilities (Jun. 2017)	Describes the types of issues that need to be considered when preparing an environmental analysis for interim end-of-line stations.
12	Guidance for Preparing Staff Recommended Preliminary Preferred Alternative (Jun. 2017)	This document presents guidance for the Staff Report: Preferred Alternative. This staff report is one part of the package of materials submitted to the Board of Directors for concurrence on a staff-recommended preliminary preferred alternative.

	Authority Guidance	Information Provided
13	Impact Avoidance and Minimization Features (Rev. Mar. 2017)	Describes the impact avoidance and minimization features adopted by the Authority that will be implemented as part of project design to reduce environmental impacts.
14	Standard Mitigation Measures (Rev. Apr. 2017)	Describes standard high-speed rail mitigation measures for impacts to air quality, noise, biology, hazardous materials, safety and security, socioeconomics, land use, agricultural land, parks and recreation, aesthetics and visual resources, cultural resources, historic architecture, paleontological, and transportation.
15	Authority Noise and Vibration Mitigation Policy (Rev. Apr. 2017)	Provides an update to the Authority's noise and vibration mitigation policy, taking into account an adjustment in the cost to benefited residence.
16	Environmental Re-Examination Guidance (Apr. 2014)	Contains a series of documents, including an annotated outline, CEQA and NEPA determinations, the re-examination process and templates for the report.
17	Project Environmental Document Style and Preparation Guidelines (Apr. 2017)	Provides definition of terms and grammatical usage for high-speed rail environmental documents, styles and formatting procedures for publishing high-speed rail environmental documents.
18	Environmental Administrative Record Guidance (Jan. 2016)	Identifies and explains the high-speed rail practices and requirements for documenting and filing work by Authority staff, the RDP and regional consultants on individual project sections that are part of the high-speed rail system.
Quality Review Process		
19	Environmental Document Quality Review Process (Apr. 2017)	Describes the review process for Authority environmental documents, technical reports, and federal and state permit documents that must be approved prior to issuance of a Notice of Determination (NOD) and Record of Decision (ROD).
20	Environmental Document Quality Review Flow Chart (Apr. 2017)	Illustrates the process flow and timelines for conducting the high-speed rail and FRA review process.
21	Environmental Quality Review Checklists	Forms used to evaluate EIR/EIS sections based on criteria applicable to each technical section and compliance with the high-speed rail methodology.
22	Environmental List of Technical Reviewers (May 2017)	Identifies Authority, legal and other staff responsible for conducting technical reviews of EIR/EIS chapters and sections that comprise the Authority's environmental documents.
23	Document Tracking System Memo (May 2017)	Describes the Authority and FRA process for conducting EIR/EIS document review.

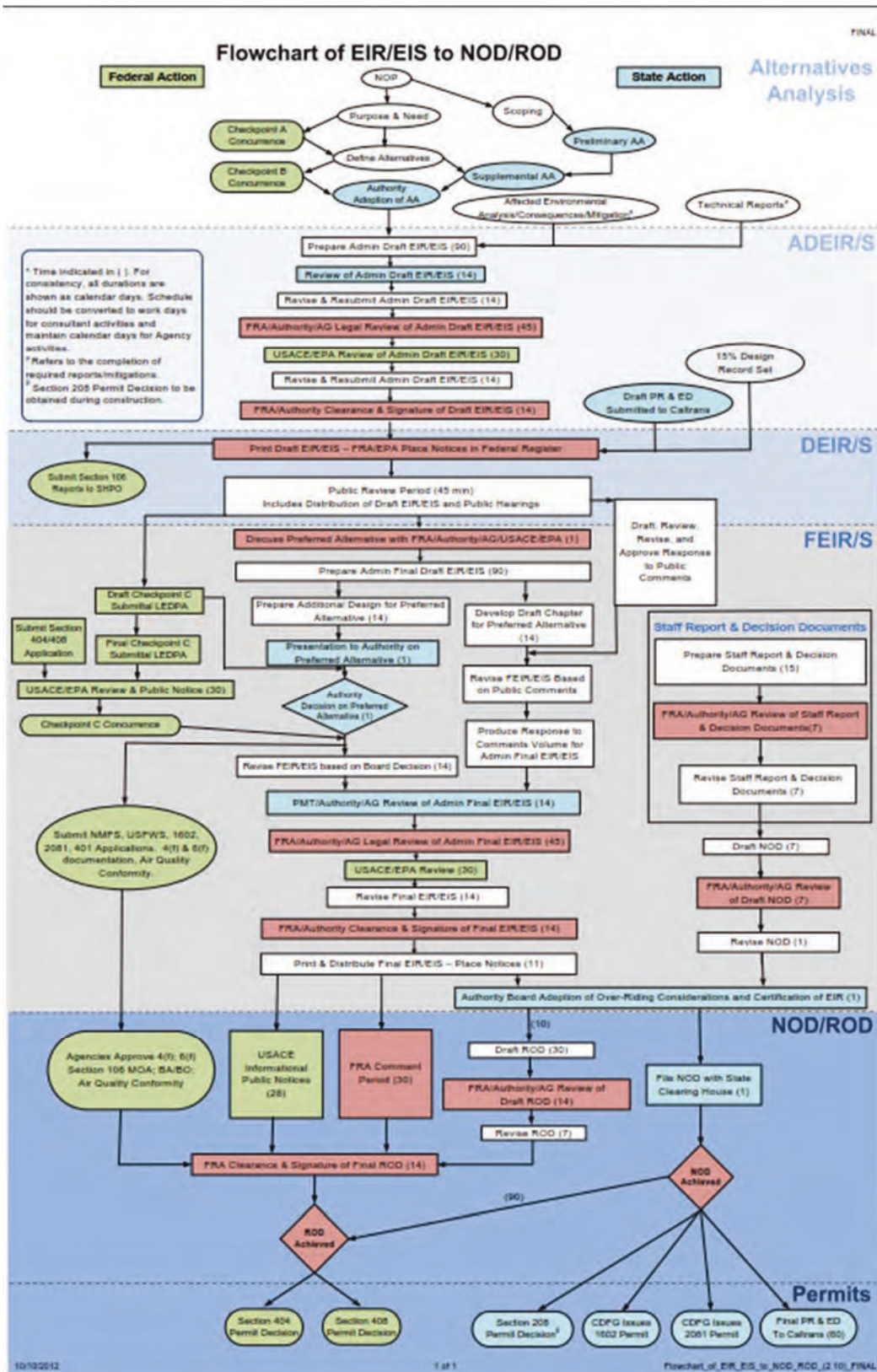
Authority Guidance		Information Provided
24	EIR/EIS Comment Review Matrix (Jun. 2017)	Spreadsheet template used for tracking consultant response to Authority, legal and FRA comments on draft EIR/EIS chapters and sections that comprise the Authority's environmental documents.
Technical Documentation		
	Environmental	
25	Environmental Technical Guidance Catalog (Jun. 2014)	A compilation of technical guidance and data on high-speed rail design and operations, station and station area planning, environmental analysis, regulatory permitting, right-of-way acquisition and other aspects of the program.
26	Cultural Resources Guidance	Identifies where high-speed rail Section 106 compliance is integrated with NEPA and CEQA compliance, from initiation of environmental studies to the ROD/NOD; lists documentation required by the Authority, FRA and SHPO; describes interim deliverables; and supplies a deliverable schedule that establishes sequence, durations and responsible parties.
27	National Historic Preservation Act Section 106 Programmatic Agreement (Jul. 2011)	The Programmatic Agreement among the FRA, Advisory Council on Historic Preservation, SHPO and the Authority regarding compliance with Section 106 of the National Historic Preservation Act as it pertains to the program.
28	State Water Resources Control Board MOU (Jan. 2017)	MOU between the Authority and SWRCB to achieve expedited preparation, consideration and issuance of Clean Water Act Section 401 water quality certifications.
29	NEPA/Section 404/Section 408 Integration MOU (Dec. 2010)	MOU among the FRA, the Authority, EPA, and USACE to facilitate compliance with NEPA, the Clean Water Act (CWA) Section 404 and the Rivers and Harbors Act Section 408 for the EIS documents.
30	NEPA/Section 404/Section 408 Data Needs Guidance (May 2013)	Guidance describing the USACE's data needs for Section 404 and Section 408 permitting requirements.
31	NEPA/Section 404/Section 408 Permitting Process (Aug. 2016)	Additional USACE guidance regarding the approval process for design-build construction.
32	NEPA/Section 404/Section 408 Checkpoint B Annotated Outline (May 2014)	Guidance for preparing Checkpoint B (Range of Alternatives) consistent with USACE guidance.
33	CHSTP EIR-EIS Assessment of CHSTP Alignment EMF Footprint (2012)	Technical memo setting out the methodology for conducting EIR/EIS electromagnetic interference/electromagnetic field assessments.

Authority Guidance	Information Provided
34 Draft Environmental Approvals and Permitting Guide (Oct. 2011)	Outlines the procedures for the environmental approvals required prior to construction bidding advertising for the proposed high-speed rail sections. Includes responsibilities, general process, and strategies to modify permits. Provides overview of environmental compliance activities and timing of approvals and permits.
35 Environmental Compliance Program Manual and Appendices (Sep. 2015)	Technical manual for monitoring environmental compliance during construction targeting the environmental scientists and engineers implementing the program. Key elements are the policies, inspections and monitoring, commitment tracking in the Environmental Mitigation Management and Assessment (EMMA) program, contract review, training and education, and adaptive management.
36 GIS Guidance and Standards (Oct. 2015)	Contains the established standards and practices adopted by the Authority for managing geographic information system data. Addresses the use of metadata, standards for data delivery, mapping standards and administrative record requirements.
Engineering	
37 Technical Memos	Includes more than 90 technical memos addressing the approach, regulations, methods and standards associated with designing the high-speed rail system.
38 Summary of Requirements for Operations and Maintenance of Facilities (Apr. 2013)	Provides a comprehensive list of requirements for operations and maintenance facilities throughout the implementation of the high-speed rail system. The goal is to better inform decisions regarding engineering and environmental clearance.
Planning	
39 HSR Station Area Development: General Principles and Guidelines (Feb. 2011)	Sets out principles and guidelines for high-speed rail station area development. Station area development principles include, but are not limited to, the following features: transit-oriented and higher-density development; a mix of land uses and housing types; a grid street pattern; compact, pedestrian-oriented design; context-sensitive building design; and limited amounts of vehicular parking.
40 Urban Design Guidelines (Mar. 2011)	Considers the role of the station in the overall community, describes the principles of transit-oriented development, and presents urban design techniques to integrate high-speed rail into the community that include establishing access influence zones, complete streets, integrating with local transit and wayfinding.
Outreach and Participation	
41 Guidance for Multi-lingual Public Outreach (Jul. 2009)	A technical memorandum setting out methods for multi-lingual outreach.

Authority Guidance	Information Provided
42 Private Property and High-Speed Rail	Provides links to guidance documents (in English and Spanish), frequently asked questions, permit to enter process, relocation assistance program (simple Chinese, Hindi, Spanish, traditional Chinese).
43 Title VI Program	Provides description of the Title VI Program, including Limited English Proficiency and Environmental Justice policies, plans and reports.
44 Tribal Relations Program	Describes the Authority's tribal relations program and includes links to policy, guidance, fact sheets, the Section 106 Programmatic Agreement, and dates of the Authority/Caltrans Joint Tribal Listening Sessions.
45 Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) Publication and Public Outreach Guidance (June 2017)	Provides specific direction to the outreach and environmental teams for preparing and executing the work elements that precede and include the public hearing for the Draft EIR/EIS and the procedures for handling and addressing public comments.
Green Practices & Sustainable Operations	
46 California High-Speed Rail Authority Sustainability Policy (Jul. 2016)	Describes the sustainability policy for the program, summarizing the Authority's sustainability objectives and specific sustainability commitments.
47 High-Speed Rail Operations and Renewable Energy	Includes report on the use of renewable energy, a strategic energy plan, the MOU between the California Energy Resources Conservation and Development Commission and the Authority, and a call to industry for guidance on achieving 100 percent renewable energy.
48 Agricultural Conservation and Preservation	Includes the agreements and settlements regarding the preservation of agricultural and open space lands along the high-speed rail corridor. Agricultural white papers, memos and letters also are included.
49 California High-Speed Rail Sustainability Report (Dec. 2017)	An annual report in accordance with the Global Reporting Initiative G4 Core Reporting Guidelines that will be updated annually.
Work Templates	
50 Environmental Technical Report Templates	Includes the templates for 20 technical reports required for particular EIR/EIS technical sections.
51 EIR/EIS Chapter/Section Templates	Provides templates for the EIR/EIS chapters and sections, signature page, appendix, cover, webpage introduction and high-speed rail consistency checklist.

	Authority Guidance	Information Provided
52	Environmental Document Report Cover Templates: <ul style="list-style-type: none"> ▪ Bakersfield F Street Station Alignment ▪ Bakersfield to Palmdale ▪ Burbank to Los Angeles ▪ Central Valley - Wye ▪ Fresno to Bakersfield ▪ Los Angeles to Anaheim ▪ Los Angeles to San Diego ▪ Merced to Fresno ▪ Palmdale to Burbank ▪ Sacramento to Merced ▪ San Francisco to San Jose ▪ San Jose to Merced ▪ Statewide 	Provides templates for the high-speed rail project sections in 8.5x11 and 11x17 formats.
53	Graphic Templates: <ul style="list-style-type: none"> ▪ Illustrations ▪ Logos ▪ Maps ▪ Photographs 	Provides templates for illustrations, logos, maps and photographs.
54	Typical Section Illustrations	Provides 62 typical section illustrations for high-speed rail project section design features.

Appendix D FLOWCHART OF EIR/EIS TO NOD/ROD



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Appendix E PROGRAM-WIDE SPECIALIZED ENVIRONMENTAL EXPERTISE

Program-wide Specialized Environmental Expertise		
Position	Activities	Roles and Responsibilities
Cultural Resources Manager	Thought Leadership	Responsible for Cultural, Archaeological and Historical Resources strategy, policy development, for consultation and obtaining NOD/ROD which includes, but is not limited to: Native American Tribal consultation, 6(f) and 4(f) determinations and findings.
	Guiding Documents	Prepares program-wide guidance documents related to programmatic 106 issues, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the cultural resources program and further ensures consistency and quality.
	Program Management	Ensures policy consistency, issue identification, quality assurance, resource agency engagement by serving as single point of contact with SHPO for Program, supports monthly updates for audit committee and change control, support interagency funding agreements and quality assurance for EEC performance.
	Learning and Development	Supports CommentSense quality assurance
	Functional Subject Matter	Supports Authority program, project-level, regional teams, project construction manager and DB contractor relative to cultural resources policies and procedures.
	Project Delivery Assurance	Reviews Authority's and FRA documents for quality assurance. Provides technical oversight to support environmental quality and schedule; consistency with policies.
Lead Archaeologist/ Statewide California Tribal Coordinator	Thought Leadership	Ensuring the Section 106 process consistency and quality documentation is produced across program.
	Guiding Documents	Ensures policy consistency, issue identification, quality assurance, resource agency engagement and DB compliance with MOA.
	Program Management	California Native American Tribal coordination; consistency with policy and procedures and strategy.
	Learning and Development	Manages Cultural Resources quality assurance programs.
	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the cultural resources program and further ensures consistency and quality.
	Project Delivery Assurance	Provides in-field expertise in archaeology as construction activities uncover areas for investigation. Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Archaeologist & Architectural Historian/ Statewide California Tribal Coordinator	Thought Leadership	Ensuring the Section 106 process consistency and quality documentation is produced for the project sections (all southern California sections) and across program.
	Guiding Documents	Ensures policy consistency, issue identification, quality assurance, resource agency engagement and DB compliance with MOA.
	Program Management	California Native American Tribal coordination; consistency with policy and procedures and strategy.

	Learning and Development	Manages and implements Cultural Resources quality assurance programs.
	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the cultural resources program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Architectural Historian	Thought Leadership	Ensuring the Section 106 process consistency and quality documentation is produced for the project sections across the program.
	Guiding Documents	Ensures policy consistency, issue identification, quality assurance, resource agency engagement and DB compliance with MOA. Identifies gaps in technical approaches and policies and develops materials to address them and follows up with training.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues.
	Learning and Development	Manages Cultural Resources quality assurance programs.
	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the cultural resources program and further ensures consistency and quality. Identifies gaps in programmatic guidance and provides such guidance and training. Historic roads is one recent example.
	Project Delivery Assurance	Review Authority's and FRA documents for quality assurance. Provides Sacramento technical support for program sections.
Entitlement and Environmental Planning	Thought Leadership	Provides statewide expertise in entitlements and environmental planning. Responsible programwide for development and approval of Impact Avoidance and Mitigation Measures (IAMFs and for Mitigation Measures (MMs). Also, responsible for natural resource permitting and mitigation strategy, policy development, for consultation and obtaining NOD/ROD for Southern California Sections. Integrates with the State Permit, Mitigation and Compliance Program Lead to ensure consistency with programmatic approaches and quality. Provides a bridge between so Cal and program.
	Guiding Documents	Provides a unique expertise that informs programmatic strategy, policy and procedure development and implementation.
	Program Management	Ensures consistency with program-wide IAMFs and MMs, policy, procedures, quality and strategy through evaluation of environmental issues.
	Learning and Development	Manages natural resources permitting and mitigation quality assurance programs.
	Functional Subject Matter	Unique statewide expertise in IAMFs, MMs and entitlements. Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement

		documents, etc. that bring efficiency to the natural resources permitting program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA documents for quality assurance with specialized expertise in translating IAMFs and MMs into clear DB and Authority responsibilities. Provides Sacramento technical support for program sections.
State and Federal and Mitigation Planning	Thought Leadership	Responsible for natural resources permitting and mitigation strategy, policy development, for consultation and obtaining NOD/ROD [presently for MF CV Wye, MF CP 1-4 and FB Sections with a program wide expertise in this area. Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency with programmatic approaches and quality. Provides a bridge between so Cal sections and program.
	Guiding Documents	Provides a unique expertise that informs programmatic strategy, policy and procedure development and implementation of mitigation planning and policy.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental mitigation issues.
	Learning and Development	Manages natural resources permitting and mitigation quality assurance programs with expertise offered throughout the state.
	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the natural resources permitting program and further ensures consistency and quality.
	Project Delivery Assurance	Reviews Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Section 404 and 106 Permitting, legal expertise	Thought Leadership	Presently responsible for natural resources permitting and mitigation strategy, policy development, for consultation and obtaining NOD/ROD for SF-SJ, SJ-M and partially MF CV Wye Sections. Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency with programmatic approaches and quality. Provides a bridge between so Cal sections and program.
	Guiding Documents	Provides a unique expertise that informs programmatic strategy, policy and procedure development and implementation.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues.
	Learning and Development	Manages natural resources permitting and mitigation quality assurance programs
	Functional Subject Matter	Brings statewide expertise in Clean Water and 106 issues that informs headquarters policy, procedures and strategies. Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the natural resources permitting program and further ensures consistency and quality.

	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Conservation and State Mitigation Policy and Stakeholder Strategist	Thought Leadership	Responsible for natural resources permitting and mitigation strategy on a statewide basis, procurement strategies, policy development, NGO and agency stakeholder engagement for consultation and obtaining NOD/ROD for program. Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency with programmatic approaches and quality. Ensures consistency across program.
	Guiding Documents	Provides a unique expertise that informs programmatic strategy, policy and procedure development and implementation of a regional mitigation approach to the project and permitting.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues.
	Learning and Development	Manages natural resources mitigation quality assurance programs, procurement approach and stakeholder engagement.
	Functional Subject Matter	Prepares policy and guidance documents that bring efficiency to the typically patchwork approach to natural resources permitting requirements through a regional mitigation program and further ensures consistency, quality, and solid environmental outcomes.
	Project Delivery Assurance	Develops and implements a regional mitigation approach that harmonizes statewide efforts to achieve regional mitigation with NGOs and state/federal agencies. This approach enables construction. Provides Sacramento technical support for program sections.
Regional State Water Quality Permits and Compliance and EMMA Advisor	Thought Leadership	Responsible for providing specifications for further EMMA development and implementation, and leads the electronic tools needed to manage natural resources compliance strategy and policy development, for program delivery (construction). Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency with section and programmatic approaches to support procurement and future delivery. Integrates with permits which result in construction requirements for mitigation, permitting requirements and compliance reporting.
	Guiding Documents	Provides a unique expertise that informs programmatic construction compliance, tool training and development and implementation.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues. EMMA Advisor for updates/improvements/training, quality assurance.
	Learning and Development	Manages compliance quality assurance programs. Develops and implements EMMA training.
	Functional Subject Matter	Reviews EMMA and technical reports to ensure program-wide consistency and quality. Supports preparation of guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the natural resources compliance program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.

USBR Federal Agency Point of Contact	Thought Leadership	Responsible for key statewide agency client coordination and management related to natural resources permitting and mitigation strategy, policy development, for consultation and obtaining NOD/ROD for project sections having USBR agency purview. Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency with programmatic approaches and quality. Provides a bridge and program requirements for this key federal agency.
	Guiding Documents	Provides a unique expertise with USBR that informs programmatic strategy, policy and procedure development and implementation.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues
	Learning and Development	Manages natural resources permitting and mitigation quality assurance programs relevant to USBR
	Functional Subject Matter	Provides single point-of-contact on USBR issues across program. Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the natural resources permitting program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Conservation Planning, Acquisition, Restoration and Mitigation	Thought Leadership	Responsible for natural resources compensatory mitigation strategy, policy development, and cost-estimating reviews for mitigation. Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency with programmatic approaches and quality. Ensures a bridge all sections and program.
	Guiding Documents	Provides a unique expertise on mitigation and cost-estimating these measures that informs programmatic strategy, policy and procedure development and implementation.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues.
	Learning and Development	Manages natural resources permitting and mitigation quality assurance programs.
	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the natural resources permitting program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Environmental Policy and Practice	Thought Leadership	Responsible for informing programmatic environmental policy and strategy development for NEPA Assignment to accelerate environmental reviews and expedited permitting approvals. Supports Conservation and State Mitigation Policy and Stakeholder Strategist.
	Guiding Documents	Provides a unique expertise on environmental regulations under the Clean Air Act and Clean Water Act and environmental reviews under the National Environmental Policy Act (NEPA) that informs programmatic strategy, policy and procedure development and implementation.

	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues. Ensures consistency and quality between NEPA document and permitting and consultation policy approaches.
	Learning and Development	Supports quality assurance programs relevant to natural resources mitigation policy.
	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, revisions to agreement documents, etc. that bring efficiency to the natural resources permitting program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Program wide Wildlife Biologist	Thought Leadership	Responsible for natural resources permitting and mitigation strategy specific to State and federally-protected wildlife species (Section 2081 and Section 7), policy development, for consultation and obtaining NOD/ROD for project sections. Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency with programmatic approaches and quality where overlaps occur across all sections (e.g., impacts assessment, modeling approach, regional mitigation approach etc.).
	Guiding Documents	Provides a unique expertise in wildlife crossings that informs programmatic strategy, policy and procedure development and implementation.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues.
	Learning and Development	Manages wildlife resources permitting and mitigation quality assurance programs and provides expertise on wildlife crossing assessment and project features design across program.
	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the natural resources permitting program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Program Compliance Demonstration Lead	Thought Leadership	Responsible for natural resources permitting and mitigation compliance demonstration and approach across program and specifically to support project delivery (construction). Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency and integration of lessons learned with programmatic approaches and quality where overlaps occur across all sections (e.g., impacts assessment, modeling approach, regional mitigation approach, etc.) and to support quality assurance and improvement to DB procurement. Helps inform further improvements in EMMA, a programmatic responsibility.
	Guiding Documents	Provides a unique expertise in land management policy and implementation and environmental compliance implementation and demonstration. Responsible for building a and improving upon a successful compliance program that is informed by and informs programmatic strategy, policy and procedure development and implementation.

	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues and development of approaches that allow for construction/project delivery.
	Learning and Development	Manages natural resources compliance demonstration quality assurance programs and provides expertise on compliance program across program.
	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the natural resources permitting and compliance program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance (e.g., re-examinations, permit amendments, consultation reinitiation processes, EMMA improvements, agency relations, etc.). Provides Sacramento technical support for program sections.
Compliance Demonstration and Construction Support and Fisheries Biology	Thought Leadership	Responsible for natural resources permitting and mitigation compliance demonstration and approach across program and specifically to support project delivery (construction). Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency with programmatic approaches and quality where overlaps occur across all sections (e.g., impacts assessment, modeling approach, regional mitigation approach etc.) and to support quality assurance and improvement to DB procurement.
	Guiding Documents	Provides a unique expertise that informs programmatic strategy, policy and procedure development and implementation.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues
	Learning and Development	Manages wildlife resources permitting and mitigation quality assurance programs and provides expertise on wildlife crossing assessment and project features design across program.
	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the natural resources permitting program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Program wide Botanist and Ecologist	Thought Leadership	Responsible for natural resources permitting and mitigation strategy related to ecological systems and federally- and state-listed endangered plants, policy development, for consultation and obtaining NOD/ROD. Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency with programmatic approaches and quality where overlaps occur across all section (e.g., impacts assessment, modeling approach, regional mitigation approach etc.). Provides consistency and quality oversight across the program, with focus on areas of overlap.
	Guiding Documents	Provides a unique expertise in ecology and endangered flora that informs programmatic strategy, policy and procedure development and implementation.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues.
	Learning and Development	Manages natural resources permitting and mitigation quality assurance programs and provides expertise on survey and impact/effect methodologies across program. Ensures quality and consistency across program.

	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the natural resources permitting program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Director of Environmental Services	Thought Leadership	Develops and communicates policies to the executive management team for implementation and provides input for approval of environmental related policy documents. Plans, organizes and directs complex and sensitive environmental policies, programs and plans. Activities include setting policies, developing programmatic and project section strategies for achieving environmental clearances and permitting/approvals, identifying and implementing regional mitigation approaches and best practices, and providing guidance to staff and regional teams.
	Guiding Documents	Guide the workload of HSR staff in the review of environmental documents, memos, and staff reports for the Northern, Central, and Southern California regional teams. Provide input to consultant teams on specific guidance related to FRA and federal/state agencies' emerging requirements, including to the Permitting, Mitigation, Compliance and Cultural Resource Team.
	Program Management	Serves as single point of contact for environmental policy with state, local and regional elected officials and environmental organizations. Responsible for review and input on all environmental legal documents and works closely with Project management team to ensure environmental compliance of Authority's mission. Provide guidance to work programs - scope/schedule/budgets- supporting program delivery, including assessing staffing needs. Track and manage environmental schedule and deliverables against the adopted HSR environmental schedule established for the HSR program. Reviews monthly progress report on activities. Provides support to the Board and Authority leadership requests.
	Learning and Development	Provides Environmental Branch leadership with its multi-disciplinary team members, legal counsel, the FRA and Cooperating Agencies.
	Functional Subject Matter	Meets and confers with individuals and groups to obtain compliance with laws and regulations concerning environmental requirements. Prepares reports and correspondence related to difficult environmental matters. Reviews and approves all environmental documents provided by the Authority and develops and recommends alternatives that respond to concerns to avoid or minimize potential impacts. Analyze situations and develop a range of solutions responsive to the Authority and the public input for all environmental processes. Serve as the primary liaison with Authority, Federal Railroad Administration (FRA), and the resource agencies on all environmental-related issues for the Authority environmental program. Based on this interaction, provide direction to the Deputy Director of Environmental Services for programmatic work and work by the Northern, Central, and Southern California regional teams.
	Project Delivery Assurance	Serves as the Authority's liaison to the Federal Railroad Administration, California Department of Transportation and State and federal agencies on environmental issues. Provides leadership and policy direction/strategies to the program- and regional-level environmental management teams to promote consistency and quality of environmental documents and establishment of uniform standards across the HSR program.

Environmental and Natural Resources Regulatory Compliance and Strategist	Thought Leadership	Permitting, Mitigation, Compliance and Cultural Resource Team Lead for the environmental program. Responsible for programmatic and section-specific strategy, policy development, for consultation, obtaining NOD/ROD, obtaining permits to construct and demonstration compliance with said requirements and EIR/EIS mitigation measures related to natural resources.
	Guiding Documents	Prepares program-wide guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, MOUs, MOAs, Interagency Agreements, etc. that bring efficiency to the permitting program and further ensures consistency and quality across the program and accounts for regional differences.
	Program Management	Ensures policy consistency, issue identification, quality assurance, resource agency engagement by serving as Program point of contact for all natural resource regulatory and/or responsible agencies, supports monthly updates for audit committee and change control, support interagency funding agreements and quality assurance for EEC performance.
	Learning and Development	Supports CommentSense quality assurance.
	Functional Subject Matter	Supports authority program, project-level, regional teams, project construction manager and D/B contractor relative to policies and procedures.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provide technical oversight to support environmental quality and schedule; consistency with policies.
Deputy Director for Environmental Planning	Thought Leadership	Activities include developing programmatic and project section strategies, identifying and implementing best practices, assessing and developing methodologies used in preparing environmental documents and providing guidance to staff and regional teams.
	Guiding Documents	Guide the workload of senior staff in the preparation and review of environmental documents, memos, and staff reports for the Northern, Central, and Southern California regional teams. Develop specific guidance related to FRA emerging requirements.
	Program Management	Develop work programs to support program delivery, including assessing staffing needs. Track and manage environmental schedule and deliverables against the adopted HSR environmental schedule established for the HSR program. Prepares monthly progress report on activities. Provide support to the Director of Environmental Services, including in his capacity as point of contact with FRA, Caltrans, and other federal, state, regional and local officials and environmental organizations.
	Learning and Development	Guide environmental task leads for each section in their interaction with multi-disciplinary team members, legal counsel, the FRA and Cooperating Agencies. Identify and support professional development, training and conference participation for Environmental Branch team.
	Functional Subject Matter	Serve as the primary liaison with Authority, Federal Railroad Administration (FRA), and the resource agencies on all environmental-related issues for the Authority environmental program, including supporting FRA program reviews. Based on this interaction, provide direction to the Northern, Central, and Southern California regional teams.
	Project Delivery Assurance	Works with the program- and regional-level environmental management teams to promote consistency and quality of environmental documents and establishment of uniform standards across the HSR program.

Environmental Policy Advisor	Thought Leadership	Responsible for coordinating federal environmental policy supporting delivery of the Authority's environmental program. Designate lead in NEPA Assignment.
	Guiding Documents	Supports Authority management by reviewing, analyzing, and preparing programmatic policies related to emerging federal environmental review and approvals for the program.
	Program Management	Coordinates with US Department of Transportation and Federal Railroad Administration on issues related to environmental reviews and approvals.
	Learning and Development	Monitors federal legislation and implementing regulations for potential effect on the Authority's program delivery and briefs the team, as appropriate. Assists with review of proposed CA legislation and potential impacts to the HSR environmental program.
	Functional Subject Matter	As needed, supports the project section teams in developing, reviewing, revising and finalizing environmental documentation.
	Project Delivery Assurance	Advises on matters related to federal coordination with cooperating or permitting agencies. This also covers the federal permitting dashboard.
Special Projects Environmental Manager	Thought Leadership	Responsible for providing for an array of responsibilities, including working with the Authority regarding project delivery, schedules, work plan development, and budgeting; providing guidance and technical review of environmental documents; and performing other duties as assigned.
	Guiding Documents	Oversee compilation and delivery of the Administrative Record for each environmental document; and revising, as needed, the Authority's environmental methods.
	Program Management	Prepare environmental program schedule and budget updates for use by Authority management, the Authority's Finance and Audit Committee, the Federal Railroad Administration, and environmental resource agencies.
	Learning and Development	Provide oversight for development, training, and use of CommentSense by the regional teams and the Authority, legal, and FRA staff responding to public and agency comments on the Authority's environmental documents.
	Functional Subject Matter	Serve as a quality technical reviewer of environmental documents; responsible for reviewing environmental re-examinations required for design variations recommended by the design/build contractors and Authority staff.
	Project Delivery Assurance	Work with the regional-level environmental management team to promote consistency of environmental documents and establishing uniform standards across the Authority's environmental program.
Southern California Regional Environmental Manager	Thought Leadership	Provides guidance on the environmental processes and documents for the four Southern California High-Speed Rail project sections. Provides the programmatic link to the SoCal region.
	Guiding Documents	Provides programmatic input in the preparation and review of environmental documents, memos, and staff reports for Southern California.
	Program Management	Provides guidance to assist with schedules and deliverables against the adopted Authority environmental methods and processes for Southern California. Prepares monthly progress reports on activities to support programmatic reporting.
	Learning and Development	Assists with training and development of environmental task leads for each section in his/her expertise development and interaction with multi-disciplinary team members.

	Functional Subject Matter	Serves as the primary liaison with Authority, Federal Railroad Administration field staff members and the resource agencies on environmental-related issues for Southern California.
	Project Delivery Assurance	Works with the program- and regional-level environmental management teams to promote consistency and quality of environmental documents and establishment of uniform and consistent standards across the HSR program.
Northern California Regional Environmental Manager	Thought Leadership	Provides guidance on the environmental processes and documents for the two Northern California High-Speed Rail project sections. Provides the programmatic link to the SoCal region.
	Guiding Documents	Provides programmatic input in the preparation and review of environmental documents, memos, and staff reports for Northern California.
	Program Management	Provides guidance to assist with schedules and deliverables against the adopted Authority environmental methods and processes for Northern California. Prepares monthly progress reports on activities to support programmatic reporting.
	Learning and Development	Assists with training and development of environmental task leads for each section in his/her expertise development and interaction with multi-disciplinary team members.
	Functional Subject Matter	Serves as the primary liaison with Authority, Federal Railroad Administration field staff members and the resource agencies on environmental-related issues for Southern California.
	Project Delivery Assurance	Works with the program- and regional-level environmental management teams to promote consistency and quality of environmental documents and establishment of uniform and consistent standards across the HSR program.
San Francisco to San Jose Section Environmental Task Manager	Thought Leadership	Responsible for management of the Authority's project section environmental documents, specifically the ROD/NOD to facilitate delivery of the organization's environmental program in the SF to SJ project section.
	Guiding Documents	Monitors the workload of regional team staff in the preparation and review of environmental documents, memos, and staff reports for the Authority's project section.
	Program Management	Manages the environmental component of an Authority project section for environmental clearance documents, specifically the ROD/NOD.
	Learning and Development	Guides the regional team environmental task lead for the section in their work with multi-disciplinary team members.
	Functional Subject Matter	Works with Authority, Federal Railroad Administration field staff members and the resource agencies on environmental-related issues for her project section.
	Project Delivery Assurance	Works with the regional-level environmental management teams to promote consistency and quality of environmental documents.
San Jose to Merced Section Environmental Task Manager	Thought Leadership	Responsible for management of the Authority's project section environmental documents, specifically the ROD/NOD to facilitate delivery of the organization's environmental program in the SJ to M project section.
	Guiding Documents	Monitors the workload of regional team staff in the preparation and review of environmental documents, memos, and staff reports for the Authority's project section.
	Program Management	Manages the environmental component of an Authority project section for environmental clearance documents, specifically the ROD/NOD.

	Learning and Development	Guides the regional team environmental task lead for the section in their work with multi-disciplinary team members.
	Functional Subject Matter	Works with Authority, Federal Railroad Administration field staff members and the resource agencies on environmental-related issues for her project section.
	Project Delivery Assurance	Works with the regional-level environmental management teams to promote consistency and quality of environmental documents.
Merced to Fresno, Central Valley Wye Environmental Task Manager	Thought Leadership	Responsible for management of the Authority's project section environmental documents, specifically the ROD/NOD to facilitate delivery of the organization's environmental program in the CVY project within the M to F project section.
	Guiding Documents	Monitors the workload of regional team staff in the preparation and review of environmental documents, memos, and staff reports for the Authority's project section.
	Program Management	Manages the environmental component of an Authority project section for environmental clearance documents, specifically the ROD/NOD.
	Learning and Development	Guides the regional team environmental task lead for the section in their work with multi-disciplinary team members.
	Functional Subject Matter	Works with Authority, Federal Railroad Administration field staff members and the resource agencies on environmental-related issues for her project section.
	Project Delivery Assurance	Works with the regional-level environmental management teams to promote consistency and quality of environmental documents.
Fresno to Bakersfield, Locally Generated Alternative Environmental Task Manager	Thought Leadership	Responsible for management of the Authority's project section environmental documents, specifically the ROD/NOD to facilitate delivery of the organization's environmental program in the LGA project within the F to B project section.
	Guiding Documents	Monitors the workload of regional team staff in the preparation and review of environmental documents, memos, and staff reports for the Authority's project section.
	Program Management	Manages the environmental component of an Authority project section for environmental clearance documents, specifically the ROD/NOD.
	Learning and Development	Guides the regional team environmental task lead for the section in their work with multi-disciplinary team members.
	Functional Subject Matter	Works with Authority, Federal Railroad Administration field staff members and the resource agencies on environmental-related issues for her project section.
	Project Delivery Assurance	Works with the regional-level environmental management teams to promote consistency and quality of environmental documents.
Bakersfield to Palmdale Environmental Section Task Manager	Thought Leadership	Responsible for management of the Authority's project section environmental documents, specifically the ROD/NOD to facilitate delivery of the organization's environmental program, specifically the Bakersfield to Palm project section.
	Guiding Documents	Monitors the workload of regional team staff in the preparation and review of environmental documents, memos, and staff reports for the Authority's project section.
	Program Management	Manages the environmental component of an Authority project section for environmental clearance documents, specifically the ROD/NOD.

	Learning and Development	Guides the regional team environmental task lead for the section in their work with multi-disciplinary team members.
	Functional Subject Matter	Works with Authority, Federal Railroad Administration field staff members and the resource agencies on environmental-related issues for her project section.
	Project Delivery Assurance	Works with the regional-level environmental management teams to promote consistency and quality of environmental documents.
Palmdale to Burbank Environmental Section Task Manager	Thought Leadership	Responsible for management of the Authority's project section environmental documents, specifically the ROD/NOD to facilitate delivery of the organization's environmental program specifically the Palm to Bur project section.
	Guiding Documents	Monitors the workload of regional team staff in the preparation and review of environmental documents, memos, and staff reports for the Authority's project section.
	Program Management	Manages the environmental component of an Authority project section for environmental clearance documents, specifically the ROD/NOD.
	Learning and Development	Guides the regional team environmental task lead for the section in their work with multi-disciplinary team members.
	Functional Subject Matter	Works with Authority, Federal Railroad Administration field staff members and the resource agencies on environmental-related issues for her project section.
	Project Delivery Assurance	Works with the regional-level environmental management teams to promote consistency and quality of environmental documents.
Burbank to Los Angeles Environmental Section Task Manager	Thought Leadership	Responsible for management of the Authority's project section environmental documents, specifically the ROD/NOD to facilitate delivery of the organization's environmental program, specifically the Bur to LA project section.
	Guiding Documents	Monitors the workload of regional team staff in the preparation and review of environmental documents, memos, and staff reports for the Authority's project section.
	Program Management	Manages the environmental component of an Authority project section for environmental clearance documents, specifically the ROD/NOD.
	Learning and Development	Guides the regional team environmental task lead for the section in their work with multi-disciplinary team members.
	Functional Subject Matter	Works with Authority, Federal Railroad Administration field staff members and the resource agencies on environmental-related issues for her project section.
	Project Delivery Assurance	Works with the regional-level environmental management teams to promote consistency and quality of environmental documents.
Los Angeles to Anaheim Environmental Section Task Manager	Thought Leadership	Responsible for management of the Authority's project section environmental documents, specifically the ROD/NOD to facilitate delivery of the organization's environmental program in the Los Angeles to Anaheim project section.
	Guiding Documents	Monitors the workload of regional team staff in the preparation and review of environmental documents, memos, and staff reports for the Authority's project section.
	Program Management	Manages the environmental component of an Authority project section for environmental clearance documents, specifically the ROD/NOD.

	Learning and Development	Guides the regional team environmental task lead for the section in their work with multi-disciplinary team members.
	Functional Subject Matter	Works with Authority, Federal Railroad Administration field staff members and the resource agencies on environmental-related issues for his project section.
	Project Delivery Assurance	Works with the regional-level environmental management teams to promote consistency and quality of environmental documents.
Northern California Environmental Planner	Thought Leadership	Provides daily support to the environmental task lead in his/her task coordination and conducts initial review of regional team work products for the project section.
	Guiding Documents	Provides coordination support among the Authority, Federal Railroad Administration, legal counsel, and the regional team in preparing the Authority section environmental document.
	Program Management	Helps track environmental deliverables against the Authority's adopted environmental milestone schedule.
	Learning and Development	Helps the environmental task leader and project manager in their duties for the section.
	Functional Subject Matter	Provides coordination support among the Authority, Federal Railroad Administration, and state and federal resource agencies for identifying, discussing, and resolving environmental evaluation and document issues.
	Project Delivery Assurance	Conducts initial review of regional team work products for quality and consistency with the Authority's adopted environmental methods, style and documentation guidelines, and document quality standards.
Central Valley Environmental Planner	Thought Leadership	Provides daily support to the environmental task lead in his/her task coordination and conducts initial review of regional team work products for the project section.
	Guiding Documents	Provides coordination support among the Authority, Federal Railroad Administration, legal counsel, and the regional team in preparing the Authority section environmental document.
	Program Management	Helps track environmental deliverables against the Authority's adopted environmental milestone schedule.
	Learning and Development	Helps the environmental task leader and project manager in their duties for the section.
	Functional Subject Matter	Provides coordination support among the Authority, Federal Railroad Administration, and state and federal resource agencies for identifying, discussing, and resolving environmental evaluation and document issues.
	Project Delivery Assurance	Conducts initial review of regional team work products for quality and consistency with the Authority's adopted environmental methods, style and documentation guidelines, and document quality standards.
Southern California Environmental Planner	Thought Leadership	Provides daily support to the environmental task lead in his/her task coordination and conducts initial review of regional team work products for the project section.
	Guiding Documents	Provides coordination support among the Authority, Federal Railroad Administration, legal counsel, and the regional team in preparing the Authority section environmental document.
	Program Management	Helps track environmental deliverables against the Authority's adopted environmental milestone schedule.

	Learning and Development	Helps the environmental task leader and project manager in their duties for the section.
	Functional Subject Matter	Provides coordination support among the Authority, Federal Railroad Administration, and state and federal resource agencies for identifying, discussing, and resolving environmental evaluation and document issues.
	Project Delivery Assurance	Conducts initial review of regional team work products for quality and consistency with the Authority's adopted environmental methods, style and documentation guidelines, and document quality standards.
Southern California Environmental Planner	Thought Leadership	Provides daily support to the environmental task lead in his/her task coordination and conducts initial review of regional team work products for the project section.
	Guiding Documents	Provides coordination support among the Authority, Federal Railroad Administration, legal counsel, and the regional team in preparing the Authority section environmental document.
	Program Management	Helps track environmental deliverables against the Authority's adopted environmental milestone schedule.
	Learning and Development	Helps the environmental task leader and project manager in their duties for the section.
	Functional Subject Matter	Provides coordination support among the Authority, Federal Railroad Administration, and state and federal resource agencies for identifying, discussing, and resolving environmental evaluation and document issues.
	Project Delivery Assurance	Conducts initial review of regional team work products for quality and consistency with the Authority's adopted environmental methods, style and documentation guidelines, and document quality standards.
Electrical Interconnections Environmental Manager	Thought Leadership	Responsible for strategy and management of the Authority's electrical interconnection environmental processes across the program, documents, and permits to facilitate delivery of the organization's environmental program.
	Guiding Documents	Monitors the workload of staff in the preparation and review of environmental documents, memos, and staff reports for the Authority's project section.
	Program Management	Manages the electrical interconnection environmental component of the Authority's project sections for environmental clearance documents and processes.
	Learning and Development	Guides environmental staff in their interaction with multi-disciplinary team members involved in the electrical supply/utilities business.
	Functional Subject Matter	Works with Authority, Federal Railroad Administration and the resource agencies on environmental-related issues for electrical interconnections.
	Project Delivery Assurance	Works with the regional-level environmental management team to promote consistency and quality of environmental documents and establishment of uniform standards across the HSR program.
Administrative Records Coordinator	Thought Leadership	Provides a variety of complex and sensitive administrative tasks requiring a high degree of independent action, initiative, discretion and tact to assist the efficient and effective function of the Authority's Office of Program Delivery, Environmental Branch. This works includes close interactions and coordination with the Attorney General's Office.
	Guiding Documents	Assists the regional teams with the development of the Administrative Record for each environmental document.

	Program Management	Assists in the monitoring of labor activity and other documentation related to the Authority's technical and quality reviews of environmental documents.
	Learning and Development	Provides training and administrative support to the regional teams for their use of CommentSense for logging and responding to public and agency comments on the draft environmental documents.
	Functional Subject Matter	Works with the right-of-way group and Office of Communications in administering the Authority's permission-to-enter process for conducting biological, cultural, and geotechnical surveys.
	Project Delivery Assurance	Assists in implementing use of the Authority's quality review standards for the preparation of environmental documents.
Executive Administrator	Thought Leadership	Provides a variety of administrative tasks requiring initiative, discretion, judgment, and tact to assist the efficient and effective function of the Authority's Office of Program Delivery, Environmental Branch, including the Director of Environmental Services and Deputy Director.
	Guiding Documents	Is involved with the preparation, timely collection, organization and distribution of Authority materials.
	Program Management	Confers with staff regarding program delivery, schedule, and budget issues. Assists with the preparation of environmental correspondence, memos, and reports, including invoicing and progress reporting.
	Learning and Development	Assists Authority staff with the installation of procedures for new administrative programs as the need arises.
	Functional Subject Matter	Attends meetings and maintains records of meetings.
	Project Delivery Assurance	Follows standards for reporting to the Authority and FRA.
Senior Supervising Planner	Thought Leadership	Act for the Director of Environmental Services to provide continuity of Authority management, and may act for him/her as required by attending meetings, representing the Authority, making decisions, signing documents, and reporting urgent matters to the Executive Office.
	Guiding Documents	May assume a project leadership role in the preparation of environmental documents and oversees the permit process on complex, high profile projects with both a state and federal component. Serves as the environmental expert in order to provide advice and recommendations to the Authority, the Administration, Legislature, customers, and other entities as required on policy and procedure issues utilizing personal expertise and knowledge, written recommendations and meetings and presentations in accordance with state (California Environmental Quality Act) and federal (National Environmental Policy Act) laws and regulations.

	Program Management	Oversight for the Authority in the selection, hiring, fee negotiation, and management of consultants, determines consulting services needs on an annual and project-specific basis, advertising, selection, contract negotiation, and usage of consultants by assessing the needs of the department and/or projects through analysis and research of consultants and resources according to Authority's policies and procedures. Coordinates and directs the workload of staff and consultants preparing environmental documents for capital outlay/essential services projects on a statewide basis through completion of the Environmental Impact Reports (EIR/EIS), Permits, Mitigation, and other special studies according to State and federal policies and procedures, including all controlling Agency approvals.
	Learning and Development	Identifies opportunities for state staff development opportunities.
	Functional Subject Matter	Provides expert testimony regarding environmental policies and procedures regarding environmental due diligence to the Department of Finance and members of the Public Works Board. To improve service delivery, maintain viability of real estate programs and protect the State's interests relative to pending and proposed legislation and in accordance with specified guidelines: evaluates active and proposed legislation by reviewing the language, determining program impact, and providing a recommended position; develops and recommends legislative proposals by assessing current operational needs and program enhancements; testifies at hearings by personally appearing before legislative committees as the state's environmental expert.
	Project Delivery Assurance	May review documents, reports, memos, letters on behalf of the Director of Environmental Services.
Associate Governmental Program Analyst	Thought Leadership	Assists the Environmental Services Branch in implementing its contractual processes.
	Guiding Documents	Makes recommendations to improve internal processes and/or resolves administrative and contract management related problems; reviews and analyzes proposed legislation and advises management on the impact or potential impact.
	Program Management	Provides guidance and assistance to Authority employees and contractors regarding the department's administrative processes. Provides guidance and advice to customers regarding Contract Administration processes.
	Learning and Development	Learns and performs the more complex analytical support for the office of Environmental Services.
	Functional Subject Matter	Analyzes work products including, but not limited to; RFQs, RFPs, Amendments, IAs and Contract Request Forms (HSR 202s), to evaluate for completion and obtain appropriate approvals and documentation required. Accomplishes tasks in accordance with all applicable statutes as well as departmental policies and procedures
	Project Delivery Assurance	Develops and implements uniform contract management and administration processes/procedures for all tasks in Environmental Services contracts. This includes, but is not limited to, coordinating invoice review and validating monthly reports to track contract status. Reviews pertinent data with Authority Contract Managers and contractors to ensure the requested services are performed in accordance with state and federal laws, policies, standards and controls.
Archaeology Coordinator	Thought Leadership	Assists the Authority's Tribal Liaison in Native American outreach efforts and facilitates outreach to local and regional governments, and the public.

	Guiding Documents	Prepares program-wide guidance memoranda as needed on programmatic cultural resources program for regional consultants/ environmental and engineering consultants (RCs/EECs) to ensure statewide program compliance consistency.
	Program Management	Assisting in the overall implementation of High-Speed Rail's cultural resources program and compliance with state and federal regulations as they pertain to cultural resources management and the avoidance, minimization, and mitigation of project impacts to historic properties. These include compliance with Section 106 of the National Historic Preservation Act, National Environmental Policy Act (NEPA), and other federal regulations; and California Environmental Quality Act (CEQA) and California Public Resources Code 5024. Maintains the Cultural Resources SharePoint electronic library of all project documentation, reports, correspondence current and well organized for the program's administrative record and for easy reference for Cultural Resources staff as well as regional consultants /environmental and engineering consultants (RCs/EECs).
	Learning and Development	Help identify training and conference opportunities.
	Functional Subject Matter	Assists the Authority's Tribal Liaison in Section 106 consultation. Prepares required annual reports for all Section 106 agreement documents.
	Project Delivery Assurance	Assists in the review of all project sections archaeological documentation, as needed to ensure Section 106 and the programmatic agreement (PA) requirements are fulfilled prior to forwarding the documents to the FRA and the State Historic Preservation Officer. Reviews "negative" archaeological survey reports to ensure adequacy per the amended MOAs.
Environmental Construction Manager	Thought Leadership	Coordinate with Environmental and Construction personnel to facilitate resolving environmental and construction issues.
	Guiding Documents	Participates in updating guidance related to re-examinations.
	Program Management	The Environmental/Construction Liaison will ensure Environmental Compliance for Projects in the Central Valley through the review plans and specifications, change orders, contractor submittals, and other construction documents. Oversee environmental staff who review the necessary environmental documentation for construction change orders consistent with CEQA, NEPA, and resources agency. Helps in assessing environmental impacts of construction projects on environmental resources and developing mitigation and monitoring programs as necessary. Responsible for the completing and processing of the Authority's Certificate of Environmental Compliance permits to facilitate construction projects already in progress.
	Learning and Development	Helps identify opportunities for staff training.
	Functional Subject Matter	Oversee inventories of natural environmental systems and cultural resources inventories, identifies research needs, performs natural resource research; prepares, reviews and processes environmental documentation for projects in compliance with all applicable local, State and Federal laws, regulations and policies.
	Project Delivery Assurance	Independently works with Construction staff and reviews ongoing construction of segments to promote quality and consistency with environmental commitments. Attend pre-construction and reoccurring construction meetings to address permit and environmental issues.
Environmental Construction	Thought Leadership	Coordinate with Environmental and Construction personnel to facilitate resolving environmental and construction issues.

Coordinator (CP 1)	Guiding Documents	Participates in updating guidance related to re-examinations.
	Program Management	The Environmental/Construction Liaison will ensure Environmental Compliance for Projects in the Central Valley through the review plans and specifications, change orders, contractor submittals, and other construction documents. Oversee environmental staff who review the necessary environmental documentation for construction change orders consistent with CEQA, NEPA, and resources agency. Helps in assessing environmental impacts of construction projects on environmental resources and developing mitigation and monitoring programs as necessary. Responsible for the completing and processing of the Authority's Certificate of Environmental Compliance permits to facilitate construction projects already in progress.
	Learning and Development	Helps identify opportunities for staff training.
	Functional Subject Matter	Oversee inventories of natural environmental systems and cultural resources inventories, identifies research needs, performs natural resource research; prepares, reviews and processes environmental documentation for projects in compliance with all applicable local, State and Federal laws, regulations and policies.
	Project Delivery Assurance	Independently works with Construction staff and reviews ongoing construction of segments to promote quality and consistency with environmental commitments. Attend pre-construction and reoccurring construction meetings to address permit and environmental issues.
Construction Compliance Document and Permit Manager (CP 2/3 and 4)	Thought Leadership	Responsible for natural resources permitting, CEQA/NEPA and mitigation compliance demonstration and approach as driven by the DB and/or implementation team ensuring consideration of program approaches/commitments, specifically to support project delivery (construction). Integrates with the Permit, Mitigation and Compliance Program and Program Compliance Demonstration Lead to ensure consistency with programmatic approaches, Statewide agency consultation, and quality where overlaps occur across all sections (e.g., impacts assessment, modeling approach, regional mitigation approach etc.) and to support quality assurance and improvement to DB procurement.
	Guiding Documents	Provides a unique expertise in that he understands natural resource permitting regulations and how to develop relationships with the regulatory agencies and work with them during project implementation. He is the only person at the region that has this breadth of expertise that not only supports construction also supports quality and process improvements to programmatic strategy, policy and procedure development and implementation.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues. Understands nuances of CEQA/NEPA and permit processes and regulation and its interface with project implementation. He is the only person at the regional level who provides this expertise (e.g., experience with obtaining permits for a variety of projects).
	Learning and Development	Manages natural resources permitting and mitigation compliance demonstration quality assurance programs and ensures lessons learned are fed into the Program to allow for improvements and adaptations.
	Functional Subject Matter	Reviews technical reports to ensure approach supports construction and avoids conflicts with program-wide strategies. Review includes documents such as guidance documents, templates, treatment plans, re-examinations, permit amendments, etc.

		that bring efficiency to the natural resources permitting program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance (e.g., re-examinations, permit amendments, consultation preinitiation processes, EMMA improvements, agency relations, etc.). Provides leadership at the Regional level by supporting project implementation teams and construction managers.
Supervising Environmental Engineer	Thought Leadership	Responsible for planning the implementation and update of the Statewide National Pollutant Discharge Elimination System (NPDES) Stormwater Permit as required by the Federal Clean Water Act. Participates in stormwater quality and related permitting studies and task forces to assure that water quality requirements are satisfied, to examine and identify opportunities to optimize related project development activities, and related project development activities, and identify conflicts for early resolution. Participates with Federal, State, and regional agencies in planning and developing implementation strategies and guidance responsive to federal and state water quality control legislation and requirements.
	Guiding Documents	Oversees planning, development and implementation of guidance materials related to water quality studies and technical reports specific to environmental assessment of project level effects that may include draft or final environmental documents or reports. Plans and coordinates the development of comprehensive statewide guidance and direction for the Authority's stormwater quality program.
	Program Management	Oversees the planning, development, implementation, submittal and update of the Statewide Stormwater Management Plan, including the planning and coordination with the State Water Resources Control Board. Oversees contract negotiations and manages executed contracts with utility entities for interconnection of the high-speed rail system into the electrical grid. Oversees and Coordinates staff and consultants for the interconnection of the high-speed rail system.
	Learning and Development	Helps identify opportunities for staff training.
	Functional Subject Matter	Participates in stormwater quality and related permitting studies and task forces to assure that water quality requirements are satisfied, to examine and identify opportunities to optimize related project development activities, and related project development activities, and identify conflicts for early resolution. Reviews Purpose and Needs, Task Orders, and Contracts utilized for water quality studies or technical reports.
	Project Delivery Assurance	Oversees statewide implementation of the program to assure statewide consistency, including Authority Work Plans. Coordinates statewide audits/investigations by outside agencies of stormwater /water quality program and activities.
	Student Assistant	Thought Leadership
Guiding Documents		N/A
Program Management		provide overall assistance to program focused on contract filing, both paper and electronic, and other special projects.
Learning and Development		N/A

	Functional Subject Matter	N/A
	Project Delivery Assurance	N/A
Compliance Demonstration and EMMA Support (Virgil will assume most of Ethan Cassaday's duties this year.)	Thought Leadership	Responsible for natural resources permitting and mitigation compliance demonstration and approach across program and specifically to support project delivery (construction). Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency with programmatic approaches and quality where overlaps occur across all sections (e.g., impacts assessment, modeling approach, regional mitigation approach etc.) and to support quality assurance and improvement to DB procurement.
	Guiding Documents	Provides a unique expertise in compliance demonstration at regional that informs program approaches, supporting quality and process improvements to programmatic strategy, policy and procedure development and implementation.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues
	Learning and Development	Manages natural resources permitting and mitigation compliance demonstration quality assurance programs and provides expertise on database systems.
	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the natural resources permitting program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Cultural Resources Program Manager	Thought Leadership	Provides program-wide direction and oversight to ensure compliance with Section 106 of the National Historic Preservation Act (Section 106) for all phases of project delivery and operations for the statewide High-Speed Rail Program (Program).
	Guiding Documents	Provides statewide oversight and management of cultural resources technical staff and consultants to ensure proper implementation of and compliance with the CA High-Speed Rail Section 106 PA for all stages of program delivery. Provides strategic guidance to Authority Executive Office regarding complex Section 106 compliance issues to support efficient and timely Program delivery. Establishes procedures and protocols for cultural resource management and planning for the Program. Manages and oversees the negotiation, development, and execution of individual project section MOAs and Treatment Plans.
	Program Management	Provides direction in the assessment of environmental impacts of construction projects on environmental resources and developing mitigation and monitoring programs as necessary.
	Learning and Development	Identifies opportunities for state staff development opportunities.

	Functional Subject Matter	Oversees the implementation of the statewide Section 106 Programmatic Agreement (PA) for the Program and necessary revisions to the PA, including coordination and collaboration with the PA signatories. Oversees and manages the negotiation, development, and implementation of the Memoranda of Agreement (MOAs), Archaeological Treatment Plans (ATPs), and Built-Environment Treatment Plans (BETPs) prepared, as necessary, for the individual high-speed rail project sections. Serves as the environmental cultural resource expert to provide advice and recommendations to the Authority, the Administration, Legislature, customers, and other entities as required on policy and procedure issues utilizing personal expertise and knowledge, written recommendations and meetings and presentations in accordance with state and federal environmental laws and regulations. Coordinates with Regional Environmental Construction Coordinators, Project Construction Management staff and Authority Construction Managers to assist in resolving complex environmental and construction issues. Provides expert testimony regarding environmental policies and procedures regarding environmental due diligence to the Department of Finance and members of the Public Works Board and legislative committees. To improve service delivery, maintain viability of real estate programs and protect the state's interests relative to pending and proposed legislation.
	Project Delivery Assurance	Oversight for the Authority in the selection, hiring, fee negotiation, and management of consultants; determines consulting services needs on an annual and project-specific basis; participates in advertising, selection and contract negotiation activities and usage of consultants by assessing the needs of the department and/or projects through analysis and research of consultants and resources according to Authority's policies and procedures. Reviews Requests for Proposals and contract documents to ensure consistency with Section 106 regulatory requirements and commitments. Manages Interagency Agreements.
Supervising Environmental Planner	Thought Leadership	Act for the Director of Environmental Services to provide continuity of Authority management, and may act for him/her as required by attending meetings, representing the Authority, making decisions, signing documents, and reporting urgent matters to the Executive Office.
	Guiding Documents	May assume a project leadership role in the preparation of environmental documents and oversees the permit process on complex, high profile projects with both a state and federal component. Serves as the environmental expert in order to provide advice and recommendations to the Authority, the Administration, Legislature, customers, and other entities as required on policy and procedure issues utilizing personal expertise and knowledge, written recommendations and meetings and presentations in accordance with state (California Environmental Quality Act) and federal (National Environmental Policy Act) laws and regulations.
	Program Management	Oversight for the Authority in the selection, hiring, fee negotiation, and management of consultants, determines consulting services needs on an annual and project-specific basis, advertising, selection, contract negotiation, and usage of consultants by assessing the needs of the department and/or projects through analysis and research of consultants and resources according to Authority's policies and procedures. Coordinates and directs the workload of staff and consultants preparing environmental documents for capital outlay/essential services projects on a statewide basis through completion of the Environmental Impact Reports (EIR/EIS), Permits, Mitigation, and other special studies according to State and federal policies and procedures, including all controlling Agency approvals.
	Learning and Development	Identifies opportunities for state staff development opportunities.

	Functional Subject Matter	General ecology or general principles behind planning for the conservation and preservation of natural resources; general principles and techniques of research and statistical analysis; communication skills for purposes of data gathering; techniques and methods of evaluation of environmental impacts; various types of public facilities and how they service the community; State and Federal laws and regulations relating to the environment; State, local and regional governmental organizations as they relate to environmental planning, specific knowledge of either the social sciences, natural sciences or environmental design arts; trends in environmental, urban and regional planning; trends in Federal, State and local environmental assessment and mitigation reports, impact statements, and/or negative declarations; principles of effective supervision; principles and techniques of supervision and personnel management; and differences of impacts of multimodal forms of transportation on the environment; methods of administering environmental projects and programs.
	Project Delivery Assurance	May review documents, reports, memos, letters on behalf of the Director of Environmental Services.
Supervising Environmental Planner for NEPA Assignment	Thought Leadership	Being determined.
	Guiding Documents	
	Program Management	
	Learning and Development	
	Functional Subject Matter	
	Project Delivery Assurance	
Environmental Scientist	Thought Leadership	Interpret biological and water quality data and other information to determine whether non-compliance has occurred. Following established Authority policies and procedures and the application of scientific methods and principles, recommend and follow through on an appropriate and reasonable course of action if a noncompliance is verified.
	Guiding Documents	Using sound science, write draft and final reports, prepare technical correspondence, provide technical guidance to Regional Authority staff, and Authority PCM staff related to interpretation of statewide polices and plans, and perform analysis of legislation and permits.

Program Management	Using reasonable and sound scientific methods, review and analyze environmental assessment materials prepared by others (e.g., PCM staff or construction contractor staff) materials, environmental documents, related supporting scientific studies, and site investigation/inspection information to determine if construction/project activities impact and to what degree impact environmental resources. This requires an understanding of the parameters of issued or expected permits, the requirements therein and any other applicable requirements of state and federal law. In carrying out the environmental review process pursuant to Authority procedures, work in cooperation with, and be responsive to the appropriate internal and external jurisdictional agencies, e.g., the California Department of Fish and Wildlife, the U.S. Fish and Wildlife Service, the Central Valley Regional Water Quality Board, the State Water Resource Control Board, the US Army Corps of Engineers, US National Marine Fisheries Service, the Authority, the Federal Railroad Administration (FRA), and other federal, state, and local governmental agencies and the public.
Learning and Development	Apply rules, regulations, policies, and requirements of State and Federal environmental protection and resource management programs.
Functional Subject Matter	Basic principles of land, water, fish, wildlife, and other natural resources research; principles of ecology; statistical methods; land-use practices with reference to their general effect on human health, natural resources, and the environment; effects of waste material and their interactions on the environment; chemical reaction; State and Federal environmental rules, regulations, and requirements; basic toxicology, hydrology, geology, and principles of risk assessment and risk management; concepts employed in a variety of disciplines including environmental planning, economics, and resource management; geolocation and geo-referencing software applications, resource conservation program impacts and implementation strategies; and recycling issues.
Project Delivery Assurance	Responsible for closely coordinating with the High-Speed Rail Authority's (Authority) Regional Planning and Construction staff to promote quality and consistency throughout environmental commitments on construction projects. These commitments typically involve biological and water quality permits from other agencies and the accompanying requirements for resource protection therein.

Appendix F CENTRAL VALLEY PROJECT FINANCIAL PLAN

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Appendix G RIDERSHIP AND REVENUE FORECASTING

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**Appendix H DESIGN-BUILD PROGRAM & PROJECT MANAGEMENT PLAN: FIRST
CONSTRUCTION SEGMENT**

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Appendix I PROJECT AND CONSTRUCTION MANAGEMENT MANUAL

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Appendix J PROGRAM CONTROLS PLAN

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Appendix K MASTER QUALITY PLAN

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Appendix L RISK MANAGEMENT PLAN

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Appendix M ROW MANUAL

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Appendix N SAFETY AND SECURITY MANAGEMENT PLAN

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Appendix O CROSS REFERENCE FOR FRA PMP TABLE OF CONTENTS

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	▪ Establishment of project rationale	5.2
	▪ Identification and selection of alternatives	5.2
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5.0	Environmental Analysis	
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c	Plan for investigation and testing including site surveys, geotechnical and materials investigation before and during design, and during construction.	6.5, PCMM 8
d	Plan for Preliminary Engineering	6.1, 6.2, 6.3
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h	Plan for real estate RAMP (see sub-plan below)	11, Appendix-M
i	Plan for vehicles (See sub-plan below)	Future
j	Plan to manage changes, config control for design/const	6.8;
k	Plan for management of design reviews including: <ul style="list-style-type: none"> ▪ Value Engineering ▪ Coordination Reviews ▪ Constructability Reviews ▪ Reviews for Operations and Maintenance ▪ Other peer or industry reviews 	6
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	Construction Contract Administration including plan for: <ul style="list-style-type: none"> ▪ Processing shop drawings, bulletins, RFIs. ▪ Negotiating and approving change orders and claims. ▪ Establishing substantial completion and final completion. ▪ Coordination with Third Parties interested in construction. 	9, PCMM, DBPP
10.0	Start Up, Revenue Operations, Construction Close Out	
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14.0	Real Estate Acquisition and Management Plan (MP 23)	Appendix M
15.0	Vehicle Acquisition and Management Plan (MP 38)	Future
16.0	Risk Management Plan (RCMP) (MP 40)	Appendix L
17.0	Central Valley Project Finance Plan (MP 40)	Appendix F

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I0399

From: [Barnes, Juliana \(FRA\)](#)
To: [Malone, Desiree@HSR](#)
Cc: [Everett, Lynn \(FRA\)](#); [OK-Marian L. Rule](#); [OK-Robert L. Zimmerer](#); [Hedges, Joe@HSR](#)
Subject: Feedback: 2017 PMP
Date: Friday, May 04, 2018 3:04:09 PM
Attachments: [18-05-02 PMP Methodology Memo.pdf](#)

Hi Desi,

Acknowledge receipt of the 2017 Project Management Plan (PMP) on March 30, 2018.

Thank you for including additional information in the 2017 PMP. While the information expands on new and existing processes and roles/responsibilities at High-Speed Rail it does not include specifics to illustrate how CHSRA will deliver the Grants' SOW in budget and on schedule. Without a better understanding of project delivery specifics, the PMP is similar to past versions in that it doesn't articulate what CHSRA will do, or do differently, to effectively manage scope, schedule, budget and risk.

For example, the schedule (in the form of a table with dates) and the budget (in the form of high-level cost estimates from the Draft 2018 Business Plan) in the PMP do not provide an explanation as to how CHSRA generated them, so FRA has no way of discerning how obtainable the schedule and budget are without the specifics. For example, a Gantt chart for each grant deliverable of all the prerequisite and concurrent tasks necessary to complete the deliverable would provide FRA with an understanding of how CHSRA is going to complete grant deliverables on schedule. A methodology explaining the way the cost estimates were generated would provide FRA with an understanding of how CHSRA is going to complete grant deliverables on budget.

The schedule and budget in the updated PMP do not correlate with observed levels of CHSRA achievable performance, and FRA has heard CHSRA indicate that it cannot change the schedule or budget in the immediate future due to state approval requirements. Therefore, FRA is unable to approve – and therefore rejects – the 2017 PMP (submitted March 2018). For FRA to be able to approve the next iteration of the PMP, CHSRA must include a schedule and budget that aligns with observed levels of performance and also provide project delivery specifics noted above as well as those covered in the attached memorandum.

Thank you,

Juliana Barnes, PMP
Project Manager
Office of Program Delivery (RPD-15)
Federal Railroad Administration
801 I St., Suite 466
Sacramento, CA 95814
Cell: 916-215-9115

From: barbara.gilliland@hsr.ca.gov [<mailto:barbara.gilliland@hsr.ca.gov>]
Sent: Friday, March 30, 2018 11:27 AM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Subject: Re: File Request - PMP FTP Site

You have received 9 secure files from barbara.gilliland@hsr.ca.gov.
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Date: May 2, 2018

To: Desiree Malone (CHSRA)

From: Juliana Barnes (FRA)

CC: Lynn Everett (FRA), Joe Hedges (CHSRA)

Project Title:
California High-Speed Train (HST) Program

Award Number:
FR-HSR-0009-10-01-06

Re: **PMP Methodology**

Under the Cooperative Agreement listed above, the California High-Speed Rail Authority (CHSRA) owes FRA a deliverable entitled “Program Management Plan (PMP) Updates” each year. This memorandum describes the deliverable in more detail and provides feedback for future submissions.

Background

- In 2015, FRA provided to CHSRA Subsection (a) of Section 24403 of Title 49 of the United States Code (49 U.S.C. §24403(a)), taking effect as of January 3, 2012 that lists the basic requirements of a PMP as well as FRA’s Monitoring Procedure 20 (MP 20), which outlines how FRA’s Monitoring & Technical Assistance Contractors review a PMP.
- In 2015 and 2016, FRA provided written review comments to CHSRA for each version of the PMP. While CHSRA addressed some of FRA’s review comments over the course of two or three iterations/revisions, CHSRA did not address all of FRA’s review comments, especially the “big picture” comments that got to the issue of “how” the project was to be accomplished versus “what” was to be accomplished.
- Last year (2016), FRA held a “workshop” with CHSRA’s lead authors/preparers of the PMP to cover the purpose of the PMP and its relationship to other grant deliverables (e.g. Annual Work Plan and Central Valley Project Financial Plan).
- For these reasons, FRA has not accepted/approved a PMP since 2014.

Defining “How”

CHSRA would give FRA a good understanding (and more confidence) in its ability to manage scope, schedule, budget, and risk successfully by explaining the following:

- Contract Management
 - For each of CHSRA’s contracts (including consultants such as RDP, EEC/RC, PCM, etc.), how does CHSRA manage value and who specifically is responsible for doing so?
 - For contracts in which CHSRA pays invoices based upon milestones (e.g., deadlines), how does CHSRA ensure the quality of deliverables and who is responsible for doing so?
 - What does CHSRA do when the quality of a deliverable is less than desired? Who is involved in the determination of quality and the follow-up?
 - For contracts in which CHSRA pays invoices based upon progress (e.g., percent complete), how does CHSRA confirm the percent complete and who is responsible for doing so?

- What does CHSRA do when the percent complete is too high and who is involved in the determination of percent complete and the follow-up?
- Change Control
 - Who is responsible for managing and monitoring trends at each level?
 - An example of a contract or group of contracts at each level follows.
 - Construction Package 1
 - Construction Packages 1-4
 - Palmdale to Burbank Regional Consultant
 - All Environmental & Engineering Consultants (EEC) / Regional Consultants (RC)
 - Early Train Operator (ETO)
 - Rail Delivery Partner (RDP)
 - Program
 - What specific metrics do the people responsible for managing and monitoring trends use at each level?
 - Presumably, one of the metrics is a baseline schedule; when and for what reason does CHSRA adjust its baseline?
 - How does CHSRA measure the “finish line”? Explain the process and who is involved at each level.
 - How do the people responsible for managing and monitoring trends measure the rate of change at each level?
 - How effectively are mitigations working or how are delays causing negative feedbacks (further delays)?
 - How do the people responsible for managing and monitoring trends at each level assess the impact of one element on others?
- Staffing Resources
 - How does CHSRA allocate staff resources?
 - If the state legislature designates staffing levels, how does CHSRA go about justifying staffing levels for consideration by the state legislature? Who is involved in doing so?
 - How does CHSRA assess whether its current resources are adequate and appropriate (i.e., whether reorganization is necessary)? Who is involved in doing so?
 - How do CHSRA’s professional service contractors go about allocating and/or adjusting staff resources? Explain the process and who is involved for the RDP, the RDP’s sub-consultants, ETO, EEC/RCs, and Project & Construction Managers (PCM).
 - How does CHSRA acknowledge/confirm a professional service contractor has the appropriate staff resources? Who is involved in doing so?

From: [Hedges, Joe@HSR](mailto:Hedges_Joe@HSR)
To: [Barnes, Juliana \(FRA\)](mailto:Barnes_Juliana (FRA))
Cc: [Malone, Desiree@HSR](mailto:Malone_Desiree@HSR); [Everett, Lynn \(FRA\)](mailto:Everett_Lynn (FRA)); mlrule@transystems.com; rzimmerer@transystems.com; [Gilliland, Barbara\(PB\)@HSR](mailto:Gilliland_Barbara(PB)@HSR); [Hill, Roy@HSR](mailto:Hill_Roy@HSR); [Kelly, Brian@HSR](mailto:Kelly_Brian@HSR)
Subject: Re: Feedback: 2017 PMP
Date: Monday, May 07, 2018 11:52:44 AM

Julian

Thank you for your below email/feed-back on CHSRA submitted PMP. I suggest that we convene FRA and CHSRA meeting specific to refining our PMP with your input. Very similar to what we jointly did to resolve Risk analysis and funds assignment.//Joe

Respect - Stewardship - Inclusion

Joe Hedges
P.E., PMP
Chief Operating Officer
California High Speed Rail
W 916-403-2688. C 916-712-2704
Joe.hedges@hsr.ca.gov

On May 4, 2018, at 3:04 PM, Barnes, Juliana (FRA) <juliana.barnes@dot.gov> wrote:

Hi Desi,

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Thank you,

Juliana Barnes, PMP
Project Manager
Office of Program Delivery (RPD-15)
Federal Railroad Administration
801 I St., Suite 466

Sacramento, CA 95814
Cell: 916-215-9115

From: barbara.gilliland@hsr.ca.gov [mailto:barbara.gilliland@hsr.ca.gov]
Sent: Friday, March 30, 2018 11:27 AM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Subject: Re: File Request - PMP FTP Site

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I0405

From: [Malone, Desiree@HSR](mailto:Malone.Desiree@HSR)
To: [Barnes, Juliana \(FRA\)](mailto:Barnes.Juliana(FRA))
Subject: RE: PMP Meeting Date
Date: Thursday, May 31, 2018 11:25:11 AM

I'll check availability and get back to you asap

From: Barnes, Juliana (FRA) [<mailto:juliana.barnes@dot.gov>]
Sent: Thursday, May 31, 2018 11:23 AM
To: Malone, Desiree@HSR
Subject: RE: PMP Meeting Date

Hi Desi,

I think June 21st will work, would there be time available in the morning, prior to lunch? It would provide an opportunity for anyone on the east coast on our end to join if available.

Thank you,

Juliana

From: Malone, Desiree@HSR [<mailto:Desiree.Malone@hsr.ca.gov>]
Sent: Tuesday, May 29, 2018 2:49 PM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Subject: RE: PMP Meeting Date

June 21

From: Barnes, Juliana (FRA) [<mailto:juliana.barnes@dot.gov>]
Sent: Tuesday, May 29, 2018 2:48 PM
To: Malone, Desiree@HSR
Subject: RE: PMP Meeting Date

I'm sorry Desi, is the date June 18th?

From: Malone, Desiree@HSR [<mailto:Desiree.Malone@hsr.ca.gov>]
Sent: Tuesday, May 29, 2018 1:09 PM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Subject: RE: PMP Meeting Date

How 'bout right after the Monday call (1:30 or 2:00)

From: Barnes, Juliana (FRA) [<mailto:juliana.barnes@dot.gov>]

I0406

Sent: Tuesday, May 29, 2018 1:07 PM
To: Malone, Desiree@HSR
Subject: RE: PMP Meeting Date

Hi Desi,

That looks good, is there a specific time?

Thank you,
Juliana

From: Malone, Desiree@HSR [<mailto:Desiree.Malone@hsr.ca.gov>]
Sent: Thursday, May 24, 2018 3:11 PM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Subject: RE: PMP Meeting Date

June 21? I will probably add one more person, Barbara Rooney. I will soon be reporting to her and she's backfilling Giles role and is interested in learning more about the grant. She'd just be observing.

From: Barnes, Juliana (FRA) [<mailto:juliana.barnes@dot.gov>]
Sent: Thursday, May 24, 2018 3:05 PM
To: Malone, Desiree@HSR
Subject: PMP Meeting Date

Hi Desi,

May I check in with you to see if an alternate date to the PMP meeting is available to June 7th, when the soonest would be?

Thank you,

Juliana

Barnes, Juliana (FRA)

From: Malone, Desiree@HSR <Desiree.Malone@hsr.ca.gov>
Sent: Monday, October 01, 2018 12:44 PM
To: Barnes, Juliana (FRA)
Cc: Everett, Lynn (FRA); Ouhamou, Mariam (FRA); Rooney, Barbara@HSR; Gilliland, Barbara(PB)@HSR; Hawkes, Ryan@HSR
Subject: Q3-18 Grant Deliverables
Attachments: 2018 Annual Work Plan.pdf; 2018 Central Valley Project Financial Plan.pdf; 2018 PMP.PDF; Q3-18 Deliverables Transmittal.doc

Categories: FRA

Hi Juliana,

Attached in this email are the following deliverables for Q3-18 - due on October 1, 2018:

- Q3-18 Transmittal #07395
- 2018 Annual Work Plan (AWP)
- 2018 Program Management Plan (PMP)
- 2018 Central Valley Project Funding Plan (CVPFP)
- CHSTP Design Manual (link to this document is located in the transmittal)

Additionally, the transmittal contains links to reexaminations loaded on the FRA-accessible SharePoint site.



2018 Program Management Plan Annual Update

September 2018



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ACRONYMS AND ABBREVIATIONS

AA	Alternatives Analysis
ACE	Altamont Corridor Express
ARRA	American Recovery and Reinvestment Act
Authority	California High-Speed Rail Authority
BOC	Business Oversight Committee
CalSTA	California State Transportation Agency
Caltrans	California Department of Transportation
CBA	Community Benefits Agreement
CCU	Contract Compliance Unit
CDFW	California Department of Fish and Wildlife
CEO	Chief Executive Officer
CEQA	California Environmental Quality Act
CFO	Chief Financial Officer
CFR	Code of Federal Regulations
CHSTP	California High Speed Train Program
CMB	Contract Management Branch
CMSU	Contract Management Support Unit
COBD	Customer-Operations-Build Design process
CONOPS	Concept of Operations
COO	Chief Operating Officer
COOP	Continuity of Operations Plan
CP	Construction Package
CPUC	California Public Utilities Commission
CWA	Clean Water Act
DB	Design-Build
DBE	Disadvantaged Business Enterprise
DBPP	Design-Build Program Plan
DCM	Design Criteria Manual
DCOO	Deputy Chief Operating Officer
DGS	Department of General Services
DOA	Delegation of Authority
DOF	Department of Finance
DOT	Department of Transportation
DRB	Dispute Resolution Board
DRP	Disaster Recovery Plan

DSSS	Director of System Safety and Security
DVBE	Disabled Veteran Business Enterprise
DVR	Design Variance Request
EEO	Equal Employment Opportunity
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMMA	Environmental Mitigation Management and Assessment
EPA	U.S. Environmental Protection Agency
ETO	Early Train Operator
FCS	First Construction Segment
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GGRF	Greenhouse Gas Reduction Fund
HSR	High-Speed Rail
HST	High-Speed Train
ICE	Independent Checking Engineer
IOS	Initial Operating Segment
IPD	Integrated Project Delivery
IPT	Integrated Project Team
ISE	Independent Site Engineer
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NOD	Notice of Determination
NTP	Notice to Proceed
PCM	Project and Construction Management Consultant/Project Construction Manager
PCMM	Project and Construction Management Manual
PDC	Program Delivery Committee
PE4P	Preliminary Engineering for Procurement
PEPD	Preliminary Engineering for Project Definition
PMIS	Program Management Information System
PMP	Program Management Plan
Program	California High-Speed Rail Program
Proposition 1A	Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century (Prop 1A)
QCRA	Quantitative Cost Risk Assessment

RDP	Rail Delivery Partner
RFP	Request for Proposal
ROD	Record of Decision
ROW	Right of Way
ROWDES	Right-of-Way Data Exchange System
RPA	Rule of Particular Applicability
SAA	Supplemental Alternatives Analysis
SB	Senate Bill
SHPO	State Historic Preservation Officer
SONO	Statement of No Objections
SSMP	Safety and Security Management Plan
SWRCB	State Water Resources Control Board
TAP	Technical Advisory Panel
TM	Technical Memorandum
USACE	U.S. Army Corps of Engineers
USC	United States Code
V&V	Verification & Validation
WBS	Work Breakdown Structure
YOE	Year of Expenditure

EXECUTIVE SUMMARY

This Program Management Plan (PMP) describes the management approach, the overall program structure, and the plans and procedures used by the California High-Speed Rail Authority (Authority) for the management, oversight and delivery for both the California High-Speed Rail Program (Program); and the federally funded portion of the Program's scope of work (Project). The Program produces the PMP and updates it annually to reflect organizational changes and continuous improvements.

The Federal Railroad Administration (FRA) awarded two grants funded from the American Recovery and Reinvestment Act of 2009 and the Omnibus Appropriations Act, 2010. The two grant agreements provide the overarching guidance for the grant-funded Project. In addition to this PMP, the following documents provide additional insight to the Authority's approach to project delivery:

- Design-Build Program Plan (DBPP): Outlines the Authority's approach to project delivery and identifies the project implementation procedures and methods established by the Authority to achieve successful design-build (DB) project delivery for the first construction segment (FCS).
- Project and Construction Management Manual (PCMM): Describes how the Authority will manage execution of the DB projects on the Program.
- 2018 Business Plan: The Authority's policy document to the California State Legislature outlining the program implementation strategy and budget.

Together these documents provide an overview of who and how the organization is accomplishing the ARRA grant scope of work, environmentally clear the Phase 1 system and construct the first construction segment within the Central Valley.

1 INTRODUCTION

1.1 Program Management Plan Purpose

The Program Management Plan (PMP) informs the FRA of the Authority's framework for delivering the federal project scope as defined in the Cooperative Agreements with the FRA. It describes the organization, management approach, organizational structure, plans, procedures and methods the Authority is using to manage project delivery in compliance with the grant. The Authority updates the PMP annually to reflect organizational changes and continuous improvements in methodologies that occur throughout the project's life cycle.

This PMP describes the organizational framework and, at a high-level, the policies and procedures that underpin the Authority, the key personnel, and how various groups within the Authority interact to fulfill the federal grant scope of work, as well as state requirements stipulated in Proposition 1A and the Greenhouse Gas Reduction Fund (Cap-and-Trade) funding allocated to the program. It points the reader to specific guidelines, policies, and procedural documents that detail the roles and responsibilities of respective offices and groups that constitute the Authority. See Figure 4 The Authority's Organizational Structure.

The PMP addresses the lessons learned as stated in the 2018 Business Plan and furthers key organizational concepts. It adds clarity and refinement to the Authority's organizational structure as the Authority transitions into a program development and delivery organization.

This PMP's specific goals are to:

- Develop and define an integrated organizational structure, with state and consultant staff working collaboratively together to form the Authority;
- Strategically improve organizational competency and expertise by focusing consultant resources on highly specialized skills and focusing state resources on program leadership and contract administration;
- Define clear roles and responsibilities for state and consultant staff and define clear performance expectations for teams, functions and individuals;
- Create effective governance and oversight;
- Strengthen partnerships, legislative affairs and stakeholder transparency;
- Further the organizational "development and delivery" evolution;
- Recognize organizational competencies to advance management and leadership of the program, component projects and future rail operations; and
- Ensure that "government decisions are made by government staff" with regards to sole state program strategic leadership, contract administration, fiscal planning and authorization, and state physical and human resource management.

This PMP includes further refinements to address key aspects in the following critical delivery areas:

- **Right of Way:** This branch is responsible to accelerate all right of way acquisitions to eliminate delay impacts of the Authority's ongoing Design Build (DB) contracts. To focus efforts and continue the Authority's advances in acquiring right-of-way, the Authority consolidated the headquarters and regional teams into a single, cohesive branch within the Office of Program Delivery. A portion of that right-of-way staff is stationed in the Central Valley to enhance local coordination efforts with headquarters.
- **Environmental:** This branch is responsible for accelerating environmental clearances and ensure the fulfillment of federal grant requirements to eliminate delays that impact the Authority's ongoing contracts. To achieve the remaining Phase 1 Records of Decision (ROD) approvals, emphasize NEPA permitting, and more closely monitor contractor environmental permitting and compliance; the Authority reorganized the environmental teams into a single cohesive and independent branch within the Office of Program Delivery. A portion of that environmental staff is

stationed in the Central Valley to enhance local coordination efforts with headquarters. This branch is accountable and responsible to accelerate all environmental clearances to eliminate delay impacts to the Authority's ongoing DB contracts, and ensure the fulfillment of federal grant requirements.

- **Risk Management:** To minimize risk occurrence and maximize potential opportunity offsetting possible future program budgetary impacts, the Authority established the Risk Management Section in the Program Management and Oversight Branch within the Office of Program Delivery. This Branch is fully integrated into all aspects of project and program management, fundamentally changing the Authority's program administration, megaproject development and delivery, and future rail operations. With this step, the Authority incorporates proactive program and project risk management into its routine business acumen and Program Baseline control. This will strengthen the Authority's program oversight and stewardship functions, resulting in early trend identification, prudent risk mitigation, accelerated commercial decision making, and enhanced contract oversight. The Authority consults with the FRA and the FRA's risk team to ensure evaluation of project risk and managed in a collaborative way to satisfy both oversight entities.
- **Change Control:** To manage the Program Baseline, the Authority established a Change Management Section in the Program Management and Oversight Branch within the Office of Program Delivery. This Section is responsible and accountable for maintaining the Program Baseline configuration management, schedule and budget. This ensures that program management remains agile to address emerging change and evolves to incorporate best solutions. The team also administers the Business Oversight Committee, which directs and authorizes any Program Baseline changes through comprehensive and rigorous review. The Program Baseline defines the high-speed rail system implementation plan. It includes the scope, schedule, costs and budget to deliver the priorities set in the 2018 Business Plan. The Program Baseline's effective implementation is an important step to improve the program's development and delivery management and enables holistic and transparent analysis of Authority change and business decisions.
- **Safety:** Strengthens the Authority's "safety first" culture. The Safety Branch is placed under the direct control of the Office of Program Delivery. This realignment gives the Safety Branch significant input and control into all aspects of project development, delivery and operations. The branch is involved to ensure the incorporation of safety provisions and oversight verifications into contract requirements.
- **Document Control:** To ensure Authority-wide document control, transmittal, tracking and archiving, the Authority established a Document Management Section under the direction of the Administrative Services Branch. This section has implemented the Authority's new Document Control Policy, has developed associated plans and procedures outlining document control throughout the Program lifecycle, instituted effective document management practices and the proper personally identifiable safeguards on documentation as appropriate.
- **Contractor and Consultant Management:** The Authority's Concept of Operations relies on an integrated project delivery approach using state personnel and consultants working together to achieve program goals. However, the Authority's fiduciary decisions and contract administration responsibilities remain solely with State personnel. State personnel fill positions that require the commitment of public funds, approvals and policymaking, or as mandated by statute or Board direction. The Authority assigns a state contract manager to every contract for oversight and administration. The Authority has established a Contract Management Branch within the Office of Program Delivery to further strengthen project management oversight of critical delivery contracts. State personnel under the Chief Operating Officer's direct oversight lead this branch. This provides a more robust commercial administration of capital delivery contracts and Authority consultants, including Regional Delivery Partner (RDP), Regional Consultants (RCs) and Project Construction Managers (PCMs).

1.2 FRA Program Management Plan Requirements

This PMP fulfills the requirements for Project Management Plans as set by the FRA under the High-Speed Intercity Passenger Rail Program (HSIPR). Also, in accordance with the Cooperative Agreement Attachment 1A, Section 3, the PMP is prepared in compliance with the requirements of 49 United States Code (U.S.C.) §24403(a) and Section 4.2.6 of the High-Speed Intercity Passenger Rail Program Interim Guidance published in the *Federal Register* on July 1, 2010 (75 FR 38344).

Specific provisions required as a part of this plan include:

1. Adequate recipient staff organization with well-defined reporting relationships, statements of functional responsibilities, job descriptions and job qualifications;
2. A budget covering the project management organization, appropriate consultants, property acquisition, utility relocation, systems demonstration staff, audits, and miscellaneous payments;
3. A construction schedule for the project;
4. A document control procedure and recordkeeping system;
5. A change order procedure that includes a documented, systematic approach to handling the construction change orders;
6. Organization structures, management skills, and staffing levels required throughout the construction phase;
7. Quality control and quality assurance functions, procedures, and responsibilities for construction, system installation, and integration of system components;
8. Material testing policies and procedures;
9. Internal plan implementation and reporting requirements;
10. Criteria and procedures used for testing the operational system and its major components;
11. Periodic updates of the plan, especially related to project budget and project schedule, financing and ridership estimates; and
12. The recipient's commitment to submit quarterly a project budget and project schedule to the FRA.

1.3 Program History and Overview

California has evaluated the potential for high-speed rail for several decades. The state first pursued the idea of a Southern California high-speed rail corridor 1981 under Governor Edmund Gerald "Jerry" Brown Jr. In the mid-1990s, planning for a high-speed train system began in earnest as California's growing population put an increasing strain on its highways, airports and conventional passenger rail lines. The California Legislature created the Intercity High-Speed Rail Commission in 1993, charging the Commission with determining the feasibility of a system in California. In 1996, the Commission issued a report that concluded that such a project was indeed feasible.

The California Legislature passed the High-Speed Rail Act (SB 1420, Chapter 796, Statutes of 1996) establishing the Authority. The Act created the High-Speed Rail Authority to oversee the planning, design, construction and operation of a statewide high-speed rail system. Later that year, the Authority adopted a 20-year plan for the program. The Federal High-Speed Rail Development Act of 1994 identified California as one of five corridors nationally for high-speed rail planning.

In August 2008, the California legislature passed AB 3034 expressing the intent to construct a statewide high-speed rail system and to finance a high-speed passenger train system by providing the funds necessary through the issuance and sale of bonds. State voters approved Proposition 1A in November of 2008. Proposition 1A approved the issuance of \$9.95 billion of general obligation bonds. Since enacting Proposition 1A, in 2013 the state also dedicated a portion of proceeds from its Greenhouse Gas Reduction Fund (Cap and Trade) towards completion of the system.

The FRA and Authority entered an agreement through the American Recovery and Reinvestment Act of 2009 for \$2.552 billion in August of 2010. Additional funds were awarded through an FY 10 grant for a total of \$3.481 billion in federal funding.

1.4 California High-Speed Rail Program Scope

The vision for a high-speed train system in California is to connect the megaregions of the state, contribute to economic development, promote a cleaner environment, preserve agricultural and protected lands and create jobs. Service will run from San Francisco to the Los Angeles basin in under three hours and at speeds capable of over 200 miles per hour. The high-speed rail system will ultimately extend to Sacramento and San Diego, totaling over 800 miles with up to 24 stations. The Program is an integrated statewide rail system that includes a series of concurrent strategic investments in urban, commuter and intercity rail systems that, when combined, significantly improves mobility and connectivity throughout the state.

To deliver this system, the Legislature and voters approved Proposition 1A and dedicated Cap-and-Trade, for development and construction. The 2018 Business Plan identifies an approach to funding and delivering the system with the focus on three fundamental objectives:

1. Initiate high-speed rail passenger service as soon as possible.
2. Make strategic, concurrent investments linking the system over time.
3. Position the Authority to construct additional segments as funding becomes available.

The system consists of eight project sections from San Francisco to Los Angeles/Anaheim. Three Central Valley (DB) contracts are executed for the First Construction Segment running from Avenue 19 in Madera County to north of Bakersfield at approximately Poplar Avenue.

The Authority's primary goals are:

- Completing the three Central Valley DB mega contracts constructing the alignment that runs from Avenue 19 in Madera County to north of Bakersfield at approximately Poplar Avenue;
- Achieving eight remaining RODs that define the north-to-south alignment of the high-speed rail system;
- Managing the Program Baseline to continuously refine estimates-to-complete and to develop a robust risk management system;

1.5 Federal Grant Funded Project Scope

The American Recovery and Reinvestment Act (ARRA) Cooperative Agreement FR-HSR-00009-10-01 (executed in August 2010) awards California the amount of \$194 million. The agreement was amended to \$2.46 billion in December 2010, and to \$2.55 billion in August 2011.

The Omnibus Appropriations Act, 2010 (FY10) and Cooperative Agreement FR-HSR-01180-12-01-00 was executed in November 2011 awarded the Authority a second grant in the amount of \$928,620,000.

The performance period for the ARRA and the FY10 grants is through December 30, 2022 and provides partial funding for:

- Obtaining environmental clearance, preliminary engineering (ready for procurement), and associated work such as operations planning, station area plans, and ridership forecasts for all of Phase 1 (Program). Only the ARRA grant funds this scope of work.
- Completing final design and construction of the FCS in California's Central Valley (Project). The FCS will have independent utility. Both grants fund this scope of work.
- Interim use of the FCS is granted in the case that the high-speed rail initial operating system is delayed. Both grants fund this scope of work.

Figure 1. Phase High-Speed Rail System Implementation shows the Authority's proposed implementation plan including the federally funded FCS, found in green from Madera to just north of Bakersfield. The

2018 Business Plan highlights the commitment to deliver the grants scope of work, including completion of the Phase 1 environmental documents and civil construction (including track). The draft plan also envisions implementing early interim services on the way to completing the Silicon Valley to Central Valley Line. This includes evaluation of early interim service from Bakersfield to Madera providing early benefits to passengers in this corridor. The graphic further describes completing an initial segment from San Francisco to Gilroy; followed by completion of the connection between the Silicon Valley and Central Valley and extensions to Merced.



Figure 1. Phase High-Speed Rail System Implementation

The ARRA and FY10 grants cover a combined scope of work, budget and schedule covering the following activities:

Task 1: Environmental Review

- Notice of Intent/Notice of Preparation
- Alternatives Analysis
- Project Definition
- Administrative Draft Environmental Impact Report (EIR) / Environmental Impact Statement (EIS)
- Draft EIR/EIS
- Administrative Final EIR/EIS
- Final EIR/EIS
- Agency Decision Documents
- Environmental Permits and Regulatory Agency Approvals
- Mitigation Implementation Planning
- Reexaminations
- Resource Agency Coordination

Task 2: Preliminary Engineering (PE)

- By Project Section for Phase 1 environmental analysis, approvals, and permits under Task 1
- CHSTP Design Criteria and O&M Plans
- Concept of Operations (CONOPS) for the FCS and any other segment
- Rolling Stock Performance Specifications
- Systems Safety and Security Management Plan (SSMP)

Task 3: Other Related Work Needed Prior to Start of Construction

- Station Area Planning
- Right-of-Way (ROW) Acquisition Support
- ROW Preservation
- Contingent Planning for Interim FCS Utilization
- Ridership Forecasting
- Preliminary Engineering to Support FCS Procurement
- Small/Disadvantaged Business Program
- Subtask Structure for Task 3: Other Related Work

Task 4: Project Administration and Statewide Cost Allocation Plan

- Task 4 activities are complete

Task 5: Program, Project, and FCS Construction Management

- Work Breakdown Structure (WBS)
- Annual Work Plan
- Program Management Plan
- Central Valley Project Financial Plan
- Phase I Program Financial Plan

- DB Program Plan
- RFP & NTP for Design/Construction Services by CP
- Network Integration Strategic Service Plan
- Updated Service Development Plan
- Infrastructure Maintenance Plan
- Rolling Stock Maintenance Plan

Task 6: Real Property Acquisition and Environmental Mitigation

Task 7: Early Work Program

- Activities in Task 7 are redistributed among the other tasks in the grant agreement

Task 8: Final Design and Construction Contract work for FCS

- Final Design and Construction: SR-99
- Final Design and Construction: Civil Infrastructure Construction Package 1
- Final Design and Construction: Civil Infrastructure Construction Package 2-3
- Final Design and Construction: Civil Infrastructure Construction Package 4
- FCS Track work Components of Construction Package 5
- May 2011 ARRA Funding for Final Design and Construction Work

Task 9: Interim Use Project Reserve

Task 10: Unallocated Contingency

1.6 Project Schedule

The Authority maintains a master schedule covering program development, design and construction and ultimate operations. For purposes of meeting state legislative requirements, the Authority's 2018 Business Plan provides overall direction on the completion of an Initial Operating Segment (IOS) – defined as the Silicon Valley to Central Valley Line (San Francisco to Bakersfield).

The project funded by FRA includes completion of all Phase 1 environmental documents from Merced/San Francisco to Los Angeles/Anaheim, including environmental documentation and engineering to support environmental decision making and other planning activities. In addition, it funds a portion of the IOS, the first 119-mile FCS from Avenue 19 in Madera County to Poplar Avenue, just north of Bakersfield.

The Authority's focus is to complete the FCS as soon as possible. The goal is to deliver early passenger benefits along the way to completion of the IOS. This approach includes the following key activities:

1. Complete Central Valley civil work – Complete construction already well underway in the 119-mile FCS (Madera to Polar Avenue) by 2022, consistent with the grant scope of work.
2. Add Central Valley track and system – Adding the track and systems will prepare the Central Valley segment for early, interim use by an operator and for testing of high-speed trains.
3. Evaluate Central Valley Early interim service – Analyze the potential to utilize a completed segment in the Central Valley for early operations or interim improved Amtrak passenger service.

Table 1. Program Phase 1 Milestones shows key schedule milestones. The Authority provides grant milestones to the FRA in a quarterly summary schedule.

Table 1. Program Phase 1 Milestones

Data Date: September 01, 2018		CHSRA Program Phase 1 Milestone Table																READY FOR REVENUE SERVICE				
		Environmental/Engineering				Civil Infrastructure				Track and Systems				High-Speed Rail Trains					Testing and Commissioning			
		FTA R00	STB R00	Complete PEAP	Issue RFP	Issue NTP	Substantial Completion	Issue RFP	Issue NTP	Substantial Completion	Issue RFP	Issue NTP	Substantial Completion	Issue RFP	Acceptance Prototype	Acceptance Trains 3 1st	Complete Static Testing	Complete Dynamic Testing	Complete Static Testing	Complete Dynamic Testing	Complete Trial Run	
Silicon Valley to Central Valley Line (San Francisco to Bakersfield)																						
First Construction Segment (FCS/ Test Track)																						
CP 1				Complete	Mar-2014	Oct-2013	Dec-2020	Jan-2019	Jan-2021	Dec-2023	Jan-2019	Jan-2020	Jun-2024	Jun-2024	Jun-2024	Jun-2024	Dec-2024	Dec-2025				Dec-2026
CP 2-3					Apr-2014	Jul-2015	Mar-2022	Jan-2019	Jan-2021	Dec-2023	Jan-2019	Jan-2020	Jun-2024	Jun-2024	Jun-2024	Jun-2024	Dec-2024	Dec-2025				Dec-2026
CP 4					May-2015	Apr-2016	Aug-2021	Jan-2019	Jan-2021	Dec-2023	Jan-2019	Jan-2020	Jun-2024	Jun-2024	Jun-2024	Jun-2024	Dec-2024	Dec-2025				Dec-2026
San Jose to FCS																						
San Jose to Gilroy					Oct-2020	Oct-2021	Jun-2026	Jan-2019	Jan-2021	Dec-2023	Jan-2019	Jan-2020	Jun-2024	Jun-2024	Jun-2024	Jun-2024	Dec-2024	Dec-2025				Dec-2027
Gilroy to Pacheco Pass Tunnel					Jul-2019	Jul-2020	Mar-2025	Jan-2019	Jan-2021	Dec-2023	Jan-2019	Jan-2020	Jun-2024	Jun-2024	Jun-2024	Jun-2024	Dec-2024	Dec-2025				Dec-2027
Pacheco Pass Tunnel					Jul-2020	Oct-2021	Dec-2026	Jan-2019	Jan-2021	Dec-2023	Jan-2019	Jan-2020	Jun-2024	Jun-2024	Jun-2024	Jun-2024	Dec-2024	Dec-2025				Dec-2027
Foothills to Carlucci Rd. & Carlucci Rd. to FCS (Wye Leg2)					Feb-2020	Feb-2021	Mar-2025	Jan-2019	Jan-2021	Dec-2023	Jan-2019	Jan-2020	Jun-2024	Jun-2024	Jun-2024	Jun-2024	Dec-2024	Dec-2025				Dec-2027
Silicon Valley to Central Valley Extensions (San Francisco to Merced & FCS to Bakersfield)																						
FCS to Bakersfield (LGA)					Jan-2019	Apr-2019	Jun-2020	Jun-2024	Jan-2021	Dec-2025	Jan-2019	Jan-2020	Jun-2024	Jun-2024	Jun-2024	Jun-2024	Dec-2024	Dec-2025				TBD
San Francisco to San Jose					Mar-2021	Jun-2021	Oct-2025	Jan-2021	Jan-2021	Dec-2023	Oct-2025	Jan-2021	Jan-2021	Jan-2021	Jan-2021	Jan-2021	Dec-2024	Dec-2025				Dec-2027
Merced to Ranch Rd. & Wye Leg1 (East & West)					Jul-2019	Oct-2019	Aug-2021	Aug-2020	Aug-2021	Jul-2027	Sep-2025	Jan-2021	Jan-2021	Jan-2021	Jan-2021	Jan-2021	Dec-2024	Dec-2025				TBD
FCS to Burbank (Southern California)																						
Bakersfield to Palmdale																						
SCP 1																						
SCP 2																						
SCP 3																						
SCP 4																						
SCP 5																						
SCP 6																						
Palmdale to Burbank																						
SCP 7																						
SCP 8																						
SCP 9																						
Burbank to Anaheim Corridor Improvements																						
Burbank to Los Angeles																						
Los Angeles to Anaheim																						

LEGEND: RFA: Federal Railroad Administration; STB: Surface Transportation Board; R00: Record of Decision; PEAP: Preliminary Engineering for Procurement; RFP: Request for Proposal; NTP: Notice to Proceed; Main YR: Actualized Date; Current Forecast Date; Men YR: Men YR; In accordance with the 2018 business plan, the delivery of these milestones is dependent upon the program securing sufficient additional funding.

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1.7 Budget and Financial Plan

Current Budget and Finances

The Authority's Board of Directors adopts and oversees the Program budget through appropriations from the California State Legislature. This involves submission of budget change proposals (BCPs) through the California Department of Finance (DOF). State general obligation bond funding sources also require submission of funding plans. The Legislature requires a biennial business plan that forecasts sources and uses of funds. The business plan reflects additional statutory requirements to provide updates on progress, milestones and schedule, scope, an updated risk assessment and a forecast of capital and operations costs, as well as potential revenue and financial plans. The Authority also provides the FRA a quarterly update on the federal grant budget and expenditures/cash flow.

To date, the Authority has secured significant funds from both state and federal sources. The entire Phase 1 System, including the delivery of the Central Valley segment and complete environmental planning and other early work use these funds. Funding for the program generates the following:

- November 2008: Initial funding for the system provided by the passage of Proposition 1A by the voters. The measure authorized the issuance of \$9.95 billion in bonds. This includes \$9 billion dedicated to the high-speed rail project and the remainder to regional connectivity projects.
- 2010-2011: Authority awarded \$2.55 billion in federal American Recovery and Reinvestment Act funds for preliminary engineering and environmental review and construction of the FCS of the initial operating segment (IOS), The FCS runs from Madera to Poplar Avenue just north of Bakersfield.
- November 2011: Authority awarded \$929 million in federal FY 10 funding dedicated to final design and construction of the FCS.
- July 2012: The California Legislature enacted Senate Bill (SB) 1029, the Budget Act of 2012. SB 1029 earmarked \$4.5 billion in Proposition 1A bonds, previously approved by voters, to the system, with \$2.6 billion allocated to the construction of the IOS, generally, and the FCS, in particular.
- June 2014: State legislators and Governor Jerry Brown approved the fiscal year 2014-15 State Budget, which appropriated \$650 million in one-time funding from available Cap-and-Trade Auction proceeds and apportioned 25 percent of the future annual Cap-and-Trade auction proceeds to the High-Speed Rail project.
- July 2017: State legislators passed, and Governor Jerry Brown signed, legislation that extended the Cap-and-Trade auction program sunset date to December 31, 2030, effectively providing an estimated \$7.50 billion (\$750 x 10 years' extension) in additional funding for advancement of the high-speed rail project.

The discussion below provides additional detail on funding sources and program costs for the federal grant scope of work.

Federal Funding

American Recovery and Reinvestment Act (ARRA) Grant

The expenditure of ARRA grant funds represents a significant milestone in the life of the project. This money has been expended in compliance with the federal grant agreement on system planning and Central Valley civil works contract packages. More than \$2.55 billion was to date on construction in the Central Valley and planning for the wider system. The grant was fully expended before the federally mandated completion date. Funding totaling \$2.50 billion include ARRA funds that are being matched with appropriated Proposition 1A and Cap-and-Trade funds.

FY10 Grant

The Authority will access a further \$929 million of federal FY10 grant funding for construction in the Central Valley once ARRA funds are fully matched with state funds and other requirements of the grant

are fulfilled. Upon expenditure, the entire FY10 balance remains available and is matched with \$360 million of state funds.

State Funding

Proposition 1A

In 2008, voters approved Proposition 1A, which provided a combined total of \$9.95 billion for high-speed rail planning and construction and regional connectivity projects. In March 2017, the Authority successfully received permission to access \$3.3 billion in Proposition 1A funds for construction in the Central Valley, electrification of the San Francisco to San Jose Peninsula Corridor (also known as the Caltrain Corridor), and construction of the Rosecrans/Marquardt Grade Separation Project in Southern California. Proposition 1A funds also provide the required state match to the ARRA federal funds that have allowed construction to proceed in the Central Valley. Approximately \$423 million of Proposition 1A funding for “book-end projects” remains available for activities in Southern California.

Cap-and-Trade

The Authority has received \$650 million in one-time Cap-and-Trade funding, and subsequently a 25 percent continuous funding appropriation of quarterly Cap-and-Trade auction proceeds deposited in the Greenhouse Gas Reduction Fund (GGRF). The quarterly auctions have delivered variable amounts each quarter since August 2015. The California Legislature approved AB 398 signed into law by Governor Brown in July 2017. The bill extends the horizon of the Cap-and-Trade Program through December 31, 2030. This was another important step by the Legislature toward securing a long-term, stable source of funding for the project. Since the passage of this bill, quarterly receipts from Cap-and-Trade auctions have been strong—an indication that the market has reacted positively to the legislation. Table 1. Summary of Current and Future Funding, lists the funding sources for the Program, including the federal grants.

Budget Summary

In June 2018, the Authority adopted a 2018 Baseline Schedule. This effort included a comprehensive assessment of current funding resources and review of an estimate to complete the current civil construction underway and a cost to complete the remaining Phase 1 environmental documents. Table 2. Summary of Current and Future Funding, also summarizes the current program funding status, and expenditures through June 2018.

Table 2. Summary of Current and Future Funding

Summary of Current and Future Funding as of June 30, 2018	Total Available (\$M)	Total Expended (\$M)	Total Remaining (\$M)
Federal Funds			
ARRA Planning	479	479	-
ARRA Construction	2,069	2,069	-
FY10	929	-	929
State Funds			
Proposition 1A Planning	675	418	257
Proposition 1A Construction (CVS)	2,609	1,024	1,585
Cap-and-Trade (received through Jun-18)	2,038	595	1,443
Subtotal			
Cap-and-Trade (forecast Jul-18 to Dec-30) ¹	6,250 – 9,375	-	6,250 – 9,375
TOTAL	15,049 – 18,174	4,585	10,464 – 13,589

Notes:

1. Assumes a low of \$500 million to a high of \$750 million per year.
2. In addition to Proposition 1A funds above, \$1.1 billion of bookend funds are available.
3. The funding and expenditures shown in this table are not specific to the Federal scope associated with the ARRA/FY10 grant agreements.

The Authority is currently completing project development work for the seven sections within the Phase 1 Program identified in the grant agreement. Two sections have received RODs that support construction underway in the Central Valley. However, both completed documents include extensions that are beyond the current scope of construction on the FCS. Both documents are currently under supplemental review for potential construction of these extensions to Bakersfield and beyond Madera through the Central Valley Wye.

The Central Valley segment estimate-at-completion was updated for the 2018 Business Plan in addition to updating costs associated with environmental documentation. This estimate exercise built upon the scope and costs embodied in the Central Valley Segment Funding Plan. The Board of Directors approved the funding plan in January 2017 and estimated the cost at that time at \$7.8 billion in YOE dollars. The Central Valley Segment Funding Plan allowed access to the \$2.61 billion in Proposition 1A funds that were appropriated in Senate Bill (SB) 1029, the Budget Act of 2012, for the 119-mile federally funded segment under construction from Madera to Poplar Avenue just north of Bakersfield.

The estimate at completion review resulted in a higher estimate of \$10.6 billion to complete this segment. The Authority Board of Directors reviewed this in January 2018. A \$7.8B Central Valley Funding plan budget excluded project development scope. However, \$10.6B estimate at completion approved in January 2018 included project development scope.

Budget and Finance Management

The Financial Office provides expertise, analysis and education related to the Authority's finances, economics, funding and commercial viability. The Financial Office is the primary contact for the State's control agencies: (1) California State Transportation Agency (CalSTA); (2) Department of Finance; (3) State Controller's Office; (4) Office of State Treasurer; (5) Legislative Analyst's Office; (6) FI\$Cal; and other stakeholders. The Financial Office manages the organization's cash and assures that the organization follows the requirements for spending of public funds. The Financial Office oversees the commercial performance of the program and provides analysis and insight to help frame decisions. This includes budgeting, accounting, reporting, strategic planning and communications related to financing and commercial viability of the program. In addition, the Financial Office has oversight responsibility for project financial activities following three primary objectives:

- Assessing the financial impact in terms of budget and cash flow;
- Assessing the commercial impact on the future enterprise value; and
- Ensuring the appropriate use of public funds.

Accounting Branch: The Accounting Branch coordinates and reports on the Authority's expenditures to the DOF — Fiscal Systems and Consulting Unit, the State Controller's Office, the Office of State Treasurer and FI\$Cal. In addition, the Accounting Branch serves as the custodian of funds for the organization. The Branch tracks all expenditures of Program Delivery projects underway as well as expenditures of the various offices making up the Authority. The Branch uses this information to establish the database of information used for reporting and decision-making.

Financial Advisor Branch (KPMG): The financial advisor advises on business and strategic matters of the Financial Office, and, in many cases, the Authority. It works directly with the Chief Financial Officer (CFO) to develop recommendations to the Chief Executive Officer (CEO) and Board on a variety of matters to help achieve Authority goals. The financial advisor's primary role is to advise and assist on budget and cash flow management issues, procurement strategy as it relates to the Authority's Business Plan and the overall commercial viability and long-term enterprise value of the high-speed rail system.

Commercial Branch: The Commercial Branch is responsible for budget and cash flow management issues, procurement strategy as it relates to the Authority Business Plan and the overall commercial viability and long-term enterprise value of the high-speed rail system.

Budgeting Branch: Budgeting is a core function of the Financial Office. The Budget Branch coordinates the annual budget for the Authority with CalSTA, the DOF, the Office of State Treasurer, the Legislative Analyst's Office, staff consultants for the Senate and Assembly, FI\$Cal and other stakeholders. The Budget Branch allows the Authority to maintain a positive credit profile, which, in turn, gives the Authority the ability to borrow and attract investors and financial partners to help it achieve its delivery goals. It assists Program Management and Oversight by matching current and planned expenditures with cash available and projected to be on hand when payables become due. The Budget Branch also educates the Authority staff on fund sources, how or when they can be used and what expenditures the fund sources can be used for to comply with any restrictions enacted by legislation.

Business/Economics and Reporting Branch: One way the Authority shows progress and performance relative to expectations is by demonstrating the economic impact of the program in terms of jobs, economic output and other metrics through research and analysis of the Business and Economics Branch. The Authority produces financial and performance reports for internal and external stakeholders. These reports provide regular updates on expenditures and project performance.

Project Financial Branch: The Project Financial Branch is the financial liaison between Program Delivery, Program Controls and the Financial Office. The Branch's primary responsibilities are to report financial and program performance data in an accurate and timely manner and assist Program Management and Oversight in the coordination of the program delivery cost management, programming and change order processes.

Grants Branch: The Authority has established a position which reports to the Federal Transportation Liaison in the Government Relations Office. The grant manager is responsible for the overall management, and compliance oversight for all grant funding that the Authority receives. The grant manager is responsible for quality controls for grant activities, reports and deliverables, and ensuring department-wide awareness and compliance with federal grant provisions, applicable state rules and regulations. The grant manager works closely with the Financial Office, Legal Office, and Project Controls to ensure that grant-related activities remain compliant and consistent with federal and state requirements.

Audit Office: The Authority has an established Audit Office that reports directly to, and takes direction from, the Board of Directors. The Audit Office prepares an annual audit plan, for the Board Approval, that can review any aspect of the Authority's operations. This provides for an independent evaluation of the Authority's programmatic/financial compliance to applicable rules and regulations for the Board of Directors. The auditor's office provides ongoing objective evaluations, opinions, and recommendations concerning operational and programmatic deficiencies/strengths, and potential internal and external risks to the organization. Should the Audit Office discover deficiencies, they also monitor corrective action plans for resolution to areas of concern or findings. The Chief Auditor reports to the CEO that appropriate actions are taken on audit findings. The Audit Office is also responsible for coordinating all external federal/state audits, and for coordinating the annual external Office of Management and Budget A-133 programmatic audit and annual financial statement audit. The Audit Office staff is exclusively civil servants.

The Budgets branch prepares financial reviews and coordinates financial forecasting in regular frequencies as needed as well as for plans and reports such as the Authority Business Plans. The Central Valley Project Financial Plan (Appendix F) provides an annual snapshot of the Authority's financial plan to deliver the grants scope of work. The Budget branch updates plan each fall based on the Authority adopted fiscal year budget. This overall plan provides the framework for systematically funding projects aligned with the goals and objectives of delivering the federally funded project and in concert with the Authority's adopted business plan. This framework encompasses the process for establishing a funding baseline, which encompasses the funding constraints and funding agreements. These are aligned with the program wide time-phased budget for the scope identified in the business plan to create funding allocations. The Authority compares potential encumbrances against the baseline as they arise. The

Program Delivery Committee and Business Oversight Committee review change requests submitted by contract management. The Budget branch makes updates to reflect the approved changes.

2 PROGRAM LEADERSHIP AND TEAM ORGANIZATION

The Authority is the state entity responsible for planning, designing, constructing and operating the 800-mile high-speed rail system. A nine-member Board of Directors govern the Authority. The Board consists of five members appointed by the Governor, two appointed by the Senate Committee on Rules and two by the Speaker of the Assembly. The board added two Ex Officio members representing the Legislature in early 2017. Within the Board, there is an elected chair and vice-chair.

California Public Utilities Code section 185024(a) directs the Board to appoint an Executive Director to administer the affairs of the Authority as directed by the Authority. Board Policy HSRA11-001 delegates these responsibilities to the Chief Executive Officer (CEO). The CEO ensures that all actions taken are conducted in accordance with all applicable federal and state laws and regulations, and the policies of the Board of Directors and shall ensure compliance with applicable grant requirements when predominately federal and state funds are used for procurements.

The CEO seeks approval and guidance from the board on a broad range of issues regarding the ongoing program, including, but not limited to; certifying environmental documents, entering into contracts, making decisions on alignments, and adopting key document such as program business plans. Authority staff and over 300 consultant staff manage the day-to-day operations as an integrated organization.

2.1 Authority Mission, Vision, Goals and Objectives

Mission

Connect California's diverse communities and improve mobility, the economy and the environment by delivering a functional, certified and commercially viable high-speed rail system.

Vision

Deliver a transformative high-speed rail system by developing a world-class organization that demonstrates leadership, collaboration, diversity and strong stewardship of public funds.

Goals

Develop a strategic plan that includes specific performance measures to track progress toward achieving our mission through the following values:

- **Safety:** The safety and security of our workers, employees and customers is first and always our top priority.
- **Stewardship:** Protect and conserve public and environmental resources dedicated to this project.
- **Performance:** Use specific performance measures to track progress and support the development of a robust culture of program delivery and accountability.
- **Transparency and Engagement:** Engage and consider input from the public and our stakeholders in an authentic, two-way dialogue to provide information about program achievements, milestones and challenges.
- **Diversity:** Develop and support a diverse workforce fully capable of delivering this transformative project.
- **Sustainability:** Deliver a system that maximizes benefits to priority communities, protects resources and serves in the transition to a low-carbon economy.

2.2 Strategic Organizational Approach

The Authority continues to evolve its business processes and organization to define itself as a project delivery organization. This change focuses on the necessity to plan for future successes, be locally agile for contract delivery, create a "field oriented" headquarters to implement practical solutions that address current challenges.

The Chief Executive Officer (CEO) is the accountable executive, appointed by the Authority's Board of Directors, for successfully executing the Authority's mission of building the statewide high-speed rail project. The CEO leads the Authority in:

- Stating the Authority's mission, vision, goals and objectives;
- Providing its concept of organizational operations and governance;
- Specifying its functional organizational structure; and
- Delegating CEO authority by organizational roles and responsibilities.

This PMP implements an Integrated Project Delivery (IPD) managerial and operational approach using State and consultant resources. These resources work seamlessly through a single, integrated organization to develop and deliver the high-speed rail program. The IPD's success depends on a clear understanding and execution of roles and responsibilities at the organizational and individual levels. The PMP defines these roles and responsibilities at a functional level from the Board of Directors downward, strengthening the partnership between the State and its consultants by creating distinct, but complementary, capacities and by creating clear paths of communication.

The Authority's Concept of Operations defines the linking of these organizational elements in the following matrix organization:

- Project Delivery Pillars – Responsible for project delivery and execution;
- Functional Support Groups – Responsible for program delivery resources, strategy, policy and technical expertise; and
- Executive Support Functions – Responsible for providing all non-project delivery and administrative related functions and expertise required to achieve the Authority's mission.

Figure 2 illustrates the Concept of Operations for each organizational element. The goal is to clearly describe how each element contributes to the successful delivery of the high-speed rail project; improves the efficiency of project delivery; avoids duplication of effort; holds each organizational element accountable to results; enhances public transparency; strengthens partnerships; and improves financial stewardship by employing an integrated program delivery approach. The PMP further stresses the concept of local project delivery, with headquarters providing programmatic oversight, policy formulation and resourcing.

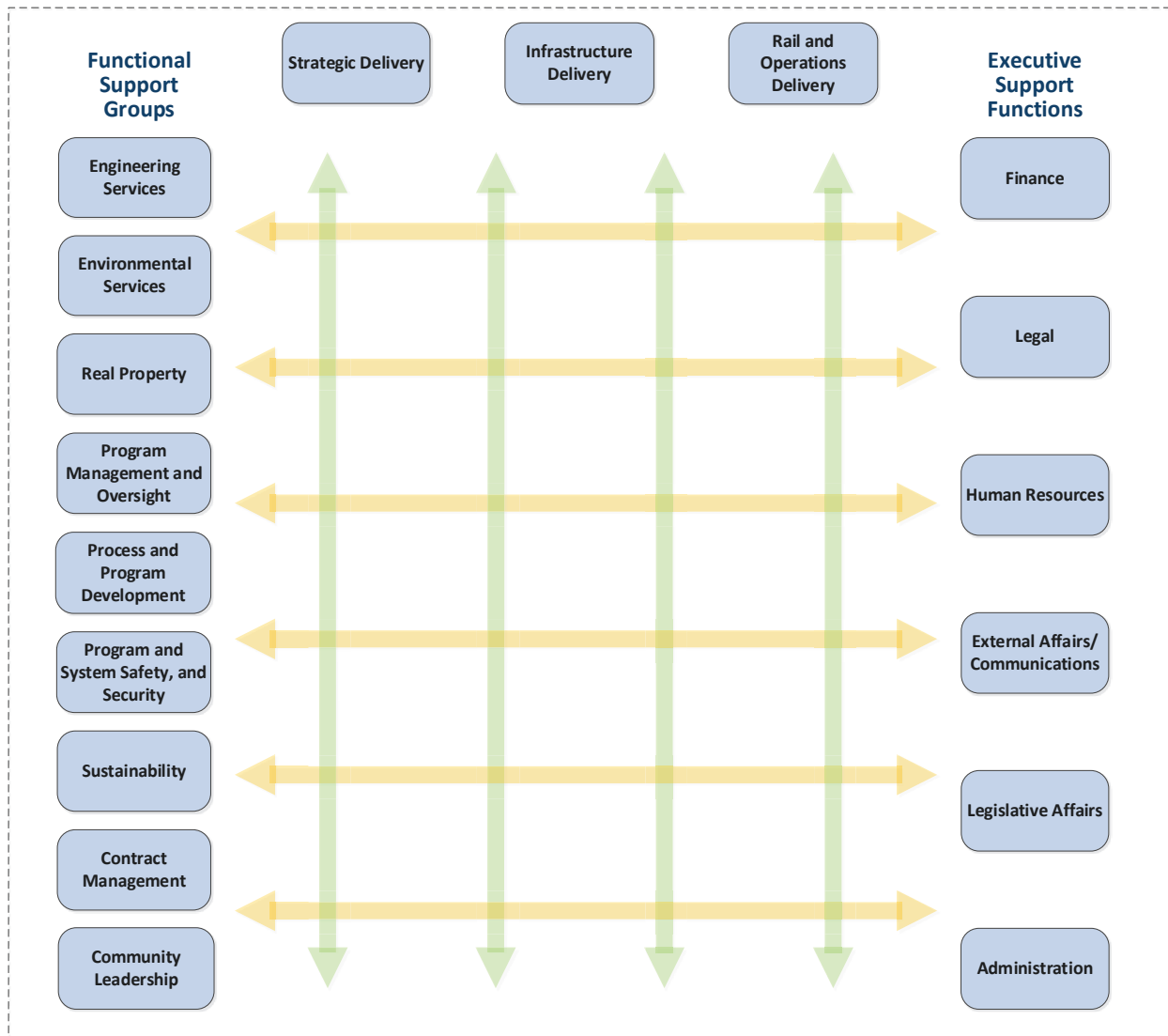


Figure 2. The Authority's Concept of Operations

The Authority's success is contingent upon a clear understanding and implementation of roles and responsibilities at corporate, organizational and individual levels. The PMP defines these roles and responsibilities at a programmatic level, and the "Concept of Operations" shows matrix organization linkage of the various groups making up the Authority.

The branches within the Authority make up the Project Delivery Pillars responsible for project delivery and execution. The "Functional Support Groups" are responsible for program delivery resources, strategy, policy, and technical expertise. The Executive Support Functions provide all the non-project delivery related functions and expertise required to achieve the Authority's mission. These combined organizational elements are used to cooperatively and collaboratively execute the program and its individual projects. The Project Delivery Pillars, Functional Support Groups and Executive Support Functions focus their unique contributions, expertise and resources into a single Authority voice and implementation strategy. Each group is equally significant and shares equally in the Authority's successes.

The goal of this organizational structure is to break down silos and drive the organization across the phases of delivery built upon a foundation of safety, risk assessment and quality regime. Figure 3 illustrates the responsibilities and objectives of each pillar and function.

Project Delivery Pillars	Strategic Delivery	<ul style="list-style-type: none"> ➤ Provides program project management from conception through civil contract award ➤ Completes eight remaining records of decision
	Infrastructure Delivery	<ul style="list-style-type: none"> ➤ Delivers civil construction contracts ➤ Ensures contract compliance
	Rail and Operations Delivery	<ul style="list-style-type: none"> ➤ Delivers rail capital projects. ➤ Operates all rail facilities and systems
Functional Support Groups	Engineering Services	<ul style="list-style-type: none"> ➤ Develops, publishes and manages engineering policy ➤ Provides support to delivery pillars
	Environmental Services	<ul style="list-style-type: none"> ➤ Develops, publishes and manages environmental policy. ➤ Implements NEPA assignment
	Real Property	<ul style="list-style-type: none"> ➤ Acquires, manages, and disposes of right of way ➤ Negotiates third party agreements, except those with railroads
	Program Management Oversight	<ul style="list-style-type: none"> ➤ Manages the program baseline and reports program performance ➤ Oversees program and project management, including the baseline, changes, and risks
	Process and Program Development	<ul style="list-style-type: none"> ➤ Develops, implements, monitors, and maintains Quality program and ISO 9001 certification. ➤ Develops, implements and operates an effective Lean Six Sigma program
	Program Safety and Security	<ul style="list-style-type: none"> ➤ Develops, implements, monitors, and maintains Safety and Security Management Plan ➤ Develops, implements and manages the safety and security certification system
	Sustainability	<ul style="list-style-type: none"> ➤ Develops, implements, and maintains sustainability policies and procedures ➤ Reports on project and program level sustainability performance
	Contract Management	<ul style="list-style-type: none"> ➤ Develops, implements, and maintains contract management policies and procedures ➤ Oversees all capital contracts scope, schedule and budget
	Community Leadership	<ul style="list-style-type: none"> ➤ Develops and maintains relationships with key stakeholders in regions ➤ Shepherd resolution of complex community issues
Executive Support Functions	Finance	<ul style="list-style-type: none"> ➤ Assesses the financial impact in terms of budget and cash flow ➤ Oversees the commercial performance of the program
	Legal	<ul style="list-style-type: none"> ➤ Advises Authority on legal matters ➤ Advises on commercial strategy and funding/financial plans
	Strategic Communications	<ul style="list-style-type: none"> ➤ Manages the Authority's communications with media, the public, small businesses, and Authority's employees and contractors
	Legislative Affairs	<ul style="list-style-type: none"> ➤ Manages communication and relationships with federal and state legislators ➤ Manages all federal grants to the Authority
	Administration	<ul style="list-style-type: none"> ➤ Manages the Authority's workforce and provides HR and administrative support ➤ Manages the EEO, Constructive Intervention, Title VI programs

Figure 3. Operational Pillars and Functions

Authority staff, consultants and contractors support the operational pillars and functions. The Authority headquarters and field resources must be clearly aligned to this operational concept to achieve these objectives. There must also be direct and efficient processes and clear roles, responsibilities and accountability. The goal is to establish enterprise roles and responsibilities, create value-added processes and identify centers of expertise that directly support field delivery. This will require distribution of direct

headquarters-held expertise and resources, including engineering, legal, administration, real estate and environmental, toward project implementation.

Integrated Process Teams

A key implementation approach of this organization structure will be the creation of Integrated Process Teams (IPT) to address critical deliver issues. These multidisciplinary groups will be collectively responsible for delivering a defined product, process and/or recommendation. Organizations use IPTs in complex development programs/projects for review and decision making. In simple terms, they help solve “hard” cross-functional problems by assembling subject-matter experts across the organization, regardless of divisional origin. An example would include addressing design-build grade subsidence contract issues. An IPT would include members from Construction, Program Delivery, Engineering, Right of Way, Legal and Regional Directors.

Teams use the IPT concept to define organizational and key individual roles and responsibilities. This is the first step in achieving alignment between Sacramento headquarters and Central Valley field staff on construction delivery issues and decision making. This is to ensure clear roles and responsibilities, decision-making understanding and defined implementation processes.

The evolution of staff resources to this organizational approach will instill a proactive project-management approach that emphasizes stewardship, creates organizational agility and collaboration, and a collective focus oriented toward achievement, transparency and accountability to delivering the nation’s first high-speed rail system. Deliberate planning supports this by:

- Developing a long-range program strategy and goals;
- Formulating project scope, budget, schedule and risk register;
- Narrowing unknowns by methodically and perpetually addressing areas of challenge;
- Executing a deliberate plan’s schedule and budget;
- Eliminating risk, and active management and mitigation of risks that remain;
- Delivering on-time, on-budget and on-quality/safety accountability; and
- Fulfilling our community and other agency agreements.

This organizational approach, proactive project management and strategic planning will build upon risk management and mitigation strategies. The Authority’s objective and deliberate decision-making concentrates on total cost benefit, guaranteeing transparency and stewardship. But, more importantly, this approach defines clear program objectives and goals, and resolve and eliminate program unknowns as project elements are advanced. The Authority uses Monte Carlo evaluations to assign and quantify risk. Program contingency is then established specifically to a risk-mitigation plan, and defined in specific risk-mitigation incremental elements.

It also creates an organizational ethic of aggressive risk minimization initiated in strategic planning and comprehensively carried through construction and rail operations, allowing for the continual refinement of the program cost-to-complete. This approach revolves around creating financial opportunity in mitigating and retiring individual risk. In doing so, lessons learned from leadership and strategic decision making, organizational input and streamlined processes are directly applied to risk refinement and mitigation. This programmatic approach to refined risk management directly leads to narrowing the cost range and reducing contingencies.

2.3 Organizational Leadership

On July 10, 2017, the Board Chair announced that the program was implementing organizational changes and process improvements to maintain momentum in constructing the nation’s first true high-speed rail system. The Board has charged executive management team with transforming the Authority into a robust delivery organization:

- In January 2018, the Authority’s Board of Directors appointed a new CEO to provide leadership for the program’s delivery and commercialization phase.

- Also in January 2018, Governor Brown appointed a new Chief Operating Officer (COO) to oversee the construction and engineering elements of the high-speed rail program to ensure that it meets quality standards, budget and schedule throughout the program's duration.
- Governor Brown appointed a new Chief Deputy Director who joined the agency in February 2018 to bring a focus on transparency, contract oversight, accountability and performance. This position will advise the CEO on programmatic and administrative issues and will oversee the Authority's internal and personnel operations.

The organizational structure depicted in Figure 6 illustrates critical milestones. A key component of this organization is establishing the COO and the Deputy COO functions to maximize focus and accountability for project delivery. All functional support groups report to the COO.

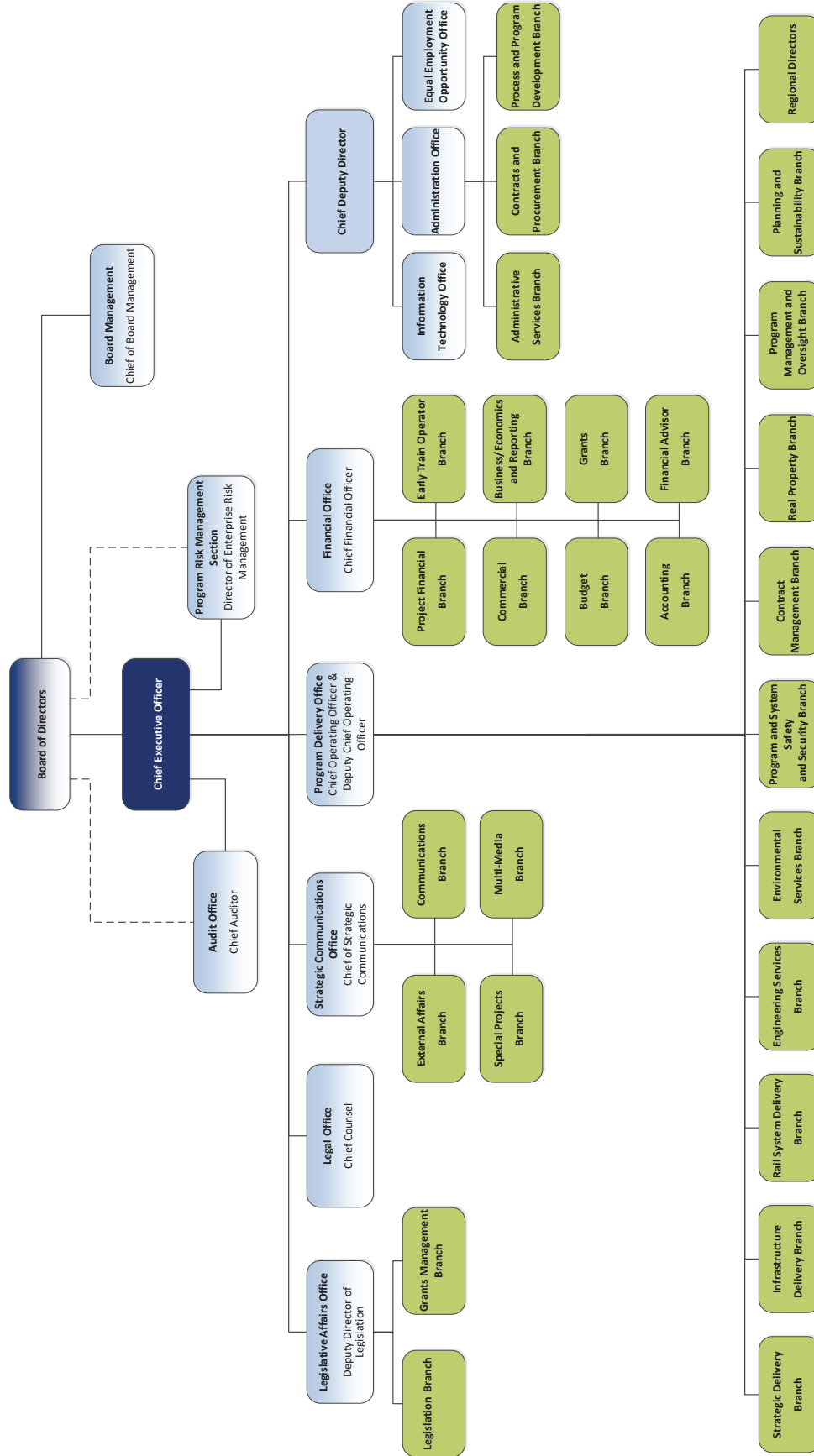


Figure 4 The Authority's Organizational Structure

2.4 Program Team

Program Team brings governance and checks and balances appropriate for the size and magnitude of the program, with a focus on delivery. The delivery of the program is the responsibility of the CEO. The CEO has oversight, as delegated by the Board, and full resource of staff and contractors within the Authority. In addition to the CEO, the members of executive committee are primary staff responsible for the completion of the Program.

Roles and responsibilities of the key executive team members are described below. Additional organizational details are further detailed within each supporting PMP chapter.

Executive Management

Chief Executive Officer

The CEO is the accountable senior executive, appointed by the Board of Directors, for the successful execution of the Authority's program. The CEO is responsible for all engagement and communications with the Board.

The CEO ensures that all actions taken are in accordance with all applicable federal and state laws and regulations and the policies of the Board of Directors. The CEO also ensures compliance with applicable grants.

The CEO is:

- Accountable for all Authority activities;
- Responsible for communication with the Board;
- Responsible for organizing and providing direction to the Authority to accomplish the Authority's mission; and
- Responsible for delegating authority, as needed, to accomplish the Authority's mission.

Chief Operating Officer/Deputy Chief Operating Officer

The COO reports directly to the CEO and acts as the CEO in his absence or as directed. Managers of certain groups that aid the COO in management of the Program Delivery Office report directly the COO. This includes the Director of System Safety and Security and the Director of Contract Management.

The Chief Operating Officer (COO) and Deputy Chief Operating Officer (DCOO) work in tandem as a single leadership and management unit heading the Program Delivery Office. The COO provides the powers and oversight of the State, and the DCOO leads the RDP and provides technical expertise and managerial oversight. Both share equal responsibility for:

- Executing all aspects of the Authority's delivery operations;
- Project and program delivery leadership and management, to include formulation and maintenance of the Program Baseline;
- Direct oversight of quality and safety;
- Managing all Authority technical expertise, including right of way, engineering, sustainability, rail and environmental;
- Administration of all Authority contracts, to include engineering, construction, program and project support, third parties, Rail Delivery Partner (RDP), Regional Consultants (RCs), Early Train Operator (ETO) and Project and Construction Management Services (PCMs); and
- Long-term execution planning.

The Project Delivery Pillars and Functional Support Groups report to the COO and DCOO. The heads of the Project Delivery Pillars include the Director of Strategic Delivery, the Director of Infrastructure Delivery, and the Chief of Rail Operations. The heads of the Functional Support Groups include the

Director of Engineering Services, the Director of Environmental Services, the Chief of Real Property, the Director of Program Management and Oversight, the Sustainability Manager and the Regional Directors.

Chief Financial Officer

The Chief Financial Officer (CFO) oversees the Financial Office and reports to the CEO and the Board. The CFO advises all offices of the Authority regarding financial matters and manages all Financial Office activities. In support of the CFO's role are an Assistant Chief Financial Officer, various levels of State managers and staff, consultants and a financial advisor. The Financial Office comprises six functional branches: Accounting, Commercial, Reporting, Budgets/Grants, Business and Economics, and Project Financial. The Assistant CFO manages the financial advisor contract under the direction of the CFO.

The Financial Office provides expertise, analysis and education related to the Authority's finances, economics, funding and commercial viability. The Financial Office is the primary contact for the State's control agencies: (1) California State Transportation Agency (CalSTA); (2) Department of Finance; (3) State Controller's Office; (4) Office of State Treasurer; (5) Legislative Analyst's Office; (6) FI\$Cal; and other stakeholders. In addition, the Financial Office manages cash of the organization and that public funds follow spending requirements. The Financial Office oversees the commercial performance of the program and provides analysis and insight to help frame decisions. This includes budgeting, accounting, reporting, strategic planning and communications related to financing and commercial viability of the program. In addition, the Financial Office has oversight responsibility for project financial activities following three primary objectives:

- Assessing the financial impact in terms of budget and cash flow;
- Assessing the commercial impact on the future enterprise value; and
- Ensuring the appropriate use of public funds.

The Financial Office's primary responsibilities include:

- Developing and planning funding and financing strategies to ensure that Authority resources follow spending requirements without over-commitment of available funds and in accordance with authorizing legislation;
- Coordinating with other groups within the Authority to plan commercial elements and develop business and strategic plans;
- Coordinating financial data with program delivery to ensure that the data is accurate, timely and transparent;.
- Ensuring the effective management of financial data in project performance reporting is a concise manor;
- Developing and providing monthly financial reports to the Board and to other internal and external stakeholders;
- Developing, presenting and defending the Authority's annual budget and budget change proposals at Legislative hearings to maintain or obtain annual appropriations. In addition, working with CalSTA, Department of Finance, the Legislative Analyst's Office, and Legislative staff from the Senate and Assembly on budget and expenditure related questions and requests for information. In addition, working with the State Controller's Office, Office of State Treasurer and FI\$Cal; and
- Developing ad-hoc financial and economic analysis as needed by the Authority to support communications, both internally and externally.

Chief Deputy Director

The Chief Deputy Director (CDD) is a key adviser to the Chief Executive Officer (CEO) and oversees the following mission critical areas: Administration, Information Technology (IT) and Equal Employment Opportunity (EEO). The CDD, who directly reports to the CEO, oversees the Administration Offices. The

Chief Administrative Officer (CAO) and the Chief Information Officer (CIO) support the CDD. In addition, the CDD serves as the Authority's EEO Officer.

The CDD oversees the Administration Offices, the EEO Office and the IT Office. The Administration Offices' three branches are Administrative Services, Contracts and Procurement, and Process and Program Development. The IT Offices' five functional areas include; Information Security, Infrastructure, Application Support, IT Operations, and the IT Project Management Office.

The Administration Offices' primary responsibilities include:

- Managing the Authority's workforce and providing administrative services in the areas of Administration Resources and Human Resources;
- Managing the EEO and Constructive Intervention (CI) programs;
- Ensuring compliance with Title VI requirements;
- Procuring goods and services for the Authority;
- Administering the policies and procedures pertaining to the management of contracts for goods and services;
- Planning, installing, maintaining and operating the Authority's enterprise IT systems;
- Developing, implementing and operating an effective Quality program, including the plan for the Program Delivery Organization achievement of ISO 9001 certification;
- Developing, implementing and operating an effective Lean Six Sigma/continuous improvement program, including certification of Authority staff, as appropriate;
- Developing, publishing and maintaining the Authority Program Management Plan and FRA Program Management Plan, among other special projects;
- Records management and document control;
- Developing the Authority's Continuity of Operations Plan (COOP);
- Developing and monitoring the Authority's Strategic Plan; and
- Administering policies and procedures pertaining to the management of contracts of goods and services.

Chief Counsel

The Chief Counsel reports to the CEO and advises all executive management, the CEO and the Board on legal matters. The Chief Counsel also advises the governor's office on transportation policy and certain other matters. The Chief Counsel is accountable for all activities of the legal team and manages the Legal Office's resources. The Assistant Chief Counsel reports to the Chief Counsel and has five direct reports, all attorneys, with a variety of overlapping specialties.

The Legal Office advises all other offices of the Authority, executive management and the Board on legal matters. The Legal Office protects the Authority's interests, helps it engage in sound business practices and advises the Authority on a variety of stakeholder and partners agreements.

The Legal Office's primary responsibilities include:

- Working with other Authority offices to develop agreements with utilities, railroads, state and local units of government, land owners and other third parties;
- Advising and approving Authority contracts as to form and compliance with law;
- Advising and assisting in the Authority procurement process;
- Advising the Authority about Board Governance and compliance with open meetings laws;
- Providing litigation defense strategy advice;

- Advising on FRA grant agreements and agreements with other federal entities;
- Advising on construction contractor issues, including contracts, interpretation of terms, change orders, claims and other legal issues that arise;
- Advising the human resources department on employment law, facilities and administrative items;
- Advising Authority project teams on legal elements of environmental approvals and processes; and
- Advising on commercial strategy and funding/financing plans.

Chief of Strategic Communications

The Chief of Strategic Communications reports to the CEO and advises all executive management, the CEO and the Board on communications-related matters. The Chief of Communications and the Deputy Director of External Affairs supports the Chief of Strategic Communications.

The Strategic Communications Office is accountable for:

- Managing the Authority's communications efforts with a variety of audiences, including the media, members of the public and the Authority's employees and contractors;
- Managing the Authority's public outreach strategy, multimedia marketing and small business program; and
- Developing external affairs plans, policies and procedures.

The Strategic Communications Office's primary responsibilities include:

- Planning, organizing and executing all aspects of a public relations program;
- Developing, publishing, implementing and updating the Strategic Communications Plan;
- Implementing the Small Business Program designed to achieve agency objectives, including compliance with the Authority's 30 percent small business and disadvantaged business participation goals and other stated objectives;
- Implementing a multimedia outreach and marketing plan;
- Responding to any communications-related implications and advising management on communications strategies;
- Managing the Authority's Public Records Act program to ensure transparency and public access to information regarding the Authority; and
- Developing special reports and projects as requested by Executive management.

Deputy Director of Legislation

The Deputy Director of Legislation oversees the Legislative Affairs Office and reports directly to the CEO. The Deputy Director of Legislation performs Federal Transportation Liaison functions, supported by two contract federal-affairs specialists located in Washington, D.C.

The Legislative Affairs Office administers the Authority's legislative program at the state and federal levels. The Legislative Affairs Office manages the Authority's relationships with and serves as the primary point of contact with the California Legislature, Congress and federal executive agencies. The Legislative Affairs Office includes two operating units; the State Legislation Branch and the Grants Management Branch.

The Legislative Affairs Office's primary responsibilities include:

- Maintaining relationships with federal and state legislators and staff;
- Monitoring state and federal legislation as it affects the Authority;

- Managing the contracted federal affairs specialists that work for the Authority. These contractors help manage day-to-day interaction with Congress, its members, committees and other offices. These contractors also track federal legislative and budget proposals as they affect the Authority;
- Staffing and preparing Authority witnesses for Congressional hearings;
- Managing relationships with the FRA, other parts of the U.S. Department of Transportation (DOT), the Surface Transportation Board and other federal agencies, as necessary, with heavy involvement from the Authority's federal affairs contractors;
- Preparing the itinerary for Authority executive trips to Washington, D.C., (e.g., Congressional and federal agency visits that coincide with the FRA Quarterly Review);
- Managing the Authority's relations with federal executive agencies, including the FRA, other parts of U.S. DOT as necessary, the Surface Transportation Board and other federal agencies as necessary; and
- Managing all federal grants to the Authority.

Other Board Direct Reports

Direct reports to the Board include:

Chief Auditor

The Chief Auditor oversees the Audit Office and is responsible for overseeing, planning and directing a variety of technical audits, reviews and evaluations of the Authority's management controls. The Chief Auditor reports administratively to the CEO and administratively and functionally to the Board. Two team of State employees comprise the Audit Office. One team conducts audits, reviews and evaluations of the Authority's programs, processes and procedures, and the other team performs contract compliance audits.

The Audit Office conducts audits and reviews of the Authority's program and administrative control systems to determine if the control systems operate in accordance with management's instructions, policies and procedures.

The Audit Office's primary responsibilities include:

- Submitting annual audit plans to the CEO for review and the Board for approval. Reporting regularly to the CEO and the Board on progress toward implementation of audit plans;
- Providing ongoing evaluations, opinions and recommendations concerning deficiencies/strengths, and potential internal and external risks to the organization;
- Reporting noted deficiencies to management personnel of sufficient authority and ensure to take appropriate action;
- Assessing management's action plans proposed to correct reported conditions;
- Reporting on the implementation of corrective action plans undertaken to address risks or deficiencies; and
- Coordinating all external federal/state audits, as well as the State Leadership Accountability Act, as specified in POLI-AUD-01.

Director of Enterprise Risk Management

The Director of Enterprise Risk Management's primary responsibilities include:

- Developing and implementing enterprise risk management policies, procedures, plans, manuals and other guiding documents;
- Establishing and maintaining enterprise risk registers;
- Providing a risk-informed contingency assessment report to the Board.

Chief of Board Management

The Chief of Board Management's primary responsibilities include:

- Responsible for managing the business of the appointed Board Members of the Authority.
- Projects, plans, and organizes the work of the Board meetings and Board Members. Develops and manages the Board meeting plans.
- Advises and informs Board Members and staff on requirements of the Open Meeting Act, Quentin J. Kopp Conflict of Interest Act, Administrative Procedures Act, Public Records Act, the Rules of Practice, the Rules of Order, and the conduct of the Board meetings.

2.5 Governance

The Authority maintains a structure of four governance committees, each with its own purpose, roles, organization and operations. Authority and RDP staff make up the staff that interact to make key decisions on behalf of the program. The organization of these committees is necessary for the Authority to have a strong governance structure, with a streamlined process for decision-making and problem-resolution.

Proposed changes are subject to a comprehensive review through a highly-structured process requiring consideration of the full effects of a proposed change. This includes any increases to level of effort, or increased costs in one area versus savings in another, potential effects on schedule and understanding all potential tradeoffs before making decisions.

The program committees forward recommendations to the CEO and/or the Board for final resolution and decisions. This has generated better inter-departmental interaction, greater understanding of the effects of various decisions and earlier identification of issues.

Figure 5 illustrates the four governance committees – the Executive Committee, the Program Delivery Committee (PDC), the Business Oversight Committee (BOC) and the Administrative Committee – regularly interact with one another. The PDC, BOC and Administrative Committee report directly to the Executive Committee and engage with one another as needed.

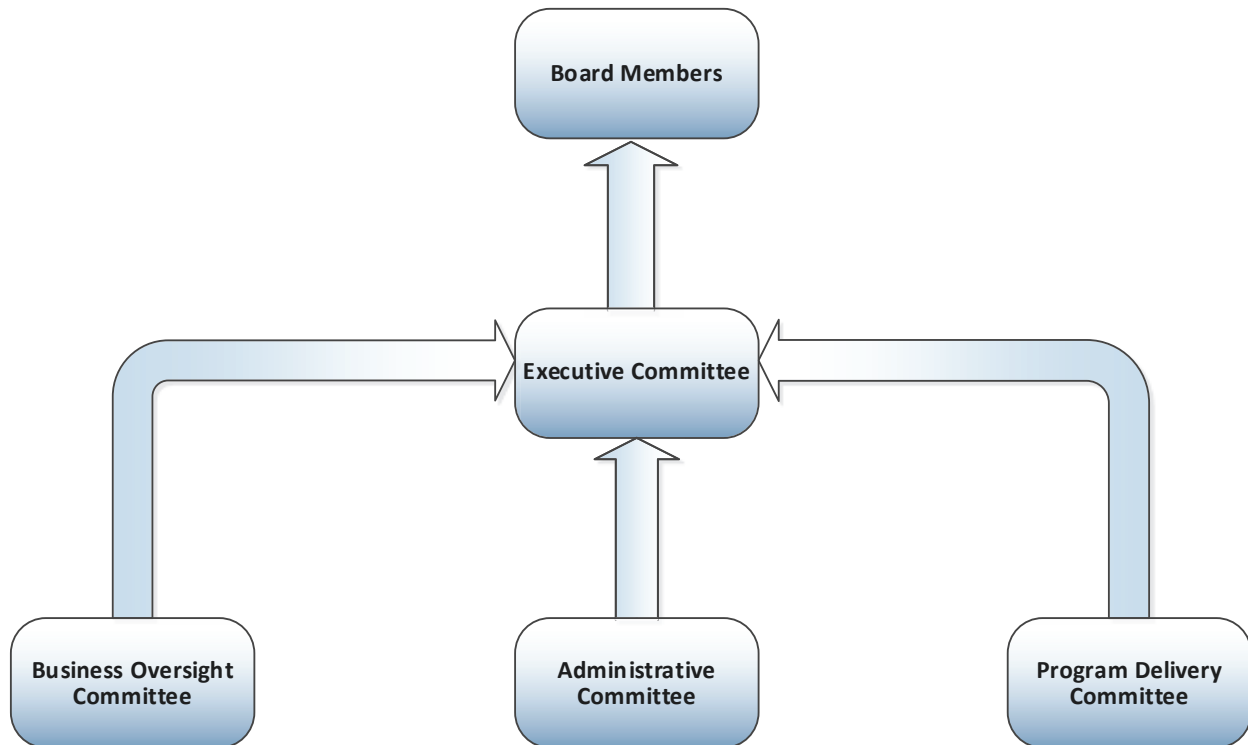


Figure 5 The Authority's Governance Committees

The sections following explain each committee further, including each committee's purpose and place in the overall Authority Committee Structure. See Figure 5 as a reference throughout these sections for an overview of the Authority Committee Structure and the interactions between each committee.

Board Of Directors

The California High-Speed Rail Authority Board of Directors (Board) was established in 2003 by California Public Utilities Code §185020. The Board of Directors oversees planning, construction and operation of the nation's first high-speed rail system.

A nine-member Board of Directors govern the Authority. The Board consists of five members appointed by the Governor, two appointed by the Senate Committee on Rules and two by the Speaker of the Assembly. The board also added two Ex Officio members representing the Legislature.

Of these two ex-officio members, one each is appointed by the Senate Committee on Rules and the Speaker of the Assembly (Pub. Util. Code § 185020(D)).

Each year, the voting members of the board elect a chairperson and a vice chairperson to preside at all meetings of the Authority (Pub. Util. Code § 185020(e)). The term for the positions of chairperson and vice chairperson are for one year. The Board of Directors also maintains several committees dedicated to overseeing specific aspects of the high-speed rail project.

The Board of Directors is responsible for developing the Authority's policies including:

- The Authority's key policy documents, including the Authority's biennial business plan and Strategic Plan;
- Providing general managerial oversight of the Authority; and
- Overseeing the Authority's planning, construction, finance and operations.

Program Committees

Executive Committee, the Executive Committee is the senior governance committee. Members of the committee advise the Chief Executive Officer, who chairs the committee, on key agency decisions and recommendations to Board of Directors. The Executive Committee makes executive, agency-level policy decisions, provide overarching Authority strategy and priorities, resolves escalated Project/Program activity disputes and develops agenda items for upcoming board meetings.

Chaired by the CEO, the committee is comprised of the following members: COO, CDD, CFO, Chief Counsel, Chief of Strategic Communications, Deputy COO and Deputy Director of Legislation. This Committee addresses issues escalated for resolution from the Business Oversight, the Program Delivery and the Administrative committees, and other issues as directed by the CEO.

The Executive Committee's primary responsibilities include:

- Approves executive strategy and policy;
- Establishes overarching Authority strategy, policy and priorities, and directs the Authority accordingly;
- Formulates and reviews revisions to Authority critical documents, such as the Business Plan, the PMP, the Program Baseline and the Strategic Plan;
- Surveils the Authority's program strategic and baseline execution and financial performance;
- Develops Board of Directors agenda items and ensures the Authority's preparation for upcoming Board meetings;
- Implements CEO and Board of Directors priorities;
- Monitors the Authority's contractors and consultants and makes administrative recommendations;
- Reviews internal and external audits, and implements corrective action;
- Oversees the BOC, PDC and Administrative Committees;
- Approves the formation of any new Authority committees and all associated charters;
- Approves the charters of all Authority committees;
- Authorizes any significant changes or revisions to the PMP and strategic plan; and
- Advises the CEO on Authority governance and organizational structure.

Business Oversight Committee (BOC), the Business Oversight Committee (BOC) provides programmatic acquisition strategy, procurement governance and commercial oversight. It acts as the Program Baseline configuration-management control board and approves all changes of scope, timeline and budget to any program element within the Program Baseline. This committee ensures Program Baseline compliance with federal and state regulations and statutes. The BOC also approves any program execution or fiscal request presented to the Board of Directors. The BOC will forward issues requiring escalation resolution to the Executive Committee.

Jointly chaired by the COO and CFO, the committee is comprised of the following members: Chief Deputy Director, Chief Counsel, Deputy COO and the Assistant Chief Financial Officer. The BOC streamlines financial, commercial and fiscal review processes. The committee assesses and reviews requests and/or proposed commitments relating to public funds in accordance with Business Plan objectives, approved annual budgets, program priorities, and funding availability with a focus on the future enterprise value of an operational business.

The BOC's primary responsibilities include:

- Assesses the commercial impact on the future enterprise value;
- Assesses and approves the financial and operational changes of Program Baseline execution, budget and cash flow;

- Assesses and approves all significant changes of project scope, timeline and budget;
- Verifies that all changes to the Program Baseline comply with federal and state regulations and statutes, and Authority policy;
- Ensures that the Program Baseline execution and procurements are in accordance with the Business Plan and Program Baseline strategies;
- Evaluates identified program risk opportunities and impacts to the Program Baseline;
- Authors new significant acquisitions or existing contract modifications and their respective execution; and
- Ensures the appropriate use of public funds.

Administrative Committee, the Administrative Committee reports to the Executive Committee and interfaces with the Business Oversight Committee, ensuring that their recommendations and decisions do not affect the Program Baseline. The Administrative Committee forwards issues, with appropriate recommendations, that exceed its delegated authority to the Executive Committee.

Chaired by the Chief Deputy Director, the committee is comprised of the following members: Deputy COO, Chief Administrative Officer, Chief Information Officer, Assistant CFO, Chief of Strategic Communications and Chief Counsel. The Administrative Committee provides governance and oversight of human resources, IT, communications, employee engagement, administrative functions and facilities outside of program delivery, and business oversight. The Administrative Committee ensures effective and prudent administration and support to the entire Authority.

The Administrative Committee's primary responsibilities include:

- Evaluates requested staffing plan modifications;
- Recommends modification to PMP roles and responsibilities to the Executive Committee;
- Approves major IT and communications initiatives;
- Assigns and reallocates Authority office space;
- Reviews the staffing plan regularly for optimization to Program Baseline execution and makes recommendations to the Executive Committee;
- Sponsors employee engagement activities;
- Approves significant cross-organizational group processes and business practices; and
- Coordinates training opportunities and requirements for Authority staff.

Program Delivery Committee (PDC), the Program Delivery Committee (PDC) provides governance and oversight of the Authority's programmatic execution and performance. The PDC is accountable for all aspects of program development and delivery in accordance with the Program Baseline, including scope, schedule and adherence to budget. This committee surveils the program opportunities and risk impacts to the Program Baseline, and issues trends accordingly. The PDC advises the Board of Directors, the CEO and the Executive Committee regarding program execution and performance.

Chaired by the Deputy COO, the committee is comprised of the following members: Deputy COO, Chief Deputy Director, Chief Counsel, and the Assistant Chief Financial Officer. The committee reviews and acts upon items involving changes in scope, schedule, budget, and/or priorities that require BOC, CEO or Board approval.

The PDC's primary responsibilities include:

- Oversees all elements of program development and delivery related to Program Baseline scope, schedule and adherence to budget;
- Oversees environmental, capital, rail and support development, and delivery projects;

- Monitors program and project controls for adequacy and accuracy;
- Surveils programmatic opportunities and risk impacts to the Program Baseline and issues trends accordingly; and
- Elevates program development and delivery issues, with recommendations and priorities, to the Executive Committee for decision.

2.6 Authority Corporate Partners

The California High-Speed Rail Authority (the Authority) is responsible for delivering the nation's first high-speed rail system. To accomplish this, the Authority's organizational structure comprises multiple entities, including State personnel and various consultants, that work together within an Integrated Project Delivery (IPD) concept. The accumulation of each of these entities defines and comprises the Authority.

This document outlines roles and responsibilities for six key entities:

1. California State personnel;
2. Rail Delivery Partner (RDP) personnel;
3. Project and Construction Management services (PCMs) for each of the construction packages;
4. Regional Consultants (RCs);
5. The Early Train Operator (ETO); and
6. The financial advisor(s) consisting of KPMG, LLP, and Ernst and Young Infrastructure Advisor Services, LLC.

The Authority's Concept of Operations (see Section 5) employs an IPD concept that makes optimal use of these entities combined human resources to form an integrated, high-performance team with a singular focus on achieving the Authority's mission. The PMP further stresses the concept of local project delivery with headquarters' programmatic oversight, policy formation and resourcing. The Authority's functional organizational chart delineates the strategic deployment of these resources based on organizational roles and responsibilities. Key positions are assigned to fulfill statute, and then by necessity to achieve specific technical expertise or work experience. State and consultant personnel fill authority leadership positions.

California State Personnel

California State personnel lead the Authority and are accountable for its success. The Authority operates under the direction and authority of the CEO. The Authority, acting through its Board of Directors, senior executives and staff, is accountable for delivering and operating a rail system that is functional, certifiable and commercially viable as required by federal and state statutes. The Authority's business model relies on an IPD concept using an integrated team of State personnel and consultants to achieve this goal, but the Authority cannot delegate this responsibility.

The State is primarily accountable for:

- Leadership and direction of the Authority, including formulation of program strategy, policy development and implementation, and building an organizational culture that prizes high-performance teams;
- Stewardship of public funds and strict oversight of all decisions on the commitment of public funds;
- Holding all Authority employees to the highest ethical and performance standards;
- Contract administration and management;
- Representing the Authority to key public agencies and other stakeholders; and
- Ensuring compliance with state and federal requirements.

The Authority consists of 229 State employees focused on the above responsibilities. State employees fill any position that requires the commitment of public funds, approvals and policymaking or as mandated by statute or Board direction. State employees fill key and essential long-term positions.

State employees may work under the technical direction of a fellow State employee or consultant in forming the Authority's IPD team using a matrix organization. However, the organizational structure clearly delineate that State employee supervision is by senior State staff who hold all Authority employees to the highest ethical and performance standards.

Rail Delivery Partner (RDP)

The Rail Delivery Partner (RDP) consists of prime program delivery consultants and numerous subcontractors working under the RDP. The RDP operates under the direction of the Deputy Chief Operating Officer. Although the State is accountable for the Authority's overall program execution, the RDP, as the Authority's delivery partner, provides specific program technical and managerial expertise and staff resources to deliver the Authority's goals.

The RDP is primarily responsible for:

- Provides program and project management technical expertise and leadership, including commercial oversight, engineering, environmental, capital planning, sustainability, rail development and operations, risk evaluation and mitigation, Program Baseline development, configuration management, and program and project controls;
- Delivers administrative and technical support in other areas, including financial management, communications, IT, safety, quality, document control and other functional tasks, as requested;
- Manages program implementation, strategy development and policy formulation; and
- Provides the staffing and resources necessary for program and headquarters project management.

The Authority and RDP regularly develop a work plan that defines required resources and staffing to meet the needs of the dynamic program. Personnel are vetted for each position using a joint review process. The Authority leadership reviews each work plan to assure that the list of deliverables and staffing needs are sufficient. RDP services may take the form of full-time equivalents (FTEs) embedded within the Authority to fill a specific role. Alternatively, RDP staff may be part of a program or headquarters' project team focused on the completion of a specific deliverable or deliverables. The overall RDP team expands and constricts to address the various program phases and needs. RDP employees work under the technical direction of a fellow RDP employee or a State employee in forming the Authority's Integrated Project Delivery team using a matrix organization. The organizational structure clearly delineates that RDP employees' supervision is by other RDP senior employees.

Project and Construction Management Services (PCM)

Project and Construction Management services (PCMs) consist of an individual prime contractor and numerous subcontractors to oversee each Construction Package (CP). Each PCM operates under the direction of a Design-Build Oversight Manager. Although the State is accountable for overall CP project management, the PCM is responsible for providing project-specific DB technical expertise and management and staff resources to deliver each CP project. The PCM ensures that project management, controls and reporting align to the Authority's program management, controls and reporting. The PCMs are key members of the Authority's local integrated process delivery teams.

PCMs are primarily responsible for:

- Oversee DB contract compliance;
- Process and evaluate contract change orders;
- Provide project management technical expertise and leadership, which includes commercial oversight, engineering, environmental, utility and rail coordination, risk evaluation and mitigation,

project financial tracking and reporting, document control, configuration management, and project controls;

- Develop plans, and monitor and enforce contract compliance with safety & security, quality, environmental and risk policies.
- Implement project controls for DB contracts and report results and data to the Program Management and Oversight Branch; and
- Provide Independent Certified/Check Engineering over a DB's designer of record, as required by contract.

The PCM team will expand and contract as required to address the various program phases and needs of the project. The PCM organization structure is dependent on DB scope. PCM employees might work under the technical direction of fellow PCM employees, or State and RDP employees in forming the Authority's integrated process delivery team using a matrix organization. The organizational structure clearly delineates that PCM employee supervision and administration is by senior PCM employees.

Regional Consultants (RC)

The Authority contracts with Regional Consultants (RC), typically architecture/engineering firms, to prepare the engineering and environmental documents for the individual project segments of the rail system. The Environmental Impact Reports (EIR)/Environmental Impact Statements (EIS) analyze impacts and set out final alignments and other design parameters for these segments. This critical activity drives decisions on which options to analyze and, ultimately, select and plays a major role in the cost, performance and completion date of the rail system.

RCs are primarily responsible for:

- Overseeing all activities required to obtain a Notice of Determination (NOD)/Record of Decision (ROD) for each project segment;
- Adhering to the Authority's programmatic methodology and satisfy the National Environmental Policy Act (NEPA)/California Environmental Quality Act (CEQA) process through delivery of the ROD;
- Developing and study alternatives for the segments, as directed by the project manager, that will yield a preferred alternative;
- Developing preliminary engineering;
- Preparing environmental documentation for the project segment, including a preferred alternative;
- Completing the engineering design through contract advertisement and award, if scoped;
- Supporting program outreach and community engagement efforts; and
- Overseeing station planning and preliminary design for environmental clearance.

The Strategic Delivery Branch is accountable for delivering the design, right of way and environmental portions of the project through civil construction contract awards. Project Directors manage the RCs work to accomplish these tasks and to verify adherence to Authority and industry standards.

Determining the likely effects of a decision during the NEPA/CEQA process on these key outcomes requires weighing many factors. The Project Directors teams (including the RCs) actively consult with program, regional and delivery subject matter experts as work proceeds. On technical and operational matters – construction costs, trip time, constructability, etc. – this will include the Engineering Services Branch, the Infrastructure Delivery Branch, the Rail System Delivery Branch, and others. On matters related to gaining regulatory approvals and litigation, this will include the Environmental Services Branch and, as applicable, the Authority's executive leadership.

It is difficult to anticipate the ease or difficulty in gaining federal approvals, the likelihood of litigation and its possible outcomes, future access to additional funding, and stakeholder and political support. For this reason, it is vital that the teams consider these less quantifiable risks and seek substantial input from the

specific subject matter experts in managing them. This includes the Environmental Services Branch, the Regional Directors, legal and the Authority's executive leadership.

Early Train Operator (ETO)

The Authority awarded a contract to DB Engineering & Consulting USA to provide Early Train Operator (ETO) services.

The ETO is primarily responsible for:

- Provides support and input during the design and construction phase of the work on the rail system's operability, maintainability and commercial viability and performance, including rolling stock, track and systems, stations, operations planning, dispatching and scheduling.
- Advises the Rail System Delivery Branch in the areas of ridership and revenue, ancillary revenue, fare collection systems and concepts, marketing and branding, and overall financial planning for revenue service;
- Advises the Rail System Delivery Branch and the Commercial Section of the Financial Office on these matters;
- Evaluates the business case to begin revenue service on stand-alone segments of the system, if requested, and performs benchmarking of the budgets and estimates to complete of the design and construction of the system; and
- Performs other duties, studies and activities in support of developing, operating and maintaining the high-speed rail system, as requested.

State statute requires the high-speed rail system meets strong commercial performance standards, and this is weighed toward the ETO's ability to achieve this goal.

The consulting phase ends at completion of work to initiate rail service. At this point, the Authority and the ETO will begin negotiations on an agreement for the ETO to operate the system during an initial operating period. The ETO operates the trains during this period upon an agreement. If the ETO cannot make an agreement, the Authority retains the option to solicit bids from other potential early operators.

The Financial Advisor (FA)

The financial advisor advises the Authority on business and strategic matters. The financial advisor works directly with the Chief Financial Officer (CFO) to develop recommendations to the CEO and the Board on a variety of matters to help achieve Authority goals. The financial advisor's primary role is to advise and assist on budget and cash-flow-management issues and procurement strategy as they relate to the Authority's Business Plan and the high-speed rail system's overall commercial viability and long-term enterprise value.

The financial advisor, assisting the Authority is primarily responsible for:

- Financial and performance reporting to allow the Board, stakeholders and management to make strategic decisions based on quality financial data and to actively manage operational performance using timely and accurate information;
- Develop funding plans and procurement strategies for major system elements that will continue to move the project forward in an efficient and cost effective manner; and
- Advises on aspects of funding related to financing activities of the Authority.

The financial advisor provides services under a professional services contract, reporting directly to the CFO and Assistant CFO.

2.7 External Partners

Any project of this magnitude requires collaborative efforts, and the Authority is working with strategic federal, state and local partners to make high-speed rail a reality. Proposition 1A is the outcome of a high-speed rail system conceived to be a vital component of a larger, integrated and electrified statewide rail

network requiring public as well as private sector involvement. From funding to construction to station area planning, strong partnerships continue to be an integral part of building high-speed rail.

U.S. Department of Transportation; Federal Railroad Administration (FRA)

The Authority and the FRA are partnered via two cooperative grant agreements which invest federal funds into California to advance the high-speed rail system. The Authority is making significant progress on building the high-speed rail system. The Authority works closely with the FRA on safety and other development standards, environmental clearances, key statutory and regulatory provisions, required systems testing, funding programs, federal financing programs and other support.

The Authority and the FRA also work together to progress Phase 1 environmental clearances. Periodically the Authority and the FRA align schedules for environmental clearance on joint planning efforts. Going forward and pending NEPA Assignment, the Authority will manage both NEPA and California Environmental Quality Act (CEQA) document preparation for Phases 1 and 2 of the high-speed rail system.

Freight Railroads

A well-defined and collaborative relationship between the Authority and the freight railroads in California is critical to successfully implementing the high-speed rail system. The two major freight railroads with operations within California are the Union Pacific Railroad (UPRR) and the BNSF Railway Company (BNSF). Both play vital roles in the national and statewide economy by helping relieve the state's crowded highway network. A variety of agreements (both existing and future) will guide the operations and maintenance of capital improvements in the various shared corridors.

State, Regional and Local Partners

The Authority currently works with state, regional and local partners on significant concurrent investments to existing regional rail systems that will serve as important connections to the high-speed rail system.

Proposition 1A also included a commitment to improving existing passenger rail lines that serve the state's major population centers. These investments will expand capacity, improve safety and enable transit riders to connect to the high-speed rail system. These investments also will leverage additional funds for regionally important transit, commuter rail and intercity passenger rail projects, designated as "bookend" and "connectivity" projects.

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3 GOVERNMENT AND COMMUNITY RELATIONS

3.1 Legislative Affairs Office

Federal Transportation Liaison

The Legislative Affairs Office administers the Authority's legislative program at the state and federal levels. The Legislative Affairs Office manages the Authority's relationships with and serves as the primary point of contact with the California Legislature, Congress and federal executive agencies.

The Deputy Director of Legislation oversees the Legislative Affairs Office reporting directly to the CEO. The Deputy Director of Legislation performs the function of the Federal Transportation Liaison and is supported by two federal-affairs specialists located in Washington, D.C.

The Legislative Affairs Office includes two operating units; State Legislation Branch and the Grants Management Branch.

The Legislative Affairs Office's primary responsibilities include:

- Maintaining relationships with federal and state legislators and staff;
- Monitoring state and federal legislation as it affects the Authority;
- Managing the contracted federal affairs specialists that work for the Authority. These consultants help manage day-to-day interaction with Congress, its members, committees and other offices; and track federal legislative and budget proposals as they affect the Authority;
- Staffing and preparing Authority witnesses for congressional hearings;
- Managing relationships with the FRA, other departments within the U.S. DOT, the Surface Transportation Board and other federal agencies, as necessary, with involvement from the Authority's federal affairs contractors;
- Preparing the itinerary for Authority executive trips to Washington, D.C., (e.g., Congressional and federal agency visits that coincide with the FRA Quarterly Review); and
- Managing all federal grants to the Authority.

Federal Grant Management

The Grants Management Branch provides oversight and management of the federal funding and any required non-federal cost sharing, ensuring the Authority's compliance with grant agreements.

The Grants Management Branch's key responsibilities include:

- Managing grant administration functions, including administering multiple, complex grants and grant budgets; coordinating, preparing, monitoring and/or submitting requisite grant deliverables; quarterly reports; amendments; budget revisions and close-out documents;
- Establishing and maintaining written and electronic grant administration processes and procedures for the Authority and coordinating agency-wide integration of grant requirements within the Authority's divisions and consulting teams;
- Ensuring all deliverables, work and charges are appropriately allocated and are grant eligible;
- Coordinating and participating in annual federal monitoring reviews; quarterly risk reviews and various standing and ad hoc FRA/Authority meetings;
- Monitoring, interpreting and communicating new federal regulations related to grant funding and advising the Authority on grant regulations;
- Serving as the primary contact between the Authority's executive management and the FRA regarding negotiations on issues of federal grant policy, strategic amendments to existing funding agreements and new sources of funding to maximize the use and flexibility of existing and new funding sources in the best interest of the Authority; and

- Identifying and securing traditional and nontraditional grant and loan funding sources, including grant application development and collaboration with stakeholders and project partners.

State Legislation

The California Legislature is a key partner in the delivery of the California high-speed rail system. The Legislature performs its oversight role through ongoing communication and engagement with the Authority in a variety of ways, including, among other things, mandating annual reports and conducting oversight hearings. The Legislative Affairs Office is the primary point of contact for the California Legislature, and its staff manages the day-to-day activities of the Authority's interactions with the California State Assembly and its committees, members and offices.

The Legislature contemplates thousands of legislative measures each session, some of which affect the Authority as an organization and its ability to deliver the high-speed rail system. Staff of the Legislative Affairs Office facilitate the development of any Authority-sponsored legislation and develop the analysis of pending legislation before the California Legislature. Working in conjunction with the California State Transportation Agency and the Governor's Office, staff of the Legislative Affairs Office work closely with key policy, budget and leadership staff within the state Legislature to influence positive outcomes on pending legislation posing impacts to the high-speed rail program.

The Legislative Affairs Office's key responsibilities include:

- Ensuring that all members of the legislature are apprised of key activities and milestones;
- Monitoring the introduction of state legislation and moves through the state legislative process to determine possible impact on the Authority and its operations;
- Routing state legislation to designated Legislative Coordinators in various offices within the Authority for analysis; utilizing these analyses in developing a complete analysis of and recommended position on proposed state legislation;
- Coordinating the Authority's participation in the development and consideration of the governor's budget;
- Meeting with legislators and their staff to answer questions or provide advice on Authority-related matters;
- Providing expert testimony to legislative committees on Authority-related legislation;
- Developing the Authority's annual legislative proposal package and managing that legislation through the legislative process;
- Advising the CEO and Board on matters related to legislation and issues brought forward by members of the Legislature;
- Coordinating with the Authority's Regional Directors and the External Affairs Branch and Communications Branch teams on statewide and regional messaging, community and stakeholder outreach, and any interface with state and federal elected and local community leaders;
- Training Authority staff engaged in the Authority's bill analysis process, with the goal of facilitating the development of quality analyses; and
- Maintaining a historical file containing detailed records of all bills analyzed by the Authority.

Legislative Affairs Office Resources

The Legislative Affairs Office administers the Authority's legislative program at the state and federal levels. The Legislative Affairs Office manages the Authority's relationships with and serves as the primary point of contact with the California Legislature, Congress and federal executive agencies.

The Deputy Director of Legislation oversees the Legislative Affairs Office and reports directly to the CEO. The Deputy Director of Legislation performs the function of the Federal Transportation Liaison and is supported by two contract federal-affairs specialists located in Washington, D.C.

The Legislative Affairs Office includes two operating units; State Legislation Branch and the Grants Management Branch. The State Legislation Branch staff consists of two Associate Governmental Program Analysts. The State Legislation Branch staff report directly to the Deputy Director of Legislation. The Grants Management Branch consists of a Grants Manager supported by two RDP staff: one full-time and one part-time. The Grants Manager directs the day-to-day activities of the Grants Management Branch and reports directly to the Deputy Director of Legislation.

3.2 Intergovernmental, Utility and Other Agreements

The Authority is developing intergovernmental and utility/agency agreements to ensure the success of the Program through multi-entity agreements. The agreements among the participants vary and include MOUs, operating agreements and contracts.

The Authority also has agreements with community-based organizations and regulatory agencies for additional elements that are required for the Program. For example, MOU are developed with partners in the northern and southern bookend regions to establish the path and coordination of the statewide modernization rail plan and coordination occurs with the California State Transportation Agency (CalSTA) to document these integration efforts as part of the State Rail Plan.

Intergovernmental Agreements

At the state level, the Environmental Services Branch coordinates with numerous agencies for the environmental planning, development and coordination of the Program. The Authority works closely with CalSTA, the California Department of Transportation (Caltrans), the California Department of Fish and Wildlife (CDFW), the California Department of Conservation, the State Historic Preservation Officer (SHPO), the California Department of Parks and Recreation, the State Water Resources Control Board (SWRCB) and the Office of Planning and Research.

The potential impacts of the Program/Project at the local level are a priority concern for the Authority. The Authority's engagement with stakeholders at the county and city levels reflects this concern. The Authority has, and continues to develop, agreements and contracts with local governmental entities that address varying levels of the Program. These include assistance for business and utility relocations, notifications about road closures and grade separations, implementation of traffic mitigations, discussion of design aesthetics, facilitation and encouragement of transit-oriented development, and collaboration with local agencies regarding joint funding, cost sharing and related opportunities to accelerate high-speed rail development.

The Authority is advancing system sustainably by working with several federal agencies to develop sustainable planning. In July 2011, the Authority signed a memorandum of understanding (MOU) with the FRA, the U.S. Department of Housing and Urban Development, the U.S. Department of Transportation, the Federal Transit Administration (FTA), the federal Surface Transportation Board and the U.S. Environmental Protection Agency (EPA). Together they established seven goals that centered on the need to plan, site, design, construct, operate and maintain the system using environmentally preferable practices. Additionally, the Authority has agreements with the U.S. Army Corps of Engineers (USACE), U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the U.S. Forest Service and the U.S. Bureau of Reclamation for coordination of the environmental planning efforts.

Utility Agreements

The design and construction of the Project will directly affect the facilities of numerous utilities throughout the state. The Authority has developed agreements based on best practices for utility relocations. The Authority is actively working with the affected entities to coordinate design and construction in accordance with federal, state and local rules and regulations.

The affected facilities are relocated in each construction segment. This includes utilities owned by third parties. The Authority enters agreements with each affected third party facility. The Authority works with the third party to confirm any identified conflicts and negotiates the best course of action for the alteration,

removal, relocation, replacement or reconstruction of the affected facilities. The Authority has entered, or intends to enter, into agreements with utility owners, including cities, counties, water and irrigation districts in the Central Valley, and such private companies as AT&T, Pacific Gas & Electric (PG&E) and communications companies.

The DB contractor uses the DB project delivery method in preparation of the agreements for the design and relocation of specific facilities. This allows the DB contractor to coordinate utility relocation with the design of the high-speed rail system. The agreements include federal flow down requirements set forth in 49 U.S.C. §24405(a), and the grant(s) terms and conditions.

The Authority engages in the rulemaking process with the California Public Utilities Commission, which culminated in the issuance of General Order #176 (Rules for Overhead 25kV Railroad Electrification Systems for a High-Speed Rail System). The general order sets the standards for how various public utilities will coexist in the Authority's dedicated right-of-way.

3.3 Strategic Communications and Stakeholder Outreach

Transparency and providing timely and accurate information to the public are critically important to the success of the program. The Authority's Strategic Communications Office oversees all aspects of the Authority's communication and outreach programs and strategies. The Authority plans and conducts communications activities based around major project milestones and in coordination with the its stakeholder partners, including elected officials, government agencies, transportation agencies, local jurisdictions, community residents and businesses, and interest organizations. The Authority's experience has clearly shown that a well-planned strategic communications and stakeholder outreach program that is fully integrated into the overall program is a key factor for project success.

In keeping with the integrated organizational approach, the communications and external affairs team comprises staff from the Authority, the RDP, regional consultants and the environmental and engineering consultants, all of whom work together to disseminate information about the program and its individual projects. This collaboration provides greater consistency in approach, messaging and branding, while maximizing effective information sharing and overall coordination. With communications and external affairs staff located in Sacramento and in the three regional offices, integration is essential to coordinating team members, tasks and responsibilities.

Regional staff and contract employees work with the Authority's communications and external affairs office to identify specific stakeholders for targeted outreach. The Authority employs a variety of outreach strategies, including in-person meetings at the stakeholders' locations, group meetings to update stakeholders and seek their input, emails, phone calls, letters, a website, social media and other means of contact.

Strategic Communications Office Resources

The Chief of Strategic Communications reports to the CEO and advises all executive management, the CEO and the Board on communications-related matters. The Chief of Communication and the Deputy Director of External Affairs supports the Chief of Strategic Communications.

The Strategic Communications Office consists of two branches: The Communications Branch and the External Affairs Branch. The Chief of Strategic Communications oversees the Strategic Communications Office and supported by the Deputy Director of External Affairs and the Chief of Communications.

The Chief of Communication oversees Communications Branch and spearheads the Authority's communications efforts with a variety of audiences, including the media, members of the public, and the Authority's employees and contractors.

The Deputy Director of Special Projects, a Director of Public Records and a Director of Media Relations support the Chief of Communications. Three sections make up the Communications Office, including the Special Projects Section, the Public Records Act Section and the Media Relations Section.

Partners and Stakeholders

Effective stakeholder relations are essential to the success of program development and implementation. The definition of a stakeholder is anyone directly or indirectly affected by the project, those who will

ultimately benefit from the mobility improvements and other investments resulting from high-speed rail, and organizations or individuals that have an interest in the program and/or the ability to influence others. In addition to elected officials, business owners and influential organizations, institutions and individuals, other stakeholders include area residents both in or out of the path of the high-speed rail line, and a range of interest and/or community groups such as environmental, labor, business or rail organizations. Keeping stakeholders informed and engaged is key to keeping the project moving toward successful implementation. The Community Leadership Functional Support Group of Program Delivery works with the other Project Delivery Pillars to coordinate program and project-level communications with land owners, local governments and a variety of other stakeholders. Community Leadership builds and maintains the Authority's community presence from regional offices and gathers and conveys information from the community to executive management to help the Authority be a constructive and valued partner with our stakeholders and to avoid circumstances that inhibit achievement of our mission.

Elected officials, government officials and other community leaders are consulted and kept apprised of program and project developments, as well as any situations that may require these officials and leaders to address their constituencies. The Authority also encourages these officials and leaders to participate in public events, such as public meetings, groundbreakings and ribbon-cuttings.

Media Relations

News outlets remain one of the most effective ways to disseminate information to the public and stakeholders. Maintaining relationships with journalists is also important for identifying and addressing any issues or questions that might arise regarding the program.

The Authority's Chief of Communications handles media relations. The Chief of Communications proactively shares information with the news media to disseminate updates about developments of interest to the public, up-to-date information about the status of the program and its projects, milestones, and actions or events that have a direct effect on a community.

Social media is used to engage the news media by sharing stories about the program and/or its projects and alerting members of the media about an upcoming event. RDP, regional staff and consultants support the media relations program by identifying contacts for regional media, suggesting story ideas, conducting research and providing data.

Current social media sites include:

- Facebook: www.facebook.com/CaliforniaHighSpeedRail/
- Twitter: www.twitter.com/cahsra
- Instagram: www.instagram.com/cahsra
- LinkedIn: www.linkedin.com/company/california-high-speed-rail-authority
- YouTube: www.youtube.com/CAHighSpeedRail
- Flickr: www.flickr.com/photos/hsrcagov/

Outreach

The Chief of Communications conducts outreach on multiple levels and at various intervals based on major milestones, decisions and developments. The Authority's communications and external affairs team in Sacramento manages statewide/programmatic outreach and education. Designated staff and/or consultants implement this outreach.

Regional outreach is region and/or project specific and is the responsibility of the Regional Directors. Each region and project has unique characteristics, situations and issues to address and manage. Furthermore, the planning, delivery and construction of the regional projects comprising the program are advancing on different schedules across the state. The Central Valley is under construction, while the environmental planning and review is well underway in Southern California and in Northern California.

Regional outreach includes the development of project plans, activities and schedules. The Regional Directors develop outreach activities. The Regional Directors coordinate with a point of contact from the

Authority to approve and implement these activities. The Authority point of contact reports to the Authority's Chief of Communications and the Deputy Director of External Affairs. This approach provides for an augmented message with unique and customized communications tailored to fit each region's circumstances and the status and development stage of its projects. This also provides a feedback loop that allows for clarification of messages that are honed and strengthened for each region. A point of contact from the Authority, who reports to the Authority's Chief of Communications and the Deputy Director of External Affairs, approves and implements regional outreach that includes the development of project plans, activities and schedules.

Regional directors, planning and environmental staff, regional contractors, and members of the communications and external affairs team collaborate to implement outreach during the environmental process to verify compliance with CEQA/NEPA and Authority policies.

An individual designated by the Authority's Chief of Communications and the Deputy Director of External Affairs collaborates with the regional directors and regional communications and external affairs staff to conduct outreach during construction of a project section. The Authority's goal is to establish program standards for construction communications/ outreach that provides consistency throughout the program.

The Authority receives dozens of invitations and speaking requests throughout the year for participation in events and conferences that inform stakeholders and the public about the high-speed rail program. In addition to attending these events, participation can include delivering a speech, giving a presentation, or taking part in a panel or roundtable discussion. To ensure that the Authority responds to incoming speaker requests and invitations in an effective and efficient manner and that presentation and speeches are consistent and reflect current messaging and design standards, the Authority has created a Speakers Bureau. The Speaker Bureau, comprised of high-speed rail staff and/or consultants who speak to groups, organizations, or associations throughout the state and the country. Presentations given by the Speakers Bureau can range from an overview of the statewide high-speed rail program to focusing on individual project topics, such as planning, environmental, engineering, construction, and business opportunities. Information about the Speakers Bureau is located on the Authority's website at: www.hsr.ca.gov/Newsroom/speakers_bureau.html.

3.3.1.1 Outreach Resources

The External Affairs Branch manages public outreach strategy, multi-media marketing and small business outreach. The Branch develops external affairs plans, policies and procedures.

The Deputy Director of External Affairs oversees the External Affairs Branch and reports to the Chief of the Strategic Communications Office. The Multi-Media and Small Business Sections support the External Affairs Branch. The Chief of Communications reports to the Chief of the Strategic Communications and advises the CEO, executive management and the Board on communications-related matters.

Authority's Website

An effective method for distributing information to the public is the Authority's website: www.hsr.ca.gov/. The website contains the latest information about the program, including the approved environmental documents, draft environmental documents for circulation, approved reports, meeting notes, newsletters and links, construction updates and traffic impacts, as well as major milestones, program progress, recent developments, biannual business plans and legislative reports. This site also functions an archive for past reports and documents such as business plans and project updates.

State and federal law mandates many aspects of the project, the program and the Authority's mission. Because of this, some documents and materials must be posted online within a specific timeframe, and in some cases, these items cannot be changed or removed once posted.

Examples include:

- Board of Directors Meeting Agendas: The posting of state body meetings at least 10 calendar days in advance of the Board meetings meeting, per the Bagley-Keene Open Meeting Act. In compliance with California law, the Authority posts Board agendas on the Authority's website within this timeframe.

- **Environmental Documents:** The Authority is responsible for posting CEQA and NEPA documents in public places for review, including the Authority's website. The Authority cannot remove documents once posted.

To provide a user friendly and additional means for the public to learn about the progress of the program, the Authority established a supplementary website – www.buildhsr.com – this site features construction projects (including up to date information on road closures and other construction alerts) and other project updates.

As part of its ongoing communications program, the Authority has expanded its multimedia materials under the direction of the Deputy Director of External Affairs and in coordination with the communications office to provide a wider range and greater detailed methods of communication. These tools effectively relay richer information about the high-speed rail system and its specific projects or programs (e.g., small business, faces of high-speed rail, etc.). Through its multimedia program, the Authority develops a wide range of videos, simulations, interactive maps and other tools and materials to enhance public understanding. The Authority posts multimedia materials used in public meetings on the Authority's websites and/or social media.

3.4 Railroad Agreements

The Program is part of an overarching rail modernization program coordinated through CalSTA. As part of the Budget Act of 2012 (SB 1029, Chapter 152, Statutes of 2012), the Authority has identified funding for investments to enhance existing systems that will ultimately accommodate high-speed rail operations. The Authority is coordinating with these transit agencies to develop MOUs for future operating improvements, including schedule coordination, ticketing, station operations, parking and other improvements that will optimize future service.

The Authority entered into third-party agreements with private rail and transit entities, Class I freight railroads (including the Union Pacific Railroad and BNSF Railway) and joint powers authorities and boards operating commuter rail lines within the state.

The FRA approves all agreements with railroad-owned property on the high-speed rail alignment in accordance with 49 U.S.C. 24405(c)(1) and Section 4.2.6 of the High-Speed Intercity Passenger Rail Program Interim Guidance published in the *Federal Register* on July 1, 2010 (75 FR 38344). Agreements will include compensation for use, assurance regarding the adequacy of infrastructure capacity, a commitment to maintaining railroad collective bargaining agreements in full force and effect, and compliance with liability requirements consistent with 49 U.S.C. 28103.

Railroad Agreements Resources

The Rail System Delivery Branch is responsible for design and construction of all ballast, track and rail systems, including procurement of rolling stock. Rail System Delivery Branch is also responsible for all rail system and operations and maintenance planning, policy and procedural elements. The Rail System Delivery Branch is diverse relative to other Project Delivery Pillars.

The Rail System Delivery Branch's primary responsibilities include negotiating third-party agreements with railroads (State).

The Chief of Rail Operations and the Deputy Director of Rail and Operations Delivery oversee the Rail System Delivery Branch. The Chief of Rail Operations reports to the Chief Operating Officer. The Chief of Rail Operations leads the Rail System Delivery Branch, and reports to the COO. The Director is accountable for all activities of the group, including budgeting and workflows, and coordinating activities with other Program Delivery groups and offices of the Authority. The Deputy Director of Rail and Operations Delivery reports to the Director of Rail and Operations Delivery. The Deputy Director is responsible for delivery of all rail related projects within the Branch. A State employee fills this position to provide the required authority for the Director.

3.5 Labor Relations

Authority Project Labor Agreement- Community Benefits Agreement (CBA)

The Authority has generated a significant number of new construction jobs to support current construction. The Authority remains committed to ensuring the communities, small businesses, and residents along the corridors benefit as much as possible during the construction phases of the California High-Speed Rail Program. The Authority desires to improve the socioeconomic characteristics of California and reduce blight in its communities by providing opportunities to disadvantaged residents. This is accomplished by creating jobs into sustainable careers in the construction trades and to facilitate rapid completion of Authority construction projects.

In December 2012, the Authority entered a Community Benefits Agreement (CBA) with the State Building and Construction Trades Council of California and the Signatory Craft Councils and Local Unions. The CBA assists small businesses and job seekers in finding or obtaining construction contracts, jobs and training opportunities. The CBA supports employment of individuals who reside in Disadvantaged Areas and those designated as Disadvantaged Workers, including veterans.

The CBA permits all qualified contractors and subcontractors to bid on the Authority's construction contracts without regard to whether they are otherwise parties to collective bargaining agreements. Similarly, the Authority's construction contracts do not require laborers to join a union organization.

Establishment of Wage Rates and Classifications; Wage and Hour Requirements; and Adherence to State and Local Requirements

As a federal grantee and recipient of State of California financial assistance, the Authority is required to comply with the provisions of 49 United States Code (U.S.C.) 24405 (c) (2) and relevant sections of the High-Speed Intercity Passenger Rail Program Interim Guide/Notice of Funding Availability the California Labor Code; the California Code of Regulations, the Davis-Bacon Act, and related statutes.

Under these regulations and statutes, private construction contractors must pay prevailing wages to their workers and must follow public works law when working on a project funded, in whole or part, by a public entity. Private construction contractors must pay prevailing wages on a public works project when the public works project is over \$1,000.00. All public works contracts valued at \$30,000 or more carry an obligation to hire apprentices, unless the craft or trade does not require the use of apprentices, as indicated in the corresponding prevailing wage determination. To facilitate contractor compliance with these regulations and ensure the application of uniform compliance monitoring, the Authority administers an internal labor compliance monitoring program via the Contract Compliance Unit (CCU).

The CCU monitors the labor compliance activities related to Authority contracts to confirm that contractors working on the Program are following the contract General Provisions, California Labor Code Chapter 1 of Part 7 of Division 2, the Code of Federal Regulations (CFR) Title 29, prevailing wage statutes and regulations, and the Authority Community Benefits Agreement (CBA). Contractors must monitor the payment of applicable prevailing rates of per diem wages by the subcontractor(s) to its employees, by conducting reviews of certified payroll records of the subcontractor(s).

Labor Relations Resources

The Administrative Services Branch provides direction for the Authority's Administrative Resources and Human Resources Sections. The Administrative Resources Section includes the Business Services, Policy Management, and Records Management Units.

Part of the Administrative Services Branch responsibilities includes overseeing all human resources activities, including executive recruitment and selection, civil service selection services, classification and pay, examinations, transactions, position control, training and staff development, benefits, return to work, labor relations and progressive discipline.

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4 PLANNING AND CONCEPT DESIGN

In May 2008, the Authority Board of Directors adopted High-Speed Train (HST) Station Area Development policies. This set of policies describe the selection of preferred station locations that provide linkages with local and regional transit, airports and highways and to act as multimodal hubs. Through these plans and policies, the system can meet the objectives of minimizing potential impacts on the environment and maximizing connectivity with other modes.

The Authority's established policy is that, "In pursuing a profitable and successful HST system, the Authority will utilize its resources, both financial and otherwise, to encourage the characteristics listed below for the land use development in and around its station."

The characteristics include:

- Higher density development with minimum requirements for density
- Mix of land uses
- Grid street pattern and compact pedestrian-oriented design
- Context-sensitive building design
- Limits on parking for new development

The Authority is currently working with stakeholders on station design and station area plans, access planning, land use changes, creating community hubs, and defining the environmental footprint, massing and mitigation. In fall 2016, the Authority Board created a Transit-Land Use Committee to focus on the connection between what a major transportation project in the state provides and growth patterns and land use decisions. The purview of this committee is broad because leveraging a major public investment such as a high-speed rail system will need to address growth issues in addition to transportation and Authority planning issues.

4.1 Station Area Planning

The station cities are key program stakeholders. The Authority's station area planning program supports communities with their future station development planning. Through this work, the Authority has fostered one of the most important relationships in the development of the system—the relationship with the cities it serves.

In 2011, the Authority entered into contractual relationships with nine station cities. The local jurisdictions will develop complementary uses for their respective station areas.

Executed agreements include:

- City of San Jose and Santa Clara Valley Transportation Authority – San Jose/Diridon Station
- City of Millbrae (Pending agreement as of 2/9/2018)
- City of Gilroy – Gilroy Station
- City of Merced – Merced Station
- City of Fresno – Fresno Station
- Tulare County Association of Governments – Kings/Tulare Station
- City of Bakersfield/Kern Council of Governments – Bakersfield Station
- City of Palmdale – Palmdale Station
- City of Burbank – Burbank Station

The Authority manages station area planning contracts. The local jurisdictions have the discretion to select consultant teams through their respective local competitive RFP process. Additionally, local jurisdictions may include an expanded work scope that is beyond the purview of the Authority's oversight because they are leveraging other funding sources and/or planning processes. The Authority holds

regular meetings with local jurisdictions to manage contract progress. The Authority approves work products submitted from local jurisdictions.

Local jurisdictions examine planning aspects such as circulation, land use, economic development and implementation measures toward increasing development and improving access to each station before completion of the station area plans.

Station Area Planning Resources

The Station Area Planning resources are located in the Planning and Sustainability Branch. They work closely with the Strategic Delivery Branch which is one of the three Project Delivery Pillars to provide program and project management for all pre-construction contract award activities with the objective of effectively managing all front-end elements of construction projects, setting them on course for successful delivery by the Infrastructure Delivery and Rail System Delivery branches. The Infrastructure Delivery and Rail System Delivery branches collaborate with other offices of the Authority with planning, environmental, analysis, procurement planning, and engineering studies for physical elements of the high-speed rail program. The Authority ensures the definition of construction efforts, coordinated and contracted so that downstream work can be in accordance with the Baseline.

The Planning and Sustainability Branch is comprised of two sections: Planning and Integration and Sustainability.

The Deputy Director of Planning and Integration develops procurement strategies to ensure the definition of construction efforts. This manager works closely with the Strategic Delivery, Infrastructure Delivery and Rail System Delivery branches to plan work in accordance with the Program Baseline. This manager also works closely with the following key delivery functions to include but not limited to Engineering Services, Environmental Services, Real Property, Program Management and Contract Management to integrate all necessary delivery services and projects in the development of the plans.

4.2 Station and Station Area Planning Guidance and Research Documents

High-speed rail station and station area planning, design and development are extremely complex issues. The Authority has developed a variety of guidelines, plans and procedures for use by designers, local jurisdictions and other stakeholders in initiating and carrying out this process. This, along with the development of research through the partnership with a variety of entities, help inform high-speed rail station and station area development. Appendix B includes a current list of guidance and research documents.

5 ENVIRONMENTAL MANAGEMENT

The Authority is working to obtain NEPA Assignment from the FRA; however, at the time of preparing this PMP this process is not finalized. The FRA is the lead agency under NEPA, and the Authority is the lead agency under CEQA for the environmental clearances needed for the Program.

5.1 Environmental Management

The Environmental Services Branch manages the activities required to environmentally clear and permit the high-speed rail project sections under federal and state requirements, and provides a broad range of environmental services to the Program. The Environmental Services Branch is responsible for developing the Authority's environmental strategies, policies and procedures, and for researching and utilizing best practices to obtain project clearance as well as programmatic environmental methodologies to develop and meet environmental commitments, including mitigation planning and compliance monitoring. It also provides specialized expertise to the regional environmental teams and executive leadership. It also reviews environmental submittals to satisfy quality and technical requirements. In addition, the branch directs permit activities and provides strategic guidance on permit approaches, as well as strategic guidance on the environmental approval process. The Environmental Services Branch will also implement the federal responsibilities assigned by the FRA through the Surface Transportation Project Delivery Program¹ (otherwise known as NEPA Assignment) Memorandum of Understanding (MOU), including compliance with NEPA and other federal environmental laws² once the FRA and Authority execute the MOU. The Environmental Services Branch is the liaison with the FRA, the Attorney General's Office, outside counsel, and other federal, state, regional and local agencies for environmental for environmental studies, documents and required environmental approvals.

The Environmental Services Branch is comprised of Authority staff and RDP staff, working on this program to clear the eight project sections, related environmental projects, and provide environmental services to support construction, including environmental re-examinations, permitting oversight and amendments, mitigation planning, monitoring and reporting.

The specific responsibilities of the Environmental Services Branch include:

- Establishing and directing the Authority's environmental strategies, policies and procedures, while providing specialized expertise to the regional environmental teams and executive leadership.
- Reviewing and approving all environmental documentation and supporting materials developed by regional environmental teams in accordance with state and federal requirements, including environmental reexaminations.
- Coordinating with the Authority's legal counsel on issues that may arise in the environmental review and permitting process that relate to legal compliance and require legal strategy.
- Verifying, enforcing and reporting on environmental compliance during project development, construction, operations and maintenance, including the implementation of environmental commitments.
- Developing and managing relationships with federal and state permitting/regulatory agencies, including formal and informal agreements that address such areas as process alignment, funding for staff positions, cooperating and participating agency roles and responsibilities, and other matters that affect consultation and permit acquisition.
- Communicating routinely with the environmental teams in the Authority's three regional offices to give policy direction that informs project decisions and facilitates early identification and resolution of potentially problematic issues.
- Providing technical direction and oversight of environmental-related resources through environmental contract management and researching and utilizing best practices, including mitigation planning and compliance monitoring;

¹ 23 U.S.C. 327

² The Surface Transportation Project Delivery Memorandum of Understanding is pending signature by the FRA and the Governor.

- Working with the FRA, the Attorney General’s Office, outside counsel, regional consultants, environmental and engineering consultants, and other federal, state regional and local agencies on environmental studies, documents and required environmental approvals.

Environmental Services Resources

The Director of Environmental Services manages and administers the Environmental Services Branch and reports to the COO. The Deputy Director of Environmental Services reports to the Director of Environmental Services. The Permitting, Mitigation and Compliance Manager, Cultural Resources Compliance Manager and the Special Projects Manager report to the Deputy Director of Environmental Services. The NEPA Assignment Manager reports to the Director of Environmental Services.

The Environmental Services Branch includes four sections: Permitting and Mitigation Compliance; Cultural Resources Compliance; Special Projects; and NEPA Assignment.

The Director of the Environmental Services leads the Environmental Services Branch and oversees the work defined here. Figure 6. Environmental Services Branch Organizational Chart illustrates the organizational structure of the Environmental Services Branch. The Director oversees more than 40 staff whose skills and experience include NEPA practitioners, senior advisors, environmental policy experts, environmental managers, specialists and subject-matter experts. These experts cover such technical fields as protected species, wetlands, cultural resources, environmental justice, parklands, archaeology, and other disciplines required for environmental documentation and reviews under federal and state law.

In addition to full time staff, the team has access to over a dozen subject matter experts whose skillsets cover the array of disciplines necessary to achieve environmental analyses and clearance. Each expert has applicable experience in his/her field and appropriate educational credentials. Appendix E provides detailed descriptions of these work duties and expertise.

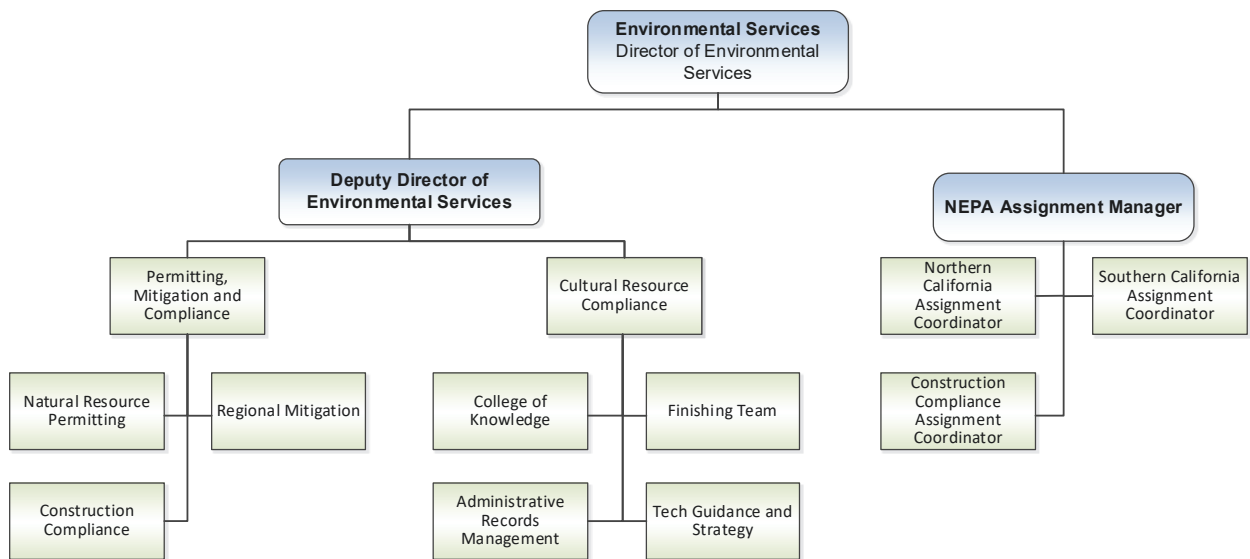


Figure 6. Environmental Services Branch Organizational Chart

5.2 Alternatives Analysis

The Program uses an Alternatives Analysis (AA) process to identify feasible and practicable alternatives for environmental review and evaluation in the EIR/EIS for the project sections. An AA provides the Authority and the FRA with sufficient information and documentation to provide a clear understanding of the evaluation process used to identify and define a range of reasonable, practicable, and feasible project alternatives and importantly, to avoid sensitive environmental areas and resources. Whereas the Program level EIR/EISs analyzes alternative corridors and station-location alternatives, the AAs include site-specific alignment and station alternatives. The description of the process used to develop the AAs, which are presented in the Alternatives chapter in each draft project section EIR/EIS, can be found at: http://www.hsr.ca.gov/docs/programs/eir_memos/Proj_Guidelines_RevisAA_MethodsVer3.pdf.

The Authority completed AA reports for Phase 1 project sections in 2010. The Authority has also completed Supplemental AAs (SAAs) to refine the alternatives for multiple EIR/EISs and completed SAA documents for the four Southern California project sections: Bakersfield to Palmdale, Palmdale to Burbank, Burbank to Los Angeles and Los Angeles to Anaheim. Following public input, the Authority Board approved the SAAs in the Spring of 2016.

The Authority is preparing multiple SAAs for scope revisions/additions within several project sections. As part of the Los Angeles to Anaheim project section, the Authority is developing two SAAs related to the relocation of Metrolink stations in Los Angeles. The regional consultants under the direction of the Authority's project managers and reviewed by the environmental team have prepared SAAs. The Authority's review verifies the performance of an adequate level of environmental reconnaissance to complete a first-tier screening of the alternatives. A third alternatives analysis is underway for evaluating station options at the Burbank Station. The results of these SAAs informs the analysis of alternatives in the respective Southern California project section environmental documents.

5.3 Environmental Documentation

The Authority uses a 2-tiered environmental review process. Tier 1 (programmatic environmental clearance) uses a high level programmatic approach and Tier 2 (project-level environmental clearance) reviews each project section of the program in detail. The Authority developed its program level review to determine whether to pursue a high-speed train system and to determine which of the conceptual corridors, alignments and station options to select for further consideration. The programmatic level of analysis presented in the Program EIR/EIS is appropriate for making these two basic decisions. It analyzes the environmental effects at a more generalized level to provide the decision makers with sufficient information to decide whether to continue with the process to pursue a high-speed rail system, and which conceptual corridor alignments to continue to consider.

Tier 2 project section documents build off the programmatic EIRs/EISs. The resulting document describes the route alternatives and impacts, provides environmental information to assist decision makers in selecting the final project, identifies measures to avoid and minimize impacts and compensate when necessary and consider cumulative impacts as part of the review process.

Depending upon the significance of the project impacts, the Authority and FRA may use other environmental clearance approaches. These include initial studies/environmental assessments and categorical exemptions/exclusions.

Program-Level Environmental Documentation

In the first tier, the *2005 Final Program EIR/EIS for the Proposed California HST System* provided a programmatic analysis for implementing the high-speed train system across the state. This included a system from Sacramento in the north to San Diego in the south, and from the San Francisco Bay Area to the west. The Authority and FRA concluded the program-wide EIR/EIS and selected preferred alignments and station locations for most of the statewide high-speed rail system to analyze further in second-tier (project-level) EIR/EIS documents.

In 2008, the FRA and the Authority prepared a *Bay Area to Central Valley Program EIR/EIS* that further examined the San Francisco Bay Area to Central Valley region as the second part of programmatic analysis in the tiered environmental review process. Once finalized in 2012, the Authority and FRA

selected the Pacheco Pass connection, preferred alignments and station locations for further second-tier evaluation.

The Authority rescinded its 2008 programmatic decision resulting from CEQA litigation. In 2010, the Authority prepared a *Bay Area to Central Valley Revised Final Program EIR*, and made a new decision to select the Pacheco Pass as the Bay Area to Central Valley route. A second legal challenge caused the Authority to rescind its 2010 decision, and in 2012, prepare a *Bay Area to Central Valley Partially Revised Final Program EIR*, and make a new set of decisions for the Bay Area to Central Valley connection. The 2012 decision confirmed the Pacheco Pass as the Bay Area to Central Valley connection.

Project-Level Environmental Documentation

In 2008, the Authority started the Tier 2 project-level environmental documents. The Authority completed an EIR/EIS for the Merced to Fresno section. The EIR/EIS was certified on May 3, 2012, and the NOD was filed on May 4, 2012. On September 18, 2012, the FRA issued a ROD for the section. For the Fresno to Bakersfield section, the EIR/EIS was certified on May 7, 2014, and the NOD was filed on May 8, 2014. On June 27, 2014, the FRA issued a ROD for this section. The Authority continues Environmental work on the remaining Phase 1 sections.

The Phase 1 project sections include the following:

- San Francisco to San Jose
- San Jose to Merced
- Merced to Fresno
- Fresno to Bakersfield
- Bakersfield to Palmdale
- Palmdale to Burbank
- Burbank to Los Angeles
- Los Angeles to Anaheim

The Authority and FRA are clearing these project sections under joint CEQA and NEPA processes. Appendix D: Flowchart of EIR/EIS to NOD/ROD illustrates the steps involved in clearing each project section under this joint process. The staffing described in Appendix E: Program-Wide Specialized Environmental Expertise covers the myriad of technical disciplines necessary to achieve the NOD/RODs that this figure depicts.

This environmental documentation undergoes multiple cycles of review within the Authority to ensure it meets the standards of both NEPA and CEQA and then submits that documentation to the FRA for review and final approval of NEPA documentation prior to publication. Under current practice, FRA is responsible for all aspects of compliance with federal law, decision-making during project development, cooperation with other federal agencies, and monitoring the Authority's compliance with environmental commitments. If granted NEPA Assignment, the Authority will assume the FRA duties of NEPA and related environmental federal laws and guidelines.

Following completion of the Authority's and FRA's project section environmental documents, the team also reviews the preparation and approval of environmental reexaminations prepared by the DB contractor or the PCM as they implement the approved project. The reexaminations are required for the evaluation of any proposed project variations, new information, or changes in circumstances to determine the need for additional environmental review beyond the published Final EIR/EIS.

5.4 Checkpoint Process

The Authority and FRA entered an MOU with the EPA and the USACE to facilitate compliance with NEPA (42 U.S.C. section 4321, et seq.), the Clean Water Act (CWA) (section 404 [U.S.C. section 1344]), and the Rivers and Harbors Action section 14 (33 U.S.C. section 408) processes for the Tier 2 environmental clearance for the project sections of both phases of the program.

The NEPA/404/408 integration process incorporates three checkpoints, each of which concludes a stage of ongoing coordination efforts between the Signatory Agencies. The NEPA integration process applies to all Tier 2 EISs with waters of the United States and consists of three checkpoints, which punctuate ongoing coordination efforts. The three checkpoints are as follows:

Checkpoint A: Definition of purpose and need for the Tier 2 Project EIS

Checkpoint B: Identification of the range of alternatives studied in the Tier 2 Project EIS

Checkpoint C:

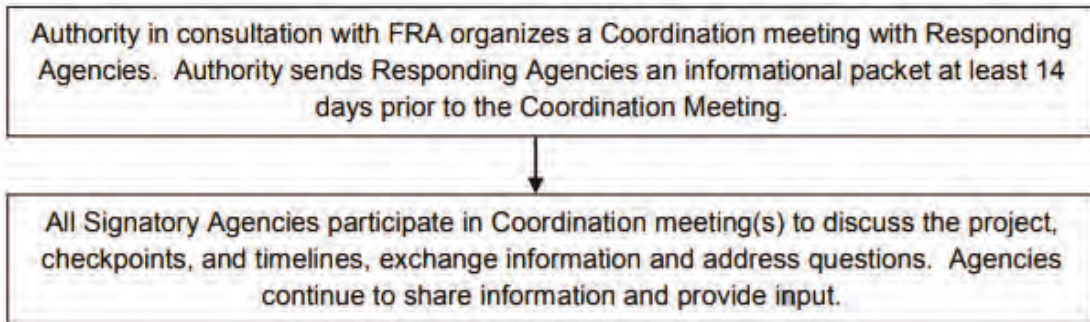
- (a) Draft Checkpoint C Analysis Supporting the Identification of a Proposed Preferred Alternative;
- (b) Final Checkpoint C Analysis for Preliminary Least Environmentally Damaging Practicable Alternative Determination;
- (c) USACE Section 408 Preliminary District Recommendation.

The flow of information and decision points within each checkpoint described in Figure 7. NEPA/404/408 Coordination and Checkpoint Process.

All Phase 1 project sections have completed Checkpoint A. San Jose to Merced and Merced to Fresno CV Wye project sections have completed the process through Checkpoint B. Merced to Fresno and Fresno to Bakersfield project sections have completed the process through Checkpoint C.

For the remaining sections, work is underway, with completion of Checkpoints B and C anticipated in the upcoming program years. As outlined in the 2017 Federal Dashboard for major infrastructure projects, the expectation is for Phase 1 environmental clearances completed no later than January 2020. Since the Bakersfield to Palmdale project section does not have any waters of the United States, it will not have Checkpoint documents. Currently, both the Burbank to Los Angeles and the Los Angeles project sections anticipate using nationwide permits and will not have Checkpoint documents either.

1. Start with informal coordination process for information exchange and agency input.



2. When ready for formal Checkpoint process, proceed as follows:

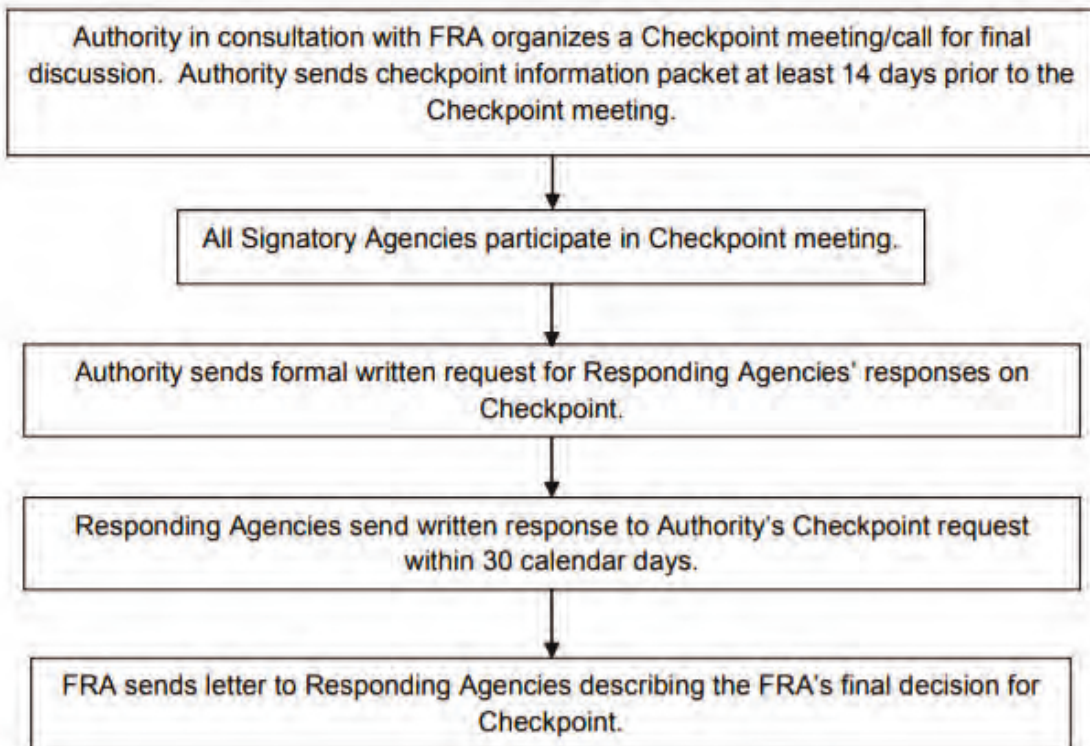


Figure 7. NEPA/404/408 Coordination and Checkpoint Process

5.5 Permitting, Mitigation and Compliance Activities

Within the Environmental Services Branch, the Permit, Mitigation and Compliance is responsible for managing environmental policies and procedures relating to natural resources and working with resource agencies to secure the initial environmental permits required for construction of each project section. The team oversees commitments made in the record of decision (ROD), permits and agreement documents to verify implementation of such commitments, fully monitored and reported, supporting program-wide consistency. The Authority and/or the DB contractor is responsible for amendments to and/or acquisition of new permit and agreement documents during the construction stage of a project. The team consists of regulatory and compliance experts, strategists and legal counsel. Together with support from the regional consultants, the team develops strategies to support obtaining permits that allow the Authority to implement the project. The team works across disciplines for each region to ensure strategy, documents, and consultation are appropriate, legally defensible, well supported, in the best interest of the Authority and reflective of programmatic policies and approaches.

Compliance and Permit Monitoring

The team develops strategies and programs for the Authority and its PCM that demonstrate compliance with permits and agreement documents to support streamlining future sections and facilities.

The team develops strategies and approaches with the understanding that each step in the process is critical for success of the next step and future project sections. The team adapts its strategy to respond to changes in politics, funding, and staffing. As an example, a project must demonstrate compliance with issued permits and agency agreements so that agencies trust that the Authority will fulfill their commitments. This trust facilitates the early review phases, allows the Authority greater flexibility on how each law is complied with, saves money, increase efficiencies across the board, and reduces the need for use of political influence.

The Authority implements three critical elements to support successful demonstration of compliance:

- Environmental Compliance Program;
- Incorporate lessons learned and improve contracts between the Authority, PCM and DB requirement in areas relative to compliance with State and federal environmental laws among the Authority, PCM and DB; and
- Implement the Authority's Regional Mitigation Policy.

The team also implements the Authority's Regional Mitigation Policy, the framework for each project section's compensatory mitigation plan. The Authority's policy involves seeking opportunities to advance regional conservation objectives as part of its efforts appropriately to mitigate for project impacts to federal and state-listed species and aquatic resources.

This regional approach has the following goals:

- Identify potential mitigation sites through eco-regional and watershed level planning;
- Collaborate up-front with interested agencies, local governments, communities and non-governmental organizations (NGO) in identifying mitigation opportunities;
- Use the best available science and consider existing conservation plans for the region;
- Obtain consistency with the approaches taken across high-speed rail system project sections;
- Identify mitigation as early as possible in the environmental review and permitting processes and
- Transparently document impacts and commensurate mitigation.

The Authority has obtained all the necessary environmental permits for the current construction packages and seeks amendments to these permits when needed. The Authority has the goal of obtaining all future permits within 180 days after each NOD/ROD (level of engineering permitting) to allow for an earlier start of construction. The DB contractor is obligated to take an active role in obtaining any outstanding permits for those permits not fully obtained by the Authority prior to the award of the delivery contract (e.g., the Section 408 which requires a high level of design). The Authority will take the lead in negotiations;

however, the DB contractor will provide reasonable assistance, including design information, drawings and descriptions of mitigation plans.

Mitigation Monitoring

The Permitting, Mitigation and Compliance Team is also responsible for the development and implementation of a mitigation monitoring system, referred to as the EMMA (Environmental Mitigation Monitoring and Assessment) system. Originally designed in 2013, EMMA documents compliance with mitigation measures adopted by the Authority or otherwise required as a condition of project approvals, such as permitting requirements. This database includes mitigation measures specified in EIS/EIRs and mitigation and management enforcement plans, as well as the environmental stewardship and sustainability commitments made by the Authority and its contractors in the environmental permits, treatment plans, and regulatory assessments developed for the Program. While the fulfillment of most commitments occurs during a project's construction phase, EMMA can track commitments throughout the entire project life cycle—from planning, to design, to preconstruction, construction, post-construction, and operations and maintenance.

EMMA also functions as a reference library of environmental commitments. EMMA commitments can be reviewed to see the text of the commitment and its reporting requirements, implementation mechanisms, and status. EMMA also houses documents associated with the commitment, such as permits, mitigation measures, and reporting programs. This reference library is available to all staff involved in the development and delivery of the HSR program.

An Environmental Compliance Issue Tracker is also accessible in EMMA. The Compliance Issue Tracker module follows the resolution of activities that may be in non-compliance with the Authority commitments. Users create Compliance Issue Records as opposed to the typical EMMA record which tracks positive compliance.

The environmental team is currently involved in permitting and mitigation monitoring activities for the Merced to Fresno and Fresno to Bakersfield project sections.

Permitting, Mitigation and Compliance Resources

The Permitting, Mitigation and Compliance Team is a group of regulatory and compliance experts who manage natural resources policies and procedures so that resource agency permits and approvals are obtained. The team obtains permits and approvals so that work is properly permitted, mitigation is implemented as agreed to, and environmental compliance during construction is provided.

The team's work supports the goal of obtaining permits that support the construction and operation of the California high-speed rail project. The team's primary purpose is to develop and implement streamlined permitting and consultation processes, and mitigation obligation fulfillment in compliance with state and federal environmental laws and regulations.

The Permitting Mitigation and Compliance Team applies technical expertise across the complete range of natural resources, mitigation planning and construction compliance functions. They work individually as permit leads for specific project sections, while working together at the program level on strategy development and implementation.

The team lead reports to the Deputy Director of Environmental Services and manages the Permitting, Mitigation and Compliance Team of natural resource technical experts.

5.6 Cultural Resources Compliance

The Cultural Resources Compliance Team manages statewide and regional compliance with the requirements of Section 106 of the National Historic Preservation Act (NHPA), NEPA, and CEQA during both the environmental phase and the construction phase. The cultural resources staff is also responsible for statewide and regional compliance with Section 4(f) of the U.S. Department of Transportation Act.

The Cultural Resources Compliance Team is guided by federal and State cultural resources protection laws, including, for example, Section 106 of the NHPA, NEPA, Section 4(f) (49 USC Section 303(c)), American Antiquities Act (16 USC Sections 431-433), American Indian Religious Freedom Act (42 USC Section 1996), Archaeological Resources Protection Act (16 USC 470), CEQA, California Public

Resources Code Section 5024.1 and 14 California Code of Regulations Section 4850. The team works with permitting/regulatory agencies to review and concur on the adequacy of documentation related to cultural surveys, evaluations, and project effects findings. The team also works with Native American tribes to resolve adverse effects to cultural resources that result from the project. The Cultural Resources Compliance Team provides for implementation of commitments made in the record of decision (ROD). The team also carries out, monitors and reports on agreement documents

The Cultural Resources Compliance Team supports and works collaboratively with the Environmental Task Managers, Strategic Delivery, Infrastructure Delivery, Rail System Delivery Branch, Functional Support and External Functions Groups, and Project Construction Manager (PCM) and Regional Consultant teams. The team provides focused cultural resources consultation to support ongoing construction in the Central Valley and ensures that documents supporting the ROD are completed.

Cultural Resources Compliance Team Resources

The Cultural Resources Compliance Team is responsible for developing policies on overall compliance with cultural resources laws and commitments across the environmental program and Project Delivery Pillars. Consistent with the Authority's Integrated Project Team model, the Cultural Resources Compliance Team consists of a Team Manager, who reports to the Director of Environmental Services and the Team Lead, who reports to the Deputy Director of Environmental Services. The team further consists of professionally qualified staff archaeologists and architectural historians. Although staff have been designated as having regional responsibilities, the skill set of the team is such that each provides a unique expertise that together informs programmatic strategy development and implementation. Additionally, they support each other and the key positions as schedules and priorities shift.

5.7 Special Projects

Under the general direction of the Deputy Director of Environmental Services, the Special Projects staff is responsible for providing for a wide portfolio of responsibilities. Among other these include working with Authority management regarding project delivery, scheduling and budgeting issues; managing preparation of environmental documents not managed by other sections; overseeing compilation and delivery of the Administrative Record for each environmental document; and revising, as needed, the Authority's environmental methods and guidance; and performing other tasks as assigned.

A variety of federal and State laws guide the Special Projects Team. Given the nature of the team's wide portfolio, the underlying legal or contractual requirements that drive the team's work can range from the environmental and cultural statutes already mentioned, to financial statutes and regulations, to general legal requirements for agencies such as the Authority.

Special Projects Activities

- Preparing environmental program, schedule and budget updates for use by Authority Management, the Authority's Finance and Audit Committee, the FRA, and environmental resource agencies;
- Managing preparation of environmental documents not managed by other sections, such as environmental evaluation of proposed geotechnical investigations for DB construction procurement and for a proposed heavy maintenance facility;
- Developing updates to the program environmental methods, as needed;
- Providing oversight for the development and completeness of administrative record documents for promoting the legal sufficiency of environmental documents prepared by the Authority;
- Providing oversight for development, training, and use of CommentSense (the database for responding to public and agency comments) by the regional teams and Authority, legal, and FRA staff responding to public and agency comments on the Authority's environmental documents;
- Supporting the Authority's Government Affairs team with legislative analysis on proposed bills introduced in the California Legislature; and,

- Working with the regional-level environmental management team to promote consistency of environmental documents and establishment of uniform standards across the Authority's program.

Special Projects Resources

The Special Projects Manager reports to the Deputy Director of Environmental Services and oversees the Special Projects staff. The Special Projects staff consists of individuals assigned to complete program-related tasks not covered by other parts of the Environmental Services Branch. These include the College of Knowledge, a group of technical subject matter experts who support reviews of environmental documentation, and a finishing team responsible for finalizing environmental documents for cooperating agency and public review.

5.8 NEPA Assignment

The State of California, working through its CalSTA and the Authority, applied to the FRA to assume responsibilities under NEPA and other federal environmental laws authorized by the Surface Transportation Project Delivery Program (23 USC 327), also known as NEPA Assignment. If granted NEPA Assignment, the Authority would manage both the NEPA and CEQA processes in their entirety, finding efficiencies where possible to complete the process faster without diminishing the rigor or the environmental analysis or the opportunities for the public to meaningfully engage with the Program.

The Application for NEPA Assignment outlining program changes and staff planning is found at http://www.hsr.ca.gov/Programs/Environmental_Planning/nepa_assignment.html.

NEPA Assignment Resources

To accelerate project delivery, the NEPA Assignment Team would perform federal environmental responsibilities under NEPA and other federal environmental laws, as assigned to the Authority by the FRA pursuant to provisions in a MOU between the FRA and the State.

The NEPA Assignment Team would replace the FRA in performing NEPA related work, would give policy direction that informs project decisions and facilitates early identification and resolution of potentially problematic issues. The NEPA Assignment team would work with the Authority's regional teams and headquarters staff throughout the document-preparation process to advise, answer questions and perform initial, incremental reviews in advance of reviewing entirely-compiled documents for approval.

The NEPA Assignment Team reports to the Director of Environmental Services. The NEPA Assignment Manager manages the work performed by three NEPA assignment coordinators and support staff.

6 DESIGN CONTROL

6.1 Design Development

The California High-Speed Rail System organizes itself into geographic regional sections for the planning, design and implementation of preliminary and final designs. The regional sections segmented into construction packages for the Preliminary Engineering for Procurement (PE4P) and the final designs. Regional consultant teams or the design-builder, in coordination with the Authority/RDP project management teams and the Engineering Services Branch interface with each other and hold regularly scheduled coordination meetings. The teams coordinate to ensure that the designs and environmental work of the two sections match.

The Engineering Services Branch and the Rail System Delivery Branch manage the development, implementation, and monitoring of the standards and criteria for design. Both groups operate as combined teams of Authority staff managing and overseeing technical RDP staff. The Engineering Services Branch is responsible for civil and structural related design while the Rail System Delivery Branch covers rail systems, track, and operational aspects design. The two groups work in a coordinated manner and interact with other elements of the Authority and with the design teams throughout the design process.

The groups meet weekly in a regularly scheduled meeting to discuss and resolve issues related to design coordination and construction. Further, both groups coordinate with the regional consultant teams developing preliminary engineering and with the construction teams on a regular basis. These groups coordinate to perform and/or manage reviews throughout the design development process including the review and approval of any requested design variance reviews (DVR) which occur either in the preliminary or the final design phases.

The purpose of the coordination is to ensure that the civil infrastructure components are satisfactory for providing the base for the rail and systems construction and for the successful operation of the system.

Preliminary Design Development and Management

The planning and concept design program includes conceptual engineering for program planning and for alternatives analysis during the environmental review.

Preliminary design development is based on performance criteria established in the legislation governing the Program and in the business plan. Technical Memorandum 0.3 - Basis of Design Policy describes the general performance requirements. The memorandum is a foundation document for the development of design standards and criteria. This policy defines the major components and performance objectives of the Program.

A copy of the memorandum can be found here:

http://www.hsr.ca.gov/docs/programs/construction/CP23_executed/P13_57_IR_IVC_03_Basis_of_Design_Policy.pdf

The technical memorandum defines the major components and performance objectives that support the development of the engineering and regulatory basis for the Program, including its components, objectives, processes, requirements and assumptions governed by the Authority. The Authority's policies on process, standards and subsystems of the high-speed rail system are divided to address:

- Program implementation
- Performance requirements
- Infrastructure
- Systems (electrification, train controls and communications)
- Rolling Stock
- Maintenance Facilities
- Operations

The regional consultant teams take the statewide Basis of Design Policy and finalize the Basis of Design for their section, incorporating any items that might be specific to their section.

Conceptual Engineering for Program Planning (Nominal 5 Percent Design)

Conceptual engineering in support of programmatic environmental studies is based on a review and compilation of existing high-speed rail standards. The standards and criteria reflect the best practices and serve to support the development of conceptual high-speed rail alternatives applicable to California's environment and terrain.

Several alignment and station options are typically identified, evaluated and defined for further study in the project environmental impact report/environmental impact statement (EIR/EIS) through the alignment and station screening evaluation process. Teams develop alignment and station options based on engineering criteria and parameters established for the screening evaluation. The regional teams complete the definition of the alignment and station options and provide the definitions to the environmental teams as the basis of their analyses.

6.2 Design Standards and Criteria Development

The Authority, in concert with the FRA, adapt and refine existing design standards and criteria that complied with federal, state and local regulations to support preliminary engineering and final design of the high-speed rail system. The process used by the Authority and FRA is documented in Technical Memorandum 0.9 - Process to Support Development of a California High-Speed Rail Program Rule of Particular Applicability.

The Authority developed two processes to provide a safe and reliable high-speed rail system that meets U.S. regulatory requirements and is commensurate with the best industry practices for high-speed rail:

- The design development process incorporates the European Union Technical Specifications for an Interoperability approach of evaluating the high-speed rail system as a set of subsystems, evaluating the key interfaces between each subsystem and optimizing the system for safety, reliability and performance.
- The process for developing a Rule of Particular Applicability (RPA) builds on the system design development process to verify that federal and state regulatory requirements are addressed and system safety requirements pertaining to existing modern high-speed rail systems incorporated as part of the Authority's petition for a proposed RPA for consideration by the FRA.

The program-wide requirements database includes documentation of the regulatory approval process and compliance with federal, state and local regulations. The design team uses this documentation to develop the Program's RPA petition, the program-wide design manual and other technical documents.

The design team is accountable for preparing the design criteria and guidelines for the Program, including:

- Design Criteria Manual: Establishes criteria, guidelines and requirements for the design of the infrastructure and systems elements of the Program.
- Technical Memorandum Preliminary Engineering for Project Definition (PEPD) Guidelines TM 0.1: Provides design guidance for a minimum level of engineering, referred to as Preliminary Engineering for Project Definition, required to support the project-specific EIR/EIS process. The memorandum also requires the regional teams to obtain written agreement from the Authority and the FRA on PEPD for environmental evaluation.
- Technical Memorandum Preliminary Engineering for Procurement Guidelines TM 0.1.1: Defines a minimum overall level of engineering design needed to support procurement of DB contract and development of detailed construction cost estimates.
- Technical Memorandum Basis of Design TM 0.3: Defines the major components and performance objectives of the overall system to support the development of the engineering and regulatory basis for the Program. The basis of design includes the performance requirements for the Program.

- Technical Memorandum Process to Support Development of a CHSTP Rule of Particular Applicability TM 0.9: Defines the process to develop and submit recommendations to the FRA for a RPA that supports the design criteria.
- Technical Memorandum Value Engineering Implementation Plan TM 100.07: Provides the process of implementing accepted value engineering policies and procedures on the Program.
- Technical Memo Design Variance Guidelines TM 1.1.18: Defines the procedure for which designers may request and obtain approval to deviate from mandatory requirements established for the preliminary engineering of the Program. Provides guidance for preparing a clear and concise record of relevant design standard or other mandatory requirement, proposed variance and rationale, assessment, review and decisions leading to the approval or rejection of the variance.

There are now over 100 individual Technical Memoranda (TM). To make the TMs more useful to the regional and environmental and engineering consultants, an effort is underway to update, consolidate and organize all TMs into a policy and procedures manual. The new Design Criteria Manual (DCM) is developed by the Engineering Services Branch and the Rail System Delivery Branch. The Director of Engineering is responsible for the civil, structural, geotechnical, and seismic design chapters while the Director of Rail Delivery is responsible for the rail and systems related chapters. The entire document is combined into a fully cross-referenced document with searchable criteria.

The Authority manages and review the design criteria developed by technical experts from the RDP. A panel of subject matter experts across all applicable fields that make up the Technical Advisory Panel (TAP) reviews and oversees the development of the criteria manual. The team meets quarterly with the TAP to resolve questions presented by the TAP from their review of the document. Further, a Seismic Advisory Board (SAB) reviews the design criteria and approach to ensure compliance with the latest research and understandings for seismic design. The SAB is an external panel of international experts covering seismology and seismic engineering as well as knowledge of current research.

We have committed to providing the integrated DCM to the FRA for their review at the end of September 2018.

Facilities owned and operated outside of the Authority, in addition to California High-Speed Rail criteria, require the design will be reviewed and approved to follow the requirements of the facility owner/operator.

6.3 Preliminary Engineering for Environmental Review

Design criteria and standards supporting environmental reviews are provided in a series of TMs. The TMs cover the major high-speed rail subsystems, including infrastructure, train controls, traction power, communications and rolling stock. TM 0.3 – Basis of Design Report and the Concept of Operations Report guide the criteria and standards. TM 0.1- Preliminary Engineering for Project Definition Guidelines includes the specific preliminary engineering design elements required to support environmental reviews.

TM 0.1 presents design guidance for the minimum level of engineering required for project definition needed to support the project-specific EIR/EIS process. It further defines design elements, development level and engineering outputs with the objective of providing a consistent approach for developing preliminary engineering documents across project teams, while also ensuring compliance with federal, state and local regulations as well as the program-level design criteria. The regional consultants provide the scope to develop the preliminary engineering in support of the EIR/EIS in accordance with all the various design criteria and technical memoranda, and developed to the level specified in TM 0.1.

TM 0.1 describes procedures for Project Level EIR/EIS Design Acceptance for concluding the definition of high-speed rail project alternatives for evaluation, disclosure and mitigation of potential environmental impacts. The regional consultants are responsible for ensuring that all appropriate Authority, FRA and RDP comments and concerns are addressed. Following final administrative acceptance of, and concurrence on the Draft EIR/EIS, the regional consultants shall document and submit for approval all activities associated with preliminary project design which could alter the approved preliminary project design, description and footprint for environmental impacts that were not evaluated in the Draft EIR/EIS.

The Environmental Services and Engineering Services branches are responsible for comments on and acceptance of the draft environmental and engineering documents. The groups engage with the regional consultants and Infrastructure Delivery Branch throughout the process to provide comments and advice as well as providing approval of draft and final environmental and engineering documents. Currently the FRA is responsible for review and approval under NEPA. However, the Authority is currently working with the FRA to have NEPA responsibilities assigned to the Authority for future documents.

The Environmental Services and Engineering Services branches are responsible for the final product completion of engineering documents that will accompany the EIR/EIS and made available for public review and comment of the EIR/EIS circulated for public review and comment.

6.4 Preliminary Engineering for Procurement

Design criteria and standards supporting preliminary engineering for procurement are provided in a series of TMs covering the high-speed rail subsystems. The TM includes infrastructure, train controls, traction power, communications and high-speed rail trains. TM 0.3 - Basis of Design and the Concept of Operations Report guides the criteria and standards. TM 0.1.1 - Preliminary Engineering for Procurement Guidelines includes the specific preliminary engineering design elements required to support the procurement documents. TM 0.7- Design Submittal and Review Protocol In-progress and Draft 15% Design Submittals outlines the Design Submittal and Review Protocol process. This technical memorandum creates an auditable trail for the in-progress and Draft Preliminary Engineering for Project Definition (PEPD) Design Submittals. The process is defined by an established protocol for; transmitting submittals, review comments, and responses; verifying action taken; resolving issues; and maintaining document control.

The purpose of TM 0.1.1 is to promote the consistency of the Program's engineering studies by defining the minimum overall level of engineering design needed to support the procurement of DB contracts and the development of detailed construction cost estimates. The PE4P initiated for each section after there is a high level of confidence in the preference for a single alignment alternative. The PE4P initiation does not take place before the approval of the preferred alternative report and the definition of limits for procurement contracts.

The PE4P provides for a level of design for DB procurement and recognizes that the level of design for a specific discipline will vary. The regional consultant is responsible for organizing its PE4P into contract packages. PE4P documents are reviewed for design compliance with the Program's technical requirements, compliance with federal, state and local regulatory requirements and sufficiency of design to generate the procurement-level construction cost estimate. Achievement for verification of the PE4P design occurs through reviews conducted at key stages of completion. The draft PE4P documents undergo a constructability and biddability review prior to release for use as part of the procurement package. The Engineering Services Branch manages reviews for the civil infrastructure elements and by the Rail System Delivery Branch for rail, systems, and operational requirements.

6.5 Final Design

The California High-Speed Rail Design Criteria Manual, technical specifications, performance specifications and standard and directive drawings support the Final design. The standards principally address design criteria for infrastructure elements and interface requirements with the other subsystems. The system's elements (train controls, traction power, communications and high-speed rail trains) are procured using the performance specifications of the Final Design.

The design criteria manual establishes the criteria, guidelines and requirements for the design of the high-speed rail's infrastructure and systems elements. The Authority requires additional guidelines for the design of facilities of other owners/operators affected by the project.

The criteria include:

- Design survey and mapping
- Trackway clearances, track geometry and track work
- High-speed rail trains and vehicle intrusion protection
- Civil, drainage and utilities
- Geotechnical and seismic
- Structures, tunnels, stations and support facilities
- Facility power and lighting systems
- Traction power supply systems, overhead contact system and traction power return system
- Grounding and bonding requirements
- Corrosion control
- Automatic train control
- Yard signaling
- Electromagnetic compatibility and interface
- Supervisory control and data acquisition subsystems
- Communications
- High-speed rail trains core system interfaces
- Safety and security

The DB contractor is responsible for preparation of final design documents that are fully compliant with their contracts including the California High-Speed Rail Design Criteria Manual, technical specifications, performance specifications and standard and directive drawings for the FCS civil DB construction packages, CP1, CP2-3, and CP4. The Authority requires the DB contractor to prepare a Design Baseline Report and obtain the Authority's approval with 180 days of NTP. The purpose of the Design Baseline Report is to demonstrate the contractor's compliance with the requirements of the contract and demonstrate the intent and boundaries to advance the work through final design. The contractor shall prepare a Design Baseline Report that defines the major design elements to be progressed to design and construction and confirms technical feasibility, constructability and compliance with the approved Final Environmental Documents. The FRA reviews and approves, or provides a Statement of No Objections (SONO) for the Design Baseline Report submittal and any other submittals in accordance with the FRA grant agreement and/or as mutually agreed to between the Authority and the FRA (where applicable). The PCM will send these applicable submittals to the FRA for their review and approval/SONO concurrently with the project-level and program-level due diligence reviews, as required.

The DB contractor prepares the final design in accordance with the Design Baseline Report. Once completed, the final design submittals for designs and construction work shall be independently reviewed and certified by the DB contractor's quality manager that the submittal is complete and in full compliance

with the contract requirements. For CP1, the DB contractor's Independent Check Engineer (ICE)/Independent Site Engineering (ISE) certifies to the Authority and to the contractor that the final design and construction satisfies the contract requirements in accordance with the Verification, Validation and Self-Certification requirements (V&V/SC) prior to being submitted to the PCM. For CP2-3 and CP 4, the Independent Check Engineer (ICE)/Independent Site Engineering (ISE) under the PCM certifies to the Authority and to the contractor that the final design and construction satisfies the contract requirements in accordance with the Verification, Validation and Self-Certification requirements (V&V/SC). The PCM and HSR Engineering group reviews these submittals per the Due Diligence Check for Civil-Structural Design-Build Contracts procedure, and are subject to SONO per contract requirements. Any design changes/variances are processed in accordance with the design-build contract and current design variance procedures.

As part of the DB construction packages, the contractor implements a V&V approach that employs independent V&V based on proven international practice in high-speed rail and internationally accepted standards. The self-certification process includes the following:

1. DB contractor prepares technical contract submittal (including final design, construction, inspection and test submittals) and performs quality procedures per the contract.
2. DB contractor submits technical contract submittal together with the DB contractor's V&V submittal to the ICE/ISE.
3. ICE/ISE assesses and evaluates the technical contract submittal to certify that the final design/construction meets the contract requirements per the contract. ICE/ISE submits an assessment report and certification to the Authority's representative with a copy to the DB contractor.
4. DB contractor submits technical contract submittal, including self-certification, the DB contractor's V&V submittal, ICE/ISE assessment report and certification to the Authority's representative.
5. The Authority's representative performs audit and due diligence reviews as required and issue statement of no objection or approval, if given, based upon audit and additional review results and ICE/ISE assessment report and certificate.

The DB contractor develops and implements a comprehensive V&V process to demonstrate how the final design, construction and testing, and in support of the technical contract submittals meet technical and contract requirements. The V&V process is to be based on the general provisions of IEEE 1220/IEC 26702 "Systems Engineering – Application and Management of the Systems Engineering Process" and follow the general provisions of IEC 15288 "Life Cycle Management-Systems Life Cycle Processes." The DB contractor will prepare a V&V Plan that addresses the specific processes for requirements management, design management, interface management, and inspection and testing management. The plan includes:

- Contract life cycle phases
- Deliverables for each phase
- Activities for each phase, roles and responsibilities
- Tools and methods
- Inputs for each phase
- Stakeholder considerations
- Metrics used to measure and report progress

The special provisions for each DB package include the contractual requirements for self-certification and V&V. The V&V process will carry throughout the entire Program regardless of contracting methods to ensure the completed project meets all requirements and functions as intended.

The Engineering Services branch manages reviews for the civil infrastructure elements and by the Rail System Delivery Branch group for rail, systems, and operational requirements. These reviews follow more

detailed reviews and work checks performed by an ICE which is an engineering consultant under contract for the designated design phase.

6.6 Constructability Reviews

The Engineering Services branch performs constructability reviews and an assessment of the construction schedule as part of the development of the preliminary design submittals to support preliminary engineering and environmental assessments. TM 0.1 - Preliminary Engineering for Project Definition Guidelines Design Scope gives general requirements for the constructability.

Technical staff of Infrastructure Delivery in coordination with the Engineering Services branch review constructability to support preliminary engineering for procurement as part of the development of the PE4P design submittals in accordance with TM 0.1.1 - Preliminary Engineering for Procurement Guidelines.

The PCM and oversights by technical RDP members of Infrastructure Delivery Branch and the Engineering Services branch perform constructability reviews during final design consist of confirming the constructability of the preliminary engineering and then substantiating the constructability of the design in the Design Baseline Report prepared by the DB contractor for each contract package. For CP1 the contractor's Independent Checking Engineer/Independent Site Engineer (ICE/ISE) review and certification of the final designs includes the constructability aspect. For CP2-3 and CP4 the PCM's Independent Checking Engineer/Independent Site Engineer (ICE/ISE) review and certification of the final designs includes the constructability aspect. The PCM and HSR Engineering group review submittal once submitted per the Due Diligence Check for Civil-Structural Design-Build Contracts procedure for constructability in addition to the other technical aspects.

6.7 Value Engineering

The goal of the value engineering process is to improve the value of the overall Program by sustaining or improving its performance attributes while also reducing overall cost, including the cost of life cycle operations and maintenance. The Authority has a draft process for implementing accepted value engineering policies and procedures on the Program following a three-level approach:

- Level 1: Review baseline performance and function.
- Level 2: Review design guidelines, standardization of materials, structural types and components, and assess/evaluate alternate mitigations.
- Level 3: Review alternative design solutions for major components that comply with functions and design criteria while maintaining quality and safety at a lower cost.

The Authority uses the value engineering process to achieve value improvement in various engineering phases. For specific projects within the overall Program, this may result in improvements in defining the proper scope, functional design, constructability, coordination (both internal and external) and schedule for development. Other value improvements for specific projects may include reductions in environmental impact, public inconvenience or cost. The value engineering process strives to evaluate and incorporate, to the maximum extent possible, the values of the design engineer, construction engineer, maintenance personnel, contractor, public, approval agencies, local government and other stakeholders. The important design decisions are based on the recommendations developed and presented by the value engineering team. TM - 100.07 - Value Engineering Implementation Plan includes specific information on the value engineering approach. The PCM manages the value engineering process and involves the Infrastructure Delivery and Engineering Services branches. The Authority uses stakeholders and subject matter expert engagement to achieve the most economical design solutions. The Authority hosts several workshops during preparation of preliminary engineering for project development between RDP, regional consultants (preliminary engineering consultants), environmental specialists and other stakeholders in establishing the ROW alignment that is most economical taking into consideration the numerous and inherent constraints. The PE4P development refines potential solutions. The Authority permits DBs to propose changes that will result in cost or schedule savings on the preliminary design selected, regardless of whether it is in the preliminary design or developed as an alternative technical concept as a part of the proposal process. The contractor and the Authority share any resultant cost savings.

The Authority is committed to cost-effective implementation of the overall Program and encourages each DB contractor to submit a value engineering change proposal if the DB contractor determines, during final design and construction, that an alternative not previously considered could provide added value to the Authority at a reduced total cost. The value engineering change proposal is the mechanism used to change the contract requirements to reduce the cost of a project without impairing its essential functions or characteristics.

6.8 Design Variances

The Authority requires that design variances from design criteria, standard drawings, technical specifications and/or design guidelines undergo an assessment review, approval and documentation process, as outlined in the design variance internal procedure. The guidelines for design variances are applicable during preliminary engineering, final design and construction. The guidelines establish a procedure for identifying, preparing, requesting and documenting a design variance and provide guidance for preparing a clearly articulated and concise record of the relevant design standard, required variance and rationale, assessment, review and key decisions leading to approval of the variance.

The design variance request process consists of:

- Early identification of potential variances.
- Preliminary investigation of variances.
- Variance request preparation and documentation.
- Variance review and analysis of potential impacts.
- Approval or rejection of the variance.
- Communication of the approved variance to the Authority.
- Document control and feedback loop to design standards development.

During the preliminary engineering phase, the regional consultants identify potential design variance and include a listing in their final deliverable packages. During PE4P, potential design variances are evaluated to see if elimination is possible or otherwise addressed. Typically, formal design variance requests are not initiated until the final design phase.

The DB contractor must follow the DB contract requirements for any design changes or design variances requests (DVR) to verify proper management of all deviations from the prescribed design criteria, technical memoranda, and all applicable design standards, etc. DVRs are typically identified by the DB contractor or third party designers during the development of final design. The current Engineering and Construction Design Variance Internal procedure defines the processing review, and approval/rejection of design changes/variances. This procedure describes each of the actions and responsibilities followed for processing of each submitted DVRs. The Authority and FRA review DVRs for consistency with the approved environmental documents. Any design that is not consistent with the project, as approved in the ROD, will require additional environmental review and documentation, including the necessary justification to the FRA. The DB contractor will submit the required supplemental documentation and justification.

Changes that are minor in nature and do not require circulation will be documented with a memo to file, which will be copied to the FRA for concurrence and the design process will continue. The Authority requires that any changes impacting the scope, schedule or budget are required to go to the Budget Oversight Committee (BOC) for approval. Changes that require a supplemental EIR/EIS also require FRA's review and concurrence prior to implementation.

The DB contractor submits a DVR to the PCM. The PCM assesses the scope, schedule, and budget impacts of the request. The PCM prepares a recommendation and then sends the DVR to Engineering Services for coordination of review and determination of the Authority's position. Engineering Services will assess impacts on civil and structural performance, and will refer relevant DVRs to Rail Operations and Maintenance where there is potential impact on either rail operations or maintenance activities. If any of the reviewing groups reject the DVR it is rejected. All reviewing groups must agree to approve a DVR before acceptance.

6.9 Infrastructure Delivery Resources

The Authority established the Infrastructure Delivery Branch as one of the three Project Delivery Pillars. The Branch is responsible for delivering the civil work ensuring contract compliance and on time and within-budget performance. Doing so enables subsequent civil and rail projects to move forward in

compliance with the Program Baseline. The primary role of the Infrastructure Delivery Branch is to deliver civil construction projects on time and within budget.

The key positions in Infrastructure Delivery are the Director of Infrastructure Delivery, Deputy Director of Infrastructure Delivery and the Construction Project Director. The Director of Infrastructure Delivery manages all staff and workflows of the Infrastructure Delivery Branch. The Director is accountable for the delivery of the civil construction projects as outlined in the Baseline. The Director of Infrastructure Delivery reports to the COO and advises and makes recommendations to governance committees and the Board, as requested. The Director vets change requests prior to escalation through the governance process and is responsible for ensuring collaboration and communication with other parts of the Authority, as needed.

The Deputy Director of Infrastructure Delivery reports to the Director of Infrastructure Delivery and focuses on the infrastructure delivery aspects of the program. A state employee can fill the Deputy Director position to provide the required authority for the Director, if a state employee does not fill the Director position.

The Infrastructure Delivery Branch has centralized management for the Deputy Director and above. However, below the Deputy Director, the organization is grouped by construction packages. Each construction package is a collection of contracts. The organization of each project depends on the specific construction package. In general, a small number of large DB contracts constitute most of the construction package, with other smaller contracts that deliver support or specialized civil work.

6.10 Engineering Services Resources

The Engineering Services Branch is a resource for all Authority infrastructure and rail delivery projects, helping ensure consistency related to design and engineering, cost estimation and construction. The Engineering Services Branch develops and maintains the Authority's infrastructure design guidance documents and advises on procurement strategy, engineering and design, and scope development. They are the final engineering and design authority over all infrastructure engineering issues, and verify that designs are compliant with established Authority requirements related to infrastructure.

The Director of Engineering and the Deputy Director of Engineering oversee Engineering Services. The Director of Engineering reports to the Chief Operating Officer. The Director of Engineering manages Engineering Services and reports to the Deputy COO. The Director is accountable for all activities of the group, including budgeting and workflows, and coordination of activities with the Project Delivery Pillars and other Functional Support Groups of the Authority. The director advises the Project Delivery Pillars on contract management, change management and scope development.

The Deputy Director of Engineering reports to the Director of Engineering and is responsible for supporting the Project Delivery Pillars and Functional Support Groups and developing, maintaining and interpreting engineering policies related to infrastructure. A state employee can fill the deputy director position to provide the required authority for the Director, if a state employee does not fill the director position.

Six functional sections comprise the Engineering Services Branch: structural engineering, tunneling, geotechnical engineering, civil engineering, seismic engineering, and design and construction support. The functional section leads report to the Deputy Director of Engineering.

7 PROGRAM AND PROJECT MANAGEMENT AND CONTROLS

The Authority uses a program management approach to deliver the High-Speed Rail Program and manage the group of related projects. The Authority used program management fundamentals, principles and practices to develop policies, procedures and tools to manage and control the delivery of the scope, budget and schedule commitments of the overall Program.

The project manager leads, advises and advocates for their project section and is accountable for meeting objectives as defined in the project plan. Project managers oversee the scope, schedule and budget is the primary contact from inception through closeout.

The program controls plan provides a functional overview of the control processes for monitoring and reporting the scope, budget and schedule at both the Program and Project section levels.

7.1 Program Controls

The Program Controls Plan (see Appendix J) establishes the processes for management and control of the program-wide scope, cost and schedule. The plan identifies process interfaces with other functional units in the integrated Authority/RDP organization, including the groups responsible for the management of risk, funding, earned value, contingency, DB contract changes and program-level changes. The plan also communicates the roles, processes, data, program management information system (PMIS) elements, reports and reviews related to program controls.

The Baseline controls group facilitates the management of several key areas that relate to the entire program and prepares the documents required to implement and monitor the processes as well as verifying that program control policy decisions are executed in a consistent and systematic manner.

The program controls group is also accountable for:

- Scope management
- Cost management
- Schedule management
- Earned-value management
- Trend management
- Contingency management
- DB contract change order management
- Program-level change order management

The program controls framework uses a five-stage program control cycle as shown in Figure 8.

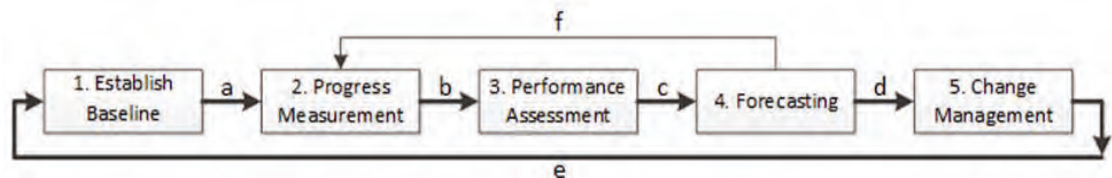


Figure 8. Five Stages of Program Control

Stage 1: Establish Baseline is the basis established by the Authority and program delivery consultant against which the Program measures, assesses, forecasts and changes. Stage 1 describes the organizational elements of the project as follows:

- Work breakdown structure (WBS)
- Organizational breakdown structure

- Cost budget
- Funding baseline
- Program master schedule
- Risk register

Stage 2: Progress Measurement comprises the methods used to measure progress, including the following:

- Physical progress
- Units completed
- Interim milestones
- Completion milestones
- Resource tracking

The methods vary throughout the different phases of program development— planning; design; procurement; construction; systems and high-speed rail train manufacturing, supply, installation, testing and commissioning; and high-speed rail system startup and operations. Program controls collaborates with the task leads and program management to select the specific method(s) applicable to the development phase. Project directors provide individual project level data to Program Services. This information combined into overall program level reports.

Stage 3: Performance Assessment uses earned-value management techniques to assess performance by comparing the Stage 1 baselines to actual progress, identifying any variances or deviations from the baselines, determining the impact of these variances on cost and schedule, and selecting corrective actions to minimize the impact. The Program Controls Group assesses the performance to assist program management and functional unit managers with the metrics or assessment to analyze and document variances. The Schedule Management, Program Cost Management and Earned-Value Management describe each assessment.

Stage 4: Forecasting represents the program schedule, budget and resource forecasting processes, including trend analysis. Variances from the Stage 3 assessment use forecasting to predict control element outcomes (delay, cost overruns, increased risk, resource shortages, etc.) with the potential to negatively affect delivery of the high-speed rail system and identify opportunities to improve program delivery and/or mitigate risks. Monthly program reviews and reporting use monthly performance measurement and forecast data. Schedule Management, Program Cost Management and Earned-Value Management describe the specific forecasting methods used.

Stage 5: Change Management is the process of collecting, reviewing, approving or rejecting, and managing changes to the program baseline. Stage 5 reflects the outcome of the evaluations conducted during Stage 3 – Performance Assessment and Stage 4 – Forecasting, which identified deviations from the baseline, determined their cause(s), evaluated their potential effect on cost and schedule and identified optimal measures for mitigation. The program controls unit and the risk management group are participants and approvers in managing changes and contingencies in accordance with the contingency management plan. The change management procedures encompass trend analyses, causal analyses and mitigation analyses as required.

Program Management Information System (PMIS)

PMIS is a system of tools and techniques used for compiling, integrating, storing and interfacing the information from the various program management processes to determine the status of the overall program and its specific projects. The Program Management and Information System will evolve and continue development and refinement as the Program transitions from conceptual planning through environmental approvals to detailed design, procurement and construction and, ultimately, to testing, commissioning and revenue service startup. In addition to data entry, PMIS is the repository for storing data as well as the interface for reporting data.

The primary subsystems of PMIS include the following:

- **Estimating Management:** Timberline is the primary application used to prepare the program cost estimate using quantities and unit prices received from the field. This system is in place and working.
- **Schedule Management:** Primavera P6 is the scheduling software tool used to track the program-wide baseline, record status updates, assess performance, develop schedule forecasts and document schedule changes. This system is in place and working.
- **Cost Management:** EcoSys is the program cost management tool used to track total program budget and expenditures, and to perform cost forecasting and reporting. This system is in place and working.
- **Risk Management:** Risk Management Information System (RMIS) is the program risk management tool used to track risks at the program and project level. This system is in place and working.
- **PMIS Business Intelligence Portal:** The PMIS BI Portal is an online tool that integrates and presents data from all PMIS systems in one consolidated location. IT will fully implement the system by the end of 2019.

Schedule Management

The Schedule Management Plan, a component of the program controls plan, provides an overview of processes and output data used to establish the baseline schedule, measure progress, assess performance, forecast deviations and trends, manage change and schedule reporting, reviews and meetings.

As described above in the discussion of PMIS, Primavera P6 is the primary software program for developing the baseline schedule for the overall program and its projects, recording status updates, assessing performance, forecasting trends and deviations, and recording changes to the overall Program's scheduling data. The program-wide baseline schedule (i.e., the program master schedule) is the mechanism for program-wide planning and project delivery, monitoring and reporting progress, and identifying variances. The Authority takes corrective action to either cancel the effect of the variance or mitigate its potential for adversely affecting the overall schedule. The P6 critical path method software enables recording, tracking and reporting of detailed schedule. Individual project-specific schedules reflect key interfaces and milestones to determine resources and progress profiles for each project. The Authority updates the master schedule monthly.

For civil projects, the DB contractor must submit a project-specific baseline schedule that is approved by the Authority and the PCM. The Authority approves the baseline and it becomes the "approved original baseline schedule." This baseline schedule is the basis for monitoring the DB contractor's progress during the performance of the work. The DB contractor submits monthly schedule progress updates. The individual project teams review and approve before submitting the project scheduler to update the master program schedule. The PCM, design and construction manager, and the project scheduler must review any revisions to the schedule resulting from change orders, revised sequencing of work and/or unforeseen delays. The Authority revises the baseline schedule and the master program schedule once approved.

The schedule management reporting hierarchy includes the integrated organization, regional consultants, PCM, and DB contractors. The program controls functional unit obtains information from each of these entities to prepare monthly schedule reports.

Program Cost Management

The cost management policies and procedures, a subset of the program controls plan, provides an overview of how to manage cost control at both the program-level and project-level. In addition to defining the roles and responsibilities for cost management staff, the cost management policies and procedures address the processes and output data associated with each stage, including the establishment of the baseline cost estimate, progress management, performance assessment, forecasting and change management, PMIS components, cost reporting, and reviews and meetings.

The Authority develops the program cost budget based upon the most recent business plan estimate. The cost engineer coordinates with the senior estimator and integration and data manager to allocate the business plan budget to the program elements by mapping similar scope elements from the estimate to the WBS elements. The budget represents YOE monetary values. The Authority refines the estimates and updates the business plan as individual projects progress through development stages and more information becomes available.

The Authority updates program-wide cost monthly with input received from the integrated staff, regional consultants, project and construction managers, and DB contractors. The Authority uses this information to prepare program cost reports, including reports that track the cost of third-party agreements, right-of-way acquisition, environmental documentation, permitting and mitigation at the program and project-levels, as well as costs expended.

The Authority uses different techniques to develop cost estimates because the work scope definitions varies among projects. The estimating process uses parametric estimating techniques for projects whose scope has little definition, and detailed quantity takeoffs and pricing for sections that have a more advanced definition of scope. Each project manager is responsible for preparing and maintaining a construction estimate that is provided to the program controls group for review and incorporation in the cost estimate for the overall Program.

The project manager develops cost assemblies and/or unit rates as needed for each type of quantity. The PM prices quantities using the applicable cost assemblies and review the resulting estimate. If necessary, the PM makes allowances to cover known or anticipated cost categories for projects lacking a well-defined design definition that thwarts the development of quantity figures and a contingency amount is added to the cost estimate to accommodate unknowns (risk factors). The PM then uses the resulting estimate as input for the budget and forecasted amounts of the cost control system.

The Authority's programing of the projects and cost controls are necessary because the funding stream for completion of the entire program of projects is limited over time. The Authority defines t each project in such a way as to be ready for construction when funding become available. Cost controls for each project are in place and managed by the Project Controls team to allocate funding to active projects as needed. The Cost Controls team manages changes though the change control process. The Authority updates policies and procedures to enhance controls and streamline the estimating, budgeting, project controls and change processes.

Actions used and recommended to produce more accurate and comprehensive estimates include the following:

- Analyzes the bid results for CP 1, CP 2-3 and CP 4 to compare against the current estimate and establish a database for processing future estimates.
- Uses independent estimating firms to prepare and reconcile engineer estimates.
- When appropriate, use contractors who are not involved in the Program to prepare independent "shadow" bids.
- At least two months prior to bidding, implement with the regional consultants an internal value engineering process that emphasizes cost reduction and initiates the development of preliminary alternative technical concepts.
- Engages the thinking of the full organization—the Authority and the project delivery support resources, contractors and suppliers—to assist the alternative technical concepts evaluation process by identifying and mitigating potential complications resulting from right-of-way, environmental and permitting.
- Revises the bid evaluation process so that it uses a uniform base-bid approach for project design. Include alternative technical concepts as deductive alternates to eliminate the wide spectrum of bids and design solutions that are difficult to compare.
- Augments the project management staff with the estimating team during the quantity development phase to improve the quantities estimates for both the engineering and planning estimate processes.

- Monitors recent bids for other similar types of projects as a basis for responding and adapting to market conditions and competitive environments.

7.2 Contingency Management

The Authority's risk management and change management functions manage contingency in an interactive process. The amount of funds reserved for contingency is allocated based on the risks inherent in each phase of the program; as the program progresses and risks are contained or eliminated, contingency is reduced accordingly. The Contingency Management Plan details the processes that are in place to determine, allocate, and manage program, project, and contract contingency.

Contingency Structure

The Authority contingency amounts are managed using the following distinct accounts in accordance with FTA Guidance and industry best practice:

- Program Unallocated Contingency (Standard Percentage Contingency)
- Program Allocated Contingency (Risk Based Approach)
- Project Contingency (Risk Based Approach)
- Contract Contingency (Risk Based Approach)

Separate processes apply to the management of each of the above listed accounts. See the following sections for detail on these accounts and the applicable processes.

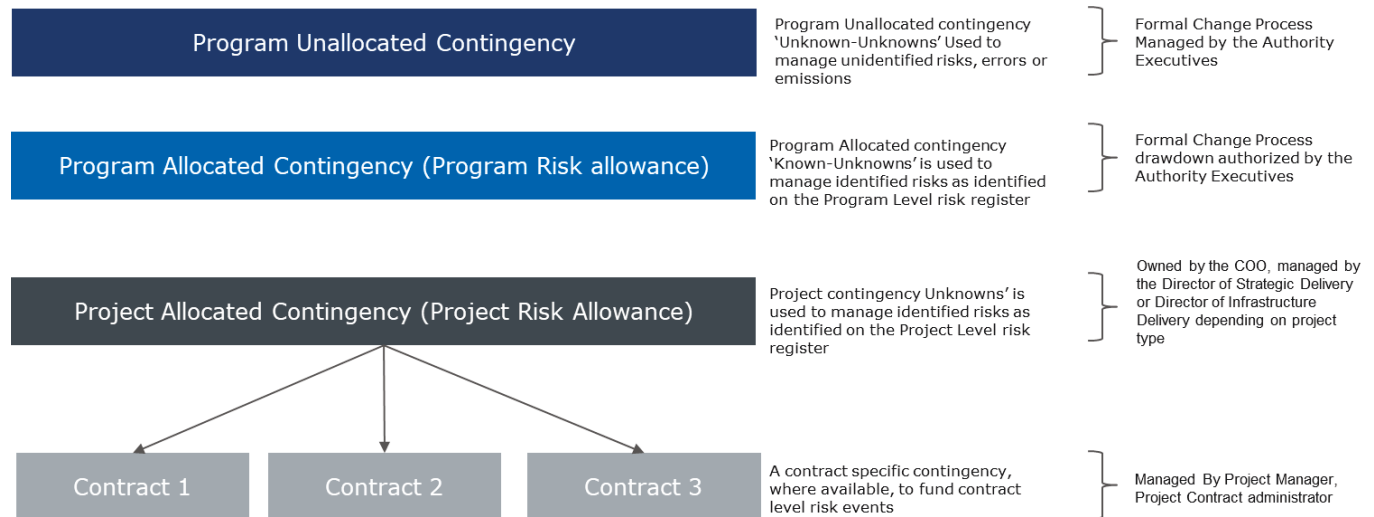


Figure 9 Management Levels and Types of Contingency

Program Unallocated Contingency

Program unallocated contingency is intended to reduce the risk of exceeding the overall program budget amount. The program unallocated contingency serves the purpose of a program-wide risk mitigation pool of funds, covering risks not covered by the program allocated contingency.

The budgeted amount assigned to the program unallocated contingency is calculated using the Business Plan cost estimate at 5% of the total estimated cost (exclusive of Program Management). Program unallocated contingency covers possible cost impacts which are unknown and cannot be precisely estimated at present.

The Authority's estimates for the program are based on a percentage of the total program budget. Program Unallocated Contingency belongs to the Program and is managed by the Authorities Executives.

Usage

The Program typically uses unallocated contingency for:

- External Impact to the Program Baseline scope and schedule changes due to circumstances out of Authority's control
- Unidentified Risks
- Fundamental changes in law
- Force majeure
- Catastrophic events
- Authorized Budget of a contract is under threat where no Delivery Contingency is available

The Authority's Chief Executive Officer (CEO) approves the usage and sources of unallocated contingency. The Business Oversight Committee (BOC) and Executive Committee approve all instances of use of unallocated contingency.

Replenishment

The Authority shall immediately develop and implement a plan in the event that the program unallocated contingency is depleted, or is forecasted to be depleted, prior to completion of the program. In the early stages of the program value engineering will be used to assist in recovery of contingency.

Governance

The CEO is responsible for the program unallocated contingency. It is managed by the Chief Operating Officer (COO). The Authority Director of Program Management and Oversight provides support and input from the program sponsors. The CEO approves the release of any program unallocated contingency.

Program Allocated Contingency

Definition

Program allocated contingency 'known-unknowns'. They are "known" in the sense that they occur on all programs. They are "unknown" in the sense that specific details of scope and magnitude of cost have not been identified. The Program Risk Register list these "known-unknowns" and specific scope and costs are identified during the development phases of the program.

The sum of the Program Allocated Contingency is based on a Quantitative Cost Risk Assessment (QCRA) covering the program risks identified in the program risk register.

Usage

Program level risks use the program allocated contingency for:

- Right-of-Way, environmental, third party, rolling stock, track and system risk events for which no contingency is allocated
- Program led schedule and scope change
- Extra ordinary project risks such as, asbestos, sink holes etc.
- Cost overrun excess of available contingency
- Unbudgeted sponsor change

The BOC approves the usage and sources of allocated contingency.

Replenishment

The Authority refreshes the QCRA every quarter and it identifies the appropriate allowance required at the program level. The Authority will need to explore opportunities for saving in the event the program allocated contingency is depleted, or is forecasted to be depleted, prior to completion of the program.

Governance

The COO with support from Director of Program Management and Oversight is responsible for and manages the program contingency. The BOC requires approval to release contingency to the project level. The COO is responsible for approving the allocation of program contingency to authorized budgets. The COO will only release funds with adequate estimates.

Project Allocated Contingency

Definition

The Project Director holds project contingency at project level to draw down via budget transfer into contract budgets as risks and changes materialized. Holding contingency at project level provides the Project Director with the agility to make best use of the available funds in managing the project as a portfolio of contracts. The Project Director's Delegation of Authority (DOA) limits their authority to draw down contingency.

Each project manager is responsible for establishing a realistic forecast Anticipated Final Cost (AFC). The project manager determines how best to utilize project contingency to mitigate the impact of cost increases. They monitor the rate at which project contingency is being drawn down into contracts to ensure that sufficient amounts remain available for the work within the project. The project allocated contingency applies to projects within the program and its value is calculated through QCRA based on the project risks identified in the project risk registers, the quality of design information available and estimate uncertainties.

Usage

This project allocated contingency covers risks not allocated to either party, these include:

- - Interface between contracts within a project
- - Client led delays/impacts from project level
- - Interface with unknown third parties at project level
- - Scope additions
- - Unforeseen site conditions
- - Delayed/impaired access due to ROW at project levels

Project allocated contingency will be maintained at an individual project level, based on the processes in the Contingency Management Plan.

The Director of Infrastructure Delivery / Strategic Delivery may transfer funds directly between individual projects following governance structure as required by the Change Management Plan.

Replenishment

Project allocated contingency may replenish funds once they become depleted from other risks pots, depending on risks that have been mitigated or closed following the risk management procedures.

BOC approves the transfer of project funds from the unallocated contingency if funds cannot be replenished from other project contingency pots, in compliance with the change management process.

The Authority transfers any remaining project contingency amount to the program unallocated contingency where it will be available for use in other projects as needed.

Governance

The COO is responsible for the project allocated contingency. This contingency is managed by the Director of Strategic Delivery or Director of Infrastructure Delivery depending on the project type. The Director of Strategic Delivery or Director of Infrastructure Delivery is responsible for endorsing any request within DOA. The Director of Strategic Delivery or Director of Infrastructure Delivery must submit requests to the BOC if the request is not within the DOA and funds reallocated from the program contingency. The Director of Strategic Delivery or Director of Infrastructure Delivery is responsible for monitoring the expenditure of project contingency, relative to the authorized budgets.

Contract Contingency

Definition

Contract contingency is an account established upon award of a contract to allocate funds used for changes. The amount established for the contract contingency is subject to, and identified by, a resolution from the Authority's executives. The Authority determines contingency through a risk-informed approach.

All awarded contracts (inclusive of program management, consulting services design, DB and construction, etc.) carry and manage their own contract contingency account.

Usage

Contract contingency is established at the time of contract award. Contractor owned risks are defined in the contract and managed by the contractor:

- Contract specific risks
- Supply chain performance
- Production rates
- Construction quality
- Contract and site management
- Delivery in line with accepted schedule

The Authority reduces the project budget to be equal to the contract amount plus contingency if the contract amount is lower than the budget. Remaining funds are moved to Program Unallocated Contingency. The Authority has the discretion to omit funds in part or in its entirety.

The use (drawdown) of the contract contingency for each contract would then fall under the rules of delegation of authority set forth in the Change Management Procedure.

Replenishment

The Authority uses project contingency funds to replenish the contract contingency. As part of contract close-out, any remaining contract contingency amount is transferred to the project contingency.

Governance

Contract-allocated contingency is only applicable to, and managed within a specific contract. The Contract Manager and the Project Contract Administrator follow the Contract Risk Management Plan to monitor, manage and report on the contract-allocated contingency. The Contract Manager and the Project Contract Administrator provide a monthly report on the use and sources of contract contingency account monies, including utilization forecasts, both replenishment and draw down.

7.3 Roles and Responsibilities

Contract Manager

- Contract manager manages contract contingency in accordance with their contract scope;
- Reviews contingency drawdown requests and provides direction to the PCM team on how to proceed with the contract change order; and

- Ensures that the project contract administrator is informed of the use of contingency and remaining values.

Project Contractor Administrator

- Project contract administrator works with the contract manager to review, manage and report on contract contingency.
- Reviews contingency drawdown requests and ensures the Authority, RDP are aware of the use of contingency and remaining values.

PCM Project Controls Manager (for DB Contracts)

- The PCM facilitates each step of the process for contract contingency, and is the liaison between the Authority's program controls group and the contractor.

Project Manager

- Responsible for reviewing, managing and reporting on Project level contingency.
- Responsible for coordinating with Program Control and Regional Project Controls on the status of project contingency.
- Oversees the preparation of documentation supporting contingency drawdown.
- Attends the BOC as required to explain drawdown requests.

Project Director

- The project director is accountable for reviewing, managing, monitoring and reporting the expenditure of project contingency, relative to the authorized budgets.
- Endorse any requests for contingency prior to BOC approval.
- Attends BOC meetings to discuss the details the request for contingency use.

Director of Infrastructure Delivery / Director of Strategic Delivery

- Review the proposed request for contingency drawdown and approval.
- Responsible for managing transfers of contingency directly between individual projects following the governance structure.

Regional Cost Engineer

- Follows the contingency process at a project level.
- Responsible for monitoring and reporting on all project level contingency.

Program Cost Manager

- Monitors and expedites all contingency requests and the process of validation, impact analysis, review and approval or rejection.
- Maintains contingency in EcoSys to document drawdowns and transfers.
- Provide an analysis of the rate of draw-down and the implications on overall forecast.
- Provides periodic review of cost risk to assess that the remaining contingency is adequate for the potential residual risk.

PCM Program Risk Manager (for DB contracts)

- Ensures that the contingency drawdown and implications to forecast align with the risk management process.

Program Controls Manager

- Evaluates contingency drawdown requests in alignment with risk management and change management process.
- Undertakes reporting against contingency and highlights issues for management attention.

Change Management Manager

- Centralized role that manages the contingency processes.
- Develops and ensures the compliance of the Contingency Management Plan.
- Advises the executive management regarding the change management process and governance.
- Ensures the completion of a contingency request prior to BOC meeting.
- Coordinates and communicates with stakeholders during contingency management process.
- Develops and implements policies, procedures, bulletins and other governing and guiding documents related to contingency management.
- Collaborates with Senior Program Director, Budget Director and Program Controls Director to ensure that programming, program delivery and project controls processes work in unison with each other; are in alignment with California High-speed Rail Program Management Plan; and effectively support management of the HSR Program Baseline.

Director of Program Management and Oversight

- Provides leadership to managing the program contingency.
- Reviews and confirms that the proposed change aligns with the Authority's direction.

Program Delivery Committee (PDC)

The Program Delivery Committee (PDC) provides governance and oversight of the Authority's programmatic execution and performance. The PDC is accountable for all aspects of program development and delivery in accordance with the Baseline, including scope, schedule and adherence to budget. This committee surveils the program opportunities and risk impacts to the Baseline and issues trends accordingly. The PDC advises the Board of Directors, the CEO and the Executive Committee regarding program execution and performance. The PDC is responsible for:

- Overseeing all elements of program development and delivery related to Baseline scope, schedule and adherence to budget.
- Overseeing environmental, capital, rail and support development, and delivery projects.
- Monitoring program and project controls for adequacy and accuracy.
- Surveilling programmatic opportunities and risk impacts to the Baseline and issuing trends accordingly.
- Elevating program development and delivery issues, with recommendations and priorities, to the Executive Committee for decision.

The PDC will forward issues requiring escalation resolution to the Executive Committee.

Business Oversight Committee (BOC)

The Business Oversight Committee (BOC) provides governance and oversight of the programmatic Baseline. It acts as the Baseline configuration-management control board and approves all changes of scope, timeline and budget to any program element within the Baseline. This committee ensures Baseline compliance to federal and state regulations and statutes. The BOC also approves any program execution or fiscal request presented to Board of Directors. The BOC's responsibilities are:

- Assessing the financial and operational impacts of changes to the baseline budget and cash flow.

- Verifying all changes to the Baseline comply with federal and state regulations and statutes, and Authority policy.
- Ensuring that the Baseline execution and procurements are in accordance with the Business Plan and Baseline strategies.
- Evaluating identified program risk opportunities and impacts to Baseline.
- Accountability for overall Baseline capital program scope, schedule and adherence to budget.
- Ensuring the appropriate use of public funds.

The BOC Committee will forward issues requiring escalation resolution to the Executive Committee.

7.4 Change Management

As a means of controlling changes to the Program, the overall change management strategy distinguishes between program-level changes and project-level changes, including changes affecting the DB contracts. A change occurs with a positive or negative modification, to a controlled area of the Program in terms of scope, budget, schedule, functionality, interface and/or location. The “controlled area” of the Program is also known as the baseline. Each change requires an assessment of its effect on the controlled areas of the Program. The technical implications of changes are weighed against the effect on budget and schedule, as well as adjustment made to the Program’s risk factors. These potential impacts inform the Authority of the implications associated with the change and justify whether the change is approved, rejected or requires the development of recovery plans or alternative approaches.

Program-Level Change

Change management is an essential component of the overall project and program management approach. The program change management process ensures that potential changes to the contract, project, and program baselines go through appropriate level of evaluation, review and approval prior to controlled implementation.

Types of Changes

- Program Change - An adjustment or modification that impact the Program Baseline (scope, schedule and cost).
- Project Change - An adjustment or modification that impact Project Baseline (scope, schedule and cost).
- Contract Change
 - Design-Build Contract - Owner or contractor initiated changes during the execution of design/construction contract that may result from any of the following occurrences, including but not limited to:
 - Changes to the agreed upon contract scope, schedule, cost
 - Changes in construction materials, means, methods, sequences, or techniques
 - Changes to contract specifications including performance specifications, drawings and designs
 - Changes resulting from third-party requirements or external stakeholders
 - Professional Service Contract - Changes those occur during the execution of professional services contract that may result from any of the following occurrences, including but not limited to:
 - Authority-directed out of scope work
 - Enhanced in-scope work activities
 - Scope deferrals & deletions
 - Scope transfers between tasks

- Scope transfers between firms
- Budget redistributions
- Request for additional funding
- Schedule deadline delays

Change Management Lifecycle

All changes go through a cycle of identifying and defining the proposed change, assessing the impacts of the change prior to review and approval, then communicating the decision to change and implementation, as illustrated below. See also Appendix A for the end-to-end (E2E) Program Change Management process diagram.

Change Management Steps

The Change Management Lifecycle applies to any change to the contract, project or program baselines.



Figure 10: Program Change Management Lifecycle

Identify

The Authority uses the Change Request (CR) form to initiate changes and shall be sponsored by the contract manager, project manager or program manager. The change owner is determined based on the change type.

Evaluate

The contract manager, project manager or program manager evaluates a change request to assess how the change impacts the contract, project, and/or program baselines. At a minimum the evaluation shall include:

- Assessment of change impact to the overall scope, schedule and cost baselines;
- Risk analysis related to a proposed change;
- Consideration of current and future safety/operability factors;
- Determine relationship to other change requests, both pending and approved, to identify incremental change of a larger nature;
- Impact to interfacing projects/regions;
- Plan to implement the change, including the impact to existing contracts;
- Identify Impact on Authority strategic intent and vision; and
- Determine technical reasonableness and feasibility.

The Regional Project Controls team (in coordination with project and construction management consultants for construction contracts and regional consultants for environmental clearance projects) evaluate project and contract level changes will. The Program Controls Team evaluates program level changes.

Review

The relevant Authority functional representative reviews the change evaluation. The Authority Change Management Section make recommendations to the BOC based on reviewers' input. The BOC reviews a change request and all relevant backup to ensure it is in alignment with the Program and strategic objectives.

Approve

The approved Authority Board's DOA approves the change and informs the Project Director, Regional and Program Controls Managers, and head of Program Change Management if a change can be managed within the contract or project baseline. The approver or delegate is responsible for communicating the change to others as applicable depending on type and impact of the change.

The Authority presents the change the BOC for its approval if the change impacts the project baseline or program baseline. The BOC makes recommendations and escalates these changes to the Executive Committee for its review and recommendations prior to the monthly Board meeting. The Board reviews and recommends or approves change based on the Authority's DOA.

Communicate

The change owner communicates approval or rejection of the change to all concerned parties in a timely manner.

Implement

The change owner takes the necessary actions to implements the change. The change owner implements the change in an appropriate timescale and with minimal disruption.

The change owner uses the change management system to close out the change request after completion of required actions.

Reporting

The Authority requires change management reporting to align and integrate into the overall Program reporting cycle. The Reporting Guideline and supporting sub-processes explain the process in further detail.

Program/Regional / Project monthly reporting of change includes:

- Total change requests - by Region / project, by category, by status;
- New change requests in the last period;
- Resolved change requests resolved; and
- Critical change requests to be resolved.

7.5 Roles and Responsibilities

Contract Manager

- Manages contract changes per the Authority Board's DOA.
- Seeks Project Director's concurrence for changes above and beyond the contract scope, schedule, and budget.
- Responsible for ensuring the contractor will implement approved changes into the contract baseline.

PCM Project Controls Manager (for construction projects)

- Project and construction management (PCM) consultant responsibilities are defined in the PCM manual.
- The PCM facilitates each step of the contract change order process and liaise between the Authority's program controls group and the contractor. This includes the issuance of merit

assessments, independent analyses of contract change order proposals (COPs), transmittals to the contractor and coordination with the Authority's team.

- The PCM is responsible for producing and storing documentation related to contract change orders.
- The PCM reports the status of pending contract change orders and a history of executed contract change orders.
- The PCM regularly performs quality checks of documentation.

Project Manager

- Supports the Project Director, responsible for initiating the change requests.
- Responsible for coordinating PCM and regional consultant changes with regional project controls and program controls groups.
- Oversees the preparation of documentation supporting change management.
- Attends the BOC meetings addressing changes.
- Supports the Project director on the ensure the change request is validated and follows the change process.
- Responsible for closing the change at the end of the process, once approved or rejected.
- Responsible for implementing the change.

Project Director

- Sponsors the change. Project Director may also initiate the change.
- If they have not initiated the change, accountable for reviewing the proposed change and approving prior to issuing to program controls for validation, and endorse the change request prior to submitting for approval at BOC.
- Attends BOC meetings to discuss the merits of the change. Presents the proposed change to the BOC per the change management process.
- Accountable for closing the change at the end of the process, once approved or rejected.
- Accountable for implementing the change.

Director of Infrastructure Delivery

- Reviews the change impacts and approves the proposed change if the change is within the contracts and/or project baselines.
- Reviews the change impacts and provides concurrence to the change owner to proceed in accordance with the Program Change Management process if the proposed change is outside the contracts and/or project baselines
- Attends BOC meetings to explain the merits of the change as needed.

Director of Strategic Delivery

- Reviews the change impacts and approves the proposed change if the change is within the contracts and/or project baselines.
- Reviews the change impacts and provides concurrence to the change owner to proceed in accordance with the Program Change Management process if the proposed change is outside the contracts and/or project baselines.
- Attends BOC meetings to explain the merits of the change as needed.

Program Delivery Functional Director (Engineering, Environmental, Right-of-Way)

- Reviews the change and analyze impacts to their functional policies, standards and specifications.
- Provides input to the change owner.

Regional Project Controls Change Manager

- Responsible for following the change process at a regional/project level.
- Monitors all regional/project level change.
- Expedites the process of validation, impact analysis, review and approval or rejection.
- Maintains the change log and documents issues.
- Undertakes reporting against change request status and highlights issues for management attention.
- Ensures BOC/PDC Committee meeting minutes specific to change and supporting change documentation captured and distributed as required.

Program Controls Manager

- Evaluates the CR against the program baseline.
- Provides cost, schedule impact analyses to the Head of the Authority Program Change Management/Supervising Transportation Engineer.

Change Control Manager

- Centralized role that manages the change processes as defined in this procedure.
- Develops and ensures the compliance of program change management plan.
- Advises the executive management regarding the change management process and governance.
- Ensures the completion of a change request prior to presenting it to the BOC.
- Coordinates and communicates with stakeholders during change management process.
- Develops and implements policies, procedures, bulletins and other governing and guiding documents related to change management.
- Monitors and expedites the validation process, impact analysis, review and approval or rejection.
- Maintains the change log and documents issues.
- Is responsible for updating and providing continual improvement on the Change Management Procedure.
- Reviews and confirms that the proposed change aligns with the Authority's direction. In accordance with the established Delegation of Authority.
- Collaborates with Senior Program Director, Budget Director and Program Controls Director to ensure that the change management process is in alignment with Authority's Program Management Plan; and effectively support management of the HSR Program Baseline.
- Makes recommendations to the Director of Project Controls on the programmatic impact (program's scope, schedule and budget) of the proposed change (change that is above and beyond the project's scope, schedule and cost).
- Seeks information from Strategic Initiatives Office regarding any program level changes those may have any future financial impact.
- Undertakes reporting against change request status and highlights issues for management attention.

Director of Program Management and Oversight

- Provides leadership to the program change management policies and BOC administration.
- Oversees the effectiveness of change management operations.

Executive Committee

The Executive Committee is the senior governance committee. Members of the committee advise the Chief Executive Officer, who chairs the committee, on key agency decisions and recommendations to Board of Directors. The Executive Committee makes executive, agency-level policy decisions, provide overarching Authority strategy and priorities, resolves escalated disputes, and staffs agenda items for upcoming board meetings. The Executive Committee is responsible for:

- Approving executive strategy and policy;
- Establishing overarching Authority strategy, policy and priorities, and directing the Authority accordingly;
- Formulating and reviewing revisions to Authority critical documents, such as the Business Plan, the PMP, the Program Baseline and the Strategic Plan;
- Surveilling the Authority's program strategic and baseline execution and financial performance;
- Staffing Board of Directors agenda items and ensuring the Authority's preparation for upcoming Board meetings;
- Implementing CEO and Board of Directors priorities;
- Monitoring Authority's contractors and consultants and making administrative recommendations;
- Reviewing internal and external audits, and implementing corrective action;
- Overseeing the BOC, PDC and Administrative Committees;
- Approving the formation of any new Authority committees and all associated charters;
- Approving the charters of all Authority committees;
- Authorizing any significant changes or revisions to the PMP and Strategic Plan; and
- Advising the CEO on Authority governance and organizational structure.

This Committee addresses issues escalated for resolution from the Business Oversight, the Program Delivery and the Administrative committees, and other issues as directed by the CEO.

Business Oversight Committee (BOC)

The Business Oversight Committee (BOC) provides programmatic acquisition strategy, procurement governance and commercial oversight. It acts as the Program Baseline configuration-management control board and approves all changes of scope, timeline and budget to any program element within the Baseline. This committee ensures Program Baseline compliance to federal and state regulations and statutes. The BOC also approves any program execution or fiscal request presented to Board of Directors. The BOC will forward issues requiring escalation resolution to the Executive Committee.

The BOC's is responsible for:

- Assessing the commercial impact on the future enterprise value;
- Assessing and approving the financial and operational changes of Program Baseline execution, budget and cash flow;
- Assessing and approving all significant changes of project scope, timeline and budget;
- Verifying all changes to the Program Baseline comply with federal and state regulations and statutes, and Authority policy;

- Ensuring that the Program Baseline execution and procurements are in accordance with the Business Plan and Program Baseline strategies;
- Evaluating identified program risk opportunities and impacts to the Program Baseline;
- Authoring new significant acquisitions or existing contract modifications and their respective execution; and
- Ensuring the appropriate use of public funds.

Design-Build Contract Change Order Management

The Design-Build Contract Change Order Procedure (PROC-PRCN-05) and the PCMM (Section 11 Change and Claims) delineate the protocols, processes, roles and responsibilities of the Authority, its program controls consultant and PCM consultants when they are managing DB contract change orders. These documents outline the process for managing changes on the DB contracts, including the approval matrix and procedures for executing changes.

The Authority executes a change order to make any changes to the DB contract documents. The PCM must be fully document and be within the authorized contract contingency amount or other approved funding source to comply with the Authority's and federal and state regulations. the contract-related changes.

When a potential change is initiated and authorized by the Authority, the PCM prepares the finding of fact form and obtains authorization from the appropriate Authority representative and the BOC in accordance with the approved delegation of authority. Upon approval, the PCM then prepares a directive letter or change order for signature by the Authority's representative and issues the signed directive letter or change order to the DB contractor. The PCM uses the Authority Delegation of Authority Policy to receive signoff for directives and change orders. The PCM tracks and maintains the log of all directive letters/change orders in the contract management system. The PCM links related documents to the change management log as potential changes advance through the change management process.

The contractor may submit a written contractor's change notice to the PCM who reviews and prepares an acknowledgement letter to send to the contractor in response to the change notice. This letter may acknowledge merit, deny merit, request additional information concerning the change or request the contractor to submit a change order proposal. The PCM tracks the change notice and updates it as it progresses through the change management process. The PCM coordinates the review of the proposal with the Authority's design and construction manager to assess and determine if the change will be authorized by the Authority.

Whenever possible, the change order is negotiated and an executed change order is issued prior to proceeding with the work. The PCM drafts a directive letter for signature by the Authority's design and construction manager or other delegated representative if a negotiated agreement cannot be reached. The PCM directs the contractor to proceed on a time-and-materials basis or a change order accounting basis until work is completed.

The PCM coordinates with the Authority and the BOC on any change to the project as detailed in the program-level change management process.

7.6 Contractor's Disputes and Conflict Resolution

Section 11.13 Contractor's Disputes of the PCMM outlines the DB contractor's claim process. As stated in the PCMM, when the DB contractor believes that a potential claim or dispute situation has occurred, the DB contractor is to seek resolution through the partnering process by using the resolution ladder in accordance with the Authority's delegation of authority. The Authority can apply the steps and levels indicated in the matrix to resolve claims and disputes.

The DB contractor submits a written request to the PCM if the claim/dispute cannot be resolved through partnering. The PCM notifies the Authority's design and construction manager and change control manager of any potential claim and keeps them updated on the claim's status. The PCM is responsible for providing recommendations regarding entitlement, potential exposure and strategies for claims resolution to the Authority for its review.

In accordance with contract terms, the DB contractor can also seek resolution of disputes, claims or other controversies through the dispute resolution board. If the Authority or the contractor disagree with the board's recommendation, then either party can request arbitration as described in the contract General Provisions. Dispute Resolution Board (DRB) meetings occur regularly for each DB project to keep the DRB members apprised of ongoing progress and potential issues.

The PCM maintains a list of potential claims and disputes is maintained in the contract management system and updated as the claim/dispute progresses through the decision process.

7.7 Document Control

The Authority Records Management Policy and Document Control Plan describes the management of program documents and records in all forms. The document control process applies to all program documents including, but not limited to, federal grant-related documents, correspondence, drawings, specifications, design criteria, memos, transmittals, contracts, solicitations, reports, plans, submittals, studies, deliverables, publications, and associated email originated or received by Authority staff and the Authority's integrated team. The Document Control Plan does not currently have a projected completion date because of a restructuring of the Authority's Document Control Program. The Records Management Policy outlines how the Authority manages and retains its records. The term "document" refers to program documentation from initial development through the final work product. The Authority documents and retains evidence of program operations. The term "record" refers to these documents. The Records Management procedures describe how to manage both physical and electronic records. The Document Control procedures also address how to create, update, and format both physical and electronic documents.

The Records Management Section is part of the Administration Office. The Program Delivery Office staff supports the Records Manager. The staff include a Document Control Manager, Supervising Document Controller, and Document Controllers.

Records Management and Document Control is primarily accountable for:

- Defining the business needs of records management and document control and verifying that the Authority's electronic repositories meet those needs;
- Implementing the Records Management Policy and procedures as well as the Document Control Plan and procedures;
- Collaborating with the Information Technology Office to define the Authority's needs that support work sharing, data exchange, system integration, and consistent deliverables;
- Conducting records management and document control training; and
- Assisting with document turnover activities, particularly the effective and efficient submission of deliverables to the Authority.

The Records Manager's responsibilities include, but are not limited to: developing, implementing, and maintaining the Records Management Policy that complies with mandated obligations; implementing and maintaining the Records Management procedures and instructions; identifying the record owner of each record series; supporting record owners in creating a chain of custody and audit trail for records; ensuring that record owners adhere to retention periods; interfacing with the State Records Center for the transfer of records; assisting branches and/or offices in determining which records are essential to the functioning of state government; facilitating the development, review, and modification to records retention schedules; verifying that vital records are adequately preserved; and providing direction to document control staff and records management Coordinators, as appropriate.

The responsibilities of the Document Control Manager include, but are not limited to: developing, implementing, and maintaining the Document Control Plan and associated procedures and instructions; assisting with the preparation of records for retention and storage; establishing and maintaining filing systems for paper and electronic documents; receiving and releasing documents to and from the Authority through electronic repositories; assisting with the preservation of field documents; preparing document control reports; and overseeing document control staff in support of the Records Management Section's responsibilities.

Key elements contained in the Records Management and Document Control Plan include the following:

- Purpose, scope, and principles of records management and document control;
- Laws and regulations that define the plan's requirements;
- Standards that define the plan's requirements;
- Roles and responsibilities of all relevant staff;
- Requirements for document access, creation, metadata, review, approval, distribution, and change control;
- Requirements for the retention, storage, and disposition of documents and records; and
- A variety of electronic document management tools used for controlled documents and records retention.
- Federal grants, records are retained in accordance with 49 CFR Part 18.

7.8 Project Delivery

The Authority recently fine-tuned the organization to meet the changing needs of the Program, including the priority of completing the grant scope of work. Under this new organizational structure, the Chief Operating Officer (COO) and Deputy Chief Operating Officer (DCOO) work in tandem as a single leadership and management unit heading the Program Delivery Office. The COO provides the powers and oversight of the State, and the DCOO leads the RDP and provides technical expertise and managerial oversight. Both share equal responsibility for:

- Executing all aspects of the Authority's delivery operations;
- Project and program delivery leadership and management, to include formulation and maintenance of the Program Baseline;
- Direct oversight of quality and safety;
- Managing all Authority technical expertise, including right of way, engineering, sustainability, rail and environmental;
- Administration of all Authority contracts, to include engineering, construction, program and project support, third parties, RDP, RCs, ETO and PCMs; and
- Long-term execution planning.

The COO reports directly to the CEO and acts as the CEO in his absence or as directed. Managers of certain groups that aid the COO in management of the Program Delivery Office report directly the COO. This includes the Director of System Safety and Security and the Director of Contract Management.

The Project Delivery Pillars and Functional Support Groups report to the COO and DCOO. The heads of the Project Delivery Pillars include the Director of Strategic Delivery, the Director of Infrastructure Delivery, and the Chief of Rail Operations. The heads of the Functional Support Groups include the Director of Engineering Services, the Director of Environmental Services, the Chief of Real Property, the Director of Program Management and Oversight, the Sustainability Manager and the Regional Directors.

The Infrastructure Delivery Branch is responsible for delivering the civil infrastructure, and the Rail Delivery and Operations Division is responsible for delivering the rail infrastructure. The Rail Delivery and Operations Division are supported by the Environment/Third Party/Right-of-Way/Engineering and Program Services Delivery Division to set processes/procedures and provide supporting services.

The Regional Project Directors, Construction Package Directors, and Project Services Director support the Infrastructure Delivery Director who heads the Infrastructure Delivery Branch. The Regional Project Directors support the project managers that manage the regional consultant contracts, and the Construction Package Directors manage construction package delivery.

A Project Director is responsible for each of the FCS construction packages (CP1, CP2-3 and CP4) that reports to the Infrastructure Delivery Director. The Authority Design and Construction Manager and PCM

consultants support the Project Director. Project personnel address and resolves all project issues within the project environment. The Delivery Director or the Executive Committee resolve issues that are beyond projects' control and have been escalated as appropriate for resolution.

The PCM administers the construction contracts under the Project Director's and Design and Construction Manager's direction. The PCM has primary oversight and audit responsibility for the administration, management and quality of the assigned DB contract.

The PCM Design-Build Oversight Manager is the lead PCM manager and is the Authority's on-site representative as delegated for the assigned DB contract. They are responsible for the oversight of all work through final acceptance. The PCM Design-Build Oversight Manager is the single point of contact for all formal communication with the DB contractor through whom all such communications flow. The PCM Design-Build Oversight Manager will communicate all verbal and written communication to the DB contractor. Directions regarding contractual changes will be per the authorized delegation of the Authority. The PCM Design-Build Oversight Manager will work closely with the Authority/RDP Design and Construction Manager or designee and will communicate and coordinate on the progress, issues, changes, etc. as needed. The PCM Design-Build Oversight Manager supervises the PCM staff in administering the construction contracts.

Project development involves preliminary engineering for environmental assessment, preliminary engineering for procurement, permitting etc. Figure 11 illustrates how this portion of the project delivery and implementation is managed at the regional level. Each project section is broken down into projects within the three regions (north, central and south), with the project managers responsible for the individual projects. The project managers report to the regional project director who oversee all the projects within the region. The following is a brief description of the key regional and project roles for project delivery during the environmental review and preliminary engineering phase of the projects:

- **Regional Project Directors:** The regional project directors execute the program delivery strategy for the north, central or south region and reports directly to the infrastructure delivery director. The regional project director provides leadership and support to the project managers who report to them.
- **Project Manager:** The project managers support the regional director of projects and are responsible for the scope, schedule and budget of the various projects.
- **Task Managers:** Task managers report to the project manager and provide project support of the various the areas of the Program including environmental, engineering, right-of-way, third party, railroad scope. The task managers manage production and completion of discrete deliverables on projects. Task managers coordinate with other task managers and with contract managers and the project manager regarding task deliverables, resources and schedule. In addition, task managers communicate project issues, conflicts or changes and provide potential resolutions to the project manager.

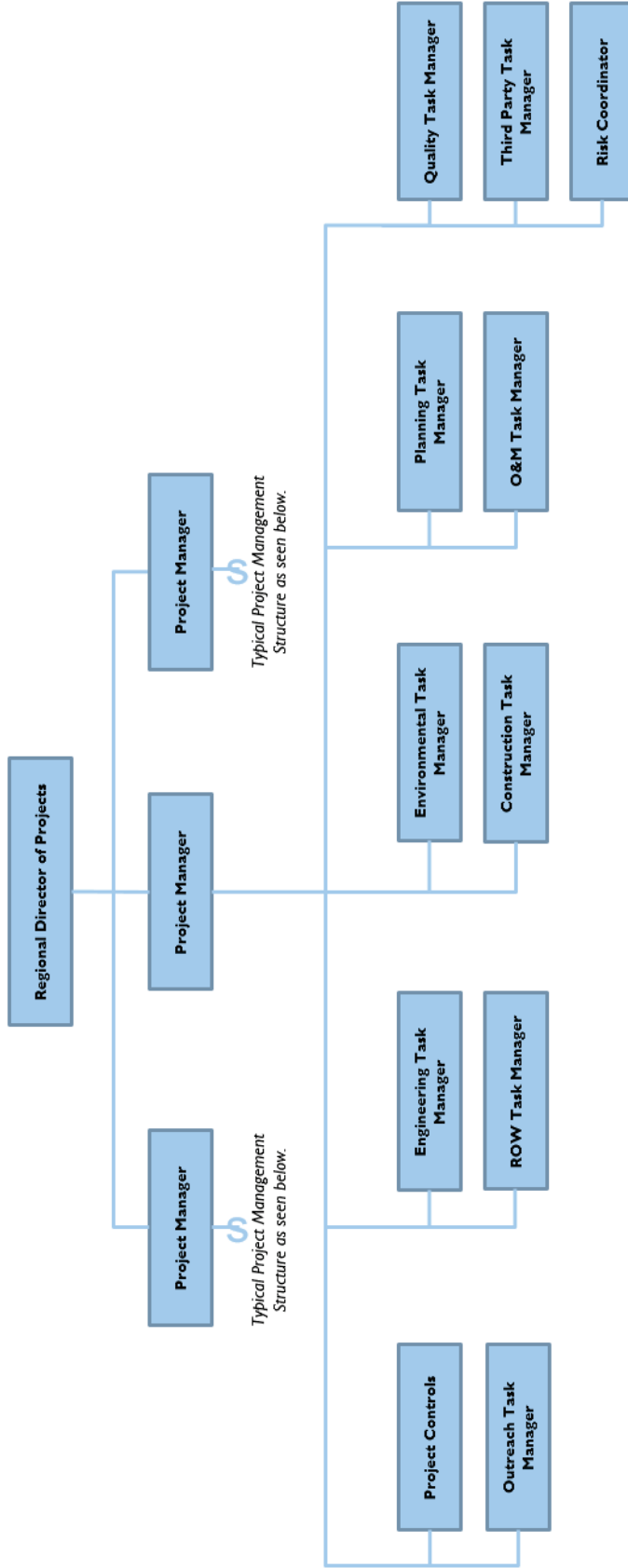


Figure 11. Project-Level Delivery Organization Chart

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7.9 Construction Project Management

A description of the DB project team and the roles and responsibilities of team members are outlined in Section 2 of the PCMM and Section 3 of the DBPP.

Below is a brief description of the key regional and project roles along with their responsibilities:

- **Project Director:** Leads each of the construction projects/packages and reports directly to the Infrastructure Delivery Director and has the overall responsibility for all the elements of the project, including design, construction, right-of-way, third-party agreements and project delivery.
- **Project Manager:** The project manager supports the project director during construction and is responsible for the scope, schedule and budget of the project. Task managers report to the project manager for project support in the areas of environmental permitting, engineering, right-of-way, third party, railroad, etc.
- **Design and Construction Manager:** The design and construction manager is the Authority's authorized representative for each DB contract and will manage and provide oversight of the PCM contract.
- **Project and Construction Manager:** The PCM provides on-site project and construction management services for the DB contracts and is responsible for the management, administration and monitoring of the activities of their assigned contract for the project. One key member of the PCM's staff is the DB oversight manager (described above).
- **Task Managers:** Task managers manage production and completion of discrete deliverables on projects. Task managers monitor and maintain control of the DB contractor's task progress and performance to verify compliance with contract provisions, including quality, schedule, scope and cost. Task managers coordinate with other task managers and with contract managers and the project manager regarding task deliverables, resources and schedule. In addition, task managers communicate project issues, conflicts or changes and provide potential resolutions to the project manager and the functional manager.

project-level information (scope, schedule and budget) up from to the PCM. The PCM, then reports to the regional project manager and ultimately to the program controls unit as shown in Figure 12. Project-Level Reporting Hierarchy. The environmental and engineering consultants, the regional consultants and the PCM consultants report up to the regional director of projects.

Project-Level Controls Staff Reporting Structure

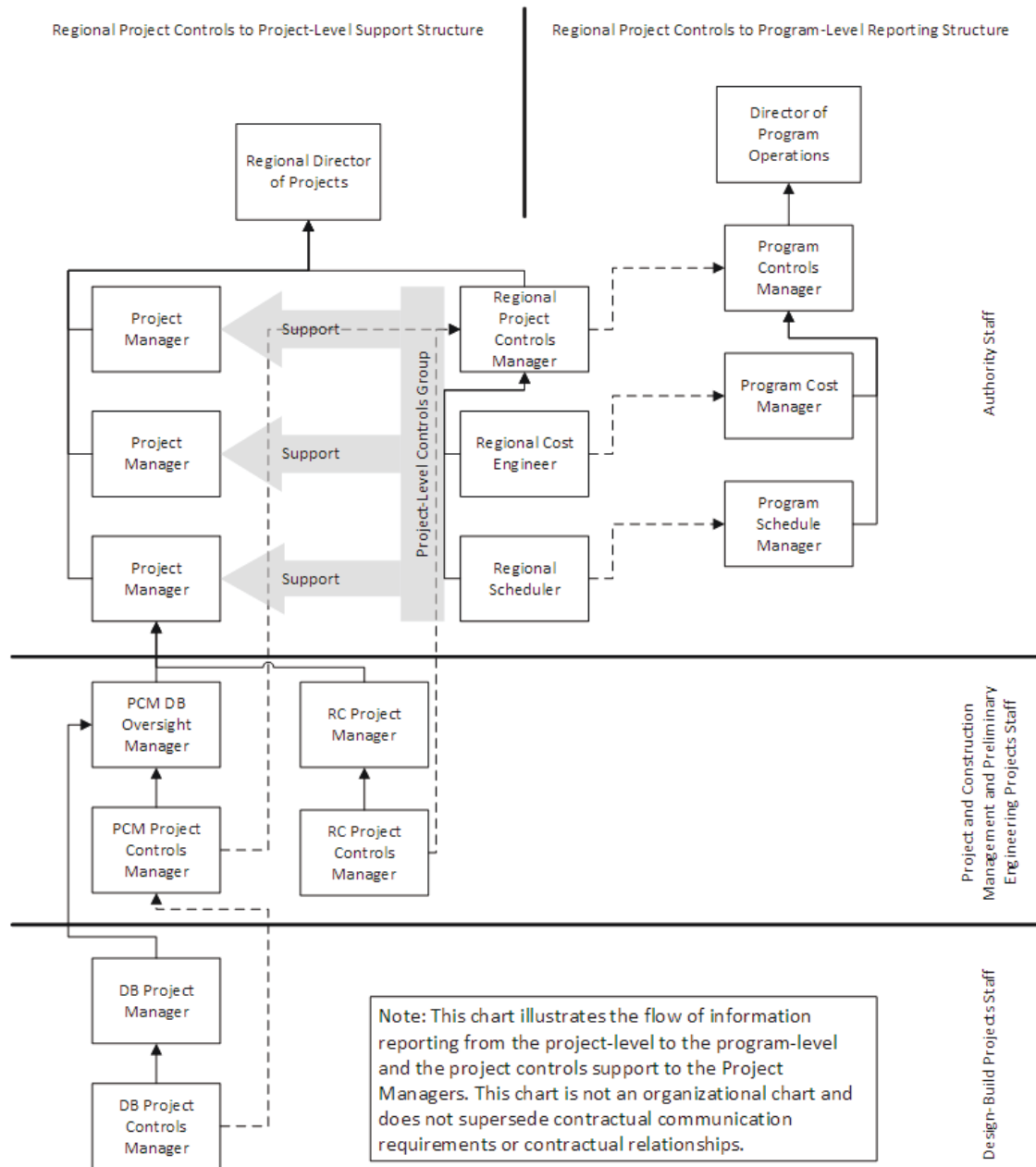


Figure 12. Project-Level Reporting Hierarchy

8 CONTRACT PROCUREMENT AND MANAGEMENT

8.1 Contracting Authority

The Authority may enter into contracts with private and public entities for the design, construction, and operation of high-speed rail trains pursuant to its authority under California Public Utilities Code section 185036. The contracts cover all functions of the Authority and may be separated into individual tasks or segments or may include all tasks and segments, including a design-build or design-build-operate contract.

Additional authority for a State agency to enter into agreement includes, but is not limited to, Government Code sections 4525, *et seq.* and Public Contract Code sections 10335, *et seq.* For example, laws regarding a state agency contracting for professional services of private architectural, landscape architectural, engineering, environmental, land surveying, or construction project management firms contracting for engineering, architectural, or design services require contracts to be based on demonstrated competence and professional qualifications necessary for performance at a fair and reasonable price resulting from negotiation. The Authority's regulations for contracting with private architectural and engineering firms is in the California Administrative Code Title 21 Section 10000 *et seq.* In addition, federal grant agreements require compliance with 48 Code of Federal Regulations (CFR) Chapter 1, Subpart 31.2, among other federal terms.

8.2 Contract Procurement Strategy

Development and implementation of the contract procurement strategy is in accordance with the direction established in the Authority's biennial business plans, and prepared by the Strategic Delivery Branch. The Business Oversight Committee (BOC) reviews all procurements to ensure that the Authority has the financial capability to award the contract.

Contract procurement related to design, construction, and operations is in accordance with the Authority's contracting power, as described in Public Utilities Code section 185036, and the Authority's contracts and procurement policies and procedures. Procurement of architecture and engineering services is pursuant to Government Code sections 4525, *et seq.*, and California Code of Regulations, Title 21, Division 6, Chapter 1, Article 1. The procurement of other goods and services is in accordance with Public Contract Code sections 10295 and 10335, *et seq.*, and the California State Contracting Manual. The legal authority applicable to each procurement is determined by the Authority's legal counsel.

The procurement methodology is based on the type of contract awarded. Once approved by the BOC, procurement of contracts related to design, construction, and operations is prepared and managed by the Authority's capital procurement team. This team coordinates with subject matter experts and functional areas, including engineering, environmental, finance, legal, right-of-way, and others to develop procurement documents. Scopes of work and other technical documents are prepared by subject matter experts, while commercial terms and conditions and procurement instructions are prepared by the capital procurement team in conjunction with legal and program management personnel.

Procurement of non-professional services and low-bid contracts are prepared and managed by the Authority's Contract and Procurement Branch in accordance with the above-referenced statutory authority.

Procurement status for the initial segments includes:

- Tutor Perini/Zachry/Parsons is the DB for Construction Package 1 (CP 1), extending from Madera Acres to Fresno;
- Dragados/Flatiron, Joint Venture is the DB for CP 2-3, extending from Fresno to one mile north of the Kern County line;
- California Rail Builders is the DB for CP 4, extending from the Kern County line to Poplar Avenue north of Bakersfield;
- DB Engineering & Consulting USA Inc is the Early Train Operator (ETO), which will assist the Authority with decisions on safety, operations, equipment and systems, fare structures and

schedules, and other commercial and operating elements. The first phase of the ETO contract is a Pre-Development Agreement; the second phase of the ETO contract is a Franchise Agreement negotiated and executed during the term of the Pre-Development Agreement.

- Procurement of Track and Systems (TS-1), including track work;
- Procurement for rolling stock;
- Tunneling contracts will be in sequence with other civil works contracts, depending on resource availability and delivery schedules approved in the most recently adopted California High-Speed Rail Authority Business Plan; and
- Specific work may use a traditional design-bid-build approach. These contracts would be small civil construction packages or contracts for such activities as utility relocations, hazardous materials removal/remediation, site demolition, clearing and grubbing. The Authority's program management team is currently developing the policies and procedures to prepare and manage design-bid-build projects.

For DB procurements, the Authority is using a two-step process consisting of a request for qualifications followed by a request for proposals. To assist in the selection of DB contractors, the procurement team's responsibilities include:

- Initial preparation of procurement documents:
 - Coordination with engineering management to ensure the inclusion of all design standards, specifications, special provisions and design plans required to meet the staging and delivery system(s);
 - Review and approval by the Authority's general counsel;
 - Review by the state's DOF and the FRA;
 - Circulation of the draft version of the procurement documents for industry review; and
 - Participation in one-on-one meetings with the Authority and the DB teams.
- Release of revisions to procurement documents:
 - Issue procurement documents in accordance with contract and procurement policies and procedures;
 - Respond to requests for information regarding issues identified in the procurement documents;
 - Participate in one-on-one meetings between the Authority and the DB teams;
 - Prepare and issue addenda to the procurement documents to incorporate revisions arising from consideration of proposer comments in the requests for information, during the one-on-one meetings or resulting from other factors; and
 - Prepare the statement of qualifications/proposal evaluation manuals and support proposal evaluation committees and processes.
- Activities after the submittal of statements of qualifications/proposals:
 - Support in evaluating the statements of qualifications/proposals;
 - Support development of a shortlist based on qualifications at the request for qualifications stage; and
 - Support in identifying the best-value proposal at the request for proposal stage.

For architecture and engineering (A&E) and other professional service procurements, the Authority issues Requests for Qualifications and Requests for Proposals respectively. The Authority may also issue two-step procurements with both an Request for Qualifications and an Requests for Proposals stage when

appropriate for the procurement. RDP's responsibilities for the procurement of professional service contracts follow those in the procurement of DB contracts.

8.3 Contract Management

The Authority has developed a Contract Management Branch (CMB) to serve as the governing body for contract management. The CMB is responsible for providing contract management governance, support, training, and performance monitoring. The Contract Management Branch comprises four sections; RDP Contract (State), Capital Procurement, Claims Oversight and Program Services.

The CMB reports to the Chief Operating Officer and is responsible for oversight and governance of all capital contracts, including performance, adherence to scope, schedule and budget, including claims and commercial oversight that support program delivery from procurement through final close-out. The CMB provides resources to the Project Delivery Pillars to accomplish the needed work within each project. The Branch fosters consistency and transparency by maintaining overall procurement and process standards in their discipline areas. Management of the Rail Delivery Partner contract is one of the key functions of the CMB that includes development and approval of annual work plans that ensure the Authority has sufficient consultant resources to complete its objectives.

The key positions in Contract Management are the Director of Contract Administration, Deputy Director of Contract Management (RDP contract manager) Procurement Manager, and Director of Program Services. The Director of Contract Administration reports directly to the Chief Operating Officer and provides advice and recommendations to senior leadership on procurement, contract management, document control and claims strategies.

The CMB includes a Contract Management Support Unit (CMSU) and a Contract Administration Support Unit. The CMSU has developed and maintains contract-management-related policies and procedures (POLI/PROC-FIS-030-038), roles and responsibilities, contract management job aids, including a contract management handbook, and provides training for contract managers. The CMSU also reports on the status of contracts and monitors the contract manager's adherence to the policies and procedures. The Contract Administration Support Unit provides contract administrators to directly support the contract managers. The contract administrators also help the contract managers with adhering to and implementing contract management policies and procedures.

The contract management policies and procedures include such topics as contract management governance, document and deliverables management, invoicing and payment, performance monitoring and reporting, risk and change management, claim and dispute guidance, and contract compliance.

Management of Capital Contracts

The civil DB construction contracts, CP1, CP2-3, and CP4, are lump sum contracts. The scope, the DB contract documents define completion requirements, quality, and contract values. Any changes to the contract documents are in accordance with the contract and Design-Build Contract Change Order Procedure. The Project Director and the Design and Construction Manager supported by a PCM consultant team administers the contracts. The PCM manages all aspects of the DB contract in accordance with the Project and Construction Management Manual (for DB contracts).

The contractors submit and obtain approval of a baseline schedule in accordance with the contract specification. Once approved this schedule forms the contract baseline against which progress is measured and monitored.

Depending on the contract procurement strategy used (design-bid-build, design-build, design-build-finance-operate-and-maintain, or public-private partnerships), contract procurement management procedures address key elements, including:

- Program management and controls, management and oversight
- Change and claims management
- Document control and processing
- Risk mitigation

- Contract administration
- Construction management oversight
- Quality management oversight
- Environmental compliance oversight and reporting
- Construction safety and security oversight
- Technical compliance oversight

Contracts include required federal flow down requirements and contract language.

Authority task managers are the technical experts that are responsible to review deliverables and ascertain whether they meet requirements. Task managers report to project managers who are responsible for contract performance. Contract managers (CM) are accountable for performance of all the contracts under their purview. Determination of quality is recommended by specialty groups if the CM is not familiar with the content of the deliverable, and the final decision to accept or not accept a deliverable is made by the CM. Depending on the wording of the contract, the deliverable may be accepted with a deduction to the price, it may be sent back for rework (either paid or not paid) or it may be rejected and a recovery plan requested.

The contract manager is responsible for approval of invoice charges. Reviews of percent complete are based on the project manager review and verification of progress, followed by administrative approval by the CM.

The CM determines, based on the recommendation of the project manager and/or the Task Manager, if the percent complete is accurate. If the percent complete does not include evidence or is within a reasonable range, then discussions with the contractor to resolve the issue begin. The Authority may reject invoices or only partially pay (some reasonable amount withheld) until the issue is resolved. Additional details on contract administration methods are available in the DBPP.

Management of Professional Service Contracts

The size and complexity of the Program and the Project necessitates the participation of consultants to undertake a substantial portion of the work. Professional service contracts include clauses that require the consultant to provide information pertaining to earned-value management and to follow an established and customized work breakdown structure particular to the contract. Consultant payment requests must detail to verify the earned-value reporting. Payment is based either on the achievement of planned milestones or, for design and construction contracts, the percentage of completion for those milestones. Payment may be based on cost reimbursement for labor hours expended and materials consumed.

Each project manager defines contract value in collaboration with the contract manager, by comparing the monthly progress against the schedule and deliverable list using qualitative and/or quantitative methods, depending on the structure of the contract. The project manager is responsible, and the contract manager is accountable for managing the performance of each assigned contract. The Task Manager, if there is one, advises the CM on the sufficiency of the deliverables. Staff measures deliverables against Standards in the individual contract or agency policies, procedures and standards, as applicable.

The Authority uses a performance regime method on the contract with the RDP to align the consultant's performance with the Authority's performance objectives. The performance regime drives quality, budget and schedule milestones. A performance regime is a fee-at-risk contract feature that links a portion of the program delivery consultant's payment to a combination of quality, budget and schedule performance targets. The Authority and the consultant build a performance regime around specific program requirements and deliverables based on quality, budget and schedule. Future contracts may use the approach.

8.4 Contract Procurement and Management Resources

Contract management is one of the critical functions for successful delivery of major capital programs. The Authority has concluded that these functions support the lifecycle of each capital contract, and effectively serve the Authority's needs as they mature from planning to construction execution.

The Contract Management Branch consists of four sections; RDP Contract Management (State), Capital Procurement Unit, Document Management, and the Program Services Unit.

The Contract Management Branch (CMB) reports to the Chief Operating Officer and is responsible for oversight and governance of all capital contracts, including performance, adherence to scope, schedule and budget, including claims and commercial oversight that support program delivery from procurement through final close-out.

The CMB provides resources to accomplish the needed work within each project. They foster consistency and transparency by maintaining overall procurement and process standards in their discipline areas.

The key positions in Contract Development and Management are the Chief Operating Officer, Director of Contract Management, Deputy Director of Contract Management (RDP contract manager) Procurement Manager, and Director of Program Services. The Director of Contract Management reports directly to the Chief Operating Officer and provides advice and recommendations to senior leadership on procurement, contract management and claims strategies.

The Administrative Office is responsible for policies, procedures and process oversight fulfilling a key role under the direction of the Authority's Chief Administrative Officer who reports to the Chief Deputy Director. This ensures proper governance and synergy between the CMB and Administrative Office. Additionally, the Administrative Office conducts compliance monitoring, training and provides administrative support to contract managers.

8.5 Small Business Commitment and Compliance

The Authority is committed to providing small businesses with an equitable opportunity to participate in the Program. The Authority has established the Small and Disadvantaged Business Enterprise Program and set an overall small business participation goal of 30 percent, including 10 percent for Disadvantaged-Business Enterprises (DBEs) and 3 percent for Disabled-Veteran Business Enterprises (DVBEs).

California Executive Orders D-37-01 (Davis) and S-02-06 (Schwarzenegger) establish a 25 percent Small and Micro Business (SB), participation goal on contracts issued by California state agencies. Military and Veterans Code section 999, et seq., establishes a 3 percent participation goal for Disabled Veterans Business Enterprises (DVBE) on state contracts. In addition to these California-specific goals, the U.S. Department of Transportation (USDOT) has established an overall 10 percent participation goal for Disadvantaged Business Enterprises (DBE) on public works projects receiving federal financing from USDOT.

In addition to Titles VI and VII of the Civil Rights Act of 1964, of the Authority complies with other established U.S. Federal and State of California statutory and regulatory requirements and goals for participation by small, disadvantaged, and disabled veteran businesses related to government contracts, including the following: 1) 49 CFR Part 26; 2) 41 CFR Part 60; 3) California Constitution, Art, 1, section 31; 4) Government Code sections 14837 and 14838; 5) California Code of Regulations, Title 2, section 1896; 6) State Administrative Manual, section 8.20.

After consideration of state and federal statutes and regulations impacting small, disadvantaged and disabled veteran business (all collectively referred to herein as "SB/DBE/DVBEs") participation, the Authority's Board of Directors (Board) issued Policy Directive, POLI-SB-01, and the 2012 Revised Small and Disadvantaged Business Enterprise Program Plan. These documents are available on the Small Business Program page of the Authority's website:

http://www.hsr.ca.gov/Programs/Small_Business/index.html

All prime consultants and contractors must comply with the utilization and reporting requirements of the small business program as incorporated in their contract documents. The small business program

provides quarterly small business utilization reports to reflect the level of small-business participation, including DBE and DVBE utilization, small businesses and microbusinesses on program delivery contracts. Procurement packages for future constructions and professional service contracts include similar requirements for utilization of small-businesses, DBEs and DVBEs.

Along with their monthly invoices, consultants and DB contractors submit a report showing the name of the DBE, DVBE, microbusinesses and small business firms utilized during the reporting period and the amount committed and expended to date. The PCMM contains a complete listing of requirements for DB contractors.

The Authority is committed to California's small business community and is continually seeking new approaches to improve its policies and procedures to eliminate barriers and increase SB/DBE/DVBE utilization.

To achieve and maintain the small business goal, the Small Business Section, led by the Authority's Small Business Advocate actively engages with the small business community. The Authority's Small Business Advocate is responsible for identifying and implementing innovative small business development and outreach strategies. Community engagement is a vital component to our outreach strategy.

From the implementation of the Authority's Small and Disadvantaged Business Enterprise Program in August 2012 to June 2016, certified Small, Disadvantaged and Disabled Veteran Business Enterprises (DVBE) in California have received more than \$196 million for their work on the Program. As of June 2016, 318 small business are either committed, utilized, or actively working on the Program. To continue this impact, the Small Business team has worked to update the 2012 Small and Disadvantaged Business Program Plan. Staff expects to present an updated SB Program Plan, currently under development, to the Board in Fall 2018. This document will supersede and replace in its entirety the following documents:

- 2012 Revised Small and Disadvantaged Business Enterprise Program
- 2012 Revised Small and Disadvantaged Business Enterprise Program for Professional Services Contracts
- 2012 Authority Policy Directive, POLI-SB-01
- 2015 Authority's Management Memo

The SB Program continues the purpose of the Authority's original Revised Small and Disadvantaged Business Enterprise Program as follows:

- Comply with state laws and federal regulations and financial assistance agreements
- Meet legal standards of application
- Ensure non-discrimination in the award of state and USDOT-assisted contracts
- Affirm the Authority's commitment to fairness and the principles of equal opportunity

8.6 Civil Rights Program

The Authority is both required and committed to ensuring equal employment opportunity for all employees, contractors and subcontractors and to providing a work environment free of discrimination and harassment. All employment decisions at the Authority are based on business needs, job requirements and individual qualifications, without regard to race, color, religion or belief; national, social or ethnic origin; sex (including pregnancy); age; physical, mental or sensory disability; HIV status; sexual orientation, gender identity and/or expression; marital, civil union or domestic partnership status; past or present military service; family medical history or genetic information; family or parental leave status; or any other status protected by the laws or regulations in the locations where the Authority operates. The Authority adheres to Title VI of the Civil Rights Act of 1964; Title IX of the Education Amendments of 1972, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, as amended; the Drug Abuse Office and Treatment Act of 1972, as amended; the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970, as amended; the Public

Health Service Act of 1912, as amended; and other nondiscrimination provisions required by state and federal requirements. The Authority and the Authority's consultants and contractors are required to prevent discrimination and verify nondiscrimination in their programs, activities and services.

The Title VI Program Plan governs the Title VI Program. The Authority's Board of Directors adopted the first Title VI Program Plan in 2012. The Title VI Program Plan showed a systematic interdisciplinary approach: A method designed to integrate various offices and departments working within their respective disciplines to achieve an established goal. Several references were used to guide the creation of the 2012 Title VI Program Plan including: The Federal Highway Administration (FHWA) Guidance, Preventing Discrimination in the Federal-Aid Program; A Systematic Interdisciplinary Approach, Chapter III "Implementation"; and Chapters III, IV, and V from the Title VI- Dependent Guidelines for Federal Transit Authority Recipients- Circular 4702.1B. Additionally, comprehensive U.S. Census demographic data was utilized to identify impacted and potentially impacted communities.

The Authority's Title VI Program regulated by the FRA's Office of Civil Rights. This Office provides advice and assistance to the Authority's Title VI division on all matters relating to civil rights, including the Americans with Disabilities Act (ADA) of 1990 Equal Employment Opportunity, Title VI of the Civil Rights Act of 1964 and Disadvantaged Business Enterprises.

The Authority's Title VI Program is also inclusive of Limited English Proficiency (LEP) and Environmental Justice (EJ) regarding nondiscrimination efforts and compliance. LEP is a term that refers to a person who is not fluent in the English language, and has limited ability to read, write, speak or understand English. The Authority is committed to ensure LEP individuals the same access to Authority programs, information, and services as predominantly English-speaking individuals by free language assistance upon request. To reinforce the Authority's efforts in providing LEP individuals with fair and equal treatment, a language assistance contractor performs Interpreter and Translator services.

The purpose of the language assistance contract is to provide qualified translation and interpretation services for the Authority when required, during all aspects of planning, building and operation of the high-speed rail system. The contractor agrees to provide the Authority qualified and experienced language professionals with relevant specialist knowledge in the required field of expertise, as applicable, in performance of the services requested. Qualified interpreter means an interpreter who can interpret effectively, accurately, and impartially, either for individuals with disabilities or for individuals with limited English skills. The interpreter should be able to interpret and proof both receptively and expressively, using any necessary specialized vocabulary. The interpreter will interpret for one person, for large groups and/or an audience.

As mentioned above, the Title VI Program also includes the Environmental Justice (EJ) Program. EJ identifies and addresses the potential for disproportionately high and adverse effects of programs, policies and activities on minority and low-income populations, and provide fair and equal treatment to all races, cultures, minority and low-income populations during the development and adoption of said environmental laws and policies as pursuant to EJ guidelines. These programs, in conjunction with Title VI, are essential to assisting the Authority with nondiscrimination compliance as described in further detail within the Title VI Program Plan.

The Authority has designated a single point of contact to oversee, implement and manage its commitment of assurance and compliance of the overall Title VI Program. The Title VI Coordinator has this responsibility. Within the Authority's organizational structure, the Title VI Coordinator has direct access to the CEO concerning Title VI, LEP, and EJ matters. the Title VI Coordinator, Chief of Communications, Title VI Program Manager and their designees administer these activities. The role of the Title VI Program Manager is to provide guidance and technical assistance to the Title VI Coordinator on related Title VI, LEP, and EJ matters.

8.7 Labor Compliance

Labor rates for the construction contracts and for project components that use rights-of-way owned by a railroad are in accordance with federal and state wage rates that comply with the provisions of the Davis-Bacon Act and are in the procurement documents. DB contractors submit weekly labor compliance reports to the PCM, who tracks these reports and submits them to the contract compliance group to

validate compliance with Federal and State regulations and contract requirements. The PCM teams are also responsible for logging and tracking the DB contractor's compliance with and submission of U.S. Department of Labor Office of Contract Compliance Program Equal Employment Opportunity reports in accordance with Title 41 CFR Part 60 and the 10 obligations under the Mega-Project reports.

9 CONSTRUCTION MANAGEMENT

The management of DB contracts falls under the Infrastructure Delivery Branch. The Director of Infrastructure Delivery leads the division with the leadership team for individual construction contracts comprising a Construction Project Director, Design and Construction Manager, Project Manager, and PCM Design Build Oversight Manager. The PCM team manages the DB contract under the direction of the Design and Construction Manager.

The Design Build Oversight Manager is supported by a team of qualified staff and is responsible for providing quality; verification & Validation (V&V), self-certification oversight; ICE/ISE responsibilities (applicable to contract); safety and security oversight; project controls and risk management oversight, engineering oversight, environmental oversight; third-party, other contracts, and utility oversight; and right of way coordination services in managing DB contract works. The Project Director is responsible for monitoring and controlling all the design and construction works and managing any project issues. The Director of Infrastructure Delivery considers issues that are beyond the control of the project's staff and subsequent escalated, as necessary, to executive management for resolution.

9.1 Construction Management

The DBPP outlines the Authority's approach to project delivery for the initial operating segment (Silicon Valley to Central Valley) and identifies the project implementation procedures and methods established by the Authority to achieve successful DB project delivery.

The PCMM describes in detail how the Authority manages the execution of the DB projects through the use and integration of the Authority staff, PCM consultants, project delivery team and other consultants. The PCMM describes the procedures and policies for initiating and progressing project construction and complies with the Program's safety and security management plan, quality management plan and program-wide procedures. It provides a framework for:

- Program structure and organization
- Contract administration
- Communication/documentation/reports
- DB contract submittals
- Verification, validation and self-certification
- Interface management and coordination
- Quality management
- Safety and security
- Schedule control
- Changes and claims
- Right-of-way
- Public involvement
- Completion and closeout

The PCMM establishes uniform guidelines and procedures in contract management and administration and design and construction oversight for each DB contract. The PCMM addresses responsibilities after the award of contracts. It also presents, interprets and clarifies established general policies and practices applicable to the work in dealing with various situations that may arise throughout the contract's duration. It also defines the lines and flow of correspondence and identifies specific tasks and the parties responsible for their successful completion.

CP 1, CP 2-3 and CP 4 have completed Interface Management Plans.

The PCM contract management manual, developed by the PCM consultant for each DB contract, incorporates the PCM's plan and identifies deliverables that provide the level of design and construction oversight commensurate with the staffing, resources and scope authorized under each PCM contract.

9.2 Construction Management Resources

The Infrastructure Delivery Branch is responsible for construction management activities, including the delivery of the civil work ensuring contract compliance, and on time and within-budget performance, which enables subsequent civil projects and rail projects to move forward according to the Baseline. This includes collaborating with the engineering, real property, environmental and other functional support groups while using integrated process delivery to resolve issues in a timely manner and advance projects.

Management of infrastructure delivery must coordinate with all parts of the Program Delivery Office, both upstream and downstream in the delivery process. Project and contract managers within the Infrastructure Delivery Branch manage the contractors and consultants within a hierarchical system that is geography based but receives significant policy and procedural support from the Engineering Functional Support Group, among others.

The key positions in Infrastructure Delivery are the Director of Infrastructure Delivery, Deputy Director of Infrastructure Delivery and the Construction Project Director.

The Director of Infrastructure Delivery manages all staff and workflows of the Infrastructure Delivery Branch. The Director is accountable for the delivery of the civil construction projects as outlined in the Baseline. The Director of Infrastructure Delivery reports to the COO and advises and makes recommendations to governance committees and the Board, as requested. The Director vets change requests prior to escalation through the governance process and is responsible for ensuring collaboration and communication with other parts of the Authority, as needed.

The Deputy Director of Infrastructure Delivery reports to the Director of Infrastructure Delivery and is responsible for the infrastructure delivery aspects of the program. A State employee must fill one of these two positions to provide the required contract oversight authority.

The Construction Package Project Directors report to the Director of Infrastructure Delivery and are responsible for the delivery of individual construction packages in support of the program. They are responsible for delivering the specific assigned civil construction packages and the associated management plans and reports. They are also responsible for escalating project issues to the director and deputy director, as necessary.

9.3 Maintenance of Traffic

Maintenance of traffic during construction occurs in various sections of the general provisions for CP 1, CP 2-3 and CP 4. Generally, these provisions require written public notification and maps, adherence to local and state requirements, and compliance with the current California Manual on Uniform Traffic Control Devices. Specific information is in the general provisions in Book 2, Part B of CP 1 and Book 1, Part B.2 of CP 2-3 and CP 4. Future contracts will include similar requirement regardless of the type of contracting method. The PCM conducts regular audits to make sure that the DB's traffic management activities comply with the contract.

9.4 Materials Testing and Procedures

The DB contractors implement testing control measures to verify adequate quality in performance of their activities. The final design documents prepared by the DB contractor define the test requirements and the DB Contractor's Inspection Test Plan outline the testing types and details, which are subject to SONO. The PCM, with the assistance of the Authority Quality Assurance Manager, is responsible for oversight of the DB contractor's implementation of the DB Contractor's Quality Manual, including the Inspection Test Plan. When required by the DB Contract Documents, or as deemed necessary in the judgment of the PCM, testing of material and workmanship is performed by authorized field personnel or by an approved testing service. The number and quantity of tests must be sufficient to permit adequate verification testing. The PCM submits a Statistical Sampling Program as part of the PCM Quality Assurance Plan for review and approval by the Authority, in accordance with the PCM contract. The Authority and/or the

PCM will implement the approved statistical sampling and testing program in consultation with the Authority, for:

- Testing of the DB contractor's work activities and
- To verify that the DB contractor's material sampling and testing results are in conformity with the contract requirements.

The PCM reviews the DB contractor's Inspection Test Plan and determines the support necessary for the verification testing effort. In addition, this statistical sampling and testing program is revised as needed, depending on the performance and reliability of the DB contractor's Quality Program, DB contractor's Inspection Test Plan results, and the ISE's assessment reports. The PCM test results are to be correlated to the DB contractor's quality test results and reported to the Authority, with their recommendations for further actions, if applicable. The Authority or PCM material testing activities is performed by a certified testing laboratory. The PCM verifies that all testing laboratories performing materials acceptance sampling and testing comply with the DB contract requirements. The Authority has the option to implement the statistical sampling and testing program independently.

9.5 Self-Certification and Verification and Validation

As part of the DB construction packages, the contractor implements a V&V approach that employs independent V&V based on proven international practice in high-speed rail and internationally accepted standards. See section 6.5 Final Design for details of this process.

9.6 Construction Close-Out

Contract completion and closeout is a critical element in the lifecycle of a construction project. Planning for the closeout of the project begins at contract commencement with the PCM developing a contract-specific completion/closeout plan in accordance with procedures outlined in the PCMM Section 14 Completion/Close-out. Completion of each contract includes three main divisions: physical completion, fiscal completion and record document completion.

Project physical completion involves not only Authority inspection and acceptance, but also public agencies, franchised utilities companies and railroads. Final acceptance of the project occurs once all punch list items are complete and the DB contractor restores the site to the condition required by the final environmental documents. At that time the DB contractor delivers a certification representing there are no outstanding claims, liens or stop notices of any subcontractor or laborer with respect to the work performed.

Project fiscal completion involves all data, processes and files necessary for an audit and final payment. The fiscal completion phase may well start prior to the physical completion of the facility. The Authority, in accordance with the general conditions, may choose to release or hold part of the retention prior to or after the final closeout package stage of payment, based on advice of legal counsel.

The PCM reviews the record documents for completeness and include them in the final contract documents at the project completion. The field records shall have undergone a final audit by the Authority's project representative. The PCM processes the correspondence files to the Records Management and Document Controls Section as outlined in section 7.7 Document Control.

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10 OPERATIONS AND MAINTENANCE PLANNING

10.1 Early Train Operator

The Authority awarded the Early Train Operator (ETO) contract in the fall of 2017; the successful contractor, DB Engineering & Consulting USA, Inc. received the notice to proceed in December 2017.

The ETO contract contains three phases:

Phase 1 – the current phase – is a \$30M contract with a six-year performance period. During this period, the ETO acts as an advisor to the Authority, providing input on operational specifications affecting high-speed trains, systems and stations; development of performance-based maintenance models for track and systems and high-speed rail trains, support to the procurement and contract management of rail; developing an operations plan, financial plan, and marketing plan; and plans for ancillary revenue optimization.

Phase 2 – Begins upon completion of a successful financial plan between the ETO and the Authority. The ETO will then be responsible for pre-operations and revenue ramp up. The ETO will; launch the new high-speed rail service and develop the high-speed rail brand; recruit and train all staff, run train and systems operations under a short/medium term franchise without subsidy; manage maintenance providers and maintenance costs; and manage ridership and ancillary revenues.

Phase 3 – mature operations will only commence when the ETO has recovered any losses incurred in the ramp-up period. Phase 3 will be a long-term concession and will be competitively tendered.

Early Train Operator Resources

The ETO Section includes staff with specialized knowledge in the operations of high-speed rail systems. The ETO Project Director manages the ETO Section, the Director reports to the Chief of Rail Operations and the Deputy Director of Rail Operations.

10.2 Customer-Operations-Build-Design Delivery Model

When creating an entirely new railroad, everything should begin with the customers' needs in mind. Customer needs feed into a concept for how the railroad will operate, which informs its construction which, in turn, confirms design. Figure 13. COBD Delivery Model outlines the process.



Figure 13. COBD Delivery Model

The COBD process begins with the ETO working as an integral member of the Rail Delivery Branch. The ETO ensures that the Program can meet its service level and customer expectations from the day of opening. Being accountable for the planning of efficient rail service operation is a complex task requiring early stage and continuous involvement in the planning, design, testing and delivery of the Program. The group's responsibilities are broad and include activities such as:

- Providing support and input during the design and construction phases of the work on operability, maintainability, and commercial viability and performance of the rail system, including rolling stock, track and systems, station, operations planning, dispatching, and scheduling;

- Advising the Rail Systems Delivery and Commercial Section in the areas of ridership and revenue, ancillary revenue, fare collection systems and concepts, marketing, branding, and overall financial planning for revenue service;
- Upon request, evaluating the business case to begin revenue service on stand-alone segments of the system and performing benchmarking of the budgets and estimates to complete the design and construction of the system;
- Working with Rail System Delivery Branch to create asset inventories for each constructed section of the railroad; and
- Performing studies or other activities in support of developing, operating, and maintaining the high-speed rail system, as requested.

10.3 Planning for Operations Start-Up

Planning for the operational start of revenue service will follow the program planning direction and milestones set forth in the business plan with focus on establishing the scope and schedule details for service milestones. A Ridership and Revenue Forecasting report (Appendix G) was prepared for the 2018 Business Plan.

As the construction progresses, the program management team will continue to monitor the schedules for critical high-speed rail business plan milestone years (including the first leg of the initial operating segment and passenger operations), which include testing, commissioning and start of service activities. This involves the integrated plans and schedules for bringing into service the track and systems elements, as well as operations and maintenance facilities, thereby completing the system commissioning milestone.

The ETO will advise and develop, with the Authority, the planning, design and implementation of the high-speed rail system. Engaging an operator in early decisions on safety, operations, equipment and systems, fare structures and schedules, as well as other commercial and operating elements will ensure system designs operate as a safe and successful enterprise once construction is complete.

Technical requirements and performance specifications will support the design, installation, integration and testing of the various system components. A skeleton management team and crew oversee and maintain the infrastructure elements, maintenance facilities, high-speed rail trains, etc. as they are completed. The Program enters a new phase with the planned revenue start date. A systems testing and operations start-up plan outlines the transition from construction to operations. The plan will follow the decision point on the business model for operations and maintenance of the high-speed rail system.

The system testing will be performed by the systems providers to demonstrate that the systems, both as individual elements and as an integrated system meet the performance requirements – these tests are progressive testing throughout the implementation of the contracts and commence with factory type testing, factory simulation testing and continue in the field with installation testing, individual subsystem static testing and progressing to dynamic integrated testing of the systems at progressively increasing speeds up to 242 mph. The track and systems contract include testing requirements and the trainset contract documents.

The track and systems and the trainset contracts include 30 years of maintenance and the maintenance facilities for each contractor. The testing and commissioning of the maintenance facility is the responsibility of the contractors.

Procurement of the stations will be under a conventional design, bid, build contracts. The build contractor performs the testing and commissioning of buildings and equipment. The operator contractor carries out the commissioning of the station operation for entry into passenger service.

Training

The Authority plans, schedules and executes the staffing and training of personnel in preparation of revenue service operations. Training items include:

- Ticketing systems

- Staffing and hiring plan
- Training plan and schedule
- Station operations
- Staffing and security
- Service schedules
- Vehicle maintenance cycles to include cleaning, inspections, maintenance, etc.
- Simulated revenue service
- Revenue operations and fare collection

The track and systems and the trainset contracts include 30 years of maintenance. Both contractors are responsible for the recruitment, training and demonstration of competence for their staff. Similarly, the operator contractor is responsible for the recruitment, training and demonstration of competence for its staff (train engineers, train crews, station attendants.) The duration of each training program will depend on the education and experience level of the candidate. The training program for train crews and for operations supervisors will include railroad safety, accidents/incidents response, railroad operating practices, train driving hours, safety at work, new techniques / vehicles / component trainings; and will specifically address, as required, operator certification training (49 CFR Part 240 and Part 242); Operating Rules for operations employees (49 CFR Part 217.11); Drug & Alcohol training for supervisors (49 CFR Part 219.11 (g)); Emergency preparedness training (49 CFR Part 239.101); Radio communications (49 CFR Part 220); Railroad accidents and incidents (49 CFR Part 225); and General Code of Operating Rules Transportation. DB will establish a recertification program in accordance (49 CFR Part 240 and Part 242).

Training for facilities maintainers will include roadway worker protection, blue flag protection, radio communications, and accident/incident response.

Operations Planning with other Transportation Entities

Transportation providers in areas served by the Program are front-line stakeholders. Those providing connecting services and fulfilling last mile access are especially important partners, including bike-share, taxi and ride-hailing services, and walkable community planning organizations like California Walks. Connecting service stakeholders include Amtrak and intercity rail lines, commuter rail services such as Metrolink and Altamont Corridor Express (ACE), bus lines, transit providers, local transportation management agencies (TMAs), and freight operators. Caltrain and the Authority are jointly conducting a Peninsula Corridor Capacity Study for blended operations. The goals of the study are consistent with the California State Rail Plan.

Southern California analysis continues under the “SCORE” banner, Southern California Optimized Rail Extension. The Authority is working jointly with the operators in Southern California to model system capacity and to identify capital/operational improvements to meet the capacity requirements of all users that support joint 2030/2040 operations. This includes analysis of the BNSF corridor between Redondo Junction and Fullerton. BNSF confirmed the results of the joint planning through its independent analysis for this corridor. The Authority is an active member of the Technical Advisory Panel for the Link US Technical Advisory Panel. This panel is comprised of all operators using LAUS and chaired by CalSTA with vice chair by Southern California Regional Rail Authority.

10.4 Operations and Maintenance Resources

The Rail System Delivery Branch picks up where Infrastructure Delivery leaves off, with responsibility for design and construction of all ballast, track and rail systems, including procurement of rolling stock. Rail System Delivery Branch is also responsible for all rail system and operations and maintenance planning, policy and procedural elements. The Rail System Delivery Branch is diverse relative to other Project Delivery Pillars.

The Rail System Delivery Branch consists of six sections: The Early Train Operator, Asset Management, Network Integration, Rail Engineering, Rail Support, and Operations and Maintenance. As such, Rail System Delivery Branch is responsible for all rail system and operations and maintenance planning, policy and procedural elements.

The Operations and Maintenance Section is responsible for developing and maintaining standards, policies and procedures relating to the eventual operations and maintenance of the rail system. Key responsibilities of the Operations and Maintenance Section's include creating, maintaining and implementing the Authority's post-construction operations and maintenance policy; developing the Authority's operations and maintenance cost model; and more.

The Director of Operations and Maintenance oversees and reports to the Chief of Rail Operations and to the Deputy Director of Rail Operations and oversees the Operations and Maintenance Section. The Operations and Maintenance Section includes staff dedicated to operations planning, maintenance planning, management of encroachment permits and management of maintenance agreements.

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11 REAL PROPERTY PROGRAM

In compliance with federal and state mandates required by the California Property Acquisition Law and the Federal Uniform Relocation Assistance and Real Estate Property Acquisition for Federal and Federally Funded Policies Act of 1970, the Authority has developed policies and procedures for the appraisal, acquisition and management of real property. The Authority has also developed the Program's Right of Way (ROW) Manual, that includes policies and procedures for acquiring and managing property rights through purchase and easement, lease or other legal instruments including, when necessary, condemnation. The Program uses these policies and procedures consistently.

In addition, other tools are available for internal reporting regarding right-of-way acquisition and management, including the Right of Way Data Exchange System (ROWDES), a database for managing every parcel touched or considered by the project for acquisition. ROWDES contains modules for each step of the acquisition/management process, including appraisals, acquisition, condemnation, costs, as well as other data. The data generated by ROWDES, in cooperation with another SQL database that performs calculations, supports the production of weekly reports.

11.1 Roles and Responsibilities

The ROW Manual defines the roles and responsibilities of the many entities involved in the acquisition process. The Real Property Program provides oversight in accordance with Government Code 13400, "State Leadership and Accountability Act". The Program includes the Sacramento headquarters office and regional offices in the Central Valley (in Fresno), Southern California (in Los Angeles) and Northern California (in San Jose).

The headquarters program staff consist of a Chief of Real Property, Director of Real Property, a Principal Right of Way Agent (Deputy Director of Real Property), and dependent on program needs Supervising Right of Way Agents (Assistant Director of Real Property) and Senior Right of Way Agents.

The real property office in the Sacramento headquarters is responsible for the development of effective system of internal control including:

- An organization plan that provides segregation of duties appropriate for proper safeguarding of state agency assets.
- A plan that limits access to state agency assets to authorized personnel who require these assets in the performance of their assigned duties.
- A system of policies and procedures adequate to provide compliance with applicable laws, criteria, standards, and other requirements stipulated in the ROW Manual.
- An established system of practices outlined in the ROW Manual.
- Personnel of a quality commensurate with their responsibilities.
- An effective system of internal review.
- A technology infrastructure to support the completeness, accuracy, and validity of information processed.
- Relationships with federal and state agencies as well as stakeholders, including property owners and the public.
- Process all ROW financial claims and accounting for processing and payment.

The Regional Real Property staff is under the direction of the Director of Real Property and consists of a Supervising Right of Way Agent (Assistant Director of Real Property), two Senior Right of Way Agents, and one Senior Surveyor.

The Fresno office's real property staff is responsible for:

- Oversight of ROW delivery (parcels delivered to the DBs).
- Oversight of ROW consultant project management in support of appraisals, acquisition and delivery.

- Oversight of property management activities and excess land activities.
- Management of the ROW engineering contracts.
- Coordination with local agency partners.
- Coordination of DB issues, including ROW change requests, approved change orders and delivery to construction.
- Liaison with property owners and the public.

The various Authority divisions and State agencies assure compliance with the Disaster Recovery Plan (DRP).

Real Property Resources

The Real Property Branch is responsible for acquisition, management, and disposal of ROW for the program. They are also responsible for development, negotiation and execution of all necessary third-party agreements, except for those with railroads. They foster consistency and transparency by maintaining overall procurement and process standards in their discipline areas.

The Chief of Real Property manages the Real Property Branch and reports directly to the Deputy COO. They are accountable for developing the strategic plan for acquisition of the right of way, responsible for the scope for procurement of ROW service providers, acquiring ROW parcels, establishing priorities with regards to parcel acquisition and development of third party agreements, and developing and maintaining project-level risk management plans for ROW. The Real Property Branch staff in headquarters consist of the Chief of Real Property and Third Party, a Director of Real Property, a Principal Right of Way Agent, Supervising Right of Way Agents, and Senior Right of Way Agents. The Regional Real Property staff is under the direction of the Director of Real Property, and consists of a Supervising Right of Way Agent, Senior Right of Way Agents, Delivery Agents, and one Senior Surveyor.

The Real Property Branch is comprised of the Right of Way Section and the Third-Party Section. The Right of Way Section includes the following units: ROW Compliance Unit, Delivery Unit, and the Policies and Procedures Unit.

The Chief of Real Property manages two sections, Right of Way and Third Party. The Right of Way Section is managed by the Director of Real Property and is responsible for all ROW activities. The Director of Third Party manages the Third-Party Section and is responsible for all third-party agreements and activities except for railroad agreements, administered by the Rail System Delivery Branch.

11.2 Right of Way Process

Per the process flow charts outlined in Figure 14. Right of Way Acquisition Process, Figure 15. Design Change Process and Figure 16. Appraisal Update / Environmental Re-Examination Process outlines the steps where other state agencies have touch points in the process to appraise and acquire real property.

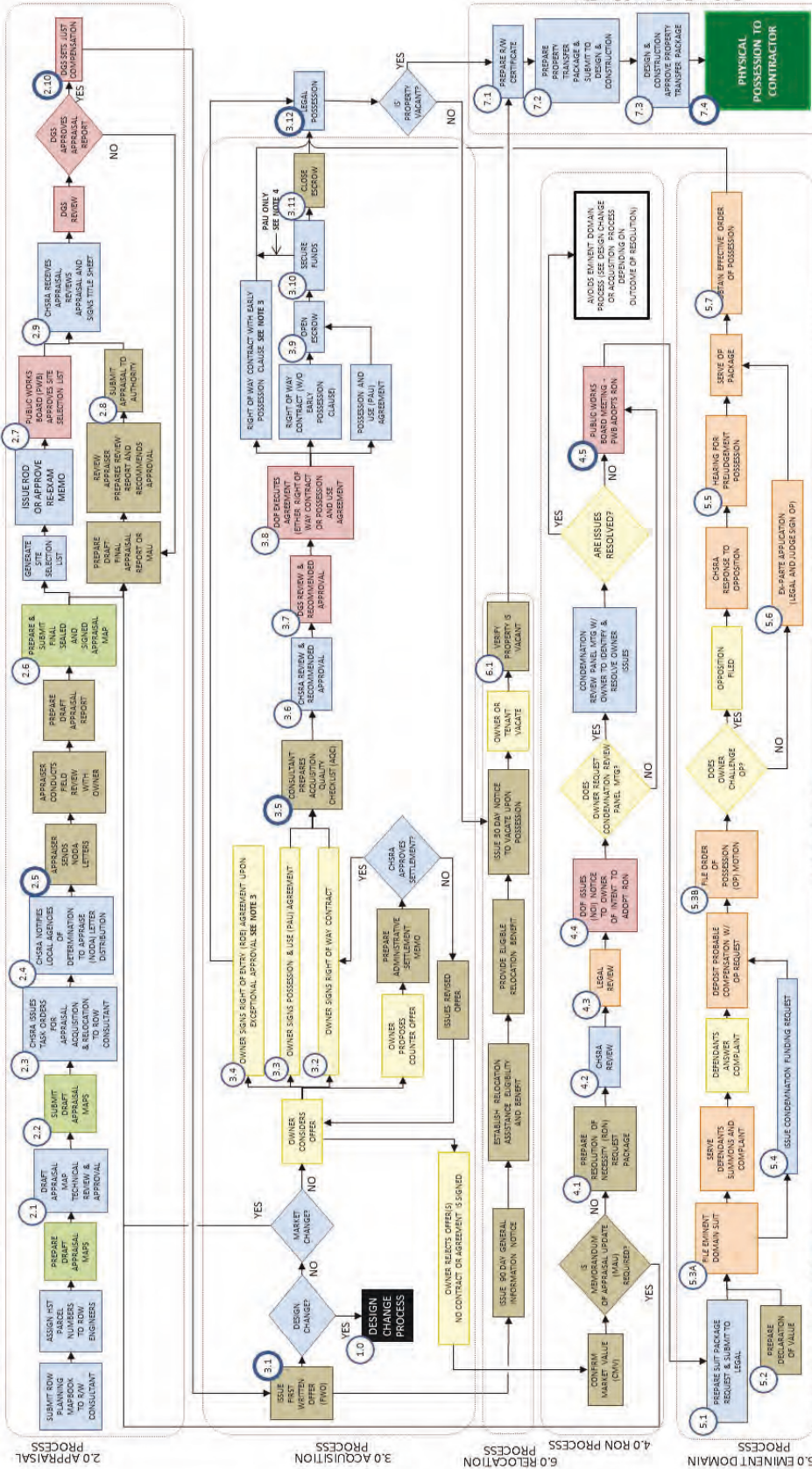
- The Deputy Director prepares and monitors the annual capital plan for submittal to Project Controls and Finance.
- ROW Contract Administration: Processes each financial claim forwarding to the financial office for processing and payment.
- Financial Office: Accounting receives ROW claims for payment, processes them in cooperation with Budgets and tracks the funds for each transaction by funding source and appropriation.
- ROW Regional Field Office: Certifies the right-of-way requirements of the DB contractors for right-of-way parcel map processing, manages the change order process and manages the engineering and surveying contractors who prepare parcel surveys, appraisal maps, legal descriptions, right-of-way line staking, resolution of necessity exhibits and condemnation exhibits.
- California State Public Works Board: Oversees fiscal matters associated with construction of projects for state agencies. Under the California Property Acquisition Law, the Public Works Board is authorized to approve real estate transactions. Before approving an offer of just compensation, the Public Works Board reviews the project and its budget and makes an initial

determination that the state has the legal authority to purchase the property in question. Every parcel must comply with federal grants, state bond provisions and state budget provisions.

- California Department of General Services (DGS), Real Property Services Section: Reviews and approves each parcel appraisal for just compensation prior to any written offer for acquisition. Upon execution of the parcel's right-of-way contract, the Real Property Services Section of DGS reviews and recommends approval.
- California DOF, Capital Program Branch: Reviews and executes the right-of-way agreements for compliance with budgetary and project authority for the parcel acquisition under review.
- Caltrans, Legal Division: Provides legal review and representation for right-of-way contracts and performs legal services for cases of eminent domain. The Effective Order of Possession and final settlement for compensation may occur through a court or stipulated settlement.
- Right-of-Way team: The team consists of the RDP providing planning, budget for forecasting, database management, document control, contract administration, title searches, workflow and reporting services, ROW consultants providing appraisal and acquisition services, ROW engineering and surveyors providing surveying and mapping services.
- Right-of-Way consultant contractors: Performs right-of-way appraisal and acquisition services, including issuing initial letters to property owners (Notice of Determination to Appraise), conducts appraisals, issues the first written offers, conducts negotiations, prepares the administrative settlement memo, issues revised offers, establishes and provides relocation benefits and educates affected property owners about the benefits, prepares the acquisition quality checklist and prepares the memorandum of appraisal updates, the declaration of value and closes escrow and resolutions of necessity needed for the condemnation process.



RIGHT OF WAY ACQUISITION PROCESS



SYMBOL LEGEND

- Task (rectangle)
- Decision (diamond)
- Milestone (oval)
- Owner (light blue)
- ROW Engineering (light green)
- ROW Acquisition Consultant (light orange)
- CHSRA (light blue)
- Owner (light blue)
- Caltrans Legal (light orange)
- ROW Engineering (light green)
- DOF, PWB and/or DGS (light orange)

RESPONSIBLE PARTY LEGEND

- CHSRA (light blue)
- Owner (light blue)
- Caltrans Legal (light orange)
- ROW Engineering (light green)
- DOF, PWB and/or DGS (light orange)

NOTES

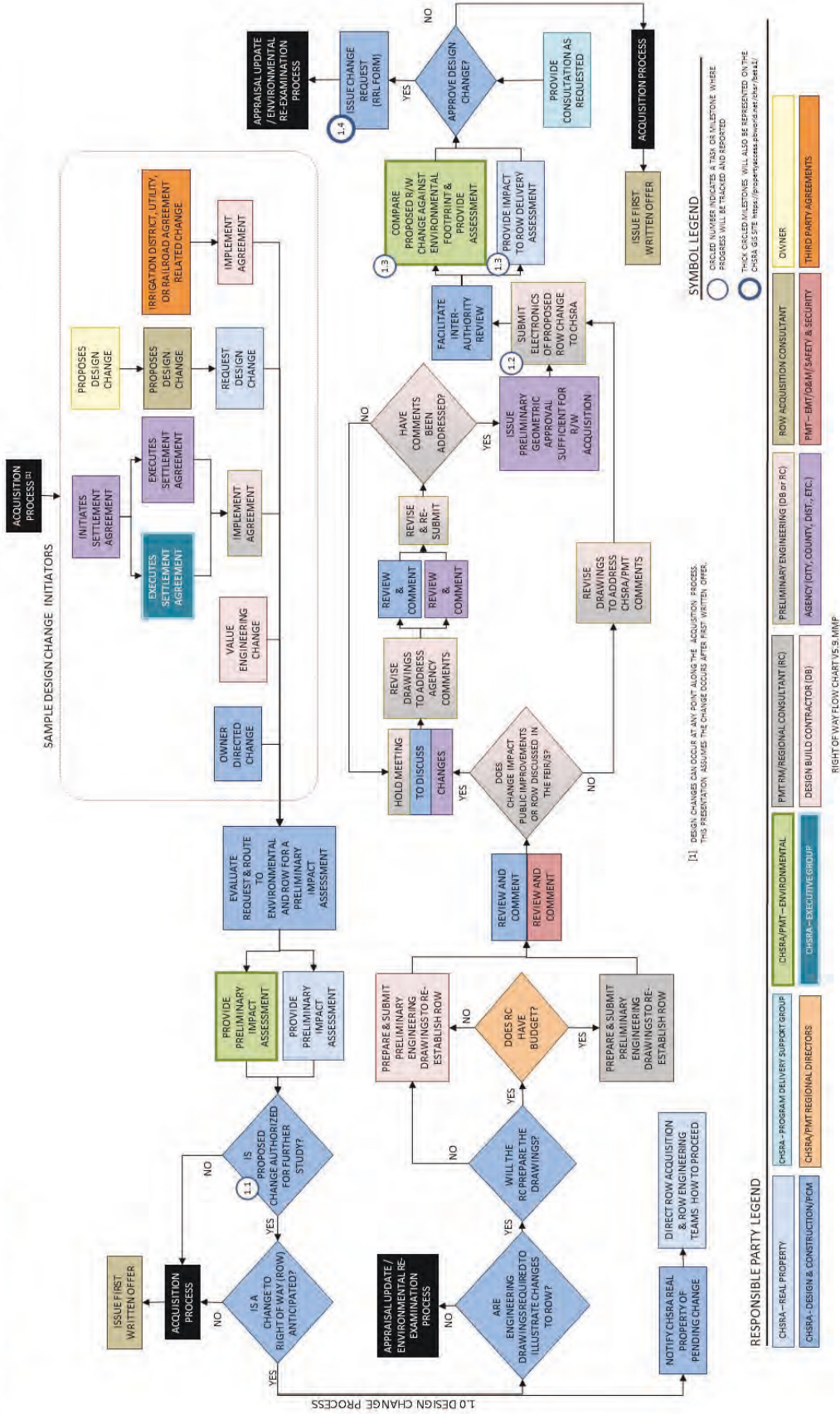
- IF A PORTION OF A REQUIRED PARCEL IS OUTSIDE OF THE ENVIRONMENTAL FOOTPRINT, SEE EXAMINATION PROCESS PROCS TO FIRST WRITEIN OFFER.
- IF THE PROJECT IMPACTS A PORTION OF ANY PARCEL THAT IS WITHIN CONTRACTED WILLIAMSON LAND, THE AUTHORITY BOARD IS REQUIRED TO MAKE A CANCELLATION DETERMINATION ON THE PARCEL PRIOR TO DOF EXECUTING AN AGREEMENT.
- LEGAL POSSESSION GRANTED BY SIGNING MUST CLOSE Easement OR OBTAIN FINAL DEED OF CONVEYANCE TO SECURE TITLE TO SECURE TITLE.
- ACQUISITION FLOW CHART ILLUSTRATES WORK FLOW TO PHYSICAL POSSESSION. TITLE TO PROPERTY MAY NOT BE SECURED AT TIME OF PHYSICAL POSSESSION.

RIGHT OF WAY FLOW CHART VS 9.2.MMP

Figure 14. Right of Way Acquisition Process



DESIGN CHANGE PROCESS



[1] DESIGN CHANGES CAN OCCUR AT ANY POINT ALONG THE ACQUISITION PROCESS. THIS PRESENTATION ASSUMES THE CHANGE OCCURS AFTER FIRST WRITTEN OFFER.

SYMBOL LEGEND

- CIRCLED NUMBER INDICATES A TASK OR MILESTONE WHERE PROGRESS WILL BE TRACKED AND REPORTED
- THICK BORDERED MILESTONES WILL ALSO BE REPORTED ON THE CHSRA CS-STE. MAIL: chsrastatem@chsrainc.com

RESPONSIBLE PARTY LEGEND

CHSRA - REAL PROPERTY	CHSRA - PROGRAM DELIVERY SUPPORT GROUP	CHSRA/PMT - ENVIRONMENTAL	PMT/PM/REGIONAL CONSULTANT (RC)	PRELIMINARY ENGINEERING (DB or RC)	ROW ACQUISITION CONSULTANT	OWNER
CHSRA - DESIGN & CONSTRUCTION/PCM	CHSRA/PMT REGIONAL DIRECTORS	CHSRA - EXECUTIVE GROUP	DESIGN BUILD CONTRACTOR (DB)	AGENCY (CITY, COUNTY, DIST., ETC.)	PMT - BMT/DBAM/SAFETY & SECURITY	THIRD PARTY AGREEMENTS

Figure 15. Design Change Process

APPRAISAL UPDATE / ENVIRONMENTAL RE-EXAMINATION PROCESS

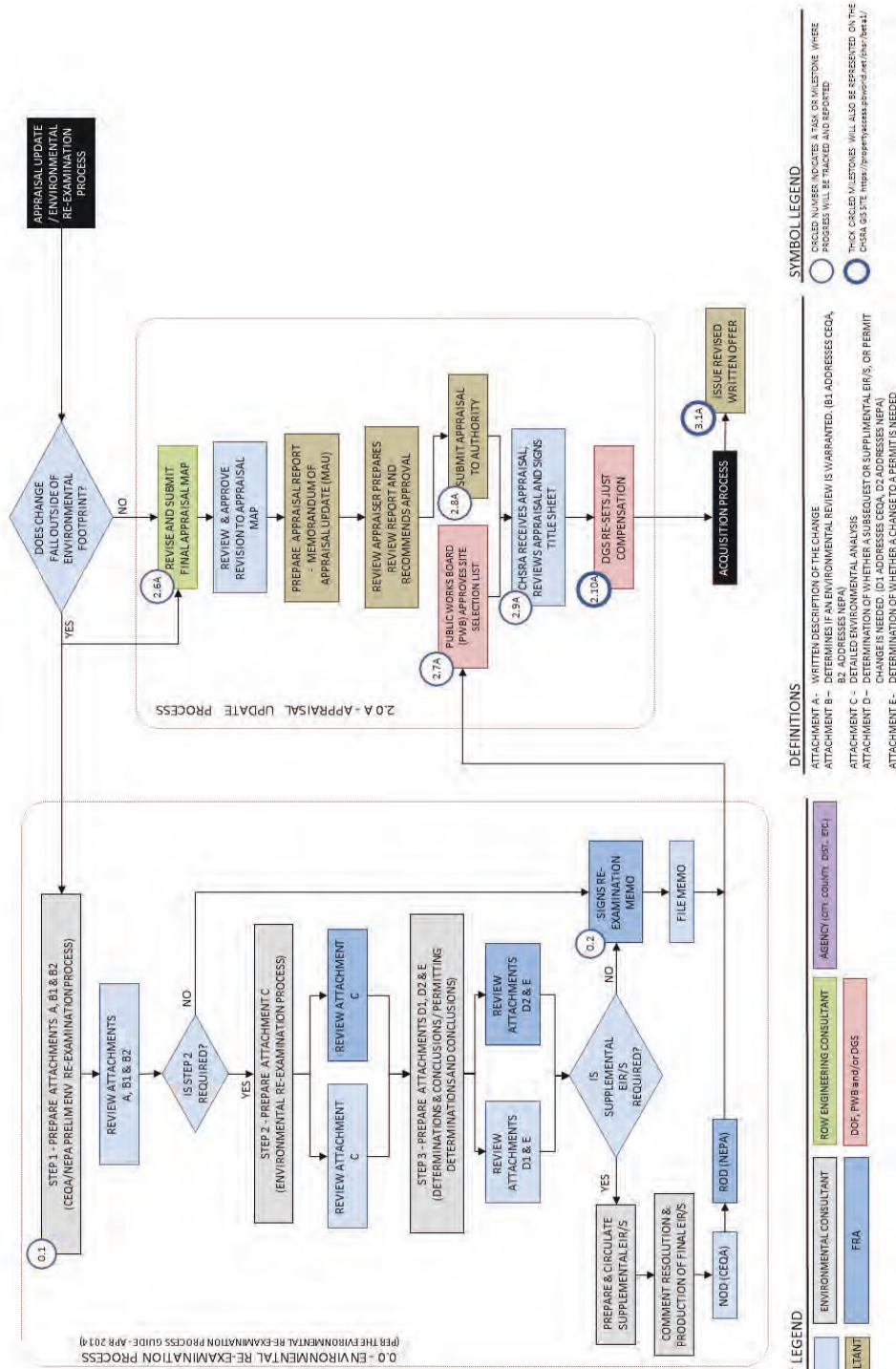


Figure 16. Appraisal Update / Environmental Re-Examination Process

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11.3 Right-of-Way Acquisition Plan

The Authority prepares a right-of-way acquisition plan for each project (defined currently by each construction package) once there is a preferred alignment and preliminary design. The acquisition plan gives priority to parcels needed for long-lead construction activities and parcels that may have complicated relocation management matters. The Right-of-way Director of Real Property and the right-of-way contractors manage this effort. The acquisition plan includes a right-of-way cost estimate based on preliminary engineering plans. Land values, improvements and damages for each property are considered in the development of the right-of-way estimate, which includes costs for temporary and permanent easements, utility easements and fee acquisitions along with a contingency for condemnation increments and settlements. Relocation expenses, included in the estimate, for those acquisitions involving displacements and/or personal property moves. Assumptions for business displacements and relocation payments are based on the right-of-way relocation plan.

The property acquisition schedule typically provides time to allow eminent domain proceedings to occur for certain parcels. The delivery contract includes anticipated possession dates for each parcel or group of parcels, and each DB contractor schedules activities around the acquisition plan. Delayed parcel delivery results in adjustments to the DB contractor schedule to work in other areas.

11.4 Property Management Plan

The property acquisition agent provides maintenance and protection of property interests acquired by the State of California until control of the property is transferred to the contractor. The property acquisition agent maintains an inventory of real property and improvements acquired for the project. The Authority updates the inventory when physical possession of the property occurs.

Property turned over to a DB is in the care and protection of the DB, per contract language. Excess parcels are under the care and protection of a property management contractor to protect the property from vandalism, encroachment or other misuse, as well as taking measures to verify public safety.

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12 SAFETY AND SECURITY

The Authority has developed and implemented a Safety and Security Management Plan (SSMP), attached as Appendix N, to formalize the management principles and strategies for determining safety and security risk acceptance throughout the Program's life cycle, from the design phase through the start of revenue service. This plan details safety and security activities and methods for identifying, evaluating, and resolving potential safety hazards and security vulnerabilities.

Safety and security are priority considerations in the planning and execution of work activities for the Program. System safety and security includes a hazard and vulnerability management process that incorporates the characteristics of planning, design, construction, testing, operational readiness and subsequent operation of the system to verify the safety and security of employees, contractors, emergency responders and the public. The Authority manages safety hazards and security vulnerabilities by identifying and analyzing potential hazards and vulnerabilities and developing mitigation measures to reduce the risk to an acceptable level. To achieve program-wide safety and security, proven technical standards are adopted from service-proven high-speed rail systems in Europe and Asia. In addition, the Authority has adopted U.S. transportation safety and security standards that comply with the most recent federal and state requirements.

12.1 Safety and Security Resources

Employee safety, construction safety and system safety and security are priority elements of the Authority's planning and execution efforts. Although different in their requirements, the Authority has aligned the hazard and risk assessment and mitigation of risk processes. The high-speed rail program needs to provide for the safety of the employees of the Authority and its consultants whether in the office or in the field. The high-speed rail program also needs the ability to monitor construction safety efforts of the PCM and DB contractors. Managing safety hazards and security vulnerabilities occurs through identifying and analyzing potential hazards and vulnerabilities and by developing mitigation measures to reduce the risk to a level acceptable for the Authority.

Key responsibilities of the Program System Safety and Security branch include consulting and coordinating with the Authority regarding safety requirements for the offices and making recommendations regarding employee safety and health as they relate to program delivery; developing and implementing a field construction safety program, including training for the Authority and consultant staff; providing training, guidance and data analysis using iSMS across the program; managing the Authority's program for safety and security certification, a requirement that certifies that all program facilities, systems and equipment have been designed, built, procured, installed, inspected and tested in accordance with identified system safety and security requirements, prior to the start of revenue operations; and more.

The Program and System Safety and Security branch consists of three sections: Construction Safety and security, System Safety and Security, and Rail Safety. The Director of System Safety and Security (DSSS) reports to the COO. The DSSS is responsible for overseeing and implementing all activities under this program. Key positions supporting the DSSS are the Construction Safety Program Manager and System Safety and Security Manager and Rail System Safety Manager.

Key responsibilities of the Program and System and Security Branch includes maintaining the safety and security policy for the Authority and maintaining the Safety and Security Management Plan (SSMP) and managing the Authority's program for safety and security certification.

12.2 System Safety and Security

System safety and security management consists of an approach that incorporates federal, state and local requirements with industry best practices. The approach to safety and security management includes a definition of roles and responsibilities throughout the delivery team and the processes used for communication and action on safety and security matters. A key element is the formation by the Authority of safety and security committees whose members have the technical expertise and executive-level support to provide oversight, review and Authority approval of safety and security activities that could affect the Program's Project's development and operation.

Safety and Security Management Plan

The SSMP describes the system safety and system security activities, responsibilities and verification processes during the planning, design, construction, testing and startup phases of the Program. In the absence of current FRA regulations governing the safety and security requirements of major capital projects, the plan closely adheres to the program requirements of FTA with adjustments made to accommodate the unique life cycle characteristics of the Program.

The SSMP formalizes the technical and management strategies for determining safety and security risk acceptance throughout the system's life cycle. The SSMP defines the process for identifying, evaluating and resolving safety hazards and security vulnerabilities associated with operations of the Program/Project prior to the start of revenue service, including preliminary engineering, final design, construction, testing and start up. The provisions of the SSMP establish:

- The Authority's commitment and philosophy to achieve the highest practical level of safety and security for the staff of the Authority, consultants and contractors, emergency responders and members of the public.
- Process for managing safety and security activities intended to minimize the risk of injury and property damage and maximize the safety and security of the system's passengers, employees and stakeholders living and working along the alignment.
- Integration of safety and security functions and activities throughout the Program's development.
- Safety and security responsibilities of the Authority and the consultants responsible for design, construction and startup.
- Process for documenting and verifying safety and security activities.
- Process for monitoring project phases and activities to verify continued development and advancement of safety and security principles.
- Management processes and requirements for construction safety and security.

Hazard Management

The Authority has implemented a risk-based hazard management program to identify and assess safety hazards and security risks to enable the application of mitigation measures that reduce the risk to a level acceptable to the Authority. The program delivery consultant is responsible for analyzing safety and/or security risks as well as the corresponding mitigation measures, and incorporating into the design criteria. The hazard management program also includes implementing and monitoring the safety and security certification program and verifying that requirements pertaining to safety and security are in the design, construction and implementation of the high-speed rail system.

Safety and Security Certification

The Authority's program for safety and security certification, included in the SSMP, describes the responsibilities and processes required to demonstrate that the system is safe and secure. Prior to starting revenue operation, every phase and project section of the Program must complete this review process. Based upon program requirements found in the FTA Handbook for Transit Safety and Security Certification, the applicable requirements include FRA Regulations 49 CFR 236, Subparts H and I for positive train control; draft FRA Regulations 49 CFR, Part 270 for system safety programs; and Transit Security Administration program requirements.

12.3 Construction Safety and Security

Construction safety and security is of vital importance in building the high-speed rail system. The contractor plays a key role in maintaining responsibility for safety and security, including adherence to all program requirements and compliance with local, state and federal regulations. Each DB contractor must develop a Safety and Security Management Plan that identifies how to achieve compliance with contract requirements, the Authority's SSMP and local, state, and federal regulations. The contractor must also develop for each job site a Site-Specific Health and Safety Plan and a Site-Specific Security Plan that

identifies site-specific safety, health and security conditions and requirements pertaining to work-performed on each construction package.

The PCM also plays a key role in maintaining responsibility for safety and security within the Program. The Authority, with the assistance of the PCM, has oversight responsibilities for each contractor's construction safety and security program. As the Authority's primary representative regarding the management of the contractor's construction safety and security activities, each PCM develops and submits a Safety and Security Program Oversight Plan to the Authority describing the processes and procedures for providing oversight of contractor activities. The PCM oversees contractor adherence to all program, contractual, local, state and federal regulations and requirements.

The contractor has the responsibility to provide employees, visitors and the public with a safe and healthy environment and must demonstrate that effective mitigations are in place to reduce the risk of injury, illness and incidents on each project site. Overall, it is the contractor's responsibility to enforce safe work practices and conditions as required by regulatory agencies, their contract and the SSMP, and manage subcontractor adherence to local, state and federal regulations.

Construction Safety and Security Resources

The Authority, through the PCM, maintains oversight responsibilities for each contractor's construction safety and security program. As the Authority's primary representative regarding the management of the contractor's construction safety and security activities, each PCM develops and submits a Safety and Security Program Oversight Plan to the Authority describing the processes and procedures for providing oversight of contractor activities. The Authority, through this branch, will monitor the PCMs' and DB contractors' efforts in meeting contractual requirements.

The PCM oversees contractor adherence to all program, contractual, local, state and federal regulations and requirements. The contractor has the responsibility to provide employees, visitors and the public with a safe and healthy environment and must demonstrate that effective mitigations are in place to reduce the risk of injury, illness and incidents on each project site.

12.4 Security Strategy Implementation

The Authority's risk-based security strategy addresses the unique needs and characteristics of the Program. The security strategy includes:

- Coordination with federal, state and local security agencies.
- Security staffing program development, including sworn and unsworn security personnel.
- Evaluation and recommendations for security technology deployment.
- Identification and assessment of security requirements for design and operations.
- Negotiations with state and local law enforcement agencies to support the Authority's security program.

12.5 Regulatory Approvals

The Authority will manage compliance with the safety and security regulatory requirements of the jurisdictional agencies, including the FRA, California Public Utilities Commission (CPUC), California Office of State Fire Marshal and the U. S. Transportation Security Administration.

13 QUALITY MANAGEMENT SYSTEM

The Authority's Quality Policy emphasizes the importance of effective management of quality and performance on program delivery. The program-wide Quality Policy reflects a commitment to delivering an operating system on schedule and at the lowest possible cost—a system that meets industry and government standards. The objectives articulate this commitment to quality, as noted in the Authority Master Quality Plan (Appendix K):

- Develop and implement quality management plans to promote quality awareness and performance requirements.
- Create a culture of quality work accomplished on time and within budget.
- Identify quality requirements and assign accountability.
- Guide the organization regarding the development and implementation of Quality Management System procedures to meet requirements.
- Utilize metrics to facilitate data-driven decisions.
- Utilize continuous improvement opportunities to enhance quality effectiveness.

13.1 Organizational Requirements and Profile

The Quality Policy and the Master Quality Plan (Appendix K) implement a Quality Management System based on the following industry standards:

- International Organization for Standardization 9001:2015 – Quality Management Systems Requirements.
- FTA Quality Management System Guidelines, Dec. 2012.
- Authority Project and Construction Management Guidelines

The International Organization for Standardization standards and FTA guidelines include seven criteria for a quality management system: organization, leadership, planning, operation, support, improvement, and performance evaluation.

The Authority has consolidated these seven criteria into a performance framework of the following: Leadership System, Workforce, Process and Results, and Continuous Improvement. The framework, shown in Figure 17. Program Application of National Institute of Standards and Technology Performance Excellence Criteria takes into consideration the maturity level of the organization and its key processes as the quality management system is developed and evaluated. The four elements of the quality program include:

- **Leadership System:** Management commitment and accountability that implement activities to assess, support and lead a culture of quality. This includes ensuring that goals and daily work align with the Program's mission, vision, and values, processes and procedures are adequate and support daily tasks, and that it recognizes and documents customer satisfaction.
- **Workforce:** An engaged and empowered staff that is competent and trained with clear roles and responsibilities and established methods of communication and collaboration.
- **Process and Results:** Established plans, procedures and processes that define required results and a consistent approach in evaluating results and documenting results and outcomes.
- **Continuous Improvement:** Ongoing assessment of processes, procedures and results to identify lessons learned and measures to improve implementation.



Figure 17. Program Application of National Institute of Standards and Technology Performance Excellence Criteria

13.2 Process and Results

Operations and key processes transform inputs into products and services that meet customer requirements and expectations. The Program has identified internal and external processes to manage quality work, provide quality oversight and continuously improve to meet goals and objectives. The systems in place to ensure compliance during final design and construction will ensure suitability of the rail system for the required level of performance, and compliance with applicable and emerging high-speed rail regulations.

The following is the four-step project acceptance and certification process:

- Contract Acceptance;
- Systems Assurance Certification;
- Safety and Security Certification; and
- Quality Certification.

Contract Acceptance: The structure of the DB contracts includes multiple layers of technical review that begins with the contractor's QC/QA program and ends with the Authority's Due Diligence Check and Final Review. The contract manager for the Authority is responsible for ensuring compliance with the terms and conditions of the DB contracts. The PCM Team provides oversight of the DB contract to ensure that it remains within scope, schedule, and budget. Contract acceptance is the responsibility of the contract manager.

Systems Assurance Certification: The Verification, Validation, and Management Plan (VVMP) describes the requirements for System Assurance. The VVMP establishes the overall inputs, outputs and deliverables, methods and tools, and roles and responsibilities for each stage in the Program. The VVMP also details roles and responsibilities and tools and methods. The processes of verification, validation, and final acceptance confirms that the installed components of the system comply with performance and

readiness requirements for a usable segment. System performance testing and commissioning confirms integration and safety certifications as the usable segment are completed.

Safety and Security Certification: The FRA requires Safety and Security Certification prior to project acceptance. Certificates of Compliance for items listed in the contract are submitted to the Authority Safety and Security team for review and acceptance. The Safety & Security Management Plan outlines specific safety requirements and processes.

Quality Certification: The Authority and PCM will provide a Quality Certification when no outstanding quality related issues or non-compliance reports remain open at any level of the project and are recorded. The PCM, Authority, or by the DB contractor can identify issues and reports individually.

In addition to the certification process, the Authority implements quality requirements of design and construction at varying levels of oversight of the consultants and contractors responsible for conducting the work. The DB contractor provides Quality Control and Quality Assurance programs inclusive of sampling and testing requirements as stipulated in documented quality plan and procedures. DB quality plans and procedures are submitted to the PCM and Authority for review and approval.

The PCM is responsible for conducting quality oversight of the DB contractor's quality program in addition to implementing their own internal quality program. The PCM contract ensures that the DB contractor's quality programs are up-to-date and that the work is consistent with documented processes and procedures. The Authority reviews and approves PCM quality plans.

The Authority plays an additional oversight role by conducting Quality Assessments of each PCM to ensure that the PCM and DB quality programs are being followed.

Part of the overall Quality Management System in place is the implementation of the Independent Assurance Program Plan and the Statistical Sampling and Testing Program Plan by the PCM contracts. The Independent Assurance Program Plan outlines the requirements to provide an independent and unbiased sampling and testing procedure used in construction material acceptance. The Statistical Sampling and Testing Program Plan describes the requirements to validate the quality of construction and materials.

13.3 Continuous Improvement

The program's continuous improvement approach acknowledges that through incremental changes an organization can become more efficient and effective at meeting its goals. Continuous improvement engages employees at all levels and encourages active contributions to the learning culture through small positive changes.

The tools and initiatives of the program-wide continuous improvement program include both internal process improvements and lessons learned, examples of which include the following:

- Internal process improvement for general and regular processes using ongoing metrics measurements.
- Lessons-learned process to implement the knowledge gained from improvement initiatives into the work processes and procedures.
- The "What's for Lunch?" program to encourage an environment of workforce focus with opportunities to support internal customers.
- Meetings between the quality manager and organizational units to update the group on quality developments and to follow up on any action items from prior meetings.
- On-going refinement of the quality management plan, as the continuous improvement program evolves and matures, to reflect the program's current strategic challenges and opportunities. Specifically, the quality management plan is a "living document."

13.4 Lessons Learned

As part of the continuous performance improvement program, the Authority works with the program delivery team to implement a lessons-learned program related to the systems used to develop and

implement the projects comprising the Program. Managers review the lessons learned as part of an on-going lessons-learned procedure. The procedure includes the following:

- Description of the process used to identify lessons learned.
- Documentation and approval of the lessons learned.
- Verification team personnel are provided lessons learned.
- Description of the archival process for storing and retaining lessons following their presentation to team members.
- Identification of actions undertaken in response to the lessons learned and verification that the actions are implemented.

The lessons learned include positive experiences that result in ideas that improve the Program, such as improved project efficiency and/or budget and schedule savings, as well as negative experiences that result in undesirable results or unfavorable outcomes. Potential actions that could result from the implementation of lessons learned include the following:

- Revising an existing policy.
- Writing a new procedure.
- Revising a standard.
- Issuing a new or revised specification.
- Improving a work process.
- Changing a contract's terms and conditions.

13.5 Quality Management Resources

The Administration Office is comprised of State and consultant employees and includes three operating areas: Administrative Services Branch, Contracts and Procurement Branch, and Process and Program Development Branch. The Process and Program Development Branch includes five sections: Contract Administration, Emergency Management, Process Improvement, Program Development, and Quality Management.

The Quality Section's primary responsibilities include developing and implementing a Quality Program and associated management plans to promote performance excellent, support all aspects of the organization in attaining ISO 9001 certification, developing, implementing and operating an effective continuous improvement program; and providing quality oversight for PCMs and DBs.

The Quality Manager leads the group, and reports to the Director of Process and Program Development. Several State and RDP employees report to the Quality Manger to carry out the three primary functions of the group: Quality Control, Quality Assurance, and Quality Verification.

14 RISK MANAGEMENT PLAN

Risk management is a formalized set of processes, protocols and responsibilities providing a systematic approach to identify, evaluate, assess, document and manage risks that could jeopardize the success of the Program. Potential areas of risk include engineering, environmental, planning, right-of-way, procurement, construction, organizational, stakeholder, budget and schedule risk. The risk management plan was developed based on:

- Final risk allocation options are the responsibility of the Authority.
- Risk management process meets the Authority's risk objectives.
- Risk management process results in a pragmatic assessment that balances the Authority's objectives with the construction industry's reasonable risk allocation issues and concerns.

The objectives of the risk management plan are to:

- Systematize the process by which the Authority responds to circumstances that could significantly delay, halt or increase cost on the project minimize differences between project plans and objectives.
- Determine risks and costs of proposed project changes and identify project alternatives that satisfy the Authority's objectives and priorities.
- Increase transparency regarding challenges to project plans and objectives - prepare internal and external information that is reliable, timely and relevant, providing the means to achieve an acceptable level of cost and schedule certainty.
- Capture project opportunities - aid the identification, and ability to take advantage of, positive events quickly and efficiently.
- Satisfy legal and regulatory requirements and meet the needs and expectations of other stakeholders - identify risks of noncompliance and identify and manage challenges to local communities and other stakeholders.
- Rationalize allocation of resources - allow the project to deploy resources more effectively by identifying key drivers of Development and Delivery and provide the means to manage cost estimate contingency and schedule float, thereby reducing overall capital requirements and improving capital allocations.

To achieve these objectives, the team uses the following standards:

- Deliverables present a substantive, complete and appropriate engineering or project management context.
- Quantified deliverables are fully integrated, traceable, consistent and compatible with findings or stated facts.
- Risk management deliverables that are qualitative in nature are properly structured and clearly identified with respect to authorship.
- Material analytic results of risk analysis are capable of withstanding independent assessment or reproduction using disclosed methods and assumptions that generate similar analytic findings within an acceptable degree of imprecision or error.
- Funding agencies can assess whether it is appropriate to question the adequacy, accuracy and completeness of third-party data, information, modeling or analysis.

The Risk Management Plan (Appendix L) seeks to balance the competing demands of scope, time, cost, quality, resources and risk to most successfully deliver the Program. The risk management plan describes the risk management organization, roles and responsibilities, and processes in greater detail.

The Authority reduces risk even further by requiring operators, infrastructure providers and contractors to accept risk directly through their contract agreements with the Authority. In addition, risk management specialists, both at the Program and the project levels, identify key potential risks and develop mitigation

plans. The risk register then documents risk-related items and actions for the Program. As new information is developed, and staff reviews project specific risk registers and updates the individual risks quarterly. Management reviews risk registers at stipulated intervals per contract requirements. Based on management review, staff develops response strategies and actions for individual risks, as well as for overall program risks, and integrates those into a consolidated plan. This plan includes:

- Monitoring and controlling risks by implementing agreed-upon actions.
- Regularly reviewing changes in program/project risk exposure.
- Identifying additional risk management actions as required.
- Assessing the effectiveness of the Program/Project.

Quantitative assessments of risks in the risk registers also serve as the primary input for Monte Carlo and sensitivity analyses. The Monte Carlo assessments evaluate the project or program-wide cumulative risk exposure together with the probability of experiencing certain cost and schedule outcomes.

14.1 Risk Management Resources

The purpose of the Program Risk Management Section is to provide rigorous risk planning and management to enable the successful outcomes for the delivery of high-speed rail project. Primary responsibilities of the Program Risk Management Section include developing and implementing program/project risk management policies, procedures, plans, manuals and other guiding documents; establishing and maintaining program/project risk registers; performing thorough qualitative and quantitative risk analyses for establishing and managing program/project contingencies; and providing a risk-informed contingency assessment report and recommending contingency estimates for every awarded construction package to the Finance and Audit Committee.

The Program and Project Management policies, Program Change Management Plan, Program Controls Plan, and Program Risk Management Plan are the key governing and guiding documents. The major elements of each plan include the need and purpose, roles and responsibilities, process, procedure, and tools for each area of program management.

The primary customers for the Program Management and Oversight Branch are Strategic Delivery, Infrastructure Delivery, Rail System Delivery Branch, and program delivery functions. Close coordination with these groups is necessary to achieve a functional, certified and commercially viable high-speed rail system. The other primary customers for Program Management and Oversight are executive management and the Finance and Audit Committee.

Appendix A REFERENCED PLANS, POLICIES AND PROCEDURES

- 2018 Business Plan
- California High-Speed Train Project: Urban Design Guidelines
- Confirmation of and Delegation of Authority for Design-Build Construction Packages
- Design Criteria Manual
- Design Variance Guidelines
- Design-Build Contract Change Order Management Procedure
- FTA Handbook for Transit Safety and Security Certification
- Program Controls Plan
- Project Design Criteria Manual Chapter 14 Stations
- Quality Policy
- Small-Business/DBE Program
- Station Area Parking Guidance Technical Memorandum
- Technical Memorandum 0.1 Preliminary Engineering for Project Definition Guidelines
- Technical Memorandum 0.1.1 Preliminary Engineering for Procurement Guidelines
- Technical Memorandum 0.3 Basis of Design Policy
- Technical Memorandum 0.9 Process to Support Development of a CHSTP Rule of Particular Applicability
- Technical Memorandum 100.07 Value Engineering Implementation Plan
- Technical Memorandum 200.06 Aesthetic Guidelines for Non-Station Structures
- Technical Memorandum 200.07 Aesthetic Review Process for Non-Station Structures
- Title VI Program Plan
- Verification Validation and Self-Certification Procedures
- Vision California

Referenced plans, policies, procedures, project plans and DB contractor plans are available upon request.

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Appendix B STATION AREA PLANNING GUIDANCE AND RESEARCH DOCUMENTS

10550

Current Documents	Authority Guidance
1	HSR Station Area Development Policies (May 2008)
2	Vision California (Jan. 2009 – Jun. 2010)
3	HSR Station Area Development: General Principles
4	California High-Speed Train Project, Urban Design
5	Technical Memorandum Station Area Parking Guide
6	Technical Memorandum 200.06, Aesthetic Guidelines

7	Technical Memorandum 200.07, Aesthetic Review
8	Technical Memorandum 0.1 Preliminary Engineering
9	Design Criteria Manual, Chapter 14 Stations Rev 2
10	California High-Speed Rail Authority Sustainability Plan

11

Forthcoming Documents

1	Station Deliverables for PEPD and Environmental D
2	Design Opportunities for Local Jurisdictions and Ae
3	California High-Speed Rail Statewide Vision Plan fo
4	HSR Station Area Access Policy

5

6

Authority Research

Information Provided

1 [Transit-Oriented Development for High-Speed Rail \(HSR\) in the Central Valley, California: Design Concepts for Stockton and Merced \(Jul. 2008\)](#)

This report, prepared by University of California Berkeley with the support of the Authority, examines the potential for transit-oriented development around high-speed rail stations in the Central Valley. The report focuses on proposed stations sites in the Northern San Joaquin Valley cities of Stockton and Merced and presents planning approaches and design concepts for land use, urban design and multimodal access and circulation in and around the proposed high-speed rail station areas.

2 [Transit-Oriented Development Design Proposals for Fresno \(Jun. 2010\)](#)

This report, prepared by University of California Berkeley with the support of the Authority, presents a detailed analysis of the proposed high-speed rail station area in downtown Fresno, and proposes illustrative urban design concepts meant to increase density and create a pedestrian and transit friendly environment near the station. The proposed urban design strategies address issues ranging in scale from regional growth and transportation patterns to detailed street and building design concepts, promoting multimodal transportation and sustainable building design.

Authority Research	Information Provided
<p>3 SPUR Report, Harnessing High-Speed Rail (Sep. 2017)</p>	<p>The Authority contracted with the San Francisco Bay Area Planning Urban Research Association (SPUR) to advance a study on ways to leverage the development of high-speed rail in California. This followed an initial study in 2011 about what the state should do to ensure it is fully utilizing and creating smart growth with one of its major climate change investments, high-speed rail. The report built on work conducted with station area planning stakeholders, including city staff, to fully realize the new transportation system serving the people of California. Staff developed a series of recommendations that are consistent with themes from the Authority's Transit-Land Use Committee, Station Area Plans, and work with its stakeholders.</p>
<p>4 Understanding Future Access/Egress for High-Speed Rail Stations</p>	<p>This report, currently being prepared by Caltrans Division of Research, Innovation and System Information with the support of the Authority, will inform Caltrans and the Authority of best practices for integrating high-speed rail with existing and future modal uses (including, but not limited to intercity/commuter/regional rail systems, shared mobility, and active transportation modes), and planning for appropriate parking based on modal share for shared modes, as well as leveraging opportunities for shared parking, managed in real-time. The scope of work included a literature review, expert interviews, user surveys, model development and stakeholder workshops.</p>

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Appendix C ENVIRONMENTAL GUIDANCE DOCUMENTS

Authority Guidance		Information Provided
Environmental Methods		
1	Environmental Methods Version 5 (Rev. Apr. 2017)	Describes the methodology for conducting investigations and analyzing potential environmental and community impacts, preparing the content of an EIR/EIS, compiling and producing the EIR/EIS Volume 1 document and the Volume 2 Appendices for high-speed rail projects.
2	Environmental Methods Version 5 RSA Dimensions (Jun. 2014)	Table that identifies the resource study area dimensions for evaluating environmental resource impacts.
3	FRA Procedures for Considering Environmental Impacts (May 1999)	Describes procedures adopted by the FRA that governs the agency's compliance with NEPA and related environmental and historic preservation laws and regulations.
4	Additional Guidance for Determining Impact Significance under NEPA (Sep. 2016)	Authority memo on determining impact significance under NEPA.
5	Determining NEPA Significance (Apr. 2017)	FRA memo that provides additional guidance on determining impact significance under NEPA.
6	Agricultural Lands Methodology (Aug. 2016)	Updated methodology for evaluating impacts to agricultural lands.
7	Agricultural Lands Methodology for Mitigation Calculation (Jun. 2016)	Presentation describing methodology for impact analysis and mitigation calculations for agricultural lands impacts.
8	Alternative Analysis Methods for Project Level EIR/EIS (Jan. 2011)	Provides background and establishes the process and considerations to be employed when conducting the alternatives analysis (AA) for the high-speed rail alternatives.
9	Guidance for Preparing Environmental Reviews for Electrical Interconnections (Apr. 2016)	Provides direction for incorporating utility improvements into the project description, environmental impact analyses, mitigation measures and other aspects of the Authority's environmental documents.
10	Guidance for Preparing Environmental Reviews for Geotechnical Investigations (Aug. 2016)	Describes the methods for completing CEQA and NEPA review for the Authority's and FRA's geotechnical investigations.
11	Guidance for Evaluating Environmental Issues for Interim End of Line Facilities (Jun. 2017)	Describes the types of issues that need to be considered when preparing an environmental analysis for interim end-of-line stations.
12	Guidance for Preparing Staff Recommended Preliminary Preferred Alternative (Jun. 2017)	This document presents guidance for the Staff Report: Preferred Alternative. This staff report is one part of the package of materials submitted to the Board of Directors for concurrence on a staff-recommended preliminary preferred alternative.

Authority Guidance	Information Provided
13 Impact Avoidance and Minimization Features (Rev. Mar. 2017)	Describes the impact avoidance and minimization features adopted by the Authority that will be implemented as part of project design to reduce environmental impacts.
14 Standard Mitigation Measures (Rev. Apr. 2017)	Describes standard high-speed rail mitigation measures for impacts to air quality, noise, biology, hazardous materials, safety and security, socioeconomic, land use, agricultural land, parks and recreation, aesthetics and visual resources, cultural resources, historic architecture, paleontological, and transportation.
15 Authority Noise and Vibration Mitigation Policy (Rev. Apr. 2017)	Provides an update to the Authority's noise and vibration mitigation policy, taking into account an adjustment in the cost to benefitted residence.
16 Environmental Re-Examination Guidance (Apr. 2014)	Contains a series of documents, including an annotated outline, CEQA and NEPA determinations, the re-examination process and templates for the report.
17 Project Environmental Document Style and Preparation Guidelines (Apr. 2017)	Provides definition of terms and grammatical usage for high-speed rail environmental documents, styles and formatting procedures for publishing high-speed rail environmental documents.
18 Environmental Administrative Record Guidance (Jan. 2016)	Identifies and explains the high-speed rail practices and requirements for documenting and filing work by Authority staff, the RDP and regional consultants on individual project sections that are part of the high-speed rail system.
Quality Review Process	
19 Environmental Document Quality Review Process (Apr. 2017)	Describes the review process for Authority environmental documents, technical reports, and federal and state permit documents that must be approved prior to issuance of a Notice of Determination (NOD) and Record of Decision (ROD).
20 Environmental Document Quality Review Flow Chart (Apr. 2017)	Illustrates the process flow and timelines for conducting the high-speed rail and FRA review process.
21 Environmental Quality Review Checklists	Forms used to evaluate EIR/EIS sections based on criteria applicable to each technical section and compliance with the high-speed rail methodology.
22 Environmental List of Technical Reviewers (May 2017)	Identifies Authority, legal and other staff responsible for conducting technical reviews of EIR/EIS chapters and sections that comprise the Authority's environmental documents.
23 Document Tracking System Memo (May 2017)	Describes the Authority and FRA process for conducting EIR/EIS document review.

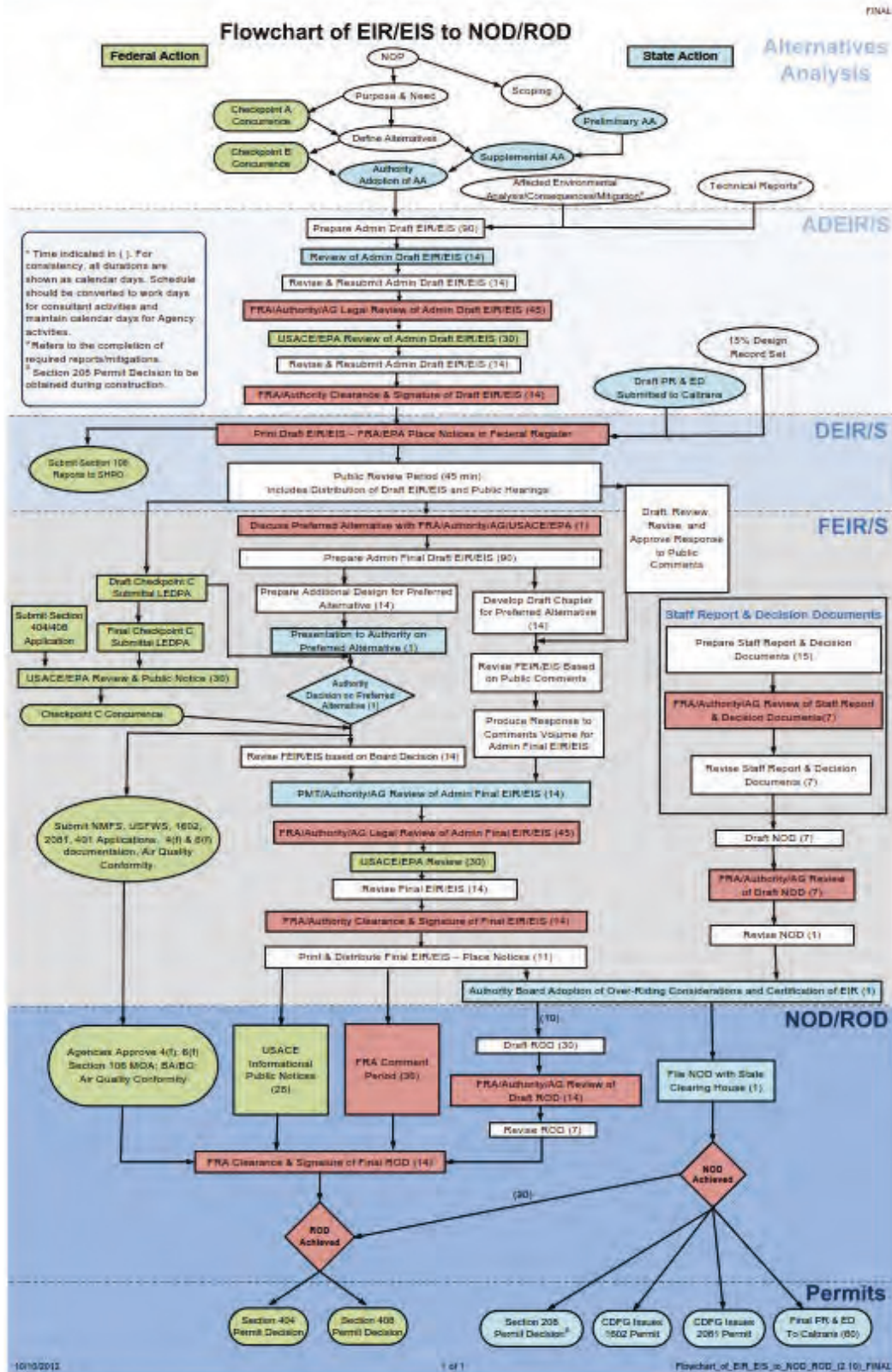
Authority Guidance		Information Provided
24	EIR/EIS Comment Review Matrix (Jun. 2017)	Spreadsheet template used for tracking consultant response to Authority, legal and FRA comments on draft EIR/EIS chapters and sections that comprise the Authority's environmental documents.
Technical Documentation		
	Environmental	
25	Environmental Technical Guidance Catalog (Jun. 2014)	A compilation of technical guidance and data on high-speed rail design and operations, station and station area planning, environmental analysis, regulatory permitting, right-of-way acquisition and other aspects of the program.
26	Cultural Resources Guidance	Identifies where high-speed rail Section 106 compliance is integrated with NEPA and CEQA compliance, from initiation of environmental studies to the ROD/NOD; lists documentation required by the Authority, FRA and SHPO; describes interim deliverables; and supplies a deliverable schedule that establishes sequence, durations and responsible parties.
27	National Historic Preservation Act Section 106 Programmatic Agreement (Jul. 2011)	The Programmatic Agreement among the FRA, Advisory Council on Historic Preservation, SHPO and the Authority regarding compliance with Section 106 of the National Historic Preservation Act as it pertains to the program.
28	State Water Resources Control Board MOU (Jan. 2017)	MOU between the Authority and SWRCB to achieve expedited preparation, consideration and issuance of Clean Water Act Section 401 water quality certifications.
29	NEPA/Section 404/Section 408 Integration MOU (Dec. 2010)	MOU among the FRA, the Authority, EPA, and USACE to facilitate compliance with NEPA, the Clean Water Act (CWA) Section 404 and the Rivers and Harbors Act Section 408 for the EIS documents.
30	NEPA/Section 404/Section 408 Data Needs Guidance (May 2013)	Guidance describing the USACE's data needs for Section 404 and Section 408 permitting requirements.
31	NEPA/Section 404/Section 408 Permitting Process (Aug. 2016)	Additional USACE guidance regarding the approval process for DB construction.
32	NEPA/Section 404/Section 408 Checkpoint B Annotated Outline (May 2014)	Guidance for preparing Checkpoint B (Range of Alternatives) consistent with USACE guidance.
33	CHSTP EIR-EIS Assessment of CHSTP Alignment EMF Footprint (2012)	Technical memo setting out the methodology for conducting EIR/EIS electromagnetic interference/electromagnetic field assessments.

Authority Guidance	Information Provided
34 Draft Environmental Approvals and Permitting Guide (Oct. 2011)	Outlines the procedures for the environmental approvals required prior to construction bidding advertising for the proposed high-speed rail sections. Includes responsibilities, general process, and strategies to modify permits. Provides overview of environmental compliance activities and timing of approvals and permits.
35 Environmental Compliance Program Manual and Appendices (Sep. 2015)	Technical manual for monitoring environmental compliance during construction targeting the environmental scientists and engineers implementing the program. Key elements are the policies, inspections and monitoring, commitment tracking in the Environmental Mitigation Management and Assessment (EMMA) program, contract review, training and education, and adaptive management.
36 GIS Guidance and Standards (Oct. 2015)	Contains the established standards and practices adopted by the Authority for managing geographic information system data. Addresses the use of metadata, standards for data delivery, mapping standards and administrative record requirements.
Engineering	
37 Technical Memos	Includes more than 90 technical memos addressing the approach, regulations, methods and standards associated with designing the high-speed rail system.
38 Summary of Requirements for Operations and Maintenance of Facilities (Apr. 2013)	Provides a comprehensive list of requirements for operations and maintenance facilities throughout the implementation of the high-speed rail system. The goal is to better inform decisions regarding engineering and environmental clearance.
Planning	
39 HSR Station Area Development: General Principles and Guidelines (Feb. 2011)	Sets out principles and guidelines for high-speed rail station area development. Station area development principles include, but are not limited to, the following features: transit-oriented and higher-density development; a mix of land uses and housing types; a grid street pattern; compact, pedestrian-oriented design; context-sensitive building design; and limited amounts of vehicular parking.
40 Urban Design Guidelines (Mar. 2011)	Considers the role of the station in the overall community, describes the principles of transit-oriented development, and presents urban design techniques to integrate high-speed rail into the community that include establishing access influence zones, complete streets, integrating with local transit and wayfinding.
Outreach and Participation	
41 Guidance for Multi-lingual Public Outreach (Jul. 2009)	A technical memorandum setting out methods for multi-lingual outreach.

Authority Guidance	Information Provided
42 Private Property and High-Speed Rail	Provides links to guidance documents (in English and Spanish), frequently asked questions, permit to enter process, relocation assistance program (simple Chinese, Hindi, Spanish, traditional Chinese).
43 Title VI Program	Provides description of the Title VI Program, including Limited English Proficiency and Environmental Justice policies, plans and reports.
44 Tribal Relations Program	Describes the Authority's tribal relations program and includes links to policy, guidance, fact sheets, the Section 106 Programmatic Agreement, and dates of the Authority/Caltrans Joint Tribal Listening Sessions.
45 Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) Publication and Public Outreach Guidance (June 2017)	Provides specific direction to the outreach and environmental teams for preparing and executing the work elements that precede and include the public hearing for the Draft EIR/EIS and the procedures for handling and addressing public comments.
Green Practices & Sustainable Operations	
46 California High-Speed Rail Authority Sustainability Policy (Jul. 2016)	Describes the sustainability policy for the program, summarizing the Authority's sustainability objectives and specific sustainability commitments.
47 High-Speed Rail Operations and Renewable Energy	Includes report on the use of renewable energy, a strategic energy plan, the MOU between the California Energy Resources Conservation and Development Commission and the Authority, and a call to industry for guidance on achieving 100 percent renewable energy.
48 Agricultural Conservation and Preservation	Includes the agreements and settlements regarding the preservation of agricultural and open space lands along the high-speed rail corridor. Agricultural white papers, memos and letters also are included.
49 California High-Speed Rail Sustainability Report (Dec. 2017)	An annual report in accordance with the Global Reporting Initiative G4 Core Reporting Guidelines that will be updated annually.
Work Templates	
50 Environmental Technical Report Templates	Includes the templates for 20 technical reports required for EIR/EIS technical sections.
51 EIR/EIS Chapter/Section Templates	Provides templates for the EIR/EIS chapters and sections, signature page, appendix, cover, webpage introduction and high-speed rail consistency checklist.

Authority Guidance	Information Provided
<p>52 Environmental Document Report Cover Templates:</p> <ul style="list-style-type: none"> ▪ Bakersfield F Street Station Alignment ▪ Bakersfield to Palmdale ▪ Burbank to Los Angeles ▪ Central Valley - Wye ▪ Fresno to Bakersfield ▪ Los Angeles to Anaheim ▪ Los Angeles to San Diego ▪ Merced to Fresno ▪ Palmdale to Burbank ▪ Sacramento to Merced ▪ San Francisco to San Jose ▪ San Jose to Merced ▪ Statewide 	<p>Provides templates for the high-speed rail project sections in 8.5x11 and 11x17 formats.</p>
<p>53 Graphic Templates:</p> <ul style="list-style-type: none"> ▪ Illustrations ▪ Logos ▪ Maps ▪ Photographs 	<p>Provides templates for illustrations, logos, maps and photographs.</p>
<p>54 Typical Section Illustrations</p>	<p>Provides 62 typical section illustrations for high-speed rail project section design features.</p>

Appendix D FLOWCHART OF EIR/EIS TO NOD/ROD



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Appendix E PROGRAM-WIDE SPECIALIZED ENVIRONMENTAL EXPERTISE

Program-wide Specialized Environmental Expertise		
Position	Activities	Roles and Responsibilities
Cultural Resources Manager	Thought Leadership	Responsible for Cultural, Archaeological and Historical Resources strategy, policy development, for consultation and obtaining NOD/ROD which includes, but is not limited to: Native American Tribal consultation, 6(f) and 4(f) determinations and findings.
	Guiding Documents	Prepares program-wide guidance documents related to programmatic 106 issues, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the cultural resources program and further ensures consistency and quality.
	Program Management	Ensures policy consistency, issue identification, quality assurance, resource agency engagement by serving as single point of contact with SHPO for Program, supports monthly updates for audit committee and change control, support interagency funding agreements and quality assurance for EEC performance.
	Learning and Development	Supports CommentSense quality assurance
	Functional Subject Matter	Supports Authority program, project-level, regional teams, project construction manager and DB contractor relative to cultural resources policies and procedures.
	Project Delivery Assurance	Reviews Authority's and FRA documents for quality assurance. Provides technical oversight to support environmental quality and schedule; consistency with policies.
Lead Archaeologist/ Statewide California Tribal Coordinator	Thought Leadership	Ensuring the Section 106 process consistency and quality documentation is produced across program.
	Guiding Documents	Ensures policy consistency, issue identification, quality assurance, resource agency engagement and DB compliance with MOA.
	Program Management	California Native American Tribal coordination; consistency with policy and procedures and strategy.
	Learning and Development	Manages Cultural Resources quality assurance programs.
	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the cultural resources program and further ensures consistency and quality.
	Project Delivery Assurance	Provides in-field expertise in archaeology as construction activities uncover areas for investigation. Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Archaeologist & Architectural Historian/ Statewide California Tribal Coordinator	Thought Leadership	Ensuring the Section 106 process consistency and quality documentation is produced for the project sections (all southern California sections) and across program.
	Guiding Documents	Ensures policy consistency, issue identification, quality assurance, resource agency engagement and DB compliance with MOA.
	Program Management	California Native American Tribal coordination; consistency with policy and procedures and strategy.

	Learning and Development	Manages and implements Cultural Resources quality assurance programs.
	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the cultural resources program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Architectural Historian	Thought Leadership	Ensuring the Section 106 process consistency and quality documentation is produced for the project sections across the program.
	Guiding Documents	Ensures policy consistency, issue identification, quality assurance, resource agency engagement and DB compliance with MOA. Identifies gaps in technical approaches and policies and develops materials to address them and follows up with training.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues.
	Learning and Development	Manages Cultural Resources quality assurance programs.
	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the cultural resources program and further ensures consistency and quality. Identifies gaps in programmatic guidance and provides such guidance and training. Historic roads are one recent example.
	Project Delivery Assurance	Review Authority's and FRA documents for quality assurance. Provides Sacramento technical support for program sections.
Entitlement and Environmental Planning	Thought Leadership	Provides statewide expertise in entitlements and environmental planning. Responsible program wide for development and approval of Impact Avoidance and Mitigation Measures (IAMFs and for Mitigation Measures (MMs). Also, responsible for natural resource permitting and mitigation strategy, policy development, for consultation and obtaining NOD/ROD for Southern California Sections. Integrates with the State Permit, Mitigation and Compliance Program Lead to ensure consistency with programmatic approaches and quality. Provides a bridge between so Cal and program.
	Guiding Documents	Provides a unique expertise that informs programmatic strategy, policy and procedure development and implementation.
	Program Management	Ensures consistency with program-wide IAMFs and MMs, policy, procedures, quality and strategy through evaluation of environmental issues.
	Learning and Development	Manages natural resources permitting and mitigation quality assurance programs.
	Functional Subject Matter	Unique statewide expertise in IAMFs, MMs and entitlements. Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement

		documents, etc. that bring efficiency to the natural resources permitting program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA documents for quality assurance with specialized expertise in translating IAMFs and MMs into clear DB and Authority responsibilities. Provides Sacramento technical support for program sections.
State and Federal and Mitigation Planning	Thought Leadership	Responsible for natural resources permitting and mitigation strategy, policy development, for consultation and obtaining NOD/ROD [presently for MF CV Wye, MF CP 1-4 and FB Sections with a program wide expertise in this area. Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency with programmatic approaches and quality. Provides a bridge between so Cal sections and program.
	Guiding Documents	Provides a unique expertise that informs programmatic strategy, policy and procedure development and implementation of mitigation planning and policy.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental mitigation issues.
	Learning and Development	Manages natural resources permitting and mitigation quality assurance programs with expertise offered throughout the state.
	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the natural resources permitting program and further ensures consistency and quality.
	Project Delivery Assurance	Reviews Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Section 404 and 106 Permitting, legal expertise	Thought Leadership	Presently responsible for natural resources permitting and mitigation strategy, policy development, for consultation and obtaining NOD/ROD for SF-SJ, SJ-M and partially MF CV Wye Sections. Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency with programmatic approaches and quality. Provides a bridge between so Cal sections and program.
	Guiding Documents	Provides a unique expertise that informs programmatic strategy, policy and procedure development and implementation.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues.
	Learning and Development	Manages natural resources permitting and mitigation quality assurance programs
	Functional Subject Matter	Brings statewide expertise in Clean Water and 106 issues that informs headquarters policy, procedures and strategies. Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the natural resources permitting program and further ensures consistency and quality.

	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Conservation and State Mitigation Policy and Stakeholder Strategist	Thought Leadership	Responsible for natural resources permitting and mitigation strategy on a statewide basis, procurement strategies, policy development, NGO and agency stakeholder engagement for consultation and obtaining NOD/ROD for program. Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency with programmatic approaches and quality. Ensures consistency across program.
	Guiding Documents	Provides a unique expertise that informs programmatic strategy, policy and procedure development and implementation of a regional mitigation approach to the project and permitting.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues.
	Learning and Development	Manages natural resources mitigation quality assurance programs, procurement approach and stakeholder engagement.
	Functional Subject Matter	Prepares policy and guidance documents that bring efficiency to the typically patchwork approach to natural resources permitting requirements through a regional mitigation program and further ensures consistency, quality, and solid environmental outcomes.
	Project Delivery Assurance	Develops and implements a regional mitigation approach that harmonizes statewide efforts to achieve regional mitigation with NGOs and state/federal agencies. This approach enables construction. Provides Sacramento technical support for program sections.
Regional State Water Quality Permits and Compliance and EMMA Advisor	Thought Leadership	Responsible for providing specifications for further EMMA development and implementation, and leads the electronic tools needed to manage natural resources compliance strategy and policy development, for program delivery (construction). Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency with section and programmatic approaches to support procurement and future delivery. Integrates with permits which result in construction requirements for mitigation, permitting requirements and compliance reporting.
	Guiding Documents	Provides a unique expertise that informs programmatic construction compliance, tool training and development and implementation.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues. EMMA Advisor for updates/improvements/training, quality assurance.
	Learning and Development	Manages compliance quality assurance programs. Develops and implements EMMA training.
	Functional Subject Matter	Reviews EMMA and technical reports to ensure program-wide consistency and quality. Supports preparation of guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the natural resources compliance program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.

USBR Federal Agency Point of Contact	Thought Leadership	Responsible for key statewide agency client coordination and management related to natural resources permitting and mitigation strategy, policy development, for consultation and obtaining NOD/ROD for project sections having USBR agency purview. Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency with programmatic approaches and quality. Provides a bridge and program requirements for this key federal agency.
	Guiding Documents	Provides a unique expertise with USBR that informs programmatic strategy, policy and procedure development and implementation.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues
	Learning and Development	Manages natural resources permitting and mitigation quality assurance programs relevant to USBR
	Functional Subject Matter	Provides single point-of-contact on USBR issues across program. Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the natural resources permitting program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Conservation Planning, Acquisition, Restoration and Mitigation	Thought Leadership	Responsible for natural resources compensatory mitigation strategy, policy development, and cost-estimating reviews for mitigation. Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency with programmatic approaches and quality. Ensures a bridge all sections and program.
	Guiding Documents	Provides a unique expertise on mitigation and cost-estimating these measures that informs programmatic strategy, policy and procedure development and implementation.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues.
	Learning and Development	Manages natural resources permitting and mitigation quality assurance programs.
	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the natural resources permitting program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Environmental Policy and Practice	Thought Leadership	Responsible for informing programmatic environmental policy and strategy development for NEPA Assignment to accelerate environmental reviews and expedited permitting approvals. Supports Conservation and State Mitigation Policy and Stakeholder Strategist.
	Guiding Documents	Provides a unique expertise on environmental regulations under the Clean Air Act and Clean Water Act and environmental reviews under the National Environmental Policy Act (NEPA) that informs programmatic strategy, policy and procedure development and implementation.

	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues. Ensures consistency and quality between NEPA document and permitting and consultation policy approaches.
	Learning and Development	Supports quality assurance programs relevant to natural resources mitigation policy.
	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, revisions to agreement documents, etc. that bring efficiency to the natural resources permitting program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Program wide Wildlife Biologist	Thought Leadership	Responsible for natural resources permitting and mitigation strategy specific to State and federally-protected wildlife species (Section 2081 and Section 7), policy development, for consultation and obtaining NOD/ROD for project sections. Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency with programmatic approaches and quality where overlaps occur across all sections (e.g., impacts assessment, modeling approach, regional mitigation approach etc.).
	Guiding Documents	Provides a unique expertise in wildlife crossings that informs programmatic strategy, policy and procedure development and implementation.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues.
	Learning and Development	Manages wildlife resources permitting and mitigation quality assurance programs and provides expertise on wildlife crossing assessment and project features design across program.
	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the natural resources permitting program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Program Compliance Demonstration Lead	Thought Leadership	Responsible for natural resources permitting and mitigation compliance demonstration and approach across program and specifically to support project delivery (construction). Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency and integration of lessons learned with programmatic approaches and quality where overlaps occur across all sections (e.g., impacts assessment, modeling approach, regional mitigation approach, etc.) and to support quality assurance and improvement to DB procurement. Helps inform further improvements in EMMA, a programmatic responsibility.
	Guiding Documents	Provides a unique expertise in land management policy and implementation and environmental compliance implementation and demonstration. Responsible for building a and improving upon a successful compliance program that is informed by and informs programmatic strategy, policy and procedure development and implementation.

	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues and development of approaches that allow for construction/project delivery.
	Learning and Development	Manages natural resources compliance demonstration quality assurance programs and provides expertise on compliance program across program.
	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the natural resources permitting and compliance program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance (e.g., re-examinations, permit amendments, consultation reinitiation processes, EMMA improvements, agency relations, etc.). Provides Sacramento technical support for program sections.
Compliance Demonstration and Construction Support and Fisheries Biology	Thought Leadership	Responsible for natural resources permitting and mitigation compliance demonstration and approach across program and specifically to support project delivery (construction). Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency with programmatic approaches and quality where overlaps occur across all sections (e.g., impacts assessment, modeling approach, regional mitigation approach etc.) and to support quality assurance and improvement to DB procurement.
	Guiding Documents	Provides a unique expertise that informs programmatic strategy, policy and procedure development and implementation.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues
	Learning and Development	Manages wildlife resources permitting and mitigation quality assurance programs and provides expertise on wildlife crossing assessment and project features design across program.
	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the natural resources permitting program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Program wide Botanist and Ecologist	Thought Leadership	Responsible for natural resources permitting and mitigation strategy related to ecological systems and federally- and state-listed endangered plants, policy development, for consultation and obtaining NOD/ROD. Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency with programmatic approaches and quality where overlaps occur across all section (e.g., impacts assessment, modeling approach, regional mitigation approach etc.). Provides consistency and quality oversight across the program, with focus on areas of overlap.
	Guiding Documents	Provides a unique expertise in ecology and endangered flora that informs programmatic strategy, policy and procedure development and implementation.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues.
	Learning and Development	Manages natural resources permitting and mitigation quality assurance programs and provides expertise on survey and impact/effect methodologies across program. Ensures quality and consistency across program.

	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the natural resources permitting program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Director of Environmental Services	Thought Leadership	Develops and communicates policies to the executive management team for implementation and provides input for approval of environmental related policy documents. Plans, organizes and directs complex and sensitive environmental policies, programs and plans. Activities include setting policies, developing programmatic and project section strategies for achieving environmental clearances and permitting/approvals, identifying and implementing regional mitigation approaches and best practices, and providing guidance to staff and regional teams.
	Guiding Documents	Guide the workload of HSR staff in the review of environmental documents, memos, and staff reports for the Northern, Central, and Southern California regional teams. Provide input to consultant teams on specific guidance related to FRA and federal/state agencies' emerging requirements, including to the Permitting, Mitigation, Compliance and Cultural Resource Team.
	Program Management	Serves as single point of contact for environmental policy with state, local and regional elected officials and environmental organizations. Responsible for review and input on all environmental legal documents and works closely with Project management team to ensure environmental compliance of Authority's mission. Provide guidance to work programs - scope/schedule/budgets- supporting program delivery, including assessing staffing needs. Track and manage environmental schedule and deliverables against the adopted HSR environmental schedule established for the HSR program. Reviews monthly progress report on activities. Provides support to the Board and Authority leadership requests.
	Learning and Development	Provides Environmental Branch leadership with its multi-disciplinary team members, legal counsel, the FRA and Cooperating Agencies.
	Functional Subject Matter	Meets and confers with individuals and groups to obtain compliance with laws and regulations concerning environmental requirements. Prepares reports and correspondence related to difficult environmental matters. Reviews and approves all environmental documents provided by the Authority and develops and recommends alternatives that respond to concerns to avoid or minimize potential impacts. Analyze situations and develop a range of solutions responsive to the Authority and the public input for all environmental processes. Serve as the primary liaison with Authority, FRA, and the resource agencies on all environmental-related issues for the Authority environmental program. Based on this interaction, provide direction to the Deputy Director of Environmental Services for programmatic work and work by the Northern, Central, and Southern California regional teams.
	Project Delivery Assurance	Serves as the Authority's liaison to the FRA, California Department of Transportation and State and federal agencies on environmental issues. Provides leadership and policy direction/strategies to the program- and regional-level environmental management teams to promote consistency and quality of environmental documents and establishment of uniform standards across the HSR program.

Environmental and Natural Resources Regulatory Compliance and Strategist	Thought Leadership	Permitting, Mitigation, Compliance and Cultural Resource Team Lead for the environmental program. Responsible for programmatic and section-specific strategy, policy development, for consultation, obtaining NOD/ROD, obtaining permits to construct and demonstration compliance with said requirements and EIR/EIS mitigation measures related to natural resources.
	Guiding Documents	Prepares program-wide guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, MOUs, MOAs, Interagency Agreements, etc. that bring efficiency to the permitting program and further ensures consistency and quality across the program and accounts for regional differences.
	Program Management	Ensures policy consistency, issue identification, quality assurance, resource agency engagement by serving as Program point of contact for all natural resource regulatory and/or responsible agencies, supports monthly updates for audit committee and change control, support interagency funding agreements and quality assurance for EEC performance.
	Learning and Development	Supports CommentSense quality assurance.
	Functional Subject Matter	Supports authority program, project-level, regional teams, project construction manager and D/B contractor relative to policies and procedures.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provide technical oversight to support environmental quality and schedule; consistency with policies.
Deputy Director for Environmental Planning	Thought Leadership	Activities include developing programmatic and project section strategies, identifying and implementing best practices, assessing and developing methodologies used in preparing environmental documents and providing guidance to staff and regional teams.
	Guiding Documents	Guide the workload of senior staff in the preparation and review of environmental documents, memos, and staff reports for the Northern, Central, and Southern California regional teams. Develop specific guidance related to FRA emerging requirements.
	Program Management	Develop work programs to support program delivery, including assessing staffing needs. Track and manage environmental schedule and deliverables against the adopted HSR environmental schedule established for the HSR program. Prepares monthly progress report on activities. Provide support to the Director of Environmental Services, including in his capacity as point of contact with FRA, Caltrans, and other federal, state, regional and local officials and environmental organizations.
	Learning and Development	Guide environmental task leads for each section in their interaction with multi-disciplinary team members, legal counsel, the FRA and Cooperating Agencies. Identify and support professional development, training and conference participation for Environmental Branch team.
	Functional Subject Matter	Serve as the primary liaison with Authority, FRA, and the resource agencies on all environmental-related issues for the Authority environmental program, including supporting FRA program reviews. Based on this interaction, provide direction to the Northern, Central, and Southern California regional teams.
	Project Delivery Assurance	Works with the program- and regional-level environmental management teams to promote consistency and quality of environmental documents and establishment of uniform standards across the HSR program.

Environmental Policy Advisor	Thought Leadership	Responsible for coordinating federal environmental policy supporting delivery of the Authority's environmental program. Designate lead in NEPA Assignment.
	Guiding Documents	Supports Authority management by reviewing, analyzing, and preparing programmatic policies related to emerging federal environmental review and approvals for the program.
	Program Management	Coordinates with US Department of Transportation and FRA on issues related to environmental reviews and approvals.
	Learning and Development	Monitors federal legislation and implementing regulations for potential effect on the Authority's program delivery and briefs the team, as appropriate. Assists with review of proposed CA legislation and potential impacts to the HSR environmental program.
	Functional Subject Matter	As needed, supports the project section teams in developing, reviewing, revising and finalizing environmental documentation.
	Project Delivery Assurance	Advises on matters related to federal coordination with cooperating or permitting agencies. This also covers the federal permitting dashboard.
Special Projects Environmental Manager	Thought Leadership	Responsible for providing for an array of responsibilities, including working with the Authority regarding project delivery, schedules, work plan development, and budgeting; providing guidance and technical review of environmental documents; and performing other duties as assigned.
	Guiding Documents	Oversee compilation and delivery of the Administrative Record for each environmental document; and revising, as needed, the Authority's environmental methods.
	Program Management	Prepare environmental program schedule and budget updates for use by Authority management, the Authority's Finance and Audit Committee, the FRA, and environmental resource agencies.
	Learning and Development	Provide oversight for development, training, and use of CommentSense by the regional teams and the Authority, legal, and FRA staff responding to public and agency comments on the Authority's environmental documents.
	Functional Subject Matter	Serve as a quality technical reviewer of environmental documents; responsible for reviewing environmental re-examinations required for design variations recommended by the design/build contractors and Authority staff.
	Project Delivery Assurance	Work with the regional-level environmental management team to promote consistency of environmental documents and establishing uniform standards across the Authority's environmental program.
Southern California Regional Environmental Manager	Thought Leadership	Provides guidance on the environmental processes and documents for the four Southern California High-Speed Rail project sections. Provides the programmatic link to the SoCal region.
	Guiding Documents	Provides programmatic input in the preparation and review of environmental documents, memos, and staff reports for Southern California.
	Program Management	Provides guidance to assist with schedules and deliverables against the adopted Authority environmental methods and processes for Southern California. Prepares monthly progress reports on activities to support programmatic reporting.
	Learning and Development	Assists with training and development of environmental task leads for each section in his/her expertise development and interaction with multi-disciplinary team members.
	Functional Subject Matter	Serves as the primary liaison with Authority, FRA field staff members and the resource agencies on environmental-related issues for Southern California.

	Project Delivery Assurance	Works with the program- and regional-level environmental management teams to promote consistency and quality of environmental documents and establishment of uniform and consistent standards across the HSR program.
Northern California Regional Environmental Manager	Thought Leadership	Provides guidance on the environmental processes and documents for the two Northern California High-Speed Rail project sections. Provides the programmatic link to the SoCal region.
	Guiding Documents	Provides programmatic input in the preparation and review of environmental documents, memos, and staff reports for Northern California.
	Program Management	Provides guidance to assist with schedules and deliverables against the adopted Authority environmental methods and processes for Northern California. Prepares monthly progress reports on activities to support programmatic reporting.
	Learning and Development	Assists with training and development of environmental task leads for each section in his/her expertise development and interaction with multi-disciplinary team members.
	Functional Subject Matter	Serves as the primary liaison with Authority, FRA field staff members and the resource agencies on environmental-related issues for Southern California.
	Project Delivery Assurance	Works with the program- and regional-level environmental management teams to promote consistency and quality of environmental documents and establishment of uniform and consistent standards across the HSR program.
San Francisco to San Jose Section Environmental Task Manager	Thought Leadership	Responsible for management of the Authority's project section environmental documents, specifically the ROD/NOD to facilitate delivery of the organization's environmental program in the SF to SJ project section.
	Guiding Documents	Monitors the workload of regional team staff in the preparation and review of environmental documents, memos, and staff reports for the Authority's project section.
	Program Management	Manages the environmental component of an Authority project section for environmental clearance documents, specifically the ROD/NOD.
	Learning and Development	Guides the regional team environmental task lead for the section in their work with multi-disciplinary team members.
	Functional Subject Matter	Works with Authority, FRA field staff members and the resource agencies on environmental-related issues for her project section.
	Project Delivery Assurance	Works with the regional-level environmental management teams to promote consistency and quality of environmental documents.
San Jose to Merced Section Environmental Task Manager	Thought Leadership	Responsible for management of the Authority's project section environmental documents, specifically the ROD/NOD to facilitate delivery of the organization's environmental program in the SJ to M project section.
	Guiding Documents	Monitors the workload of regional team staff in the preparation and review of environmental documents, memos, and staff reports for the Authority's project section.
	Program Management	Manages the environmental component of an Authority project section for environmental clearance documents, specifically the ROD/NOD.
	Learning and Development	Guides the regional team environmental task lead for the section in their work with multi-disciplinary team members.
	Functional Subject Matter	Works with Authority, FRA field staff members and the resource agencies on environmental-related issues for her project section.

	Project Delivery Assurance	Works with the regional-level environmental management teams to promote consistency and quality of environmental documents.
Merced to Fresno, Central Valley Wye Environmental Task Manager	Thought Leadership	Responsible for management of the Authority's project section environmental documents, specifically the ROD/NOD to facilitate delivery of the organization's environmental program in the Central Valley Y project within the M to F project section.
	Guiding Documents	Monitors the workload of regional team staff in the preparation and review of environmental documents, memos, and staff reports for the Authority's project section.
	Program Management	Manages the environmental component of an Authority project section for environmental clearance documents, specifically the ROD/NOD.
	Learning and Development	Guides the regional team environmental task lead for the section in their work with multi-disciplinary team members.
	Functional Subject Matter	Works with Authority, FRA field staff members and the resource agencies on environmental-related issues for her project section.
	Project Delivery Assurance	Works with the regional-level environmental management teams to promote consistency and quality of environmental documents.
Fresno to Bakersfield, Locally Generated Alternative Environmental Task Manager	Thought Leadership	Responsible for management of the Authority's project section environmental documents, specifically the ROD/NOD to facilitate delivery of the organization's environmental program in the LGA project within the F to B project section.
	Guiding Documents	Monitors the workload of regional team staff in the preparation and review of environmental documents, memos, and staff reports for the Authority's project section.
	Program Management	Manages the environmental component of an Authority project section for environmental clearance documents, specifically the ROD/NOD.
	Learning and Development	Guides the regional team environmental task lead for the section in their work with multi-disciplinary team members.
	Functional Subject Matter	Works with Authority, FRA field staff members and the resource agencies on environmental-related issues for her project section.
	Project Delivery Assurance	Works with the regional-level environmental management teams to promote consistency and quality of environmental documents.
Bakersfield to Palmdale Environmental Section Task Manager	Thought Leadership	Responsible for management of the Authority's project section environmental documents, specifically the ROD/NOD to facilitate delivery of the organization's environmental program, specifically the Bakersfield to Palm project section.
	Guiding Documents	Monitors the workload of regional team staff in the preparation and review of environmental documents, memos, and staff reports for the Authority's project section.
	Program Management	Manages the environmental component of an Authority project section for environmental clearance documents, specifically the ROD/NOD.
	Learning and Development	Guides the regional team environmental task lead for the section in their work with multi-disciplinary team members.

	Functional Subject Matter	Works with Authority, FRA field staff members and the resource agencies on environmental-related issues for her project section.
	Project Delivery Assurance	Works with the regional-level environmental management teams to promote consistency and quality of environmental documents.
Palmdale to Burbank Environmental Section Task Manager	Thought Leadership	Responsible for management of the Authority's project section environmental documents, specifically the ROD/NOD to facilitate delivery of the organization's environmental program specifically the Palm to Bur project section.
	Guiding Documents	Monitors the workload of regional team staff in the preparation and review of environmental documents, memos, and staff reports for the Authority's project section.
	Program Management	Manages the environmental component of an Authority project section for environmental clearance documents, specifically the ROD/NOD.
	Learning and Development	Guides the regional team environmental task lead for the section in their work with multi-disciplinary team members.
	Functional Subject Matter	Works with Authority, FRA field staff members and the resource agencies on environmental-related issues for her project section.
	Project Delivery Assurance	Works with the regional-level environmental management teams to promote consistency and quality of environmental documents.
Burbank to Los Angeles Environmental Section Task Manager	Thought Leadership	Responsible for management of the Authority's project section environmental documents, specifically the ROD/NOD to facilitate delivery of the organization's environmental program, specifically the Bur to LA project section.
	Guiding Documents	Monitors the workload of regional team staff in the preparation and review of environmental documents, memos, and staff reports for the Authority's project section.
	Program Management	Manages the environmental component of an Authority project section for environmental clearance documents, specifically the ROD/NOD.
	Learning and Development	Guides the regional team environmental task lead for the section in their work with multi-disciplinary team members.
	Functional Subject Matter	Works with Authority, FRA field staff members and the resource agencies on environmental-related issues for her project section.
	Project Delivery Assurance	Works with the regional-level environmental management teams to promote consistency and quality of environmental documents.
Los Angeles to Anaheim Environmental Section Task Manager	Thought Leadership	Responsible for management of the Authority's project section environmental documents, specifically the ROD/NOD to facilitate delivery of the organization's environmental program in the Los Angeles to Anaheim project section.
	Guiding Documents	Monitors the workload of regional team staff in the preparation and review of environmental documents, memos, and staff reports for the Authority's project section.
	Program Management	Manages the environmental component of an Authority project section for environmental clearance documents, specifically the ROD/NOD.
	Learning and Development	Guides the regional team environmental task lead for the section in their work with multi-disciplinary team members.

	Functional Subject Matter	Works with Authority, FRA field staff members and the resource agencies on environmental-related issues for his project section.
	Project Delivery Assurance	Works with the regional-level environmental management teams to promote consistency and quality of environmental documents.
Northern California Environmental Planner	Thought Leadership	Provides daily support to the environmental task lead in his/her task coordination and conducts initial review of regional team work products for the project section.
	Guiding Documents	Provides coordination support among the Authority, FRA, legal counsel, and the regional team in preparing the Authority section environmental document.
	Program Management	Helps track environmental deliverables against the Authority's adopted environmental milestone schedule.
	Learning and Development	Helps the environmental task leader and project manager in their duties for the section.
	Functional Subject Matter	Provides coordination support among the Authority, FRA, and state and federal resource agencies for identifying, discussing, and resolving environmental evaluation and document issues.
	Project Delivery Assurance	Conducts initial review of regional team work products for quality and consistency with the Authority's adopted environmental methods, style and documentation guidelines, and document quality standards.
Central Valley Environmental Planner	Thought Leadership	Provides daily support to the environmental task lead in his/her task coordination and conducts initial review of regional team work products for the project section.
	Guiding Documents	Provides coordination support among the Authority, FRA, legal counsel, and the regional team in preparing the Authority section environmental document.
	Program Management	Helps track environmental deliverables against the Authority's adopted environmental milestone schedule.
	Learning and Development	Helps the environmental task leader and project manager in their duties for the section.
	Functional Subject Matter	Provides coordination support among the Authority, FRA, and state and federal resource agencies for identifying, discussing, and resolving environmental evaluation and document issues.
	Project Delivery Assurance	Conducts initial review of regional team work products for quality and consistency with the Authority's adopted environmental methods, style and documentation guidelines, and document quality standards.
Southern California Environmental Planner	Thought Leadership	Provides daily support to the environmental task lead in his/her task coordination and conducts initial review of regional team work products for the project section.
	Guiding Documents	Provides coordination support among the Authority, FRA, legal counsel, and the regional team in preparing the Authority section environmental document.
	Program Management	Helps track environmental deliverables against the Authority's adopted environmental milestone schedule.
	Learning and Development	Helps the environmental task leader and project manager in their duties for the section.

	Functional Subject Matter	Provides coordination support among the Authority, FRA, and state and federal resource agencies for identifying, discussing, and resolving environmental evaluation and document issues.
	Project Delivery Assurance	Conducts initial review of regional team work products for quality and consistency with the Authority's adopted environmental methods, style and documentation guidelines, and document quality standards.
Southern California Environmental Planner	Thought Leadership	Provides daily support to the environmental task lead in his/her task coordination and conducts initial review of regional team work products for the project section.
	Guiding Documents	Provides coordination support among the Authority, FRA, legal counsel, and the regional team in preparing the Authority section environmental document.
	Program Management	Helps track environmental deliverables against the Authority's adopted environmental milestone schedule.
	Learning and Development	Helps the environmental task leader and project manager in their duties for the section.
	Functional Subject Matter	Provides coordination support among the Authority, FRA, and state and federal resource agencies for identifying, discussing, and resolving environmental evaluation and document issues.
	Project Delivery Assurance	Conducts initial review of regional team work products for quality and consistency with the Authority's adopted environmental methods, style and documentation guidelines, and document quality standards.
Electrical Interconnections Environmental Manager	Thought Leadership	Responsible for strategy and management of the Authority's electrical interconnection environmental processes across the program, documents, and permits to facilitate delivery of the organization's environmental program.
	Guiding Documents	Monitors the workload of staff in the preparation and review of environmental documents, memos, and staff reports for the Authority's project section.
	Program Management	Manages the electrical interconnection environmental component of the Authority's project sections for environmental clearance documents and processes.
	Learning and Development	Guides environmental staff in their interaction with multi-disciplinary team members involved in the electrical supply/utilities business.
	Functional Subject Matter	Works with Authority, FRA and the resource agencies on environmental-related issues for electrical interconnections.
	Project Delivery Assurance	Works with the regional-level environmental management team to promote consistency and quality of environmental documents and establishment of uniform standards across the HSR program.
Administrative Records Coordinator	Thought Leadership	Provides a variety of complex and sensitive administrative tasks requiring a high degree of independent action, initiative, discretion and tact to assist the efficient and effective function of the Authority's Office of Program Delivery, Environmental Branch. This works includes close interactions and coordination with the Attorney General's Office.
	Guiding Documents	Assists the regional teams with the development of the Administrative Record for each environmental document.
	Program Management	Assists in the monitoring of labor activity and other documentation related to the Authority's technical and quality reviews of environmental documents.

	Learning and Development	Provides training and administrative support to the regional teams for their use of CommentSense for logging and responding to public and agency comments on the draft environmental documents.
	Functional Subject Matter	Works with the right-of-way group and Office of Communications in administering the Authority's permission-to-enter process for conducting biological, cultural, and geotechnical surveys.
	Project Delivery Assurance	Assists in implementing use of the Authority's quality review standards for the preparation of environmental documents.
Executive Administrator	Thought Leadership	Provides a variety of administrative tasks requiring initiative, discretion, judgment, and tact to assist the efficient and effective function of the Authority's Office of Program Delivery, Environmental Branch, including the Director of Environmental Services and Deputy Director.
	Guiding Documents	Is involved with the preparation, timely collection, organization and distribution of Authority materials.
	Program Management	Confers with staff regarding program delivery, schedule, and budget issues. Assists with the preparation of environmental correspondence, memos, and reports, including invoicing and progress reporting.
	Learning and Development	Assists Authority staff with the installation of procedures for new administrative programs as the need arises.
	Functional Subject Matter	Attends meetings and maintains records of meetings.
	Project Delivery Assurance	Follows standards for reporting to the Authority and FRA.
Senior Supervising Planner	Thought Leadership	Act for the Director of Environmental Services to provide continuity of Authority management, and may act for him/her as required by attending meetings, representing the Authority, making decisions, signing documents, and reporting urgent matters to the Executive Office.
	Guiding Documents	May assume a project leadership role in the preparation of environmental documents and oversees the permit process on complex, high profile projects with both a state and federal component. Serves as the environmental expert to provide advice and recommendations to the Authority, the Administration, Legislature, customers, and other entities as required on policy and procedure issues utilizing personal expertise and knowledge, written recommendations and meetings and presentations in accordance with state (California Environmental Quality Act) and federal (National Environmental Policy Act) laws and regulations.
	Program Management	Oversight for the Authority in the selection, hiring, fee negotiation, and management of consultants, determines consulting services needs on an annual and project-specific basis, advertising, selection, contract negotiation, and usage of consultants by assessing the needs of the department and/or projects through analysis and research of consultants and resources according to Authority's policies and procedures. Coordinates and directs the workload of staff and consultants preparing environmental documents for capital outlay/essential services projects on a statewide basis through completion of the Environmental Impact Reports (EIR/EIS), Permits, Mitigation, and other special studies according to State and federal policies and procedures, including all controlling Agency approvals.

	Learning and Development	Identifies opportunities for state staff development opportunities.
	Functional Subject Matter	Provides expert testimony regarding environmental policies and procedures regarding environmental due diligence to the Department of Finance and members of the Public Works Board. To improve service delivery, maintain viability of real estate programs and protect the State's interests relative to pending and proposed legislation and in accordance with specified guidelines: evaluates active and proposed legislation by reviewing the language, determining program impact, and providing a recommended position; develops and recommends legislative proposals by assessing current operational needs and program enhancements; testifies at hearings by personally appearing before legislative committees as the state's environmental expert.
	Project Delivery Assurance	May review documents, reports, memos, letters on behalf of the Director of Environmental Services.
Associate Governmental Program Analyst	Thought Leadership	Assists the Environmental Services Branch in implementing its contractual processes.
	Guiding Documents	Makes recommendations to improve internal processes and/or resolves administrative and contract management related problems; reviews and analyzes proposed legislation and advises management on the impact or potential impact.
	Program Management	Provides guidance and assistance to Authority employees and contractors regarding the department's administrative processes. Provides guidance and advice to customers regarding Contract Administration processes.
	Learning and Development	Learns and performs the more complex analytical support for the office of Environmental Services.
	Functional Subject Matter	Analyzes work products including, but not limited to; RFQs, RFPs, Amendments, IAs and Contract Request Forms (HSR 202s), to evaluate for completion and obtain appropriate approvals and documentation required. Accomplishes tasks in accordance with all applicable statutes as well as departmental policies and procedures
	Project Delivery Assurance	Develops and implements uniform contract management and administration processes/procedures for all tasks in Environmental Services contracts. This includes, but is not limited to, coordinating invoice review and validating monthly reports to track contract status. Reviews pertinent data with Authority contract managers and contractors to ensure the requested services are performed in accordance with state and federal laws, policies, standards and controls.
Archaeology Coordinator	Thought Leadership	Assists the Authority's Tribal Liaison in Native American outreach efforts and facilitates outreach to local and regional governments, and the public.
	Guiding Documents	Prepares program-wide guidance memoranda as needed on programmatic cultural resources program for regional consultants/ environmental and engineering consultants (RCs/EECs) to ensure statewide program compliance consistency.

	Program Management	Assisting in the overall implementation of High-Speed Rail's cultural resources program and compliance with state and federal regulations as they pertain to cultural resources management and the avoidance, minimization, and mitigation of project impacts to historic properties. These include compliance with Section 106 of the National Historic Preservation Act, National Environmental Policy Act (NEPA), and other federal regulations; and California Environmental Quality Act (CEQA) and California Public Resources Code 5024. Maintains the Cultural Resources SharePoint electronic library of all project documentation, reports, correspondence current and well organized for the program's administrative record and for easy reference for Cultural Resources staff as well as regional consultants /environmental and engineering consultants (RCs/EECs).
	Learning and Development	Help identify training and conference opportunities.
	Functional Subject Matter	Assists the Authority's Tribal Liaison in Section 106 consultation. Prepares required annual reports for all Section 106 agreement documents.
	Project Delivery Assurance	Assists in the review of all project sections archaeological documentation, as needed to ensure Section 106 and the programmatic agreement (PA) requirements are fulfilled prior to forwarding the documents to the FRA and the State Historic Preservation Officer. Reviews "negative" archaeological survey reports to ensure adequacy per the amended MOAs.
Environmental Construction Manager	Thought Leadership	Coordinate with Environmental and Construction personnel to facilitate resolving environmental and construction issues.
	Guiding Documents	Participates in updating guidance related to re-examinations.
	Program Management	The Environmental/Construction Liaison will ensure Environmental Compliance for Projects in the Central Valley through the review plans and specifications, change orders, contractor submittals, and other construction documents. Oversee environmental staff who review the necessary environmental documentation for construction change orders consistent with CEQA, NEPA, and resources agency. Helps in assessing environmental impacts of construction projects on environmental resources and developing mitigation and monitoring programs as necessary. Responsible for the completing and processing of the Authority's Certificate of Environmental Compliance permits to facilitate construction projects already in progress.
	Learning and Development	Helps identify opportunities for staff training.
	Functional Subject Matter	Oversee inventories of natural environmental systems and cultural resources inventories, identifies research needs, performs natural resource research; prepares, reviews and processes environmental documentation for projects in compliance with all applicable local, State and Federal laws, regulations and policies.
	Project Delivery Assurance	Independently works with Construction staff and reviews ongoing construction of segments to promote quality and consistency with environmental commitments. Attend pre-construction and reoccurring construction meetings to address permit and environmental issues.
Environmental Construction Coordinator (CP 1)	Thought Leadership	Coordinate with Environmental and Construction personnel to facilitate resolving environmental and construction issues.
	Guiding Documents	Participates in updating guidance related to re-examinations.

	Program Management	The Environmental/Construction Liaison will ensure Environmental Compliance for Projects in the Central Valley through the review plans and specifications, change orders, contractor submittals, and other construction documents. Oversee environmental staff who review the necessary environmental documentation for construction change orders consistent with CEQA, NEPA, and resources agency. Helps in assessing environmental impacts of construction projects on environmental resources and developing mitigation and monitoring programs as necessary. Responsible for the completing and processing of the Authority's Certificate of Environmental Compliance permits to facilitate construction projects already in progress.
	Learning and Development	Helps identify opportunities for staff training.
	Functional Subject Matter	Oversee inventories of natural environmental systems and cultural resources inventories, identifies research needs, performs natural resource research; prepares, reviews and processes environmental documentation for projects in compliance with all applicable local, State and Federal laws, regulations and policies.
	Project Delivery Assurance	Independently works with Construction staff and reviews ongoing construction of segments to promote quality and consistency with environmental commitments. Attend pre-construction and reoccurring construction meetings to address permit and environmental issues.
Construction Compliance Document and Permit Manager (CP 2/3 and 4)	Thought Leadership	Responsible for natural resources permitting, CEQA/NEPA and mitigation compliance demonstration and approach as driven by the DB and/or implementation team ensuring consideration of program approaches/commitments, specifically to support project delivery (construction). Integrates with the Permit, Mitigation and Compliance Program and Program Compliance Demonstration Lead to ensure consistency with programmatic approaches, Statewide agency consultation, and quality where overlaps occur across all sections (e.g., impacts assessment, modeling approach, regional mitigation approach etc.) and to support quality assurance and improvement to DB procurement.
	Guiding Documents	Provides a unique expertise in that he understands natural resource permitting regulations and how to develop relationships with the regulatory agencies and work with them during project implementation. He is the only person at the region that has this breadth of expertise that not only supports construction also supports quality and process improvements to programmatic strategy, policy and procedure development and implementation.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues. Understands nuances of CEQA/NEPA and permit processes and regulation and its interface with project implementation. He is the only person at the regional level who provides this expertise (e.g., experience with obtaining permits for a variety of projects).
	Learning and Development	Manages natural resources permitting and mitigation compliance demonstration quality assurance programs and ensures lessons learned are fed into the Program to allow for improvements and adaptations.
	Functional Subject Matter	Reviews technical reports to ensure approach supports construction and avoids conflicts with program-wide strategies. Review includes documents such as guidance documents, templates, treatment plans, re-examinations, permit amendments, etc. that bring efficiency to the natural resources permitting program and further ensures consistency and quality.

	Project Delivery Assurance	Review Authority's and FRA document for quality assurance (e.g., re-examinations, permit amendments, consultation preinitiation processes, EMMA improvements, agency relations, etc.). Provides leadership at the Regional level by supporting project implementation teams and construction managers.
Supervising Environmental Engineer	Thought Leadership	Responsible for planning the implementation and update of the Statewide National Pollutant Discharge Elimination System (NPDES) Stormwater Permit as required by the Federal Clean Water Act. Participates in stormwater quality and related permitting studies and task forces to assure that water quality requirements are satisfied, to examine and identify opportunities to optimize related project development activities, and related project development activities, and identify conflicts for early resolution. Participates with Federal, State, and regional agencies in planning and developing implementation strategies and guidance responsive to federal and state water quality control legislation and requirements.
	Guiding Documents	Oversees planning, development and implementation of guidance materials related to water quality studies and technical reports specific to environmental assessment of project level effects that may include draft or final environmental documents or reports. Plans and coordinates the development of comprehensive statewide guidance and direction for the Authority's stormwater quality program.
	Program Management	Oversees the planning, development, implementation, submittal and update of the Statewide Stormwater Management Plan, including the planning and coordination with the State Water Resources Control Board. Oversees contract negotiations and manages executed contracts with utility entities for interconnection of the high-speed rail system into the electrical grid. Oversees and Coordinates staff and consultants for the interconnection of the high-speed rail system.
	Learning and Development	Helps identify opportunities for staff training.
	Functional Subject Matter	Participates in stormwater quality and related permitting studies and task forces to assure that water quality requirements are satisfied, to examine and identify opportunities to optimize related project development activities, and related project development activities, and identify conflicts for early resolution. Reviews Purpose and Needs, Task Orders, and Contracts utilized for water quality studies or technical reports.
	Project Delivery Assurance	Oversees statewide implementation of the program to assure statewide consistency, including Authority Work Plans. Coordinates statewide audits/investigations by outside agencies of stormwater /water quality program and activities.
Student Assistant	Thought Leadership	N/A
	Guiding Documents	N/A
	Program Management	provide overall assistance to program focused on contract filing, both paper and electronic, and other special projects.
	Learning and Development	N/A
	Functional Subject Matter	N/A
	Project Delivery Assurance	N/A

Compliance Demonstration and EMMA Support	Thought Leadership	Responsible for natural resources permitting and mitigation compliance demonstration and approach across program and specifically to support project delivery (construction). Integrates with the Permit, Mitigation and Compliance Program Lead to ensure consistency with programmatic approaches and quality where overlaps occur across all sections (e.g., impacts assessment, modeling approach, regional mitigation approach etc.) and to support quality assurance and improvement to DB procurement.
	Guiding Documents	Provides a unique expertise in compliance demonstration at regional that informs program approaches, supporting quality and process improvements to programmatic strategy, policy and procedure development and implementation.
	Program Management	Ensures consistency with program-wide policy, procedures, quality and strategy through evaluation of environmental issues
	Learning and Development	Manages natural resources permitting and mitigation compliance demonstration quality assurance programs and provides expertise on database systems.
	Functional Subject Matter	Reviews technical reports to ensure program-wide consistency and quality. Prepares guidance documents, templates, treatment plans, re-examinations, revisions to agreement documents, etc. that bring efficiency to the natural resources permitting program and further ensures consistency and quality.
	Project Delivery Assurance	Review Authority's and FRA document for quality assurance. Provides Sacramento technical support for program sections.
Cultural Resources Program Manager	Thought Leadership	Provides program-wide direction and oversight to ensure compliance with Section 106 of the National Historic Preservation Act (Section 106) for all phases of project delivery and operations for the statewide High-Speed Rail Program (Program).
	Guiding Documents	Provides statewide oversight and management of cultural resources technical staff and consultants to ensure proper implementation of and compliance with the CA High-Speed Rail Section 106 PA for all stages of program delivery. Provides strategic guidance to Authority Executive Office regarding complex Section 106 compliance issues to support efficient and timely Program delivery. Establishes procedures and protocols for cultural resource management and planning for the Program. Manages and oversees the negotiation, development, and execution of individual project section MOAs and Treatment Plans.
	Program Management	Provides direction in the assessment of environmental impacts of construction projects on environmental resources and developing mitigation and monitoring programs as necessary.
	Learning and Development	Identifies opportunities for state staff development opportunities.

	Functional Subject Matter	Oversees the implementation of the statewide Section 106 Programmatic Agreement (PA) for the Program and necessary revisions to the PA, including coordination and collaboration with the PA signatories. Oversees and manages the negotiation, development, and implementation of the Memoranda of Agreement (MOAs), Archaeological Treatment Plans (ATPs), and Built-Environment Treatment Plans (BETPs) prepared, as necessary, for the individual high-speed rail project sections. Serves as the environmental cultural resource expert to provide advice and recommendations to the Authority, the Administration, Legislature, customers, and other entities as required on policy and procedure issues utilizing personal expertise and knowledge, written recommendations and meetings and presentations in accordance with state and federal environmental laws and regulations. Coordinates with Regional Environmental Construction Coordinators, Project Construction Management staff and Authority Construction Managers to assist in resolving complex environmental and construction issues. Provides expert testimony regarding environmental policies and procedures regarding environmental due diligence to the Department of Finance and members of the Public Works Board and legislative committees. To improve service delivery, maintain viability of real estate programs and protect the state's interests relative to pending and proposed legislation.
	Project Delivery Assurance	Oversight for the Authority in the selection, hiring, fee negotiation, and management of consultants; determines consulting services needs on an annual and project-specific basis; participates in advertising, selection and contract negotiation activities and usage of consultants by assessing the needs of the department and/or projects through analysis and research of consultants and resources according to Authority's policies and procedures. Reviews Requests for Proposals and contract documents to ensure consistency with Section 106 regulatory requirements and commitments. Manages Interagency Agreements.
Supervising Environmental Planner	Thought Leadership	Act for the Director of Environmental Services to provide continuity of Authority management, and may act for him/her as required by attending meetings, representing the Authority, making decisions, signing documents, and reporting urgent matters to the Executive Office.
	Guiding Documents	May assume a project leadership role in the preparation of environmental documents and oversees the permit process on complex, high profile projects with both a state and federal component. Serves as the environmental expert to provide advice and recommendations to the Authority, the Administration, Legislature, customers, and other entities as required on policy and procedure issues utilizing personal expertise and knowledge, written recommendations and meetings and presentations in accordance with state (California Environmental Quality Act) and federal (National Environmental Policy Act) laws and regulations.
	Program Management	Oversight for the Authority in the selection, hiring, fee negotiation, and management of consultants, determines consulting services needs on an annual and project-specific basis, advertising, selection, contract negotiation, and usage of consultants by assessing the needs of the department and/or projects through analysis and research of consultants and resources according to Authority's policies and procedures. Coordinates and directs the workload of staff and consultants preparing environmental documents for capital outlay/essential services projects on a statewide basis through completion of the Environmental Impact Reports (EIR/EIS), Permits, Mitigation, and other special studies according to State and federal policies and procedures, including all controlling Agency approvals.
	Learning and Development	Identifies opportunities for state staff development opportunities.

	Functional Subject Matter	General ecology or general principles behind planning for the conservation and preservation of natural resources; general principles and techniques of research and statistical analysis; communication skills for purposes of data gathering; techniques and methods of evaluation of environmental impacts; various types of public facilities and how they service the community; State and Federal laws and regulations relating to the environment; State, local and regional governmental organizations as they relate to environmental planning, specific knowledge of either the social sciences, natural sciences or environmental design arts; trends in environmental, urban and regional planning; trends in Federal, State and local environmental assessment and mitigation reports, impact statements, and/or negative declarations; principles of effective supervision; principles and techniques of supervision and personnel management; and differences of impacts of multimodal forms of transportation on the environment; methods of administering environmental projects and programs.
	Project Delivery Assurance	May review documents, reports, memos, letters on behalf of the Director of Environmental Services.
Supervising Environmental Planner for NEPA Assignment	Thought Leadership	Being determined.
	Guiding Documents	
	Program Management	
	Learning and Development	
	Functional Subject Matter	
	Project Delivery Assurance	
Environmental Scientist	Thought Leadership	Interpret biological and water quality data and other information to determine whether non-compliance has occurred. Following established Authority policies and procedures and the application of scientific methods and principles, recommend and follow through on an appropriate and reasonable course of action if a noncompliance is verified.
	Guiding Documents	Using sound science, write draft and final reports, prepare technical correspondence, provide technical guidance to Regional Authority staff, and Authority PCM staff related to interpretation of statewide polices and plans, and perform analysis of legislation and permits.

Program Management	Using reasonable and sound scientific methods, review and analyze environmental assessment materials prepared by others (e.g., PCM staff or construction contractor staff) materials, environmental documents, related supporting scientific studies, and site investigation/inspection information to determine if construction/project activities impact and to what degree impact environmental resources. This requires an understanding of the parameters of issued or expected permits, the requirements therein and any other applicable requirements of state and federal law. In carrying out the environmental review process pursuant to Authority procedures, work in cooperation with, and be responsive to the appropriate internal and external jurisdictional agencies, e.g., the California Department of Fish and Wildlife, the U.S. Fish and Wildlife Service, the Central Valley Regional Water Quality Board, the State Water Resource Control Board, the US Army Corps of Engineers, US National Marine Fisheries Service, the Authority, the FRA, and other federal, state, and local governmental agencies and the public.
Learning and Development	Apply rules, regulations, policies, and requirements of State and Federal environmental protection and resource management programs.
Functional Subject Matter	Basic principles of land, water, fish, wildlife, and other natural resources research; principles of ecology; statistical methods; land-use practices with reference to their general effect on human health, natural resources, and the environment; effects of waste material and their interactions on the environment; chemical reaction; State and Federal environmental rules, regulations, and requirements; basic toxicology, hydrology, geology, and principles of risk assessment and risk management; concepts employed in a variety of disciplines including environmental planning, economics, and resource management; geolocation and geo-referencing software applications, resource conservation program impacts and implementation strategies; and recycling issues.
Project Delivery Assurance	Responsible for closely coordinating with the High-Speed Rail Authority's (Authority) Regional Planning and Construction staff to promote quality and consistency throughout environmental commitments on construction projects. These commitments typically involve biological and water quality permits from other agencies and the accompanying requirements for resource protection therein.

Appendix F CENTRAL VALLEY PROJECT FINANCIAL PLAN

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Appendix G RIDERSHIP AND REVENUE FORECASTING

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**Appendix H DESIGN-BUILD PROGRAM & PROJECT MANAGEMENT PLAN: FIRST
CONSTRUCTION SEGMENT**

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Appendix I PROJECT AND CONSTRUCTION MANAGEMENT MANUAL

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Appendix J PROGRAM CONTROLS PLAN

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Appendix K MASTER QUALITY PLAN

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Appendix L RISK MANAGEMENT PLAN

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Appendix M ROW MANUAL

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Appendix N SAFETY AND SECURITY MANAGEMENT PLAN

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Appendix O CROSS REFERENCE FOR FRA PMP TABLE OF CONTENTS

FRA PMP Table of Contents		Authority's PMP
1.0	Introduction	
	Purpose of the Project Management Plan	1.1
	Project History	1.3
	Project Scope	1.4, 1.5
	Schedule	1.6
	Budget	1.7
	Finance Plan (see sub-plan below)	1.7
	Delivery Strategies	2, 7.8
2.0	Project Leadership and Team Organization	
	Grantee Leadership Organization Chart, roles/responsibilities	2
	Project Team Organization Chart, roles/responsibilities	2
	Contact information for all project personnel	Available upon request
	Plan to provide Technical Capacity and Capability (see sub-plan below)	2
3.0	Government/Community/Labor Relations and Railroad Agreements and other Third Party Agreements	
	Plan for management of:	
	▪ Legislative and government relations	3.1
	▪ Intergovernmental and utility agreements	3.2
	▪ Stakeholder communications, public participation	3.3
	▪ Agreements with host railroads and other transportation entities	3.2, 3.4
	▪ Labor relations including project labor agreements, establishment of wage rates and classifications, wage and hour requirements, and adherence to state and local requirements, etc.	3.5
4.0	Planning/Concept Design	
	Plan for management of Alternatives Analysis including:	
	▪ Establishment of project rationale	5.2
	▪ Identification and selection of alternatives	5.2
	▪ Management of development of infrastructure and service plans	10
	▪ Management of process to achieve service outcome agreement	10.3
5.0	Environmental Analysis	
	Description of approach to environmental analysis including:	5
	▪ Development and management of alternatives	
	▪ Management of resource agency permit acquisition	
	▪ Management and implementation of mitigation actions	

6.0	Design Control	
a	Description of relationship between service plans and infrastructure: <ul style="list-style-type: none"> ▪ Capacity, operations, stations, support facilities. ▪ Plan for management of service outcome agreement plan for management of other agreements related to service and operations. 	6.1, 10
		10
b	Plan for Design Standards and Criteria	6.2
c	Plan for investigation and testing including site surveys, geotechnical and materials investigation before and during design, and during construction.	6.5, PCMM 8
d	Plan for Preliminary Engineering	6.1, 6.2, 6.3, 6.4
e	Plan for development and management of Final Design	6.5
f	Plan for safety and security (see sub-plan below)	12, Appendix-N
g	Plan for QA QC (see sub-plan below)	13, Appendix-K
h	Plan for real estate RAMP (see sub-plan below)	11, Appendix-M
i	Plan for vehicles (See sub-plan below)	Future
j	Plan to manage changes, config control for design/const	6.8;
k	Plan for management of design reviews including: <ul style="list-style-type: none"> ▪ Value Engineering ▪ Coordination Reviews ▪ Constructability Reviews ▪ Reviews for Operations and Maintenance ▪ Other peer or industry reviews 	6
7.0	Management and Project Controls	
a	Scope Control and Configuration-approach to mgmt	7.1
b	Budget and Cost Control-approach to mgmt including descriptions of cost estimating methodologies and assumptions	7.1
c	Schedule Control-approach to management including descriptions of scheduling methodologies and assumptions	7.1
d	Risk Control-approach including risk identification, evaluation, management; including contingency control	7.2, 14
e	Overall Project Tracking and Reporting	7.1
f	Document control and records management including approach to review, track changes, distribution, storage	7.7
g	Dispute/Conflict Resolution Plan	7.6
8.0	Project Delivery, Procurement, Contract Administration	
	Contracting Authority	8.1
	Procurement Strategy-selection of delivery methods	8.2
	Procurement Procedures (for design, legal, const contracts)	8.3

9.0	Construction Management	
	Construction Management Plan including: <ul style="list-style-type: none"> ▪ Independent Verification and Validation ▪ Construction Inspection including Materials Testing Procedures ▪ Site Logistics Plan including Maint. Of Traffic/Ops ▪ Coord w/ Third Parties affected by construction 	9, PCMM, DBPP
	Construction Contract Administration including plan for: <ul style="list-style-type: none"> ▪ Processing shop drawings, bulletins, RFIs. ▪ Negotiating and approving change orders and claims. ▪ Establishing substantial completion and final completion. ▪ Coordination with Third Parties interested in construction. 	9, PCMM, DBPP
10.0	Start Up, Revenue Operations, Construction Close Out	
	Plan for testing and start-up	10.3
	Plan for training of staff, train operators, others	10.3
	Construction contract closeout, including obtaining warranties, testing results, operations and maintenance manuals, spare parts, etc.	9.6, PCMM Section 14
	Administrative closeout	7.1, 9.6
PMP SUB-PLANS		
11.0	Management and Technical Capacity/Capability Plan (MP 21)	2
12.0	Quality Assurance, Quality Control Plan (MP 24)	Appendix K
13.0	Safety and Security Management Plan (MP 22)	Appendix N
14.0	Real Estate Acquisition and Management Plan (MP 23)	Appendix M
15.0	Vehicle Acquisition and Management Plan (MP 38)	Future
16.0	Risk Management Plan (RCMP) (MP 40)	Appendix L
17.0	Central Valley Project Finance Plan (MP 40)	Appendix F

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Barnes, Juliana (FRA)

From: Barnes, Juliana (FRA)
Sent: Friday, February 08, 2019 2:33 PM
To: 'Malone, Desiree@HSR'
Cc: Everett, Lynn (FRA); Ouhamou, Mariam (FRA); Gilliland, Barbara(PB)@HSR; Hawkes, Ryan@HSR; mlrule@transystems.com
Subject: Feedback: Q3-18 Grant Deliverables (PMP)
Attachments: 19-02-05_2018 PMP (FRA Review).pdf; 18-05-02 PMP Methodology Memo.pdf

Hi Desi,

FRA received CHSRA's 2018 Program Management Plan (PMP), dated September 2018, on 10/01/18. After review of the deliverable, FRA has enclosed comments in the attached document to CHSRA (*ref. "19-02-05 2018 PMP (FRA Review)"*).

Thank you,

Juliana Barnes, PMP
Project Manager
Office of Program Delivery (RPD-15)
Federal Railroad Administration
801 I St., Suite 466
Sacramento, CA 95814
Cell: 916-215-9115

From: Malone, Desiree@HSR [mailto:Desiree.Malone@hsr.ca.gov]
Sent: Monday, October 01, 2018 12:44 PM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Cc: Everett, Lynn (FRA) <lynn.everett@dot.gov>; Ouhamou, Mariam (FRA) <Mariam.Ouhamou@dot.gov>; Rooney, Barbara@HSR <Barbara.Rooney@hsr.ca.gov>; Gilliland, Barbara(PB)@HSR <barbara.gilliland@hsr.ca.gov>; Hawkes, Ryan@HSR <Ryan.Hawkes@hsr.ca.gov>
Subject: Q3-18 Grant Deliverables

Hi Juliana,

Attached in this email are the following deliverables for Q3-18 - due on October 1, 2018:

- Q3-18 Transmittal #07395
- 2018 Annual Work Plan (AWP)
- 2018 Program Management Plan (PMP)
- 2018 Central Valley Project Funding Plan (CVPFP)
- CHSTP Design Manual (link to this document is located in the transmittal)

Additionally, the transmittal contains links to reexaminations loaded on the FRA-accessible SharePoint site.

Date: May 2, 2018

To: Desiree Malone (CHSRA)

From: Juliana Barnes (FRA)

CC: Lynn Everett (FRA), Joe Hedges (CHSRA)

Project Title:
California High-Speed Train (HST) Program

Award Number:
FR-HSR-0009-10-01-06

Re: **PMP Methodology**

Under the Cooperative Agreement listed above, the California High-Speed Rail Authority (CHSRA) owes FRA a deliverable entitled “Program Management Plan (PMP) Updates” each year. This memorandum describes the deliverable in more detail and provides feedback for future submissions.

Background

- In 2015, FRA provided to CHSRA Subsection (a) of Section 24403 of Title 49 of the United States Code (49 U.S.C. §24403(a)), taking effect as of January 3, 2012 that lists the basic requirements of a PMP as well as FRA’s Monitoring Procedure 20 (MP 20), which outlines how FRA’s Monitoring & Technical Assistance Contractors review a PMP.
- In 2015 and 2016, FRA provided written review comments to CHSRA for each version of the PMP. While CHSRA addressed some of FRA’s review comments over the course of two or three iterations/revisions, CHSRA did not address all of FRA’s review comments, especially the “big picture” comments that got to the issue of “how” the project was to be accomplished versus “what” was to be accomplished.
- Last year (2016), FRA held a “workshop” with CHSRA’s lead authors/preparers of the PMP to cover the purpose of the PMP and its relationship to other grant deliverables (e.g. Annual Work Plan and Central Valley Project Financial Plan).
- For these reasons, FRA has not accepted/approved a PMP since 2014.

Defining “How”

CHSRA would give FRA a good understanding (and more confidence) in its ability to manage scope, schedule, budget, and risk successfully by explaining the following:

- Contract Management
 - For each of CHSRA’s contracts (including consultants such as RDP, EEC/RC, PCM, etc.), how does CHSRA manage value and who specifically is responsible for doing so?
 - For contracts in which CHSRA pays invoices based upon milestones (e.g., deadlines), how does CHSRA ensure the quality of deliverables and who is responsible for doing so?
 - What does CHSRA do when the quality of a deliverable is less than desired? Who is involved in the determination of quality and the follow-up?
 - For contracts in which CHSRA pays invoices based upon progress (e.g., percent complete), how does CHSRA confirm the percent complete and who is responsible for doing so?

- What does CHSRA do when the percent complete is too high and who is involved in the determination of percent complete and the follow-up?
- Change Control
 - Who is responsible for managing and monitoring trends at each level?
 - An example of a contract or group of contracts at each level follows.
 - Construction Package 1
 - Construction Packages 1-4
 - Palmdale to Burbank Regional Consultant
 - All Environmental & Engineering Consultants (EEC) / Regional Consultants (RC)
 - Early Train Operator (ETO)
 - Rail Delivery Partner (RDP)
 - Program
 - What specific metrics do the people responsible for managing and monitoring trends use at each level?
 - Presumably, one of the metrics is a baseline schedule; when and for what reason does CHSRA adjust its baseline?
 - How does CHSRA measure the “finish line”? Explain the process and who is involved at each level.
 - How do the people responsible for managing and monitoring trends measure the rate of change at each level?
 - How effectively are mitigations working or how are delays causing negative feedbacks (further delays)?
 - How do the people responsible for managing and monitoring trends at each level assess the impact of one element on others?
- Staffing Resources
 - How does CHSRA allocate staff resources?
 - If the state legislature designates staffing levels, how does CHSRA go about justifying staffing levels for consideration by the state legislature? Who is involved in doing so?
 - How does CHSRA assess whether its current resources are adequate and appropriate (i.e., whether reorganization is necessary)? Who is involved in doing so?
 - How do CHSRA’s professional service contractors go about allocating and/or adjusting staff resources? Explain the process and who is involved for the RDP, the RDP’s sub-consultants, ETO, EEC/RCs, and Project & Construction Managers (PCM).
 - How does CHSRA acknowledge/confirm a professional service contractor has the appropriate staff resources? Who is involved in doing so?

CHSRA delivered the 2018 Program Management Plan (PMP), dated September 2018, to FRA on 10/01/18. FRA's review comments follow.

Program Management Plan

- Required Components:
 - ARRA Grant Amendment 6: CHSRA will update the Phase 1 Program Management Plan (PMP) and produce a Project-specific PMP addressing the management of requirements of this Project and submit it to FRA for review and approval. CHSRA will update both documents annually.
 - U.S.C. §24403(a): taking effect as of January 3, 2012; it lists the basic requirements of a PMP.
- Key FRA Review Comments from Prior Review (abbreviated below and included separately for reference [*"18-05-02 PMP Methodology Memo"*]):
 - CHSRA would give FRA a good understanding (and more confidence) in its ability to manage scope, schedule, budget, and risk successfully by explaining the following:
 - Contract Management
 - Change Control
 - Staffing Resources
- Comments:
 - FRA rejects the current version of the Program Management Plan as the document does not adequately address FRA's past review comments. In addition, as indicated in prior rejections of the Quarterly Budget and Funding Contribution Plan, the schedule and level of expenditure in the PMP do not correlate with observed levels of CHSRA achievable performance.
 - Please further develop the document in the upcoming submission by considering the following:
 - CHSRA must include a schedule and budget that aligns with observed levels of performance and provide the project delivery specifics above and covered in the included memorandum.
 - The schedule (in the form of a table with dates) and the budget (in the form of high-level cost estimates) in the PMP do not provide an explanation as to how CHSRA generated them. FRA has no way of discerning how obtainable the schedule and budget are without the specifics.
 - Developing a Gantt chart for each grant deliverable of all the prerequisite and concurrent tasks necessary to complete the deliverable would provide FRA with an understanding of how CHSRA is going to complete grant deliverables on schedule.
 - A methodology explaining the way the cost estimates were generated would provide FRA with an understanding of how CHSRA is going to complete grant deliverables on budget.
- Items of concern:
 - Risk Management (PMP, PDF pg 14): "The Authority consults with the FRA and the FRA's Risk team to ensure evaluation for project risk and managed in a collaborative way to satisfy both oversight entities."
 - The Authority invited FRA to participate in its Revision 1 exercise of the 2018 Program Baseline in July 2018. FRA attended five workshop sessions on the environmental sections and CPs 1 through 4. FRA has yet to receive information on the remaining grant's scope of work and the Baseline exercise (e.g. CP 5, RDP

costs, detailed Baseline schedule and budget, etc.). FRA is unaware of the exercise status and its results. While FRA appreciates the steps CHSRA has taken to make the process more collaborative FRA does not concur these efforts have “satisfied” FRA as an oversight entity without a full understanding of the process and the grant’s scope of work.

- Schedule (PMP, PDF pg 22): “it indicates that track work (i.e. CP 5 or TS 1) would start on the FCS in 2021 with substantial completion in December 2023.”
 - This calls into question whether CHSRA would finish track work prior to end of the period of performance as no additional detail is provided.
- Schedule Management (PMP, PDF pg 84): “For civil projects, the DB contractor must submit a project-specific baseline schedule that is approved by the Authority and the PCM. The Authority approves the baseline and it becomes the ‘approved original baseline schedule.’ This baseline schedule is the basis for monitoring the DB contractor’s progress during the performance of the work.”
 - Not all Design-Builder (DB) approved baseline schedules align with the Program Baseline schedule. How does CHSRA then monitor DB progress? What effort is being made to align the contractual completion date, the DB schedule, and the Program Baseline? When will all schedules/completion dates align?
- Change Management: The Cooperative Agreement states “FRA will have the opportunity to review and comment on any changes orders proposed during the construction process that require consideration by the change control committee” (ARRA Amendment 6, PDF pg 61).
 - The PMP does not address how the transformation of the Change Control Committee into the Business Oversight Committee incorporates FRA in the change management process as required by the grant agreement. How is the new process reconciled with the agreement?